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January 10, 2020

Natalie James  
Canadian Council of Ministers of the Environment  
360 - 123 Main Street  
Winnipeg, MB R3C 1A3

Sent via email: [njames@ccme.ca](mailto:njames@ccme.ca)

Reference: Document for Public Review and Comment: Canadian Groundwater Quality Guidelines for the Protection of Environmental and Human Health

Dear Ms. James,

The Canadian Brownfield Network appreciates the opportunity to participate in the public review and comment on the Draft Canadian Groundwater Quality Guidelines (CGWQG) for the Protection of Environmental and Human Health.

CBN's Technical Advisory Committee (TAC) has solicited and compiled comments from interested members for the purpose of making this submission on behalf of CBN. CBN has a diverse membership of site owners, developers, consultants, and industry association representatives who are active in the area of brownfield development within the City of Toronto and across Canada.

CBN is committed to supporting the redevelopment and reuse of brownfield properties through advocacy for regulations and policies that are founded on sound science and appropriate risk, are harmonized across jurisdictions, and provide clarity and certainty with respect to brownfield redevelopment.

CBN strongly supports the CCME's development of the CGWQGs in recognition that these have been based on a thorough review of available science and that these could form the basis of greater alignment amongst provinces.

Our membership has reviewed the draft CGWQGs and has offered the following comments for your consideration.

***Transparency in Key Model Assumptions***

Although modelling details are available publicly in *A Protocol for the 190 Derivation of Groundwater Quality Guidelines for Use at Contaminated Sites (CCME 2015)*, some additional detail is needed in the GWQG document noting basic modelling assumptions used to derive the Tier 1 guideline and the

pathway-specific guidelines. Some specific assumptions used in the models appear to be overly conservative (e.g. 10m distance to water body, water body dilution factor of 1, inclusion of drinking water pathway and 50% solubility management limit in the Tier 1 guideline) and we would encourage reconsideration of these specific parameters.

### ***Support of Probability-Based and Site Specific Modelling***

While the CBN appreciates that the modelling basis for the Tier 1 guidelines is intended to be conservative, as noted above, it is critical that the conservatism of the models used be clearly stated. Additionally, the CCME should within this document explicitly encourage the use of probability-based (e.g. Monte Carlo analysis) and/or site specific modelling to support more sustainable resource allocation to risk-based remedial actions.

### ***Incremental Lifetime Cancer Risk (ILCR) Levels***

The GWQGs for carcinogens have been provided for both  $10^{-5}$  and  $10^{-6}$  ILCR levels. While we note that this was done for convenience, the inconsistent application of ILCR between provinces is a concern as it results in significant inconsistency in standards at Tier 1, Tier 2 and Tier 3 levels. This inconsistency results in uncertainty for stakeholders, as well as inconsistency in applicability of certain remediation technologies and engineering controls. We strongly encourage the CCME to take a position as to the appropriate ILCR to apply across Canada.

### ***Petroleum Hydrocarbon Solubility Limits***

Setting of a Tier 1 guideline at a stated management limit (50% of the theoretical solubility limit) for petroleum hydrocarbons is a highly conservative methodology that is not risk-based. The theoretical solubility limits used in the models represent a single droplet of free phase liquid in the subsurface, which is not representative of risk to human health or ecological receptors. A more risk-based use of the solubility management limits would be to use these as an indicator to trigger a subsurface assessment for free phase liquid, rather than as a direct input into Tier 1 guideline. Alternately, a note could be provided that meeting the Tier 1 guideline (set at the next most stringent pathway-specific guideline value) requires that there is no observed free phase product. These methods of using the solubility management limits would allow the Tier 1 guideline to remain a risk-based value.

### ***Laboratory Detection Limits***

Several of the draft guidelines are set at levels below which laboratories are able to reliably detect or quantify. We question the practicality of setting guidelines at levels that cannot be reliably quantified, and suggest, as has been done in Ontario standards development, that guidelines be set no lower than laboratory Reporting Limits.

### ***Background Concentrations***

Several of the draft guidelines are set at levels below background concentrations in some areas of Canada. While we recognize the challenge in setting background concentrations at a national level, the guidelines should clarify expectations where regional background concentrations are higher than the Tier 1 guidelines.

### ***Parameter List***

It is unclear why guidelines are provided for only 101 parameters. Federal Interim Groundwater Quality Guidelines were previously provided for ~180 parameters and Ontario provincial standards are available for 118 parameters.

In response to the CCME's specific questions for consultation, our membership has provided the following comments.

1. *Is the supporting documentation in this package sufficient to meet your needs? Please comment on the credibility, transparency, reliability and reproducibility of the draft guidelines.*

The guidelines, when used with the protocol for derivation, are sufficiently transparent, and are generally based on credible, sound science. Please see above for specific technical concerns.

2. *Eighty-eight of the 101 draft Canadian groundwater quality guidelines have been designated as provisional to reflect the uncertainty and data gaps in the guideline development. Do you have concerns with using provisional guidelines?*

It is unclear why certain guidelines are set as provisional whereas certain jurisdictions (e.g. Ontario and Alberta) appear to feel they have sufficient information available to develop standards.

Where provisional guidelines are developed, it would be helpful to have further information on the level of uncertainty and data gap areas. If the uncertainty in the establishment of the provisional guidelines is high; then the use of these provisional guidelines should be voluntary and for due diligence.

3. *How useful is the format of the current document and guideline tables? Do you have any suggestions to better organize this document?*

The format is simple and easy to use. A summary table would also be helpful in addition to individual pages for each parameter.

We would be pleased to discuss these comments further with CCME. In closing, we thank you for the opportunity to provide comments and input on the Guidelines.

Kindest Regards,



Monisha Nandi  
Chair, Technical Advisory Committee  
Canadian Brownfields Network



Chris De Sousa  
President and Executive Chairman  
Canadian Brownfields Network