

## Site Risk Classification

The ministry's most recent Service Plans require the Land Remediation Section to focus on the remediation of high risk contaminated sites and to regulate the remediation of all contaminated sites. To carry out these duties, the ministry must know which sites pose high risks and those which do not.

This document describes procedures that qualified professionals and persons responsible should follow in order to classify sites based on specific risks that they pose. It follows the requirements of the *Environmental Management Act* (the Act) and Contaminated Sites Regulation (the Regulation).

### What is the site risk classification method?

The ministry developed a site risk classification method based on the risks sites pose to human health and the environment.

[Protocol 12, "Site Risk Classification, Reclassification and Reporting"](#) identifies:

- conditions for classifying sites as high risk,
- notification procedures for all sites, and
- reporting and reclassification requirements for high risk sites.

Protocols 11, "[Upper Cap Concentrations for Substances Listed in the Contaminated Sites Regulation](#)" and 16, "[Determining the Presence and Mobility of Nonaqueous Phase Liquids and Odorous Substances](#)" are used in Protocol 12 to establish whether high risk conditions exist at a site.

### Note

Protocol 12 uses administrative procedures to classify site risk based on simple, objective measurements. It enables sites to be classified on the basis of limited and readily obtainable site data. The procedures in Protocol 12 should not be confused with the process of conducting detailed risk assessment under the Regulation and associated protocols and guidance.

### When would a site be considered high risk?

A site is considered high risk under Protocol 12 if either of two conditions exists at a site – if mobile nonaqueous phase liquids (NAPLs) are present or if high risk exposure to contaminants is likely.

#### Condition 1. Mobile NAPLs are present

Protocol 16 defines when NAPL is present at a site, as well as when it is mobile. Mobile NAPLs indicate the potential for current and future high risk exposures to contaminants as well as increasing complexity, cost and effort in remediating sites.

#### Condition 2. Potential high risk exposure exists

For a site to qualify as high risk under condition 2, upper cap concentrations must be exceeded and one or more complete exposure pathways must be present.

#### **Upper cap concentrations must be exceeded**

Upper cap concentrations of substances are derived from the environmental quality standards (numerical standards) in the Regulation and are listed in Protocol 11. Typically they are 10 times their corresponding numerical standards. However, there are a number of exceptions, so it is necessary to

carefully consult Protocol 11 before determining a site's risk classification.

If upper cap concentrations are exceeded, exposure pathways must be evaluated as described below. If they are not, then an exposure pathway analysis need not be done.

***Complete exposure pathways must be present***

An exposure pathway analysis must be carried out if upper cap concentrations are exceeded at a site. The analysis involves simple assessments for each of the eight exposure pathways considered in Protocol 12:

Human health

- Soil exposure
- Vapour exposure
- Water exposure

Environmental health

- Soil exposure – terrestrial life
- Water exposure – aquatic life
- Sediment exposure – aquatic life
- Water exposure – livestock watering
- Water exposure – irrigation of crops

Each exposure pathway consists of a series of risk criteria evaluated in a step-wise fashion. The risk criteria vary by exposure pathway, but generally comprise criteria related to contaminant concentrations, contaminant extent, and distance from the exposure zone. All exposure pathways for which upper cap concentrations have been identified must be evaluated using an Exposure Pathway Questionnaire. Where the combined risk criteria of an exposure pathway are met, it is considered a high risk pathway. A site with one or more high risk pathways is classified as a high risk site.

**When will the ministry be notified about high risk sites?**

Protocol 12 contains six triggers for sending the ministry information about the risk

classification of a site. Information must be provided with, or in response to the following:

- Submission to the Director of a Notification of Initiation of Independent Remediation (NIR initiation).
- Submission to the Director of a site investigation report required or ordered by a Director.
- Submission of a Notification of Likely or Actual Migration to the Director.
- Application to a Director for a contaminated sites service in Table 2 or 3 of Schedule 3 of the Regulation.
- Imposition of the requirement for a Site Risk Classification Report submission by the Director.
- Identification of potential or actual high risk conditions at a neighbouring parcel or area in the Site Risk Classification Report submitted to the Director for a source site under any of the preceding notification triggers.

**What information must be provided?**

Depending on the notification trigger, risk classification and the type and duration of remediation, one or more of the following must be provided to the Director:

- a Site Risk Classification Report (SRCR)
- an Exposure Pathway Questionnaire (EPQ)
- a Summary of Site Condition (SoSC)
- A summary of remedial methods and schedule for remediation of high risk conditions
- Approved Professional signoff of the above

**Do SRCRs and EPQs need to be completed or signed by an Approved Professional?**

Sometimes. There are no specific requirements for a SRCR or EPQ to be completed or signed by an Approved Professional under the six submission triggers noted above. If a SRCR or EPQ is being submitted due to a site risk reclassification or due to remediation of high risk conditions within 90 days of initiating independent remediation then an Approved Professional signoff is required.

### **Are there special site investigation requirements for SRCRs and EPQs?**

Where an EPQ is completed and submitted to the ministry, the site investigations referred to in the SRCR and EPQ must have been performed in accordance with approved ministry procedures, guidance and standard professional practice. The person signing a SRCR (with or without an EPQ attached) must confirm that he or she has demonstrable experience in conducting site investigations of the type reviewed as part of the preparation of the SRCR.

### **How will site risk classification information be used?**

There a number of ways the ministry will use information on site risk classifications. Key areas include determining:

- which service applications (e.g., for a Certificate of Compliance) must come with the recommendation of an Approved Professional;
- which sites require financial security to help ensure that remediation is carried out;
- as part of the site profile freeze and release process, which authorization applications (e.g., for zoning) to local governments may be released by the ministry.

### **Can the ministry classify a site as high risk?**

Yes. Under Protocol 12 a Director has the authority to classify a site as high risk based on available information, including factors outside the criteria described in Protocol 12.

### **Site Registry notations**

#### **Will site risk classifications be recorded on the Site Registry?**

Yes. When the Director receives information indicating the risk classification of a site, the classification will be recorded on the Site Registry together with notations on other relevant information such as the receipt of a SRCR and EPQ for the site. If the Director

reclassifies a site as non-high risk, this would also be recorded on the Site Registry.

#### **Site risk classification pending: Site Registry notations for sites undergoing independent remediation and for sites where site investigation is insufficient to classify a site.**

A third classification would be noted on the Site Registry for certain sites undergoing independent remediation. If the high risk conditions at a site are expected to be remediated in less than 90 days (as indicated on the SRCR submitted with the NIR initiation), the Site Registry would note that final site classification is deferred for 90 days and the classification would remain as pending during that time period.

Once a new SRCR is received confirming that the high risk conditions no longer exist at the site, the Registry will indicate that the site is not high risk. On the other hand, if the high risk conditions take longer than the 90 days to remediate, the site will be classified as “high risk” on the Site Registry.

Alternatively, if site investigation is insufficient to classify a sites risk at the time of submission of a SRCR a schedule for the completion of site investigation and the submission of an updated SRCR should be provided in the original SRCR. Until a formal site risk classification is made upon the completion of sufficient site investigation, the Site Registry would note that the risk classification is pending.

#### **What is “sufficient site investigation” to complete a Site Risk Classification Report?**

The site risk classification conditions of Protocol 12 comprise simple, facts-based criteria intended to allow classifications to be made on the basis of limited, readily obtainable and routinely collected data in contaminated site investigations. However, the protocol recognizes that there will be more known about sites with respect to some notification

triggers than others. For example, site information at the time of a contaminated sites service application would likely be much more comprehensive and complete than that known about an affected property at the time of submitting a Notification of Likely or Actual Migration.

If investigations have delineated all nonaqueous phase liquids and all upper cap concentration exceedances outside of distance criteria and below depth and area criteria in the exposure pathway assessment, no further investigation is required to complete the Site Risk Classification Report. Where site investigations are incomplete or insufficient to determine if one or more of the eight exposure pathways is complete at the time a Site Risk Classification Report must be submitted, you must indicate that further investigations are required and the scheduled completion dates for those further investigations in Part 3, Section V of the Site Risk Classification Report.

Where high risk conditions are being remediated under independent remediation in less than 90 days, further site investigations to allow proper completion of the Site Risk Classification Report are not required. Regardless of the quality and completeness of available site information at the time of submission of the Site Risk Classification Report, where high risk conditions have been identified at a site, they must be indicated on the Report. Additional investigations may be required to support site closure under the Regulation by way of a Notification of Completion of Independent Remediation or Certificate of Compliance.

**Are soil vapour and groundwater investigations always required when determining site risk classification?**

If based on available site information and in the opinion of a qualified professional the Site Risk Classification Report can be adequately

and satisfactorily completed in the absence of investigations of one or more environmental media, the Report can be completed. However, rationale must be provided to clearly support and document the determination of no upper cap concentrations present in the media lacking data. Site Risk Classification Reports are subject to audit

**Requirements for independent remediation**

**What is the process for high risk sites undergoing Independent Remediation?**

Effective June 1, 2010, the submission of a NIR initiation to the ministry is one of the six triggers for a site to go through the site risk classification process. Under this trigger, submission of a SRCR to the ministry is required at the time a NIR initiation form is submitted to the ministry. Other reporting requirements depend on a site's risk classification and the length of time it will take to remediate any high risk conditions.

**When does the 90 day period start and what does it mean?**

If the independent remediation of high risk conditions at a site is completed in less than 90 days after submission of the NIR initiation and a post-remediation SRCR confirming the remediation of high risk conditions (signed by an Approved Professional) is received by the ministry within 90 days, the site will not be considered a high risk site. A notation will be entered into the Site Registry indicating that the site is classified as non-high risk.

**Does the 90 day period apply to all six triggers?**

No. The 90 day period presently applies only when a NIR initiation has been received for a site. Sites with high risk conditions where the ministry has been notified under any other trigger will be classified immediately as high risk unless a NIR initiation is received at the same time as the SRCR is received by the ministry under another trigger.

**Must investigations be completed before a SRCR and EPQ are submitted if an NIR initiation is being submitted?**

All information available at the time of NIR initiation submission should be reflected in the accompanying SRCR. Sometimes information available at the time of NIR initiation may be insufficient to complete the SRCR and EPQ. If this is the case a schedule for the completion of site investigations and the submission of an updated SRCR should be provided in the SRCR. Submission of an updated SRCR confirming the site risk classification in accordance with the previously submitted site investigation schedule would be required.

**Does an owner have to submit a SRCR at 90 days even if the remediation of high risk conditions has not been completed?**

Yes. An updated SRCR must be submitted at 90 days even if independent remediation of high risk conditions has not been completed.

**If independent remediation began before June 1, 2010 and will end after that date, will a SRCR be required?**

No, a SRCR and EPQ (if required) will only need to be submitted with NIR initiation received after June 1, 2010.

**Requirements for migration**

**Note**

For information about the notification requirements associated with migration of substances, please refer to [Fact Sheet 34, "Requirements for Responding to Contaminant Migration"](#), sections 57 and 60.1 of the Regulation, and Protocol 17 "Requirements for Notification of Independent Remediation and Migration"

**How does the ministry receive information on the risks posed by migrating contamination?**

Under Protocol 12 the ministry can learn about possible high risk conditions involving the migration of substances between sites in two different ways.

First, the ministry receives Notifications of Migration (NOMs). A SRCR, and if applicable, a EPQ and/or SoSC must be submitted to the

ministry together with a NOM. Information received under this trigger deals with the conditions at a *source site*. Second, the ministry can learn about high risk conditions at *affected sites* when it receives a SRCR under any of the six triggers discussed previously.

**What should be done if a NOM must be submitted and there is insufficient information to complete the SRCR or EPQ?**

If at the time of NOM submission, there is insufficient information to complete the SRCR and EPQ for either the source site or affected site, the estimated date for obtaining the necessary site information and completing the SRCR and EPQ must be shown in Section V of the SRCR.

**What happens if a source site is classified high risk but an affected site is not?**

Any applications for services from the ministry for high risk source sites must be sent directly to the ministry for processing. Since it is classified non-high risk, an associated affected site would be reviewed by an Approved Professional before being sent to the ministry (for example for signoff of a legal instrument). In general, service applications for legal instruments for non-high risk source and non-high risk affected sites must be sent to the ministry with the recommendation of an Approved Professional, in order for those applications to be considered.

**Site risk reclassification**

**If high risk conditions are eliminated or risk managed can the site be reclassified?**

Yes. Any person may apply for reclassification of a high risk site to a non-high risk site or a risk managed high risk site. Sites where high risk conditions are removed are reclassified as non-high risk sites, while those where high risk conditions are addressed under the risk management process are reclassified as risk managed high risk sites.

**Do I need to completely remediate a site in order to reclassify it under Protocol 12?**

No. A site owner can request reclassification of his or her site after the removal of high risk conditions. Remediation of all contamination is not required.

**What should be submitted with an application for reclassification?**

The following should accompany the application:

- a new SRCR describing the new conditions at the site and confirming the absence of high risk conditions;
- a SoSC where remediation of high risk conditions took longer than 90 days; and
- Approved Professional signoff of the SRCR.

The Director may require that additional information be submitted to support a decision on site risk reclassification.

**Do I need to investigate my entire site in order to classify site risk under Protocol 12?**

No. Section 5.7 of Protocol 12 states that a SRCR “must indicate the presence of all parts of the site that are known to be high risk and provide a general schedule for remediating all high risk parts of the site.” If remediation is done on a part of a site and there are no likely or known high risk conditions elsewhere at the site, then a SRCR can be completed based on the information for the part of the site.

**Must I investigate all environmental media in order to classify site risk?**

No. If based on available site information and in the opinion of a qualified professional the SRCR can be completed satisfactorily in the absence of investigations of one or more environmental media, the SRCR may be submitted to the ministry. However, rationale must be provided to clearly support and document the determination that there are no upper cap concentrations exceedances or mobile NAPLs in the media lacking data.

**May attenuation factors other than those in Technical Guidance 4 be used for site risk classification?**

No. The exposure pathway for vapours must be assessed under Protocol 12 on the basis of attenuation factors adopted from Table 1 in [Technical Guidance 4, “Vapour Investigation and Remediation.”](#) Attenuation factors obtained by other means are not acceptable under Protocol 12.

**Can a Screening Level Risk Assessment (SLRA) be used to obtain a Certificate of Compliance for a high risk site?**

Protocol 13, “Screening Level Risk Assessment” indicates that a SLRA may not be used to evaluate a high risk site without pre-authorization by a Director.

**How should the remediation of multiple high risk sites with one owner be staged?**

Owners of multiple high risk sites can seek the approval of the Director to prioritize the remediation of their high risk sites. Owners should provide the Director with a list and relative ranking of high risk sites in their inventory and a general schedule for remediating individual sites according to risk ranking and other factors relevant to remediation. A NIR, a SRCR and EPQ (if required) for each individual site will need to be submitted to the ministry at the time of remediation of that site.

*Note: This document does not replace the Environmental Management Act or its regulations. If there are differences or omissions in this document, the Act and regulations apply.*

*For more information, contact the Environmental Management Branch at [siteclassification@gov.bc.ca](mailto:siteclassification@gov.bc.ca)*