Alberta Medical Association

Submission to the Alberta Coal Policy Committee

August 31, 2021

ALBERTA
MEDICAL
ASSOCIATION

To: The Alberta Coal Policy Committee

The Albera Medical Association appreciates the opportunity to contribute to the public consultation of the Government of Alberta with respect to coal policy.

At the Spring meeting of the AMA's governing body Representative Forum, delegates passed the following motion:

"*THAT the AMA advocate to the Alberta government regarding the health impacts caused by coal mining*"

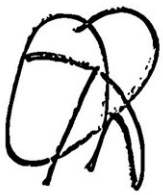
In that spirit, we are submitting the attached discussion paper for consideration by the Coal Policy Committee. We believe that the paper is a useful resource aggregating important information with respect to the health impacts of coal mining.

We understand the complexities of this issue. We are always mindful of the direct link between economic and physical health of Albertans. While we are emphasizing the very real medical harms that coal mining creates, we understand that your committee will also be considering negative impacts from scaling back coal mining that, for example, may occur with individuals currently employed in the industry.

This paper is, therefore, not intended to be exhaustive in scope or approach. As physicians, our expertise is in bringing the best clinical and population health evidence forward. Such considerations are essential to the formation of sound policy. In providing you with this paper as a resource, we hope that this will be the case in the task you have set for yourselves.

Thank you, again, for the opportunity to contribute to this policy dialogue.

Sincerely,



Paul E. Boucher, MD, FRCPC
President, Alberta Medical Association

EXECUTIVE SUMMARY

The Alberta Medical Association (AMA) is concerned about potential adverse physical and mental health issues that may occur if proposed open pit coal mines in Alberta are developed. As such, the AMA is opposed to the development of open pit coal mining without due and detailed consideration of such adverse health effects, planning for an increased need for physical and mental health resources and a detailed health assessment analysis.

Based on known science and on experiences in other jurisdictions where open pit coal mining has occurred, the health concerns relate to:

1) selenium toxicity as a result of increased selenium in water and in food consumed that was produced in soil and water with higher selenium levels,

2) increased cardiovascular disease and cancer and a reduction in quality of life in the mining district potentially related to mining contaminants,

3) increased chronic disease related to dust and dirt particles in the local environment,

4) increased drug and alcohol abuse in the mining communities,

5) increased carbon dioxide production accelerating global climate change,

6) injuries occurring in the mining operation, and

7) the psychological impact on Albertans and other users of the coal mining region where habitat and access will be adversely impacted likely for many generations.

We urge a full, detailed, independent review of the potential for increased open pit coal mining to cause adverse health consequences with a public release prior to any further approval of open pit coal mining. The review should include sensitivity analyses for mining disasters and worst-case scenarios which occur in mining with some frequency including mine bankruptcies with failure to clean up mining sites. Sensitivity analyses should include potential adverse health scenarios observed in other mining communities (e.g., Southeastern United States) where mining causality to the adverse health issues have not yet been ruled out (the benefit of doubt should be in favor of the communities' health) as well as for adverse health effects where causality is firmly established (e.g. selenium toxicity). The analyses should assess the need for enhanced health care resources in the region of the mining and also include adverse health consequences in other jurisdictions adversely affected by the mining (e.g., the proposed mining sites could affect the water supply for major populations in western Canada).

INTRODUCTION

The Alberta Medical Association (AMA) is concerned about potential adverse physical and mental health issues that may occur if proposed open pit coal mines in Alberta are developed. As such the AMA is opposed to the development of open pit coal mining without due and detailed consideration of such adverse health effects, planning for an increased need for physical and mental health resources and a detailed health assessment analysis. Below are seven health concerns that have been identified for your consideration.

DISCUSSION

1) **Selenium toxicity as a result of increased selenium in water and in food consumed that was produced in soil and water with higher selenium levels**

Selenium toxicity (Selenium Fact Sheet for Health Professionals. Accessed June 26, 2021; A Review of Human Health Impacts of Selenium in Aquatic Systems. A report submitted to the International Joint Commission by the Health Professionals Advisory Board, July 2020. Accessed August 31, 2021).

Chronic selenium toxicity (Selenosis) is a well-established consequence of open pit coal mining with significant concerns being documented in British Columbia, in close proximity to the proposed Alberta mines. Selenosis can include diarrhea, nausea, fatigue, muscle aches as well as hair and nail damage or loss. Although selenium is an essential mineral, toxicity occurs from levels not that much higher than what is needed for health.

Selenosis has been linked to consumption of animals/fish and foods from waters and soils contaminated with unnaturally high levels of selenium that are generated in coal mining. People at high risk from selenium in the environment include those who are taking over the counter vitamin and minerals that contain selenium. Well water contaminated by mining may also increase selenium consumption. Water from the area proposed for coal mining is used in irrigation for farms in southern Alberta and Saskatchewan and could increase the selenium content of foods from these areas.

Chronic excess selenium intake has also been both positively and negatively linked to heart disease, diabetes and cancers. The cause-and-effect association with selenium for these diseases have not been established.

Apart from human health issues, high selenium in water causes increased mortality and deformities in the embryos of fish and have the potential to eliminate fish from a water source.

2) **Increased cardiovascular disease and cancer and a reduction in quality of life in the mining district potentially related to mining contaminants**

Decreased quality of life, and chronic diseases in the mining district (Cortes-Ramirez, J., Naish, S., Sly, P.D. *et al.* Mortality and morbidity in populations in the vicinity of coal mining: a systematic review. *BMC Public Health* 18**,** 721 (2018); Hendryx M. The public health impacts of surface coal mining. Extractive Ind Soc. 2015;2(4):820–6. 11; Zullig KJ, Hendryx M. A comparative analysis of health-related quality of life for residents of U.S. counties with and without coal mining. Public Health Rep. 2010;125(4):548–555; Accessed August 31, 2021).

Coal mining has been associated with reduced quality of life, and significant increases in death and disability from cancers, cardiovascular disease, respiratory diseases, congenital disease, chromosomal disorders and other chronic diseases in the vicinity of the coal mine, potentially due to increased exposure to mining related environmental contaminants. Although the association of quality of life and these major diseases with coal mining is consistent in epidemiological studies, many of which were of high quality, these studies do not provide cause and effect evidence. Nevertheless, the findings provide strong concern for the health of people living near coal mining activities. At a minimum there is a need to assess the potential impact of increases in these diseases and a reduction in quality of life in the communities affected and for a need for increased health care resources and costs.

3) **Increased chronic disease related to dust and dirt particles in the local environment**

Dust and dirt particles in the local environment (Airborne dust exposure in coal mines, Protection and control. Queensland Government 2017. Accessed August 31, 2021; Mine dust and you. New South Wales Government, 2017; Environmental groups warn Alberta about Elk Valley coal mine contamination. Accessed August 31, 2021; Dust Management in the Elk Valley. Accessed June 26, 2021.)

Coal mining creates fine silica particles that are associated with silicosis, coal workers' pneumoconiosis, chronic obstructive pulmonary disease and lung cancer. These irreversible diseases occur mainly in miners including open pit miners. Nevertheless, the areas in which Alberta mines are proposed regularly have very strong winds that could carry the dust and dirt particles long distances. In the Elk Valley, near the proposed Alberta open pit coal mines, residents have complained about dust and dirt from the coal mines. People who may be more susceptible to the health effects of fine and coarse particles are infants, children and adolescents, elderly, people with respiratory conditions such as asthma, bronchitis and emphysema, people with heart disease and people with diabetes. There is a need to assess the potential impact of increases in these respiratory diseases and a reduction in quality of life in the communities affected and for a need for increased health care resources and costs.

4) Increased drug and alcohol abuse in the mining communities

Drug and alcohol abuse in the mining communities. (The CBHSQ Report. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 2013-. Accessed July 4, 2021)

Mining workers have much higher rates of alcohol and drug abuse than other types of employment. A report from United States found almost 1 in 5 mining workers reported heavy alcohol use within the past month, 1 in 20 reported illicit drug use within the past month, over 1 in 10 reported drug or alcohol dependence during the past year and 1 in 100 reported an opioid use disorder. The alcohol abuse rates were higher than any other industry. Alcohol and drug abuse likely contributes to the lower quality of life and social problems in mining communities. Developing new mines should include an impact assessment of increased alcohol and drug abuse disorders on individuals and the communities and include planning for an increase in addiction resources.

5) Increased carbon dioxide production accelerating global climate change

Increased green house gas production accelerating climate change. (Climate change and health. World Health Organization. Accessed July 4, 2021)

Climate change is scientifically accepted as a major evolving long-term threat to the health of all life on the planet including human health. Although the mined coal is not destined to be used in Alberta or Canada, it will be burned and contribute to global climate change. Limiting the supply of metallurgical coal will accelerate the use of alternatives to coal in steel production such as electricity and hydrogen.

6) Injuries occurring in the mining operation

Injuries to miners. (Coal mine safety achievements in the USA and the contribution of NIOSH research. National Institute for Occupational Safety and Health. United States. Accessed August 31, 2021.)

Open pit coal mining is a high-risk occupation for injury and death. In the United States, which has some of the worlds safest coal mines in the world, the fatality rate for coal miners is seven times higher than for other occupations. Apart from the individual health impact of work-related accidents, there is a need to plan to enhance the regional emergency service and health care capacity for emergency and chronic work injury related illnesses.

7) **The psychological impact on Albertans and other users of the coal mining region where habitat and access will be adversely impacted likely for many generations**

Psychological impact on Albertans and other users of the coal mining region where habitat and access will be adversely impacted likely for many generations. (Comparison of social costs of underground and open-cast coal mining. Accessed June 26, 2021)

The majestic Rocky Mountains are a source of identity and pride for past, present, and future Albertans and admired worldwide. North and south of the proposed mines, in similar terrain, are some of the worlds most beautiful and admired national parks. The region proposed for mining is now widely accessible to Albertans and other people to enjoy a wide range of outdoor activities. In addition, the land has very significant meaning to aboriginals who have historically and currently use the land. The proposal to open pit mine this region has deeply disturbed and united, in opposition, diverse groups of farmers, ranchers, aboriginal groups, environmental groups, those of differing political views and those in cities and rural areas. The sources of opposition come from concerns and anxiety about the environment, aboriginal culture, adverse health effects, the water supply for southern Alberta and a major part of Western Canada, employment in farming, ranching and tourism, the long-term destruction of the region's beauty, reduced recreation opportunities, and land access amongst others. Many have become highly polarized and organized formal protests and action groups to oppose the mines. It is likely that this psychological distress will increase if the mining proceeds and may last for generations as the mining sites will have altered the fauna, floral and the natural and beautiful landscape potentially forever. An analysis of open pit coal mining found open pit mines to have a likely to almost certain, catastrophic and extreme effect on topography, ground water, flora and fauna, land use (farming and fishing), recreation, and healthcare. Awareness of this impact has adversely psychologically distressed a high proportion of Albertans.

RECOMMENDATIONS

We urge a full detailed independent review of the potential for increased open pit coal mining to cause adverse health consequences with a public release prior to any further approval of open pit coal mining. The review should include sensitivity analyses for mining disasters and worst-case scenarios which occur in mining with some frequency including mine bankruptcies with failure to clean up mining sites. Sensitivity analyses should include potential adverse health scenarios observed in other mining communities (e.g., Southeastern United States) where mining causality to the adverse health issues have not yet been ruled out (the benefit of doubt should be in favor of the communities' health) as well as for adverse health effects where causality is firmly established (e.g., selenium toxicity). The analysis should assess the need for enhanced health care resources in the region of the mining and also include adverse health consequences in other jurisdictions adversely affected by the mining (e.g., the proposed mining sites could affect the water supply for major populations in western Canada).