

OMNIBUS UPDATING OF CSR STANDARDS

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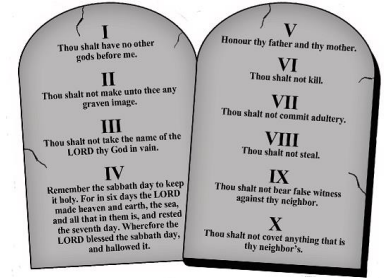


Ministry of
Environment

CSR STANDARDS – WHY UPDATE ?

Many CSR standards have never been updated:

- Soil/water standards date from 1996/97,
- Sediment standards date from 2004,
- Vapour standards date from 2009.



Ad hoc amendments to standards have focused on:

- Updating for “high profile” substances (arsenic, iron/manganese, lead),
- Keeping drinking water standards current with Canadian drinking water guidelines,
- Introducing standards for “new” categories of substances (non-prescribed substances – Schedule 10) and,
- “new” environmental media (vapours – Schedule 11).



CSR STANDARDS – NEW ISSUES FOR STANDARDS

Need to address new science related to the derivation of standards



- new BC MoE groundwater model,
- new toxicology
(bioaccumulation, genotoxicity, immunoactive/hormonal agents, toxic interactions),
- new TRVs
(cadmium, dioxins & furans/PCB TEQs, lead, TCE),
- new toxicity derivation protocols
(CCME, US EPA, WHO/EU, Health Canada, SABCS),
- new exposure/landuse scenarios
(high density residential, wildlands).

CSR STANDARDS – NEW ISSUES FOR STANDARDS

Need to address new emerging toxicants of concern:

| Class | Substance | Toxicity |
|---|---|---|
| Antibacterials | triclosan | Aquatic toxicity |
| Antioxidants/preservatives Heterocyclic/organosilicons | 1,4-dioxane, siloxanes, alkylated PAHs | Carcinogens |
| Endocrine disruptors | E2, BHA/BHT, nonoxinol, paraben alkylates, TBT | Infertility, intersex, congenital defects |
| Fire retardants | PBDEs, PFCs (e.g. PFOS) | Immunosuppression, neonatal mortality, thyroid/estrogen disruption |
| Plasticizers | Bisphenol A, alkylated phthalates | Estrogen mimic, neurotoxin, leukemia |
| Nanomaterials | nanosilver, nanocopper, carbon nanotubes | Physical/chemical toxicity at: molecular, cell, organ and physiological system levels |

CSR STANDARDS – NEED FOR SCHEDULED MAINTENANCE



Need to provide certainty for maintenance of standards

Stage 10 amendment to CSR will propose incorporating a fixed schedule for standards updating (e.g. 5 year cycle?) to provide:

- Regulatory commitment to ensure standards are maintained and reflect current best science, and
- Temporal certainty for responsible persons, environment consultants and public regarding when changes to standards would occur

Majority of Omnibus work to be done “in-house” by LRS Risk Assessment Staff

Draft Proposal Papers

- Individual staff have been assigned various CSR Schedules of Standards to update
- Staff have completed following Draft Proposal Papers detailing proposed CSR Stage 10 Amendment changes to:
 - Schedule 4 - Generic Human Health and Environmental Health soil standards
 - Schedule 5 - Matrix Human Health soil standards, Environmental Health soil standards and Soil to Groundwater Protective soil standards
 - Schedule 6 - Water Quality Standards
 - Schedule 7 - Contaminated Soil Relocation soil standards
 - Schedule 9 - Sediment Quality standards
 - Schedule 10 - Generic Human Health soil standards and Generic Drinking Water standards
 - Schedule 11 - Vapour Quality standards

CSR STANDARDS UPDATING – OMNIBUS UPDATING TEAM

Ancillary Draft Proposal Papers

Additional Draft Proposal Papers prepared for:

- Omnibus Updating Overview
- High Density Residential soil standards

Ancillary Changes to CSR Protocols

Omnibus changes will also require revisions to:

- Protocol 11 Upper Caps (Update for new CSR standards)
- Protocol 13 Screening Level Risk Assessment (GW model)
- Draft Protocol 21 Water Use Determination (GW model)

Ancillary Changes to other EMA Regulations

- Hazardous Waste Regulation (Dioxin & Furans TEFs)
- Organic Matter and Recycling Regulation (soil standards)

PROPOSAL PAPERS – FORMAT/STYLE

Discussion Document: For Internal Ministry Consultation

CSR OMNIBUS UPDATING: Proposed Amendments to Schedule 4

Author: Lizzy Mos/Glyn Fox

Date: January 2015

Summary of Proposed Updates for 2015/2016 Stage 10 amendment to CSR

1. Repeal existing CSR Schedule 4 and move existing schedule 4 substances into proposed new single schedule of consolidated schedule 4, 5 and 10 soil standards.
2. Where sufficient toxicological data exists, for each substance listed in schedule 4, derive new human and ecological health matrix soil standards for use in the proposed new single schedule of CSR soil quality standards.
3. Where toxicological data is insufficient to calculate both mandatory matrix soil standards (i.e. Human health protection – Intake of contaminated soil and Environmental protection – Toxicity to soil invertebrates and plants), use the existing schedule 4 soil standard as the mandatory matrix standard.

Introduction

British Columbia Contaminated Sites Regulation (CSR) Schedule 4 contains generic numerical soil standards for five land uses (agricultural, urban park, residential, commercial, and industrial). The current Schedule 4 standards are considered to be generally protective of both human and environmental health.

The existing Schedule 4 soil quality standards were largely sourced from early CCME, 1991 [1] and BC Ministry of Environment, 1995 [2] documents. However, many of the early soil standards [1, 2] actually trace their lineage back through even earlier BC Ministry of

Proposal Papers - Format

All papers follow same general format

- Up-front Summary section on stage 10 amendment proposals
- Rest of Document:
 - Rationale for proposals, and
 - Discussion for “Next Cycle” revisions

CSR STANDARDS UPDATING – DRAFT PROPOSAL PAPERS

Overview Proposal Paper - “Decided Elements”

Soil Quality Standards

- New single schedule “Sch X” of soil standards (Combines Sch 4, 5 & 10 stds)

Schedule X - Matrix Soil Standards

- Two types of Residential Standards
 - Low Density Residential (RL_{LDR}) : single family based
 - High Density Residential (RL_{HDR}) : multiple family based
- Wildlands land use
- New Soil to Groundwater protective standards (Calculated using new Groundwater model and default assumptions)

[Schedule X Part 1 Matrix soil standards](#)

CSR STANDARDS UPDATING – DRAFT PROPOSAL PAPERS

Schedule X - Generic Soil Standards

- Derive matrix standards for some Schedule 4 substances
- Update all Schedule 10 standards using current US EPA Soil Screening Values modified per CSST exposure assumptions and BC MoE acceptable risk levels
- Combine remaining Sch 4 and Sch 10 generic standards into:
 - Sch X Part 2 – Listing of Human Health Protective generic soil standards
 - Sch X Part 3 – Listing of Environmental Health protective generic soil standards
 - Use current Sch 4 standard as Environmental Health standard
 - Use “NS” (no standard) as EH standard for current Sch 10 listed substances

[Schedule X Part 2 & 3 Generic soil standards](#)

CSR STANDARDS UPDATING – “DECIDED ELEMENTS”

Contaminated Soil Relocation Standards

- Repeal Sch 7 Contaminated Soil Relocation standards
- Revise language of CSR Part 8 - Contaminated Soil Relocation to eliminate reference to Sch 7 soil standards and substitute reference to “applicable soil standards” to determine when CSRA is required
- “Applicable soil standards” to be the proposed new “Sch X”

Water Quality Standards

- New single schedule of water standards (Combines Sch 6 and 10 DW standards)
- All water standards to be toxicity based
 - derive toxicity based DW standards for substances with aesthetic Canadian Drinking Water Guidelines

CSR STANDARDS UPDATING – “DECIDED ELEMENTS”

Sediment Standards

- Change Sch 9 sediment criteria into legal sediment standards

Vapour Standards

- Derive new Sch 11 standards specific to “parkade” exposure scenario

All standards

- Will be updated based on current TRVs

Emerging Contaminants of Concern

- Some emerging substances of concern (e.g. PFOS, E₂, etc.) will be added as prescribed substances under the CSR

CSR STANDARDS UPDATING – PROPOSED TIMELINE

Goal - Implement omnibus update to standards - Late Spring 2016

| Date | Task to be completed |
|---------------------|--|
| July 6 - Aug 31 | Draft proposal papers posted to website for comment |
| July 20 – Aug 21 | Draft proposal papers - focussed stakeholder review mtgs |
| Sept 7 - Oct 2 | Proposal papers finalized to incorporate stakeholder review |
| Oct 26 | Final proposal papers posted to web for information |
| Sept 7 – Nov 30 | Calculate revised/updated standards for Minister's approval |
| Dec 14 | Present examples of updated new standards at conference |
| Jan 15 – Feb 12 | Final focussed stakeholder mtgs on final new standards |
| Jan 4 – April 1 | Prep Stage 10 CSR Amendment MO package |
| April 15 – April 29 | Minister's review/approval of Stage 10 CSR amendment |
| May 6 | CSR Stage 10 Amendment – Implemented and in effect |

CSR STANDARDS UPDATING – IMPLICATIONS

LRS staff will be busy doing standards work over next 18 months!



Expect delays:

- RA reviews,
- RA Protocol 6 preapprovals,
- Background release approvals
(soil, sediment, vapours),
- Communication & assistance

QUESTIONS ?

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CSR STANDARDS - UPDATING PROPOSED PLAN

| LRS staff | CSR Schedule | Updating elements |
|--------------------------------------|--------------------------|--|
| GRF | Project lead | Overall responsibility - project & implementation |
| Lizzy | 4 (Generic soil) | “Dual column” Sch 4 (discrete Human and Ecological Health stds) “migrate” Sch 4 substances into Sch 5 |
| Lizzy Remi George Peter | 5 (Matrix soil) | Human Health std revisions - recent TRVs, update D&F for WHO TEQs Ecological Health std revisions - develop protocol for Wildlands Re-calc Sch 5 soil to water stds using new GW model, consider need for new soil to water stds Develop protocol for High Density Residential stds |
| Heather | 6 (Water) | Derive DW stds for substances lacking Can. DW Guidelines, Update AQ Life, Livestock and Irrigation stds |
| GRF | 7 (CSRA | Consider major revision, replacement or elimination |
| Lizzy | 9 (Sediments) | Convert criteria into standards, Update existing standards, consider adding new substances |
| Peter/GRF | 10 (generic soil/ water) | Update/add new substances and standards |
| Peter | 11 (vapour) | Update existing substances – recent TRVs, Consider need for new standards to address semi-volatile substances |