



## Guidance on the management of contaminated sites (L.9 MC-2/8) Submission by Switzerland

**Guidance on the management of sites contaminated by mercury and mercury compounds.** Note: The guidance as such was not decided upon; COP2 decided the need for review the current version of that document (initiated based on a COP1 decision): The decision includes mandating the (existing) Group of experts on contaminated sites to further progress on this work based on the instructions as follow:

### 1. **Requests the secretariat:**

(a) To call **for parties and stakeholders to submit, by 15 February 2019**, additional comments and information to complement and **further improve the draft guidance**,<sup>1</sup> calling in particular for information and comments, including case studies, on:

(i) 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.;

A major chlor-alkali plant of the CABB Company is situated in Pratteln in the canton of Basel-Landschaft. It is the only one in Switzerland that is still in use. Since about 2015, however, mercury has no longer been used for the chlor-alkali process.

At Lonza site in the canton of Valais, mercury was mainly used in the production of acetaldehyde from acetylene.

<http://quecksilber.lonza.com/quecksilber/wofuer-hat-lonza-quecksilber-genutzt>

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

In Switzerland, inventories play an important role. In particular as a basis for the further processing of a polluted site. Currently, all cantons have completed their inventories (called "catasters" or "registers") and made them available online.

A site does not have to be examined before it is entered in the register. A high probability of a contamination is sufficient for an entry. Where possible, the entries in the register shall contain the following information:

- a.location;
- b.type and quantity of waste delivered to the site;
- c.period of disposal of waste, period of operation, or time of accident;
- d.investigations and measures already taken for the protection of the environment;
- e.effects that have already been ascertained;
- f.endangered environmental areas;
- g.particular events such as waste incineration, landslides, floods, fires or major accidents.

There is an enforcement aid for the creation and maintenance of the register:  
<https://www.bafu.admin.ch/bafu/fr/home/themes/sites-contamines/publications-etudes/publications/etablissement-du-register-sites-pollues.html> (in French)

Among other things, it contains industry-specific decision trees for deciding whether a polluted site must be entered in the register or not. (E.g. timber industry: p. 45).

(iii) Prioritization for further action on contaminated sites based on risk assessment;

In Switzerland, the authorities must prioritise both the investigation and the remediation of contaminated sites based on a risk assessment:

-For contaminated sites in need of investigation, the authorities must establish a priority order for the investigations. In doing so, they take into account the type and quantity of waste at the site, the likelihood of releasing pollutants and the importance of the environmental areas (receiving environments) affected.

-In the case of polluted sites requiring remediation, the objectives and urgency of the remediation are determined by a detailed investigation. In particular, the following information must be determined and evaluated in a risk assessment:

- type, location, quantity and concentration of the environmentally hazardous substances at the polluted site;
- type, load and temporal development of the existing and possible impacts on the environment;
- location and importance of the environmental areas at risk.

Further information:

<https://www.bafu.admin.ch/bafu/en/home/topics/contaminated-sites/info-specialists/remediation-of-contaminated-sites/contaminated-sites-management---step-3--detailed-investigation.html>

(iv) The interface between contaminated site policies and land use planning policies;

The coordination with the structure and land use planning is specified in art. 6a of the Swiss Contaminated Sites Ordinance (CSO): The authorities shall take account of the Register in their structure and land use planning. <https://www.admin.ch/opc/en/classified-compilation/19983151/index.html#a6a>

The legal basis for construction projects and contaminated sites is defined in art. 3 of the CSO (<https://www.admin.ch/opc/en/classified-compilation/19983151/index.html#a3>):

Polluted sites may be modified by the construction or alteration of buildings and installations only if:

- a. they are not in need of remediation and the project does not make their remediation necessary; or
- b. their later remediation is not seriously hampered, or, insofar as they are modified by the project, they are remediated at the same time.

<https://www.bafu.admin.ch/bafu/en/home/topics/contaminated-sites/info-specialists/remediation-of-contaminated-sites/contaminated-sites-management---step-4--remediation/remediation-with-or-without-construction-project--coordinating-c.html>

There is also an enforcement aid on this topic:

<https://www.bafu.admin.ch/bafu/fr/home/themes/sites-contamines/publications-etudes/publications/projets-de-construction-et-sites-pollues.html> (in French)

The conditions and procedures listed in this publication must be adhered to for construction projects on top of polluted sites.

(v) Existing procedures for the characterization of contaminated sites, including approaches and techniques for sampling and analysis;

In Switzerland, the investigation of a polluted site normally consists of a historical and a technical investigation.

The technical investigation determines whether the polluted site has harmful or annoying effects on the protected natural goods groundwater, surface water, soil or air.

The Swiss Contaminates Sites Ordinance (Annexes 1 to 3) contains concentration values for various pollutants for the assessment of these four protected natural goods:

<https://www.admin.ch/opc/en/classified-compilation/19983151/index.html#app1>

There is an enforcement aid for measuring methods for waste and contaminated sites:

<https://www.bafu.admin.ch/bafu/fr/home/themes/sites-contamines/publications-etudes/publications/methodes-analyse-domaine-dechets-sites-pollues.html> (in French)

It contains instructions and prescriptions for the investigation of solid and liquid samples taken from waste or contaminated sites. It describes the state of the art in the field of waste and contaminated site analysis.

Specific enforcement aids exist also for sampling the protected natural goods groundwater and air:

<https://www.bafu.admin.ch/bafu/fr/home/themes/eaux/publications/publications-eaux/prelevements-eau-souterraine-relation-sites-pollues.html> (in French)

<https://www.bafu.admin.ch/bafu/fr/home/themes/sites-contamines/publications-etudes/publications/air-interstitiel%20.html> (in French)

(vi) 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;

In Switzerland, different remediation techniques are in use. For the different *in situ* remediation techniques a specific implementation aid exists:

<https://www.bafu.admin.ch/bafu/fr/home/themes/sites-contamines/publications-etudes/publications/assainissement-in-situ.html> (in French)

The mercury contamination in the soils near Visp in the canton of Valais is currently the only large Hg-case in Switzerland. Here, the contaminated material is excavated (in residential areas: soil > 2 mg Hg /kg) and is firstly treated in a soil washing facility; afterwards depending on the contamination level it is put either to landfill or to thermal treatment.

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

In major remediation cases, transparency and participation are essential for the population. In particular, health concerns of the local population must be addressed.

In the Hg-case in Visp in the canton of Valais, in addition to the usual investigations of the soil, groundwater, surface water and air, a wide range of additional research campaigns were carried out; for example:

- the food and feed plants in fields and gardens were also analyzed
- an epidemiological study was carried out on the local population (analysis of Hg in blood and hair):  
[https://www.vs.ch/documents/19415/1246066/Gutachten\\_Gesundheit\\_20.06.2016.pdf/775f7148-b1f0-430b-b9f8-0383e9fff95e](https://www.vs.ch/documents/19415/1246066/Gutachten_Gesundheit_20.06.2016.pdf/775f7148-b1f0-430b-b9f8-0383e9fff95e) (in German)

Furthermore, since the beginning of the investigations there is a platform with regular meetings between the authorities, experts, industry, NGOs and the local population:  
<https://www.vs.ch/fr/web/sen/dokumentation> (in French)

Switzerland has to face complex contaminated sites (without mercury) that cost hundreds of millions of Swiss francs to remediate. A guide to understand these complex sites has been developed (in French): <https://www.bafu.admin.ch/bafu/fr/home/themes/sites-contamines/publications-etudes/publications/gestion-projets-assainissement-complexes.html>

It takes into account social, political, communication and other aspects.

(viii) 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;

In Switzerland the polluter has to bear the costs of remediation – polluter-pays-principle. If there is more than one polluter in a remediation case, each bears the cost in proportion to his share of responsibility. Thus, the polluter is primarily liable, and the owner only secondarily.

There is no joint and several liability between the polluter(s) and owner(s). Thus, in remediation cases where the polluter cannot be called upon to bear the costs (in cases where the company does not exist anymore or is in failure), the remediation costs cannot simply be passed on to the owner or the other parties involved. Any shortfalls that arise in such cases must be borne by the community. In such cases, and in the remediation of landfills for municipal waste or shooting ranges, the canton can request partial repayment of 30 or 40% of the remediation costs from the federal government on the basis of the Ordinance relating to Charges for the Remediation of Contaminated Sites (OCRCS, in French: OTAS) <https://www.admin.ch/opc/en/classified-compilation/20071746/index.html> (in English)

This Ordinance stipulates that the requisite funds are to be raised by means of a charge on the disposal of Swiss wastes in landfills in Switzerland and abroad in case of export of waste. This financing instrument is designed to enable dangerous contamination to be cleaned up as quickly as possible and not passed on to future generations for lack of funds. The Ordinance also promotes the environmentally sound and economical remediation of contaminated sites in accordance with the current state of technology.

<https://www.bafu.admin.ch/bafu/en/home/topics/contaminated-sites/info-specialists/financing-remediation-of-contaminated-sites/bearing-the-costs.html>

Reference: S074-1983

<https://www.bafu.admin.ch/bafu/en/home/topics/contaminated-sites/info-specialists/financing-remediation-of-contaminated-sites/what-is-the-ocrs-contamination-fund-.html>

For questions please contact:

Christoph Reusser, Federal Office for the Environment, Contaminated Sites Section,  
[christoph.reusser@bafu.admin.ch](mailto:christoph.reusser@bafu.admin.ch)

Bettina Hitzfeld, Federal Office for the Environment, Soil and Biotechnology Division,  
[bettina.hitzfeld@bafu.admin.ch](mailto:bettina.hitzfeld@bafu.admin.ch)