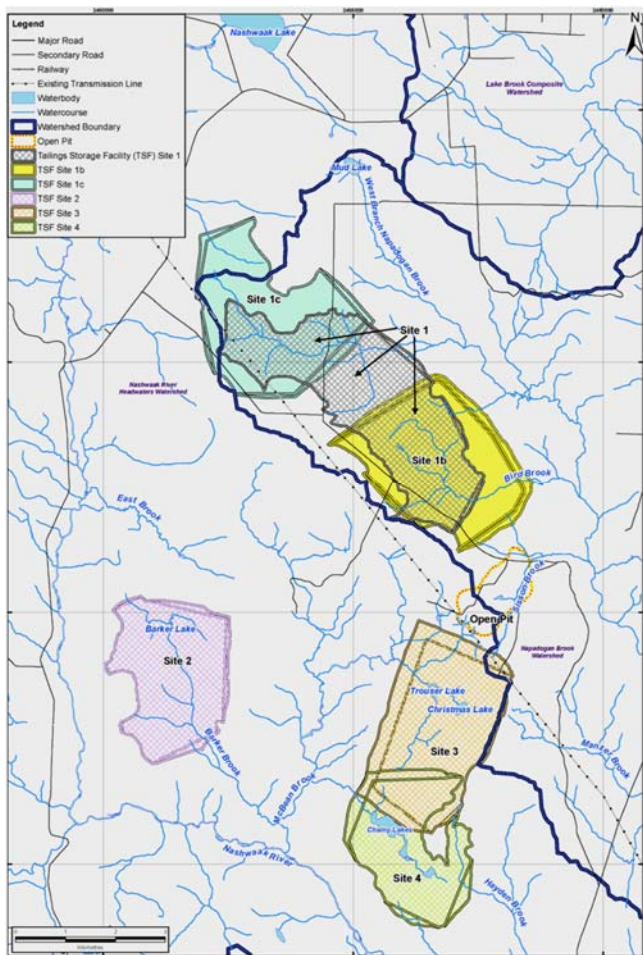




SISSON PROJECT ASSESSMENT OF TAILINGS MANAGEMENT ALTERNATIVES

SEPTEMBER 2015



An assessment of tailings management alternatives for the Sisson Project was undertaken in 2014 and 2015. The assessment conformed with guidelines provided by Environment Canada (2013) to provide information in support of an amendment to Schedule 2 of the Metal Mining Effluent Regulations (MMER).

Three tailings disposal technologies were considered for five potential Tailings Storage Facility (TSF) locations, for a total of 15 candidate alternatives.

A pre-screening or “fatal flaw” evaluation was completed and concluded that the only suitable tailings technology is conventional slurry tailings disposal (due to environmental risks posed by paste tailings and filtered tailings), and that only TSF locations 1b and 1c were suitable for tailings storage (due to impacts to lakes by other TSF location alternatives).

The remaining two candidates (slurry tailings disposal at TSF Site 1b and TSF Site 1c) were characterized according to accounts proposed by the Environment Canada (2013) guidelines, and a number of site and project-specific sub-accounts and indicators, to develop a Multiple Accounts Ledger.

The candidate alternatives were scored and weighted to remove bias from the assessment.

The candidates were scored for each indicator on a scale of 1 to 6 with the value of 6 being the highest score, and 1 being the lowest score, to develop a Multiple Accounts Assessment (MAA). The indicator scores were weighted according to pre-determined relative account weightings (which conform to the Environment Canada (2013) guidelines) to remove bias from the assessment.

The results of the MAA concluded that Site 1b is the preferred TSF location for slurry tailings disposal for the Sisson Project.

Sensitivity analyses were completed to reduce bias and subjectivity from the assessment.

Two sensitivity analyses were completed for the assessment:

- Modify account weightings to reduce bias towards technical and economic indicators
- Modify indicator weightings to increase importance of Aboriginal Land Use and Archaeological Potential

Both sensitivity analyses concluded that slurry tailings disposal at TSF Site 1b is the preferred alternative for tailings management at the Sisson Project.

REFERENCES

Environment Canada, 2013. *Guidelines for the Assessment of Alternatives for Mine Waste Disposal.* <https://www.canada.ca/en/environment-climate-change/services/managing-pollution/publications/guidelines-alternatives-mine-waste-disposal.html>

Environment Canada, 2012. *Metal Mining Effluent Regulations.* <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2002-222/>

Knight Piésold Ltd., 2015. *Assessment of Tailings Management Alternatives.* Ref. No. VA101-4475/5-1, Rev.2. Report prepared for Sisson Mines Ltd. September 18, 2015.

