Security Policy Guidance for Contaminated Sites: Findings

Ministry of Water, Land and Air Protection

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Introduction and Approach

Financial security, when considered in the context of a contaminated site, attempts to mitigate the risk to government that a site will remain in an unremediated state and thus pose an ongoing risk to human health or the environment by requiring the person(s) responsible for a site to submit some form of financial instrument which may be forfeit if remediation requirements are not met.

A. Background

The Ministry of Water, Land and Air Protection ("the Ministry") is responsible for the management of provincial land, water, air and wildlife, including the facilitation and regulation of contaminated site assessments and remediation in an environmentally sound and cost-effective manner.

The *Waste Management Act* ("the *Act*") is the primary statute addressing contaminated sites in British Columbia. The *Contaminated Sites Regulation* (the "Regulation") provides specific direction on contaminated sites issues ranging from investigation to remediation and was developed to address liability concerns raised by municipalities, landowners, developers, and lending institutions. It was also intended that the legislation would provide uniform requirements for site investigations and remediation as the means to ensure that environment and human health would be adequately protected.

The *Act* and Regulation allow for several approaches to the remediation of contaminated sites and provide that financial security can be requested for the following three purposes (see Section 48(5) of the Regulation):

1. To ensure that a responsible person completes remediation or guarantees performance to the satisfaction of a Manager under the *Act;*
2. To provide funds to further treat, remove or otherwise manage contamination; and,
3. To comply with the applicable legislation and financial management and operating policies of British Columbia.

In May 2002, the Minister of Water, Land and Air Protection appointed an advisory panel to provide recommendations on how the *Act* and Regulation could be improved and aligned with government direction. Over the last year, the Contaminated Sites Panel has reviewed a number of key components of the contaminated sites regime and has made recommendations regarding changes to this process. The Panel has approved as its guiding principles the following:

- Protect health, safety, and the environment from significant actual or probable harm caused by contaminants.
- Promote a healthy and sustainable economy and communities through the best use of limited public and private resources.
- Ensure regulatory tools are proportionate with risk and based on a fair, legally defensible set of principles.
- Implement a clear, fair, and accountable process, which focuses Government resources on planning, monitoring and enforcement, and non-Governmental resources on achieving remediation goals.

The Ministry's service plan also directs the Ministry to implement methods that will reduce government costs, reduce the costs of those that must meet environmental standards, reduce conflict and litigation, eliminate service backlogs, and focus efforts in areas where there is the greatest human health and/or environmental risk. This report has been prepared in keeping with the Ministry of Water, Land and Air Protection's new direction, as laid out in the above referenced documents.

B. Objectives

By developing clear and consistent financial security policy and procedures for contaminated sites, the Ministry of Water, Land and Air Protection will ensure that site owners and operators are treated equitably. An easily definable province-wide process would allow for a uniform application of the *Act* and the Regulation. The policy and procedures are required to address the following questions:

- What form should the security take?
- When is security required?
- How should the security be calculated?
- Should all or a portion of costs be secured?
- When should the security be discharged?

In addition to answering the above questions, the policy and procedures will reduce the administrative time required to review the nature and amount of security necessary for specific sites.

C. Approach

In keeping with the general objectives of this project, the following three tasks were completed:

1. Inter-jurisdictional analysis, within Canada and the United States, of issues encountered by other agencies regarding the posting of financial security. Interviews with representatives of lending and insurance institutions, ministry clients and other provincial ministries.
2. A review of the financial security provisions that currently exist in provincial legislation; and
3. A review of the Ministry of Water, Land and Air Protection's policy, procedures and past experience in establishing financial security requirements for contaminated sites.

In its entirety, the information, gathered through the review and analysis, has been used to feed into a financial security procedures decision matrix for contaminated sites.

Inter-jurisdictional Findings

This section summarizes the key findings from in-person and telephone interviews held with other jurisdictions and agencies both in Canada and the United States. The purpose of these interviews was to obtain input on issues involving the posting of security for contaminated sites. These representatives were asked questions relating to their decision frameworks and processes for determining financial security requirements. Information obtained through the interview process has been supplemented by a review of associated documentation.

A. Other jurisdictions

A total of seven (7) interviews were completed with representatives from the three Canadian and four American agencies listed in the following table. *

Respondent Jurisdiction

Jurisdictions	Require Security	
	No	Yes
1. Ministry of Environment, Alberta, Canada	√	
2. Ministry of the Environment, Ontario, Canada		√
3. Department of Environment and Labour, Nova Scotia, Canada	√	
4. Environmental Protection Agency, Illinois, USA	√	
5. Department of Environmental Quality, Oregon, USA		√
6. Department of Environmental Quality, Michigan, USA		√
7. Department of Environmental Protection, New Jersey, USA		√

As shown by the check marks in the table, four of the agencies require financial security for specific types of contaminated sites. Details regarding these security requirements are provided below.

* The respondents were chosen based on their use of financial security and do not represent a cross section of North American jurisdictions.

Reason for Security Requirement

The respondent jurisdictions generally require financial security for high-risk sites. In addition, Oregon, Michigan and Ontario require security if the site requires long-term or perpetual management or monitoring. It was reported that the financial health of the responsible company(s) might also influence the requirement for security.

Common Forms of Security

The four respondent jurisdictions accept various forms of security including combinations of the following:

- Cash
- Irrevocable letters of credit (either with specified periods or evergreen clauses)
- Negotiable securities (such as government bonds)
- Surety bonds (either performance or financial)

Alternative Forms of Security

Accompanying the above forms of security, various jurisdictions also accept differing levels of the following forms of security, based on the individual perceived risks as outlined below:

Environmental Insurance Policy: These are contracts whereby an insurer agrees, in return for premiums, to cover the development of losses from existing liabilities in addition to losses associated with the discovery of new environmental problems. Both for United States federal contaminated sites and in some individual states, the corresponding environmental protection departments accept insurance policies. In the New Jersey example, the insurance policy must include the following terms:

1. Issuer of an Environmental Insurance Policy. Entity licensed by the Department of Insurance to transact business in the State of New Jersey.

2. Language of an Environmental Insurance Policy. Environmental Insurance Policy shall contain the following provisions:

   - It may not be revoked or terminated without the written consent of the Department.
   - Monies may be released only upon the Department's written authorization.
   - The Department has the right to draw directly upon the Remediation Funding Source upon the Department's written determination that the Responsible Party has failed to perform the required remediation.
   - The sole beneficiary of the policy is the Department.

The New Jersey Department of the Environment indicated that they had varying degrees of difficulty with the environmental insurance policies and actively encouraged responsible

persons to post other forms of security. The difficulties were mainly inappropriate wording of the insurance documents themselves and the seeming unwillingness of the insurance companies to render the policies in appropriate form.

Self-guarantees (Parental guarantees): This type of agreement is a financial guarantee in lieu of posting financial security, from either the responsible corporation or its parent corporation if a certain financial threshold is met. The threshold financial test differs from region to region but is intended to allow only the financially healthiest corporations the ability to forgo posting financial security while they are actively participating in the remediation or maintenance of a contaminated site. The idea being that very large and financially healthy corporations who are participating in the remediation process pose little risk in the short-term that they will be unwilling or unable to meeting the financial costs associated with the remediation of a contaminated site.

New Jersey, Oregon, and the United States federal government accept guarantees from responsible parties. These guarantees follow a general guideline, or financial threshold test, which is used to calculate acceptability. The New Jersey self-guarantee test is as follows:

1. Self guarantor must be acceptable to the Department.
2. The estimated cost to clean up does not exceed one-third of the corporation's tangible net worth, i.e. total assets less intangible assets and total liabilities.
3. Sufficient cash flow exists on an annual basis – expected gross receipts exceed gross payments in that fiscal year in an amount at least equal to the estimated remedial costs to be completed in the next 12-month period.

The U.S. federal guidelines are significantly more stringent than those of New Jersey and are used as a basis in our "business test" as detailed in the matrix portion of this report. In discussions with New Jersey, they indicated that in the vast majority of cases where security was required, a self-guarantee was used.

Discount Rate

In those jurisdictions where financial security is accepted, the actual calculation of the amount of security required is also specified. In the case of New Jersey, they do not discount the calculation of security as they request the full amount of the cost of the remediation to be posted or guaranteed. However, they noted that they do not generally have sites where the costs go beyond 10 years, due to contaminated soil relocation practices, and therefore do not need to discount the security.

In Michigan, the projected required contribution amount, when using an interest bearing mechanism, reflects a discount rate based on the most recent 30-year Treasury Constant Maturity Rate (for 2002 the rate is 5.4%). The calculation also uses a 15% annual contingency fee used to account for any unknown increases in annual operating and maintenance costs. Normally, the number of years used in the calculation is 30.

In the past, the discount rate used in the calculation of financial security has been one the negotiating points between the Ministry and responsible parties. The lower the discount rate, the higher the present value calculation and the larger the level of financial security required.

Industry respondents indicated that they felt a discount rate of 6% or 7% would be appropriate as it accurately reflects the current rate of return on capital in the private sector. However, the Ministry has maintained that a discount rate of approximately 3% would be more appropriate as this calculation is based on the cost of capital to the government. The Ministry maintains that the lower interest rate is appropriate because the financial security is intended to cover the costs to government for remediation of a site if the responsible party is unable or unwilling to do so. As such, the government's rate of return is the appropriate rate to use.

The difference in discounts rates is also reflected in the United States as federal sites being cleaned up using Superfund authority generally use a discount based on interest rates from Treasury notes and bonds which is representative as the rate of return for the U.S federal government. For 2002 the interest rate specified is 3.4%. For non-federal sites, a standard discount rate of 7% is used as it is anticipated that these sites will be cleaned up by the private sector, thus, the calculation uses the higher rate of return for industry.

Unilateral Remediation

The jurisdictional interviews reveal a difference in the approach taken between the Canadian and American agencies in terms of remediation enforcement. Interviews with Oregon, Illinois, and New Jersey revealed that when it is determined that the responsible party(s) is not negotiating or remediating in good faith and risk to human and ecological health is significant, then these parties are subject to unilateral remediation by the states' environmental agencies. Upon completion of remediation, the state agencies sue the company(s) up to three times the remediation costs, including direct cost such as staff salaries and indirect costs such as office space and a portion of the agencies' centralized services. The respondent agencies reported high success rates with cost recovery following unilateral remediation.

Alternative Practices

The Illinois Environmental Protection Agency fosters partnerships between themselves and industry that allow for the collection of monies from companies to remediate contaminated sites throughout the state in return for government endorsement of positive environmental records.

B. Summary

Of the seven jurisdictions interviewed, four require financial security at high-risk contaminated sites and three do not. The common forms of financial security required by the respondents include: cash, irrevocable letters of credit, negotiable securities, and surety bonds. Various jurisdictions also accept alternative forms of security, such as environmental security policy and self-guarantees and in at least one jurisdiction it accepts a fully funded trust fund managed by the responsible party.

The discount factor when present value calculations are used, generally reflects the cost of capital for the public sector rather than that of the private sector as financial security is intended to protect the public sector from expenses that it would have to incur if it was left responsible for remediation costs.

The use of unilateral remediation at high-risk contaminated sites, where responsible parties are not negotiating or remediating in good faith, was reported as an effective practice by several of the respondent jurisdictions.

British Columbia Findings

This section summarizes the key findings from a document review and discussions held with Ministry of Water, Land and Air Protection staff. In addition, telephone interviews were conducted with representatives from industry, lending and insurance organizations, and the Ministries of Energy and Mines and Finance. These representatives were asked questions regarding their respective experiences posting and requesting financial security for contaminated sites in British Columbia.

A. Ministry of Water, Land and Air Protection

The table below provides a summary of some of the success the Ministry of Water, Land and Air Protection has had in receiving financial security for contaminated sites. Calculating, requesting, negotiating, and receiving financial security has been an evolving process for the Ministry. The entire process surrounding contaminated sites is complex and has resulted in confrontation on various issues including the requirement for financial security. The Ministry has learned from their experiences at each site and has amended the process for calculating financial security based on the experiences. They have attempted to develop a strong policy that is consistent and defensible while achieving their main goal of having contaminated sites remediated to acceptable standards.

Summary of High Profile Contaminated Sites – Based on information supplied by Ministry

Common Name	Security Posted	Type	Reason for Security	Trigger	Amount
Western Steel	Yes	❑ Irrevocable letter of credit	Soil Relocation	Pollution abatement order required security	$6 million
CPR Port Coquitlam	Yes	❑ Irrevocable standby letter ❑ Restrictive covenant	Removal of LNAPL free product	Enforcement of a remediation action plan	$200,000
Former Fullerton Lumber	Yes	❑ Irrevocable letter of credit ❑ Restrictive covenant	Containment	To control upgradient source of contamination	$79,000/yr for 4 years
9250 Oak Street	Yes	❑ Irrevocable letter of credit	Containment	To ensure ongoing hydraulic containment and control system	$3 million
Richmond Steel	Yes	❑ Irrevocable letter of credit	Soil relocation	Required for soil being stored on site	$675,000

Common Name	Security Posted	Type	Reason for Security	Trigger	Amount
Domtar Inc. (Braid Street)	No	❑ Ministry requested Irrevocable letter of credit	Soil relocation and containment	To ensure operation and maintenance of groundwater pump and treat system	$15 million
Koppers 8335 Meadow Ave	No	TBD	TBD	Require installation of pump and treat system	TBD
Nexen Inc.	No	❑ Ministry requested Irrevocable letter of credit	Groundwater containment and control systems and any shallow Special Waste soil left under long-term management	Non-compliance with previous order and long-term risk management	$20 million

B. Draft 10 – Security for Contaminated Sites

With the intention of creating a more defensible and transparent process for determining the need for financial security at contaminated sites, the Ministry undertook to develop a financial security policy for contaminated sites through the formation of a contaminated sites stakeholder group. This group included a financial security sub-committee with representation from industry, environmental organizations, and the Ministry of Water, Land and Air Protection. The sub-committee drafted a procedure entitled Security for Contaminated Sites – Draft 10, which drew on existing Ministerial risk management and financial guarantee policies, as well as Ontario's Ministry of the Environment Financial Assurance Guide. However, the sub-committee disbanded and the policy was never finalized.

It is clear when reviewing this draft (Appendix B), that a significant amount of effort was expended by all parties in developing the Draft 10 report. We have attached this report as it was used as a basis for our analysis.

C. Industry

Interviews were completed with representatives from the following industry organizations for the purpose of identifying issues associated with posting financial security for contaminated sites in British Columbia.

- ❑ Canadian National Railways
- ❑ Domtar
- ❑ Nexen (formally COPL)
- ❑ Mining Association of BC
- ❑ BC Business Council

Overall, industry identified concerns regarding the need for a consistent security policy, disagreement on discount rates, limited security instruments, and requirements for access to a risk-based business test, as described below.

Need for Consistent Policy

Industry respondents noted a perceived need for consistent policy when determining financial security requirements at contaminated sites. Specifically, industry respondents perceived British Columbia's current approach to requesting financial security as "inconsistent and unfair to business" with different practices experienced within each region.

Discount Rates

Industry respondents identified issues with the current discount rates, with one respondent maintaining that "the discount rate must reflect the actual rate of return that the market can expect." The industry respondents stated that if agreements were renegotiated on a five-year basis, arguments over discount rates would be reduced.

Form of Security

Industry respondents stated that insurance is too expensive to be a viable security alternative. It was noted that while other jurisdictions accept self guarantees or financial tests which exempt financially healthy companies from the security requirement, British Columbia does not.

In addition, respondents suggested that the Ministry adopt an insurance or fund approach, to allow closure and certainty for companies. One respondent noted that in New Jersey trust funds are managed by a committee within an individual company and reviewed on an annual basis by the committee to determine if the fund is sufficient. Within this model, a base amount is set and if funds dip below the base, additional financing is required.

Financial Risk Based Approach

Several of the respondents disagreed with the current time frames of the security requirements and noted the need for a financial risk-based approach. One respondent argued that a financial risk-based approach is most appropriate when determining financial security due to the inability to assess technical costs into the future. Another respondent called for a harmonization of approaches within the provincial government, noting that the BC Ministry of Energy and Mines uses a financial risk-based approach and considers the physical risk to the environment as well as the financial risk to the company. Finally, one industry respondent noted that the province uses the "worst-case-scenario" rather than the most "probable scenario."

D. Ministry of Energy and Mines

Representatives from the Ministry of Energy and Mines were interviewed in order to gain an understanding of the practices of the Ministry with regard to requiring security for mine sites. However, it is recognized that significant differences exists between establishing security for historic contaminated sites and establishing security for mining activity, i.e., mine sites have intrinsic value for the most part and the land is generally owned by the Crown and would return to the Crown in the event of default on reclamation obligations.

Form of Security

Irrevocable letters of credit are the most common form of security received by the Ministry of Energy and Mines. In response to urging by industry, the Ministry of Energy and Mines also agreed to accept surety bonds. However, subsequent to the events of September 11th 2001, these types of bonds appear to have become prohibitively expensive and are no longer a viable option for industry.

The Ministry of Energy and Mines holds security as long as reclamation liabilities exist on a site. As part of annual reporting requirements, companies are required to submit updated estimates of the expected cost of reclamation or the outstanding reclamation liability. The amount of security held by the province, however, is not the same as the expected liability and is based on the assessed risk to the Crown.

Long-Term Liability

In the case of long-term liability obligations, such as operation of a water treatment facility, pumping, site monitoring, etc., the Ministry of Energy and Mines calculates the liability based on a NPV of annual costs over a thirty (30) year period using a discount rate of 3.5%.* Generally these costs are reviewed approximately every five (5) years, with the exception of certain permits, which require a review based on specific triggers, for example the amount of lime used or levels of acidity. The Ministry of Energy and Mines will then raise or lower the security accordingly.

The 30-year time period has been used based on the practical reason that financial institutions do not offer investment mechanisms that exceed thirty (30) years (e.g., 30-year bonds). The annual costs include operating expenditures and some periodic capital replacement costs.

Risk Based Approach

The Ministry of Energy and Mines is currently developing a policy framework regarding security for sites. The analysis will treat companies differently based on their financial health and will assess "risk" based on risk of default, corporate risk, and the financial risk to the province.

It was also noted that overlap between the Ministry of Water, Land and Air Protection and the Ministry of Energy and Mines may occur if a mine site is classified as a high risk contaminated site,

* *Based on Canadian Bond rates adjusted for inflation.*

however, a memorandum of understanding between the two ministries has been developed to address this possibility.

E. Ministry of Finance

During the course of our review, we had an opportunity along with some staff members from the Ministry of Water, Land and Air Protection to discuss the issue of financial security for contaminated sites with the current Director of the Risk Management Branch. The Director confirmed that the Risk Management Branch is currently attempting to integrate an enterprise-wide Risk Management concept into government culture.

Enterprise-wide Risk Management is a desire to get all levels of government to consider and account for their individual risks and attempt to measure their capacity or appetite for these risks. The Director outlined this approach as developing a "risk envelope" which attempts to outline an acceptable level of risk and, once the risk level is determined, to develop steps to mitigate these risks where necessary.

F. Lending and insurance institutions

Representatives from the following financial institutions were interviewed in order to gain an understanding of the factors involved when providing loans for security to industry.

- TD Bank
- Business Development Bank of Canada (BDC)
- Royal Bank

While the BDC is a term lender only, the TD Bank and the Royal Bank both provide loans to companies generally in the form of letters of credit. The banks will take security through a company's assets or through cash deposits. The banks charge an annual fee of between 0.5% and 2.0% based on risk.

A representative from the Insurance Council of British Columbia was also interviewed on issues around the use of insurance as a security instrument. The representative noted that industry argues that letters of credit and other lines of insurance are too expensive. However, if surety bonds, which are market driven, increase in price, it is in response to risk. The representative went on to explain that if companies expect the provincial government to act as ultimate insurer, government should charge a fee based on the market rate.

It was noted that the availability of surety providers and the increasing costs of these types of security have made sureties, either financial or performance, less acceptable to industry. As well, the availability of environmental insurance in Canada is questionable as the number of companies providing this type of insurance is limited. The insurance industry has recognized the on-going and complex nature of environmental insurance and has limited their involvement to the sites that are extremely large in nature and to corporations that are well established and financially secure.

G. Summary

Within British Columbia, the entire process surrounding contaminated sites is complex and the Ministry of Water, Land and Air Protection has learned from their experiences at each site and has amended the process for calculating financial security based on these experiences. The Ministry has attempted to develop a strong policy that is consistent, transparent and defensible while achieving their main goal of having contaminated sites remediated to acceptable standards.

The interviews revealed that while there is clear understanding by industry that governments require some level of financial security for contaminated sites, they are concerned about the imposition of security requirements without an associated economic incentive, for example, as part of a permitting process. As well, industry respondents believe that any use of financial security should be applied on a "reasonable" basis that takes into consideration the nature of the site, the responsible party(s) financial capabilities and past remediation history.

Representatives from the Ministry of Energy and Mines noted that irrevocable letters of credit are the most common form of financial security received and are held by the Ministry as long as reclamation liabilities exist on the site. In terms of long-term liability obligations, such as operation of a water treatment facility, the Ministry of Energy and Mines calculates the liability based on a NPV of annual costs over a thirty-year period using a discount rate of 3.5%. The Ministry is currently developing a risk-based approach for security for sites based on the financial health of the companies.

Representatives from the Ministry of Finance's Risk Management Branch confirmed that they are currently attempting to integrate an enterprise-wide risk management concept into government culture.

Representatives from several lending institutions revealed that they provide loans to companies generally in the form of letters of credit. The banks take security through a company's assets or through cash deposits and charge an annual fee between 0.5% and 2.0% based on risk.

Review of Current Legislation

This section provides a review of the financial security provisions that currently exists in the *Waste Management Act* and Contaminated Sites Regulation that have been in force since April 1, 1997.

A. Waste Management Act

The Act allows a manager to require financial security as a condition of a

(i) Remediation Order, issued to a responsible person (section 27.1 (2) (c));

(ii) Voluntary Remediation Agreement, entered into between the manager and a responsible person (section 27.4 (1) (c)) ;

(iii) Certificate of Compliance, issued following remediation using prescribed numerical standards (section 27.6 (2) (b)); and

(iv) Conditional Certificate of Compliance, issued following remediation using risk based standards (section 27.6 (3) (d)).

B. Contaminated Sites Regulation

In addition to the provisions in the Act, section 47 (3) (f) of the Regulation provides that financial security may be required as a condition of issuing an approval in principle of a remediation plan.

In each case, it is left to the manager's discretion to determine the amount and form of financial security required, which may include real or personal property. Subsections 48 (4) and (5) of the CSR, however, specify the circumstances when and purposes for which it may be requested. Subsection 48 (5) provides that financial security may be requested for any or all of the following purposes:

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

(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.

Before financial security can be required, however, the manager must believe that significant risk could arise from conditions at the site and that a restrictive covenant alone would not be an effective means of ensuring that the necessary remediation will be carried out. Subsection 48 (4) of the Regulation states:

> A manager 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 state, or*
> *(ii) the site is remediated suing risk based standards but requires ongoing management and monitoring of contamination which is left on the site, and*
>
> (b) a covenant under section 219 of the Land Title Act is, in the opinion of the manager, unlikely to be an effective means to ensure that necessary remediation is carried out at the site.1

Thus if the manager is considering whether to require that financial security be provided during the later stages of remediation, he must be satisfied that the site still may pose a significant risk.

[1] A section 219 *Land Title Act* covenant imposes requirements on the land that are binding upon the person granting the covenant (the land owner) and upon the successors in title.

Past Experience

This section provides a review of the Ministry of Water, Land and Air Protection's policy, procedures and past experience in establishing and imposing security requirements for contaminated sites.

The Ministry has requested financial security on relatively few contaminated sites since April 1, 1997. All sites where it has been requested have been characterized as high risk sites (i.e., Class 1 sites under the National Risk Classification System for Contaminated Sites) where large volumes of contaminants are likely to remain on the site indefinitely and thus need to be managed using some form of containment or treatment system. In addition on each site where financial security has been requested, Ministry officials stated that at least initially, one or more of the responsible persons was not cooperating or was delaying taking necessary action.

Financial security was generally requested to cover two distinct components of potential remediation costs including:

(i) an amount for replacement, operation and maintenance costs associated with long-term containment, treatment and monitoring of contaminants remaining on site; and

(ii) an amount for potential costs associated with removing and disposing of or treating contaminants found within the upper three (3) metres of the site.[2]

Recently, the Ministry places less emphasis on this second component. Financial security is therefore mainly intended to provide the Ministry with funds to protect human health or the environment in the future should the containment or treatment system fail or need to be replaced and the responsible persons are no longer willing or able to respond appropriately.

The following section discusses certain issues that have arisen when the Ministry has ordered responsible persons to provide financial security.

A. 9250 Oak Street

The remediation order required the responsible parties to post financial security of $3 million to cover the installation and continued operation of the hydraulic containment and control system. The Director reserved the right to re-evaluate the amount and form of financial security for this system,

[2] This amount is requested in part because of the policy underlying section 28.2 of the Act to prefer remediation options that provide, to the maximum extent practicable, permanent solutions.

following his review of performance monitoring reports, and actual installation and operating costs. He proposed two alternatives way for tendering financial security.

The first alterative was for the parties to enter into "two safekeeping agreements with the Ministry and a chartered bank." One agreement would be for $2.5 million to ensure long-term operation and maintenance of the system. The second agreement would provide "$500,000.00 to secure capital equipment replacement using the estimated 20 year replacement cycle."

The second alternative was to provide the Ministry with an irrevocable letter of credit for $3 million with an "evergreen clause."

General Chemical Canada Ltd. (GCC), GCC Inc. and North Fraser Harbour Commission opted to provide the irrevocable standby letter of credit for $3 million, which gave these parties 14 days to cure any default respecting the hydraulic containment and control system. If they did not cure the default within 14 days, the Ministry could access the funds.

Additional financial security was requested on April 24, 2001 to cover the continued inspection, maintenance, monitoring and future replacement of the sediment management system.

The 9250 Oak Street experience illustrates the advantage of providing the responsible persons with options regarding the types of financial security instruments that may be provided. It also illustrates that remediation is an evolving process. As such, it is often difficult for the Ministry (and the parties) to accurately estimate the amount of financial security that may be required to provide adequate financial resources to offset future risk. Because costs estimates are able to be refined as the remediation progresses, the amount of financial security required from the parties may also need to be modified as the remediation progresses.

B. Squamish Chlor-akali Site

Financial security was requested as part of a remediation order initially issued in 1999 to the current operator and tenant of the site (Canadian Occidental Petroleum Ltd. ("COPL") now known as Nexen Ltd.) and later to the BC Rail group of companies, who are the current and former owners of the chlor-alkali plant site.

The initial remediation order required COPL to provide a letter of credit for approximately $ 3.5 million, which was the first instalment of a requested $20 million. At the time Remediation Order OS-16149 was issued, the Ministry had concerns that COPL was delaying carrying out physical remediation of the site and had accomplished little for the approximately $10 million it had spent to date. The site had also been on the Ministry's non-compliance report several times and had been the subject of previous pollution abatement and pollution prevention orders.

COPL appealed the remediation order to the Environmental Appeal Board and requested the Board grant a stay of the condition requiring that it post financial security pending an outcome of the merits of the appeal. COPL argued that if the stay were not granted and COPL was later successful

in its appeal, it was unlikely to recover $12,000.00, which was the anticipated cost of posting the security.

The Ministry on the other hand, argued that the financial security was necessary to ensure that the site would actually be cleaned up, given COPL's past history.

The Board granted the stay, accepting COPL's argument that it might be irreparably harmed if it was later successful on the appeal. The anticipated cost of posting the security might not be recoverable, since the Waste Management Act does not clearly provide a mechanism that would allow COPL to recover this loss from the Director. In particular, the Ministry could not be sued by COPL in a section 27 (4) cost recovery action, since the Ministry did not meet the definition of a responsible person in this particular case. It was also unclear whether these costs could be constituted as "reasonably incurred costs of remediation" that could be recovered from other potentially responsible persons in a section 27 (4) action.

In addition, since COPL had not requested a stay of the other conditions of the order that pertained to carrying out the remediation and seemed now to be taking action to clean up the site and comply with the other terms of the order, the Board found that the remediation could be achieved without requiring financial security to be posted. The Board noted that COPL obviously could afford to fund the remediation, since it is a multi-billion dollar company. In addition, there was no evidence that COPL may become insolvent or abandon the site. Further, the Board states that if COPL breached the legislation or the Order, the Director could use the other enforcement mechanisms, including:

> (i) undertaking the remediation work directly and then recovering the cost incurred from COPL, or
>
> (ii) charging COPL with an offence under the Act.

On November 22, 2000 the Board also granted a stay of the requirement that the BC Rail Group post financial security for similar reasons given in the COPL stay decision.

It should be emphasized that the stay decisions are not substantive determinations of the relevant factors that must be considered when deciding whether to require financial security. The appeals challenging the merits of the request for financial security, as well as other terms of the remediation order, have yet to be heard and are presently being held in abeyance while the parties try to resolve the matter amongst themselves.

In the meantime, the financial security provision in the order was amended twice to reflect the progress made on remediation. Since COPL had removed and was continuing to remove some of the special waste from the site, financial security was no longer required to ensure that physical remediation of accessible source areas is carried out. Rather the Ministry has requested financial security to ensure the long-term operation and effectiveness of risk management measures such as

the groundwater containment and control system and "long-term viability of risk-management measures necessary to manage contamination in-place at the Squamish site."

At one point the BC Rail Group also took the position that it should be exempt from providing financial security since the companies within the Group is a wholly owned crown corporation. However, the Crown Corporations Secretariat did not support the BC Rail Group's argument.

The experience with the Squamish Chlor-alkali site illustrates that Crown Corporations are not necessarily exempt from the requirement to provide financial security (particularly on sites where there are multiple parties). It also demonstrates that legislative amendments may be necessary to clarify that the administrative costs associated with posting financial security are included within the definition of "costs of remediation" in subsection 27 (2) of the Act. In addition, the underlying issue in each of the stay decisions was whether the remediation would likely be carried out if financial security were not posted at that time considering the following factors:

- whether the responsible party has the financial means to perform the remediation;
- whether there is any indication that the responsible party is likely to become insolvent, cease doing business in or divest itself of assets within the jurisdiction;
- whether the responsible party has accepted the need to remediate the site or is otherwise compelled by a remediation order to perform remediation on the site; and
- whether there are other mechanisms within the Act to ensure that the remediation would be carried out.

It would be prudent to include these factors as considerations when decisions are made regarding whether to require a responsible person to post financial security. They have therefore been incorporated into our proposed decision making matrix.

C. Meadow Avenue Site

On December 9, 2002 the Ministry issued an amended remediation order requiring Canadian National Railway Company, Beazer East Inc., Atlantic Industries Limited and Michael Wilson post financial security by March 31, 2003 to cover replacement costs and operating and maintenance costs of the remediation works.

CNR and Beazer objected to the need to provide financial security, but in order to meet the requirements of the order agreed to provide a letter or letters of credit for $1,170,000.00 on two conditions. First, that the other responsible parties also participate in providing security. (CNR and Beazer were frustrated because Atlantic and Wilson had not been contributing appropriately to the remediation costs and were not in compliance with previous orders.) Second, that the security is reviewed and amount of security adjusted every three years based on an assessment of anticipated future costs.

The Meadow Avenue site illustrates the issue regarding what to do with a non-contributing or non-cooperative party. Ministry officials described certain difficulties that cause them to be hesitant to use other tools with the Act to enforce a remediation order against a non-compliant party by charging the party with an offence under section 54(20)(c) of the Act. They also feel they lack the financial means to carry out remediation themselves under section 28.4 of the Act and then recover the costs using section 28.5 of the Act.

D. Conclusions

The experiences discussed above demonstrate that certain change may be necessary to ensure that financial security will be provided in appropriate cases, to ensure that orders requiring financial security are supportable, and to strengthen the Ministry's ability to use other enforcement tools where a party refuses to contribute to or ignores a remediation order.

The COPL and BC Rail Group stay decisions demonstrate that legislative amendments may be necessary to clarify that the administrative costs associated with posting financial security are recoverable as "costs of remediation." They also provide at least some indication that in addition to the requirements of section 48 (4) of the Regulation the following are relevant considerations when deciding whether to require that financial security to be provided in a particular case:

- would the remediation likely be carried out if financial security were not required to be provided at this time;
- does the responsible party have the financial means to perform the remediation;
- is there any indication that the responsible party is likely to become insolvent, cease doing business in or divest itself of assets within the jurisdiction;
- has the responsible party has accepted the need to remediate the site or is otherwise compelled by a remediation order to perform remediation on the site; and
- whether there are other mechanisms within the Act to ensure that the remediation would be carried out.

Ministry officials often lack adequate resources or necessary expertise to estimate the amount of financial security that may be required or even verify the cost estimates provided to them by the responsible persons. Accordingly they would prefer a system where the responsible parties' estimates would need to be verified by an independent third party before those estimates are submitted to the Ministry. In addition they would also like to have the financial means (perhaps by way of a fee charged for reviewing financial security calculations) to retain outside experts to assist in deriving or verifying estimates.

The existing order provision in section 27.1 (2) (c) of the Act allows a manager to order any responsible person to "give security in an amount and form ... subject to conditions the manager

specifies." Consideration should be given to making it a condition of an order that the responsible parties have their estimates of remediation costs and long term capital and maintenance costs verified by a third party.

The proposed self-funding option payment under the Matrix Document may also provide a means to collect a pool of funds that the Ministry could then use to retain outside experts in appropriate cases to assist with financial security calculations.

It is also important that the Act have clear provisions creating a designated trust fund, specifying the purposes for which the funds may be used and allowing responsible persons to pay trust premiums instead of required financial security.

Finally, regarding the issue of a non-contributing or non-cooperative party, there may be a need to clarify or strengthen the mechanisms that already exist in the Act to make Ministry officials less hesitant to enforce a remediation order against a non-compliant party by charging the party with an offence under section 54(20)(c) of the Act. In circumstances where the remediation is not proceeding appropriately, the trust premiums may also provide some seed money to allow the Ministry to remediate the site directly under section 28.4 of the Act (although this provision provides for funding out of the consolidate revenue fund) and then bring an action to recover the costs from non-compliant parties under section 28.5 of the Act.

Recommendations and Directions for British Columbia

This section provides recommendations and directions for determining the need for, and the administration of, security at high-risk contaminated sites within British Columbia.

What form should security take?

Based on our inter-jurisdictional and British Columbia interviews, the most common forms of accepted security include:

1. Cash (in its many forms)
2. Irrevocable letters of credit
3. Transferable bonds guaranteed by the provincial or federal governments

Other forms of security are accepted by the various jurisdictions, however, although our analysis indicates that they are associated with difficulties (e.g., wording of insurance agreements in New Jersey) or have become very costly (e.g., surety bonds). Generally, the Ministry should accept the above three forms of financial security unless the responsible party can present a reasonably compelling argument as to why the above forms would not be acceptable. If alternative forms are suggested, the Ministry must look at each form under their own merits to ensure that the wording and nature of any agreement are appropriate for the individual circumstances.

The Draft-10 document also anticipated accepting additional forms of financial security such as security on fixed assets. Our analysis reveals that no other jurisdictions accept this form of financial security. This type of security may be fraught with difficulties and the Ministry should not put itself in the position of a lending institution (for instance, there may be undisclosed trust claims that would rank in priority to any security agreement) and should not accept this type of financial security.

For what type of sites should security be required?

The inter-jurisdictional analysis, indicates that jurisdictions that require financial security for sites that are considered contaminated, only required such security for sites that are defined as "high risk" or those sites posing a significant risk to human health or the environment. Correspondence from environmental groups to the Ministry outlines belief that all levels of contamination should require financial security. However, based on our analysis and the experience of the Ministry of Water, Land and Air Protection to date, an approach based on the potential risks to human health and the environment indicates that the financial security should only be required for high risk contaminated sites as defined under the *Act*.

When is security required?

The inter-jurisdictional analysis indicates that security is generally required as soon as the level of contamination can be confirmed and a reasonable estimate of the costs of remediation can be determined. Through discussion with Ministry of Water, Land and Air Protection staff, it was determined that a main objectives of the Ministry is to reduce the risk to human health and the environment by having the remediation performed in a timely manner. Financial security should not act a deterrent to this remediation.

As part of the decision matrix, we have indicated that financial security should be requested or required in situations where a remediation plan acceptable to the Ministry has not been developed or remediation is not progressing in a timely manner. If the remediation is being performed in accordance with an approved remediation plan, in an acceptable time frame, then financial security is not required during the implementation of remedial measures.

In situations where a risk-based approach is used and there continues to be an ongoing requirement to manage and monitor contaminates left on the site, then financial security should be considered. As these types of situations are usually expected to continue into the foreseeable future where economic certainty is more difficult to predict, financial security should be considered at this point. However, on a short-term basis (i.e., annually), large, stable companies do not pose significant risk that they would cease to live up to their financial requirements to continue to monitor a site. In such cases, a "business test" should be used to determine if financial security should be posted.

How should the security be calculated and should all or a portion of the costs be secured?

Our analysis indicates that financial security, when calculated, is based on the full-expected costs to carry out the remediation. The calculation is based on the idea that the value of the financial security should be sufficient to cover the costs of a third party to conduct the remediation if the responsible party is unable or unwilling to do so. If these costs continue for a long period of time, a present value calculation is used in most jurisdictions. Thus, is it recommended that the British Columbia model calculate financial security based on all of the costs required to conduct the remediation in accordance with an approved remediation plan and then discount these costs.

Based on discussions with industry and a general recommendation made by the United States Environmental Protection Agency under their superfund policy, we recommend that a 30-year window be used in most situations when projecting future operating and maintenance costs and capital replacement costs for a site which uses a risk based approached to managing contaminants left on site. As well, the maximum period of time that is used in the financial bond markets is 30 years as projections beyond this time frame becomes increasingly difficult and speculative.

Thus, for the British Columbia model, we recommend that all projected costs should be included in a calculation for financial security, that the calculation should be discounted to

reflect the present value of those costs, and that the period over which costs are calculated should be a maximum of 30 years.

When should the security be discharged?

Financial security should be discharged (or reduced) when the expected future costs have been significantly reduced. For instance, after a one-time capital expenditure has been implemented and fully paid for, or the annual costs of operating and maintaining a system have been revised. It is important that the financial security in place reflect the actual anticipated future costs.

A mandatory five-year review process is incorporated into the financial security Decision Matrix document which will force a recalculation of the financial security at least every five years. As well, either party (the Ministry or the party posting the financial security) should have the right to review the level of financial security at least annually at which time either a increase or a decrease in the financial security can be requested.

Appendix A

Record of Consultations

Agency	Contact	Telephone	Email
Inter-Jurisdictional Agencies			
Oregon Department of Environmental Quality	Ann Levine	(503) 229-6258	levine.ann@deq.state.or.us
Michigan Department of Environmental Quality	David Koski	(517) 373-4818	koskid@michigan.gov
Illinois Environmental Protection Agency	John Sheryl	(217) 785-9507	
New Jersey, Department of Environmental Protection – Site Remediation Program	Tina Lair	(609) 292-0989	
Alberta, Ministry of Environment	Mike Zemanek	(780) 427-9882	mike.zemanek@gov.ab.ca
Ontario, Ministry of the Environment	Tim Kercel	(416) 326-4840	
Nova Scotia, Department of Environment and Labour	Sharon Vervaret	(902) 424-2547	
Ministry of Energy and Mines			
Mining Division	John Errington	(250) 952-0470	John.Errington@gems2.gov.bc.ca
Mining Division	Gregg Stewart	(250) 952-0473	Gregg.Stewart@gems5.gov.bc.ca
Ministry of Finance			
Risk Management Branch and Government Security Office	Phil Grewar	(250) 387-0521	Phil.Grewar@gems8.gov.bc.ca
Risk Management Branch and Government Security Office	Laura A. Hughes	(250) 387-0519	Laura.Hughes@gems6.gov.bc.ca
Industry			
British Columbia Business Council	Brian McCloy	(604) 943-5064	
Nexen	David Bolter	(604) 687-7469	
Domtar	Marcel Sylvester	(514) 848-5400	
Canadian National Railways	Norman Pellerin		
Mining Association of British Columbia	Lorne Grasley	(604) 681-4321	lgrasley@mining.bc.ca
Lending Institutions			
TD Bank	Mike McKee	(250) 356-4002 ?	
Royal Bank	John Foster	(250) 356-4574	
Business Development Bank of Canada	Mary-Ellen Echle	(250) 363-0164	mary-ellen.echle@bdc.ca

Record of Consultations (cont'd)

Insurance		
Insurance Council of British Columbia	Janice Wavrec	(604) 646-2350
A&A Pacific	Brian Hogan	(604) 669-4247
Guarantee Company of North America	Graham MacIntosh	(604) 687-7688
Canadian General Underwriters	Steve McConnell	(604) 682-2663
A&N Reidstenhouse	Brian Lawson	(604) 688-4442

Appendix B

MINISTRY OF ENVIRONMENT, LANDS AND PARKS
Environment and Resource Management Department

Name of procedure:
Security for Contaminated Sites

Staff affected:
Ministry of Environment, Lands and Parks Contaminated Sites Program staff

Authority:
Waste Management Act and Contaminated Sites Regulation

Purpose of procedure:
This procedure is to provide guidance as to when security may be required and for determining the type, amount and timing of such security.

Relationship to previous procedure:
None

Cross-references:

1) BC Ministry of Finance and Corporate Relations, Office of the Comptroller General. General Management Operating Policy Manual, Chapter 9, Risk Management.
2) BC Ministry of Environment, Lands and Parks, Financial Services Branch. Financial Guarantees — Policy and Procedural Guidelines, August 1993.
3) Ontario Ministry of Environment and Energy, Economic Services Branch. Financial Assurance (Part XII – Ontario *Environmental Protection Act*). A Guide, May 1996.
4) Canadian Council of Ministers of the Environment. National Classification System for Contaminated Sites, Report CCME EPC-CS39E, March 1992.

Recommended by: _____ **Date:** _____
Deputy Director of Waste Management

Issued by: _____ **Date:** _____
Assistant Deputy Minister
Environment and Lands Headquarters Division

_____ **Date:** _____
Assistant Deputy Minister
Environment and Lands Regions Division

1.0 Definitions:

Act means the *Waste Management Act.*

Approval in Principle (AiP) means Approval in Principle described in Section 27.6 of the *Act*.

Certificate of Compliance (CoC) means a Certificate of Compliance described in section 27.6 of the *Act.*

Conditional Certificate of Compliance (CCoC) means a Conditional Certificate of Compliance described in section 27.6 of the *Act.*

contaminated site means as defined in Section 26 of the *Act,* as an area of land in which the soil or any groundwater lying beneath it, or the water or the underlying sediment contains

(a) a special waste, or
(b) another prescribed substance in quantities or concentrations exceeding prescribed criteria, standards or conditions.

contaminated sites legal instrument means one of the following: Approval in Principle, Certificate of Compliance, Conditional Certificate of Compliance, Remediation Order, Voluntary Remediation Agreement.

Director means a person employed by the government and designated in writing by the Minister as a Director of Waste Management as described in Section 1 (1) of the *Act*. For this procedure the "Director" is normally the Director of Pollution Prevention and Remediation Branch.

financial security means any of the following:

(a) security deposit such as,
- short term deposits
- marketable bonds
- treasury bill notes
- irrevocable letters of credit
- bank drafts
- personal money orders
- cash

(b) performance bonds (a type of surety bond)

(c) surety bonds

(d) pledge of assets in the form of real and personal property as described in Section 27.1 of the *Act.*

(e) cash trust funds

ministry means the Ministry of Environment, Lands and Parks.

Remediation Order (RO) means an order issued under section 27.1 of the *Act.*

regulation means the Contaminated Sites Regulation (BC Reg 375/96).

responsible person means a person described in section 26.5 of the *Act*.

security can mean either:

(a) non financial security which includes instruments such as memoranda of understanding, company guarantees, liability insurance, captive insurance vehicles, or non financial requirements in an Approval in Principle, Certificate of Compliance, Conditional Certificate of Compliance, Remediation Order, or Voluntary Remediation Agreement; or

(b) financial security.

Voluntary Remediation Agreement (VRA) means a Voluntary Remediation Agreement referred to in section 27.4 of the *Act.*

2.0 General:

2.1 Legal and Regulatory Authority

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

1. A Remediation Order may require a (responsible person) to do all or any of the following:
   (c) give security in an amount and form which can include real and personal property, subject to conditions the Manager specifies" [*Act* section 27.1 (2)]

2. A Manager may, on request by a responsible person, including a minor contributor, enter into a Voluntary Remediation Agreement consisting of:
   (c) security in an amount and form which may include real and personal property, subject to conditions the Manager specifies [*Act* section 27.4 (1)]

3. A Manager, in accordance with the regulations, may issue a Certificate of Compliance with respect to remediation of a contaminated site if:

(b) any security in an amount and form, which may include real and personal property, required by the Manager has been provided relative to the management of substances remaining on site [*Act* section 27.6 (2)]

4. A Manager, in accordance with the regulations, may issue a Conditional Certificate of Compliance with respect to remediation of a contaminated site if:
   (d) any security in an amount and form, which may include real and personal property, required by the Manager has been provided relative to the management of substances remaining on site [*Act* section 27.6 (3)]

5. A Manager 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 state, or
      (ii) the site is remediated using risk based standards but requires ongoing management and monitoring of contamination which is left on site, and
   (b) a covenant under section 219 of the *Land Title Act* . . . [regulation section 48(4)]

6. Financial security may also be required in issuing an Approval in Principle. [regulation subsection 47 (3) (f)].

2.2 Purpose

Security may be used to reduce the risk of financial loss to government and the public by requiring security in situations where there is reason to believe that the province may incur costs for the protection of the environment or human health, or for the restoration or remediation of the environment.
[regulation section 48 (5)]

2.3 General Principles for Implementing Security Requirements

The following principles guide the application of this procedure:

- The Director is responsible for determining whether security is required, and if so the amount and form.
- The ministry and responsible person(s) will work together to identify the forms of security acceptable to both parties.
- The application of security requirements must be consistent, equitable and effective.
- Security requirements should not be used as a penalty against responsible persons.

2.4 When Security Is Required

2.4.1 Under this procedure, unless it is exempted, security be may required for a contaminated site. The following guides the reader through a number of steps to determine if security is required.

Step 1. Determine if the Responsible Person is a Government Department
Is the responsible person a Federal or Provincial government ministry or Department, or a municipality in BC?

If the answer is yes, the responsible person is exempt from the requirement for security under this procedure.

Step 2. Determine if Adequate Security under the *Mines Act* is Already in Place
Is the site regulated under the *Mines Act* and is adequate *Mines Act* security in place?

If the answer is yes, the responsible person is exempt from the requirement for security under this procedure.

Step 3. Determine if the site is a high risk site (Class 1 site under the National Classification System for Contaminated Sites)
Is the site a Class 1 site under the National Classification System for Contaminated Sites (NCSCS)?

If the answer is no, the responsible person is exempt from the requirement for financial security under this procedure. For this step, the calculations classifying the site must be submitted to, checked by and approved by the Director.

If the site is a Class 1 site, an Approval in Principle, Certificate of Compliance, Conditional Certificate of Compliance, or Voluntary Remediation Agreement would normally be required or a Remediation Order normally issued.

Step 4. Determine the Adequacy of the Environmental Record, Financial Capability, and Guarantees Regarding the Transfer or Sale of the Site

a) Does the responsible person have an acceptable record of compliance with the Approval in Principle, Certificate of Compliance, Conditional Certificate of Compliance, or Voluntary Remediation Agreement and other legal requirements?

b) Does the responsible person have a net worth in Canada that is significantly greater than the estimated cost of remediation

c) Does the responsible person have an acceptable credit rating?

d) Has the responsible person provided acceptable guarantees to provide or maintain security if the site is sold or the corporation's financial capability is diminished?

If the answer is yes to questions a) through d), the responsible person is exempt from the requirement for financial security under this procedure. If not, and the responsible person and site are not exempt in the previous four steps, security is required.

A decision tree has been provided in Figure 1 to illustrate these steps.

2.4.2 Subject to section 37 of the regulation, a responsible person for a site who is required to provide security in a contaminated sites legal instrument, shall be required in the legal instrument that he or she must not, without notifying a manager, 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 a contaminated sites legal instrument.

2.4.3 In the case of a Remediation Order the responsible person must obtain consent from a manager before diminishing or reducing the assets [*Act* 27.1 (7)].

3.0 Procedures for calculating value of security

3.1 The value or amount of the security required will be based on

a) capital costs to build and install containment and control system(s); costs associated with operation, maintenance and periodic replacement of containment and control systems; and monitoring costs; and

b) removal and disposal costs for contaminated soil required to be removed under a Remediation Order, Approval in Principle, Certificate of Compliance, Conditional Certificate of Compliance, or Voluntary Remediation Agreement.

3.2 Where the Remediation Order, Approval in Principle, Certificate of Compliance, Conditional Certificate of Compliance, or Voluntary Remediation Agreement indicates that there is more than one acceptable remediation option, the amount of security shall be determined based on the least-cost option.

3.3 Where remediation and long-term maintenance are specified in a Remediation Order, Approval in Principle, Certificate of Compliance, Conditional Certificate of Compliance, or Voluntary Remediation Agreement, the following security may be required, for those remediation and long-term maintenance costs which are applicable:

3.3.1 Security for capital to build and install containment and control systems

- up to 100 percent of the present value of the one-time capital costs, or

- annual payments sufficient to provide an amount up to 100 percent of the one time capital costs by the year in which they are to be incurred.

3.3.2 Security for operation, maintenance, monitoring and periodic replacement of containment and control systems

- up to 100 percent of the present value over the planning period of the projected annual operating, maintenance, monitoring and periodic replacement costs, or
- annual payments sufficient to provide an amount up to 100 percent of the present value over the planning period of the projected annual operating, maintenance, monitoring and periodic replacement costs.

3.3.3 Security for removal and disposal of contaminated soil required to be removed pursuant to a Remediation Order, Approval in Principle, Certificate of Compliance, Conditional Certificate of Compliance, or Voluntary Remediation Agreement.

- up to 100 percent of the present value of projected soil removal and disposal costs, or
- annual payments sufficient to provide an amount up to 100 percent of the projected soil removal and disposal costs by the year in which they are to be incurred.

3.3.4 As defaults, it will be assumed that the operating lifetime of containment and control systems is 50 years, and that the replacement period for these systems is 20 years. Alternate times may be determined pursuant to negotiations with proponents.

3.3.5 The present values of one-time capital costs and annual operating costs (over a finite period) are to be calculated using the following formula:

PV= Σ(sum of) $[(1/(1+i)^n) \times (FOCn) + (1/(1+i)^n) \times (FCCn)]$, where

PV = the present value of all costs over the planning period.

FOCn = the future annual operating and maintenance costs expended in year n.

FCCn = the future capital costs expended in year n.

i = the annual interest rate.

n = the years designated as 1, 2, etc. up to a prespecified final year.

3.3.6 If the Remediation Order, Approval in Principle, Certificate of Compliance, Conditional Certificate of Compliance, or Voluntary Remediation Agreement, involves the perpetual care and security of a site, without having a finite planning period specified, security may be up to 100 percent of the present value of the estimated annual operating and maintenance costs. The present value is to be computed using the following formula:

PV = annual FOC/I, where

PV = present value of projected annual operating, maintenance, monitoring and periodic replacement costs in perpetuity.

FOC = future projected annual operating, maintenance, monitoring and periodic replacement costs.

i = annual interest rate.

3.4 The annual interest rate to be used in the formulas in sections 3.3.5 and 3.3.6 to calculate annual payments will be a rate consistent with the form of financial security chosen and the time period specified in the Remediation Order or other instrument. The minimum rate to be used is to be based upon the rate offered by the Bank of Canada. The maximum rate allowed is to be based on the rate of return for Government of Canada 30 year bond yields, as published in the journal, *Bank of Canada Review*.

3.5 For estimating future one-time capital costs and annual operating and maintenance costs, annual inflation rates used should be Canada's most recent Consumer Price Index (CPI) or the average of the past 10 years CPI whichever is lower.

3.6 Estimating relevant costs for financial security requirements.

3.6.1 The responsible person must provide all pertinent material and information used to calculate estimated future costs.

3.6.2 The Director may generate alternate cost estimates.

3.6.3 If the cost estimates of the Director and those of the responsible person vary by less than 10 percent then the lower of the estimates may be used. If the cost estimates vary by 10 percent or more then a negotiated agreement should be sought or the Director's cost shall apply.

3.6.4 Where a Remediation Order, Approval in Principle of a remediation plan, Certificate of Compliance, Conditional Certificate of Compliance, or

Voluntary Remediation Agreement involves perpetual care and security requires the accumulation of monies in a fund over time, the payments and the formula for calculating payments into the fund, shall be established in accordance with 3.3.6 this Section.

3.6.5 The Remediation Order, Approval in Principle, Certificate of Compliance, Conditional Certificate of Compliance, or Voluntary Remediation Agreement should provide for the periodic review of security provisions to ensure that adequate funds are available for the specified requirements.

3.6.6 If a responsible person asks that a single security account include more than one site, the minimum security required should be equal to the required security for the site with the highest remediation cost.

3.7 Negotiating security requirements.

3.7.1 The Director may develop security agreements and/or requirements for specific responsible persons.

4.0 Procedures for administering security:

Refer to Appendix 1.0.

5.0 Procedures for Administering Defaults on Security

Refer to Appendix 2.0

6.0 Periodic Reviews

6.1 In addition to the reporting and reviews specified in previous paragraphs, the following types of review of each security should be undertaken as often as necessary:

6.1.1 The Director should make inquiries at least once per year as to the status and solvency of the responsible persons that provide security.

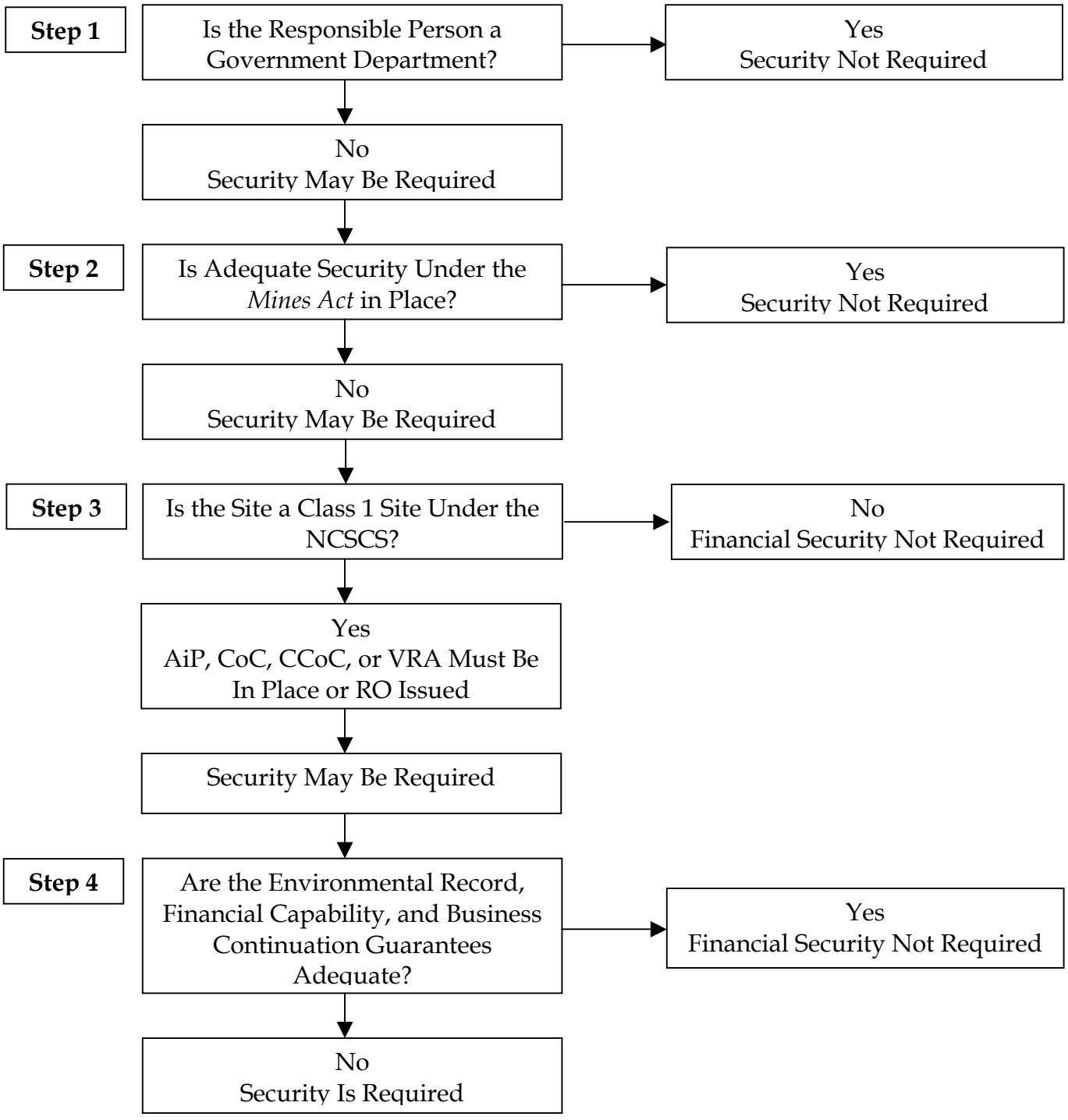
6.1.2 The amount of any financial security should be reviewed by the Director at least every 5 years to ensure that the amount is sufficient to cover any increases in expected costs or other requirements. If project costs are changing significantly, the review should occur more frequently.

6.1.3 Where conditions in a contaminated sites legal instrument do not specify the return or cancellation in whole or part of the security,

the review should determine if the security should be returned in whole or part.

6.2 If government bonds and debt instruments are used as security for a period of longer than 3 years, it will be necessary to monitor the value of the instrument and compare this against the amount of money that will be required in the future.

Figure 1. Contaminated Sites Security Decision Tree



Appendix 1.0 Procedures for Administering Security

1.1 Procedures for administering cash

1.1.1 Certified cheques made out to the Minister of Finance should be submitted to the Director.

1.1.2 The cheque will then be deposited into an interest-bearing trust fund within the Consolidated Revenue Fund (CRF) in accordance with any procedures and requirements of the Ministry of Finance.

1.1.3 The interest credited to the trust fund shall be at the rate determined in accordance with Section 4.1.2.

1.1.4 If security is to be built up through payments over time, payments may be based on a per-unit price (e.g. $ per tonne of hazardous material) or an amortization payment calculated to accumulate to a total amount by a specific time in accordance with Section 3.3.

1.1.5 Responsible persons may apply to the Director to reduce the amount of security should the amount of security substantially exceed the current estimated cost of remediation.

1.1.6 Applications for refunds are sent to the Director.

1.1.7 Payments from the CRF trust fund shall be requested by the Director.

1.1.8 The Director shall maintain records of all trust funds and issue reports regularly as required by the Ministry of Finance and/or Ministry management. Reports on each account should include, at minimum, the following:

- payments into and out of each account,
- accrued interest, and
- opening and closing balances.

1.2 Procedures for administering irrevocable letters of credit

1.2.1 Only irrevocable letters of credit from financial institutions empowered to issue such instruments with business offices in BC may be accepted.

1.2.2 Irrevocable letters shall be retained by the Director.

1.2.3 An irrevocable letter of credit will normally specify an expiry date.

1.2.4 Where security is required for a period longer than the expiry date of the letter of credit, the letter of credit should state that it would be renewed automatically.

1.2.5 An irrevocable letter of credit will not be renewed if the Director advises the financial institution in writing that renewal is not required.

1.2.6 If notice of intent not to renew a letter of credit is given by the financial institution, alternative security satisfactory to the Director must be posted at least 30 days before the letter's expiry date.

1.2.7 If alternative security is not posted as provided in Section 4.2.7 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 guarantee.

1.2.8 Any contaminated sites legal instrument should provide that, where non-cash security (e.g. letter of credit, surety bonds, agreements, etc.) is provided and appropriate arrangements are not made for its renewal or replacement at time of expiry, then cash security shall be immediately posted in lieu of the non-cash instrument.

1.2.9 The Director shall maintain records of all irrevocable letters of credit and prepare reports semi-annually, or more frequently, as required by the Ministry of Finance and/or the Ministry.

1.2.10 As remediation is undertaken and, at the request of the responsible person, the Director will notify the financial institution by letter as to the status of the remediation and security requirements; e.g. whether the amount of the 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.

1.2.11 Drawings on letters of credit, payments into the Consolidated Revenue Fund, reductions in or release of irrevocable letters of credit are to be authorized by the Director only after notification is made to the responsible person.

1.2.12 The responsible person is responsible for all fees and charges associated with the irrevocable letter of credit.

1.3 Procedures for administering surety/performance bond agreements

1.3.1 Surety and performance bonds are agreements among the Guarantor, the responsible person and the Crown. The Director shall retain security documents and report on them annually, or more frequently, as required by the Ministry of Finance and/or the Ministry.

1.3.2 Where surety bonds specify an expiry date, the Director should ensure that sufficient time is given to the life span of the surety bond to complete the remediation.

1.3.3 The responsible person is responsible for all fees and charges involved in establishing the bond or other agreement.

1.4 Procedures for administering the use of eligible government bonds as financial security

1.4.1 In this section, bonds are debt instruments issued or guaranteed by the Government of Canada (excluding Canada Savings Bonds) or a provincial government and should be distinguished from surety or performance bonds.

1.4.2 Bonds used as a security should have a maturity date that is not more than three years from the date on which they are provided as security.

1.4.3 Bonds must be in bearer form or they must be transferred to the Government of BC.

1.4.4 Bonds shall be held by the Director.

1.4.5 The Director shall retain the bonds and report on them annually or more frequently, as required by the Ministry of Finance and/or the Ministry.

1.4.6 The Director should take steps to monitor the value of the bonds at least quarterly.

1.4.7 If the value of the bonds on deposit falls to less than 85 percent of the required security, the Director may require the responsible person to provide additional security.

1.4.8 The Director may make arrangements with persons who have posted bonds as security, and those bonds are maturing or interest is due and payable, to accept substitute bonds 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 guarantee as described in Section 4.1 of this procedure.

1.5 Agreements with terms specified in contaminated sites legal instruments

1.5.1 Agreements or contracts for security may be required by a term or condition of a contaminated sites legal instrument.

1.5.2 The wording of the agreement may be negotiated in the course of developing the contaminated sites legal instrument.

1.5.3 Copies of the agreement and the contaminated sites legal instrument should be filed with the Director for safekeeping and reference.

1.5.4 The Director shall keep records of these agreements and provide reports on them annually, or more frequently, as required by the Ministry.

1.5.5 Where the agreement provides for holding of securities by a third party, the relevant provisions of the other sections of these procedures shall apply.

1.6 Liability insurance may be considered as security. All the following conditions must be met in order to accept an environmental liability insurance policy in lieu of financial security:

1.6.1 A completed Province of British Columbia Certificate of Insurance is to be provided by the responsible person which states that the liability insurance policy will pay remediation costs, the costs of other activities and conditions required by the contaminated sites legal instrument and any costs incurred as a result of failing to comply with such conditions, to the Provincial Crown as beneficiary.

1.6.2 The policy should have no deductible but if it does, it must be acceptable to the Director.

1.6.3 Should the insurance carrier cancel the policy, for any reason, including non-payment of premium, the insurer must give the policyholder and the Director at least six months notice of intent to cancel.

1.7 In addition to the reporting and reviews specified in previous paragraphs, the following types of review of each financial security should be undertaken as often as is necessary:

1.7.1 The amount of the security should be reviewed at least annually by the Director to ensure that the amount of financial security is sufficient to cover any increases in capital and/or long-term operating and maintenance costs.

1.7.2 Where conditions in a contaminated sites legal instrument do not specify the date of return or cancellation in whole or in part of the security, an annual review by the Director should determine whether the security should be returned in whole or in part.

Appendix 2.0 Procedures for Administering Defaults on Security

2.1 The conditions that can cause security to be called upon should be clearly specified in the conditions of the contaminated sites legal instrument. These conditions could include but are not limited to, one or more of the following:

- The responsible person for reasons within its control misses three successive deadlines in its compliance schedule.
- After one-half of the time allocated to the implementation of the remediation plan has elapsed, or 2 years, whichever is earlier, and the responsible person can provide no evidence (i.e. work orders, invoices, inspection) of progress to comply with the conditions of the contaminated sites legal instrument.
- The length of time a site or facility stays closed on a temporary basis before it must commence closure or permanent rehabilitation exceeds the time specified in the contaminated sites legal instrument.
- Any violation of a specific contaminated sites legal instrument (including any other order or statute).
- The responsible person becomes insolvent or bankrupt.
- Notice is received of the impending insolvency of the responsible person or the surety.

2.2 The following actions can trigger the conversion of a non-cash security to a cash or more secure form of security.

- Notice is received of the proposed cancellation or non-renewal of a letter of credit or of some other form of financial security and a alternative form of security has not been arranged that is acceptable to the Director.
- Notice is received of the impending insolvency of the responsible person or the surety.

2.3 The Director must prepare documentation that specifies the circumstances of the default as soon as possible after determination of a default. The documentation is to be provided to the responsible person.

2.4 Except in emergency situations, communication should be made to the responsible person at least six weeks prior to taking the steps outlined in Section 2.5. The agency (e.g. financial institution or surety company) should also be notified about the impending default.

2.5 Default

2.5.1 The Director must document steps leading to the default and steps the taken to call, obtain and use the security.

2.5.2 It is presumed that the responsible person has been given adequate notice of the conditions of the default together with opportunities to rectify these deficiencies.

2.5.3 If security has been given in the form of cash, bonds, letter of credit, or similar security, the Director may claim all or part of the security. The security will be placed in a designated account in the Consolidated Revenue Fund. Any interest that is earned on this money will accrue to the benefit of the responsible person.

2.5.4 Where security is to be used to complete the remediation as specified in the contaminated sites legal instrument, the Director shall authorize such expenditure.

2.5.5 Where it is not feasible to use outside contractors to complete activities as required by the contaminated sites legal instrument, the Ministry shall realize the security and withhold any funds until compliance is achieved. In the meantime, other enforcement actions and sanctions (e.g. prosecutions) may be applied