

February 24, 2022

Ministry of Northern Development, Mines, Natural Resources and Forestry (NRF)
300 Water Street, 2nd Floor, South Tower
Peterborough, ON K9J 3C7

Attention: Cathy Curlew, Resources Planning and Development Policy Branch

Re: Comment Submission for Proposed Regulatory Changes for the Beneficial Reuse of Excess Soil at Pits and Quarries in Ontario

Dear Cathy,

Thank you for the opportunity to comment on the proposed Aggregate Resources Act (ARA) changes. We understand that these amendments are intended ensure NRF policies will be consistent with provincial requirements under the *Environmental Protection Act* (EPA) for excess soil management, Ontario Regulation 406/19 (the Excess Soil Regulation).

Prior to O.Reg. 406/19, much of the excess soils generated across the province would end up in a landfill regardless of its quality. The goal under the Excess Soil Regulation is to improve the management of this resource and facilitate its beneficial reuse, while ensuring protection of human health and the environment. With this objective in mind, the excess soil management practices required for compliance can be viewed under the lenses of designating when excess soil is a waste or a resource, and reducing the strain on provincial landfills.

It is GEMTEC's position that the ARA amendment requiring that Table 1 Standards be met for excess soils placed below the water table is inconsistent with the Excess Soil Regulation. If implemented as proposed, this will not result in an increase in beneficial reuse of excess soil and will instead continue to result in otherwise suitable soils being disposed of in landfills. GEMTEC's detailed rationale supporting this conclusion has been provided in the section below. We expect that the NRF will be receptive to our comments and work with stakeholders to address this concern.

Excess soil placed below the water table

The ARA amendment proposes that excess soil placed below the water table must follow the soil management rules for *environmentally sensitive areas* under O.Reg. 406/19, which means these areas would be limited to the most stringent Table 1 Standards (under the EPA). It is understood that the intent of application of Table 1 (background) under these conditions is to address uncertainty; particularly with respect to the leaching behaviour of metals in saturated conditions

(OSPE, 2021ab). We see this as an approach characterized by an overabundance of caution, particularly given that the Excess Soil Quality Standards developed by the MECP (2020b) include mandatory leachate analysis requirements when applying the volume independent Excess Soil Quality Standards (ESQS, Tables 2.1 to 9.1) (MECP 2020a).

The mSPLP method (E9003) proposed by the MECP adequately addresses uncertainty related to risks associated with contaminants, like metals and hydride-forming metals, in the absence of groundwater data. OSPE (2021b) suggests that the mSPLP assay conditions are only intended to model leachate percolating through unsaturated soils, and may not be representative for potential leachate generation from soils placed in groundwater (i.e. saturated soils). However, this assay essentially digests a 100 gram soil sample in 2.0 liters of acidic extractant, and it can be argued that a liquid to solid ratio of 20-fold is representative of saturated conditions. If the stringent leachate screening levels are met, the ESQS should be protective.

The metal concentration reported by laboratories also represent a total concentration of that metal in water (i.e. the sum of all species and complexes formed by the metal), which is an inherently conservative determination that does not consider the bioavailability of a metal. Geochemical interactions between soil components other than the metal of interest can also limit its dissolution and availability (Health Canada 2010; Richardson et al. 2006). Other considerations in solution equilibrium, like the potential formation of intermediary products at the soil-particle surface that could impede dissolution of the metal, may also have an attenuating effect on the risk of exposure.

When considering the cumulative effects of the conservative aspects of leachate analysis, metal bioavailability and solution chemistry, the marginal risks from fill placed beneath the water table are overestimated adequately by ESQS without application of Table 1 (background) criteria.

Recommendation

If the intent of the Aggregate Resources Act amendment is to ensure NRF policies are consistent with other provincial requirements, then exception “a” should be removed from amendment #1.

If you have any questions, comments or concerns, please do not hesitate to contact the undersigned.



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Manager, Environmental Services

REFERENCES

Health Canada. 2010. Federal Contaminated Site Risk Assessment in Canada, Part V: Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (DQRACHEM).

Ontario Society of Professional Engineers. 2021a. Best Management Practices for Aggregate Pit and Quarry Rehabilitation in Ontario. March 2021.

Ontario Society of Professional Engineers. 2021b. Scientific Report: Best Management Practices for Aggregate Pit and Quarry Rehabilitation in Ontario. April 2021.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 2020a. Rules for Soil Management and Excess Soil Quality Standards. 8 December 2020.

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