

Michipicoten First Nation: Key Public Hearing Comments on the Marathon Palladium Project

Presented on behalf of MFN by

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Background - 1

- Watersheds in the Marathon region exhibit elevated fish methylmercury levels sufficient to be subject to Ontario fish consumption restrictions for humans. Fish mercury levels are also above CCME guidelines for the protection of fish-eating wildlife.

Background - 2

- Elevated local fish methylmercury levels are attributable to eutrophication.

This is caused by elevated loadings of plant nutrients (nitrogenous compounds, total organic carbon, and, particularly, total phosphorus) from historical/existing regional and continental human development activities.

A Key Issue - 1

- The general Ontario water quality objective (PWQO) for total phosphorus (0.01, 0.02, 0.03 mg/L) is largely based on controlling nuisance algal blooms.

However, there is site-specific guidance:

“The revised PWQO for lakes on the Precambrian Shield allows a 50 per cent increase in phosphorus concentration from a modelled baseline of water quality in the absence of human influence.”

(Ontario Lakeshore Capacity Assessment Handbook, 2010, p 13-14)

A Key Issue - 2

- No site-specific PWQO guidance for phosphorus in local watersheds has been provided by the Marathon Palladium Project.

Thus, it is not possible to determine either the annual effluent phosphorus loading that will meet PWQO requirements or possible treatment/mitigation measures for operational effluent discharges to Hare Lake or post-operational drainage from the proposed pit lakes to the Pic River.

Conclusion

- Given the existing regional eutrophication-induced fish tissue methylmercury contamination, measures to mitigate phosphorus loadings from mine effluent and runoff will likely be required.

The final evaluation and path forward requires development of a site-specific Ontario PWQO for phosphorus.

Recommendation

- For cost-effective mitigation planning the possibility of a wetland treatment lagoon as a final “polishing” step should be examined and included as an option in the site design.

This is a common, commercially viable solution for reducing plant nutrients, as well some other contaminants (e.g., selenium, metals), in treated mine effluent and storm water runoff prior to release into local watercourses.