



Stage 10 Amendments to the Contaminated Sites Regulation

The [Stage 10 \(Omnibus\) amendments to the Contaminated Sites Regulation \(CSR\)](#) under the *Environmental Management Act* have been approved. Following a 12 month transition period, these changes will come into effect on November 1, 2017.

These comprehensive amendments will:

- Update all existing soil, water and vapour standards to reflect contemporary science;
- Simplify the formats and consolidation of existing schedules into four new schedules organized by environmental media – i.e. Schedules 3.1 (soil), 3.2 (water), 3.3 (vapour) and 3.4 (sediment);
- Add new toxicology-based soil/water standards for some emerging contaminants;
- Eliminate Schedule 7 unique soil standards to trigger Contaminated Soil Relocation Agreements and replace that schedule by reference to all the applicable new Schedule 3.1 soil standards;
- Add a new category of vapour standards for parkades for use in at-surface or below-surface parking facilities;
- Provide soil standards for two new and different types of residential land uses - high density and low density - to acknowledge that these two very different residential densities present corresponding different and discrete likelihoods of exposure to contaminants in soil;
- Set two tiers of soil standards for Wildlands to address the distinct and different levels of environmental protection granted for Natural Wildlands (i.e. wildland areas protected under specific statutes for their high conservation value) and Reverted Wildlands (wildlands lacking designated statutory protection including land previously used for industrial uses, which have or will revert to wildlands land use);
- Add required authority for new Director's protocols to define carcinogenic substances and leachate testing analytical methods and procedures;
- Establish a regulatory commitment to an ongoing five year fixed cycle of review to ensure CSR standards are regularly assessed and updated;
- Provide transitional provisions to allow the effective administration of the regime during the 12 months leading up to the new standards coming into effect; and
- Trigger the need for consequential amendments to the [Hazardous Waste Regulation \(HWR\)](#) and [Organic Matter Recycling Regulation \(OMRR\)](#) to update relevant standards in these two regulations to maintain consistency with the new standards of the Contaminated Sites Regulation (CSR).

Updating the soil, water and vapour standards to reflect current science

The numerical standards contained in the CSR have, for some time, required a comprehensive review and update. Many numerical standards have not been updated since they were originally derived or adopted (circa 1995/96).

For many of the generic standards, the method of derivation is either unknown, does not reflect the ministry's current levels of acceptable human or ecological health risk or is based on now obsolete toxicological data.

In the case of matrix standards, the existing matrices have been updated based on modern toxicological data. In addition for a number of substances currently having only generic standards, new matrices have been developed.

While there have been ad hoc amendments to the standards since the CSR's implementation in 1997, these updates have typically focused on: updating high profile substances (e.g., arsenic, iron, manganese, lead); revisions to maintain currency with changes in Canadian drinking water guidelines; and introducing standards for new categories of substances and new environmental media (e.g., sediments and vapours).

With input from stakeholders and partners, the ministry has undertaken a comprehensive review and updating of the CSR numerical standards taking into consideration:

- New BC ENV groundwater model;
- New toxicology (e.g., new Toxicity Reference Values (TRVs); and
- New derivation protocols for environmental quality standards from environmental agencies around the world.

As a result, CSR numerical standards for some substances have increased reflecting higher allowable concentrations (i.e., less clean-up will be required to meet the new standards), yet for other substances, the standards have decreased (i.e., become more stringent, requiring more clean up to meet the new standards); for many substances the new standards are unchanged from the existing standards; and for a number of newly prescribed substances, completely new standards will be introduced.

A formal review of the existing sediment quality criteria confirmed that many North American jurisdictions have adopted sediment quality standards identical, or substantively similar to, the sediment criterion in the current CSR. As a result, other than transforming the existing criterion into standards, the numerical limits for prescribed substances in sediment remain essentially unchanged.

Reformatting the standards into schedules based on media

To make it easier for users, the CSR standards have been reorganized and consolidated into four schedules, each presenting standards for a specific media – soil, water, sediment and vapour. Within these schedules, all substances are listed alphabetically, following a standardized naming convention, along with their corresponding Chemical Abstract Services (CAS) number.

The new soil standards schedule (Schedule 3.1) includes three parts:

- Part 1 – Matrix numerical soil standards
- Part 2 – Generic numerical soil standards to protect human health
- Part 3 – Generic numerical soil standards to protect environmental health.

The water standards have been consolidated in Schedule 3.2 and updated to reflect contemporary toxicological and scientific information. The original categories of water quality standards (protection of aquatic life, water used for irrigation, livestock watering, and drinking water) have been retained.

The vapour standards have also been updated based on a detailed review of modern toxicological data from other jurisdictions. These new standards are presented in a new Schedule 3.3.

Addition of new contaminants of concern

A number of substances comprising Contaminants of Emerging Concern have been added to the water and soil schedules. These particular substances were included based on consideration of their toxicity, persistence in the environment, and relevance to contaminated sites in BC. Examples of substances included are perfluorinated compounds (e.g., PFOS) and specified additives to natural gas processing (e.g., sulfolane).

Addition of new exposure/land use scenarios

Two new exposure/land use scenarios have been added to the CSR:

- High and Low Density Residential; and
- Natural and Reverted Wildlands.

Setting different soil standards for high density residential and low density residential land uses acknowledges that these residential densities present very different and discrete exposure scenarios to contaminants in soil. For example, an individual is much less likely to have access to a backyard vegetable garden at a

high rise apartment than at a single family home with a yard.

For the first time, purpose derived Wildlands standards have been set to protect land used to support native ecosystems; the previous CSR Wildlands standards were simply adopted Urban Park/Agricultural standards serving as surrogate Wildlands standards.

There are now two types of Wildlands standards: Reverted Wildlands - which targets an EC₂₅ level of acceptable ecological impact (i.e., identical to current AL/PL surrogates) and Natural Wildlands - which targets a more stringent EC₁₅ (i.e., a 15% residual level of impact to ecological receptors).

Natural Wildlands standards apply to specific established, spatially-defined and designated protected areas that are identified in the new Schedule 2.1 of the CSR. Guidance will be developed to provide information on the geographic areas covered by the Natural Wildlands land use. Reverted Wildlands land use encompasses any other Wildlands (i.e., land other than Agricultural, Commercial, Industrial, Urban Park or Residential).

Inclusion of vapour standard for parkade use

It is important to specifically regulate vapour intrusion into at-surface or below-surface parking facilities which represents the closest point of potential vapour intrusion emitted from contaminated soil, sediment or groundwater. To achieve this aim, a new set of parkade vapour standards have been derived for inclusion in the new Schedule 3.3. These new parkade standards will apply only to the portion of a building actually being used as a parkade. For example, for a below-surface parkade located under a high density

residential complex the parkade vapour standards will apply in the parkade; while the residential vapour standards will apply in the rest of the building.

Triggers for soil relocation agreements

With the repeal of the existing CSR Schedule 7, the provisions of EMA (sections 55 (1)(3) and 63 (1)(o) and the CSR (Part 8) have been revised to allow the use of the entire suite of new standards in Schedule 3.1 and 3.3 in determining when a soil relocation agreement is required to relocate soil to a receiving site.

The use of the new soil and vapour standards streamlines the administration of soil relocation while providing soil standards protective for both remediation and relocation purposes. Further flexibility is provided by enabling those wishing to relocate soil to undertake a leachate test (to be authorized in a director's protocol) to demonstrate that the soil will not adversely impact water quality on the receiving site.

Consequential amendments to the HWR and the OMRR

The HWR Schedules 1 and 1.1 provide updated dioxin and furan Toxicity Equivalency Factors (TCDD-TEFs) and polycyclic aromatic hydrocarbon (PAH) Toxicity Equivalency Factors (BaP-TEFs) for use in calculating dioxin and furan Toxicity Equivalent Quotients (dioxin & furan TEQ) and PAH toxicity Equivalent Quotients (PAH TEQ) for use in determining when 'waste containing dioxin' and 'waste containing PAH' contain concentrations of dioxin or PAH that constitute hazardous waste and therefore must be managed according to the HWR.

The existing dioxin and PAH TEFs of the HWR have not been updated since the late 1980s.

These amendments bring the HWR dioxin and PAH TEFs in line with the most recent scientific toxicologically based dioxin and PAH TEFs available from the World Health Organization - International Program on Chemical Safety (WHO/IPCS) circa 2007.

Schedules 9 and 10 in the OMRR reflect the soil substance concentrations permitted in Class A and B biosolids and Class B compost being used for land application. These soil standards must be consistent with the CSR to ensure that managed organic matter being applied in compliance with the OMRR are at or below levels which would cause the site to be considered "contaminated" under the CSR.

As a result of the CSR updates, there are now new more comprehensive matrix soil standards to replace the current OMRR Schedule 9 generic soil standards for cobalt, molybdenum, nickel and selenium. The current OMRR Schedule 10 matrix soil standards for arsenic, cadmium, chromium, copper, lead, mercury (inorganic) and zinc have also been updated to be consistent with the new CSR matrix standards. As a result, the current OMRR Schedules 9 and 10 have been replaced by a new single schedule of matrix soil standards for all 11 OMRR listed substances.

Commitment to a five year review cycle

The investment made by site owners to clean up contaminated sites is significant, often in the hundreds of thousands to millions of dollars range. Ensuring that this money is spent remediating a site to a valid, science-based, defensible standard adequately protective of human and environmental health is critical to the integrity of the BC contaminated sites regime. The remediation of sites can also take many years and it can be problematic and expensive for site owners to

have to recalibrate their remediation projects mid-stream to meet new ministry standards.

To provide greater certainty related to the timing of future changes to the standards and to ensure that money is being spent undertaking site remediation to valid, science-based, defensible standards, provisions have been added to the CSR requiring the director to complete a review the CSR standards every five years and bring recommendations related to needed revisions of the standards to the Minister for consideration.

Transitional provisions until November 1, 2017

To provide for effective administration of matters that are already in progress under the current CSR standards, applications for legal instruments will be considered for approval under the current version of the CSR standards, provided such applications are submitted before the Stage 10 (Omnibus) Amendments to the CSR come into force on November 1, 2017.

[Administrative Bulletin 3](#) provides additional details of the process to be followed and the conditions that must be met should you wish to progress your application for a legal instrument under the current CSR standards during the transition period.

Note: This document is solely for the convenience of the reader. It does not contain and should not be construed as legal advice. The current legislation and regulations should be consulted for complete information.

For more information, contact the Environmental Emergencies and Land Remediation Branch at site@gov.bc.ca.