



Ministry of
Environment

PROTOCOL 8 **FOR CONTAMINATED SITES**

Security for Contaminated Sites

Prepared pursuant to Section 64 of the
Environmental Management Act

Approved:

J. E. Hofweber
Director of Waste Management

November 19, 2007
Date

1.0 Definitions

“**Act**” means the *Environmental Management Act*.

“**contaminated sites legal instrument**” includes, but is not limited to, an Approval in Principle, Certificate of Compliance, Remediation Order and Voluntary Remediation Agreement, as defined under the Act.

“**financial risk**” means the risk to government of incurring financial costs to remediate contaminated sites where persons are unwilling or unable to fund remediation.

“**financial security**” means one, or a combination, of the following in the amount and under terms as specified by the Director:

- irrevocable letters of credit,
- security deposits including short-term deposits,
- registered bonds,
- treasury bill notes,
- bank drafts,
- money orders,
- certified cheques, and
- any other type of security acceptable to the Director under this Protocol.

“**Ministry**” means the Ministry of Environment.

“**one-time capital costs**” means those costs associated with purchase of equipment, installation of equipment, construction of buildings and other permanent structures, one-time consultant services, architect services, laboratory expenses, fencing, hauling, excavation, costs of expert advice, costs of environmental engineers, etc. which normally occur at the beginning of the remediation process.

“**periodic costs**” means those costs expected to occur less frequently than annually but at predictable periods, which generally occur after the initial one-time capital costs have been incurred and relate to costs such as capital improvements to existing structures, costs of a five year review, payment for external experts and contractors (e.g. engineering advice to maintain the remedial option), laboratory costs, periodic soil testing, inspection, etc.

“**recurring costs**” means those costs for management and monitoring, labour, materials, ongoing contract services, performance and site monitoring, offsite treatment and disposal, project management, insurance, technical support, etc., that may recur from year to year and are expressed on an annual basis.

“**Regulation**” means the Contaminated Sites Regulation (B.C. Reg. 375/96).

“security” means the guarantee of an undertaking to address actual and potential impacts at a high risk contaminated site, and may include financial security, and real and personal property.

A number of terms used in this Protocol have the same meaning they are provided in the Act and Regulation. These include “Approval in Principle”, “contaminated site”, “Certificate of Compliance”, “Director”, “Remediation Order”, “responsible person”, and “Voluntary Remediation Agreement”.

2.0 General

2.1 Legal and regulatory authority

Provisions for security under the contaminated sites regime are summarized in Appendix 1 of this Protocol.

2.2 Purpose

Security can be used as a tool by the ministry to manage the financial risks that may be associated with contaminated sites in the context of issuing a contaminated sites legal instrument. Financial risk to the Province can occur if there is a possibility that the Province may incur contaminated site remediation costs for the protection of the environment or human health, or for the restoration or remediation of the environment.

2.3 Guiding principles

The following principles guide the application of this security Protocol:

- A Director is responsible for determining whether security is required, and if so the amount and form of security.
- This Protocol serves as guidance to a Director and is not intended to be binding.
- Each site presents a unique set of circumstances which shall be considered when a Director is determining security requirements.
- Security shall be required only for sites a Director considers high risk.
- In determining the security requirements for a site, security precedents set by the ministry shall be reviewed to promote consistent decision making.
- This Protocol is not intended to act as a barrier to persons performing timely remediation or to providing security to the ministry voluntarily.
- Any required security shall be subject to review when requested by either a Director or the person posting the security.

- Any decision by a Director not to require security or to require or approve a particular form of security for a site shall be subject to review if the conditions relevant to the requirements for security change significantly.
- Government is often exposed to some financial risk so it is unreasonable to attempt to reduce this risk to zero.
- Security requirements shall be consistent, equitable and effective.
- Financial security shall be taken in preference to security in the form of real and/or personal property. If a person cannot or will not provide financial security required by a Director, then real and/or personal property may be taken.
- Security is not typically needed for remediation that is currently being conducted by a person in a manner acceptable to a Director. This does not preclude a Director from requiring security for ongoing management and monitoring costs when remediation is being carried out at high risk contaminated sites.

3.0 Whether security is required

Subject to the guiding principles in section 2.3, the steps below shall be followed to determine if security is required for a contaminated site in the context of issuing a contaminated sites legal instrument. They are shown in the decision tree in Figure 1.

Step 1: Decision: Is the site a high risk contaminated site?

Security will only be required for contaminated sites that a Director considers to pose a high risk. Evidence that a site is not a high risk site shall be submitted to, checked by, and approved by a Director in order for the exemption to apply.

Step 2: Decision: Is security in place under the *Mines Act*?

If a site is subject to a permit under the *Mines Act*, administered by the Ministry of Energy, Mines and Petroleum Resources (MEMPR), then, unless specifically requested by MEMPR to review the *Mines Act* security, the site would not be subject to a requirement for security under the Act.

Step 3: Decision: Is the only responsible person a government body?

As a general rule, government bodies, including a federal, provincial or municipal body, an agency or ministry of the Crown in right of Canada or British Columbia or an agency of a municipality, are exempt from the requirement for security under this Protocol. However, a request for security from a government agency would be appropriate when:

- the government body is part of a pool of responsible persons or;
- the government body is a Crown corporation which has been determined to be a responsible person in its own right.

Step 4: Decision: Has remediation been approved for the site?

Has remediation been approved by a ministry official under a contaminated sites legal instrument, including a Remediation Order? If not, the Director may determine that security is required at this time and may specify the form, amount and any conditions. Security required in this step shall be calculated using formula 1 (see section 5.4).

Step 5: Decision: Is remediation being implemented effectively?

Is remediation being implemented in accordance with the requirements of the approval of remediation described in Step 4 or the requirements of a Remediation Order and is it effective? If the Director is not satisfied that remediation is being implemented in accordance with the approval of remediation or Remediation Order or is not being implemented effectively, the Director may determine that security is required at this time and may specify the form, amount and any conditions. Security required in this step shall be calculated using formula 1.

Step 6: Decision: Does the remediation require ongoing management and monitoring of contamination?

If remediation is being implemented effectively and there will be no ongoing management or monitoring at the site, then security shall not be required. If ongoing management and/or monitoring of a site is required due to contamination remaining, financial security, subject to Step 7, shall be considered based on formula 2 (see section 5.5).

Step 7: Decision: Could a significant risk arise at the site and is a covenant unlikely to be effective in ensuring necessary remediation?

Section 48 (4) of the Regulation includes items that shall be considered before financial security is requested. They include:

- the significance of any risks from conditions at the site because a) the site is unremediated or partially remediated, or b) the site requires ongoing management and monitoring of remaining contamination, and
- the effectiveness of a covenant under section 219 of the *Land Title Act* in ensuring that necessary remediation is carried out at the site.

If the risks at a site are significant because remaining contamination requires ongoing management and monitoring, and if a covenant would not likely be effective in ensuring that necessary remediation is carried out, then security shall be required.

4.0 Determination of remediation costs

- 4.1 The person shall provide an estimate of the costs of remediation that includes, but is not limited to, one-time capital costs and any periodic and recurring costs. A calculation of these costs is required in order to determine the level of security required and shall be submitted to the Director in a remediation feasibility study.
- 4.2 Remediation cost estimates shall assume that the work will be carried out by a third party contractor.
- 4.3 If the person is unwilling or unable to generate site remediation cost estimates to the satisfaction of a Director, the Director shall arrange to have a third party do so at the expense of the person or require the person to do so under a Remediation Order.
- 4.4 The person shall provide all pertinent material and information used to calculate estimated site remediation costs.
- 4.5 A Director may develop alternate cost estimates for remediation of a site.
- 4.6 If the cost estimates of a Director and those of the person vary by less than 10 percent, then the lower of the estimates may be used as a basis for determining the amount of security required. If the cost estimates vary by 10 percent or more, then a negotiated agreement shall be sought, but if a negotiated agreement cannot be achieved, the Director's cost shall apply.

5.0 Calculation of the amount of security required

- 5.1 A Director shall review all estimates of costs of remediation for accuracy, completeness and reasonableness. Such estimates shall include, but not be limited to:
 - capital and other one-time costs including their replacement time-frames
 - recurring and periodic costs
 - planning period of the remediation process
 - discount rates used

- time frames, deadlines and plans that will be implemented in order to carry out site remediation.

5.2 The amount of the required security shall be based on the least cost remedial alternative as long as the proposed remediation is acceptable to a Director. If the Director and the person(s) cannot agree on the alternative remediation options or the least cost option, the Director shall make a final determination of the value of the costs and the amount of security required.

5.3 The planning period for calculation purposes in sections 5.4 and 5.5 is limited to 30 years.

5.4 Formula 1: Remediation not progressing as required or no approved remediation

5.4.1 If security is required because remediation acceptable to a Director has not been approved or remediation is not progressing as required, then the amount of the security required will be calculated to include:

- the estimated one-time capital costs to build and install contaminant management and monitoring system(s); and/or
- the estimated recurring and periodic costs to operate and monitor and maintain any management and monitoring systems developed; and/or
- the removal and disposal costs for contaminants that shall be removed in order to remediate the site to acceptable standards.

5.4.2 The above calculation includes the costs that would be required for the Crown or a third party to bring the site into compliance with the terms and conditions of any contaminated sites legal instrument.

5.4.3 The amount of security required shall equal 100% of the one-time capital costs plus the present value of the total management and monitoring costs over the entire planning period specified in the contaminated sites legal instrument.

5.5 Formula 2: Ongoing management and monitoring

If security is required as part of an ongoing management or monitoring system for contamination left onsite in accordance with ministry approved remediation, security shall be calculated based on 100% of the following costs:

- the estimated one-time capital costs to build and install management and monitoring system(s); and
- the estimated recurring and periodic costs to manage, monitor and maintain any systems developed.

5.6 Fluctuations

- 5.6.1 Present value calculations inherently assume that funds invested will grow with interest over time and that the “costs” or payments per year occur at a standard rate. This is not always the case, for example, where management and monitoring costs change once systems are in place if improvements are made or if security is a letter of credit.
- 5.6.2 The changing level of security required over time depending on the nature of security payments shall be kept in mind when calculating the amount of security required. (See Appendix B in reference 2 cited in section 11 of this document).

5.7 Effects of Inflation

- 5.7.1 Where costs of remediation are incurred in future years and these costs are included in the present value of the security required, these future costs shall be adjusted to account for the effects of inflation.
- 5.7.2 For estimating future one-time capital and recurring costs, the annual inflation rates used shall be drawn from Canada’s most recent Consumer Price Index (CPI), or the average of the past 10 years CPI, whichever is lower.
- 5.7.3 Calculations to inflate future costs on an annual basis shall be based on the following formulas:

$$FAC_n = AC_n * (1 + f)^n$$

$$FOC_n = OC_n * (1 + f)^n$$

Where:

FAC_n = future (inflated) recurring costs expended in year n and the initial year is n = 0

FOC_n = future (inflated) capital and other one-time costs expended in year n and the initial year n = 0

AC_n = annual recurring costs in year n; where the costs in the initial year are not inflated

OC_n = capital and other one-time costs in year n

n = a specific year, where n ranges from 0 to the (t - 1)th year

t = number of years in the planning period (no greater than 30 for formula 2)

f = inflation rate as a decimal number where f is always greater than 0 and less than 1

5.8 Calculation of present value

The present value of one-time capital and other one-time items and of recurring and periodic costs over the planning period shall be computed using the following formula:

$$PV = \sum (\text{sum of}) [(FACn + FOCn) * (1/(1+r)^n)]$$

Where:

PV = present value of all costs over the contaminated sites legal instrument period

FACn = the future (inflated) annual management and monitoring costs expended in year n

FOCn = the future (inflated) capital costs expended in year n

r = the discount rate

n = a specific year designated 0, 1, 2, etc. up to a pre-specified final year (t-1)th year

t = number of years covered under the planning process (maximum 30 years under formula 2)

The present value of remediation costs shall be based on capital, management and monitoring expenditures being made throughout the year and not entirely at the end of the year.

5.9 Discount Rate

The discount rate to be used in the present value formula above shall be a rate consistent with the form of security chosen and the time period specified in the contaminated sites legal instrument.

The maximum discount rate used shall be based upon the rate of interest for Government of Canada 30-year bonds, as published in the journal *Bank of Canada Review* or other respected financial reporting publication such as the *Globe and Mail* newspaper.

6.0 Forms of security

- 6.1 Acceptable forms of financial security are defined in section 1.0 of this Protocol under the definitions of "security" and "financial security".
- 6.2 In addition to the specific forms of financial security listed in this definition, there may be situations where a person may wish to post alternative types of financial security such as performance or surety bonds. In these situations, the person shall prepare a written request to a Director outlining the reasons for the request to vary the type of security.
- 6.3 A Director shall review each request on an individual basis. The arguments posed by the person shall be sufficiently compelling in order for a Director to vary the type of security accepted.

- 6.4 An analysis of the alternative types of security requested shall be performed either by a Director or an independent third party, at the expense of the person.

7.0 Diminishment of assets

- 7.1 Subject to section 37 of the Regulation, a person who is required to provide security under a contaminated sites legal instrument shall be required in the legal instrument that he or she shall not, without notifying a Director, offer the site for sale, proceed with bankruptcy proceedings, or knowingly do anything that diminishes or reduces assets that could be used to satisfy the terms and conditions of the contaminated sites legal instrument.
- 7.2 In the case of a Remediation Order the responsible person must obtain consent from a Director before diminishing or reducing the assets [Act 48 (8)].

8.0 Periodic reviews of security

- 8.1 A Director shall carry out a review of the security for a site at least every five years and no more than once per year.
- 8.2 A person providing security for a site shall be required to forward to a Director annually a copy of his or her firm's most recently audited annual financial statements along with a copy of the firm's signed annual report.
- 8.3 For projects where costs are changing significantly, a Director shall perform a security review more frequently than every five years. The review shall include an analysis of the adjusted projected costs of the project in relation to the actual costs incurred to date, and shall analyse these costs in relation to the current value of the security provided.
- 8.4 On an annual basis, a Director or the person posting the security may request a review of the amount of security required to be posted. Adjustments may be required or approved by the Director.
- 8.5 If government bonds or other debt instruments are used as financial security, then the value of these instruments shall be reviewed by a Director at least every three years and their value compared with the level of security required. Adjustments in the value of these debt instruments may be required.
- 8.6 When issuing a contaminated sites legal instrument, a Director shall include terms and conditions requiring the periodic review of security, to ensure that

adequate funds are available for the remediation requirements specified in the instrument.

9.0 Conditions for realizing security

9.1 The conditions that can cause security to be called shall be clearly specified in the contaminated sites legal instrument. These conditions may include but are not limited to the following situations:

- The person for reasons within his or her control misses three successive deadlines in a schedule of requirements provided in a contaminated sites legal instrument.
- After one half of the time allocated to the implementation of the remediation schedule referred to in a contaminated sites legal instrument has elapsed, or after two years, whichever is earlier, the person cannot provide adequate evidence (i.e., work orders, invoices, inspections, etc.) of progress to comply with the conditions of the contaminated sites legal instrument.
- The person has violated a specific contaminated sites legal instrument or any other order or statute in relation to the site.
- The person or the guarantor becomes bankrupt, files a Notice of Intention or files a Proposal under the *Bankruptcy and Insolvency Act*.
- When notice is received of the proposed cancellation or non renewal of a letter of credit or of some other form of security, and an acceptable alternative form of security has not been arranged.

9.2 Security held in a non cash form shall be converted to cash as soon as possible whenever the security becomes impaired.

9.3 Where possible a Director shall give the person at least 30 days notice with supporting rationale of any action to use the security.

9.4 If security has been given in the form of cash, bonds, letter of credit, or similar security, a Director may claim all or part of the security. The security shall be placed in a designated account.

9.5 Where security has been realized and is to be used to complete remediation as specified in a contaminated sites legal instrument, expenditures on remediation of the site shall not be made unless authorized by a Director.

10.0 Administrative procedures for specific types of security

Procedures for administering cash, irrevocable letters of credit, and eligible government bonds are contained in Appendix 2.

11.0 References

- 1) Grant Thornton, Security Policy Guidance for Contaminated Sites: Findings, Report prepared for the Ministry of Water, Land and Air Protection, May 28, 2003.
- 2) Grant Thornton, Security Policy Guidance for Contaminated Sites: Decision Matrix, Report prepared for the Ministry of Water, Land and Air Protection, May 28, 2003.

The preceding documents are available through the ministry's contaminated sites web site under the discussion papers and reports heading.

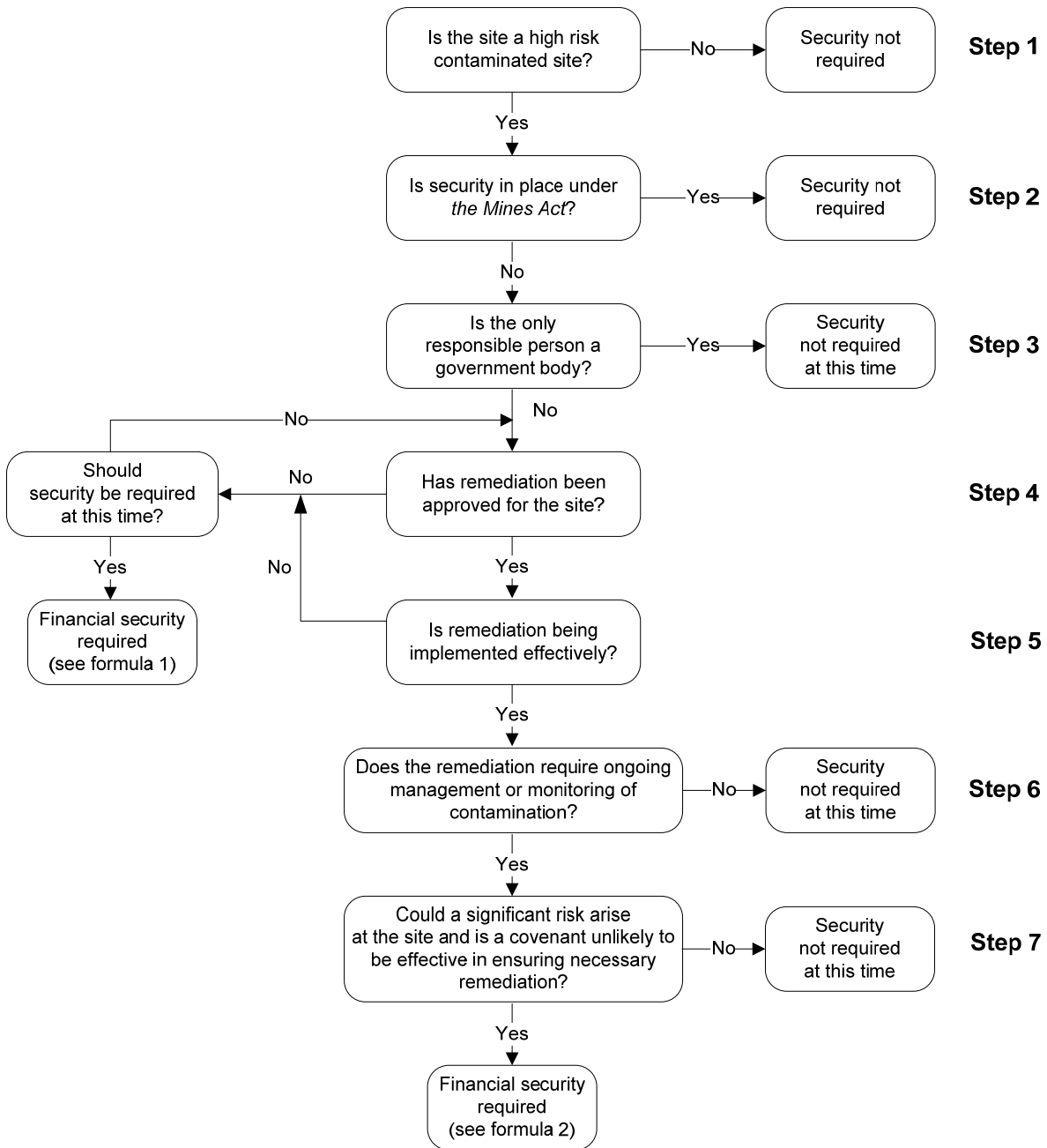


Figure 1. Contaminated sites security decision tree.

Appendix 1.
Legal and Regulatory Authority for Security in
***Environmental Management Act* and Contaminated Sites Regulation**

The following parts of the Act and Regulation authorize the provision of security for contaminated sites.

Environmental Management Act

- 48 (2) A Remediation Order may require a [responsible person] to do all or any of the following:
- (c) give security, which may include real and personal property, in the amount and form the director specifies.
- 51 (1) On the request of a responsible person, including a minor contributor, a director may enter into a voluntary remediation agreement in accordance with the regulations, consisting of:
- (c) security, which may include real and personal property, in the amount and form, and subject to conditions the director specifies.
- 53 (3) A director, in accordance with the regulations, may issue a certificate of compliance [to a person] with respect to remediation of a contaminated site if
- (d) any security in relation to the management of contamination, which security may include real and personal property in the amount and form and subject to the conditions specified by the director, has been provided and the requirements respecting that security prescribed in the regulations have been met . . .
- 54 (3) A director may at any time during independent remediation by any person
- (d) impose requirements that the director considers are reasonably necessary to achieve remediation.

Contaminated Sites Regulation

47 (3) When issuing an approval in principle under section 53 (1) of the Act, a director may specify conditions for any or all of the following:

(f) any financial security required by the director in accordance with section 48.

48 (4) A director may require financial security if

(a) a significant risk could arise from conditions at a contaminated site because

(i) the site is left in an unremediated or partially remediated state, or

(ii) the site is remediated but requires ongoing management and monitoring because contamination is left at the site, and

(b) a covenant under section 219 of the *Land Title Act* is, in the opinion of the director, unlikely to be an effective means to ensure that necessary remediation is carried out at the site.

48 (5) The financial security required by a director under subsection (4) may be for the purpose of any or all of the following:

(a) ensuring that a responsible person completes remediation or guarantees performance to the satisfaction of the director;

(b) providing funds to further treat, remove or otherwise manage contamination;

(c) complying with the applicable legislation and financial management and operating policies of British Columbia.

Appendix 2.

Administrative Procedures for Specific Types of Financial Security

1.0 Procedures for administering cash

- 1.1 Certified cheques made out to the Minister of Finance shall be submitted to the Director.
- 1.2 The cheques shall be deposited into an account in accordance with applicable legislation and relevant government Core Policy and Procedures Manual provisions.
- 1.3 If financial security is to be built up through payments over time, payments may be based on a per-unit price (e.g. dollars per tonne of hazardous material) or an amortization payment calculated to accumulate to a total amount by a specific time in accordance with section 5.6.2 of this Protocol.
- 1.4 Applications for refunds of financial security shall be sent to the Director.
- 1.5 A Director shall maintain records of all deposits of financial security and issue reports regularly as required under government policy. Reports on each account shall include, at minimum, the following:
 - payments into and out of each account,
 - accrued interest, and
 - opening and closing balances.

2.0 Procedures for administering irrevocable letters of credit

- 2.1 Only irrevocable letters of credit from financial institutions empowered to issue such instruments with business offices in B.C. may be accepted.
- 2.2 Irrevocable letters of credit shall be retained by the Director.
- 2.3 An irrevocable letter of credit will normally specify an expiry date.
- 2.4 Where security is required for a period longer than the expiry date of the irrevocable letter of credit, the letter of credit shall state that it would be renewed automatically.
- 2.5 An irrevocable letter of credit shall not be renewed if a Director advises the financial institution in writing that renewal is not required.

- 2.6 If notice of intent not to renew a letter of credit is given by the financial institution, alternative security satisfactory to a Director shall be posted at least 30 days before the letter's expiry date.
- 2.7 If alternative security is not posted as required in section 2.6 or notice not to renew a letter of credit is given with no alternative security posted, the existing irrevocable letter of credit will be called and the proceeds are to be administered as a cash form of financial security.
- 2.8 Any contaminated sites legal instrument shall provide that, where non-cash security (e.g. a letter of credit or surety bond) is provided and appropriate arrangements are not made for its renewal or replacement at the time of expiry, then cash security shall be immediately posted in lieu of the non-cash instrument.
- 2.9 A Director shall maintain records of all irrevocable letters of credit and prepare reports semi-annually, or more frequently, as required under government policy.
- 2.10 As remediation is undertaken and, at the request of the person, a Director shall notify the financial institution by letter as to the status of the remediation and security requirements; e.g. whether the amount of the irrevocable letter of credit can be reduced, or that the irrevocable letter of credit is to be released. If it is to be released, the original letter of credit and any required supporting documents are to be returned to the financial institution.
- 2.11 Drawings on letters of credit and reductions in, or release of irrevocable letters of credit shall be authorized by a Director only after 30 days notice is made to the person.
- 2.12 A person is responsible for all fees and charges associated with the irrevocable letter of credit.

3.0 Procedures for administering the use of eligible government bonds as security

- 3.1 Bonds are considered debt instruments issued or guaranteed by the Government of Canada (excluding Canada Savings Bonds) or a provincial government and shall be distinguished from surety or performance bonds.
- 3.2 Bonds used as a security shall have a maturity date that is not more than three years from the date on which they are provided as security.

- 3.3 Bonds shall be in bearer form or they shall be transferred to the Government of British Columbia.
- 3.4 Bonds shall be retained by the Director.
- 3.5 A Director shall report annually or more frequently on bonds he retains for security as required under government policy.
- 3.6 A Director shall monitor the value of the bonds at least quarterly.
- 3.7 If the value of the bonds on deposit falls to less than 85 percent of the required security for a site, a Director may require the person to provide additional security.
- 3.8 A Director may make arrangements with persons who have posted a bond as security, if the bond is maturing or interest is due and payable, to accept a substitute bond as security. If no substitutions are made and a bond matures or interest payments are received, the proceeds shall be deposited and administered as a cash form of financial security.