

## Q&As – Stage 10 (Omnibus) Amendment to the Contaminated Sites Regulation (CSR)

This document provides the Ministry responses to stakeholder questions sent to [site@gov.bc.ca](mailto:site@gov.bc.ca) following the release of the Omnibus amendments to the CSR in late 2016.

### **1. Does MoE have list of woodwaste leachate PCOCs to ensure sufficiently thorough soil and groundwater analytical work? Is there an accepted list of substances in woodwaste leachate for which water quality guidelines (WQGs) have been established?**

No there is no woodwaste leachate PCOC list, however the CSR does list a number of substances which can be associated with woodwaste. The most important of these substances from a toxicological viewpoint are contaminants associated with pesticide and/or preservative treated wood waste including: chlorinated phenolics (e.g. PCP, tetra, tri, di, and monochlorinated phenols), heavy metals (e.g. chromium, copper, arsenic from CCA treated wood), creosote related substances (e.g. various PAHs and petroleum hydrocarbon solvents and/or carriers used in creosote formulation) and PCDDs and PCDFs (e.g. associated with PCP treated wood).

In regards to untreated woodwaste, the most common CSR substance of concern are the non-chlorinated phenolics (e.g. phenol, cresol, dimethyl phenol and nitrophenols).

The BC Water Quality Guidelines (but not the CSR) also list various resin acids (e.g. dehydroabiatic acid and "total resin acids") which can pose aquatic life concerns related to spring freshette run-off from typically Aspen and Poplar log storage sites.

Generally, under the CSR, PCOC selection for woodwaste sites is limited to the above listed treated wood (i.e. chlorinated phenolic) and "natural" wood (i.e. non-chlorinated phenolic substances).

Ultimately the responsibility to ensure adequate consideration of all relevant PCOCs at a site lies with the responsible person for the site or their agent.

### **2. The standards are currently available as a scanned PDF. Is a digital version of the document available?**

No, the ministry is unable to provide an electronic copy of the Omnibus standards.

### **3. Where can the Omnibus webinar series be found on the website?**

They can be found here: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/site-remediation/guidance-resources/presentations>.

### **4. What happens to a site that is currently being worked on and will continue beyond November 2017? Is it grandfathered or will the new standards prevail for closure?**

The Omnibus standards will come into legal force November 1, 2017 and the new standards will apply to sites after that date. Applications received prior to November 1, 2017 will be

processed based on the existing CSR standards. All applications received on or after November 1, 2017 will be processed based on the new Omnibus CSR standards. Applications which wish to be processed based on the new Omnibus standards may also be submitted during the transition year. The ministry will queue and hold such applications for processing after November 1, 2017. See CSR [Admin Bulletin 3](#) for further details on application submissions.

**5. There are some substances currently listed in the CSR that are not found in the Omnibus update. What is the reason for removing substances?**

Many of these substances still exist in the new Omnibus schedules; typically only the names of the substances have been changed based on BCELTA's standardized substance naming convention. Some formerly listed substances may have been deleted from the new schedules based on advice received from BCELTA (e.g. substance is a salt and would dissociate in the environment). In addition, some formerly listed substances adapted from 2004 US EPA Regional PRGs (i.e. former Schedule 10 substances) have been deleted to reflect Omnibus updating based on 2015 US EPA Regional PRGs.

**6. Some standards have increased by orders of magnitude. Is this correct?**

The new Omnibus standards are the result of updating based on the best available toxicological science. Consequently, standards for some substances have become less stringent, while standards for other substances have become more stringent or remained unchanged.

**7. Where does the Canada-wide standards for petroleum hydrocarbons (PHCs) end up in all of this (e.g., F1-F4)? Will BC continue to view the CSR as an equivalent approach for hydrocarbon screening or will we see F1-F4 more?**

The issue of possibly repealing the current CSR Petroleum Hydrocarbons (PHC) standards (e.g. VPH, LEPH & HEPH) and replacing them with the CCME Canada-wide standards (CWS) for PHC was consulted on as part of the public Omnibus stakeholder review process. There was considerable controversy between various stakeholders' views in respect to the relative merits of adopting, or not adopting, the CCME CWS PHC standards. As a result the ministry elected to defer the entire issue to the next 5-year cycle of CSR standards review (OM3).

As a result, the Omnibus will have no effect on how PHCs are assessed or remediated in British Columbia over the near term. The CSR PHC standards will continue to be applied on sites under the Province's jurisdiction and the CCME PHC standards will continue to be used on sites subject to Federal jurisdiction. Typically, this will mean that Federal, and co-jurisdictional (i.e. joint Federal and Provincial jurisdiction) sites in British Columbia will continue to be delineated, assessed and remediated to the more stringent CCME CWS PHC "standards".

**8. Is there any further information available regarding the new leachate test methods that can be used to assess soil for relocation or to develop site specific soil standards? Will it be possible to exclude the application of matrix numerical soil standards that are dependent on soil pH and/or specific groundwater uses such as DW, AW, IW, if the leachate test results demonstrate that the exposure pathway is inoperative?**

The ministry is committed to provision of a leachate test and associated CSR protocol related to its application by November 1, 2017. Please see the Omnibus Webinar presentation #4 on leachate testing and P2 renewal, found [here](#) for further details.

- 9. In September 2016, the US EPA updated the toxicity reference value (TRV) for ammonia, based on an extensive review and re-analysis of the available toxicological data, published on the IRIS database. As part of the MoE Omnibus update, TRV's for substances were evaluated and updated as appropriate, prior to the US EPA's update to ammonia. Will MoE recalculate the standards based on the updated US EPA TRV?**

This situation was anticipated as part of the Omnibus project. With the concurrence of stakeholders, as detailed in the protocol papers, it was decided that the ministry and CSAP TRV's to be used in deriving the Omnibus standards would be "crystalized" on October 20, 2015. Changes to TRV's forthcoming after the crystallization date, unless indicating an exceptional high risk associated with an Omnibus derived standard (i.e. a change in TRV which results in a standard more than 2 orders of magnitude more stringent than the existing Omnibus standard), will be left to the next 5 year cycle (OM3) of CSR standards revision.

- 10. Looking at the Omnibus trichloroethylene and tetrachloroethylene matrix standards, there are no soil standards listed for the groundwater used for drinking water pathway, but it also doesn't say NS (no standard). Trichloroethylene in soils previously had a standard for groundwater use for drinking water, and tetrachloroethylene previously had NS. With Omnibus, are they NS, or are there some missing standards?**

The lack of Omnibus soil to groundwater used as drinking water matrix soil standards for tetrachloroethylene and trichloroethylene indicates that once the Stage 10 amendment comes into legal force, there will no longer be a legal duty under the CSR to consider this pathway when determining if a site is contaminated or to demonstrate satisfactory remediation for a site. The decision not to set soil to groundwater used as drinking water matrix standards for tetrachloroethylene and trichloroethylene under the Omnibus was made as a result of the inherent conservatism built into the soil to groundwater transport model used to calculate the standards, which resulted in extremely low (i.e. stringent) soil standards being returned for the two substances.

Note that the NS notation was not used since it was in fact possible to calculate toxicity-based soil to groundwater used as drinking water soil standards for tetrachloroethylene and trichloroethylene. Note also that the decision to not set these particular matrix soil standards under the CSR does not limit the director's ability to issue Pollution Prevention or Pollution Abatement orders related to the presence of tetrachloroethylene or trichloroethylene under the *Environmental Management Act*, if the director is satisfied on reasonable grounds that these, or any other, substances are, or are capable of, causing pollution.

- 11. BCEL TAC agreed to consolidate the benzo [b] and [j] isomers for the regulation limit, so it's listed as benzo [b+j] fluoranthenes in the 2017 Omnibus standards. The 2017 Hazardous Waste Regulation (HWR) PAH Toxicity Equivalency Factors (TEF) list them separately (with the same TEFs of 0.1). Should these be harmonized, so the CSR and HWR lists are the same?**

Amendments to decouple certain provisions common to both the CSR and HWR were recently approved (see the July 20, 2016 CSR Update "[Decoupling the Hazardous Waste Regulation and the Contaminated Sites Regulation](#)" for further details). Consideration of possible additional issues related to further decoupling, or harmonizing, of the Contaminated Sites and Hazardous Waste Regulation may be forthcoming as a component of the next 5 year cycle (OM3) of CSR standards revision.

**12. Regarding the new DW standard for cobalt, it seems that many sites will exceed the low standard of 1 µg/L. Is this the case?**

The ministry is considering a number of options to address the possibility of over-capturing sites as a consequence of the Omnibus toxicological-based DW standard for cobalt. One option would be to adjust the standard based on Provincial background for cobalt in groundwater. Unfortunately at this point in time, there is no Provincial background water data for cobalt in shallow groundwater aquifers available. CSAP's current groundwater mapping project may provide adequate shallow aquifer information to allow the development of a Lower Mainland regional background groundwater estimate for cobalt, which might then be used to provide background groundwater release from the new cobalt DW standard. In addition, note that background groundwater release for cobalt (or any other substance) remains available on a site-specific basis under CSR Protocol 9 "[Determining Background Groundwater Quality](#)".

Also note, that the assessment of cobalt as a PCOC at a particular site should only be undertaken in the case that cobalt was actually being used for a CSR Schedule 2 commercial/industrial activity at the site. Environmental consultants should be careful to not blindly order broad "metal scan" analytical packages when assessing groundwater quality at their sites.

**13. Please clarify on the following scenarios for the application of land use standards.**

**Scenario 1: A building of 6 storeys with 1 level of underground parking and elevators. The first floor is all commercial except the lobby to the residences occupying floors 2 through 6. Do commercial land and vapour use standards apply?**

Yes, note parkade vapour standards will apply in the parkade *per se* when the Omnibus comes into effect November 1, 2017.

**Scenario 2: A building of 6 storeys with 1 level of underground parking and elevators. The first floor is all lobby, meeting room and amenity space, with residences occupying floors 2 through 6. Do commercial land and vapour use standards apply?**

Yes, note parkade vapour standards will apply in the parkade *per se* when the Omnibus comes into effect November 1, 2017.

**Scenario 3: A building of 6 storeys with 1 level of underground parking and elevators. The first floor is commercial lobby, meeting room, amenity space and some ground floor residential (living space with bedrooms on 2nd floor), with residences occupying floors 2 through 6. Do commercial land and vapour use standards apply?**

No, if the first floor is used as living space (irrespective of bedrooms being on the 2<sup>nd</sup> floor), then the land use is RL. Note land use will be RL high density, and parkade vapour standards will apply in the parkade *per se* when the Omnibus comes into effect November 1, 2017.

Although the “sleep test” is one consideration used in determining if the land use at the surface of the site is residential, (e.g. in differentiating residential from commercial), the director has for a considerable period of time held that if any portion of the first floor of a building is used as a residence, then the land upon which that residence is constructed constitutes a residential land use.

If the building is on a larger site, or a mixed use site (e.g. a mix of residential and commercial, or a mix of any of the CSR land uses: RL and: WL, AL, PL, CL, or IL), all land uses may apply. A land use is established based on the activities occurring at the surface of the site using the land use definitions in the Regulation. Land use should be established to accurately reflect the land use at surface. There may be cases where a primary land use is identified for a site or parts of a site where multiple activities occur in the same space. Primary land use can be established as per section 12(5) of the Regulation.

**14. Lindane is not listed in Omnibus Schedule 3.4, though it is listed in Schedule 9 currently. Is this an error?**

Lindane is the trade name for an organochlorine pesticide. The Omnibus will prescribe substances based on their respective standardized chemical names. In consequence, Lindane has been renamed as hexachlorocyclohexane, gamma (isomer).

**15. The Omnibus amendments take effect November 1, 2017, but for a risk assessment can the updated standards now be applied for a current HHRA?**

The CSR numerical standards are often used at risk assessment (RA) sites to screen the selection of site-specific PCOCs (Potential Contaminants of Concern). Typically, if the CSR numerical standard is exceeded for a substance at the site, then the substance is initially selected as a PCOC (and often ultimately as a Contaminant of Concern) for the risk assessment.

The Omnibus has made no changes to the CSR risk-based standards (e.g. Hazard Index  $\leq 1.0$ ; Incremental Lifetime Cancer Risk  $\leq 1 \times 10^{-5}$ ) used in RA. The existing CSR numerical standards remain in effect until November 1, 2017 and those standards remain the standards to be used for delineating contamination and for RA initial PCOC selection until that date.

Therefore, for the purposes of RA conducted during the period of transition to the new Omnibus numerical standards (i.e. from now until November 1, 2017) risk assessors will not be able to screen out PCOCs based solely on consideration of a less stringent new Omnibus standard for a substance. Rather, if the current numerical standard is exceeded for a substance, then that substance should initially be selected as a PCOC for the RA to be conducted for the site.

However, if the concentration of a substance at the site does not exceed the new Omnibus standards for the substance, then the RA should document that is the case and the risk assessor can then present arguments based on the toxicological derivation of the new Omnibus standards as the rationale to ultimately screen out the substance as a Contaminant of Concern for RA performed at the site.

**16. We are looking at groundwater monitoring data from an ash landfill that used to be associated with a pulp mill. The pH is coming in at around 10. Looking through the CSR we are not able to find a pH limit to reference. Is one available to use, or if not, why isn't pH included?**

The standards in the CSR are focussed on regulating toxic substances, not physical parameters (e.g. pH). However, many of the CSR soil and water standards for various substances are pH dependent, so soil and water pH at a contaminated site is considered when applying standards for various substances where warranted.

Soil and freshwater protective water quality guidelines for pH (for general assessment purposes) have been set by [CCME](#). However, CCME guidelines are not equivalent to legally enforceable standards, so the CCME pH guidelines should only be viewed as indicators of the general range of "acceptable" pH concentrations in soil and water.

**17. A site is used as a campground, and zoned agricultural land by the regional district (residential land use as defined in the CSR which takes precedence). Neighbouring the property is a pipeline Right of Way, which intersects the top right corner of the property. The pipeline Right of Way is mostly on crown land and no zoning is given by the regional district.**

**What land use would I compare the pipeline Right of Way to before and after November 1, 2017?**

The pipeline Right of Way would be considered to be an industrial land use and this will not change under the Omnibus. Note that your site would be a mixed land use site. Therefore the ministry's preference would be to establish multiple land uses on the site with the pipeline Right of Way as IL land use.

**18. Are campgrounds classified as residential land?**

Yes a campground, trailer park or RV park would be considered to be a residential land use. Note also that once the Omnibus comes into effect, a campground, trailer park or RV park would be considered low density residential land.

**19. In an Omnibus webinar it was stated that provincially and federally designated protected areas where natural wildlands applies are included in Schedule 2.1 Protected Areas. Does this mean that potentially undisturbed traditional territories (beyond reserve boundaries) of First Nations in BC fall under reverted wildlands as opposed to natural wildlands?**

Yes, provided the area of land lying beyond the reserve boundary meets the new Omnibus definition for Wildlands ("wildlands land use" means the use of land for a primary purpose other than an agricultural, commercial, industrial, urban park or residential land use).

If the area is a protected area ("protected area" means an area of land set out in Column 1 of Schedule 2.1 that is established, named, designated or otherwise prescribed under the Act listed opposite in Column 2), then the natural wildlands land use may apply ("natural wildlands land use" means a wildlands land use in respect of a protected area, except in respect of a portion where there is, or previously has been, an agricultural, commercial, industrial, urban

park or residential land use). Otherwise, the reverted wildlands land use will apply ("reverted wildlands land use" means a wildlands land use other than a natural wildlands land use).

**20. Could BC First Nations engaging in or having completed final treaty agreements or establishing FNLMA land codes (where environmental regulations are expected to be equivalent to the provincial regime) have abandoned or undisturbed reserve lands that would be held to a "reverted wildlands" land use?**

If the use is a wildlands land use, then the "natural wildlands" use will only apply in relation to those areas identified as a protected area in Schedule 2.1. Otherwise, the "reverted wildlands" use will apply. The application of these land uses to First Nations lands will depend on the jurisdictions involved. Final treaty agreements usually allow for concurrent regulation in the environmental area, and often specify that provincial law will prevail in case of conflict.

**21. Could provincially listed (red, blue) or SARA listed plant or invertebrate species identified as present on "reverted wildlands" be at greater risk, given that "natural wildlands" afford a higher level of protection (e.g. soil concentration causing 15% effect under natural wildlands vs concentration causing 25% effect on reverted wildlands, using the regression method)?**

The level of acceptable ecological risk provided by the natural wildlands standards is slightly more stringent (i.e. EC15) compared to the level of acceptable ecological risk accorded by the reverted wildlands standards (i.e. EC25). Areas identified as a critical habitat under SARA are included in the areas defined as natural wildlands land use. In addition, the CSR would not over-ride legal requirements to protect provincially listed species. Any site remediated to meet the CSR reverted wildlands standards would also have to meet all requirements related to the protection of listed species under all other applicable Acts and regulations.

**22. The Stage 10 amendments list a groundwater total xylenes standard for aquatic life of 300 ug/L in Schedule 3.2. The Stage 9 amendments didn't have an aquatic life standard. The Stage 9 xylene standard for DW was 300 ug/L, which was based on taste and odour concerns. Is this a possible typo in the Stage 10 amendments?**

The standards for xylenes are listed correctly in the Minister's Order detailing the Stage 10 (Omnibus) amendment to the CSR. The Omnibus will establish a new water quality standard for the protection of aquatic life (AW = 300 µg/L) for xylenes.

This standard is based on the BC water quality guideline value of 30 µg/L. The 2016 protocol for calculating AW standards applies a 10 fold factor to water quality guidelines to set a CSR AW standard (i.e. to yield for xylenes an AW standard of 300 µg/L).

Under the Omnibus, the drinking water standard (DW) for xylenes will decrease from 300 µg/L to 90 µg/L. This change results from adoption of the 2014 Health Canada Guideline for Canadian Drinking Water Quality for this parameter.

**23. Was any consideration given to how standards should be set when properties are located adjacent to one another of differing classifications, for example IL next to RL low density?**

Please see the following CSR documents:

[CSR Protocol 18](#) Criteria for Establishing Multiple Land Uses and Sites, and

[CSR Procedure 6](#) Establishing the Boundaries of a Site.

**24. Regarding the “Bioavailability method for lead” lab manual, it may be useful for MoE to consider allowing site investigators to eventually use the results of bioavailability to adjust standards. In other words, under some circumstances, it may be possible that there are some sites that would not require risk-based standards if MoE was confident about such an approach.**

Agreed, this is one aspect of our initiative (with BCELTA) to attempt to set a standardized broadly applicable bioavailability analytical method. Once BCELTA has completed its work related to developing official analytical methods (for incorporation into the BC Lab manual) for the approximately 17 new omnibus emerging contaminants related substances and development of the new leachate test, the committee will turn its attention to reviewing several human bioavailability tests (including the old BC PREP test and current US EPA bioavailability tests authorized for use in risk assessment) with the goal of developing a standardized human bioavailability analytical method for use in BC.

**25. The title of this document (Bioavailability method for lead) is suggestive that only lead will be allowed for oral bioavailability adjustment. There are a lot of agencies that feel confident enough to allow the bioaccessibility studies for arsenic. Would MoE like some additional information on the rationale for why arsenic is being used?**

We are hopeful that a standardized human bioavailability analytical method can be developed that would be relevant to more substances than just lead. In regard to arsenic, the new Omnibus human health soil ingestion soil standards were developed based on 60% bioavailability for arsenic. Adjustment of the soil ingestion standard for assumed standardized human bioavailability was limited to arsenic since only arsenic has a published standardized bioavailability adjustment factor which has been approved for use by an appropriate regulatory agency (i.e. US EPA).

**26. In Schedule 3.1 Part 1, there is a footnote for a number of parameters (arsenic, beryllium, cadmium, chromium, etc.) that states “Standards have been adjusted based on the 2016 reference Provincial background soil concentrations for the substance”. Could you please provide the location of this document?**

The 2016 Reference Provincial Background Soil Concentrations referred to in the footnote is unavailable at this time. This information will be compiled and provided in the “Background Soil Standards Chapter” of CSR Protocol 28 “2016 Protocol to Derive the Environmental Quality Standards of the Contaminated sites Regulation” to be issued prior to the new Omnibus standards coming into legal effect on November 1, 2017.

**27. Footnote (4) on page 139 of the updated CSR Minister’s Order package says: Vapour standards applied to soil vapour may be adjusted for depth dependent attenuation as specified in a director’s protocol. Is this meant to imply that VAFs should be applied to the standards instead of the site-specific data (i.e., measured concentrations)?**

Footnote 4 in vapour standards table (Stage 9 - Schedule 11, Stage 10 – Schedule 3.3) remains virtually unchanged with the exception of the addition of the underlined language as follows: *Vapour standards applied to soil vapour may be adjusted for depth dependent attenuation as specified in a director's protocol.* This language is not intended to imply that the VAFs should be applied to the standards *per se* vs. the soil vapour concentrations collected at a site, but rather to signal and enable use of VAFs in site assessment.

**28. Regarding the DW standard for chloride included in the Omnibus update, it would appear that the standard has not changed, as it is still listed as 250 mg/L. I understood that DW standards would be health-based (not aesthetically based). Considering that the chloride standard is an aesthetic standard, is there any plan to revise it?**

Significant effort was expended under the Omnibus to derive DW standards for all substances with aesthetic-based DW standards in the current CSR. However, despite this effort, a few substances (e.g. chloride) continue to have aesthetic based DW standards. These substances are identified in the new Schedule 3.2 Generic Water Use Standards by footnote 24.

<sup>24</sup> Standard to protect against taste and odour concerns.

In respect to chloride, careful review was given to the available TRVs for chloride. This review was unable to identify a credible TRV for chloride. As a result, was decided that it was not possible to derive a *de novo* scientifically defensible toxicological based DW standard for chloride for use in the Stage 10 (Omnibus) amendment to the CSR.

Instead, the current CSR chloride DW standard, adopted from the 2014 Health Canada drinking water guideline value (250 ug/L), was retained. Under risk assessment, it may be possible to use more pertinent toxicological information (should it become available) to calculate a site-specific risk-based concentration protective of drinking water for a particular site.

Aesthetic-based CSR DW standards will also be reviewed and possibly updated during the next 5 year cycle (OM3) of CSR standards.

**29. With the Omnibus changes, we would like to confirm the following under CSR Section 46.1:**

- 1) If the soil meets the applicable standards as per 46.1(a), then a CSRA is not required; and,**
- 2) If the soil does not meet the applicable standards in 46.1(a), but passes a leachate test 46.1(b) or risk-based standards applicable to the receiving site as per 46.1(c), then a CSRA is required.**

**We would like to confirm if the conditions of 46.1(a) are met, then a CSRA is not required**

This new section is not a triggering section for the requirement of a CSRA. Rather, by the time you get to this section, you already require a contaminated soil relocation agreement based on the definition of "source site" in section 40. Once a CSRA is triggered, CSR Section 46.1 provides the prescribed standards that apply in respect of suitability of the receiving site for the soil being relocated (i.e. these provisions make explicit the prescribed standards referred to in the Environmental Management Act (EMA) 55(3)(a)). Once the Omnibus comes into force, the results of the leachate test could also be used in accordance with its associated

Protocol to demonstrate the suitability of the receiving site for soil being relocated under a CSRA.

Also, the Omnibus amendments made an unintended change to the definition of “source site” (section 40) which we hope to rectify in the proposed “housekeeping” amendment to be approved immediately prior to the Omnibus coming into force.

**30. Regarding the water standards for tributyltin, triethyltin and triphenyltin. Should the standard be applied to the chloride/hydride/oxide/acetate versions of the analyte also?**

Water standards for tributyltin, triethyltin, and triphenyltin apply to all their complexes, including chloride, hydride, oxide, and acetate. When there are less than four carbon-tin bonds, organotin species exist as cations. Most analytical methods for organotins do not differentiate these different forms or origins, and will simply report the summary concentration.

**31. It would appear that the MOE soil standard for lead (25 µg/g) has been developed for protection of 0.2 IQ decrement, which is extreme. Development of a soil standard for lead may require a unique approach as this is the first chemical that I am aware of where IQ point decrements is used as the endpoint.**

It is correct that the strictly toxicology-based standards for lead are very stringent and that the reasons for this largely relate to: the 20% TRV apportionment, 100% default bioaccumulation factor and the inherent conservatism of the exposure terms used. Furthermore, while it is important to recognize that the CSR numerical standards are, and must be, conservative by design; the use of the above parameters in deriving the standard is the result of policy decisions taken to reduce uncertainty as opposed to limiting exact scientific considerations. As a result, strictly toxicology-based lead standards represent for the most part an “acceptable” concentration of lead in soil essentially equivalent to that seen in pristine, non-anthropogenic influenced background soil concentrations (e.g. circa 25 ug/g). In that respect, perhaps this strictly toxicology-based, and extremely low, acceptable concentration for lead should not be surprising considering that, while lead has definite positive metallurgical, chemical, electrical and other commercial industrial attributes and is an essential material in our modern society, it is also true that lead has no known beneficial toxicological, physiological, ecological or environmental qualities.

Consideration more generally, of the broader issue, of an appropriate extent of conservatism associated with the three parameters listed above for all substances (including lead) as an essential component of next cycle (OM3) review and updating of the CSR soil quality standards is acknowledged. Note however, that these considerations remain somewhat academic in nature in regard to the Omnibus standards for lead, as the strictly toxicological-based soil standards will be adjusted for the new 2016 Reference Provincial Background Soil concentration for lead (see CSR Administrative Bulletin 4 “[Errata for the Stage 10 \(Omnibus\) Amendment to the Contaminated Sites Regulation](#)”).