

PRESENTATION TO THE JOINT REVIEW PANEL FOR THE MARATHON PALLADIUM PROJECT

Session: Human Environment (Air and Noise)

HEALTH CANADA

Presenter:

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Outline

- The nature of Health Canada's review and recommendations, including limitations.
- The areas of expertise for Health Canada's presentation for the Marathon Palladium Project (the Project) are:
 1. Air quality
 2. Noise
 3. Water quality
 4. Traditional foods
 5. Human Health Risk Assessment

Health Canada's Role in Environmental Assessments

- Health Canada is participating as a Federal Authority under section 20 of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012).
- Health Canada is sharing information and knowledge from its experts with the Panel on the potential impacts of the Project on the health of Indigenous peoples.
- Health Canada's presentation will discuss "environmental effects" as described in CEAA 2012, subparagraphs 5(1)(c)(i).

The Nature of Health Canada's Review

Health Canada provides comments on:

- The accuracy, scientific validity and completeness of conclusions concerning potential human health effects.
- Actions that may be taken to mitigate potential health impacts of the Project.
- The appropriateness of proposed follow-up actions or programs to reduce risks to human health.

Limitations to Health Canada's Review

- Health Canada does not have authority to make decisions or issue licenses, permits or authorizations in relation to the Project.
- Health Canada does not evaluate the Proponent's modelling and assumes that the modelling indicates correct results.

Health Canada's Review of the Marathon Palladium Project

- Health Canada reviewed Project documentation and provided recommendations in the final written submission.
- The remaining slides focus on environmental assessment (EA) deficiencies and recommendations to better understand and minimize health risks associated with:

Air Quality:

- Potential contaminants in outdoor air and the potential risk to human health.

Noise:

- Description of noise, exposure, and health effects.

Air Quality



Carcinogenicity of Diesel Exhaust

- Diesel exhaust (DE) exposure can cause cancer and can be linked to other health effects^{1,2}.
- DE is a mixture of contaminants that includes Diesel Particulate Matter (DPM), among others.
- DPM is a non-threshold contaminant; health effects may occur at any level of exposure.
- DPM can be used to represent the toxicity of the full diesel exhaust mixture.

¹International Agency for Research on Cancer (IARC). 2014. IARC monographs on the evaluation of carcinogenic risks to humans. Volume 105. Diesel and Gasoline Engine Exhaust and Some Nitroarenes. Lyon: International Agency for Research on Cancer. Available at: <https://monographs.iarc.who.int/wp-content/uploads/2018/06/mono105.pdf>

²United States Environmental Protection Agency (US EPA). 2002. Health Assessment Document for Diesel Engine Exhaust. Prepared by the Office of Research and Development. Available at: <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=29060>

Carcinogenicity of Diesel Exhaust (cont'd)

- The assessment of the carcinogenic risk of diesel exhaust does not consider the approaches recommended by Health Canada:
 - a quantitative assessment using the California Environmental Protection Agency's (CalEPA) Unit Risk³ for diesel particulate matter; or
 - an in-depth-qualitative assessment.

³California Environmental Protection Agency (CalEPA). 2015. Findings of the Scientific Review Panel On The Report on Diesel Exhaust. As adopted at the Panel's April 22, 1998 Meeting. <https://www.arb.ca.gov/toxics/dieseltac/de-fnds.htm>

Air Quality – Recommendation 1-1 (Summary)

- Describe the risk of cancer, i.e. carcinogenicity, resulting from diesel exhaust emissions from the Project, using one of the approaches recommended by Health Canada.
- Based on the results, consider additional mitigation/adaptive management measures that may have other benefits for reducing diesel exhaust emissions from the Project.

Human Health Risks from Air Pollution and Air Quality Monitoring Program

Nitrogen Dioxide (NO₂)

- Although predicted NO₂ concentrations exceed 2025 Canadian Ambient Air Quality Standards (CAAQS), neither the air quality assessment nor the human health risk assessment (HHRA) is updated to consider these exceedances.

Particulate Matter (PM)

- The Proponent states that the conclusions of the HHRA would not change if predictions excluded the management of fugitive dust from mining activities. However, no supporting information is provided.

Human Health Risks from Air Pollution and Air Quality Monitoring Program (cont'd)

Benzene and Benzo(a)pyrene

- Health risks associated with benzene and benzo(a)pyrene are likely to be underestimated since cancer risks only considered outdoor exposure for a limited duration, without indoor exposure.

Air Quality Monitoring Program

- The proposed monitoring plan does not specify which air contaminants will be monitored and whether outdoor air quality will be monitored at receptor locations where predicted concentrations exceed (or nearly exceed) air quality criteria, standards and/or guidance values.

Air Quality – Recommendation 1-2 (Summary)

- Review and revise conclusions on health risks due to the limitations and uncertainties associated with background levels and the Project's contribution to air pollution levels.
- Monitor air contaminants that are predicted to exceed or nearly exceed air quality criteria, standards and/or guidance values.
- Monitor prior to construction where uncertainties remain in the modelling assumptions.
- Define action levels for implementing additional mitigation measures.

Noise



Total Annoyance from all Noise Sources

- The estimated change in the noise indicator, Percent Highly Annoyed (%HA), may not be representative of Project-related future noise levels because it does not include all sources and applicable adjustments to noise sources.
- Potential sleep-related noise complaints may be received due to rail load out activities occurring outside typical sleep period or if locomotive idling occurs overnight.
- Insufficient detail is provided regarding the noise complaint response protocol.

Noise – Recommendation 4-1 (Summary)

- Recalculate the changes in %HA for all Project phases to account for all noise sources and adjustment factors.
- Use the findings when developing follow-up monitoring and additional mitigation measures at sensitive receptors.
- Provide details regarding the proposed noise complaint-response plan.
- Notify the local community and potentially impacted Indigenous groups in advance of any potential noisy activity.

Health Canada Comments throughout the Review Process

- More information on Health Canada's submissions may be found on the Canadian Impact Assessment Registry:
CIAR # 1077
- Including CIAR Documents # 284, 520, 545, 559, 603, and 905.

Thank you

Questions?