

## Guideline for use at contaminated sites in Ontario

Landowners faced with assessing a site for soil and groundwater contamination, and with carrying out needed restoration work, can turn for information and advice to the **Guideline for use at contaminated sites in Ontario**. It outlines three possible approaches to the task, details the four steps involved in the investigation and restoration process, and offers guidance on public communication. There are also three accompanying documents that explain some of the aspects in greater detail.

The Ministry of the Environment provides a guideline for use when property owners are cleaning up or redeveloping contaminated property in Ontario. In addition to this *Guideline for use at contaminated sites in Ontario*, three accompanying documents provide property owners and consultants with additional detailed information on parts of the guideline.

Landowners and consultants can use the guideline and supporting documentation in making decisions on soil and groundwater quality for proposed or existing property uses. These publications provide information and advice on assessing the environmental condition of a property, on determining whether restoration is required, and on determining the kind of restoration needed to allow continued use or reuse of the site.

Public communication is often an element in the site restoration process, particularly when a change in land use is involved, and the guideline suggests different levels of communication for the range of site restoration approaches. Public communication allows the party proposing the undertaking to receive public input and to address public concerns, and the method used will depend on the complexity of the situation and the range of issues involved.

### Approaches to site restoration

The guideline describes three approaches for responding to site contamination once a decision has been made to remediate or restore a contaminated property. The approaches are: background; generic; and site specific risk assessment.

The background approach involves use of soil quality criteria to restore the site to ambient or naturally occurring background conditions. These background criteria were developed from an Ontario-wide sampling program at rural and urban parks unaffected by local sources of pollution. A person proposing an undertaking may develop background criteria to reflect local conditions by completing a sampling program as outlined in the guideline.

The generic approach involves the use of criteria for soil and groundwater quality that have been developed to protect human health and the environment. The criteria may be used for various land uses – agricultural, residential/parkland or industrial/commercial – and for both potable and nonpotable groundwater use. The potable criteria ensure the groundwater is drinkable, while the nonpotable criteria offer protection against vapours from groundwater and protection for aquatic life in surface water.

Generic soil criteria are provided for two depths of soil restoration and for two soil textures. Full depth restoration involves the use of the same criteria in all strata where contamination is found. When contamination extends deeper than 1.5 metres from the surface, a stratified restoration using different criteria below 1.5 metres is an option.

Soil and groundwater criteria are also provided for an extensive list of substances, but analysis for all the criteria may not be necessary in all instances. In the rare instance that a particular contaminant is not included in the guideline, criteria from another jurisdiction may be proposed for use, or new generic criteria may be developed for that contaminant.

The decisions involved in site investigation and sample analysis are always based on consideration of the specific factors at each property, and the generic criteria may be modified to reflect special conditions. In particular, there may be potentially sensitive sites where the physical site characteristics, plants or animals are very different from those that were considered in the development of the generic criteria. If, for example, the site contains a rare or endangered species that may be affected by contamination but was not included in setting the generic criteria, these are inappropriate for use and more protective criteria will be needed.

The site specific risk assessment approach (SSRA) and risk management are approaches which may be used instead of the background or generic approaches. Rather than using existing

soil or groundwater quality criteria, the SSRA approach establishes criteria for a specific site or for a level of exposure protection based on risk.

Risk assessment is a scientific technique which estimates the risk posed to humans, plants, wildlife and the natural environment from exposure to a contaminant. Because site specific characteristics are incorporated in a risk assessment, there will be numerical differences between the generic criteria for a site and those developed through SSRA.

Risk management decisions may be made using the results of an SSRA. These decisions may lead to use of techniques to manage contaminants, control their movement or reduce their concentrations over time, either in conjunction with site reuse or independent of it.

When risk management decisions involve use of engineered measures to reduce the levels of risk at a site, the type of monitoring and maintenance required for the techniques used and the responsibility for ensuring that they continue to operate as designed must be outlined in a risk management plan.

## The investigation and restoration process

A four-step process is outlined in the guideline. The activities undertaken at each step will depend on site specifics and so may vary from one site to another.

1. Site assessment – involves the systematic gathering of information to identify actual or potential contamination at the property.
2. Sampling and analysis – is intended to confirm and delineate the presence or absence of contamination at the site.
3. Remedial work plan – involves the development and implementation of a plan to restore the site to the appropriate condition and verify that restoration has taken place as planned.
4. Completion – involves summarizing the information gathered in the three previous steps, and may involve providing a record of the site condition to the ministry when remedial work has been undertaken.

The responsibility for ensuring that the site restoration work is completed in a manner consistent with the information provided in the guideline, and that the site is suitable for the intended use, remains with the property owner and those

undertaking the work. The guideline does not eliminate the need for decision-making or use of professional skills and judgment when site restoration is being undertaken.

The Guideline for Use at Contaminated Sites, June 1996 (revised February 1997), replaced the ministry's Guidelines for the Decommissioning and Clean-up of Sites in Ontario, February 1989, and the Interim Guidelines for the Assessment and Management of Petroleum Contaminated Sites in Ontario, August 1993. The revised guideline, which provides clearer, more workable directions on managing and reusing contaminated sites, does not change the legislative powers or the regulatory mandate of the ministry. The ministry has a mandate to deal with situations where there is an adverse effect, or the likelihood of an adverse effect, associated with the presence or discharge of a contaminant.

For more information, please contact:

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Copies of the *Guideline for use at contaminated sites in Ontario* are available for sale from Publications Ontario, Tel: (416) 326-5300. Toll free in Ontario: 1-800-668-9938  
The guideline is also available on the ministry's Web site at [www.ene.gov.on.ca](http://www.ene.gov.on.ca)