

**SENIOR LABOUR INSPECTORS COMMITTEE**

**EUROPEAN SESSION ON ASBESTOS: JUNE – DECEMBER 2000**

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## **SENIOR LABOUR INSPECTORS COMMITTEE**

### **EUROPEAN SESSION ON ASBESTOS: JUNE – DECEMBER 2000**

#### **INTRODUCTION**

The five objectives for the Session were laid down at a meeting in Luxembourg on 22 October 1999:

1. To determine the most significant health and safety issues of the risks associated with asbestos,
2. To identify best practice or most useful ways of improving health and safety in relation to the above risks,
3. To outline the effect of European Community health and safety legislation on prevention of occupational diseases caused by exposure to asbestos and on inspection activities,
4. To recommend ways and means to improve the health and safety for people working in situations where asbestos might occur,
5. To prepare a training module (guidelines) for labour inspectors on dealing with asbestos

This document contains in Section 1 the consolidated report of the SLIC Session on asbestos, and in Section 2 the reports from the four national sessions held during June – December 2000 involving Sweden, Spain, the UK and France; Sections 1 and 2 summarise the conclusions of the Session in relation to objectives 1-4. Section 3, the report of the “Training” Working Group, fulfils objective 5 of the Session’s remit.

The Session examined some issues by dividing members into a number of Working Groups; the outcome of most of these discussions is incorporated into the main text, but it was felt that the detailed report of the Working Group on the Industrial Use of Asbestos in Plant and Equipment was a valuable reference source, so it has been included in full as Annex 1 to Section 1. Similarly, it was agreed that there was broader interest in the French approach to compensation and the monitoring of workers, so a description of those aspects is set out in Annex 2 to Section 1.

## **SECTION 1: CONSOLIDATED REPORT**

The delegates considered that it would be helpful to prepare a consolidated report that analysed the information presented during the national sessions and the discussions that took place, in terms of the objectives set for the session. However, objective 2 and objective 4 were so closely related that the delegates decided to group both objectives together under objective 2.

### **Objective 1: Significant health and safety issues of the risks associated with asbestos.**

#### 1. Asbestos-related ill health

The starting point for a discussion of the health and safety risks associated with the use of, and exposure to, asbestos is the incidence of diseases known to be associated with the exposure. Three distinct diseases are dealt with in this report of which two are quite specifically associated with this exposure (asbestosis and mesothelioma of the pleura and peritoneum) and one also associated with other exposures (lung cancer).

The occurrence of asbestosis and a high incidence of the disease are associated with high levels of exposure to asbestos and with amphibole fibres considered more potent than chrysotile. Such high levels of exposure are not now likely to exist in the four countries and have not existed for some decades in those countries that banned or restricted asbestos use decades ago. Accordingly the number of cases of asbestosis is declining and in some countries new cases of this disease hardly ever occur. Specific diagnostic criteria, adequate methodology and facilities for detection of asbestosis exist in all countries. However, surveillance that focuses on asbestosis might become less of an issue in those countries where asbestos use was restricted at an early stage and in the future also in the remaining countries.

The national rates of mesotheliomas, on the other hand, have rapidly increased in all four countries during the last couple of decades although the incidence has been firmly monitored and reacted upon only in two of them until quite recently. There is a long latency period between the time of exposure and the occurrence of the malignant disease and although occupational exposure has taken place during a large part of the 20<sup>th</sup> century the rise in incidence rates among men did not start until the 1970s (in females the rise is far more modest or in some countries not existing). In one of the countries where the rapid increase of importation and use is reported to have started more recently than in the others, the increase in incidence also seems to have started later. Rather low levels of exposure might be sufficient to cause the disease, in particular in the pleura. Although it is agreed that different types of asbestos produce a different risk of mesothelioma there is still a debate about the role of chrysotile in this context. This is particularly the case in those countries that mine and export chrysotile and in those where continued manufacturing of asbestos-containing products take place. However France emphasised the outcome of the WTO case involving Canada and France, which recognised the carcinogenicity of chrysotile in relation to mesothelioma. Directive 99/77 EC includes chrysotile in the prohibition to use asbestos products.

There are difficulties in diagnosing mesotheliomas (in particular the peritoneal location) and accordingly the rate of misclassification might be high and particularly so when cause of death data are used and not incidence data from cancer registries or other clinical incidence reporting based on good pathological data. As treatment success at the present time is poor

and the development from diagnosis to death is rapid, the diagnosis of mesothelioma is not a principal focus of medical surveillance programmes for the individual worker.

There is an increased incidence of lung cancer in asbestos-exposed populations and in general a higher incidence is associated with higher exposure. There are several other factors causing lung cancer and in particular tobacco smoking interferes with the risk for the asbestos-exposed. Many assessments indicate that the number of excess lung cancers due to asbestos exposure is at least of the same magnitude (and perhaps twice as high) as the number of mesotheliomas in the exposed populations. The time between exposure and occurrence of lung cancer can be long although not as long as for mesothelioma. There are indications that the lung cancer risk declines a decade or two after cessation of exposure (like for tobacco smoking) and if this is the case a medical surveillance programme focused at lung cancer might be appropriate until two to three decades have passed since prohibition of asbestos use but less so later. If lung cancer is detected earlier there is a higher likelihood of successful treatment and although early detection of lung cancer so far has met with limited success all attempts should be made to identify and apply the most up-to-date methods for early detection like spiral CT for populations at high risk.

The nature of the diseases caused by asbestos exposure is such that a long interval passes between the time of work and exposure and the occurrence of disease. This fact should have an impact on the design of the medical surveillance programmes. Although the focus of the medical surveillance programmes at present applied in the member countries is detection of pre-existing medical conditions that increase the risk for asbestos-related morbidity a continued surveillance after cessation of exposure is especially relevant for this group of workers. Such post-employment surveillance is not called for in present rules nor have funding arrangements for such surveillance been established in most member countries. In one of the participating countries, France, a consensus conference organised at the request of the Ministry and including in addition to medical experts, social security and asbestos sufferers' association representatives, resulted in a post-occupation medical monitoring system being put in place to observe workers previously exposed to asbestos (see Annex 2).

## 2. Historical trends in importation and use

The useful properties of asbestos have been known and exploited on a small scale for over 2000 years. However it was only towards the end of the nineteenth century that the industrial use of asbestos began to increase substantially and by the start of the twentieth century the first cases of asbestosis were beginning to be identified. Asbestos was mined in many parts of the world, including Europe, but most of the asbestos used in Europe was imported – for example from Russia, Canada and South Africa. Asbestos is capable of being spun and woven into cloth and can be incorporated into a wide range of other substances such as cement, plastics, and rubber to make useful products and materials for both industrial/commercial and domestic use. In the first half of the twentieth century asbestos largely went into finished products but during the second half of the century the increasing use of asbestos for the insulation of plant and equipment and for fire-proofing buildings saw importation and use rise to unprecedented levels.

In the four member states that took part in the asbestos session, importation figures reveal that major increases began at different times but that the times of the peak levels of importation differ less. Total weights of asbestos differ greatly but importation per head of population less so. In Sweden and the United Kingdom, annual importation peaked in the 1960s at around

20,000te and 180,000te respectively; in France importation peaked in the 1970s at around 160,000te; in Spain production peaked at around 5,000,000te in the 1970s, but it is not clear whether this figure relates to finished products or to raw asbestos. Although there had been earlier legislation, the progressive restriction and prohibition of asbestos use began seriously in Sweden, the UK and France in the 1970s, and continued through the 1980s and 90s so that by the end of the twentieth century the use of asbestos in all three countries was negligible. The use of raw asbestos still continues albeit at a much reduced level in Spain, although it is planned to eliminate this by the Directive deadline of 1 January 2005. Where such facilities still exist, the control of exposure in manufacturing establishments and ending such production without unnecessary delay, is of paramount importance in all EU member states and candidate countries.

### 3. Trends in exposure concerns

The early concerns about asbestosis arose in connection with exposure to the fibre during the processing and manufacture of the material. As awareness of the dangers of asbestos developed, so did concerns with exposure during the mining of the raw material. As the large scale use of the material for insulation and fireproofing grew, the focus of exposure concerns moved towards those carrying out this work, and to those having to remove such material installed in earlier times. As manufacturing and new use has declined, the main concerns about exposure now rest with workers removing asbestos, and with those who encounter asbestos as part of their normal work, either on buildings or on plant and equipment where asbestos has been used widely in the past. The scale of use on plant and equipment is often not understood, and a Working Group of the main Session examined this aspect in some detail. Their report is at Annex 1 to this section of the report.

It should also be recognised that there has often been a strong element of public concern in many asbestos issues, whether it be the people living in the vicinity of asbestos mines, the families of asbestos manufacturing workers or ladders, or those concerned with the presence of asbestos in their workplaces, homes or schools. Control of exposure when dealing with or otherwise being in contact with previously installed asbestos in buildings is accordingly a major issue in all member countries.

### 4. Awareness and knowledge

The awareness of the potential existence of a problem has got to be increased in society as a whole as well as among the major actors like those who own and/or manage buildings, structures and equipment containing asbestos and those who will remove and dispose of it. Mechanisms to facilitate the knowledge about where the asbestos exists have to be developed. Development of technology for safe demolition and handling of asbestos as well as for optimal personal protective equipment is crucial. To this can be added legislative measures like reporting and permit to do such work, licensing of the contractors who would be involved and the oversight and inspection by inspecting authorities. The history of a long-lasting and high volume use of asbestos in industrial products, buildings and infrastructure establishments in the majority of candidate countries applying for membership of the European Union calls for special awareness and actions to be taken as these countries become full members.

### 5. The legislative framework

The principal parts of the legislative framework have been established through the relevant community directives and their implementation in member states, but the session has

identified a number of important issues that may need to be considered further in the continuing debate about asbestos control. Member states participating in the Session emphasised the importance of risk assessment as the core of the control measures that would minimise exposure and the value of planning properly the methods of removal and control.

The most important legislative issue is probably that of the degree of statutory control which should be exercised over the expertise of the main participants in asbestos work. Some member states have systems of certifying or licensing asbestos removal contractors – in Great Britain, for example, the system is operated and administered by inspectors of the Health and Safety Executive; in France the system is operated by accredited bodies, who use a list of minimal requirements validated by the administration in cooperation with the labour inspectorate. Related to this is the question of the training and certification (or at least the identification) of asbestos workers and the level of knowledge and awareness that this implies; the Session was aware that another exercise was being carried out on behalf of the Commission to examine the training of workers, and endorsed the need for greater consistency of approach. Both these issues are given added importance by the likelihood of companies and workers operating across member states.

The question of the licensing or certification of the other important groups of participants -- laboratories and consultants – also needs to be considered. Related to the activities of laboratories, another important area that is not covered comprehensively in the legislative framework is the practice of issuing clearance certificates when a job has been completed.

Legislation dealing with the management of asbestos in buildings is already in place in France and is being developed in others. The Session was aware that identifying the duty-holders was not always a simple task and depended upon the property laws in member states. However, the Session recognised that with the focus of concern now switching to maintenance workers and others exposed to existing asbestos that the duties of owners or managers of buildings needed to be built into the legislative framework of all member states.

## 6. Enforcement

All participants in the Session considered the question of the enforcement of the relevant law to be an important issue. Employer and Trades Union representatives wished to see an increased labour inspectorate resource allocated to asbestos inspection to help detect and control bad practice and bad contractors.

The Session also recognised that enforcement in relation to asbestos brought a number of problems, such as the identification of active sites (even with a notification system in place), the collection of evidence in difficult environments, and the often casual nature of employment in the industry.

## 7. Operational priorities

During the Session, each country identified a number of issues that they considered to be priorities in establishing higher standards of health and safety on asbestos removal sites. For example, the question of working in hot environments was an issue in each member state, even those which benefited from a Mediterranean climate. The issue was not just the impact of the hot environment on the ability to wear protective clothing and respiratory protective equipment, but also the physical strain imposed on the body of the worker. In Britain, the Health and Safety Executive is concentrating in its current programme on uncontrolled dry

stripping of asbestos, the unjustified use of power tools, and the face fit testing of respirators. The structured training of asbestos operatives has received particular attention in Sweden and France, and in France much effort has been put in to developing a rounded whole-state approach to asbestos, which is reflected in the further information on compensation issues given below.

The Session identified a wide range of other issues some of which are dealt with under objectives 2/4 or are covered in the national reports, such as the proper disposal of asbestos waste; the design and use of decontamination units; the suitability of protective clothing and respiratory protective equipment; and the importance of tripartite working. Overall, the Session emphasises that although much knowledge had been accumulated and progress made in controlling the risks from asbestos, there was still much to be done before the risks from asbestos were minimised in all member states and candidate countries.

## 8. Compensation issues

Special emphasis was put on compensation for asbestos victims in the French session. In France, compensation is understood to mean all the three measures geared to treating justly workers who have been exposed to asbestos, i.e.:

- compensation for occupational diseases
- early retirement of workers who have been exposed to asbestos regardless of health status
- setting up of a fund for compensating for physical and mental damage suffered by persons with asbestos related disease.

A detailed account of these measures is to be found as Annex 2 to this section of the report and in the French national report.

### **Objectives 2 and 4: Identification of best practice and recommended actions and measures to improve the health and safety of those who may be affected by work with asbestos.**

The working sessions considered a wide range of issues and many examples of good and bad practice. The following recommendations to improve the health and safety of people working in the asbestos industry were considered the most important. It should be recognised that a number of these recommendations may also help reduce risks and improve health in the public environment.

#### 1. Manufacture of asbestos products

In Spain, and possibly other Member States, there are still companies manufacturing asbestos products. Although Commission Directive 1999/77/EC banning the use of asbestos does not come into force until at the latest, 1 January 2005, the Session considered that Member States should make every effort to eliminate the new use of asbestos as soon as possible. Spain is making significant progress in this direction, as, even during the period when the sessions were taking place, the number of premises using asbestos decreased.

#### 2. Risk assessment

The requirements on risk assessment enshrined in the Framework Directive and in the legislation of Member States are particularly important in the control and management of

asbestos risks. The methodology of hazard identification, consideration of the populations at risk, and analysis of the likelihood and extent of harm is essential to the elimination or minimising of risk. The application of the General Principles of Prevention and Protection also help ensure that control measures are directed in the most effective way. Risk assessment is essential not only to identify situations of high risk where stringent precautions are necessary, but also to identify situations of minimal risk to which resources might otherwise be misdirected. It is important for Member States to be able to manage and respond to asbestos risks in an appropriate way.

### 3. Enforcement of the law

The need for clear law, effectively enforced, was emphasised during all the workshops. A number of common problems were also identified, such as the difficulties in identifying where work was taking place; the sub-contracting of work, and the use of 'labour only', or temporary workers; the availability of expert evidence; and the appropriate allocation of labour inspector resources to this area of their work. The Session acknowledged these problems and recommended closer cooperation between the enforcing authorities particularly on employment issues, and particularly as removal contractors were now operating Europe-wide.

### 4. Management of asbestos in buildings and on plant and equipment

As the new use of asbestos has declined, the focus on risk has switched to the removal of asbestos already installed in buildings and on plant and equipment.

The first priority is to tackle asbestos in buildings and the Session recommends, if controls are not in place, nor planned, that Member States take action to ensure that asbestos in buildings is properly managed and controlled. Proper management depends in the first place upon the clear identification in the law of who is responsible for management of the asbestos, then upon accurate identification of the location, type and nature of the asbestos and then the creation of management systems to ensure that the risk is assessed and appropriate action taken. Depending on the nature and condition of the asbestos, this action might range from immediate removal of friable asbestos in a sensitive area, through to marking or registration of well-protected asbestos and the establishment of systems of work to ensure that the condition of the asbestos is monitored and that any future activities such as maintenance or refurbishment are carried out safely.

The management of asbestos on plant and equipment (for example on boilers) can also be important and the work of one of the Session sub-groups (see Annex 1) demonstrates the wide range of past uses of asbestos and the sometimes unexpected locations in which it can be discovered. However the Session considered that existing legislative controls were generally more able to deal with this problem than that of asbestos in buildings and so it was not such a high priority for action. Nevertheless, the Session recommends that this issue is fully covered and given appropriate weight when the Labour Inspectorates and the Social Partners produce guidance or recommendations on the control of asbestos.

The volume of asbestos used and installed in many of the candidate countries applying for membership in the European Community is such that special attention needs to be given to this issue as these countries are preparing for and becoming full members.

## 5. Licensing and certification

The Session learned of the legal controls in place in Member States to require the notification of asbestos work to the Labour Inspectorate and in some cases for the formal approval of the planned method of work by the Inspectorate. However, some Member States go beyond this and require the licensing or certification of asbestos removal contractors to ensure that they are competent to carry out the work. Because of the critical importance of the management competence of contractors, the Session recommends that all Member States who do not have such a system, work towards the implementation of a scheme which permits asbestos work to be carried out only by contractors whose competency in asbestos work has been assessed by an independent body - either the Labour Inspectorate, or another part of the State system for certification.

## 6. Methods of removal

In each country the Session saw many and varied examples of the past use of asbestos, and learned of the approaches taken to its removal. The Session considers it vital that risk assessment techniques are properly applied to determine the safest method of removal. The Session recommends for asbestos lagging, that effective dust suppression must be achieved by controlled wet removal using multi-needle injection systems and wetting agents. Such work will still need to be carried out in a proper enclosure and planned to take into account factors such as gravity, damaged areas and the problems of over-wetting. Steps should also be taken to avoid the unnecessary use of powered cutting tools, which can generate high dust levels.

For small lagging jobs, and other materials such as flooring tiles, asbestos insulating board, and textured wall coatings a range of techniques can be used to control dust levels, such as wrapping with impervious sheeting, the use of 'glove bags', surface wetting and local exhaust ventilation, applied in an appropriate manner. Again, proper planning of such work is vital.

The Session also considered that shared experience of effective removal techniques used in Member States was very important and recommends that the Commission investigate ways of gathering and publicising the innovative work that is taking place.

## 7. Personal protective equipment including respiratory protective equipment

It is important that comfortable and effective overalls are provided for all workers engaged in asbestos removal. In most of the operations seen by the Session, disposable overalls were worn, sometimes with tape to assist close seals at the ankles, wrists and face. However, washable overalls are still used, and their greater strength can be helpful when working in confined areas - of course proper arrangements have to be made for the cleaning of such overalls.

Respiratory protection was an important feature in all the sessions. France advocates the use of air-line breathing apparatus, based on research carried out on a number of construction sites; other Member States take the view that other forms of respiratory protection can be just as effective, and may be more practicable in confined areas. There was in addition, support from some workers' representatives for a move towards greater use of air-line equipment. The Session recommends that the current knowledge on the effectiveness and practicability of respiratory protection is reviewed, and the results taken into account in future guidance.

During the British Session, a telling demonstration was given of the importance of face-fit testing of respirators. The face-fit test matches the face mask size and shape to the wearer's facial characteristics, and assists in the selection of the correct size and model of respirator which should be comfortable for the wearer. It does not, however, give a measure of the workplace protection factor. The Session concluded that this form of test was an important factor in worker protection and recommends that those Member States who do not at present carry out face-fit testing should investigate its adoption.

#### 8. Working patterns and physiological stress, including work in hot environments

In all countries, references were made to the physical strains placed upon workers by carrying out heavy, often awkward work, while dressed in close-fitting protective clothing and wearing respiratory protective equipment. This is an aspect of asbestos work that is too often neglected when efforts are made to protect the worker against asbestos dust. But neglect of these issues can also have an impact on the effectiveness of asbestos protection. The Session recommends that the physiological demands upon workers carrying out particular operations are taken into account in the risk assessment, and that this is reflected in the agreed working patterns, in terms of, for example, shift lengths, breaks, and number of workers.

A specific issue for some Member States is work in hot environments, such as boilerhouses, and the additional physical stresses that this imposes. Although delegates had differing views, this appears to be more of a problem in northern areas, where the temperature differences between normal work and the hot environment can be significant. In southern areas, what would be regarded in the north as a hot environment may be quite close to the normal working temperature and the workers are more acclimatised to it, but even here there can be problems. In countries where this is an issue, the Session recommends that whenever possible, the heat-producing plant is turned off or its output minimised, and where this cannot be done that an enhanced air management system is provided and the working patterns adjusted to reflect the greater physical demands.

#### 9. Epidemiology

Each country examined its knowledge of the epidemiological background of asbestos-related disease in its own population. The Session recognised that the epidemiological pattern in Member States reflected the individual use and exposure patterns and acknowledged that in each country there were difficulties in collecting and analysing asbestos disease statistics. Nevertheless, the Session considered that the overall pattern across Europe was clear, and that when Member States did not have full epidemiological evidence relating to their own population, they should recognise the weight of evidence from other data sources, and act to control asbestos exposure. This might particularly be the case for end-user populations, which not until rather recently were discovered to constitute a significant part of the cases of asbestos related disease in some Member Countries. Also the Session recommends further moves to bring consistency and accuracy to mesothelioma registration; keeping a record of mesothelioma cases (and asbestosis cases) is a requirement of the Directive on the protection of workers from asbestos risks. This issue is discussed under Objective 3 below.

#### 10. Medical surveillance

Medical surveillance, which was another common theme in each country, is principally directed towards establishing the suitability of persons to work with asbestos, but also enables

advice and education to be provided and helps provide epidemiological data. However the detailed requirements on medical surveillance vary significantly between Member States, and the potential impact also varies. In some countries the examining doctor can advise workers on their fitness, whereas in others the doctor can prevent a person considered to be particularly susceptible to asbestos-related disease being employed. In some countries the focus of the surveillance is very much on asbestos, whereas in others the surveillance has a broader social focus. The Session recommends that each Member State retains the discretion to structure its approach to medical surveillance on the basis of its national need which will include factors such as the overall approach to occupational medicine, the levels and pattern of past exposure and therefore the potential incidence levels, and the relationship with compensation systems.

There was one specific issue that the Session identified and believes needs action across Member States. In some countries, medical surveillance is continued after exposure to asbestos stops, but in others, surveillance ceases at this point. The Session recommends that all Member States should introduce post-exposure medical surveillance for asbestos workers. The focus of the surveillance would be different - it would no longer examine suitability for asbestos work, but would concentrate on monitoring the long-term health of the worker, and giving advice on maintaining good health. There would also be potential gains in epidemiological evidence.

The Session also considered that it would be worth examining whether those indirectly affected by work exposure (for example the wives or husbands of asbestos workers) could also be brought within the scope of medical surveillance, if they were identified as running risk to contract an asbestos related disease.

#### 11. Competence of laboratories, consultants etc

It was recognised that not only the competence of contractors as mentioned in item 5 above should be assessed by an independent body but that the competence of laboratories and other consultants assisting in the risk assessment process or monitoring the performance of removal should also be licensed or certified. The Session assumed that national systems were in place for ascertaining the necessary competence of occupational health physicians involved in the prevention and surveillance in asbestos related work.

#### 12. Training

Session members participated in the valuable work of the Training Group and the Session supports and recommends the Group's proposals for a core generic package of training for inspectors. There was some debate within the Session about the level of detail to be included in the package, with some Member States preferring a more prescriptive approach, but on balance the Session believed that the generic approach, which allowed countries the discretion to adjust the core requirements to their own particular approaches and institutions, was preferable.

The Session was also made aware of the work taking place in the EC Working Group on the training of asbestos workers and recommends that the Session (and/or SLIC?) has the opportunity to be consulted on this work in the light of the information gathered during the Session workshops.

### 13. Disposal of waste

Although often outwith the competence of labour inspectorates, the Session heard a number of interesting presentations on how asbestos waste was managed and controlled in Member States and supported the need for controlled disposal. A presentation during the French session demonstrated a vitrification technique that would be of wider interest.

#### **Objective 3: The impact of the Community safety and health legislation on asbestos on occupational related diseases and inspection activities.**

This title includes two perspectives. One is whether national inspection and other legislative activities have been influenced upon by the community legislation. The other is to what extent the incidence of occupationally related disease due to asbestos has shown decline thanks to community legislation.

Of these two perspectives the national reports are mainly dealing with the national implementation of the community legislation and reference is made to the section "Objective 3" in the four national reports.

Although the history of European Community legislation to control asbestos exposure is comparatively short, decline has been seen in diseases strongly related to higher exposures and with shorter latency periods like asbestosis in member countries with early restrictions in use. That should be promising news to countries with more recent restrictions and thus still high rates of such disease. Even the lung cancer rates might be declining in countries with a long history of asbestos prohibition, which would be consistent with thoughts of asbestos as a promoter rather than initiator. For mesotheliomas, however, there is no immediate hope for decline; several European reports forecast that high numbers and rates will continue for another decade or two.

Of major concern in this respect is that so many countries do not possess diagnostic and reporting systems that enable national comprehensive statistics for a disease so strongly related to a specific exposure/contamination as mesothelioma. Improvement is needed in the quality and comprehensiveness of reporting of this disease in the member countries. Registries of all detected mesotheliomas would be a valuable tool in order both to indicate the severity of asbestos caused morbidity and death and in the longer perspective to monitor a decline as the result of the preventive measures taken. Unfortunately, the experience from the four countries involved in the Session illustrates how data available in the 70s led to restrictions in use in some countries but were not sufficiently taken into account in other countries until domestic data with similar findings became available a decade or two later. To avoid future misjudgements due to lack of domestic data either the domestic registration has got to be improved or a common European approach has to be taken where data retrieved in countries where monitoring can more easily take place is used on a pan-European level.

## Section 1: Annex 1

### **Industrial Use of Asbestos in Plant and Equipment**

Notes taken during the workshop on Asbestos in the Industrial Sector, Paris 15<sup>th</sup> of december 2000. *Version 3.*

Participants: Asunción Calleja, Enrique Gonzales, Nigel Bryson, Bo Tengberg, Lars D Henschen.

**Subject: Removal of asbestos in industrial plant & equipment, (IPE) – including motors, trains for subways and railways and transport vehicles.** Buildings and parts of buildings are excluded.

1. Identify industrial sectors where asbestos may have been used. Produce a list of sectors and uses of asbestos in Europe. (Appendix 1 to this Annex is a list of the known occurrence of asbestos in plant and equipment in Sweden). Write Guidelines for the different industrial sectors, to aid the identification of asbestos in different IPE. The guidelines ought to be written by experts, and they should be published by the national competent authorities.

The most common industrial uses are

- as friction elements (production/maintenance/repair)
- in glass manufacturing
- as gaskets and fittings
- as insulation on tubes and in electric cables
- as textile materials in use
- other examples

1. Don't forget carpenters, electricians, plumbers, maintenance workers etc.; waste deposits (permanent and temporary) and transportation of asbestos waste.
1. All identified IPE, containing asbestos in any form, should be marked with a **label** with a warning that there is asbestos in the IPE. There should be a declaration following the IPE, with information on where the asbestos is placed in the IPE, and in what form. The label and the declaration are to follow the IPE on change of ownership. If the IPE or a part of it that contains asbestos is to be sent away as refuse or waste, it should be treated as asbestos waste unless the asbestos is removed in an approved manner.
1. Every work-place, where there are IPE with an identified content of asbestos, should have a layout showing where at the site those IPE are situated.
1. For every IPE with an identified content of asbestos, there should be a documented risk assessment made in collaboration between the employer and the employees and/or their representatives in the undertaking and/or establishment. The risk assessment should clarify if the normal use of the IPE can cause such a hazardous exposure to asbestos that respiratory protective equipment (RPE) has to be used. *In that case, the RPE supplied by the employer should be the best available on the market.*
1. Where it is technically possible, the asbestos should be removed from every IPE with an identified content of asbestos, or the IPE exchanged for an asbestosfree IPE. Where this is

not yet possible, the employer should produce a plan of action (or intent) presenting, for all IPE with an identified content of asbestos, a timetable for the removal of the asbestos in the IPE, or for the removal of the IPE.

1. The employer should have a system for providing a "Permit to work", before maintenance or repair work is allowed on an IPE with an identified content of asbestos. The permit to work should contain written instructions for handling and safety. The instructions should be written jointly in collaboration between the employer and the employees and/or their representatives in the undertaking and/or establishment.
1. There is a need of a national/European legislation to establish that all asbestos present in IPEs has to be identified, and that all IPEs containing asbestos should be labeled. Requirements on the information on the label and its design should be clarified in the regulations. There is also a need of common European rules for RPE in asbestos work.

Notes taken by  
Lars D Henschen

### **Appendix to Annex 1: Industrial use of Asbestos in plants and equipment in Sweden – including train- and subway engines, cars and wagons.**

A compiled list over areas of **USES**, *industrial sectors* and applications. Buildings and parts of buildings are excluded.

### **INSULATION AGAINST HEAT, EMISSION**

*Steelworks, foundries, glass manufacture, heating plants, coke-ovens, paper mills, steam generators*

Insulation around boilers, furnaces, heating ovens, holding ovens, ladles in the form of flocked asbestos, as asbestos felt, as yarns, twines and ropes, as plates, as asbestos paper and in fireproof bricks. In foundry ladles, in moulds for casting steel and in mouthpieces on foundry moulding machines, as coating on rollers. As moveable screens to protect against heat sources. Insulation in ducts for the funneling of melted metals. Ropes as fittings around hatches and doors in ovens and furnaces. Bearing spiral gaskets in steam generators.

*Bakeries and pizza shops*

Insulation around ovens

*Laboratories*

Heating mantles, packing box in autoclaves

*Aircraft production*

**Insulation around jet-engines including afterburner chambers**

### **INSULATION AGAINST ELECTRIC SPARKS AND ARCS**

*All types of electric installations*

Screens against high voltage, Some electric cables have been insulated with asbestos.

### *Trains and subways*

Asbestos cement plates in some cupboards on the underside of the wagon, where most of the electric connections are situated

## **FRICTION ELEMENTS**

**Brakecheeks and clutches on workshop engines and machines (presses, traverses, cranes, lifts etc), on axles and on train and subway cars and wagons and on vehicles (lorries and cars).**

## **GASKETS, JOINTS, WASHERS AND FITTINGS**

### *Laboratories*

Gaskets on gas-cromatographs, atomic absorption analysis apparatus etc.

### *Electric motors*

Gaskets between the rotating axle and the cover, and as static joints between non-moveable parts.

### *Vehicle engines*

As washers in the gasoline system of cars. Gaskets (and in the form of twine as fittings) between engine exhaust ports and the exhaust manifold.

### *Subway trains*

As asbestoscontaining sealants or fittings around the hatches and doors in the cupboards in the drivers cabin. As gaskets in the heating elements below the passengers seats, as gaskets in the heating package in the ceiling.

### *Chemical industry*

Gaskets and joints between pumps, tubes and valves for handling aggressive and flammable substances (Klingerit). Gaskets between rotating axles and the cover, and as static joints between non-moving parts.

In water pumps as asbestos twine or ropes saturated with graphite in order to seal the space between the axle and the pump body.

As joints between the tank and the manhole cover.

## **TOOLS**

### *Laboratories*

Mouth of laboratory tongs, asbestos nets, clamps for holding hot laboratory vessels

## **FIRE RETARDENTS AND NOISE REDUCTION**

### *Railway and subway cars, wagons and engines, ships (engine rooms, gun decks etc)*

Insulation as flocked asbestos in/on roofs/ ceilings, walls, floors, bulkheads and decks.

As asbestoslaminated sheets on the walls of subway wagons.  
Insulation on the engines, on the exhaust manifolds and ports, on pipes for fuel.  
Under railway and subway cars and wagons as filler in the anti-corrosive layer of bitumen on the underside of the vehicle.

*Fireproof doors*

## **FIRE EXTINGUISHING EQUIPMENT**

*Workshops*

Gloves used when welding

*All sectors*

Blankets for extinguishing fire in clothes and/or people

## **SAFETY EQUIPMENT**

*Steelworks, foundries, forging, coke-ovens, coke blast furnaces*

Gloves, aprons, clothes, overalls, boots

## **FILTERMEDIA**

*Breweries, chemical industry, pharmaceutical industry*

Filters to remove yeast cells and other solid impurities

## **FLEGMATISATION, ADDITIVES FOR**

*Containers for acetylene gas*

1-11% of asbestos in silica earth, chalk and cement

## **GLUES, VARNISHES AND PAINTS ETC**

*Aircraft manufacture*

Strengthening additives in shims between the male and the female part of the wings prior to riveting.

*Cars, lorries and buses*

Mixed with bitumen as an anticorrosive layer.

*Other uses*

Tixotropic additives in varnishes and paints. As strengthening filler in plaster, asphalt, diverse plastic products.

## **WATER AND VENTILATION, TUBES AND PIPES**

Tubes and pipes for water under pressure, for sewage and for other fluids. As insulation against condensation on cold-water pipes.

In ventilating ducts as anti-condensation filler (layer), and in rotating heat exchangers as the exchange medium.

## **LAUNDRIES**

Beneath the cover in steam mangles.

## **NUCLEAR PLANTS**

**Plain bearing for nuclear fuel containers.**

Lars D Henschen

## **Section 1: Annex 2**

### **COMPENSATION IN FRANCE**

In France, compensation is understood to mean all the three measures geared to treating justly workers who have been exposed to asbestos, i.e.:

- compensation for occupational diseases, i.e. payment of both the medical treatment and income maintenance and invalidity benefits in respect of occupational diseases;
- early retirement of workers who have been exposed to asbestos (even if they are not suffering from occupational diseases);
- setting up of a fund for compensating for physical and mental damage suffered by persons with asbestos-related diseases.

#### ***Compensation for asbestos-related occupational diseases***

In France, the system for recognising occupational diseases is based on an “assumption of attributability” where the conditions in which an illness is contracted match those described in the schedules of occupational diseases.

These tables indicate the types of activity which may cause a specific disease, the minimum exposure required for automatic recognition and the period following the end of exposure during which recognition of occupational exposure can be applied for.

In 1996, the tables for compensating for asbestos-related occupational diseases were radically changed to include cancer caused by asbestos. In 2000, more changes were made to include situations where the onset of the disease was extremely late and to revise the exposure periods.

Lung cancer can therefore now be recognised as an occupational disease following exposure for over 10 years in a restricted number of working situations which are set out in a list. By the same token, mesothelioma and all forms of asbestos-related cancer are now recognised as being of occupational origin up to 40 years after occupational exposure has ended.

Moreover, in 1999, the conditions for access to the system for recognising occupational diseases were simplified for the victims. Finally, as an exceptional measure, it is possible for individual files to be reviewed up to the end of the year 2001. All of these measures will help workers to gain access to the system of compensation for occupational diseases.

#### ***Early retirement for workers exposed to asbestos***

At the end of 1998, the French Government had the principle of early retirement for workers who had been exposed to asbestos adopted by Parliament.

The reason for this is that the number of serious asbestos-related diseases in the relevant sectors has unfortunately been found to reduce life expectancy. The aim is therefore to offer such workers, even if they are not suffering from asbestos-related diseases, the option of stopping work before retirement age (60).

To this end, workers having been engaged in activities where occupational exposure to asbestos was particularly severe are entitled to early retirement benefit for a maximum period of a third of the duration of their exposure.

In order to avoid the problems that workers are currently encountering during the procedure for recognising occupational diseases in providing evidence of exposure which often goes back many years, lists of establishments which concentrated on activities involving exposure to asbestos are being drawn up by the administration and incorporated in the text of the regulations. These lists state how long asbestos was used for. In order to take advantage of

this arrangement, workers must merely prove by showing their payslip that they belonged to the enterprise during the dates in the regulations.

The principle was applied first to workers who had manufactured materials containing asbestos (mainly bulk products), then, at the end of 1999, to those engaged in spraying asbestos and installing thermal insulation, and finally to dockers and workers with jobs involving high exposure levels in the ship building and repair industries.

Two types of problems arise when the measure is being implemented:

- Drawing up the list of **establishments and reference periods** represents an enormous amount of administrative work because it is extremely difficult to reconstruct the history of enterprises and the list must therefore constantly be corrected or added to.
- The second problem relates to the **scope of the measure**.

Repeated demands have been made for this measure to be extended to other sectors of activity such as steelmaking, building and public works or car repair industries and it is very difficult to establish a level of exposure to qualify for it.

The spirit of the law must, of course, be respected. The activities qualifying for the measure must be selected on the basis of the frequency of asbestos-related diseases in the sector. That is why it cannot be extended to everybody exposed to asbestos, irrespective of the level of exposure. The only effect of this would be to make it easier to take early retirement or to provide a pretext for redundancy programmes.

As at 30 September 2000, 2 692 persons were receiving this benefit in France. These figures will certainly increase very appreciably, since the number of applications submitted to regional health insurance funds has gone up from 3 813 on 30 April 2000 to 6 665 on 30 September, no doubt as a result of the first list of establishments in the ship building and the repair industries being published.

### *Setting up of a compensation fund*

**The French Government has also taken exceptional measures which are commensurate with the severity of the asbestos problem.** In order to ensure that the physical and mental damage suffered by persons with serious asbestos-related diseases is fully compensated, a Compensation Fund for Asbestos Sufferers has been set up which is to be up and running by summer 2001. The fund, which will total an estimated FF 2 000 million (approximately 300 million euros) in 2001, is underwritten by the employers in respect of the occupational risk involved.

**This fund will enable all victims of asbestos-related disease to be compensated.** Some of the sufferers, such as certain skilled workers and victims of a non-working environment polluted by asbestos, have no social security cover for occupational disease. The fund will also enable **better compensation to be offered to sufferers of occupational diseases**, since the lump-sum compensation for workers suffering from asbestos-related diseases under the occupational disease scheme is often lower than that which can be obtained through other non-judicial avenues (such as for victims of breaches of the law or terrorist attacks).

**The compensation fund will simplify and cut red tape** which is a top priority requirement given the speed at which the incidence of some asbestos-related diseases is increasing.

## **MONITORING OF WORKERS AND PATHOLOGIES**

### *Medical monitoring of workers exposed to asbestos*

A “consensus conference” between medical and scientific experts on asbestos was organised at the request of the Ministry in 1999. It resulted in a post-occupational medical monitoring system being put in place to observe workers exposed to asbestos.

A group of experts made up of occupational physicians, pneumologists, radiologists and representatives of social security and asbestos sufferers' associations discussed what medical examinations should be carried out, depending on the level of exposure undergone by workers.

It was suggested that two exposure assessment guides be drawn up, for occupational physicians and general physicians respectively and a guide on medical examination methods. Experts are currently at work on these.

### ***Monitoring of mesothelioma***

Since 1998, France has had a system for monitoring mesothelioma (pleural cancer which is a typical asbestos-related disease). There are four facets of this system:

- *incidence*: in 20 *départements*, a special registration procedure has been put in place to ensure that all cases of mesothelioma are registered. This enables the incidence of mesothelioma in France to be estimated precisely;
- *aetiology*: this is based on a case control study which classifies the various types of exposure and provides a more accurate picture of the groups at risk;
- *public health*: this enables the responsible authorities to be alerted when the incidence of disease suggests that there is still a risk (and materials containing asbestos are still in place) and to identify any groups of the population which may be exposed;
- *medico-social aspects*: to determine what proportion of cases are recognised as being of occupational origin.

## **SECTION 2: NATIONAL REPORTS**

### **Swedish national report**

# **Report on the Swedish Week of the Fifth European Session on Asbestos Stockholm 13-16 June 2000.**

## **Background**

In November 1998 the committee of labour inspectors decided to produce a study-based report on the prevention of the risks entailed by working with asbestos and to develop a training programme for labour inspectors to cover the problem of asbestos. A working group for the "Fifth European Session on Asbestos", that was composed of four countries and was to be set up to work jointly with an existing working group on the development of a curriculum for asbestos-related training, would be responsible for this work. The four countries in which a one-week study was to be carried out were France, the UK, Spain and Sweden.

At a meeting organised jointly for the two working groups in Luxembourg on 22 October 1999 it was agreed that the objective of the work was to be (1) to identify the principal health and safety aspects linked to the risks entailed by the use of asbestos; (2) to identify the best working methods or good examples for improving health and safety when working with such risks; (3) to describe the impact on inspection activities of the new legislation on the prevention of occupational diseases caused by exposure to asbestos; (4) to recommend activities and measures for improving the health and safety of workers handling asbestos and (5) to establish guidelines for training labour inspectors in matters relating to asbestos.

During the Swedish Week, the first of the series, great importance was attached to describing the many years of experience we in Sweden have with dealing with the problem of asbestos at work - both the measures jointly agreed between the social partners as well as the early attention devoted to the problem in the construction industry. Special importance was also attached to the preparation of working methods for the three "weeks" that were to follow.

## **The approach**

The results of the work completed during the four weeks will be presented partly in the form of joint recommendations, partly as a report with guidelines for training labour inspectors. Four national reports on the activities that were organised during the four weeks of sessions will also be included. This report relates to the activities during the first of the weeks, which was held in Stockholm, Sweden, from 13 to 16 June 2000.

The working group "The Fifth European Session on Asbestos" included two participants from France representing the authority, five from the UK including two from the social partners, six from Spain including three from the social partners and five from Sweden including two from the social partners. The members of the working group "Curriculum for asbestos-related training" included two from Belgium, one from the Netherlands and one from Ireland. They attended as observers. A further nine Swedish nationals among the various participants in the programme took part as observers or as contributors. Undertakings and installations that were visited in connection with the programme during the week made members of staff available to provide assistance.

## **The programme**

As Monday, 12 June, was a holiday in Sweden work did not get under way until Tuesday, 13 June. The first day's programme included (1) a presentation by the National Board of Occupational Safety and Health

(N.B.O.S.H.) and the Labour Inspectorate (with effect from 01.01.01 now known as the Work Environment Agency) by its deputy director-general, Bertil Remaeus, (2) a presentation of the social partners' role in the prevention of exposure to asbestos and related diseases in Sweden was given by members of Swedish working groups concerned, (3) a presentation on how the handling of asbestos was restricted and ultimately banned in Sweden was given by a member of the National Board of Occupational Safety and Health and (4) lastly there was a comprehensive presentation of the occurrence and development over time of diseases caused by exposure to asbestos (given by Professor Bengt Järholm, Umeå).

The next day was devoted to a study visit outside Stockholm. The aim of the visit was to study how asbestos is removed (1) when machinery and equipment containing asbestos products is being repaired (NEA group, Örebro) and (2) in a large industrial complex containing large quantities of insulating material containing asbestos prior to its demolition (an old paper mill belonging to Stora Enso, Skoghall, Karlstad).

The third day was devoted to the handling of asbestos in buildings and in the construction industry. Presentations were given by members of staff at the Stockholm labour inspectorate, by representatives of the social partners belonging to the working groups and by Nils Hallin, former principal industrial hygiene expert at BYGGHÅLSAN, (the construction industry's occupational health service from 1968 to 1992) and which was established for the whole sector on the basis of an agreement between the social partners. The day ended with a study visit to the establishment at which the underground railway carriages were being stripped of asbestos.

The final day was devoted to discussion of the examples that had been the subject of study visits and presentations during the week. To facilitate the work four sub-groups were set up, two of which discussed the reduction of exposure to asbestos during the stripping of asbestos from machinery and equipment including railway/subway carriages and the repair and demolition of buildings. The third group discussed medical examinations on workers who have been exposed to asbestos while the fourth sub-group was responsible for drawing up the training guidelines. The result of the work in the sub-groups was reported to the full session so that comments and recommendations from the first week could be made available for all at the following weeks' sessions.

Owing to the cancellation of the meeting originally planned to be held in Luxembourg on 21 May 2000 and at which it was intended to schedule the four weeks of the session, the first week in Sweden was largely devoted to discussions on how to continue the work. The objectives established in the first week were broadly adhered to throughout the session.

The Swedish situation presented during the week is hereby reported with regard to each of the five objectives.

### **Objective 1: To identify the principal health and safety aspects of the risks entailed in the use of asbestos.**

#### **1. The occurrence of asbestos-induced disease in Sweden**

Up until the end of the 1960s attention in Sweden was targeted primarily at asbestosis among diseases caused by asbestos. Efforts to control asbestosis resembled efforts to control silicosis. The national register of pneumoconiosis cases, established in 1964, included all reported cases of pneumoconiosis (silicosis and asbestosis) from 1950 onwards. At the middle of the 1980s some 195 cases were recorded with irrefutable evidence of asbestosis in lung tissue, almost 400 cases of suspected asbestos and almost 6 000 cases of pleural plaque.

At the end of the 1970s there was a scheme that ran for a few years under which people were invited to undergo a comprehensive medical examination, including lung X-ray, if they were concerned about their health because they had worked with asbestos in the past. This examination was offered free of charge. The campaign, which was coordinated by the National Board of Occupational Safety and Health (NBOSH) and the National Board of Health and Welfare covered some 60 000 persons, mainly men. The examinations were carried out as part of general local health care measures. Every individual received attention locally depending on the clinical findings and in some health-care districts the results were compiled by occupational medicine clinics. There was, however, no nation-wide reporting of the results.

Our knowledge of mesothelioma was growing at the end of the 1960s. A study of the then ten-year-old national cancer register (cancer is a notifiable condition) showed that already among the slightly more than 100 male cases of mesothelioma of the pleura and peritonium that had been reported during the first eight to ten years there was in the majority of cases very likely exposure to asbestos, including exposure when working in the construction industry. A new study some five years later, that included an even larger number of cases,

confirmed the picture but the sharp rise in the number of pleural mesothelioma among men was still not in evidence. Particularly interesting were workers who built steam locomotives and railway employees like engine drivers. A systematic and comprehensive follow-up of the causes of death and cancer amongst Swedish construction workers and that also included the various specialist working groups was carried out by BYGGHÄLSAN, the construction industry's occupational health service. It was concluded as early as the middle of the 1970s that workers who insulate, install tubing and work as painters run a higher risk of being affected by mesothelioma in the pleura. Continued monitoring showed ten years later that the increased rate of sickness due to mesothelioma in the pleura was becoming evident also among the trades of sheet metal worker, electrician and floor-layer. The common factor in these new groups was that they had been exposed at a later stage in the construction process, primarily during renovation and repair of products containing asbestos that had been installed earlier, for example in floor coverings.

Over the past ten years the cancer register has recorded annually some 115 cases of mesothelium in the pleura of which some 15 to 20% are women. The number of affected women has remained more or less constant during the existence of the cancer register while the number of men began to rise in the middle of the 1970s, leveling off at the present level over the past five to ten years. There has been no evidence of any reduction in the number of cases reported annually despite the fact that the use of asbestos in new work has been banned for almost 25 years now. Follow-up studies to ascertain if/when the number of cases declines are currently in progress in the shipbuilding sector, where the use of asbestos on new construction was abandoned in 1973 and in the building sector, where the use of asbestos in new work essentially ceased in 1976. Still, 25 years after its use was halted there is an increased risk for most of the trades mentioned. The risk of lung cancer, that was also higher in the occupations exposed to asbestos, appears however to have lessened. In Sweden, a country with a rather modest import and use of asbestos, the annual number of cases of pleural mesothelioma (only one of the diseases that exposure to asbestos can cause) is considerably higher than the number of fatal accidents at work every year. If the number of lung cancer cases caused by asbestos exposure is added to the number of mesotheliomas and if they are considered to be of the same order of magnitude it can be concluded that these two mainly fatal diseases claim more than three times as many lives as occupational accidents annually in Sweden today.

## **2. Asbestos control in Sweden – a historical perspective**

Asbestos was used in Sweden throughout the twentieth century but large-scale use was essentially restricted to the post-war period. At the beginning of the 1950s imports of unprocessed asbestos were running at about 5 000 tonnes per year, rising to a maximum of some 20 000 tonnes per year in the mid-1960s. The dramatic cut in imports in the mid-1970s reflects the Directions regarding working with asbestos that the NBOSH issued in 1975, but as a result also of the effective measures implemented in order to restrict the use of asbestos by the dominant consumer sector, the construction industry. The Directions issued in 1964 had had insufficient impact and it was for example permitted to spray asbestos.

Included in the 1975 Directions was the statement that "asbestos should as far as possible not be used at work but rather be replaced by products that non-hazardous to health or are less hazardous to health". This tighter approach compared with the 1964 Directions was prompted by the awareness of the carcinogenic properties of asbestos. The new regulations contained rules for conventional dust control and requirements for measuring the exposure to asbestos dust and medical examinations. The construction industry was the subject of particular attention given the problems with adequately monitoring the preventive measures adopted for the handling of asbestos cement products at building sites, for example. It is for this reason that the incorporation of new asbestos cement products was banned in the middle of 1976. Similarly, the spraying of asbestos was prohibited along with materials containing asbestos dust to provide insulation against heat, noise and humidity. During 1976-78 a ban was also introduced to prohibit the processing and placing of floor and wall coverings containing asbestos filler, for example asbestos-backed mats/carpets and PVC floor tiles with asbestos filler as well as paints, glues, putty, joint sealing compounds and similar products containing asbestos. The introduction of this new ban eliminated the use of asbestos-containing materials in the building industry. This was considered as the only realistic measure in view of the difficulties with developing working methods which were both effective at eliminating dust while at the same time being easy to apply. At that time there were perfectly acceptable alternative materials available to replace asbestos in products such as paints, adhesives, putty, joint sealants etc. as well as for the underside of synthetic floor coverings. A consequence of the ban on the use of asbestos was a fall in demand that also led to the production of asbestos containing products being abandoned in Sweden as early as the end of the 1970s.

The new Working Environment Act that entered into force in 1978 gave the NBOSH scope for drawing up enforceable Provisions in place of previous ones. As regards asbestos no fewer than 14 separate documents were replaced in 1981 by a 'Notice on Asbestos'. The earlier regulation prohibiting the handling of certain materials

containing asbestos was replaced by a general, enforceable ban on the use processing and handling of asbestos and materials containing asbestos. Exemptions from the ban were permitted for use as brake-linings and other friction components plus packing and packing materials containing asbestos if acceptable products less hazardous to health were not available and dust suppression was possible. Other technical installations and machines containing asbestos or fitted with materials containing it were only permitted if the spread of hazardous dust could be prevented. The new regulations implied strict limits on new applications for asbestos and since the earlier Directives were converted to Provisions the rules governing inevitable asbestos handling in connection with demolition could be tightened up. However, compliance with the requirement that any demolition involving asbestos was to be reported to the Labour Inspectorate so that it could check whether suitable equipment was being used and safety working conditions otherwise applied proved difficult. It was also evident that smaller rogue companies were undertaking demolition work without a properly trained workforce.

The Ordinance on asbestos, adopted in 1986, therefore involved more stringent rules regarding the demolition of buildings or technical installations containing asbestos, requiring authorisation from the Labour Inspectorate. Applications for such authorisation had to indicate how many people were to be handling material containing asbestos and how well they were qualified, the rules established for handling asbestos and providing protection during the work and how the waste was to be handled and disposed of. Given that asbestos occurs in all sectors of society and that risks may arise even in non-occupational contexts where the Working Environment Act is not applicable, the NBOSH wrote to the Government and proposed that questions relating to, among other things, brake-linings in motor vehicles and asbestos insulation in equipment for supplying fresh air to premises should be a matter for special supervision and an asbestos committee was set up by the Government in 1985 with the remit of developing proposals for measures to tackle asbestos. An asbestos committee was set up by the government to oversee this whole problem area.

### **3. Working with asbestos today**

Since there has been no processing or use of asbestos products since 1992 – banned in some cases back in 1976 (except for the manufacture of brake-linings for export up until 1996 or in such cases where the NBOSH had authorised the handling of asbestos) – attention has been redirected for many years at demolition and repair work, something that has to be carried out in a controlled manner. This applies today primarily to the construction industry and when railway rolling stock (goods wagons) and machines that still contain asbestos are being stripped of asbestos. Attention should also be directed at the processing and treatment of material containing asbestos that will remain in existence for the foreseeable future.

### **4. The matter of supervision**

Responsibility lies primarily with:

1. The owner of the premises, who  
must be familiar with the hazardous materials contained in the building prior to demolition or repair so that a demolition plan can be drawn up (Chapter 9 PBL, Planning and Building Act)
2. The demolition firm, which  
must work in accordance with the authorisation issued by the Working Environment Inspectorate in response to the application submitted to that authority  
must work in accordance with the asbestos regulations  
must have a trained workforce  
must have staff who have been given a medical examination  
must have protection and handling instructions in place prior to commencement of the work, and  
the protection representative must have been consulted
3. Owners of machinery and engines, who  
must be aware of any asbestos contained in equipment being overhauled, and  
must be aware that the same requirements apply to repairs as are indicated in Section 2 above.

### **5. Problems with supervision**

late applications for inspection make it difficult to supervise the premises being demolished  
much time has passed since the major "asbestos alarm" was sounded in Sweden and this has meant that awareness of the risks has faded and this has meant that working with asbestos is now done less carefully and an authorisation is considered to be a formality

many workers have very old training qualifications and certificates because the law does not require that further training be undergone

large groups of workers may be unaware that they are exposed to asbestos when working on or handling material that contains asbestos. Examples of such groups are electricians, heating and ventilation technicians, carpenters etc.

## **6. Waste**

Waste must be marked and transported in a sealed container to the disposal site where it is to be stored at a special place and appropriately logged. Staff involved at the dump must undergo medical examinations

### **Objective 2: to identify the best working methods or good examples of how to improve health and safety when work involves these risks**

The NIOSH regulations specify the level of ambition for the working environment as an operational requirement instead of being merely instructions relating to detailed technical solutions. The general advice section in the regulations describes a number of examples of good practice in conjunction with a degree of interpretation of the rules. Information and advice from the working environment inspectorate direct to undertakings also contributes to the spread of good practice

The sectoral organisations have undertaken the major role in relation to information on good practice when working with asbestos. Some examples:

Decontamination firms have produced the brochure "*Removal of asbestos – advice and instructions*", in which they describe the best methods for removing asbestos from tiles, boiler rooms, ventilation equipment, the demolition of sprayed asbestos, the encapsulation/incorporation of asbestos, the removal of mats and other floor coverings and asbestos cement products. This advice coupled with the instructions has been distributed to the undertakings concerned along with the NIOSH regulations relating to asbestos.

The Construction Research Council has together with the Working Environment Fund published a brochure entitled "*Asbestos in buildings – what has to be done*" relating to measures to tackle asbestos in buildings.

**Information** must be provided for all staff coming into contact with asbestos in the course of their work. A training programme for staff responsible for processing and handling and for those engaged in demolition or repair work has been drawn up by the social partners, construction employers and three trade unions within the construction industry's central working environment council

Training/information relates to three levels.

1. *General information* for informing staff about the risks of working with asbestos and how they can protect themselves against the risks. Duration: ½ - 1 day.
2. *Special information* in the form of brief training for those working with the processing and handling of asbestos and material containing asbestos. Duration approx. 2 days.
3. *Special training* for those working on demolition and repairs. Emphasis is placed on strategic measures and practical exercises. Duration approx 4 days including 2 days of practical exercises.

### **Objective 3: to describe the importance of EU legislation for the prevention of occupational diseases caused by exposure to asbestos and how this impacted inspection activities**

Sweden joined the European Union in 1995. The regulations governing asbestos in Sweden were at that time the product of a long-term development that had originated in the middle of the 1960s. This development progressed independently of the EU even if it was along the same lines.

At the time that it acceded to the EU Sweden had a more comprehensive restriction on the use of asbestos and asbestos-containing material in the form of a general ban with exceptions than the controlled use as practised within the EU.

In terms of the level of protection for workers it was approximately the same and the differences lay primarily in the different starting points that were used to determine the way in which the system of regulations was itself to be set up.

Up until 1995 responsibility for regulation governing the restricting of the use of asbestos and material containing asbestos as well as protection for workers working with asbestos lay with the NBOOSH.

1. The NBOOSH (which on 1 January 2001 became the Working Environment Agency) issued its initial **1964 Directive (No 52)** that had the status of being recommendations by the authority: **Concerning protection against the occupational risk when working with asbestos** contained a recommendation that asbestos should be replaced by a less hazardous material accompanied with binding rules on conventional insulation against humidity (for example the request that materials containing asbestos should be moistened for processing or other handling).

1. New **Directives (No 52)** relating to asbestos from the year **1975/76** targeted the building sector in particular and included the following:

- a ban on the use of blue asbestos and materials containing blue asbestos
- first restrictions on the use of asbestos for the manufacture of paints, adhesives, putties, joint ceiling compounds and the like
- a ban on the installation of asbestos cement products
- a ban on the use of sprayed asbestos
- a ban on the use of insulating material containing asbestos when insulating against heat, noise and humidity
- a ban on the manufacture and installation of floor and wall coverings containing asbestos
- a call for air sampling and regular measurements at fixed workstations
- a call for notification to be made when using asbestos or material containing asbestos
- a call for the use of protective equipment
- a call for medical examinations.

**1. The Swedish National Maritime Administration's 1976 Regulations (1976): A) on the use of asbestos on vessels**

**1. The NBOOSH Provisions on asbestos, AFS 1981:23** introduced:

- a general enforceable ban on the use, processing and handling of asbestos and material containing asbestos (with the exception of brake linings and packings)
- The regulation presupposed that it was possible to obtain authorisation for these procedures on condition that acceptable products with less hazardous material were not available for use and that the spread of dust containing asbestos was prevented.
- The authorisation was combined with a requirement to the effect that the employer drew up operational regulations to ensure that protection was provided. The local protection representative was to be consulted regarding the application for an authorisation;
- the requirement that any demolition work involving asbestos or materials containing asbestos must be notified to the Labour Inspectorate.

**1. The NBOOSH Provisions on Asbestos, AFS 1983:13** introduced a requirement for a fuller examination by a doctor and medical checks.

**1. The NBOOSH Provisions on asbestos, AFS 1986:2 and AFS 1986:22** introduced:

- an enforceable provision to the effect that the demolition of buildings or technical installations containing asbestos may commence only once authorisation has been received from the Labour Inspectorate
- that the applicant must also submit information on the number of persons employed and their qualifications as well as an indication of how the asbestos waste will be handled and disposed of
- an indication of the most important part of the training

the aim was to ensure that a detailed training programme was developed jointly by the social partners

an authorisation procedure for packing containing asbestos which included, as a major aspect of the application, a report on the scope for substituting a different material for the asbestos.

**1. The National Board of Health and Welfare's General Recommendations on dealing with the problem of asbestos in buildings, 1986:4**, described how the asbestos problem should be dealt with:

by applying the provisions of Health Protection Act when asbestos is discovered in a building

testing and measuring

safety measures and documentation

suitable marking.

The objective pursued by these recommendations is that primarily an attempt should be made to solve problems caused by the discovery of asbestos-containing materials in mechanical ventilation equipment.

**1. The NBOSH Provisions on asbestos-free friction linings for vehicles (AFS 1987:1, AFS 1987:20, AFS 1989:9 and AFS 1991:3)** contain a list of vehicles for which asbestos-free replacement linings were available.

The regulations form part of the **Government Regulation SFS 1986:683** on the banning of asbestos-based brake and clutch linings for vehicles — for cars and motor cycles from 1988 model onwards or later, HGVs and buses from 1989 onwards and other motor-vehicles manufactured on 1 July 1988 or later.

**1. The National Environmental Protection Agency's General Recommendations, 87:3, on the dumping of asbestos** includes the following:

taking final charge of asbestos waste:

requirements relating to the dumping area

voluntary commitments relating to the repository

the area of the repository must be tested in accordance with the Environment Protection Act

requirements relating to acceptance:

advance notification that charge can be taken of asbestos waste

inspection of waste at repositories

requirements within the area:

dumping at a special location

composite dumping is to be avoided

discharging/covering of asbestos waste

requirements relating to acceptance:

waste is to be registered in a logbook

asbestos waste delivered must be reported

subsequent treatment of the ground.

**1. The National Maritime Administration's Notice with Regulations and General Recommendations regarding Asbestos SJÖFS 1988:2** introduced rules to be applied at sea that were similar to those introduced by the NBOSH regulations AFS 1986:22

**1. The NBOSH Provisions on Asbestos, AFS 1992:2** introduced:

a requirement that when holes were drilled in material containing asbestos spoil extraction equipment should be used

a requirement to the effect that negative pressure should be ensured in an enclosed area when demolition is taking place

a requirement to the effect that special information on asbestos should be provided for all workers who in the course of their work may be exposed to asbestos dust.

**1. The NBOSH Provisions on the Registering of Occurrences of Exposure to Carcinogenic Substances, AFS 1993:37** introduced a requirement callin for employers to maintain a register of workers who in the course of their work are exposed to carcinogenic substances and where exposure may involve a health hazard.

**1. The NBOSH Provisions on Asbestos, AFS 1996:13** introduced:

a requirement to provide information on training undertaken also for those workers who work with the processing and handling of asbestos and materials containing asbestos

compulsory information including name and address of persons commissioning the work to which the authorisation application refers for the handling of asbestos and materials containing asbestos in conjunction with demolition work

a requirement that tightly closing protective clothing incorporating a hood plus breathing apparatus must be used when working with asbestos or materials containing asbestos. This requirement is applied less stringently for small-scale work, however

a requirement for four days compulsory training for demolition workers

new frequency for medical checks — harmonisation with Directive 83/477/EEC.

**1. The NBOSH has also regulated** asbestos by introducing health and safety maximum limits for asbestos fibres other than blue asbestos (as banned in 1975) in the **rules on maximum levels for health and safety**:

Opinions 100, 1974 - 2 fibres/ml inhaled air

Notification 1976:9 - 1 fibre/ml

The NBOSH regulations on maximum levels for health and safety, AFS 1981:8 - 1 fibre/ml (a compulsory level)

Regulations on maximum levels for health and safety, AFS 1984:5 - 0.5 fibres/ml

Regulations on maximum levels for health and safety, AFS 1987:12 - 0.2 fibres/ml

On asbestos Swedish legislation was consistant with the European Union regulations at the time of accession in 1995. In certain respects the Swedish legislation was more long-term in scope. In all it can be considered that the European Union's rules on asbestos have been transposed into Swedish legislation and at present are to be found in the regulations indicated under the directive concerned.

#### **Directive 83/477/EEC, 91/382/EEC on the protection of workers from the risks related to exposure to asbestos at work**

The Working Environment Act

The Tobacco Act

The regulations of the National Board of Occupational Safety and Hygiene:

Asbestos, AFS 1996:3

Chemical hazards in the working environment, AFS 2000:4

Internal inspection, AFS 1996:6

The use of personal protective equipment, AFS 1993:40

Working in buildings and installations, AFS 1999:3

Personal space, AFS 1997:6

Maximum levels for health and safety and measures to prevent air contamination, AFS 2000:3

#### **Directive 90/394/EEC on the protection of workers from the risks related to exposure to carcinogens at work**

The regulations of the National Board of Occupational Safety and Hygiene on maximum values for health and safety and measures to prevent air contamination, AFS 2000:3.

**Directive 76/769/EEC, 83/478/EEC, 85/610/EEC, 91/659/EEC on restrictions on the marketing and use of certain dangerous substances and preparations**

The NBOSH regulations on asbestos, AFS 1996:13

The regulations of the Chemicals Inspectorate on chemical products and biotechnological organisms, KIFS 1998:8.

**Directive 71/320/EEC and 98/12/EC on the braking devices of certain categories of motor vehicles and their trailers**

Government regulation SFS 1986:683 banning brake and clutch linings in motor vehicles — cars and motor cycles from 1988 model onwards, HGVs and buses 1989 models onwards and other motor-powered vehicles manufactured on or after 1 July 1988.

The NBOSH regulations on asbestos-free friction linings for motor vehicles, AFS 1989:9 as amended by AFS 1991:3.

**Directive 67/548/EEC on administrative provisions relating to the classification, packaging and labelling of dangerous substances**

The Chemicals Inspectorate's regulations on the classification and marking of chemical products, KIFS 1994:12

**Directive 91/689/EEC and 94/31/EC on hazardous waste**

Government regulation SFS 1996:71 on hazardous waste  
Environmental legislation (*Miljöbalken*) SFS 1998:808, Chapter 15.

**Directive 75/442/EEC on waste**

Government cleansing regulation SFS 1998:902  
Environmental legislation (*Miljöbalken*) SFS 1998:808, Chapter 15.

**Objective 4: Recommend measures to improve safety and health when working with asbestos**

*1. Training staff working on demolition*

Staff who work on the demolition and removal of asbestos today frequently have very old training certificates. In addition, it may be a long time since they worked with asbestos. Our proposal is therefore that it should be a requirement to undergo retraining, for example every five years.

*2. Training of working environment inspectors*

The working environment inspectors who know about asbestos are today primarily those known as "building inspectors" but they may also be chemists and occupational hygiene experts who in many cases may have more detailed knowledge than most. Since the "asbestos alarm" was sounded in Sweden in the 1970s and 1980s awareness of and concern about asbestos has waned and this has led to more careless attitudes at workplaces where the issuing of authorisations is considered more to be a formality by both the authorities and the undertakings. For this reason the working environment inspectors should also be covered by training and retraining requirements.

*3. Information/training for staff working with and handling asbestos*

Certain workers may be exposed to asbestos without realising it. Such groups include heating/ventilation installers, electricians, carpenters, etc. The training/information requirement should also be extended to include these groups of workers.

#### *4. Registration with the Working Environment Inspectorate*

Today, work on demolition involving asbestos must be registered with the Working Environment Inspectorate before work commences. In practice, it is sufficient to telephone or fax the authority just before work starts. From the point of view of supervision this is not reasonable and a longer-term plan should be a requirement specified in the rules.

**SESSION ON ASBESTOS IN SPAIN  
26-29 SEPTEMBER 2000**

In 1992, a series of exchanges of experience (European sessions) between EU Member States on the working environment and inspection methods in specific production sectors was launched on the initiative of the Committee of High Level Labour Inspectors. Each session is generally attended by four or five Member States, each of which forms a working party made up of five or six persons including representatives of not only government but also the social partners.

The above Committee has now prepared a European session on the prevention of the risks of exposure to asbestos which will be attended by France, United Kingdom, Sweden and Spain, with Ireland, the Netherlands and Belgium being present as observers, as arranged in the preparatory session in Luxembourg on 22 October 1999.

The aims of the European session on asbestos are as follows:

- a) To establish the most significant health and safety aspects of the risks associated with asbestos.
- b) To identify “best practice” or the most useful ways of improving safety and health in relation to the above risks.
- c) To provide a summary of the effects of Community legislation on the prevention of occupational illnesses caused by exposure to asbestos and on inspection activities.
- d) To recommend what should be done to improve the safety and health of workers in the sector.
- e) To prepare a training module on this subject for labour inspectors.

The sessions in each country are usually made up of visits to places of work and meetings at which the host country explains to the other delegates its policy, organisation and experience in the field. Presentations and discussions are also held during the visits.

The following schedule, which was agreed upon at the preparatory meeting in Luxembourg, was implemented in full:

- Sweden: 13 to 16 June 2000,
- Spain: 26 to 29 September 2000,
- United Kingdom: 6 to 10 November 2000,
- France: 12 to 15 December 2000.

In the sessions in each country, problems related to the manufacture of products containing asbestos and to the removal of asbestos from buildings, railway cars, etc. were addressed.

Three documents will be produced from the final results of the European session on asbestos:

- a) General recommendations
- b) Report on the activities in each country
- c) Report on the training module for inspectors.

## THE SPANISH WEEK

This was held from 26 to 29 September 2000 in Madrid in the National Institute of Safety and Health at Work (*Instituto Nacional de Seguridad e Higiene en el Trabajo*).

Basically, the week was broken down into a series of presentations exploring the historical, legal, technical and medical aspects of asbestos in Spain, trying to give as accurate as possible a picture of the current situation in Spain.

Presentations were thus given on various subjects and a visit was made to a factory making fibre cement materials.

The session was opened by various representatives of the Directorate-General of Labour Inspection and Social Security of the National Institute of Safety and Health at Work and the Ministry of Health.

In brief, the contents of the papers given were as follows:

1. – Mr Santos Hernández, head of the Department of Health of the Centre for Safety and Health Conditions at Work in Barcelona, looked at the presence of asbestos in Spain, outlining its history and the various uses to which it has traditionally been put.

This was preceded by a history of the importation of asbestos into Spain, distinguishing between various periods when asbestos in fibre form, unprocessed asbestos, manufactured asbestos, etc. were used .

In Spain we have registers on asbestos with data going back to the year 1906 and in 1886 asbestos was already being advertised in Spain.

1. – Mr Eustasio Pérez from Uralita gave a presentation on the industrial uses of asbestos in construction, production of fibre cement, friction devices and textile insulation.

According to data collected in Spain, we have gone from producing 5 million tonnes during the 70s to 10 000 tonnes at present, taking into account that Europe consumes 4% of the world's asbestos production.

Consumption of asbestos materials is broken by sector as follows:

- 80-85% for making fibre cement,
- 15% for friction devices, although this sector has virtually disappeared since asbestos has been replaced by other products,
- 6-7% for textiles.

At present in Spain there are:

- six factories which make fibre cement,
- three enterprises making textiles,
- 18 factories making friction materials which no longer use asbestos.

1. – Mr Jose S. Moreno Hurtado, an engineer from the Provincial Centre for Safety and Health in Cadiz, described a study undertaken in that province on fibre cement water supply pipes, highlighting the problems for both maintenance workers and users.

1. – Mr Jaume Abat i Dinares, head of safety and health at the Provincial Labour Inspectorate in Barcelona, explained how responsibility was shared between the State and

the Autonomous Communities with regard to monitoring workers who use materials containing asbestos.

1. – Mrs Ana Escudero García, inspector of labour and social security in the province of Barcelona explained the legislation in force in Spain, which had been transposed in full from Community legislation.
1. – Messrs Enrique González Fernández and Enrique Alday Figueroa from the National Institute for Safety and Health at Work presented the results of a study monitoring the working population exposed to asbestos and explained the two administrative instruments in Spain providing information about asbestos - the register of enterprises where there is a risk of exposure to asbestos (RERA) and the register of environmental and medical tests which enterprises have to carry out - and the data obtained using them.
1. Mr Manuel Callejas Berdones from the National Institute of Medicine and Safety at Work in Madrid presented a study which he had carried out on workers exposed to materials containing asbestos in the Autonomous Community of Madrid.  
The study showed that pleural thickening occurs in patients over the first 15 years, diffuse interstitial images over the first 20 and asbestosis between 20 and 25.
1. – Mrs Montserrat García Gomez from the General Directorate of Public Health of the Ministry of Health and Consumer Affairs put forward the following health monitoring priorities:
  - identifying high-risk populations,
  - identifying situations where preventive action has to be taken,
  - drawing up a register of exposed workers in Spain in order to be able to carry out proper monitoring.
1. – Mr Antonio Agudo Triguero from the Catalan Institute of Oncology in Barcelona presented an epidemiological study on mesothelioma in Spain and a map showing the incidence of the illness.
1. Mr Adolfo Cid from the Department of Health of the Basque Government addressed the issue of the environment and the whole question of contamination of industrial environment and disposal of residues.  
This covered everything required for the management, transport and disposal of dangerous residues in waste tips, and the enterprises authorised to carry out this type of operation.
1. – Mrs Asunción Calleja i Vila, a technician from the Centre for Safety and Health at Work in Barcelona, explained the problems to be dealt with when the labour authorities were asked to authorise and approve plans of work presented by enterprises which carry out operations of maintenance, repair or removal of materials containing asbestos.
1. – Messrs Francisco Manuel García Lopez and Alfonso Alegre Monchó, representatives of Ferro Commodities España S.A., gave a practical report, using a video, on the removal of asbestos from and repair of a railway car and removal of material containing asbestos from a building.

1. – The workers' representatives, represented by Mr Fernando Medina (U.G.T.) and Angel Carcoba (CC.OO.), explained their growing concern at this matter, asking the authorities to:
  - Establish more effective means of monitoring past and present exposure of workers to materials containing asbestos.
  - Improve monitoring carried out by the labour inspectorate to ensure that Spanish legislation is effectively complied with.
  - Finally, ban the manufacture of materials containing asbestos.
  
1. – Finally, Mr Enrique González Fernández, the representative of the Working Party on Asbestos at the National Commission of Health and Safety at Work, explained the main concerns of the working party:
  - The need to improve monitoring of compliance with the law.
  - The need for companies engaged in maintenance repair or removal of goods, equipment or materials containing asbestos to be approved.
  - The need to prepare an inventory of equipment and goods containing asbestos.

In addition to the above presentations, a visit was made to a Uralita factory making fibre cement pipes in Alcázar de San Juan (Ciudad Real), where we were able to see the manufacturing procedure and the individual and collective measures for protecting workers on site.

At the same time, we saw the alternative process at the same factory where materials which did not contain asbestos were being made, namely polyester pipes (which are made up of cut glass fibre, fibre resin and polyester resin).

## *CONCLUSIONS*

We should bear in mind that the relevant Spanish legislation is transposed Community law and that the legal requirements are therefore as established in that law.

Wholesale amendments were made to conform with Directive 83/477/EEC of 19 September and its predecessor 91/382/EEC.

The current basic legislation is laid down by the Ministerial Order of 31 October 1984, which establishes minimum requirements for safety and health for work involving a risk due to the presence of asbestos at the place of work with the amendments introduced by the Ministerial Order of 26 July 1993.

The Ministerial Order of 31 October 1984, the basic legal instrument, covers all activities and operations where asbestos or materials containing asbestos are used wherever there is a risk that asbestos fibres may be released into the working environment.

Its aim is to establish the minimum measures for evaluation, monitoring, remediation, prevention and protection of health against the risks resulting from the presence of dust containing asbestos fibres at work. In order to do so, the Order covers both all the activities and operations where workers can be exposed to dust containing asbestos fibres and:

- exposure limits and bans,

- evaluation and monitoring of the working environment,
- technical preventive measures,
- organisational preventive measures,
- personal protection methods,
- work clothing,
- sanitary installations and personal hygiene measures,
- general conditions for places of work,
- signs,
- transport, storage, handing and disposal of asbestos residues,
- medical supervision of workers,
- information, training and participation of workers,
- data register and documentation archive.

In addition to this general law, the Ministerial Order of 7 January 1987 also applies to cases in which workers are exposed or are likely to be exposed to dust containing asbestos fibre generated by handling materials in building structures, equipment and installations partly made up of asbestos, i.e. work involving the removal of material containing asbestos or asbestos removal.

The main difference between Spain and the other Member States is that it will continue to manufacture asbestos products, mainly fibre cement, until Commission Directive 1999/77/EC of 26 July 1999 banning the use of this material is transposed and comes into force, which will be, at the latest, 1 January 2005.

Spain, together with Greece and Portugal, is known to have opposed this Directive originally because it did not accept the scientific grounds on which the other Member States' opinion was based. (As is stated in the opinion on asbestos of the employment, social affairs and citizenship section delivered by the Economic and Social Committee in Brussels on 12 March 1999.)

The objections to the Directive were occasioned not by a refusal to acknowledge the toxic effect asbestos has on health but by the fact that we now know what mechanisms are involved and how to use asbestos safely, thus minimising the risk, which is not the case with some of the products now being used as an alternative which can also be harmful (such as ceramic fibres).

Furthermore, the data that we have, which are, of course, never a hundred percent reliable because not everybody complies with the strict letter of the law, suggest that asbestos materials are used fairly little in Spain, compared with the rest of Europe:

- One of the areas where it has been used most in the rest of Europe is as protection against fire. This is fairly rare in Spain, apparently as a result of the form asbestos is available in and the materials used in construction.
- Another area where it has been used relatively little compared with other countries due to the climate is as thermal insulation in buildings.
- At present, it is not being used in friction devices either, but there might still be some stocks of materials for vehicles and heavy machinery.
- Fibre cement, in the form of both sheets and tubes, is, of course, where asbestos is being used at present, although it should be taken into account that much of what is produced is exported and is therefore not to be found in Spain. It is in this area that

the problem of the investment required to replace machinery for working without asbestos arises and that jobs might be lost.

One thing that does not exist in Spain but does in the surrounding Member States is a register of buildings and working equipment containing asbestos. In the future, when asbestos is no longer being produced, it will be difficult to determine where problems associated with asbestos removal may crop up.

Our legislation is fairly strict but it is difficult to alert everybody involved as to the danger of the material and hence to ensure that the legislation is complied with. Other Member States have managed to do this by means of campaigns to raise citizens' awareness.

What was done at all the sessions in order to identify the differences between the Member States vis-à-vis the aims set by the SLIC was that working groups on various topics were set up in order to come up with some joint conclusions. These topics are training for inspectors, the presence of material containing asbestos in the building trade and in industry and exposure to asbestos and health.

By way of summary, the conclusions of the Madrid Session on Asbestos were as follows:

- In the group on training for inspectors, a proposal for training was made by the representatives of the Basque country which was analysed by the group at the Edinburgh session (where it was approved with some amendments). This is a basic training model which will be adapted in each Member State to conform with existing legislation on both asbestos and regulation of the various Labour Inspectorates.
- The group on asbestos in the building industry decided that an inventory of buildings containing asbestos was needed to determine where material containing asbestos is to be found in the future and eliminate any risk of work being carried out without anybody knowing that asbestos is present. In order not to alarm people unduly, this inventory should be made:
  - In public and industrial buildings first of all.
  - Taking into account the date of construction.
  - Defining the type of asbestos and the way it is used.

At the same time it was imperative for enterprises engaged in asbestos removal to be approved.

- The group on asbestos in industry found that it was vital for places where asbestos is to be found to be defined and identified and for working guidelines to be established for each field.  
Moreover, any work equipment currently on sale which still contained asbestos products should carry a warning to this effect.
- In the group on health, the need for medical specialists to support industrial medicine was highlighted and for an analysis to be made on the social impact of asbestos-related illness.

## ANNEX I

The speakers at the Spanish session were:

- Abat Dinarés, Jaume; *Jefe del Area de Seguridad y Salud en el Trabajo de la Inspección Provincial de Trabajo de Barcelona* (Head of the Department of Safety and Health of the Barcelona Regional Labour Inspectorate).
- Agudo Trigueros, Antonio; *Instituto Catalán de Oncología de Barcelona* (Catalonian Institute of Oncology, Barcelona).
  - Alday Figueroa, Enrique; *Instituto Nacional de Seguridad e Higiene de Madrid* (National Safety and Health Institute, Madrid).
  - Alegre Monchó, Alfonso; Ferro Commodities España.
  - Calleja Vila, Asunción; *Centro de Seguridad y Salud en el Trabajo de la Comunidad Autónoma de Cataluña* (Centre for Safety and Health at Work of the Autonomous Community of Catalonia).
  - Callejas Berdones, Manuel; *Instituto Nacional de Medicina y Seguridad en el Trabajo de Madrid* (National Institute of Medicine and Safety at Work, Madrid).
  - Cárcoba Angel; CCOO.
  - Cid Adolfo; *Departamento de Sanidad del Gobierno Vasco* (Department of Health of the Baque Government).
  - Escudero García, Ana Emilia; Labour and Social Security Inspector, Barcelona.
  - García Gomez, Montserrat; *Dirección General de Salud Pública* (Directorate-General for Public Health).
  - García Lopez, Manuel; Ferro Commodities España.
  - González Fernández, Enrique; *Instituto Nacional de Seguridad e Higiene en el Trabajo de Madrid* (National Institute for Safety and Health at Work, Madrid).
  - Medina Fernanco; UGT.
  - Perez Eustasio; Uralita.

## ANNEX II

The persons attending the Spanish session were:

### BELGIUM:

- Alain Soetens
- Stephaan Hoskens.

### - FRANCE:

- Christiane Giraud.
- Herve Lanouziere.

### - UNITED KINGDOM:

- Martin Gibson.
- Nigel Bryson.
- Peter Dolan.
- William McKay.
- James Skilling.

### - THE NETHERLANDS:

- Gerald Oostveen

### - SWEDEN:

- Anders Englund.
- Lars Henschen.
- Bo Tengberg.
- Bo Tenglad.
- Claes Trägårdh.

### - SPAIN:

- Ana Emilia Escudero García.
- Enrique González.
- Eustasio Pérez.
- Asunción Calleja
- Angel Cárcoba.
- Fernando Medina.

UK national report

**EUROPEAN COMMISSION: EMPLOYMENT AND SOCIAL AFFAIRS DG**  
**Senior Labour Inspectors Committee**  
**European Session on Asbestos (Prevention of Risks)**  
**Edinburgh, UK: 7-10 November 2000**

**Report by the Health and Safety Executive**

This report is in three parts;

- a brief introduction summarising the activities during the week;
- a comprehensive analysis of the objectives of the session;
- a summary of the questions and answers which contributed to the discussion.

The third part also provides a summary of the detailed programme.

**Introduction**

The third of the four working sessions looking at best practice in relation to asbestos was held in Edinburgh. The four day workshop was organised by the Health Unit from the Health and Safety Executive's Field Operations Directorate (FOD).

The first day was very much a scene setting day with talks being delivered on the history of the industry in the UK, the priorities in a present regulatory context and the scale of the problem in epidemiology terms. Speakers also covered the impact of European legislation on the UK system, new developments in managing asbestos in buildings and operation of the removal industry both from the licensing side and from an operational aspect.

The second day continued the removal industry theme with a view from one of the trade associations on working in the present regime. Thereafter the delegates visited a paper mill in Fife where they were shown how the occupier manages the asbestos still present in their premises and then given a practical demonstration of removal standards with a mock-up of an enclosure system that would be used when it was decided that the asbestos had to be removed.

Day three involved presentations from a Trades Union delegate, a talk on waste management from an environment agency officer and a discussion on the best methods for removing asbestos. Specialist inspectors then outlined their role in our system and provided a practical demonstration of a face-fit test, now a cornerstone of our requirements. Finally a session was taken on enforcement matters again outlining our standards in certain problem areas.

On day four we covered the training of both inspectors and then asbestos operatives and a medical inspector outlined our health surveillance and appointed doctor system. Time was then given over to the four workshops before an open forum session was held to round off this working session.

**Analysis of the Objectives of the Session**

**Objective 1: To determine the main Health and Safety Issues of the Risks associated with Asbestos**

***1. Historical Perspective***

While there have been Factory Inspectors in Great Britain since 1833, one of the first references to the ill effects of asbestos came in an annual report of 1898 which identified the evil effects of asbestos, a microscope revealing the sharp, glass like jagged nature of the particles. While requirements for

controlling asbestos dust were introduced soon after, these concentrated solely on the manufacturing process. In the United Kingdom this continued right up until the Asbestos (Licensing) Regulations 1983 which set a regime in place for those working with asbestos insulation and asbestos coating, not applicable to factory situations. In the same year, the UK banned the importation, use, manufacture and marketing of crocidolite and amosite.

It was not until the introduction of the Control of Asbestos at Work Regulations 1987 that any work where asbestos was encountered was caught under one set of regulations. The above three sets of regulations with certain amendments remain in place today, the Asbestos (Prohibitions) Regulations having now banned the importation, sale and use of chrysotile asbestos in addition to the amphiboles.

In reviewing the use of asbestos in the U K from 1900, less than 50,000 tonnes were used until the 1930s, thereafter there was a steady increase to the maximum usage in the early 1960s of 180,000 tonnes. This will diminish now to almost zero following the 1999 amendment to the asbestos (prohibitions) regulations.

In terms of recognition of the problem, there was a period in the 1930s and 1940s when it was envisaged that the problem with asbestos would soon disappear. However by the 1970s, an advisory committee on asbestos had been established and in 1983 asbestos occupational exposure limits were reduced although there was still heavy reliance on respiratory protective equipment.

In 1995 the Peto report raised concerns about maintenance workers exposure to asbestos (possibly inadvertent) and the late 1990s has seen tightening of occupational exposure limits, the introduction of yearly refresher training, face fit testing of RPE and work with asbestos insulating board added to the licensing regime requirements.

## **2**                    *Epidemiology*

In terms of epidemiology and mesothelioma, the number of deaths has risen from less than 200 in 1968 to over 1500 in 1998. Overall rates of death in men are seven times greater than those in women but people born in the 1940s have so far seen the highest rates of mesothelioma (in men and women). While people born more recently have experienced lower mesothelioma risk, the level is still well above assumed background levels and the peak in numbers of mesothelioma deaths is expected to occur around 2010.

In studies in the 1980s the source of exposure to asbestos was almost exclusively occupational and while the Peto report of 1995 quite rightly raised concern about maintenance workers being exposed to asbestos, of the 600 active asbestos removal workers in 1998, 40% reported “usually stripping the asbestos dry”.

It is accepted that controls always lag behind the emergence of key milestones as in the various reports showing new evidence of problems. Additionally there has been concern about the consistent defining and recording of mesothelioma data, not every member state having thirty years of records. It is hoped that the International Classification of Diseases ( ICD 10) which will soon be available would provide a consistent description of mesothelioma.

## **3**                    *Priorities for the United Kingdom*

The Health and Safety Commission have a number of continuing aims from which the Health & Safety Executive produce strategic themes. One of these themes is “to improve health and safety performance in key risk areas”. As there is little manufacturing of asbestos products and the bulk of the work with asbestos is repair and removal, so the Field Operations Directorate has chosen to target asbestos by inspection of licensed asbestos work. A numbers target has been set for the visits with priority set on

- No uncontrolled dry stripping
- No unjustified use of power tools
- No unjustified work in hot environments
- Face fit testing (of respirators) for operators.

The expectation is enforcement action if problems are encountered in these priority areas.

### ***Enforcement***

In relation to taking enforcement action it should be remembered that there are over 3000 deaths per year in the UK from asbestos related diseases. This number is seven times greater than the deaths from traditional industrial accidents. Also, as indicated earlier, asbestos related diseases were first recorded in the early years of the twentieth century but until the 1980s all legislation had related to manufacturing processes.

So who are the principal duty holders

- 1) Occupiers of premises — to have, manage and provide information to others
- 2) Licenced contractors — to comply with licence requirements  
— to comply with the control of asbestos at work regulations

Other Duty Holders

- 3) Non licenced contractors — to comply with the control of asbestos at work regulations  
— to be aware of potential risks  
— to have a system for managing unforeseen risks
- 4) Clients - to obtain information and then provide it to those in charge of work
- 5) Designers - to consider risks from asbestos containing materials
- 6) Planning supervisors — to request information on presence of asbestos  
and — to incorporate that into plans of work
- 7) Principal contractors — to manage asbestos contractors and  
— ensure method statements are followed

## **5 *Difficulties of enforcement***

### **a) Evidence**

- Collection difficult in view of area generally enclosed and not visible from outside
- Cramped confined hostile environment
- Cost to those involved against the benefits
- Poor involvement of management especially inside enclosures

- Lack of supervision and poor quality of workforce
- Often the Inspector deals with the symptoms but the underlying causes reside elsewhere
- 

b) **Workforce**

The pay pattern for asbestos operatives may contribute to the difficulties in obtaining the necessary standards of work on site. The employees generally have no involvement with devising the method of work, they have a low perception of the risk involved and there are few Trades Union Representatives. With regard to the lack of supervision, the further the job is from the companies head office the poorer the standard of work.

c) **Controls**

HSE's line is control at source ie wet removal techniques which are slow and must be well planned. The incentives given to the men militate against this approach. There is therefore much reliance on RPE which is awkward and unpleasant to wear for four hours at a time and whose performance has been put in question by recent studies.

Additionally it is recognised that all RPE leaks and that the face is a variable object that changes shape in space and time. The degree of leakage depends on the face fit and on the equipment faults and defects. The nominal protection factors, assigned from laboratory tests (2000 for a full face powered respirator) have been found to be unreliable as an indicator of site performance. HSE now uses assigned protection factors — derived from airborne monitoring tests inside respirators as a much truer guide (40 for full face powered respirators).

d) **Additional issues**

The competent person who carried out the monthly test and thorough examination could be any trained person, normally a supervisor of the licensed contractor (following training). Face fit testing is carried out usually by an independent consultancy. There is no limit as to the length of time that a respirator may be worn but for licensed contractors the norm is four hours as shorter periods would lead to more frequent decontamination.

Air fed equipment is not excluded by the present UK regulations where the concentration is still on the requirement to reduce exposure levels at source before introducing RPE. The UK has not tended to use airline fed equipment because of the problems of restricted movement and lack of flexibility although the equipment has not been ruled out.

**6** ***Transport and disposal***

Asbestos is classified as special waste with even asbestos cement assuming this category in 1997. During the transport and disposal it is necessary to ensure the asbestos does not cause harm to human health or cause pollution to the environment and that it is finally disposed of at a site fit for that purpose. There is therefore a need for registration of waste carriers, a system of waste consignment notes identifying where the asbestos has come from and to where it will be taken and the need for good management of the disposal site including refusing to accept improperly treated asbestos.

**Objective 2: To identify best practice or useful examples for improving health and safety to deal with these risks.**

## **1 Managing asbestos in buildings**

The UK is to introduce a new duty to manage which will involve

- Taking reasonable steps to determine the location of materials likely to contain asbestos
- Making and maintaining a written record of locations
- Monitoring the condition of the asbestos
- Assessing the risk of exposure from the asbestos, that is:
  - (i) the ability of the asbestos containing materials to release fibres
  - (ii) the likelihood of human involvement (deliberate or otherwise)
- Taking steps to see that the actions are carried out.

The duty would be placed on the person with responsibility for the building who could authorise building maintenance etc.

## **2 Licensing**

In addition to managing the asbestos in situ, we also license those who undertake almost all of the repair and removal of asbestos. The purpose of the asbestos (licensing) regulations 1983 is to allow the enforcing authorities to identify and monitor closely work with the asbestos materials which pose the greatest risk to peoples health. So the regulations cover work with asbestos insulation, asbestos coating and asbestos insulating board.

Work that is licensed is removal, repair or disturbance of these materials, work ancillary to such work (e.g. scaffolding erection) and direct supervisory control over those tasks. The regulations do not cover work involving more bonded materials like asbestos cement and articles made of resin, plastic, rubber or bitumen which also contain asbestos.

The licensing regime consists of an assessment meeting before a licence is issued and then site visits to confirm the competence and standards of the contractor. A licence lasts for a maximum of three years after which a further assessment must be undertaken.

When a contractor has a poor record of performance he will be set standards to improve. Failure to meet those standards can result in a refusal to issue a new licence or, after legal proceedings, the licence may be removed (revocation).

## **3 Management of asbestos removal**

Management in this sense means

Risk assessment, work planning, communication, competence, control, supervision and completion.

The more complex the task, the better the planning, the higher the standards required and the more competent the contractor.

Inspectors will vet the notification and method statement submitted to the enforcing authority. However not all method statements are reviewed in view of the large number received annually so HSE target those who are known to be less effective. Method statements can be sent back with requests to improve them in relation to the work at hand.

It is also a requirement for contractors to carry out air monitoring during removal work to confirm the risk assessment levels and ensure that the RPE is adequate. The contractor is also required to arrange for an independent analyst to carry out air clearance tests before the area is handed back to the client.

Generally contractors use disposable overalls for asbestos removal work but there are still some who use cotton overalls and these are sent in soluble bags for laundering together with the contaminated towels. These soluble bags are made of poly vinyl alcohol.

#### **4 Best techniques for removal**

Uncontrolled dry stripping of lagging — up to 1000 fibres/ml

Controlled wet removal of lagging — up to 5 fibres/ml

Controlled AIB removal — 1-3 fibres/ml

The primary considerations for the technique to be used will involve the type of asbestos material, its surface, location, containment of the work and waste disposal.

There are two basic methods

- (a) Controlled wet stripping
- (b) Dry stripping with control at source  
— often there needs to be a combination of both.

Wet stripping of lagging / coating is carried out using multi-needle injection while for the removal of tiles, involving the removal of screws, the combination of surface spray wetting and shadow vacuuming is best.

As mentioned earlier the work is made easier by devising a proper method of work from the risk assessment and planning the work to allow for e.g. soaking of the asbestos material. An enclosure is still required and attention should be paid to ensuring complete coverage of the material, the influence of gravity, the danger of damaged areas and the avoidance of over wetting.

Dust suppression has been the key to reduced exposure levels, particularly multi-needle injection and the use of wetting agents (detergents).

Other techniques can be employed e.g. dry stripping when wrapping and cutting of redundant pipe work or control at source with the use of a glove bag (impervious plastic bag). However again risk assessment and planning are vital. Additionally local exhaust ventilation can be used when unscrewing AIB / AC sheets or in drilling prior to injection. But be careful of unexpected events. When dealing with textured coatings a recent HSL report favoured steam application for removal.

Working in hot environments in the UK relates to work in for example a boiler house where the plant is still live during insulation removal. This may be a serious problem in Southern Europe in summer where temperatures in excess of 40 degrees centigrade may be encountered. We would look to the plant being turned off and cold, then an enhanced air management system introducing cold air with a controlled regime of short time working, rest periods and access to extra drinks.

#### **5 Appointed doctors and health surveillance**

Any medical surveillance must be conducted by a medical inspector or an appointed doctor. The duty is that of the employer to ensure all employees whose exposure exceeds the action level are subject to medical surveillance. The action level is an expression of cumulative exposure averaged over a continuous twelve week period. It is anticipated that all licensed asbestos contractor's employees will exceed the action level over the twelve week period and therefore require medical surveillance.

The examining doctor cannot declare workers unfit. The purpose of statutory medical surveillance of asbestos workers is

- To advise workers on their fitness to work with asbestos
- To provide workers with objective information about their current state of health and to alert them to any early indications of disease
- To alert workers (and their employers) to problems which may require the provision of special RPE
- To educate asbestos workers.
- To provide the employer and employee with a certificate of examination
- To provide data to HSE in support of long term epidemiological surveillance of asbestos workers.
- To create a clinical record of the workers examination.

The examination is normally two yearly involving a medical.

- An update of occupational and medical history
- Respiratory symptom questionnaire
- Physical examination
- A chest X-ray
- Lung function testing

Presently there is no requirement in the UK for continuing surveillance when individuals cease to work in the industry. Some of the recent mesothelioma victims would not have been covered by the regulations e.g. wives of ship yard workers.

Chest X-rays would possibly not spot an early mesothelioma. However pleural plaques should show up.

Insurance companies may ask for medical information about an employee but this will only be released with the individuals consent - otherwise confidentiality will be maintained.

**Objective 3: To outline the effect of European Community Health and Safety legislation on prevention of occupational diseases caused by exposure to asbestos and on inspection activities**

1 The Control of Asbestos at Work Regulations 1987 (CAW) implemented two directives

- 83/477/ EEC on the protection of workers from the risks related to exposure to asbestos at work
- 76/769/EEC on labelling products containing asbestos

2 The Control of Asbestos at Work Regulations 1987:

- Set action levels with certain work with asbestos
- Set control limits which must not be exceeded.
- 
- Require employers to (among other things)
- 
- To assess and plan work exposing employees to asbestos
- Provide information and training to employees
- Prevent or reduce exposure of employees to asbestos
- Monitor the exposure of employees
- Maintain a health record of employees and arrange medical surveillance.

3 In 1992 CAW was amended to implement two further European Directives

- 91/382/EEC on the protection of workers from risks related to exposure to asbestos
- 90/394/EEC —“The Carcinogens Directive”.

In 1998 CAW was further amended to re - focus the regulations on people at risk of accidental exposure to asbestos while carrying out maintenance trades.

4. The Asbestos ( Prohibitions) Regulations 1985 banned the importation, supply and use of crocidolite and amosite asbestos implementing council directives 76/769/EEC and 83/477/EEC.

In 1988 the regulations were amended to ban paints or varnishes containing asbestos, and thereby implementing council directives 85/610/EEC.

5 The Asbestos (Prohibitions) Regulations 1992 replaced the 1985/1988 regulations and

- Banned all amphiboles
- Banned eleven different uses of chrysotile - including decorative plasters
- Implemented Commission Directive 91/659/EEC.
- 

6 In 1999 the regulations were amended to ban the importation, supply and use of all white asbestos and all products containing it and

- Implemented (5 years early) Commission Directive 99/77/EC

## **What's Next**

7                    The Control of Asbestos at Work Regulations 2001

- To introduce a new “duty to manage asbestos in non - domestic premises” and
- Implement the chemical agents directive (as regards asbestos).

These are due in May 2001.

## **Objective 4: To recommend actions and measures to improve the health and safety for people working in the asbestos industry**

### **1 Training of HSE Inspectors**

This training is to provide them with appropriate knowledge and information about the industry and its practices so that the inspectors can carry out their inspection function safely and effectively. Additionally asbestos decontamination training will provide inspectors with the necessary practical skills to enter contaminated areas, in particular, the use and maintenance of PPE (including RPE) and the correct decontamination procedure.

### **2 Training of asbestos operatives**

The initial training of two days would be supplemented by a one day refresher course given by independent training organisations to encourage good practice and avoid the bad practices adopted in the past once initial training was over. Training is also necessary for supervisors and there are management awareness and project management courses. Most companies will also carry out on going workshop training, often called tool box talks, but there are also specific training for operatives to learn e.g. safe operation of a mobile work platform.

### **3 Face fit testing of individual's RPE**

As no RPE is 100% leak proof and a poor fit is a major contributor to reduce protection, so the need to ensure an initial good fit on a device that relies on an effective face seal. The face fit test will match the face mask size and shape to the wearers facial characteristics. The process assists in the selection of the correct size and model and ensures a comfortable mask.

But the face fit test is only a measure of the fit of the mask to that persons face - not a measure of the RPE performance in the workplace nor an indication of the workplace protection factor.

### **4 Management of asbestos in buildings**

Having identified maintenance workers as those people currently exposed but not properly controlled so a major improvement in the reduction of their exposure would come from the establishment, by occupiers of premises, of the locations where asbestos containing materials (ACMs) are present.

The assessment of any potential exposure will then come from

The ability of these ACMs to release fibres

The likelihood of human involvement (deliberate or inadvertent).

When these controls are in place, proper action can then be taken to react to accidental damage to ACMs and only those persons who have been properly informed and trained will deliberately work with these materials.

French national report

## **European Commission : Employment and Social Affairs DG**

### **Senior Labour Inspectors Committee (Prevention of Risks)**

**PARIS 12-15 December 2000**

Report by the Directorate of Labour Relations

Outline of the report:

- \* Activities during the week
- \* Objectives of the session
- \* Questions which contributed to the discussion

## **I ACTIVITIES DURING THE WEEK**

The European session on asbestos, held in Paris and organised by the Labour Relations Directorate, was attended by representatives of this central directorate, the labour inspection services, academics, and experts from health and safety or certification bodies.

The first day was devoted to a presentation of the French legal framework concerning the protection of workers and the general public, compensation for people suffering from occupational diseases, and monitoring of workers exposed to asbestos.

The group then spent two days visiting sites, starting with the AFPA\* training centre at Montceau les Mines (Burgundy). This centre provides training for senior engineers, employees and trainee labour inspectors on work involving exposure to asbestos. The session participants watched a presentation of an exercise for trainees, based on a virtual work site, which covered the precise chronology and nature of the means of protection required on a site where friable asbestos is being removed.

The group then visited a site where non-friable asbestos was being removed, in order to emphasise the importance of prior assessment of the risks facing workers at such a site. The occupational physician and a representative of the labour inspectorate were present and were able to reply to the group's questions, particularly concerning their relations with the firm responsible for the site.

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\*

AFPA = Association for adult vocational training, attached to the Ministry of Labour.

The second day in the field allowed the group to meet representatives of an approved laboratory responsible for sampling workplace air and a firm engaged in processing waste by vitrification. The participants were thus able to discuss the methods used and their reliability.

The final day of the session was spent working in sub-groups, one of which was concerned with training labour inspectors. The group also drew up a timetable for the preparation of national reports and the final report to be presented to the meeting of the Senior Labour Inspectors Committee in Stockholm in May 2001.

## II OBJECTIVES

**Objective 1: To determine the main health and safety issues in respect of the risks associated with asbestos.**

### *1. Background*

- Asbestos, an extremely resistant natural fibre with exceptional thermal insulation properties, has been used in France since 1945 for a wide range of industrial purposes. In particular, it has been applied to buildings in the form of spray-on fireproofing.

Its dangers were recognised at a very early stage (initially by a labour inspector at the beginning of the century), but its carcinogenic effects did not start to become clear until the 1950s and 1960s. In 1977 the International Agency for Research on Cancer (IARC) classified it as “carcinogenic to humans – lung cancer and mesothelioma – all types of asbestos”.

It was from this date that specific regulations supplementing general health and safety legislation were adopted in France in order to limit the risk of exposure to asbestos dust.

Various edicts from the ministries responsible for health, employment, industrial and consumer affairs restricted the use of asbestos, either by banning it in its most harmful forms or by prohibiting its use in certain processes (spraying) or in the manufacture of certain products.

- Concerning occupational health, from 1977 French regulations strictly defined working conditions with regard to activities involving the treatment or processing of asbestos, in particular by fixing exposure limit values (equivalent to those laid down in the USA). These were subsequently reduced on several occasions in accordance with the requirements of European directives.
- Concerning public health in general, in view of the risk of inhaling fibres as a result of damage to sprayed-on asbestos claddings applied to buildings between 1950 and 1977, the French *Conseil supérieur d'hygiène publique* in December 1989 called for such buildings, especially those open to the public, to be listed, with the local authorities being made responsible. The feasibility of such an operation was assessed by the municipal hygiene and safety service of a pilot town between 1991 and 1994. Substantial difficulties were encountered, as many firms no longer existed, or records had not been kept.

In view of these disappointing results, the *Conseil supérieur d'hygiène publique* called for the adoption of regulations on the surveillance of sprayed-on asbestos in order to ensure the

protection of exposed people. The basis for such regulations was to be an alert threshold in terms of damage to the sprayed-on asbestos, corresponding to a level of airborne dust in the building concerned of 5 fibres per litre (equivalent to average asbestos pollution measured in the outside air), together with a threshold for the triggering of action.

- During the same period concerns emerged about the risks to users of products containing asbestos. To obtain a better overview of the risks in the maintenance sector, a database (EVALUTIL) was set up to assess asbestos exposure among users of products containing asbestos. The database revealed a very high level of exposure among certain construction workers during certain operations ("exposure peaks" during operations such as cutting sprayed-on claddings containing 5% chrysotile, cutting asbestos-lined fire doors, etc).
- At the end of 1994 the Ministry for Social Affairs (Labour Relations Directorate and Health Directorate-General) organised a meeting of experts, whose discussions highlighted a number of scientific uncertainties concerning the effects of exposure to low doses, as well as a number of gaps in the existing regulations. In particular, exposure limit values seemed to be too high. Furthermore, the regulations were designed primarily for industries and removal operations where the presence of asbestos was a known fact, and were not really effective if at all in respect of maintenance workers.
- This led the government, in autumn 1995, to launch a general programme of action against the risks associated with asbestos, taking account of problems in the fields of public health, the environment, worker protection and compensation for asbestos-related occupational diseases. In this connection, the *Institut national de la santé et de la recherche médicale (INSERM)* was commissioned to carry out an in-depth study of pathologies linked to asbestos, based on all research available at international level. This took the form of a multidisciplinary, comparative and independent expert report based on analysis of a critical review of more than 1 100 studies throughout the world. This method gave the INSERM expert report considerable force compared with isolated studies.

## 2. The various plans of action against the asbestos risk

- **The objective of the 1995 plan was to respond to the growing concerns about the protection of people in buildings and protection of maintenance workers, especially in the construction industry. It included the following provisions:**

*An obligation on building proprietors to draw up a list of sprayed-on claddings and thermal insulation containing asbestos by 31 December 1999 but by the end of 1996 in the case of priority establishments – i.e. buildings used by children and young people.*

*Reduction of occupational exposure limit values in work activities involving contact with asbestos to the lowest level technically possible, 0.1 fibres/cm<sup>3</sup>. The difference between the limit values for "pure" chrysotile and amphibole asbestos (relevant only to a few small manufacturing industries) was to be abolished from 1 January 1998.*

*Strict control of asbestos removal operations, with the possibility for labour inspectors to suspend work on asbestos removal sites if they felt that protective arrangements were inadequate (legislative measures). A ban was imposed on assigning workers employed on temporary contracts to tasks involving contact with asbestos.*

*Drafting of specific rules geared to maintenance situations.*

*Creation of an occupational disease recognition schedule specifically for broncho-pulmonary cancer due to asbestos, where recognition was no longer conditional upon the presence of medical "markers".*

- The scientific expert report submitted by INSERM to the Minister of Labour and Social Affairs at the end of June 1996 confirmed the necessity of the measures taken and provided further clarifications.

There is no need to make a distinction between chrysotile and amphibole asbestos (even though the latter has a greater carcinogenic effect in terms of mesothelioma).

Low doses cannot be considered not to have any effect (it is impossible to determine a threshold of harmlessness).

The population at risk is large; the risk is mainly observed among persons in contact with materials containing asbestos (secondary occupational users).

The excess risk for a worker exposed to 0.1 fibres/cm<sup>3</sup> is still very high.

On the basis of these results the French government immediately adopted the additional measures it considered necessary, including a ban on asbestos from 1 January 1997.

- 1) *The manufacture, import, export and sale of products containing asbestos, in particular asbestos-cement, were banned from 1 January 1997.*

This decision brought a general ban on asbestos and an immediate total ban on asbestos-cement products. A very small number of temporary and strictly defined exemptions were maintained for very specific industrial uses where no substitute product was available which guaranteed the safety of workers and users.

The aim of the ban was to stop the spreading of the risk constituted by the manufacture and marketing of products containing asbestos. In other words, it was a question of "stemming the flow".

Social measures accompanying the asbestos ban were necessary in the case of firms forced to cut their workforce as a result of the ending of the manufacture of asbestos-based products. Three firms were involved, and 490 out of a total of 1 370 employees were made redundant. One establishment employing 126 workers closed down.

- 1) *The authorised exposure threshold applicable to the manufacture of products containing chrysotile was reduced to 100 fibres per litre (initially, a level of 300 fibres per litre had been due to remain in force until 1 January 1998).*

The aim here was to further reduce exposure by inhalation of asbestos dust in manufacturing or processing plants benefiting from exemptions.

- 1) *A procedure for certification, by an accredited body, of firms engaged in the removal or containment of asbestos in situ was made compulsory for all operations involving the removal of friable asbestos. This procedure ensures the quality of the work carried out and of the methods used to protect workers' health and the environment.*

2) *The surveillance measures applicable to sprayed-on claddings and thermal insulation were extended to false ceilings.*

This requirement, which constituted a second stage designed to address situations of the most immediate concern, is expected to be extended in respect of three points:

- reduction of the triggering threshold for action to 5 fibres per litre of air,
- extension of the field of application to all materials containing asbestos regarded as "accessible" (without damage to the building, where necessary with the placing of appropriate signs),
- obligation to inform building users of the results of the diagnosis rather than merely having the information available.

Parallel legislation in the process of being adopted will require an asbestos diagnosis to be carried out in connection with all property transactions, which means that private houses will gradually be included.

### **3. Asbestos consumption**

As well as in the asbestos *processing industry*, centred around asbestos-cement, asbestos has also been used in many sectors of activity, such as construction (sprayed-on cladding and pipe insulation), the manufacture of a wide range of standard consumer products (floor tiles, brake linings, textiles and cardboard), and heavy industries (shipbuilding, metal industry).

Another important point is that products containing asbestos, especially semi-finished products, were for many years accessible to the general public and sold in retail outlets (asbestos board, asbestos-cement board, asbestos twine, heat-resistant gloves, ironing-board covers, etc.).

Asbestos imports increased after the end of the war, reaching more than 160 000 tonnes per year during the 1970s. By the time the ban was introduced, they had gradually declined to around 36 000 tonnes per year (1995-96).

### **4. Epidemiology**

The number of diseases linked to the inhalation of asbestos dust has been growing steadily in France for a number of years.

Asbestos-related diseases recognised as occupational come second in the compensation list in terms of numbers. Financially, they take up nearly 40% of France's compensation budget for recognised occupational diseases.

Estimated by INSERM at 750 in 1996, the number of deaths due to mesothelioma is expected, according to all forward studies, to continue to grow to 1 000 per year by 2020, giving a total of around 20 000 between 1996 and 2020.

In addition, INSERM has put the number of cases of asbestos-linked lung cancer in France in 1996 (estimated at 7% of all cases of lung cancer) at 1 200.

2 000 asbestos-linked deaths per year in France in 1996, possibly rising to at least 3 000 deaths per year by 2020: such is the outlook concerning the effects of asbestos on health in France.

Faced with this situation, the French government has introduced an early retirement scheme for workers who have been employed in the manufacture of asbestos-based products (cf. 8.2).

## **5. Requirements concerning the protection of workers**

### Regulations geared to the type of activity:

manufacturing activities (gradually disappearing),  
asbestos removal or containment,  
activities and operations involving materials likely to release asbestos.

### 5.1 Provisions common to all types of activity

- Risk assessment
  - nature of fibres, exposure duration and levels, prevention methods;
  - transmission of assessment findings to the occupational physician, the members of the hygiene, safety and working conditions committee (CHSCT) or (if there is no such committee) workforce representatives, and also to the labour inspector and the health and safety departments of the social security institutions.
- Information and training
  - every exposed employee to be provided with written information on the risk involved and the preventive measures (also to be sent to the occupational physician for his or her opinion);
  - organisation of training, in cooperation with the occupational physician and the CHSCT or workforce representatives, particularly on the use of protective equipment and clothing for workers likely to be exposed.
- Protective equipment
  - Priority is given to collective protection; however, where collective protection is not possible, the employer must provide workers with suitable individual protective equipment and must ensure it is used. The employer is responsible for maintaining and checking equipment;
  - the employer must draw up written instructions on the procedures for monitoring and maintaining collective protective installations (the opinion of the CHSCT or workforce representatives is required);
  - the employer must also inform employees about any incidents or accidents which may give rise to abnormal exposure and, until the situation returns to normal, must not allow employees other than those engaged in re-establishing normal circumstances to enter the area affected; this information must also be transmitted to the CHSCT, the occupational physician and the labour inspector.
- Surveillance of employees
  - Employers must draw up a list of exposed employees, indicating the nature, level and duration of exposure. This must be sent to the occupational physician and must be accessible to all the employees concerned.
- **Ban on drinking, eating and smoking in workplaces**

- Medical file, exposure certificate (cf. 7)

### **5.2 Provisions specific to asbestos removal or containment activities**

- An asbestos removal plan must be sent, one month before the start of work, to the labour inspectorate and the social security institution's health and safety officers, and also, where appropriate, to the body responsible for health and safety in the construction industry and public works. It must also be sent to the occupational physician and workforce representatives for their opinions;
- the average concentration of asbestos fibres inhaled by workers must be less than 0.1 fibres per cm<sup>3</sup>, measured over one working hour;
- opinions of the partners on measures taken to minimise workers' exposure times;
- signposting of risk areas not accessible to persons not involved in operations.
- ban on assigning workers employed on temporary or fixed-term contracts;
- ban on employing workers under the age of 18
- special medical surveillance;
- possibility for the inspector to suspend work on the site if protection is inadequate
- Technical rules to be complied with (regulations)
  - *friable materials* :
    - -obligation to produce a certificate of qualification, issued to firms by an accredited body on the basis of technical benchmarks approved by the administration (in the course of standardisation),
    - -very precise technical provisions included in the regulations;
  - *non-friable materials*
    - no qualification obligations;
    - protection level adapted to the risk assessment;
    - less stringent provisions where asbestos is solidly bound and working methods do not cause fibres to be released
- Reopening of premises after thorough cleansing of the area using suction cleaners and measurement of dust levels by an approved body.

### **5.3 Provisions specific to activities and operations involving materials likely to contain asbestos**

- Assessment of the decisive risk
  - obligation to establish whether or not asbestos is present in the building, particularly by contacting the proprietor concerning the results of the diagnosis undertaken with a view to protecting people in the building;
  - obligation to assess the possible risk of the presence of asbestos by any other means appropriate to the type of operation;
- protection geared to the level of risk as soon as the presence of asbestos is confirmed or regarded as probable;
- concentration in the air inhaled by the worker of less than 1 fibre/ml measured over one hour;
- exposure record prepared by the employer providing the employee with proof of exposure and allowing the occupational physician to decide whether to place the employee under special medical surveillance;
- ban on employing workers under the age of 18;

- ban on employing workers on temporary contracts for operations on sprayed-on cladding or thermal insulation.

## **6 Waste treatment**

All types of waste and empty packaging likely to release fibres must be treated in such a way that they will not emit dust during handling, transport, warehousing or storage; they must be transported away from the workplace as soon as possible in appropriate and suitably labelled packaging (regulations on products containing asbestos) and must subsequently be transported and disposed of in accordance with the provisions on waste disposal and classified installations with regard to protection of the environment.

## **7 SURVEILLANCE OF WORKERS IN CONTACT WITH ASBESTOS**

### **1. 1.1 Surveillance at workplaces**

#### **7.1.1 Surveillance documents**

- Each worker's medical file containing information on exposure must be kept for 40 years after the end of exposure. It is sent to the new occupational physician if the worker moves to another company, or to the labour inspectorate physician (at the regional labour directorate) if the establishment closes down or the worker retires.
- An exposure certificate must be completed by the employer and the occupational physician for any worker who leaves the company.

#### **7.1.2 Surveillance of working conditions**

The occupational physician must be in possession of all sources of information on the asbestos risk, as well as the risk assessment record. He/she must receive the results of all air sampling operations and must also be informed about any accidental exposure and of the planned start of work on any site involving the removal or containment of asbestos one month before the start of work, together with a list of exposed workers.

The occupational physician must be involved in the various procedures to prevent risks, including training and information for workers concerning the risks involved, and must give an opinion on plans for the removal or containment of asbestos and on methods of reducing exposure time.

The occupational physician must visit the work sites concerned in order to ensure compliance with operational procedures and provide information for workers.

### 7.1.3 Special medical surveillance

- In conducting examinations pertaining to special medical surveillance (for which the occupational physician has one hour per month per ten such employees), the occupational physician provides information, ensures early detection of an occupational disease, assesses the use of personal protective equipment, and assesses the suitability of employees to work in such physically and mentally arduous conditions.

Before a worker is exposed, the occupational physician must issue a certificate of medical non-contraindication. An initial check-up is required, including a standard chest X-ray within the past year and lung function tests.

A clinical examination is carried out by the physician once a year in order to detect any signs, which often do not appear for some time (dyspnoea, etc). A standard frontal X-ray is prescribed every two years, and lung function explorations at least every two years.

### 7.2 Medical surveillance of workers previously exposed to asbestos

A "consensus conference" of medical and scientific experts on asbestos was organised at the request of the Ministry (labour relations, public health and social security directorates) in 1999. It resulted in the introduction of post-occupational medical surveillance of workers in contact with asbestos.

The content of medical examinations undertaken on the basis of workers' previous exposure levels is being discussed by a group of experts comprising occupational physicians, pneumologists, radiologists and representatives of social security institutions and asbestos sufferers' associations.

The group has proposed that two exposure assessment guides be drawn up, one for occupational physicians and one for general practitioners, together with a guide on medical examination methods. Experts are currently working on these.

Trials are planned in four pilot regions.

### 7.3 Monitoring of mesothelioma

Since 1998 France has had a scheme for monitoring mesothelioma (pleural cancer associated with asbestos). There are four aspects to this scheme, which is coordinated by the *Institut de Veille Sanitaire*:

- **incidence:** in 20 *départements* a special registration procedure ensures that all cases of mesothelioma are recorded, allowing the incidence of mesothelioma in France to be estimated accurately;
- **aetiology:** this is based on a case control study which classifies the various types of exposure and provides a more accurate picture of the groups at risk;
- **public health:** the responsible authorities are alerted when the incidence of disease suggests there is still a risk (detection of materials containing asbestos still in place), and any population groups likely to be exposed can be identified;

- ***medico-social aspect: concerned with the proportion of cases recognised as being of occupational origin.***

## 7 Compensation

There are three ways of compensating the victims of asbestos. The first is the occupational disease compensation scheme, the second is early retirement, and the third is the fund for compensating persons with asbestos-related diseases.

### 1. 1.1 Occupational disease compensation

The French system for recognising occupational diseases is based on official schedules of diseases. Diseases are included in these schedules on the basis of the principle of presumption of attributability, in other words a link between the disease and tasks included in a list of tasks likely to cause a specific pathology. In 1993 legislation relaxed the rules to allow recognition based on an individual expert assessment.

The rights derived from the recognition of an occupational disease consist of compensation for damage under the same conditions as victims of work-related accidents (workers have two years to make a claim from the date on which they are informed of the possible link between their disease and occupational activity).

Today, occupational diseases linked to the inhalation of asbestos dust account for 10% of the diseases diagnosed and recognised each year. The figure is rising steadily, which reflects increased exposure, taking account of the long latency period, and more and more diseases have their origin in building construction and maintenance work.

### 1. 1.1 Early retirement for workers exposed to asbestos

This scheme covers workers who have been employed in certain establishments (the list of which is established by a decree based on information from trade unions, associations and individuals concerned, consultations with decentralised departments, and the opinion of the *Commission des Accidents du Travail* attached to the CNAMTS\*. The decree covers workers involved in the manufacture of asbestos-containing materials, the spraying of asbestos and installing of thermal insulation, shipbuilding and ship repair, and dockers.

Beneficiaries must be aged 50 or over and must not already be receiving a full pension. They are granted an early retirement benefit for a maximum period of one third of the duration of exposure to asbestos. These benefits are paid out of a fund financed by contributions from employers and the State.

### 1. 1.1 The compensation fund for victims of asbestos (FIVA)

Compensation for damage linked to exposure to asbestos is currently paid only on the basis of legislation on occupational diseases. It is therefore paid only to workers who have been in

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\* CNAMTS = National social security fund.

contact with asbestos, and their dependants. In other words, not all victims of asbestos are covered against the risk of occupational disease. Furthermore, the amounts awarded under the legislation on occupational diseases are much less than those which can be obtained through other avenues. Finally, some sufferers have applied directly to the State for compensation and are still awaiting a final court decision.

The FIVA was created with a view to achieving social justice, so that all asbestos victims could obtain compensation. Another intention was to simplify the procedures. The total number of beneficiaries has been estimated at 100 000. The fund, estimated at FRF 2 billion, is underwritten by employers, including the State, on the basis of the occupational risk linked to their activity.

## **Objective 2 : To identify best practices or useful examples for improving health and safety, so as to deal with these risks.**

### **1. Administration of the ban**

*Banned:* the manufacture, processing, sale, import, placing on the national market, export, possessing with a view to sale, and transfer free of charge of asbestos and products or materials containing asbestos.

*Small number of temporary and strictly defined exemptions,* if there is no substitute:

- presenting a lower risk to workers (according to present knowledge);
- providing equivalent guarantees in terms of consumer safety (e.g. diaphragms for the production of chlorine).

*Procedure:* a list of exemption categories is issued in the form of a regulation and reviewed annually

- any company importing or manufacturing asbestos-based products must make a declaration to the administration;
- the administration checks whether the exemption is justified.

*Monitoring:* the list of companies and their customers is sent to the organisations responsible for monitoring (labour inspection, customs, competition and consumer affairs directorate).

*Review of exemptions:* each year the exemptions are reviewed on the basis of:

- information on progress concerning substitutes, which has to be submitted by the companies which have made declarations,
- information provided by experts from national health and safety bodies (CNAM, INRS),
- opinions of experts in other relevant ministries (especially the Ministry of Industrial Affairs).

#### *Trend in the amount of asbestos used*

1996 : 36 000 tonnes  
1997 : 1 200 tonnes  
1998 : 200 tonnes  
1999 : 50 tonnes  
2000 : 10 tonnes

## **1. Management of asbestos in buildings**

Proprietors were instructed to produce a list of sprayed-on claddings, thermal insulation and false ceilings containing asbestos by the end of 1999. Since then, either the asbestos has been removed, or the proprietors must regularly inspect the state of the items listed.

For the moment, the objective is definitely not to encourage the removal of asbestos, but to require regular inspection of the state of the buildings containing it, in order to prevent "passive" exposure of occupants.

## **3. Asbestos removal sites**

3.1 A *removal plan* must be drawn up and sent to the labour inspector one month before the start of work. Labour inspectors are encouraged to organise meetings with the social security institution's health and safety services, occupational physicians and employers to carry out an advance study of the organisation, working methods and means of protection to be used to reduce the exposure of workers and make working conditions less arduous.

### *3.2 Site preparation:*

- decontamination and removal of all equipment which might get in the way of the operation,
- disconnection of all electrical circuits and equipment,
- depollution, using suction equipment fitted with a total filter system, of all surfaces and equipment on the premises to be treated,
- containment of the site by disabling all air-conditioning and ventilation systems and blocking apertures leading directly into the area,
- construction of an airtight and watertight envelope,
- installation of a tunnel comprising five airlocks for decontamination of workers and equipment

### *3.3 Protective equipment*

Priority is given to collective protection, which is ensured by maintaining an under-pressure in the working area using suitable extractors equipped with top-quality pre-filters and total filters. All workers in the working area must be provided with personal protection (hermetically sealed working clothes which are disposable or can be decontaminated, and self-contained compressed air breathing apparatus).

3.4 Dust level monitoring in the airlock. Monitoring and analysis covering the entire site and based on a pre-established programme must continue throughout the operation, and the results must be recorded in a register.

3.5 Before the area is reopened, and before removing the containment installations, it is necessary to:

- carry out a visual inspection including the areas which may have been polluted,
- thoroughly clean the area by suction,
- fix any residual fibres in the treated areas.

Following the removal or containment of sprayed-on claddings or thermal insulation containing asbestos, the dust level must be measured using the procedures laid down in the regulations. This level must, of course, be less than the threshold for the triggering of action.

#### **4 - Qualifications of firms removing friable asbestos**

In order to undertake friable asbestos removal operations, firms must hold a certificate testifying to their ability to carry out such work, issued by an accredited body (QUALIBAT, AFAQ-ASCERT International). The accrediting organisation is COFRAC\*, in line with the European Agreement.

Such firms may not employ temporary workers or subcontract operations to other qualified companies.

The qualification certificate is awarded after a visit to the firm to check its working methods, the training provided for management and workers, and available equipment. This is followed by an on-site audit to assess the quality of actual work on the site. Unannounced onsite audits are carried out from time to time.

The list of firms holding a qualification certificate was originally on Minitel and is now on the Internet.

Information transmitted by the labour inspectorate on any shortcomings found is sent to the certifying bodies (QUALIBAT and AFAQ-ASCERT).

Firms are reassessed from time to time, and the certificate may be withdrawn. Since the system was set up in 1997, 345 firms have applied for a certificate, 159 have received a certificate, and 36 have had it withdrawn.

#### **5 - Controls - Concentration**

The average concentration of fibres in the air inhaled by employees in the few establishments where materials containing asbestos are still manufactured or processed must not exceed 0.1 fibres per cm<sup>3</sup> measured over 8 hours of working time.

The employer must carry out a technical check based on sampling at least once every three months and whenever the limit value is exceeded. In addition, an approved body carries out a check once a year, the results of which must be made available to the labour inspector.

Checks are carried out according to a sampling plan which is submitted to the workforce representatives and the approved body carrying out the annual check for their opinions.

In the case of asbestos removal and building maintenance, the asbestos fibre concentration in the air inhaled by workers must not exceed 0.1 fibres per cm<sup>3</sup> measured over one hour of working time.

In these situations it is not a question of measuring the concentration in the air inhaled by workers, but of ensuring that personal protective equipment reduces exposure sufficiently, given the concentration in the ambient air.

#### **6- Surveillance of workers**

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COFRAC = French accreditation committee

6.1 Traceability of exposure: the exposure file prepared by the employer for maintenance workers includes a record of exposure (in the same way as dosimetric monitoring in the case of radiation protection). This allows the occupational physician to decide on the need for special medical surveillance in the event of frequent exposure, and also provides employees who become ill with proof of their exposure.

6.2 Post-occupational monitoring of workers exposed to asbestos (cf. Objective 1, 7.2)

6.3 Introduction of a national mesothelioma register (cf. Objective 1, 7.3) under the responsibility of the occupational health department of the *Institut de Veille Sanitaire*.

6.4 Exposure database: matrix "employment-exposure" on asbestos: this database both assists epidemiological studies and constitutes a very useful risk assessment tool.

**C ) Objective 3 : To outline the effect of European Community health and safety legislation on prevention of occupational diseases caused by exposure to asbestos and on inspection activities.**

France anticipated the 1983 European directive by publishing a specific regulation in 1977, which was subsequently brought into line with European positions and adapted to changes in the directives.

In 1995 France increased the level of protection well beyond the requirements of the Directive on worker protection and is advocating the amending of this Directive to increase protection in accordance with the demand expressed by the Council of Ministers in April 1998. The aim in particular is to reduce the exposure limit value and ensure protection for maintenance workers.

The fact that the majority of mesotheliomas occur in workers in contact with materials containing asbestos, often in connection with maintenance operations, shows that European regulations were not geared to this type of situation, and changes are essential.

However, even this is not enough. Changes must be accompanied by information and awareness campaigns, so that all workers confronted with this type of situation are conscious of the risks and the need to protect themselves. It is very often the smallest firms or self-employed workers, especially in the construction industry, who tend not to comply with health and safety rules.

Finally, the labour inspectorate plays an essential role in monitoring sites where asbestos is being removed. As this is a very high-risk activity, on-the-spot monitoring by the inspectorate of all sites where friable asbestos is being removed is vital, even if the firm concerned has a qualification certificate. This is what has been required of the labour inspection bodies in France since entry into force of the regulations in February 1996.

**D ) Objective 4 : To recommend actions and measures to impose health and safety for people working in the asbestos industry.**

\* Training of labour inspectors

To ensure that inspectors are fully able to perform their tasks in connection with maintenance activities where materials are likely to contain asbestos.

- \* Personal protective equipment

To understand and improve the performance of personal protective equipment, particularly the different types of mask.

- \* Managers

To develop rules on monitoring the air at work sites.

To develop techniques, methods and forms of work organisation to make asbestos removal operations less arduous.

- \* Awareness enhancement

To develop communication tools concerning asbestos-related risks in maintenance activities.

- \* Coordination

To improve coordination between the various health and safety players [occupational physician, labour inspector, social security fund (health insurance) etc].

### **III QUESTIONS**

- \* In view of the limitations of underground disposal methods, is vitrification the solution? But there is a problem in terms of capacity and cost.
- \* In the event of subcontracting, how it is possible to integrate the subcontractor's employees so as to ensure that work organisation and methods continue to ensure safety and health protection?

### **SECTION 3: SLIC WORKING GROUP - TRAINING PROGRAMME FOR LABOUR INSPECTORS ON ASBESTOS.**

Members of the working group:

Ana Emilia Escudero (Spain), Geraldine Mattimoe (Ireland), Hervé Lanouzière (France), Claes Trägårdh (Sweden), Barbara Healey (United Kingdom), James Skilling (United Kingdom), Gerard Oostveen (Netherlands), Alain Soetens (Belgium), Stephaan Hoskens (Belgium).

#### **1. Introduction.**

The members of the work group agree that there should be a strong recommendation to the SLIC to ask the inspectorates of each member state to organise training for their labour inspectors on asbestos issues.

In some countries or regions of the EU other authorities or organisations, besides the labour inspectorate, have responsibilities to intervene in relation to working conditions and carry out some of the inspection tasks. They should also organise a training program for their own employees which are supposed to carry out these tasks.

To control the working conditions of workers exposed to asbestos, labour inspectors should have enough knowledge about risk assessment - especially with asbestos exposure - and about the best approved practices for these tasks handling asbestos containing materials. For their own safety and health, labour inspectors should know how to protect themselves and how to act in dangerous circumstances.

The need for a training program for labour inspectors can be derived from the items we talked about during the four sessions and the conclusions made in the final report :

- Importance of asbestos exposure at work:
  - Ongoing use of asbestos in some member states of the EU (Until the ban 2005)
  - Removal of asbestos
  - Asbestos exposure in construction, renovation and demolition work.
  - Asbestos exposure in maintenance jobs
- Importance that personal protective equipment gives total or enough protection
- Estimated deaths caused by asbestos exposure.
- Lack of knowledge about asbestos exposure in various situations, even among labour inspectors.

It is important for each member state of the EU to have well-trained labour inspectors to supervise and control these working conditions and who are also able to care for their own safety and health.

The methods used by the enterprises to handle asbestos at work are nearly similar in the different member states of the EU. However, each country has different legislation, a different organisation of the labour inspectorate, different training facilities and it does not appear useful to propose a minimum training programme. The opportunity should be given to the member states to adapt the training of the labour inspectors to the needs and means of each country.

It is however strongly recommended, in accordance with the conclusions of Section 1 (the consolidated report), Objectives 2 and 4 “Best practice and recommendations” to attach the greatest importance to the following items:

- use of respiratory protective equipment (theory and practice)
- best techniques for handling and removal of asbestos and asbestos contaminated material (ACM)
- risk assessment

## **2. Target group.**

Labour inspectors who already have a lot of experience in their job. So they can be trained to get more specialised in asbestos matters and still have an eye for other risks in the working environment during their inspection tasks.

All labour inspectors because asbestos was so commonly used that each labour inspector has to know how to recognise asbestos and how to judge every situation where asbestos is encountered in the work environment.

## **3. Aims and objectives of the training.**

- Recognition of asbestos and asbestos containing products
- Basic knowledge of asbestos related diseases.
- Knowing how to evaluate a risk assessment made by the employer or his representatives.
- Knowing how legislation must be put into practice.(European directives and own legislation)
- Knowledge of good work practices.
- The use of quality standards in the inspection tasks.
- Uniform actions against firms offending the legislation.
- Protection of own safety and health during the inspection tasks.
- Knowledge of the performance of different types of respiratory protective equipment

## **4. Duration.**

Duration should be adapted to the different qualification levels of the inspectors - generalists or specialists - and to the type and objectives of the training - basic or continuous training, information transfer during meetings etc

## **5. Training institute - organisation.**

The training of the labour inspectors can be organised either by governmental institutes or agencies, independent organisations and in association or co-operation with training courses for asbestos workers and supervisors.

Co-operation between member states should be encouraged.

## **6. Course content**

**In the annex is a list of topics, which can be covered, in a training course.**

- Theoretical course
- Labour inspection and asbestos issues. Helpful instruments for labour inspectors (checklists)
- Practical course - inspection on site
- Evaluation of the training

Each member state of the EU can pick out the topics, which are important for its own inspectors. Documentation about the content of each topic can be found in the reports of the four sessions, or in other scientific publications. It is the responsibility of each member state to fill in the concrete content and to prioritize.

## **Annex 2: Training module on asbestos for labour inspectors - Course content**

### **1. Theoretical course**

#### **1.1 Course introduction**

- Aims of the training, exchange of experiences, etc. ...

#### **1.2. Introduction to asbestos**

- Types of asbestos.
- Fibres characteristics.
- Main properties.
- Previous and present uses.
- How to deal with unexpected or occasional exposure compared to expected or planned exposure.

#### **1.3 Ways to recognise and identify**

- Asbestos inventory and labelling.
- Ongoing use of asbestos - Prohibitions and exceptions.
- Friable and non-friable.
- Materials containing asbestos ( sprayed asbestos, asbestos cement, etc. ... ).
- Identification by laboratory and how to take samples.

#### **1.4 The health risks**

- Asbestos related diseases.
- Route of entry into the body.
- Statistics about mortality and illness.
- Smoking and asbestos exposure.
- Low level exposure.
- Medical surveillance.

#### **1.5 Size and scale of the problem**

- Jobs with asbestos exposure (maintenance, demolishing, plumbing, isolation, stripping, etc. ).
- Exposure of public and environment.
- Accidental exposure.

#### **1.6 Legislation**

- European directives and implementation of them in the legislation of the member states.
- Legislation of the own state and region.
- Accreditation, certification, permission, notification, prohibition, exceptions and substitution.

## **1.7 Risk assessment and asbestos exposure**

- Visual control on site.
- Managing of the asbestos in buildings, chemical or heating installations, ships, etc..
- Exposure level (Limit values, action levels for public and workers).
- Air measurements before, during and after the work (background, critical places, personal, ...)
  - Methods of measurement (optical ↔ electronic).
  - Accreditation/certification of the laboratory.
  - Reports of measurements.
  - Interpretation of the results.
- What is a good risk-assessment ?
- Substitution of asbestos can introduce other risks.
- Awareness of other health and safety risks in the working environment.

## **1.8 Current use of asbestos (until 2005)**

- Identification of all industries where asbestos materials still are produced and the use of these products.
- The goal is to have that information for all labour inspectors for the use during their inspection tasks.

## **1.9 Removal of asbestos**

- Different methods of removal accepted in own country.
  - Asbestos cement, gaskets, and other removal works with low risk.
  - Use of glove bags.
  - Asbestos removal in enclosure, containment, airlock.  
(Don't create higher risks by using an enclosure if it is not necessary.)
- Administrative and other formalities.
  - Certification, permit, notification.
  - Training operatives or supervisor (frequency of the training).
  - Plan of work.
  - Logbook.
- Working conditions on site.
  - Containment methods (protection of public and environment).
  - Methods of dust suppression.
  - Control methods - visual, smoke testing, air measurements, personal/ inside and outside of the enclosure.
  - Use, choice and limitations of personal protective equipment.
  - Decontamination methods (site, workers, materials).
  - Other risks (chemicals, heat, safety etc.).
- Waste disposal.

## **1.10 Other asbestos exposure during work (maintenance, renovation, etc.)**

- Risk assessment.
- Protective measures for environment and workers.
- Training/information on effects of asbestos for those workers.

## **2. Labour inspection and asbestos issues**

- Control of asbestos at work regulations.
- Health protection of the labour inspector, personal protective equipment and safe behaviour on site.
- Priorities in labour inspection - inspection strategy.
- .
- Inspection standards - Use of checklists.
- Means of the labour inspector, which action the labour inspector can take ?
- How to report the offences against legislation.
- Penalization.
- Prospects on future legislation.

## **3. Practical training**

- Check of an asbestos inventory, survey and managing program.
- Check of an asbestos removal notification, plan of work, logbook.
- Practical use of personal protective equipment (face fit test) and use of airlock and decontamination facilities.
- Visit to a building or industrial plant containing asbestos products.
- Visit to an asbestos removal site.
- Use of the checklists and making a report of the visits on site.

## **4. Evaluation - examination**

- Evaluation of the course.
- Examination of the participants.