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### Article 12 – Contaminated Sites

#### **Information submitted by the Government of Canada to complement and further improve the draft guidance on contaminated sites, as called for in Decision MC 2/8.**

Canada has well-established federal, provincial and territorial programs to identify, assess and remediate contaminated sites, including those contaminated by mercury or mercury compounds. Canada has established the Federal Contaminated Sites Inventory<sup>1</sup> as well as the Federal Contaminated Sites Action Plan (FCSAP)<sup>2</sup>, which are applicable to federal lands. Furthermore, provinces and territories have legislation, regulations, guidelines and/or a program in place to govern contaminated sites management. The Canadian Council of Ministers of the Environment (CCME) has also developed guidelines to support contaminated site identification and management.

The Secretariat has invited Parties to submit information and comments on:

- (a) Situations that are site-specific to mercury that parties may face, such as the decommissioning of chlor-alkali plants and addressing contamination due to artisanal and small-scale gold-mining activities, etc.;
- (b) The role played by inventories of contaminated sites in strategies and policies relating to contaminated sites;
- (c) Prioritization for further action on contaminated sites based on risk assessment;
- (d) The interface between contaminated site policies and land use planning policies;
- (e) Existing procedures for the characterization of contaminated sites, including approaches and techniques for sampling and analysis;
- (f) The existing range of proven and emerging remediation techniques, including situations in which certain techniques may or may not be appropriate, environmental advantages and drawbacks and costs;
- (g) Socioeconomic and cultural considerations during the remediation of contaminated sites; and
- (h) Information on approaches to financing work on and building capacity for the identification, assessment, remediation and risk management of contaminated sites, including frameworks for domestic financing.

Canada has already provided information on items (b), (c), (e), and (f) in its submission prior to the first Conference of the Parties<sup>3</sup>. Additional resources on these topics were provided to the Secretariat during the intersessional expert group review of the contaminated sites document following COP1. We suggest that the Secretariat review these documents for additional information that would be helpful continued work on the guidance document.

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<sup>1</sup> <http://www.tbs-sct.gc.ca/fcsi-rscf/home-accueil-eng.aspx>

<sup>2</sup> <https://www.canada.ca/en/environment-climate-change/services/federal-contaminated-sites/action-plan.html>

<sup>3</sup> <http://mercuryconvention.org/Negotiations/submissionsforCOP1/tabid/5535/Default.aspx>

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The submission below presents information from the FSCI, as well as from experiences with contaminated sites within Quebec (a provincial jurisdiction):

### (a) Situations that are site-specific to mercury that parties may face

- Hydrometric monitoring stations using servo-manometers: Prior to 1997, Quebec hydrometric monitoring stations were operated using mercury servo-manometers. Due to large fluctuations in water levels, mercury was, in some cases, released from the instrument and ended up in the nearby sediments. Since 1997, all hydrometric sites in southern Quebec have been decontaminated.<sup>4</sup>
- Chlor-alkali facilities: Due to the absence of environmental regulations prior to the 1970s, the lands of former industrial plants in Quebec could be contaminated with mercury. At one chlor-alkali production facility, 360,000 cubic metres of mercury-contaminated soil was treated using a physical separation process to recover liquid mercury and placed in a specially constructed containment cell located on the same property. As sediments of the river downstream of the facility were also found to be contaminated with mercury, they were dredged and added to the containment cell.<sup>5</sup>
- Harbours and lighthouses: The surrounding soils and sediments around lighthouses and harbours may be contaminated with mercury due to the use of mercury containing products (e.g. paint, fungicide, lightbulbs, batteries) used in the construction, operation, and use of these structures. In many cases, the soils and dredged sediments are placed in specialized containment cells on or offsite.
- A description of the successful remediation of certain federal contaminated sites in Canada can be found on this website: <https://www.canada.ca/en/environment-climate-change/services/federal-contaminated-sites/success-stories.html>. While these sites are not all mercury-contaminated sites, they may be helpful case studies to draw upon when preparing the draft guidance document.

### (b) The role played by inventories of contaminated sites in strategies and policies relating to contaminated sites

Between 2000 and 2002, the Treasury Board of Canada approved a policy framework for the management of federal contaminated sites. The framework was a collection of policies and best practices to guide federal organizations (custodians) in the management of federal contaminated sites and was accompanied by the public release of the FCSI.

The FSCI includes information on all known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use

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<sup>4</sup> For more information see Service des lieux contaminés – MDDEP, 2006. Programme de réhabilitation des stations hydrométriques contaminées au mercure (Période 2003-2005).

<sup>5</sup> For more information see Dessau, Soprin (2004). Projet conjoint PPG Canada inc. et Alcan inc. Restauration d'un tronçon de la rivière Saint-Lois, Beauharnois, Québec. Étude d'impact sur l'environnement déposée au ministre de l'Environnement.

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that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

To date, departments, agencies and consolidated Crown corporations have identified and classified over 22,000 contaminated or suspected contaminated sites in urban, rural and remote areas across Canada, using the CCME's National Classification System for Contaminated Sites (NCSCS).

In accordance with the Government of Canada's Treasury Board Policy, the Treasury Board Secretariat administers the FCSI, where federal organizations (custodians) are required to report specified data on their known or suspected contaminated sites. Each reporting organization is responsible for their own data in the FCSI and maintaining their own internal records.

The FCSI displays a standard set of basic and annually-updated information for federal contaminated sites. Each site record includes information such as the location of the site, the severity of contamination, the contaminated medium, the nature of the contaminant, progress made to date in identifying and addressing contamination, and how much liquid and solid-based media have been treated. The FCSI offers a variety of search criteria, such as site name, province or territory, Census Metropolitan Area, Federal Electoral District, and contaminants; the results can be displayed as a table or on an interactive map.

The FCSI complements the Federal Contaminated Sites Action Plan (FSCAP) and assists the federal government in setting work plans and prioritizing sites for remediation. The objective of FSCAP is to reduce environmental and human health risks from known federal contaminated sites and associated federal financial liabilities, while focusing on highest priority sites. The FCSI assists the development of strategies for individual contaminated sites by informing decision makers on which types of approaches should be taken to address contamination.

Information contained in the FCSI also enables the Treasury Board of Canada to assess departmental performance in implementing the FSCAP through the integration of real property and financial information and linkages to program objectives. The assessment of departmental performance allows the Secretary of the Treasury Board to make recommendations to the deputy head of a department and to Treasury Board. These recommendations may result in an increase in transactional approval limits to acknowledge improved performance or capacity, or conversely, a decrease in authorities in the event of performance falling short.

In Quebec, information on contaminated sites is managed in the *système de gestion des lieux contaminés* (GTC). In general, the data in the GTC system is used to better understand

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contaminated sites in order to develop guidance and to provide the government with strategic information such as reports, statistics, thematic maps and lists. The database is available online at: [www.environnement.gouv.qc.ca/sol/terrains/terrains-contamines/recherche.asp](http://www.environnement.gouv.qc.ca/sol/terrains/terrains-contamines/recherche.asp).

### **(c) Prioritization for further action on contaminated sites based on risk assessment;**

The FCSAP takes a risk-based approach to addressing contaminated sites in Canada. This approach involves assessing the risks to human health and the environment of each site and prioritizing the allocation of resources within federal custodians to deal with highest priority contaminated sites.

Information about the 10-step process used to assess, classify, and manage federal contaminated sites is outlined in the guidance document *A Federal Approach to Contaminated Sites*<sup>6</sup>. A decision-making framework<sup>7</sup> was developed to assist federal custodians and their consultants in making the most informed decisions at each step of the 10-step process.

Federal contaminated sites are classified and prioritized based on the NCSCS and the Aquatic Site Classification System (ASCS) developed by FCSAP. The FCSAP Secretariat provides scientific and technical assistance that allows custodians to prioritize their contaminated. Using the NCSCS and ASCS, priority is assessed by scoring sites as high (with a score of 70 - 100), medium (with a score of 50 - 69.9), or low risk (with a score of 37 - 49.9), according to their current or potential adverse impacts to human health and/or the environment. The NCSCS guidance document is available at:

[https://www.ccme.ca/en/resources/contaminated\\_site\\_management/management.html](https://www.ccme.ca/en/resources/contaminated_site_management/management.html)

### **(d) The interface between contaminated site policies and land use planning policies**

The federal Treasury Board Secretariat's (TBS) Policy on Management of Real Property<sup>8</sup>, dictates the federal government's land use planning. It states that known and suspected contaminated sites are assessed and classified and risk management principles are applied to determine the most appropriate and cost-effective course of action for each site. Priority must be given to sites posing the highest human health and ecological risks. Management activities (including remediation) must be undertaken to the extent required for current or intended federal land use.

Quebec's *Land Protection and Rehabilitation Regulation* established thresholds for contaminants in soil, including mercury, that are dependent on intended land use (e.g. agriculture, residential, commercial or industrial). Based on the intended land use, these limits are also used as the objective of restoration activities. The Regulations may be found at:

[www.legisquebec.gouv.qc.ca/fr/ShowDoc/cr/Q-2,%20r.%2037/](http://www.legisquebec.gouv.qc.ca/fr/ShowDoc/cr/Q-2,%20r.%2037/)

### **(e) Existing procedures for the characterization of contaminated sites, including approaches and techniques for sampling and analysis**

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<sup>6</sup> <https://www.canada.ca/content/dam/eccc/migration/fcs-scf/8DF3AC07-5A7D-483F-B263-6DE03104319A/fa-af-eng.pdf>

<sup>7</sup> <https://www.canada.ca/en/environment-climate-change/services/federal-contaminated-sites/decision-making-framework.html>

<sup>8</sup> <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12042>

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The CCME has a number of guidelines available for environmental site characterization and approaches to sampling and analysis of contaminated sites, which are available at:

[https://www.ccme.ca/en/resources/contaminated\\_site\\_management/assessment.html](https://www.ccme.ca/en/resources/contaminated_site_management/assessment.html)

The Government of Canada also developed the Guidance and Orientation for the Selection of Technologies (GOST) tool to provide guidance to contaminated sites managers on best approaches for site management. The GOST tool can assist contaminated sites managers by providing: the average cost for the analysis of a laboratory sample, a glossary of contaminants and decontamination technologies, as well as a range of resources related to decontamination and the environment. More information on GOST is available at: <http://gost.tpsgc-pwgsc.gc.ca/index.aspx?lang=eng>

In Quebec, site characterization, sampling, and lab analyses must be carried out according to the *Guide de caractérisation de terrain*. This guide also suggests contaminants that are likely to be found in soils and water by activity or industrial sector using SCIAN cod using the *Système de Classification des Industries de l'Amérique du Nord* (SCIAN) codes. More information may be found at the links below:

- Site characterization: [www.environnement.gouv.qc.ca/sol/terrains/guide/guidecaracterisation.pdf](http://www.environnement.gouv.qc.ca/sol/terrains/guide/guidecaracterisation.pdf).
- Evaluation of sediment quality and applications to prevention, dredging, and restoration: [www.planstlaurent.qc.ca/fileadmin/publications/diverses/Qualite\\_criteres\\_sediments\\_f.pdf](http://www.planstlaurent.qc.ca/fileadmin/publications/diverses/Qualite_criteres_sediments_f.pdf)
- Sampling methods: [www.ceaeq.gouv.qc.ca/documents/publications/echantillonnage.htm](http://www.ceaeq.gouv.qc.ca/documents/publications/echantillonnage.htm).
- Laboratory methods: [www.ceaeq.gouv.qc.ca/methodes/list\\_sols.htm](http://www.ceaeq.gouv.qc.ca/methodes/list_sols.htm).

**(f) The existing range of proven and emerging remediation techniques, including situations in which certain techniques may or may not be appropriate, environmental advantages and drawbacks and costs;**

Canada has previously submitted information on remediation techniques in its submission prior to COP1, specifically, the link to the GOST tool. This tool can also help contaminated sites manager to determine the applicable decontamination technology(ies) for specific sites, or, more generally, compare key elements of the decontamination technology or various contaminants.

**(g) Socioeconomic and cultural considerations during the remediation of contaminated sites;**

Risk management for contaminated sites is a balancing act of many diverse factors. Each site is managed on a case-by-case basis due to unique site-specific features that require evaluation of risk management approaches in order to choose the most appropriate and cost-effective plan of action. The NCSCS uses a weighted approach to evaluation of contaminated sites, where a significant weight is given to the reliance of local people on natural resources for survival (i.e. food, water, shelter, etc.) which complements the human exposure evaluation section. This inclusion acknowledges potential risks associated with socioeconomic conditions and cultural practices.

**(h) Information on approaches to financing work on and building capacity for the identification, assessment, remediation and risk management of contaminated sites, including frameworks for domestic financing.**

As mentioned above, the FCSAP, a 15-year, \$4.54 billion program that was established in 2005 by the Government of Canada, aims to reduce the liability at federal contaminated sites which pose the highest risks to human health and the environment, through remediation and risk management.

Remediation activities have been conducted at 2,170 sites and assessment activities were conducted at 10,840 sites across Canada, since the establishment of the program (as of March 2018).

FCSAP provides three types of funding: 1) assessment; 2) remediation and risk management; and 3) program management. Assessment and remediation/risk-management funding allow custodians to perform work at contaminated sites. Program management funding is provided to assist custodians with the management of their site portfolios through activities such as procurement, contract management, expert support and reporting.

To receive FCSAP funding, federal custodians must ensure that their sites meet funding-eligibility requirements. Therefore, custodians must first have grounds to suspect that a site is contaminated (normally based on historical activities at the site) before environmental site-assessment activities can be funded. The FCSAP Secretariat has developed a prioritization tool to assist custodians in determining the priority of sites that should undergo assessment, considering that funds or resources might not be available to assess all sites at the same time. Guidance on the eligibility of project costs ensures that remediation or risk-management activities focus on reducing risks associated with contaminants.

FCSAP provides funding to custodians for the remediation of sites that:

- Meet the Treasury Board definition of a contaminated site;
- Have been contaminated through activities that occurred prior to April 1, 1998;
- Are on lands owned or leased by the federal government (or if it is non-federal lands, the federal government must have accepted full responsibility).
- Have a financial liability associated with the site (reported within the FSCI)

The province of Quebec has two programs that can assist in financing work on contaminated sites. The ClimatSol-Plus fund encourages restoration and reutilization of contaminated sites located on municipally owned or privately owned properties (for which the province is not responsible for the contamination) [www.environnement.gouv.qc.ca/programmes/climatsol-plus/index.htm](http://www.environnement.gouv.qc.ca/programmes/climatsol-plus/index.htm). The program InnovEnSol offers financial solutions for innovative decontamination businesses for soil and groundwater. This program aims to reduce the environmental impacts of contaminated sites, notably by the in-situ treatment and valorization of sediments [www.environnement.gouv.qc.ca/programmes/innovensol/index.htm](http://www.environnement.gouv.qc.ca/programmes/innovensol/index.htm).