POLICY CONCERNING THE INCREASED AND SAFE USE OF CHRYSOTILE ASBESTOS IN QUÉBEC

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Québec

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1. CURRENT SITUATION

1.1 Profile of Chrysotile Asbestos Producing Mines

Two mining companies produce some 300,000 tonnes of chrysotile asbestos annually in Québec, for a total value of about $130M. The company LAB Chrysotile Inc. operates the Lac d'Amiante mine in Black Lake as well as the Bell mine in Thetford Mines, in the Chaudière-Appalaches region. The company Jeffrey Mine Inc. operates the Jeffrey mine in Asbestos, in the Estrie region. In 2000, the mines employed some 1,400 person-years, for a wage bill totalling about $60M. The number of person-years involved in the processing and service industries is estimated to be roughly the same.

The output of chrysotile asbestos in Québec, which reached 505,000 tonnes in 1996, has steadily declined since that time, influenced by asbestos opponents, the conversion of major fibrocement producers to asbestos-free products, the increased competition from the former USSR, and the slow recovery of building activity in Asia since the 1998 recession. Québec's output in 2000 stood at 310,000 tonnes, making it the second largest producer in the world behind Russia (750,000 t), and ahead of China (260,000 t) and Brazil (170,000 t). Total world production in 2000 was estimated at 1,900,000 tonnes, *i.e.* about 10% less than in 1996.

The two producers in Québec still have a combined production capacity of 500,000 tonnes of chrysotile asbestos per year. Their reserves are sufficient to sustain the current production rate for at least another five years.

1.2 Use of Chrysotile Asbestos in Québec

Compared to its main competitors, who sell between 50 and 100% of their chrysotile asbestos output on their domestic market, Québec consumes about 2% of its annual production, *i.e.* between 5,000 and 6,000 tonnes. It also imports 1,200 tonnes of chrysotile cement, which contains 125 to 250 tonnes of chrysotile asbestos. This domestic consumption of Québec, on a *per capita* basis (a bit less than 1 kg per inhabitant) is three times lower than that of Russia (2.8 kg/i). However, it compares with figures for Brazil, and outranks China (0.2 kg/i).

Moreover, chrysotile cement constitutes the dominant use of chrysotile asbestos fibre in other countries, whereas in Québec, this fibre is used to manufacture break and clutch mechanisms, insulation material and caulking compounds, as well as to manufacture bituminous pavement. Chrysotile cement products and bituminous pavement with chrysotile asbestos are currently little used in Québec, and so offer the most interesting growth potential for the local chrysotile asbestos market.

Chrysotile cement is a very widespread construction material throughout the world, particularly in Asia and Latin America. Japan is the main outlet for Québec fibres, and it

channels more than 90% of chrysotile asbestos consumption. Chrysotile cement generally contains between 10 and 15% chrysotile asbestos, and is mainly used in the form of flat and corrugated or profiled sheets, shingles and pipes. Chrysotile cement production plants were shut down in Québec in 1988 (pipes) and in 1996 in British Columbia (sheets). It is estimated that a chrysotile cement manufacturing plant could be built in Québec should demand for chrysotile cement products exceed 45,000 tonnes per year.

As for bituminous pavement with chrysotile asbestos, it contains about 1.3% chrysotile asbestos. Since 1988, the Ministère des Transports (MTQ) has experimented with various types of pavement that contain chrysotile asbestos fibres. The asbestos fibres are essentially added to improve the design life of pavements, by optimizing their resistance to debonding and pull-out, as well as their resistance to fatigue. Furthermore, the use of these fibres helps limit crack degradation, improves its performance in water, its flexibility at low temperatures, and its ability to self-repair (in the summer season). Since 1988, the MTQ has used about 500,000 tonnes of pavement with chrysotile asbestos fibres, incorporating nearly 7,000 tonnes of chrysotile asbestos. During the 2001 season, the department also applied some 130,000 tonnes of bituminous pavement with chrysotile asbestos. The MTQ could thereby contribute in increasing the annual asbestos fibre consumption in Québec by 1,300 tonnes for each additional 100,000 tonnes of this type of pavement applied on the roads in Québec. Since there is little scientific data on the use of bituminous pavement with chrysotile asbestos, the MTQ will carry out experiments to determine exposure levels to which workers and the population in general could be submitted to during the production, application, milling and removal of such pavements before increasing their use.

New products are currently being developed in Québec. One of these is a hollow steel post, reinforced with an external sheath of chrysotile cement, used for the underground distribution of various cable network systems such as electric power, telephone and television services. Experts are also developing chrysotile cement pipes in longer sections and with factory-made ends to reduce unit costs and installation costs. Other studies are currently underway, for other top-of-the-range chrysotile cement products such as non-flammable paper for archival use, plastics reinforced with chrysotile asbestos, as well as products that incorporate chrysotile asbestos derivatives.

1.3 Health Considerations

The policy concerning the increased and safe use of chrysotile asbestos, defined in accordance with existing regulations and internationally supported by Québec, is based on a responsible management of the risks associated with chrysotile asbestos. Nevertheless, the fact that chrysotile asbestos is carcinogenic is a serious concern; so is the fact that diseases caused by exposure to asbestos are still being detected today, knowing that 20 to 40 years may go by from the time of exposure to the moment the first signs of disease appear. The Ministère de la Santé et des Services sociaux (MSSS) and the Commission de la santé et de la sécurité au travail (CSST) namely reveal that a

number of new cases have been diagnosed in construction workers and maintenance and repair staff, that certain processing plants still do not meet exposure standards, and that only a minority of construction sites comply with all the provisions of the Safety code for the construction industry. In fact, the CSST recorded in 2001, 63 deaths linked to asbestos exposure in workers.

The MSSS and the CSST wish that no effort be spared to ensure the safe use of chrysotile asbestos, especially if its use is to be increased in Québec. The two organizations wish that the presence of all varieties of asbestos be identified in buildings, that new products be marked to ensure their subsequent traceability, and that scientific studies be conducted to ensure the safety of new products. They also wish that adequate resources be attributed to conduct scientific studies on new products and new uses for chrysotile asbestos. Furthermore, they wish to implement appropriate monitoring systems in order to measure their safe use, and the impact on the health of workers and the population. Finally, they suggest training institutes for construction workers make sure that their students receive basic training on the safe use and handling of products that contain asbestos, whereas concerned joint sectional occupational health and safety associations should offer companies appropriate training for workers already in the workforce.

1.4 Environmental Considerations

Mining operations are already subject to regulatory emission standards, and will soon be regulated by a new section of the *Environment Quality Act* (R.S.Q., c. Q-2). This Act will allow, if need be, to establish specific tailings requirements to ensure the protection of humans and receiving environments. Thus, the Ministère de l'Environnement (MENV) intends to launch studies or cooperate to ongoing studies to determine the impact on air quality of all new uses for chrysotile asbestos. Moreover, the disposal of products that contain asbestos is one of the most problematic issues, since several other jurisdictions (ex: United States) consider these materials as hazardous waste, and require safe management procedures for discarded asbestos products. The MENV may modify its waste management regulations should new elements demonstrate the need to do so.

1.5 Conclusion

Québec is somewhat different from other chrysotile asbestos producers, in that it consumes a very minor proportion of its output, all the while firmly promoting the safe use of this mineral fibre in countries that do use it, mainly in the form of chrysotile cement. Although the *per capita* consumption of chrysotile asbestos in Québec ranks second among producing countries, and that this use is fairly well regulated, its low annual consumption of 5,000 to 6,000 tonnes, and its restricted use of chrysotile cement often generate scepticism on the part of foreign clients. The present policy is designed to clarify this situation, by strengthening the coherence between the international position of the Québec government, and its consumption of chrysotile asbestos

products. However, a healthy dose of caution is warranted to make sure chrysotile asbestos is used safely in the workplace.

This policy targets products considered as safe to use, *i.e.* hard materials from which the fibre practically cannot escape. It complies with existing regulations, and supports measures designed to protect the health and safety of the public and of workers by promoting the safe use of chrysotile asbestos. To do so, experts will fine-tune and improve as needed regulatory measures that govern the use of chrysotile asbestos, thereby demonstrating an exportable leadership in the field. This breaks with tradition, when a poor knowledge of the safe use of chrysotile asbestos, combined with more rudimentary working conditions, resulted in diseases in workers, some of which are still being detected today, given their long latency period.

2. OBJECTIVE

The purpose of the present policy is to increase the safe use of chrysotile asbestos and products that contain chrysotile asbestos. This policy complies with standards aimed at protecting occupational health, public health and the environment. It is designed to stimulate the general demand for these products in Québec, and eventually the manufacture of chrysotile asbestos products in Québec.

3. UNDERLYING PRINCIPLES

The policy applies to non-friable products, where the chrysotile asbestos fibre is firmly locked in the solid mass of the product, from which it cannot normally escape. However, control measures must be taken when dust is released during cutting or sanding operations. These products are listed in section 4 of the present policy.

This policy targets departments and organizations, Crown corporations, health and welfare establishments, health and welfare regional boards and purchasing groups, school boards, general and professional teaching colleges, universities. The latter are listed below (departments and organizations). Furthermore, the Ministère des Affaires municipales et de la Métropole will endeavour to make this policy known to municipalities and municipal organizations, and will invite the latter to endorse the policy.

Departments and organizations, managers of construction projects, when acquiring goods, carrying out or commissioning construction projects, are required to make sure that their plans and calls for tenders authorize products that contain chrysotile asbestos, provided the latter meet the needs and technical requirements of the project. They must also make sure that these plans and calls for tenders consider chrysotile asbestos products and their suppliers on the same basis as their competitors, and that they do not exclude, directly or indirectly, chrysotile asbestos products or their suppliers. Furthermore, when a chrysotile asbestos product is used and the market is not subject

to a free trade agreement, departments and organizations will make an effort to acquire chrysotile asbestos products made in Québec.

The private sector is responsible for the development of the manufacturing industry, and the marketing of chrysotile asbestos products. The government may, if needed, support such initiatives.

The safety of any new chrysotile asbestos product will be evaluated during its manufacture, its installation, its use and its removal, in terms of exposure, control and cost, before the present policy will allow it to be used. Any action derived from the present policy shall be performed in accordance with the laws and regulations currently in force or to be implemented in the future.

4. TARGETED CHRYSOTILE ASBESTOS PRODUCTS

- For streets and roadways:
    - bituminous pavement with chrysotile asbestos
    - acoustic barriers made of chrysotile cement
- For aqueducts and sewers:
    - chrysotile cement pressure pipes
- For public buildings:
    - profiled sheeting for roofs and exterior walls
    - fences
    - sanitary and storm drainage pipes
    - fireproof walls and non-flammable panels
    - steel-core chrysotile cement posts
- For electric power, telephone, cable and lighting networks:
    - steel-core chrysotile cement posts (buried networks)
    - chrysotile cement pipes for underground ducts
- Other products such as:
    - brake and clutch mechanisms
    - gaskets
    - caulking compounds (mastic and tar coatings)
- Plastic products

Several products that contain chrysotile asbestos encapsulated in a resin matrix are being developed. To this end, a research centre devoted to the development of these products should be set up at the Centre de technologie minérale et de plasturgie, based at the Cégep de la région de l'Amiante.

- New products

  The safety of any new chrysotile asbestos product will be evaluated during its manufacture, its installation, its use and its removal in terms of exposure, control and cost. In this context, product promoters will produce a technical specification guide dealing with these parameters to certify that the product meets current standards.

5. ACTION PLAN

The action plan consists of an integrated and coherent approach, based on the concept of risk management. This concept characterizes existing regulations in Québec concerning occupational health and safety. Thus, preliminary steps to implement the policy involve products whose health and safety characteristics are fairly well known, whereas studies will be conducted on the safety of any new product or product currently in the development phase, before its subsequent use is authorized or increased.

The action plan is subdivided into eight steps:

a) Initially, departments and organizations, managers of construction projects, are required to comply with the present policy in preparing their plans and to make sure that their plans and calls for tenders:

   - authorize products that contain chrysotile asbestos, provided the latter meet the needs and technical requirements of the project;

   - consider chrysotile asbestos products and their supplies on the same basis as their competitors;

   - do not exclude, directly or indirectly, chrysotile asbestos products or their suppliers.

   During the first year, emphasis will be put on chrysotile cement products whose "occupational health and safety" and environmental parameters are well known.

b) The MTQ, in cooperation with its partners, will continue studies and assessments to determine the "occupational health and safety" and environmental parameters of bituminous pavement with chrysotile asbestos.

c) The Ministère des Ressources naturelles (MRN) will establish an assistance program to support research, development and marketing of new chrysotile asbestos products. Over the last few years, innovative concepts concerning the use of chrysotile asbestos have led to the development of a system of steel posts with a chrysotile cement sheath (for the distribution of electric power and other cable services), as well as a non-flammable archive paper, thanks in part to the financial support of the government. To support similar initiatives, such as the development of plastics reinforced with chrysotile asbestos, the program will offer financial assistance to promoters.

d) A feasibility study concerning the construction of a chrysotile cement product manufacturing plant in Québec will be conducted, to be funded by its promoters and the governments.

e) The MSSS and its partners will establish a research and monitoring program to study health and environmental issues in light of relevant standards currently in force. Five categories of studies are targeted concerning new uses of chrysotile asbestos:

- scientific studies on the hazards associated with new products;
- determine exposure levels in the workplace;
- medical monitoring of workers (screening);
- develop a monitoring system for asbestos-related diseases;
- environmental data (fibre concentrations in the environment) under the leadership of the MENV.

f) The CSST and its partners will develop the following elements to regulate the safe use of chrysotile asbestos:

- a training program designed to support companies likely to work with or in the presence of chrysotile asbestos products. The employer and its employees will be made aware of the hazards associated with these products, and protection measures to implement when handling or working with the latter;

- a regulation dealing with the identification and traceability of asbestos in buildings;

- the obligation for organizations that use chrysotile asbestos products to ensure the traceability of products (inventory) and to manage the latter in a safe manner (check condition, modifications to make, information to all persons likely to work with these products, etc.);

- expand to the processing sector the integrated intervention program for the prevention of professional lung diseases related to asbestos exposure, currently in force in the Construction and public works sector;

- tools to ensure the safe management of chrysotile asbestos products for user organizations.

g) The Bureau de normalisation du Québec (BNQ), when it reviews its standard on potable water pipes, will establish a plan that refers to external standards, in order to regulate the use of chrysotile cement pipes, and allow the MENV to authorize the installation of chrysotile cement pipes, despite the standard submitted by the BNQ in the spring 2001. Subsequently, the BNQ intends to refer to the new standard concerning these pipes to establish standards that will govern the development of new chrysotile cement products.

h) A government communication plan will be developed in order to explain the risk assessment associated with various chrysotile asbestos products, and the gradual process favoured by the government to increase the use of these products, in accordance with health and safety standards.

6. POLICY ASSESSMENT

The MRN will assess the evolution of the policy annually, to determine if its objectives of increasing the use of chrysotile asbestos, its compliance with regulations, and the benefits derived by the government, are met. Departments and organizations, members of the interdepartmental workgroup on the increased and safe use of chrysotile asbestos, will evaluate these parameters annually in their respective fields of expertise, based on available data, and will relay relevant information to the MRN. The Minister of Natural Resources will produce, for the Cabinet, an annual report demonstrating to what degree the increased use objective has been met, and at what cost.

Monitoring studies will also be conducted to test for all contaminants present in the workplace, and the compliance with standards concerning health and environmental protection. Public health and occupational health authorities will follow the results of these studies, in order to ensure the safe use of chrysotile asbestos, and to prevent the appearance of new cases of disease related to the use of chrysotile asbestos and other contaminants. Furthermore, the CSST will report, as needed, on the implementation of a regulation concerning the traceability of products that contain chrysotile asbestos, and its impact on the health of workers. Finally, the impact of the communication plan on the increased and safe use of chrysotile asbestos will be reviewed annually, in order to make adjustments if warranted.


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