Security Policy Guidance for Contaminated Sites

Decision Matrix

Ministry of Water, Land and Air Protection

28 May 2003

Grant Thornton

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Definitions

For the purpose of this document, the following definitions apply.

Act means the *Waste Management Act*.

Contaminated site is a site as defined under the *Act*.

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*.

Financial risk means the risk to government that responsible parties are unwilling or unable to fund remediation of a contaminated site and thus the financial cost to remediate the site, to protect human health or the environment, would have to be borne by government.

Financial security means one, or a combination, of the following in the amount and terms as specified by the Director:

> Security Deposits including short-term deposits; registered bonds; treasury bill notes; irrevocable letters of credit; bank drafts; money orders; certified cheques; and cash.

Guidance and administrative procedures for handling the above types of financial security are outlined in the General Management Operating Policy (GMOP) Chapter 9.

Ministry means the Ministry of Water Land and Air Protection.

One-time Capital Costs are those costs associated with purchase of equipment, installation of equipment, construction of buildings or other permanent structures, one-time consultant services, architect services, laboratory expenses, fencing, hauling, excavation, costs of expert advice, costs of environmental engineers, etc. (One-time capital costs normally occur at the beginning of the remediation process.)

Periodic Costs are those costs that are expected to occur less frequently than annually but at predictable periods (for example, costs for a 5-year review which is performed and paid for every five years). These costs 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 ordered remedial option), laboratory costs, periodic soil testing, inspection etc.

Recurring (annual) expenses and costs are those costs for operation and maintenance, labour, materials, on-going contract services, performance and site monitoring, off-site treatment/disposal, project management, insurance, technical support, etc., that may recur from year to year and are expressed on an annual basis. (For net present value calculations it is assumed that annual costs are incurred at the end of any year.)

Regulation means the Contaminated Sites Regulation.

Purpose

Financial security can be used as a tool by the Ministry to effectively manage the financial risks that may be associated with contaminated sites. 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.

Guiding Principles

The following principles should guide the application of the security policy process:

- The Director is responsible for determining whether security is required, and if so the amount and form of this security.
- Each situation reviewed using this analysis will present a unique set of circumstances which must be considered when making requests for security. However, a review of precedents will promote consistent decision making.
- The security required is subject to review when requested by either the Ministry or the party posting the security but, at a minimum, must be reviewed every five years at which time the amount of security required can be adjusted taking into consideration actual costs incurred to date.
- The focus of the proposed decision matrix is to reduce the exposure of government to the financial risks associated with a responsible party ceasing to, or no longer being able to, fulfill its obligations with respect to the remediation of a contaminated site. The matrix however, is not intended to act as a barrier to parties performing timely remediation.
- The Ministry recognizes that government will always be exposed to a certain level of financial risk and it would be unreasonable to attempt to reduce this risk to zero.
- The application of security requirements must be consistent, equitable and effective.
- Security should not be required for work that is currently being conducted by the responsible party, however, this does not preclude the Ministry requiring security for on-going operating and maintenance costs when risk-based standards are used and some level of contamination is left on the site for high-risk contaminated sites.

Determination of Costs

The responsible party must provide an estimate of costs for the remediation process that includes, but is not limited to, one-time capital costs and any ongoing operating and maintenance costs. A calculation of these costs is required in order to determine the level of financial security required.

If the responsible party is unwilling or unable to generate these cost estimates to the satisfaction of the Ministry, the Ministry should arrange to have a third party do so at the expense of the responsible party.

The amount of the required financial security should be based on the least-cost alternative as long as the proposed plan, option or remediation technique is acceptable to the Ministry. If the alternative remediation options can not be agreed upon, the Ministry will have final determination of the value of the costs and the amount of financial security required.

The Ministry should review all estimates of costs of remediation prepared by the responsible parties for accuracy, completeness and reasonableness. Such estimates should include, but not be limited to, the following:

- Capital and other one-time costs including their replacement time-frames
- Recurring costs (annual or 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 the site remediation.

Decision Matrix

The following steps should be taken when determining whether financial security is required.

Step 1: **Decision: Is the site a high-risk contaminated site?**
A request for security will only be considered for high risk contaminated sites

Step 2: **Decision: Is financial security in place under the *Mines Act*?**
If a site were subject to the permitting process developed and monitored by the Ministry of Energy and Mines (MEM), then, unless specifically requested by MEM to review the reasonableness of the financial security for the site, the site would not be subject to a request for financial security as a contaminated site.

Step 3: **Decision: Is the only responsible party 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 posting financial security under the proposed matrix. However, a request for financial security from a government agency would be appropriate when:

- the government body is part of a pool of responsible parties or;
- the government body is a Crown Corporation who has been held responsible in their own right.

Step 4: **Decision: Has a remediation plan been approved for the site**?
If a remediation plan has been approved and is in the process of being implemented (see step 6), it would not be necessary to request financial security at this point. However, if a plan has not been developed or if the remediation is not progressing in a timely manner, then a consideration must be given to a request for financial security. (See Step 5)

Step 5: **Decision: Should Financial Security be required at this time?**
If an approved remediation plan is not being implemented then financial security should be considered. In order to calculate the level of financial security required, an estimate of the costs to perform remediation is required. Once the estimated costs of remediation have been developed, a determination of the level of financial security required can be calculated (see Formula 1 on page 7). Any request for financial security must also satisfy considerations under Section 48(4) of the Regulation.

Step 6: **Decision: Is the remediation plan being implemented effectively?**
The remediation plan should include time frames and expected milestones as well as reporting requirements to the Ministry by the responsible party. The Ministry should review, at least annually, the actual results compared to those expected in order to

consider the effectiveness of the remediation plan.

Step 7: **Decision: Does the remediation plan use risk-based standards and require ongoing management and monitoring of contamination left on the site?** If a remediation plan is being implemented properly and there will be no ongoing maintenance or operation, then financial security is not required at this time. If ongoing management of a site is required due to contamination remaining, financial security should be considered.

Step 8: **Decision: Should financial security be required at this time with consideration being given to Section 48(4) of the Regulation**? Section 48(4) of the Regulation includes issues that should be considered before financial security is requested.

Step 9: **Decision: Does the responsible party have an adequate environmental record in British Columbia or have they otherwise shown a willingness to comply with remediation requirements at this site?** Does the responsible person have an acceptable history of compliance in British Columbia related to remediation and other relevant environmental requirements or have they otherwise demonstrated a willingness to comply with the remediation requirements at this site? Some considerations would include, but are not limited to, whether the responsible person has been convicted of violations involving pollution discharges or emissions for specific or related problems identified in a Remediation Order, or whether they have missed deadlines in any previous Remediation Orders.

Step 10: **Decision: Has the responsible party requested and satisfied the business test for the self-funding fee option?** If yes, then the responsible party has the option, instead of posting financial security, of paying a non-refundable fee to the Ministry. If the responsible party is not able to pass the financial test, or would prefer to simply post financial security, then the level of financial security required is calculated based on Formula 2 outlined on page 7.

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How to Calculate Financial Security

Formula 1

If financial security is required because a remediation plan acceptable to the Ministry has not been developed or is not progressing as required, then the amount of the financial security required will be calculated as follows:

1. The estimated one-time capital costs to build and install containment and control system(s); and/or
2. Estimated on-going annual expenses and periodic costs to operate and monitor and maintain any systems developed and/or
3. Removal and disposal costs for contaminated soil that must be removed in order to remediate the site to acceptable standards.

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 the Remediation Order or approved plan.

The amount of financial security required will be equal to 100% of the one-time capital costs plus the present value of the total operation and maintenance costs over the entire planning period specified in the Remediation Order or plan. Cost estimates can be obtained voluntarily from the responsible party or by means of an Order. Estimates should assume that the work will be carried out by a third party contractor.

Formula 2

If financial security is required as part of an on-going management system of contamination left on-site in accordance with an accepted approved remediation plan, financial security is calculated based on 100% of the following costs:

1. The estimated one-time capital costs to build and install containment and control system(s); and,
2. Estimated on-going annual expenses and periodic replacements costs to operate and monitor and maintain any systems developed.

The planning period for calculation purposes is limited to 30 years.

Fluctuations

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. In situations where the annual operating and maintenance costs are similar from year to year, but a large capital expenditure is required in a future year, the present value calculation (and thus the level of financial security required) can vary significantly on a yearly basis (i.e., the closer in time to a large capital expenditure the larger the Present Value calculation, which then drops off again the year after the capital expenditure is made. This problem is also exacerbated when non-cash forms of security are used (e.g., letter of credit), as the amount of the letter of credit does not increase over time the same way that cash invested with compounded interest would. The increasing level of security required over time depending on the nature of payments must be kept in mind when calculating the amount of financial security required. (See Appendix B for illustration.)

Present Value

Effects of Inflation

Where the costs of remediation incur in future years and these costs are included in the Present Value of the financial security required, these future costs must be adjusted to show the effects of inflation. This is necessary to properly reflect the time value of money. (For instance, a capital project might cost $5,000 in year 1, but would cost more [e.g., $5,500 in year 5] in future years due to inflation.) The further the costs occur into the future, the greater the cumulative effect inflation has on the cost, thus future capital replacement costs and on-going operating and maintenance costs are the costs most significantly effected by inflation.

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

Calculations to inflate future costs on an annual basis should be based on the following formula

$$FACn = ACn * (1 + f)^n$$
$$FOCn = OCN * (1 + f)^n$$

n=0,1,2,…t-1
Where:
FACn = future (inflated) annual recurring costs expended in year n; initial year is n=0
FOCn = future (inflated) capital and other one-time costs expended in year n; initial year n=0
ACn = annual recurring costs in year n; (costs in initial year are not inflated)
OCn = 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 (not greater than 30 for Formula 2)
f = inflation rate, expressed as a percentage, where f is always greater than 0 but less than 1

Calculation of Present Value

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

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

PV = present value of all costs over the order or approval remediation period

FACn = the future (inflated) annual operating and maintenance 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 in the covered under the planning process (maximum 30 years under Formula 2)

Discount Rate

The discount rate to be used in the Present Value formula presented above will be a rate consistent with the form of financial security chosen and the time period specified in the order. In order to compute net present value, it is necessary to discount future benefits and costs. This discounting reflects the time value of money. Benefits and costs are worth more if they are experienced sooner. The higher the discount rate, the lower the present value of future cash flows.

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

Forms of Security

Acceptable forms of financial security include:

1. Cash
2. Irrevocable letters of credit
3. Transferable bonds guaranteed by the province or federal government
4. Any other type of security acceptable to the Ministry (see discussion below)

In addition to the above forms of financial security there may be situations where a responsible party may wish to post alternative types of financial security (e.g., performance or surety bonds). In these situations, the responsible person must prepare a written request to the Ministry outlining the reasons for the request to vary the type of financial security. The Ministry should review each request on an individual case basis, however, the arguments posed by the responsible party must be sufficiently compelling in order for the Ministry to vary the type of financial security accepted. An analysis of the alternative types of security should be performed either by Ministry staff or an independent third party, at the expense of the responsible individual.

The individual characteristics and administrative instructions pertaining to each type of security outlined above are covered under the Financial Guarantees Procedural Guidelines, Sections 3.1 and 6.1.

The standard wording in the financial security documents must also include a term outlining that the agreement matures after a five-year period. The five-year period requires the Ministry to review the need for, and the calculation of, the financial security at least every five years. For this reason, non-cash forms of financial security (e.g., letter of credit) must include renewal clauses for the minimum five-year period.

5-Year Review

The calculation of financial security must be reviewed at least every five years. The review process will cover the following when necessary:

- Any recent technological changes that would affect the site and its contaminants;
- Revised estimates regarding expected annual operating and maintenance costs based on experienced costs to date;
- Revised periodic and capital replacement costs based on experience to date; and,
- Revised testing of site contaminants levels, ground water, revised engineering estimates, etc.

Based on the above re-estimates and any other additional information available, a revised cost estimate to operate and maintain the site (for the next 30 years) in accordance with an accepted remediation plan should be calculated. The calculation of the estimate is to be performed by the responsible party and submitted to the Ministry at least six months prior to the expiration of any existing financial security documents (e.g., five-year renewal date).

Periodic Reviews

In addition to the five-year review required for every site, the Director should consider the following as applicable:

- Require the responsible person to forward to the Director on an annual basis a copy of their most recently audited annual financial statements along with a copy of the signed annual report.
- Require the responsible person to forward to the Director, a signed copy of the annual business review test, if applicable.
- For projects where costs are changing significantly, the Director should perform a review more frequently than every five years. The review should cover an analysis of the adjusted projected costs of the project in relation to the actual costs incurred to date and make an analysis of these costs in relation to the current value of the financial security provided.
- Either party, the Director or the party posting the financial security, can request a review of the amount of financial security required to be posted on an annual basis, which could result in either an increase or a refund of any financial security held, as applicable.
- If government bonds or other debt instruments are used as financial security, then the value of these instruments should be reviewed at least every three years and their value compared against the level of financial security required.

Business Review (Self-funding alternative)

If a responsible person has requested a business review, then the following letter must be prepared and submitted by the chief financial officer to the Director for review on an annual basis.

I am the chief financial officer of [*name and address of firm*]. This letter is in support of this firm's use of the financial test to demonstrate financial security for facilities and maintenance of risk-managed contaminated sites.

This firm is the owner, operator or otherwise responsible party of the following facility for which financial security is demonstrated through the financial test specified in WLAP Policy #__________.

The fiscal year of this firm ends on [*month, day*]. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended [*date*] and which are attached.

1. Sum of current cost estimate as agreed by the Ministry of Water, Land and Air Protection.

2. Total liabilities [*if any portion of the cost estimate above is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4*] $______________

3. Total equity including retained earnings $________________

4. Current assets $__________________

5. Current liabilities $ ___________________

6. Net working capital [*line 4 minus line 5*] $________________

7. Net income before taxes and amortization $____________

8. Total assets in Canada (required only if less than 90% of firm's assets are located in Canada) $______________

9. Is line 3 at least $10 million? [*Yes or No*] ___________

10. Is line 3 at least 10 times line 1? [*Yes or No*] ___________

11. Is line 6 at least 6 times line 1? [*Yes or No*] ___________

12. Are at least 90% of firm's assets located in Canada? If not, complete line 13. [*Yes or No*]______

13. Is line 8 at least 10 times line 1? [*Yes or No*] ___________

14. Is line 2 divided by line 3 less than 2.0? [*Yes or No*] ___________

15. Is line 7 divided by line 2 greater than 0.1? [*Yes or No*] ___________

16. Is line 4 divided by line 5 greater than 1.5? [*Yes or No*] ___________

As part of this review I am submitting to you our annual fee payable to the Provincial Trust Fund, an amount of $____________ which represents 1% of the Net Present Value of the remediation costs outlined in formula 2.

I certify that the information provided above is accurate based on the most recently prepared financial information dated ___________ and I have not knowingly submitted any information that is false, inaccurate or incomplete.

[Signature] [Name] [Date] [Title]

In addition to the above letter, the responsible persons' auditors must also complete the following reports to be sent directly from the auditors to the Director

Auditors' Report

on ____________

To _________________

At the request of ___________ we have audited the Schedules of __________ of __________ for the year ended ____________. This financial information is the responsibility of the management of ______________Ltd. Our responsibility is to express an opinion on this financial information based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable financial security whether the financial information is free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial information. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial information.

In our opinion, this schedule presents fairly, in all material respects, the _________________ of _____________, for the year ended _____________ in accordance with Canadian generally accepted accounting principles.

[Signature] [Company] [title] [date]

Self-funding Alternative Cost

A responsible party who successfully completes and submits the above Business Review Test to the Ministry and qualifies for the self-funding alternative, has the option of paying to the Ministry an annual amount equal to 1% of the financial security that would otherwise be required. The annual payment is non-refundable and an updated business test must be completed and submitted to the Ministry each year at least 60 days prior the anniversary date of the financial security agreement in order to qualify for the self-funding alternative.

The self funding alternative can also be prepared and submitted by the parent companies of subsidiaries who are considered to be the responsible parties if the parent company formally accepts in writing the whole financial responsibility of the subsidiary with respect to the contaminated site. The parental agreement with respect to financial responsibility must be submitted and formally accepted by the Ministry in order for the subsidiary and its parent company to qualify for the Self-Funding Business Test.

Default

The conditions that can cause financial security to be called upon should be clearly specified in the financial security agreement. These conditions could include but are not limited to 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 two years, whichever is earlier, and the responsible person can provide no evidence (i.e., work orders, invoices, inspections etc.) of progress to comply with the conditions of the contaminated sites legal instrument.

- Any violation of a specific contaminated sites legal instrument (including any other order or statute).

- The responsible person or the guarantor becomes bankrupt, files a Notice of Intention or files a Proposal under the *Bankruptcy and Insolvency Act.*

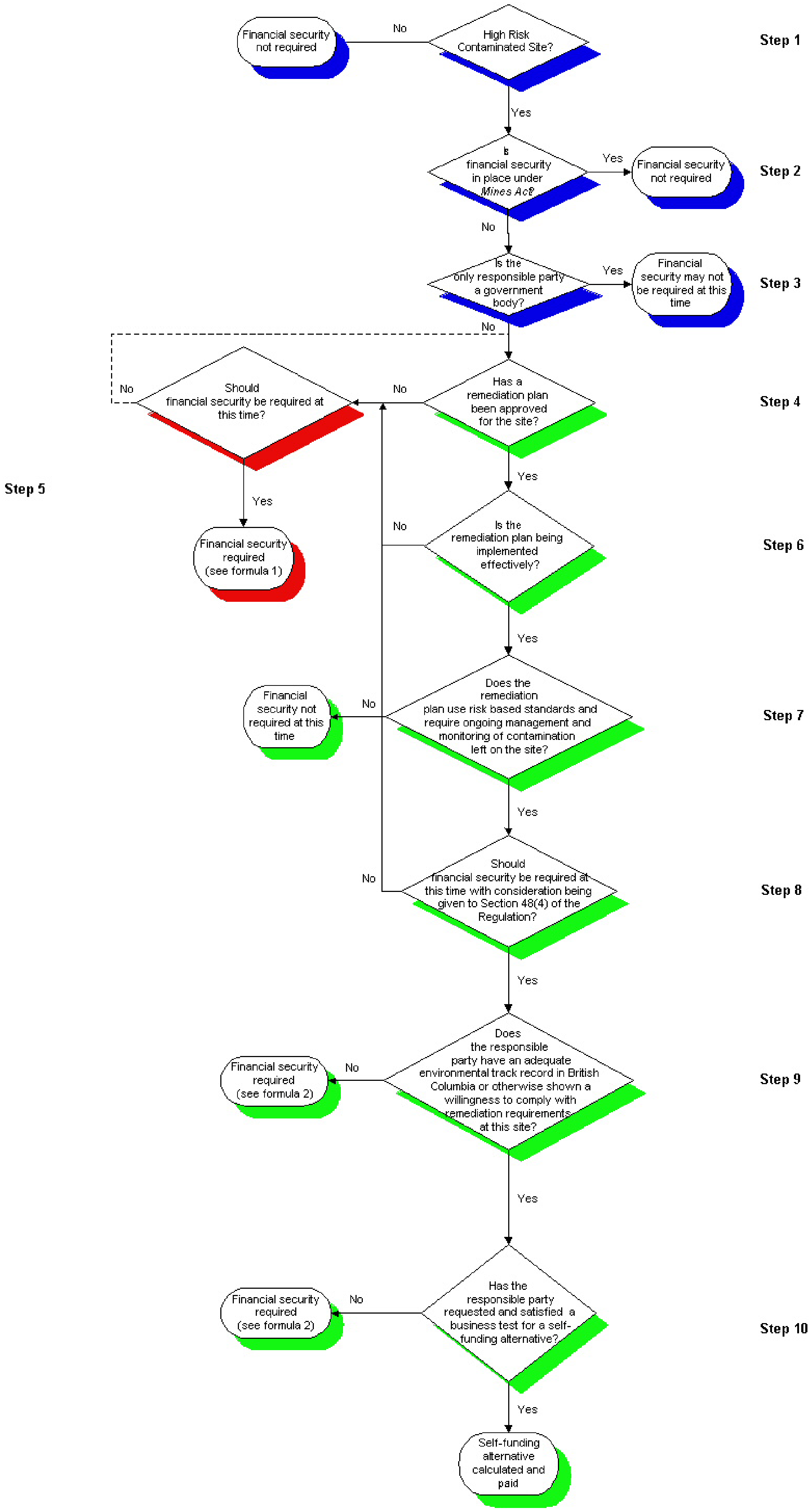
Financial security held in a non-cash form should be converted to cash as soon as possible whenever the financial security becomes impaired such as when notice is received of the proposed cancellation or non-renewal of a letter of credit or of some other form of financial security and an acceptable alternative form of security has not been arranged. Where possible Ministry staff should give the responsible party at least 30 days notice of any action to use the financial security.

The Ministry must prepare documentation that specifies the circumstances of the default as soon as possible after determination of a default is made and forward this information to the responsible party.

Appendix A

Decision Tree

FINANCIAL SECURITY DECISION TREE
28 May 2003



Appendix B

Present Value Fluctuation Illustration

Present Value analysis is a method to evaluate expenditures, either capital or operating and maintenance which occur over a period of time. The single number, or Present Value, can be considered to be the amount needed to be set aside an the initial point in time (the base year) to assure that funds will be available in the future as they are needed, assuming certain economic conditions are met. Basically, the "discount rate" is the rate funds set aside can be expected to grow over the review period (interest). (*)
For instance, if $1000 cash is put in a bank account for one year at an interest rate of 5%, in one year the value of that money would be $1,050 or (1.050 x 1000), or the Present Value of 1,050 in one year, discounted at a rate of 5% would be $1000.

If non-interest bearing financial security is used, then a Present Value calculation is subject to variability if the yearly costs are increasing each year or will experience a large capital requirement in one or more years. For instance, if a stream of payments is required over 30 years, costing $10,000 each year except year 6 where $75,000 is needed, if a present value calculation is made in year one, and if there is no "interest" portion to the letter of credit, then the actual value of the security required will increase up until the year 7 and then decrease again. For instance

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Discount rate	10%							
Stream of cost Per year	10,000	10,000	10,000	10,000	10,000	75,000	10,000	10,000

Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24
10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

Year 25	Year 26	Year 27	Year 28	Year 29	Year 30	Year 31	Year 32
10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

Year 33	Year 34	Year 35	Year 36
10,000	10,000	10,000	10,000

Present Value $129,756 over 30 years

Based on the above calculation, a letter of credit would be requested for $130,959 at year 1 to guarantee these payments over 30 years. However, as the letter of credit is not increasing in value from year to year, as the large financial requirement in year 6 approaches the letter of credit declines in relation to the actual present value requirements.

Present Value	Year 2	$133,426	calculated over 30 years
	Year 3	$137,462	calculated over 30 years
	Year 4	$141,901	calculated over 30 years
	Year 5	146,785	calculated over 30 years
	Year 6	152,157	calculated over 30 years
	Year 7	93,066	calculated over 30 years

Based on the above example, as the letter of credit does not increase in value each year, and thus is expressed in current dollars as the need of a large capital expenditure approaches the actual NPV requirement increases. In years 2 through 6 the level of security is less than the NPV of the expenditures over the next 30 years, while in year 7 the security is above the NPV amount.

Note: (*) The above discussion ignores the effects of inflation.