NATIONAL ROUND TABLE ON THE ENVIRONMENT AND THE ECONOMY
TABLE RONDE NATIONALE SUR L'ENVIRONNEMENT ET L'ÉCONOMIE

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Final Report

CONTAMINATED SITES ISSUES

IN CANADA

Report Prepared for

The Financial Services Task Force

of the National Round Table
on the Environment and the Economy

by *slmcleod consulting*
Winnipeg, Manitoba

September 1996

Contaminates Sites Issues in Canada

The Report was prepared by Sheldon McLeod of slmcleod consulting with some guidance from the Members of the Task Force on Financial Services. The content and analysis do not necessarily reflect the views of the National Round Table on the Environment and the Economy.

Ce document est aussi disponible en français.

La question des sites contaminés au Canada

Cette étude a été faite par Sheldon McLeod de slmcleod consulting avec l'assistance des membres du Groupe de travail sur les services financiers. L'analyse, l'interprétation et les stratégies ne reflètent pas nécessairement le point de vue de la Table ronde nationale sur l'environnement et l'économie.

This document is also available in English.

EXECUTIVE SUMMARY

There are thousands of contaminated sites in Canada. The contamination has arisen from private sector industrial activities or public sector public works or defence activities. Petroleum, petro-chemicals, heavy metals, wood preservatives, farm or forestry chemicals and radioactive materials are common contaminating materials. Soils and groundwater bear the brunt of the immediate effects but there are often significant related threats to human health and to the natural environment. This plus the hindrance to future development opportunities caused by uncertainties in the present regulatory regimes in the country provide adequate reason for a focussed effort to resolve the wide range of issues related to contaminated sites.

The Financial Services Task Force of the National Round Table on the Environment and the Economy has assumed the task of investigating the broad issues related to contaminated sites and of generating ideas for the resolution of two of the more critical ones. The availability of site specific information on contaminated sites and an investigation into the barriers to the redevelopment of brownfield sites and how those barriers could be overcome are the subjects of other papers commissioned by this task force. This paper reviews the broad issues and the context for the detailed work being undertaken on site-specific information and brownfields.

Information Needs

The nature and size of Canada's problems related to contaminated sites are not well known. This complicates planning and budgeting for their clean-up or management, particularly in these times of tight financial resources. There is no agreement on the environmental or health significance of small, residential contaminated sites. Consequently, little or no information is being collected on these properties. Existing information on contaminated lands is not cross-referenced to land registry systems, nor are data-bases presently in use in Canada compatible or easily accessible to allow the sharing of information among regulators, developers or members of the public. Finally, current budgets demand that clean-up and management priorities be set carefully so that the best effect can be obtained from the limited money available. Available site characterization data are insufficient to support this.

The Allocation of Liability

Regulatory inconsistency among the provinces and territories in the way liability is allocated emerges as a significant concern. Different approaches, or in some cases a lack of a clear approach, to the use of the "fairness' and "polluter pays" principles, the application or non-application of a "deep pockets" approach, the use of joint and several liability, the application of prospective and retroactive liability, the use of an initial broad or narrow net of liability have led to uncertainty for developers, lenders, the public and

governments. Specific guidance is required respecting if and how lenders or Directors and Officers should be included in liability allocation processes. Much work has been done on developing and exploring the various available approaches. The most important needs are for more uniformity among the various jurisdictions in the determination of liability and a greater overall commitment to reduce the need for litigation.

How Clean is Clean?

Resolution of this question is important for the initial designation of a site, for setting priorities for clean-up among several sites and for determining what constitutes a "clean" site. There is debate on whether clean-up standards should be common across the country or should be responsive to local conditions, needs and priorities. This debate will need to be resolved and all major interests should be involved in that resolution. Risk assessment is emerging rapidly as a technically acceptable approach, however, the public lacks comfort with it at this time. As management and containment options for site remediation gain in acceptance, special efforts will be required to ensure that unreasonable obligations are not placed on future generations. Finally, whether or not certificates of compliance are issued for properly completed remediation remains an issue lacking a uniform response across the country.

Funding Orphan Site Clean-up

Canada has a number of orphan contaminated sites, sites for which no viable responsible parties can be found. These sites need clean-up or management to varying degrees but since the expiry of the National Contaminated Sites Remediation Program there has been no dependable mechanism in most of the country to ensure that such clean-up occurs. If a mechanism is not developed, orphan sites may remain in their present state with a possible consequent threat to the environment or human health. A complication in the debate is the existence of orphan shares of sites, or elements of contamination for which a responsible party cannot be found. An appropriate funding mechanism may involve multiple parties. The management structure for any fund should reflect the sources of that fund.

Properties and Operations in Bankruptcy

A number of amendments to the *Bankruptcy and Insolvency Act* are being considered by the House of Commons. These changes relate to the personal liability of receivers, responses that a receiver can make to a post-appointment clean-up order, and how public funds expended on clean-up may be recovered from bankrupt properties. While there is a fairly broad support for the type of changes proposed, not all stakeholders or governments are in accord. A hearing will be conducted by the House Committee in mid-September and final

alterations to the Bill will follow. The implementation of these changes should be monitored and assessed by all affected parties.

Brownfield Sites

Many cities in Canada have abandoned or idle commercial or industrial lands which are contaminated, making them more difficult to re-develop. There are many reasons for returning this land to productive use including the fact that most brownfields are already close to services and are therefore easier to develop than new sites, that inner cities benefit from such rejuvenation, that tax revenues can be restored and urban sprawl can be avoided. Settling issues of liability allocation, how clean is clean and information availability will go a long way towards making the re-development of brownfields easier. While first steps have been taken, there may be initiatives that could be pursued by the financial services sector which could contribute to the overall solution.

Societal Costs

The question of societal costs arises in all discussions about who should pay for the clean-up of orphan sites or orphan shares of sites. A few short years ago there was a broad acceptance that social costs should be borne by governments. Several circumstances have led some interests to advocate a broader sharing of responsibility for societal costs. One possible mechanism for that is the purchase of "no-fault shares" by a range of parties to create any necessary fund. The consequence of not resolving the issue of who pays societal costs may be unremediated sites that remain or become a threat to the environment and to human health.

The Role of Insurance

The future role of insurance in contaminated sites should probably be to cover sudden or fortuitous occurrences resulting in the release of contaminating materials to soils, and ground or surface waters. A number of conditions seem to be essential for insurance to assume its full role in environmental protection. These include consistent national environmental standards, strong and consistent enforcement, and a commitment to pollution prevention, among others. National accreditation processes for environmental auditors and site assessors are now largely in place and will aid insurers and others in assessing environmental risks. These professionals, as well as insurers, are well placed to play a role in improving enforcement.

The Prevention of Future Contamination

Pollution prevention is gaining momentum in Canada but there are pockets of inertia both in business and in governments. Both the public and private sectors have embarked on initiatives supportive of this goal. However, there is much work to do in developing a new regulatory regime which accommodates

an appropriate mix of voluntary and traditional command and control elements, accommodates the use of financial assurances and fits within a full-cost pricing economic system.

Miscellaneous Issues

There are a number of technical issues which need to be solved to aid in assessing and cleaning up contaminated sites. In this time of declining environmental protection budgets, a system for setting priorities is important to ensure that the most critical technical questions are addressed.

Municipalities have often been too distant from deliberations on policies related to contaminated sites. They should fit hand-in-glove with provincial governments in developing and implementing such policies.

Political will is sometimes lacking in the prevention and limiting of contamination.

Communication and understanding among the myriad interested parties should be a consideration when technical experts develop and use terminology to describe their activities.

Public Involvement

The public is relatively poorly informed about contaminated sites. Information systems should be supportive of openness and easy access for the public. A gap has developed and appears to be deepening between technical experts and the public. Bridging this gap will take considerable effort but will pay dividends in shared ownership of problems and solutions regarding contaminated sites. A technique that may help in the bridging process is a two-way education approach in which all parties share their information and perspectives and are prepared to learn from each other. If this gap is not bridged, difficulties in implementing solutions for specific contaminated sites can be expected.

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ABBREVIATIONS USED

AECL - Atomic Energy of Canada Limited

ASAC - Association of Site Assessors of Canada

BIA - Bankruptcy and Insolvency Act

CCME - Canadian Council of Ministers of the Environment

CEAA - Canadian Environmental Auditing Association

CERCLA - Comprehensive Environmental Response, Compensation and Liability Act (U.S.)

EARA - Environmental Auditors Registration Association (U.K.)

ENGO - Environmental Non-government Organization

ISO - International Organization for Standardization
also from *isos*, meaning equal

NCSRP - National Contaminated Sites Remediation Program

NRTEE - National Round Table on the Environment and the Economy

PRP - potentially responsible party

RP - responsible party

1.0 INTRODUCTION

Contaminated sites is one of those issues that has been with us for longer than we can remember. We created them, often unknowingly. We lived in ignorance of them, sometimes while we or the environment around us experienced subtle or not-so-subtle effects. As the effects grew beyond the subtle, we became conscious of contamination, slowly learning cause and effect. We are still learning and need to learn much more.

There are thousands, maybe even tens of thousands, of contaminated sites in Canada. We do not know. The sites we know about are of various complexity and seriousness. It is probably fair to say that every site requires some management. Most will probably require clean-up to some degree. Some of the required clean-up is expensive. Some of the management requirements are extensive and long-lasting while others are simpler and cheaper. Still, one is justified in saying that for all sites, both known and as yet unknown, prevention would have been the cheapest option. But this has always been an elusive lesson and will not right itself overnight. It will only be corrected by persistent efforts that yield incremental but significant improvements.

Soil and groundwater contamination have many sources. The bulk of contaminated sites probably originate from leaked petroleum products. Such leaks have occurred from petroleum refineries and other facilities owned and operated by the petroleum companies themselves; from the storage of such products on mine sites, manufacturing facilities, service stations, farms and residences.

However, there are other sources. There are other raw materials or by-products of manufacturing such as heavy metals; there are wastes and by-products from wood-treating facilities; from mining and milling operations; from farm or forestry chemical formulation and application; and, from land-filling operations which have been inadequately managed and contain all manner of contaminants. These last can be veritable chemical cocktails yielding undetermined and unpredictable synergistic effects. A source often left out of discussions on contaminated sites is radioactive material from Canada's experimental programs under the AECL, nuclear thermal power generation by various utilities in New Brunswick, Quebec and Ontario and uranium mining activities in Saskatchewan and Ontario.

The National Round Table has had some history of involvement in issues related to contaminated sites. In 1992, a working paper was commissioned to deal with lender and investor issues arising from contaminated sites.

Mr. Angus Ross, a current National Round Table member, was recently asked to lead a financial services program to examine some specific issues which hinder the integration of environment and economy. A scoping exercise, which

involved identifying key issues, was undertaken and issues related to contaminated land rose to the top of the list.

Realizing that there is a labyrinth of issues related to contaminated sites and a very tight budget within which to work, the Financial Services Task Force recognized the need to focus its efforts. The Task Force, with NRTEE agreement, decided to focus on two specific issues in which the financial services sector has considerable interest: 1) improving site specific data on the environmental condition of land and the accessibility of those data, and 2) the re-development of brownfield sites. Papers have been commissioned on each of these issues. In addition, the Task Force requested that this paper be done to identify and describe the evolution of the main national issues related to contaminated sites, and to help set the context for the work on site specific data and brownfields.

All three papers will be considered at five multi-stakeholder meetings to be held in the last quarter of 1996 and the first quarter of 1997. The emphasis at these meetings will be on solutions to which the financial services industry can contribute, not solutions to serve only that sector.

What follows in this paper is a broad exploration of the significant contaminated sites issues facing Canadians. Concern about public health and the environment give rise to the issues that are grouped under the following headings:

- Information Needs
- The Allocation of Liability
- How Clean is Clean?
- Funding of Orphan Site Clean-up
- Properties and Operations in Bankruptcy
- Brownfield Sites
- Societal Costs
- The Role of Insurance
- The Prevention of Future Contamination
- Miscellaneous Issues
- Public Involvement

The order of their presentation is not an indication of their relative importance with one exception. It is the author's belief that public involvement is essential to addressing any of the other issues and, thus it should be the last issue. In each section, the issues are discussed and then summarized. An Executive Summary attempts to highlight the major questions facing Canadians in regard to contaminated sites.

The number of issues before Canadians is daunting and, considered in their totality, may seem a hopelessly long list. However, like any other complex problem, this one can be solved by taking logical and incremental steps. A

comprehensive process is required which involves all the interested parties. Those parties should bring the correct attitudes to the table, examine the issues, put them in order of priority and begin to work on them one or two at a time. The situation is not hopeless, but it is serious and only our best co-operative efforts will resolve the problems. The NRTEE is, first and foremost, a co-operative body and is extremely well-positioned to moderate a consensus among interested parties on the need for next steps and how and by whom those next steps will be taken.

2.0 INFORMATION NEEDS

INTRODUCTION

The need for information on contaminated sites in Canada is very great. The needs range from the most basic such as how many contaminated sites there are, to the detailed, such as how mobile the contaminants are in a particular soil, or what impact will be felt in an aspen parkland, for example, from spilled farm chemicals.

Most sectors of our society require, at one time or another, information on contaminated sites - the public, regulators, industry, insurers, non-profit organizations. Such information is needed to purchase property, protect property values, protect health, make investments, assess risks, put possible expenditures in order of priority, and assess liabilities. Some of this information is collected, but much less of it is readily available as it is dispersed in dozens of data bases across the country, many of which do not relate to one another.

Proper resolution of the other issues in this paper almost inevitably requires more information than is currently available or accessible. In some cases, the lack of information has meant no decision has been made. In others, choices have been made. These choices, in some instances, have had to be revised as new information, understandings and interpretations emerge.

DISCUSSION OF ISSUES

The need for information on contaminated sites arises in a number of ways and for a number of reasons. Firstly, it arises simply because we do not always know of the existence of a site. Subsequently, it may arise because we need to know if there is any imminent threat posed to human health. Or, we need to know if the contamination on site can migrate and cause a problem to adjacent properties. These information needs can be triggered by previously unexplained health problems, municipal land use planning exercises, proposed re-zoning of previously used lands, proposals for re-development or re-occupation of abandoned land, or by changes in government regulatory requirements or industry codes of practice.

An immediate information need relates to determining the scope and nature of the problem. How many contaminated sites are there? What kind and degree of contamination is there? These answers are not known. Voluntary reporting of contaminated sites has been encouraged by many governments across the country for some time. However, mandatory reporting requirements are only now emerging. Although some urban municipalities have done full inventories of potential contaminated sites, the federal, provincial and territorial governments do not have equivalent information within their respective political boundaries. These data deficiencies make it very difficult to develop a rational

strategy for progressive clean-up of major sites. In the absence of this basic information, one is unable to determine, for example, the size of fund required for the clean-up of orphan sites. One cannot have reasonable certainty that a property being considered for purchase, loan or insurance is clean or is not adjacent to or threatened by a dirty site.

In the case of orphan sites, probably more is known than is publicized. It is possible that regulators know about more sites than they acknowledge. It may be that when money is not available for clean-up, there is a reluctance to talk widely about sites that may require remediation. Certainly, the public response to knowledge of "new" sites is predictable, especially from those whose land values may be impacted or their health impaired.

There are other complications in determining the nature of the problem. Take, for example, the case of small residential fuel storage tanks. These may be either buried or above ground. They are not registered. Yet, some U.S. experience suggests that the likelihood of leaks is greater in small tanks than in large. They are made of thinner materials. Perhaps less care is taken in their installation or they are not well monitored. Knowledge of this aspect of the problem could greatly affect realty prices, insurance and lending risks.

Another consideration that affects the nature of the problem includes the definition of what constitutes contamination. Any levels above natural background? Contaminant levels above generic criteria? Levels only above those criteria which leave us with a problem we can afford to clean up? Different criteria will be used in different circumstances and the stated number of known sites may change accordingly.

Inconsistency among governments is also problematic - inconsistency in terms of the types of data that are sought, the way in which they are recorded and the incompatibility of the various data bases used throughout the country. What may constitute a site or a problem in one province may not in another.

As noted, many jurisdictions are moving towards requiring reporting of contaminated sites and this will improve greatly the information we have to work with. However, provinces are not including the small (under 500 gallons) storage tanks in this requirement and, indeed, are not convinced that this is a serious enough problem to warrant such attention. Is it?

Many interests would seek to have information on contaminated sites cross-referenced to the land registry/land titles systems. This would enable property purchasers, realtors, lenders and insurers to know immediately if land is or has been contaminated and if the latter, to know the details of the remediation, its effectiveness and limitations. This would be a step forward in openness.

The next level of information necessary is required for site characterization. What are the contaminants of most concern? Where do they exist and in what

concentrations? What types of soils are on the site? How mobile are the contaminants in these soils? What are the surface and groundwater regimes for the site and adjacent or downstream areas? Have contaminants reached the water systems? This information is costly to obtain and is typically sought in stages through graduated levels of site assessment. The important point for this discussion is that even for the sites identified as contaminated, some data that would aid in characterizing the site are usually lacking. Yet, regulators and assessors can draw no conclusions about relative clean-up priorities without that characterization.

The last level of information is dependent on the remediation policy employed. If the regulator requires clean up to background levels, then background levels must be defined. If the regulator accepts site specific objectives or a risk assessment approach, then there must be additional understanding of the local bio-physical environment and the uses made of the subject property or adjacent properties by the local population. What are the exposure pathways for human health and the ecosystem? Are there children or animals close by that might ingest contaminated soils? Are the contaminants volatile such that they can be inhaled? Will the contaminants be taken up by plants and then eaten by increasingly higher order organisms? Again, this is another level of information, but for risk assessment approaches this is the information that must be available to set priorities among sites.

The final related problem is that governments do not now have the money for the research required to answer fully the question "what is the size and nature of the problem." It is also true that those who maintain data bases, while perhaps seeing the benefits of harmonizing their data bases with others across the country, will have difficulty obtaining the resources to do so. Therefore, choices will continue to be made with less information than desirable.

SUMMARY OF ISSUES

- **There is insufficient information to determine the scope and nature of the problem in Canada - the number of contaminated sites and the degree and types of contamination.**

- **Smaller sites are rarely included in contaminated sites listings and there is no effort planned to accumulate that information in the near future or to determine if small sites constitute a significant problem.**

- **There is no formal cross-referencing of information on contaminated sites to land registry systems.**

- **Money is not available for comprehensive inventory work to be done.**

- **Generally speaking, site characterization information is insufficient to allow the setting of priorities for remediation.**

3.0 THE ALLOCATION OF LIABILITY

INTRODUCTION

One of the most contentious aspects of contaminated sites in Canada is how liability for individual sites is allocated. There have been a variety of approaches employed in various provinces and territories. Until recently, these approaches have had too little in common.

The main consequence of this patchwork of approaches is uncertainty for businesses both big and small, communities, environmental organizations and individual citizens and ratepayers. These uncertainties include whether anyone will take responsibility for the site; whether human health or the environment is at risk; if and how a site will be remediated; how much remediation will cost; and, whether the property will be useable or marketable in the near future and for what use and price.

While eliminating uncertainty is impossible, it can be reduced to reasonable levels by working through the various allocation issues one by one and resolving them reasonably, and nationally.

DISCUSSION OF ISSUES

Joint and several liability probably stands out as the most controversial element of the allocation debate. At the extreme, the use of joint and several liability means that any party can be held responsible for the whole cost of the clean-up required. In turn, that responsible party may recover some portion of the costs they've incurred through court action against the remaining responsible parties.

The difficulties with this approach are that it is unfair, or at least delays the achievement of fairness, and it is inefficient. The benefit of the approach is that it is easy for the regulator and apparently easy on the public purse.

The unfairness element is that one party must pay 100% of the costs for a problem to which they were but one of many contributors. That same party must bear the bulk of the uncertainty throughout the clean-up and cost recovery phases. One jurisdiction, New Brunswick, selects the most responsible party against whom they apply joint and several liability. In some cases this will be a somewhat less unfair way to proceed, compared to some other jurisdictions which may simply go after the easiest responsible party to find or the one most able to pay (deep pockets).

The inefficiency aspect bears on the question of whether or not the court system is the right place to solve this type of problem. Please note further comments below.

Is the use of joint and several liability easy on the public purse? In the narrow sense of who pays for the clean-up, yes, it is. But there are broader questions to consider. Does a joint and several approach create a climate which some businesses will shun if they have a choice? Are there costs from the use of the court system that extend beyond the simple recovery of court costs? One such cost might be the delay of cases for which court is the only possible solution. Another cost is the time spent on such cases by justice ministry officials which might have been spent more productively on other tasks.

These last two points require that we answer a question before we hasten down the joint and several track. Is the court system the best place for society to resolve such issues? A characteristic of the court system is that the interested parties give up most of their control over decision-making. A judge renders the decision. The interested parties can only influence the judgment through argument. While much of the argument bears on the substance of the case, far too often the focus is on legal technicalities. This latter tendency is not in the public interest insofar as resolving contaminated sites issues is concerned. The public wants a site cleaned up and they'd like to see the appropriate responsible parties pay. If a legal loophole lets a particular party off, it only serves to anger the public and engender cynicism in our system of governance. The court system is clearly the right place to go when interested parties have no recourse but to give up control - when they have ceased to communicate one with the other and have no desire to improve that communication. Before disputes reach that stage, there are many other processes that are much more effective and much more economical.

The alternative to the use of joint and several liability is a form of allocation process that avoids the use of the courts as anything other than a last resort. The CCME Recommended Principles document suggests a four-step process to resolve the issues of responsibility and the allocation of clean-up costs:

1. a voluntary allocation in which the responsible parties are given a period of time to reach their own agreement on cost allocation. Should that fail, the second step is
2. a mediated allocation in which the responsible parties are assisted in their efforts to reach agreement among themselves with the use of a disinterested third party who is there solely to manage the process. Should that also fail, the third step is
3. an arbitration in which a third party hears the arguments of the responsible parties and directs a solution to the dispute. Should the first three steps fail, then there is
4. a default to a court-based joint and several process. This is a use of joint and several that even most of its opponents can find acceptable.

Effectively, the process gives every opportunity for the responsible parties to find their own way to share the inevitable unfairness of a complicated contaminated site situation. Joint and several liability is invoked as a last

resort. Being in the background, it is an incentive for all parties to come to the table in the first instance and allows action to be taken against those who will not take their responsibility seriously. It is interesting that small business sees the use of joint and several liability, in a backdrop application, as having a leveling effect at the negotiating table. It forces the bigger actors to look seriously for a solution - the only circumstance in which small businesses feel that they can play and not come out losers.

At present, the provinces and territories are approximately evenly split on the use of joint and several liability versus apportioned liability. British Columbia, New Brunswick, the Northwest Territories and Ontario are among the jurisdictions still adhering to a joint and several regime. Among those which utilize an apportionment approach, joint and several is retained as a backdrop.

Fairness is a principle to which most would subscribe. The trick in the allocation of liability and clean-up costs is to find a way to do it that minimizes unfairness. It is unfair that:

- a polluter goes bankrupt or leaves the country and leaves other potentially responsible parties to face the consequences,
- what once seemed a reasonable practice is revealed by the evolution of science to be inadequate and is corrected by retroactive application of a new regulation,
- what makes good scientific and economic sense is not always in line with public perceptions and that political decisions will often be responsive to these public perceptions,
- that certain companies are held fully responsible, seemingly only because they have the money to effect the remediation,
- the public purse of today should have to be accessed to clean up a mess created in the past, and that
- government makes the rules and then their own Crown corporations or departments don't play by the rules and further, may not to be held to full account for their behaviour.

These are a few of the types of situations which various participants find unfair. Unfairness is frequently impossible to escape in contaminated sites situations. Therefore, the goal of allocation processes must be to minimize the unfairness. This most often means sharing the unfairness as much as possible amongst those responsible. Some responsible parties are more willing than others to approach discussions in such a vein. It is for the reluctant others that joint and several liability may need to be retained because it effectively requires them to be at the table. They may realize that non-co-operation may result in them having to take an even greater responsibility. Voluntary and mediated approaches enhance fairness because in both cases control of the outcome remains with the responsible parties collectively.

The "polluter pays" principle is widely supported by government, the public and industry alike. There have been some disputes about the definition of "polluter". ENGOs have made the point that a polluter may be an industry sector, while industry organizations maintain that it should be interpreted on a facility-specific or company-specific basis. A deep pockets approach to the allocation of clean-up costs can sometimes offend the polluter pays principle. The responsible party most able to pay may not be the one that bears the greatest responsibility for the contamination.

The application of the deep pockets approach in which the responsible party most able to pay is expected to pay is controversial and costly in both a financial and a time sense. For the most part, regulators and stakeholders accept that a deep pockets approach offends the obligation to be fair in any cost allocation process. The CCME Recommended Principles, which all environment ministers supported in 1993, recommends that a deep pockets approach be rejected. Nonetheless, the approach is dying a slow death in Canada with a number of provinces still using it directly or indirectly.

Should liability be "absolute" or "strict"? The former means that if there is damage on your property or from your operation you are liable for it. On the other hand, "strict" liability allows a potentially responsible party to use a due diligence defence, to demonstrate that they are not at fault and so to avoid liability. The benefit of an absolute liability approach is that it ensures that somebody other than the public purse will pay remediation costs on a privately-owned site. The disadvantage is that it may offend the principle of fairness. Conversely, strict liability may leave the public purse having to pay for a site that the public had no hand in creating. This issue has diminished of late as most courts will consider favourably arguments of due diligence or reasonable care. An example of this occurs in Nova Scotia where recent legislation is written such as to allow the application of absolute liability but, in practice, the government has put restrictions on itself to ensure that only responsible parties are pursued.

Should liability be prospective? If a responsible party has correctly completed a clean-up of a site and additional pollution is discovered after the clean-up, should that party retain a responsibility for further remediation or should the additional cost be a societal cost? With only one or two exceptions, liability is applied prospectively in Canadian jurisdictions in these types of situations.

Should liability be retroactive? As legislation is revamped and in many cases toughened, should it have effect on historical contamination and polluters when they had been in compliance with the laws of the day? Should earlier owners or operators, for example, bear the costs associated with such clean-up or should the costs be seen as societal costs? Virtually all provinces and territories have applied liability retroactively in one situation or another. That is not to say that it is done in all cases.

It is interesting to note that how these questions of prospective and retroactive liability get resolved depends on how regulations are perceived by all parties. For example, if legislated criteria are seen as being of utmost importance, then the responsibility of the operator to practice good environmental behaviour is superseded by the responsibility of the regulator to select the right numbers. If the legislated or practiced criteria are seen only as guidance with no intention of removing long-term responsibility from the operator, then placing the onus on the operator for both future and past practice is more appropriate. This does not receive open discussion.

Property values can be expected to decrease markedly when the contamination of that property becomes known. Conversely, property values should increase when contaminated lands are cleaned up. An issue with those that pay clean-up bills is who should benefit from the increase in the land value? The resolution of this would seem to be rooted in the principle of fairness. It makes good sense that benefits resulting from the clean-up of a property should be shared in similar proportions to the contributions made to the clean-up.

Determining who the responsible parties are for any liability allocation process can be very difficult. The list of potentially responsible parties (PRPs) can include:

- present and previous owners
- the operator, if different from the owner
- tenants
- manufacturers of the contaminant
- distributors and transporters of the contaminant
- lenders
- directors and officers of any of the companies
- regulators

Should the net cast in identifying PRPs be broad in the first instance (allowing for subsequent exemptions) or should it be narrow? Those arguing in favour of casting a broad net would like to be sure that certain PRPs are exempted only consciously. This is best done by catching them in the net in the first place and then deciding that because they meet certain criteria, they can be exempted in a particular instance. Those arguing against casting a broad net fear that some PRPs will be kept in the net solely because they have money, not because they are at fault. The broad net with case-by-case exemptions reduces predictability and requires that PRPs have a significant faith in the system.

Lenders, like all other potentially responsible parties, wish to limit their liability for contaminated sites. It is argued that capital must be available for economic development and prosperity and that its availability will be limited if the risks are too high because of unpredictable liabilities. Lenders may justly argue that they have had no direct influence on operating decisions that have caused

contamination. On the other hand, lenders are seen as having the financial resources required for remediation.

The CCME Recommended Principles dealt with this issue by noting that lenders should be granted a pre-foreclosure exemption from personal liability beyond the value of the outstanding debt unless they had actual involvement in control or management of the business of the borrower. Lenders see this as good but they seek broader exemptions or at least some predictable rules covering post-foreclosure situations, as well. Virtually all provinces and territories target lenders only when they have assumed ownership or have exercised control or contributed to contamination. In many cases, legislation enables lenders to be identified as responsible parties but practice permits exemptions to be made.

The other category of potentially responsible party that engenders some controversy is Directors and Officers. While companies would like to protect these people from liability in the creation of contaminated sites, the fact that on occasion directors and officers have been held liable has increased vigilance and efforts directed at the prevention of such pollution in the first place. Some have been heard to say that the only reason they're watching the environmental performance is to make sure they stay out of jail. This would seem to be an argument for putting directors and officers on the list of potential responsible parties. However, this must be weighed against the consequent increased difficulty of attracting good people to directorships. Only one or two jurisdictions (the Yukon is an example) take the position that Directors and Officers cannot be held responsible. However, most require that the Directors and Officers exercised control or failed to halt a contaminating activity before they will be considered as responsible parties.

SUMMARY OF ISSUES

- **There is a lack of consistency and predictability in the way in which issues of liability allocation are handled across the country.**

- **The role of joint and several liability is a source of great uncertainty to all potentially responsible parties. The unpredictability of its use reduces trust in the system and can lessen the probability of voluntary participation in allocation processes.**

- **Fairness is an important principle that is applied inconsistently across the country in spite of stated adherence to it.**

- **"Polluter pays" is a widely accepted principle but it requires more thoughtful application particularly as it relates to a deep pockets approach.**

- **A deep pockets approach is still utilized in some parts of the country in spite of its tendency to offend the fairness and polluter pays principles.**

- **Issues of prospective and retroactive liability continue to yield uncertainty.**

- **Improving the level of certainty in the allocation of liability will require that a common choice be made across the country on the initial use of either a broad or a narrow net.**

- **Lenders are left in uncertainty, not knowing whether they are in the net in the first instance and if so, under what conditions they could be exempted, or if they are not in the net in the first instance, under what conditions they could be brought into it.**

- **There will be uncertainty about responsibilities in board rooms until there is more clarity on whether or not Directors and Officers of responsible parties are included in the net.**

- **Expectations of the regulatory system are not uniform and the time may be ripe for a re-consideration of how standards are perceived and what they mean to future and ongoing responsibility.**

4.0 HOW CLEAN IS CLEAN?

INTRODUCTION

This question refers to the assessment of 1) when a site is contaminated, 2)when it needs to be cleaned up or managed in a different manner and, 3) if it is to be cleaned up, to what level it must be cleaned up. These are significant questions because of the stigma attached to a site being declared contaminated, because of the unpredictability of the costs associated with any clean-up activity, and because of the difficulty of assessing risk when one cannot easily define "clean".

There is an increasing gap between those who use or advocate the use of emerging technologies and the general public. This is a gap that will only be bridged with trust and understanding on all sides.

DISCUSSION OF ISSUES

Designating the Site

There has always been a tension between the idea that there should be some kind of national standards for defining the cleanliness of a site and the belief that this is a highly local issue that must be solved using local criteria. Businesses seek some predictability in what kind of contamination is going to result in a designation because such a designation is going to impact property values immediately and negatively and liabilities will be incurred. The protestations of a regulator that holds to the view that designation will be determined on the basis of considerations at a particular time and place and thus be subject to the vagaries of the public whim, creates great discomfort for businesses and plays havoc with their planning processes. On the other hand, the regulator has no choice but to be responsive to the public's relationship to the government. The public will not always be predictable in its behaviours or desires.

Canada is diverse in terms of land forms, in terms of soil characteristics and in terms of surrounding environments and settlements and their sensitivities. There is justification for a location-specific approach but it is also reasonable to be able to expect that the basis for decisions on designation would be predictable and broadly defensible. The location-specific approach is justified on the basis that background levels of contaminating substances vary widely depending on the geological history of the area. Also, because soil and groundwater characteristics are sufficiently variable, contaminant mobility, which is largely dependent on these two factors, ranges widely from site to site. Finally, surrounding environments and land uses are diverse and can result in significantly different exposure pathways and receptors. This, in turn affects whether or not a site might receive designation as being contaminated.

Setting Priorities

There are more contaminated sites requiring clean-up at present than there are available resources to complete the work. This means that priority-setting is critical. Otherwise, Canadians may spend scarce resources without addressing the sites that present the greatest long-term problems. Good work will have been done, but with a less-than-optimum effect. There is a need, therefore, for a system that aids in the determination of priorities among contaminated sites. On a technical level, this could be the National Classification System for Contaminated Sites, published by the CCME in 1992. All jurisdictions across the country are familiar with this tool and have found it helpful. The other part of the puzzle is not technical. It deals with the public and political will and thus, often hinges on public perceptions. Public perceptions should be dealt with as reality and through communication and mutual learning. Public perceptions should neither be ignored nor should they totally dominate decision-making. They need to be part of the discussion and the solution.

Rendering a Site Clean

Many aspects of a site and its condition can affect the extent to which contamination on that site is deemed to be a problem. These factors include:

- natural background levels of the contaminant in the soils or the groundwater,
- the nature of the soils and the contaminants
- the extent to which the contaminants are mobile
- threats to human health and the environment given the ecological characteristics of the surrounding landforms, the nature of the human activity that either does or may in future take place in the area, and,
- the pathways available for the contaminant to find its way to sensitive human or natural receptors.

Attempts have been made to develop clean-up criteria which have widespread application. In practice, that application is difficult because site-specific circumstances intervene. Therefore, various protocols have been developed which allow a regulator to take into account site characteristics, the nature of the contaminants, the human activity in the surroundings and the sensitivity of the receptors in the area. Recent (March 1996) publications of the CCME and NCSRP provide guidance for the regulator or developer to develop site specific clean-up criteria. Ontario has also released their guidance document (July 1996).

In the past, some jurisdictions have sought clean-up to natural background levels. They know that this is the safest solution, because at background levels no incremental impacts will be noted. This approach has been criticized by industry and others who have noted that levels significantly in excess of background can often be tolerated by humans and the local ecosystem without

measurable effects due to the lack of sensitive receptors or an absence of critical pathways. This criticism has its roots also in the fact that the costs of such clean-up are often very high with the bulk of those costs being incurred in doing the last 10 or 20% of the clean-up. It is that oft-repeated adage that you can have 80% of the effect with 20% of the effort but you'll spend the last 80% just trying to get at the remaining 20% of the problem.

To simplify the question that some are asking, then, is it better to clean up five sites to 80% of their original condition or clean up one site to its natural condition? While logic suggests that we would be better off to address five sites, it may not always be as simple as that. Our scientific understanding of both contaminants and receptors and their interactions is incomplete. However, if the 80% solution is selected, there may be a tendency to believe that those five sites are now concluded and can be forgotten, only to discover at some later date that the environment or human health is more sensitive, or a contaminant more potent than previously thought. To re-open a site and undertake further work on it will be more difficult to initiate and will likely cost more than doing it all in the first instance. Even this statement does not take into account costs associated with the impacts experienced in the interim.

One of the proposed solutions to the dilemma of how clean a site should be when remediated is to do exposure pathway analysis and risk assessment followed by remediation to the level at which risks are "acceptable". The normal expectation is that clean-up criteria developed through risk assessment will be less stringent than generic criteria, there usually being a built-in conservatism in generic criteria. The less stringent outcome is common, but not universal for there have been instances in which the criteria have become tighter as a result of risk assessment.

Risk assessment practice is evolving quickly and techniques are becoming better and better. It is understood well enough now by the scientific, engineering and regulatory community that some consensus on best practices is emerging. Its downfall seems to be that the public has been left behind. Elements of the public are inclined to wonder how any additional risk should be "acceptable" when it's not a risk of their choosing. This concern is most likely to arise in circumstances in which there has been no engagement of the local public during the risk assessment process.

There is sufficient judgment involved in a risk assessment process, that perhaps it should be seen as an art, not as a science. Then the numbers that emerge from the process would not be seen as an unassailable basis for a "logical" decision but as input to be considered seriously in a public process. The public has come to mistrust large numbers (e.g. the number of jobs that will be created from a new development) and extremely small ones (your risk of getting cancer from this contaminant is only 1.0×10^{-6}). The challenge here is to put the risk assessment process into a perspective that works for the practitioners of risk assessment, the decision-makers and the public together.

A risk assessment approach, and other approaches for that matter, can result in clean-up proposals that will include transport of contaminants off-site for storage or treatment, treatment on-site or containment and management on-site. It is not uncommon for at least a part of the contamination to be left on the site and to require an ongoing commitment to monitoring, maintenance and perhaps management. Containment and management on-site saves money today but often creates obligations for the future. More and more sites could require monitoring and maintenance, sometimes for indefinite periods (depending largely upon the life of the contaminant). While the containment/management option may be the right solution in individual cases, considered collectively it may leave a legacy for future generations which obliges them to be much better at meeting their commitments than history suggests is likely. Of course, this also needs to be weighed against the possibility of no clean-up at all.

Regulators are adapting to the emergence of risk assessment as they would to any emerging technology, with a response that fits the time and place. Although tools have been prepared that aid this response, they are adopted non-uniformly. This does not improve the consistency among Canadian regulatory regimes.

The final issue is certification of site cleanliness. Those who invest in cleaning up a site and have done so according to an approved plan, wish to avoid future liability for the site. This would require that regulators issue some type of certificate of cleanliness. On one hand, the consequence of not certifying cleanliness may be hesitation on the part of some developers to invest voluntarily in site clean-up. On the other hand, the public purse may be more highly protected (if development is not impeded), especially in the absence of a broad-based clean-up fund. This is yet another example of an issue of confidence and trust in motives and system performance.

Most jurisdictions in Canada are prepared to issue a letter confirming that directions were followed in cleaning up a site. A few of those will then issue a Certificate of Compliance. However, with only one known exception (the Yukon), responsible parties would retain responsibility, under these certificates, for the site should conditions or standards change in future.

SUMMARY OF ISSUES

- **The tension between predictable national standards and individual, local assessment in the designation of sites needs to be resolved.**

- **A common approach that will lend itself to achieving broad support on clean-up priorities is required.**

- **The lack of a broad consensus on an approach to determining clean-up standards is hindering remediation actions.**

- **The long-term management obligation that may arise from frequent use of containment and management options should be assessed in the context of the ability of future generations to assume such obligations.**

- **As technologies advance, regulatory systems respond. Those responses are uneven across the country and this increases or at least perpetuates the patchwork of requirements found among the provinces.**

- **The question of whether or not certificates of cleanliness should be issued needs to be settled uniformly across the country. How can this best be accomplished?**

5.0 FUNDING ORPHAN SITE CLEAN-UP

INTRODUCTION

An orphan contaminated site is one for which viable responsible parties cannot be found. They may have gone bankrupt, they may have left the country or they may simply be unwilling or unable to accept responsibility but the bottom line is that they are not available to clean up a site at a particular point in time. This does not lessen the need to clean up the site but it certainly lessens the resources that can be brought to bear on the task. How is the clean-up to be accomplished?

Orphan sites are a major problem in Canada. There is no reliable estimate of the number of such sites, nor of the likely costs of their remediation.

In 1989, the Canadian Council of Ministers of the Environment agreed on a 50 - 50 cost-shared federal - provincial program called the National Contaminated Sites Remediation Program. This program was to make available approximately $200 M for the actual clean-up of priority sites and $50 M for the development of new technologies. In addition, there were a further $25M set aside by Environment Canada to assist other federal agencies to conduct site inventories and assessments. The program would run for five years from April 1990 until March 1995.

The program was successful in many ways and did fully or partially remediate 45 sites across the country. Some provinces, specifically Manitoba and Saskatchewan, were late joining the program, so some projects were not started until the last full year of the program. Consequently, some expenditures were continued until the end of March 1996 on projects approved before September 1994. In the end over $85 M were spent on site remediation and about $40 M were spent on technology development. As noted earlier, this money was obtained equally from the federal and provincial/territorial governments. One of the program's greatest legacies, however, are the tools that were developed:

- National Classification System for Contaminated Sites,
- Interim Canadian Environmental Quality Criteria for Contaminated Sites,
- Guidance Manual for Developing Site-specific Soil Quality Remediation Objectives for Contaminated Sites in Canada,
- Guidance on Human Health and Ecological Risk Assessment,
- Guidance on Bioassay Methods for Ecological Effects,
- Evaluation and Distribution of Master Variables Affecting Solubility of Contaminants in Canadian Soils,
- Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites,
- Subsurface Assessment Handbook for Contaminated Sites, and
- A Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines.

DISCUSSION OF ISSUES

At the time that the NCSRP was initiated, government was prepared to undertake the full cost of such clean-up work. The public was supportive of it also. Such work was seen as a societal cost and government was seen as responsible for societal costs.

As the NCSRP mandate drew to a close, a multi-stakeholder group began work under the auspices of the CCME on the creation of a new funding mechanism for the remaining orphan sites. The group worked diligently on this issue and held a national workshop in January 1994 to develop serious proposals to deal with the funding problem. In the end, the group could not reach consensus on the solution, two ministers of the environment disputed the existence of orphan sites and discussions were halted. What was on the table at the time was a fund that would be fractionally supported by business and largely supported by federal and provincial governments through general revenues and dedicated taxation. The fund would be managed by a multi-stakeholder group. This group would include a voice for each contributor. The CCME Core Group was unable to agree on relative proportions of the cost that would be borne by the various participants.

This reflected a changing climate for government/public participation in rectifying problems largely caused by ignorance, mis-management or poor regulation of private sector facilities. Recognition that government budgets were being reduced and that environment departments would experience these reductions caused some interest groups and some government representatives to take a harder line on the issue of public funds for such clean-ups. As Ernst & Young put it, the "public is more likely to support the privatization of site remediation costs than higher taxes/reductions in services in order to publicly fund clean-up".

Another point of departure for the participants in this funding discussion was over the question of orphan shares of sites. The concept of an orphan share of a site is best understood by way of an over-simplified example. A contaminated site may have contamination arising equally from five different owner/operators. Four of those responsible parties may still be solvent and prepared to assume their share of the responsibility. A fifth is bankrupt. Who should pay that fifth portion of the costs of the clean-up? It may not be fair to ask one or all of the four still present to pay the extra. It may not be fair to ask the public purse to assume this cost. It is also not useful, or maybe even possible, to leave 20% in its contaminated state.

It was the view of some of the governments and businesses that this would be a circumstance which would call for the application of the clean-up fund. In other words, a situation which calls for sharing the unfairness. Other governments and ENGOs did not share that view. They feared that the orphan share would show a tendency to grow during the voluntary negotiation process,

diverting responsibility, in the example above, from the four responsible parties to the fifth which could not be at the table. This would require a proportional increase in the public funds required to support the clean-up fund and might make the clean-up fund a larger and longer-lived process than necessary.

At present, these issues remain unresolved. There is no fund for the clean-up of orphan contaminated sites. There is no replacement for the NCSRP and there is no consensus on how to handle orphan shares of sites. Some jurisdictions continue to avail themselves of joint and several liability in the absence of any consensus.

A number of options for an orphan site fund are available:

- industry sector fund - could be administered either by industry or government; would be funded by a levy on a particular product or from donations by all sector members; funds would be used to clean up sites created by the activities of that sector. A variation of this option is a single fund covering all sectors with pro-rated contributions tied to the frequency of creation of contaminated sites from each sector.

- corporate environmental tax - this would provide a predictable and consistent level of funding but is not directly related to environmental performance.

- fees/taxes on contaminating activities - could be levied on the generation, transportation, use, treatment or disposal of hazardous substances.

- penalties and fines - revenues from prosecutions would be diverted to orphan site clean-up. There is a strong connection with polluting activities and performance but the revenue amounts are unpredictable.

- general government revenue - a regular allocation approved through standard legislative/parliamentary budget processes.

- broad-based consumer taxes - revenue from the tax would be earmarked, something government finance departments do not support.

- site remediation bonds - governments would probably have to subsidize rates of return on such bonds. Indeed this may just be a delayed general revenue option.

- voluntary funds - would require a high level of co-operation among businesses and governments and a basic agreement that they all want to solve the problem.

- mixed funds - various combinations of the above options.

A useful observation to make at this point is that the costs of clean-up are passed down the line. Depending on the option chosen, the costs are passed to taxpayers, property ratepayers or consumers. There is no big brother or sister who can pay. It must be individuals who pay in one or more of the above guises. This is disappointing news to those who may hope for a simple redistribution of wealth to solve this funding problem. What this really means is that the arguments over who, nominally, pays to clean up orphan sites is really an argument over who should deliver the bad news to the taxpayer (government) or ratepayer (government) or the consumer (business or government).

An interesting option is being developed among Alberta Labour, Alberta Environmental Protection and the Canadian Petroleum Products Institute. That proposal would see a special levy being placed on wholesale gasoline sales that would be dedicated to the clean-up of orphan underground gasoline storage sites. Other jurisdictions, such as Ontario, are watching this approach with interest in the hope that something similar may have application in their province or territory; perhaps with the same sector or perhaps with another. There is already a history of its use in the U.S.

Two provinces, Alberta and New Brunswick, have funds which can be used for environmental protection or enhancement. New Brunswick has used theirs for funding orphan site clean-up and is likely to continue to do so. Alberta could access theirs for the same purposes. Other provinces and the federal government would have to obtain separate appropriations for remediation on a case-by-case basis. The probability that more than the worst sites will be addressed, is low in the present economic climate.

No discussion of orphan site funds seems complete without reference to the U.S. Superfund. However, virtually no one in Canada advances it as a model that should be followed here. Most frequent criticisms include that too little of the money "goes into the ground" and too much goes into litigation costs. The funding mechanism is unfair, and moving through the process is extremely slow.

Some other U.S. information may be instructive. Almost all the states have their own separate "superfunds", at least in part because working through or with the federal Superfund has been difficult and quicker response is sometimes required. Most of the state funds appear to be limited in total size with some ceasing their fund generating when a certain maximum is reached and resuming it again when the value falls to a stipulated minimum. Some funds are as large as $50M while others are not allowed to exceed $200K or $500K. Consequently, some funds are comprehensive in the types of activities they attempt to address including remedial actions, CERCLA (*Comprehensive Environmental Response, Compensation and Liability Act*) match projects, emergency response, site investigations, studies, design, grants to municipalities and even, victim compensation. Others are extremely limited

and may be used only for emergency response. The sources for these funds range from cost recovery, through legislative appropriations, state bonds, fees attached to hazardous waste handling, and special taxes, to penalties and fines.

The final issue is that of how a fund should be managed. If the private sector contributes directly, they will wish to have a say in the management of the fund. If even part of the fund is drawn from a special tax, all stakeholders and most citizens will likely wish to see that fund dedicated exclusively to orphan site clean-up. There are many issues here that require focussed effort to resolve. They vary with the funding option selected.

SUMMARY OF ISSUES

- **Orphan sites may simply go unattended if a solution to funding their clean-up is not found.**

- **The issue of whether or not to include orphan shares within a fund is controversial and requires resolution.**

- **The fund management structure should be appropriate to the type of fund.**

6.0 PROPERTIES AND OPERATIONS IN BANKRUPTCY

INTRODUCTION

An operation that becomes insolvent can present special challenges in the area of contaminated sites. Firstly, some contaminated sites have been left orphaned when a receiver has refused an assignment because of fear of personal liability exposure. Secondly, a similar outcome has also been produced when receivers served with a clean-up order by the regulator choose to contest the order rather than comply. They are choosing to spend the scarce funds of the bankrupt fighting the order instead of cleaning up the site. Thirdly, in instances in which government has had to go onto a bankrupt site and clean up a health or environment-threatening problem, there have been difficulties in recouping the expenditures from the assets of the operation. This is not surprising when, by definition, the liabilities exceed the assets in these cases. These are unsatisfactory outcomes from an economic as well as an environmental perspective.

The statute which governs the activity of receivers is the federal *Bankruptcy and Insolvency Act* (BIA). It is presently going through a major reworking, but also was amended as recently as 1992.

DISCUSSION OF ISSUES

The present amendments of the BIA are broad, but for this discussion, can be focussed in three areas:

- changes regarding the personal liability of receivers,
- possible responses to a post-appointment clean-up order, and
- recovery of public funds spent on clean-up of a bankrupt's property.

Personal Liability of Receivers

The BIA 1992 amendments eliminated personal liability for receivers and trustees for any contamination that occurred pre-appointment. The amendments also allowed for a due diligence defence for receivers' personal liability post-appointment. This very quickly proved problematic. The lack of a clear understanding of what constituted due diligence left too great a risk of personal exposure for the receivers. They were understandably reluctant to take on such assignments. This had the effect of leaving the operation or site without an administrator and sometimes left a contaminated site orphaned.

Amendments introduced in the present session of Parliament (in November 1995 and then re-introduced in March 1996 as Bill C-5) alter the troubling clauses by eliminating all possibility of personal liability for receivers, either pre-appointment or post-appointment, unless the receiver is guilty of gross negligence or willful misconduct. Insolvency practitioners are much happier

with this and pre-amendment consultations indicate that some other interests are supportive of the change also. There are mixed feelings among provincial governments.

Responses to a Post-appointment Clean-up Order

The present BIA allows receivers two possible responses should they, as administrators of a bankrupt operation, be served by the regulator with an order to remediate the property. Those two possible responses are to comply with the remediation order or contest it in the appropriate court. Insolvency practitioners found this to be too inflexible. It required a decision on their part, too often in the absence of critical information.

Under the new proposed amendments, the receiver may seek from the court time to assess the economic viability of the required clean-up. If such a request was made by the receiver, the regulator could then argue for immediate clean-up (for example, if public health was greatly threatened) or, could agree to an appropriate time for analysis. The final option permitted under the proposed amendments would allow the receiver to abandon the assets related to the clean-up order. This last option would, effectively, orphan the site.

Recovery of Public Funds

In the past, the priority given to the recovery of clean-up costs in dispersing the assets of a company has been relatively low. In these situations in which liabilities exceed assets, few public monies have been recovered when the government has had to step in and remediate a contaminated site that is posing an immediate threat to the environment or to human health.

The proposed amendments to the BIA give environmental clean-up costs a first-ranking priority lien over certain assets of the operation even ahead of secured creditors. This applies not only to the primary property, but also to adjacent or contiguous properties if implicated. Further, if the cost of site remediation done exceeds the total value of the assets affected by the lien, the residual clean-up costs will be recognized as an unsecured claim against other assets of the developer.

These potential changes represent a significant step forward for environmental priority and will probably encourage governments to take clean-up action when conditions demand it. Lenders have given grudging support to the changes which have the effect of reducing the likelihood that lenders can recover a significant portion of their investment in the operation. Another possible implication of the change is that lending institutions may become more reluctant to invest in small, independent businesses. Small businesses do not believe they presently enjoy a favoured status with the major banks in the country and they have a genuine concern that this amendment will provide the banks with yet another excuse not to lend to them.

Bill C-5 has received its second reading and has been sent to committee. The committee initiated its review in June 1996 and will continue with three or more days of hearings beginning on 17 September 1996. Upon completion of those hearings, the committee will begin a clause-by-clause review of the Bill before returning it to the House.

SUMMARY OF ISSUES

- **Will the *Bankruptcy and Insolvency Act* amendments go through Parliament in their present form?**

- **If they do, will the new procedures perform as expected or will problems arise such as those of concern to the small businesses which may necessitate further changes and uncertainties in the not-too-distant future?**

7.0 BROWNFIELD SITES

INTRODUCTION

"Brownfields" are abandoned or idle industrial or commercial land where re-use, expansion or re-development of the land is complicated by environmental contamination. Brownfields are often centrally located and thus surrounded by urban development. They usually have servicing infrastructure in place and tend to be close to major transportation facilities or routes. These lands have obvious economic potential which will vary with current markets and the degree of contamination.

Brownfield sites have been contaminated by the raw materials, the products or by-products of historic industrial or commercial operations. For various reasons, including the departure of responsible parties, lack of funds for clean-up, lack of agreement on what constitutes clean-up, or lack of investment due to fear of liability, remediation has not proceeded. The contamination prevents immediate use of the land and often impacts or threatens adjacent land. Municipalities are affected as property tax payments are reduced or eliminated.

The redevelopment of brownfield sites is an issue in a number of Canadian urban centres. Montreal and Toronto are the most prominent but other centres such as Calgary, Edmonton, Winnipeg and Halifax have similar, if lesser, concerns.

There are many reasons why brownfields should be redeveloped and why they should be seen as opportunities rather than as problems:

- the existence of municipal services such as transportation, sewer, water and utilities makes it generally more cost-effective to develop a brownfield site compared to a new suburban site,
- a redevelopment will contribute to a rejuvenation of an inner city and can stimulate other supporting initiatives,
- a potential orphaning of a site is averted,
- property tax revenues can be restored to the benefit of the municipality and its ratepayers,
- the need to expand urban boundaries is reduced, and
- the need for energy-intensive transportation is reduced
- the CMHC has noted that central locations are preferred for social housing
- more dense utilization of city property, if done in an environmentally sound manner, is a measurable step towards sustainability.

DISCUSSION OF ISSUES

The issues that are inhibiting the re-development of brownfield sites are the same that affect other contaminated sites. Uncertainty in the allocation of

liability is a major concern. As in other cases, predictability is probably more important than the preference of one particular approach over another.

The subject of clean-up standards is critical. Clean-up costs disproportionately increase as clean-up standards become more stringent. Generic criteria or background levels have often been applied as clean-up objectives for brownfield sites. Developers have argued strongly that this often results in unnecessary expense and that clean-up criteria should be variable, depending on future land use and on a risk assessment analysis. In other words, clean-up standards could be less stringent if the land was returned to commercial or industrial uses than if it was going to a residential use. Standards could also be lessened if risk assessment demonstrated a low exposure of humans and the environment to the contamination.

Issues of prospective liability also apply. Will a responsible party (or even a new owner who is otherwise not responsible for the pollution) who remediates a site according to an approved plan still bear responsibility for further clean-up should standards change or other contamination be discovered? Will an insurer who insured a previous activity at the site suddenly find themselves liable for some of the environmental consequences of that activity?

Financial institutions want to see these questions resolved to create as certain an environment as possible for investment. Absence of such certainty means developers will have difficulty obtaining financing for the rehabilitation and redevelopment of brownfields. Some regulators argue that the expectations of financial institutions are too high and that governments will always have to retain flexibility to respond to emerging concerns and evolving understanding about human or environmental health. Can these two perspectives be reconciled?

Municipal governments are also anxious to see the issues of brownfields resolved. Tax payments to municipal governments are often reduced or eliminated and assessments and taxes on adjacent lands may likewise be decreased. New industrial activities will tend to locate on new, clean land. This land is often on the outskirts of the city in question. Such development, therefore, contributes to urban sprawl and the depopulation of city cores and the social issues that attend.

There are few parties with interest in brownfield sites that do not want to see them redeveloped. The challenge is to find the common ground among the interests so that it can happen. It is important to get sites clean enough to allay the concerns of senior and local governments and of local residents. A sufficiently predictable regime is needed so that developers will consider acquiring these properties, lenders will be prepared to invest in re-developments and insurers will be prepared to insure them. A sufficiently flexible regime should be created such that governments are able to respond if a significant threat to human or environmental health arises.

There are efforts by a few of the interested parties that bear on these problems. The Insurance Bureau of Canada has recommended the application of limits to first and third party liabilities for environmental impacts. At least three insurance companies have responded with a range of products to address these needs. This puts a limit on the uncertainty faced by insurers and makes it easier for companies to offer appropriate coverage. Will it be the coverage that developers need? Legislation respecting the allocation of liability is evolving quickly in many provinces. This usually has the effect of reducing the uncertainty faced by developers. The legislation of a few provinces allows for agreements to be reached between lenders and the regulators on the limitations to liability assumed by the lender. This reduces the uncertainty for lenders and should improve the climate for investment in brownfield re-developments. The questions remain, are these responses sufficient? What else is required?

SUMMARY OF ISSUES

- **The uncertainty in liability allocation regimes is detrimental to the investment climate.**

- **The issue of clean-up standards, both generic and site specific, needs to be resolved to reduce the uncertainty for investors. Many interests have valuable input to offer towards this resolution.**

- **Sufficient predictability in the regulatory regime is required without tying the hands of government such as to prevent them acting in the public interest.**

- **Are present initiatives to address these problems sufficient or is more effort required?**

- **If more effort is required, what initiatives could the financial services sector take that would help to overcome the inertia in the re-development of brownfields?**

8.0 SOCIETAL COSTS

INTRODUCTION

Part of the ongoing discussion among stakeholders when they attempt to resolve who pays for the clean up of a contaminated site is "what is a societal cost?". The idea is that there are certain costs that accrue to society broadly because society has benefited equally broadly from the activity that caused these costs.

For instance, the property upon which an abandoned manufacturing facility was located has been left in a contaminated state. The owners and operators cannot be found and the site is deemed to be orphaned. A group of concerned stakeholders discusses its clean-up and some note that the cost of clean-up is a societal cost and, therefore, society should pay to clean it up. What is meant, usually, is that governments should pay.

The thinking behind this is that a lot of people, either individually or collectively, benefited from the building and operation of the facility. Construction workers received wages and benefits while building the plant, local government received money for building permits, the employees of the operation received wages and benefits during either the life of the facility or for the duration of their employment, local governments received property taxes from the operators, provincial and federal governments received income taxes from employees and owners and corporate taxes from the operation itself. The economic impacts were even wider with those supplying the operation with its raw materials or services benefiting also. The important point to this argument is that the benefits of the operation were felt widely and, therefore, the costs should be borne equally widely. This is one aspect of the "beneficiary pays" principle.

DISCUSSION OF ISSUES

There is no real dispute that society at large benefits from individual economic activities. However, some take the view that the economic benefits are experienced disproportionately by the owners and shareholders of the operation; that perhaps society, through its government, made many concessions in the first place to get the facility into that neighbourhood and that a major part of the societal cost has been paid during the start-up and active life of the facility. On the other side of the ledger, some would argue that the contamination occurred in spite of following precisely the instructions of the regulator. In other words, "we did what society asked us to do."

As recently as five years ago, there was a fairly broad acceptance that government should step in and pay for the clean up of orphan sites and thereby absorb the societal cost. This is now less true and several reasons are emerging for this shift.

Firstly, the financial situation within governments at all levels has deteriorated and priorities have changed. Public officials, both elected and appointed, have a vastly different view of how public money should be spent than was the case a few years ago. There is much less public money available as government budgets generally, and environment budgets specifically, have been significantly reduced. Environment is a lower priority issue with the Canadian public. Consequently, governments are less apt to approve expenditures for environmental purposes when there is a consequent direct loss of spending power in some other demanding area.

Secondly, attitudes are changing both within government and among the public. Whereas a few years ago (for example, 1989 and 1990 as the National Contaminated Sites Remediation Program was getting underway) governments and the public were willing and able to provide funding for the clean up of orphan sites; today, an increasingly predominant view is that the public purse should not have to pay for what might be the mistakes of industry.

Thirdly, some businesses are enjoying significantly increased profits. Some members of the public believe that with these profits may go some responsibility for societal costs.

These emerging views are only that. They are not conclusions but, rather, are the present lay of the land. They do not represent resolution of concerns about who, exactly, benefits or is hurt by a particular taxation and spending regime in government. Nor do they apportion responsibilities for poor environmental performance.

The background and the present views lead to much the same question that arises in the section on Funding the Clean-up of Orphan Sites. Who should fund such clean-up and in what proportions? An idea has emerged in a recent consultative exercise in Saskatchewan that might be helpful. The concept is one of a fund created by beneficiaries who contribute through "no-fault shares". For example, the federal and provincial governments benefited from taxing the incomes of employees and the firm itself; local governments benefited from the collection of property taxes; banks benefited from interest charges on the operation's debt and from handling charges on their banking; suppliers benefited as the operation was an important market for them, etc. Each of these beneficiaries would purchase a certain number of no-fault shares in the clean-up fund. This idea is only at the conceptual stage, but certain conditions for this to work would likely include:

- knowing the size of the problem so that the total contribution (through purchase) to the fund by each party is known or, alternatively, funding is done on a case-by-case basis,

- a clear acknowledgment that the purchase of these no-fault shares is based on having benefited from the activities encompassed by the fund, not from having contributed in any direct way to the contamination problem,
- an understanding that the purchase of these shares may in part be because the purchaser occupies a part of the cradle-to-grave management of the contaminating substance, and
- arranging for participation in the management of the fund in proportion to the shares purchased.

There remain some unknowns with this concept and the Saskatchewan Advisory Committee, at time of writing, has yet to deal with it formally. Would the public be represented by their governments or would citizen representatives have an opportunity to participate in the fund management? Will all beneficiaries see this positively as a way to share the unfairness without assuming any fault? Can the fund be established in such a way that legal representatives are satisfied that contributions do not attract liability to their clients? These will be dealt with in the coming months and the outcome should be monitored.

SUMMARY OF ISSUES

- **The issue of who pays societal costs should be resolved soon so that other related issues can be addressed. The consequence of not resolving this may be unremediated sites that remain a threat to the environment and human health.**

- **Preliminary to resolving the societal costs issue, it should be determined if "beneficiary pays" is a valid principle and, if so, how it should be applied.**

- **Does the notion of no-fault shares offer some hope as a way to share the unfairness of cleaning up orphan sites or orphan shares of sites?**

9.0 THE ROLE OF INSURANCE

INTRODUCTION

Insurance has always been intended to cover accidents or occurrences with adjectives such as "sudden" or "abrupt" having application to the policies. In the past, this has meant that property and auto insurance, for example, while not explicitly intended as environmental insurance, has covered environmental incidents such as spills of contaminants. Some interpretations in the courts resulted in ongoing or continual polluting activities being seen as accidental. This led insurers to begin the use of exclusion clauses which were aimed at making explicit the intent to cover sudden occurrences and not to cover ongoing polluting activities.

Insurance should not be seen as a way in which to cover the liability of contaminated sites where the contamination is caused by ongoing pollutant release. The responsibility for that type of contaminated site should rest with the polluter and, indirectly, the regulator if there has been improper advice, direction or enforcement. What environmental insurance can be expected to cover are the sudden or fortuitous occurrences that result in contamination of soil, ground or surface waters and, although not the subject of this paper, the other medium, air.

DISCUSSION OF ISSUES

Environmental insurance is not fully a fact of life in Canada and a number of preconditions seem to be necessary before it will be widely offered:

- the existence of national environmental standards. The details of what this term means has not been resolved but the insurance industry believes that it must include pollutant release standards as well as clean-up standards, the perennial question of "how clean is clean?". National performance standards, in the sense of numerical standards, are unlikely to be implemented anytime soon in Canada. Judging by the progress or lack of progress on the harmonization of environmental regulation in Canada, the most that can be hoped for in the next several years would be agreement among Canada's environment ministers to a common level of environmental protection. This would be preferable to the present situation but will not give industry the certainty about exact concentrations that would be considered contaminating. These would still be highly sensitive to regional considerations and would have to be flexible to respond to new information about contaminants or the environment, local political will, and so on.

- consistent enforcement. The insurance industry believes that national standards are important, but that without consistent enforcement across the country, such standards are of limited or even negative value. Delivery of consistent enforcement on the part of Canada's thirteen environment

departments can be expected to be very difficult and some time in the offing. The strong need for regional expression among Canada's governments is manifested in local decisions such as the level of enforcement provided for environmental regulations. The concept of sustainable development offered many the hope that environment and the economy need not always be in conflict, that there could be win-win solutions, that good environmental performance could lead to good economic performance and a high level of competitiveness. A few developers and other stakeholders have become believers, but many have not and the protection of the environment is still often seen in opposition to the economy. This affects the way companies behave and the way governments are pressured to enforce.

It may be incorrect to think of government as the enforcers in the coming years. Certainly, strong arguments can be made for governments' continued involvement in enforcement. This will be essential. However, it is interesting to contemplate the role of the private sector in the future enforcement regime. Take, for example, the ISO 14001 environmental management system standards. Both internal and external auditors will play a significant role in identifying regulatory non-compliance (even though the standard itself does not require regulatory compliance). If the North American implementation of ISO 14001 evolves towards the European EMAS or the British BS 7750 standards which do require regulatory compliance, then private sector involvement in enforcement will be a reality.

Not only environmental auditors may be drawn into this role. Insurers themselves may well fulfill such a niche. Certainly, as potential insurers of a particular operation, they would have a very strong interest in the regulatory compliance and a best practices compliance of that operation. This role for insurers would be likely to reinforce pollution prevention as well.

- a consistent approach to the allocation of liability for the clean up of a contaminated site. All industries seek predictability in as many aspects of their business as possible. This may be particularly true of the insurance industry which often must compensate someone for the uncertainties. In many circumstances, the insurer of a company that has created a contaminated site becomes a potentially responsible party for the purposes of determining who should pay the costs of clean-up. If the company is not in good financial condition, it may be that the regulator or the courts will look to the insurer to bear the brunt of the clean-up costs since the insurer has deep pockets or is, at least, available. Insurers have attempted to address this through their use of exclusion clauses, but this will not totally eliminate the probability of being caught up in these circumstances. Lack of predictability may result in fewer companies being insured for accidental and sudden releases where insurance would be an appropriate way to cover the costs of clean-up.

- an improvement in insurers' knowledge of the environmental area. Their underwriters do not always have sufficient experience to assess environmental risks with confidence.

- an accreditation process for environmental professionals. The credentials of many practitioners, most particularly environmental auditors and environmental site assessors, have been unknown by the client and could only be discovered through experience. That experience has occasionally been costly and painful. Help is on the way on the audit side of the question as the Canadian Environmental Auditing Association (CEAA) has developed a system of accreditation for environmental auditors in Canada. At time of writing, final determinations on who will be "grandfathered" under the system are being made. By the end of October, the first new applicants will have been given their accreditation if they meet the requirements. The system will be presented to the Standards Council of Canada and if approved there will be an opportunity for parity with auditor accreditation systems in other countries where ISO 14000 series standards are being adopted.

  On the site assessment side, the Association of Site Assessors of Canada (ASAC) have also embarked on an accreditation program development process. ASAC will accredit site assessors for site screening and Phase I and Phase II assessments. Phase III or remediation activities will have to await a broader accreditation effort given the multiple disciplines involved in good remediation work. The ASAC initiative arose in 1992, at least in part because site assessment costs were being driven downward by some high-volume users, thus lowering the quality of many Phase I site assessments.

  There is another side to this question. In our increasingly litigious society, it will be important for environmental auditors and site assessors to be able to obtain liability insurance. This will be facilitated by credible accreditation processes for them. The site assessors seem to have this issue in hand. It may yet remain an issue for environmental auditors.

- a stronger commitment to pollution prevention. A paper done for the Insurance Bureau of Canada by Arthur D. Little in 1994 notes that pollution prevention, meaning the substitution of non-hazardous materials for hazardous materials in manufacturing processes, is the best way to reduce the future creation of contaminated sites. The adoption of such practices by individual businesses yields an activity that is much easier and cheaper to insure. The encouragement of pollution prevention by governments will improve consistency and predictability as well as performance. Insurance premium reductions for certain measures could also be helpful in encouraging pollution prevention.

A further question arises regarding the extent of possible application of environmental insurance. Who will be the purchasers? Will it be only those

who operate high-risk businesses? Will it be primarily those who have had contaminated site problems in the past and cannot afford to have them again in the future? Or should there be classes of activities for which government requires that environmental insurance be purchased to ensure that a particular type of contaminated site never becomes orphaned?

Environmental insurance would appear to be an essential piece of the puzzle in reducing or cleaning up future contamination and preventing the orphaning of some sites. Regulators will have to work with the insurance industry and potential future purchasers of such products to provide the right regulatory climate so that insurance can fulfill its niche in this domain.

SUMMARY OF ISSUES

- **Inconsistency of environmental standards across Canada needs to be addressed if the role of environmental insurance is to be fulfilled.**

- **Enforcement of environmental standards is inconsistent across the country and the relative roles of government and the private sector are undetermined.**

- **There is a need for insurance underwriters to have a better knowledge of the interaction between various wealth-generating activities and the natural environment.**

- **The accreditation processes for environmental professionals are essential to ensure better environmental work, consistent returns for good environmental work and insurable professionals. How will those for auditors and site assessors relate to each other?**

- **Should environmental insurance be mandatory for certain activities? The role of insurance in Canadian regulatory systems should be resolved.**

10.0 THE PREVENTION OF FUTURE CONTAMINATION

INTRODUCTION

The difficulties noted in all the earlier sections of this report are testimony to the need to avoid contaminated sites in the first place. They are a very clear manifestation of the old saw that an ounce of prevention is worth a pound of cure, or the more recent Fram oil filter advertisement that notes "you can pay me now, or you can pay me later." Later is always more expensive and, very often, the ones left to pay are not the same ones that created the problem in the first instance. It may be the second or the third purchaser of the car. For contaminated sites, it may be future generations.

DISCUSSION OF ISSUES

Pollution prevention initiatives are gaining momentum across the country led by a couple of specific programs. In 1993, the CCME published *A National Commitment to Pollution Prevention.* This document made clear the CCME members' beliefs that it is much better to anticipate and prevent pollution than to clean it up after the pollution has occurred. The CCME defined pollution prevention as "the use of processes, practices, materials and energy that avoid or minimize the creation of pollutants and wastes." This definition is consistent with the avoidance of the creation of contaminated sites. However, as with other commitments made at the CCME table, each government is free to utilize elements of this commitment or not. Consequently, implementation of pollution prevention by environment departments has ranged from rationalizations of "we're already doing it" to developing significant new focus in programming such as in British Columbia.

The typical approach to environmental regulation in the past has been to limit, collect or treat pollution after it has been produced in various industrial processes. The thrust intended under a pollution prevention regime is to substitute less hazardous raw materials, change an industrial process, capture and re-use in closed loop systems other wastes, etc. This requires initiative on the part of businesses, supportive policies and practices on the part of regulators and the general support of a full-cost pricing regime.

Even without the support that full-cost pricing would bring to a pollution prevention approach, some companies have turned pollution prevention into a money-saver, if not a money maker. The 3M Company and The Body Shop are cases in point, but there are other, smaller businesses that have made a success of pollution prevention as well, among them dry cleaners and photo film processors.

Government departments can support a preventative approach to pollution through the use of market-based instruments that provide incentive for more innovative approaches and by reducing, but not eliminating, the reliance on a

command and control style of regulation. Command and control often results in government being prescriptive or restrictive in a way that inhibits individual and innovative solutions. Yet its strength is its ability (admittedly, not always exercised) to take the bad actors to task - something business, the public and government all wish to see.

Pollution prevention is gaining momentum. Evidence of this in business circles is the Responsible Care program of the Canadian Chemical Producers' Association which was developed in Canada but has been adopted internationally. In 1993, the Ontario Ministry of Environment and Energy published *Pollution Prevention Planning, Guidance Document and Workbook* to provide an introduction to the concepts and principles of pollution prevention, its planning and implementation. Later that year, CCME produced its *Commitment.* Then, in 1995, the House of Commons Standing Committee on Environment and Sustainable Development published its report on the future of the *Canadian Environmental Protection Act* and gave the report a clear pollution prevention focus, entitling it *It's About our Health! Towards Pollution Prevention.* In May 1996, the CCME ministers approved a strategy for encouraging and implementing pollution prevention. In approving this strategy, ministers emphasized that pollution prevention was at the top of the hierarchy of environmental protection activities. In June 1996 British Columbia's ministry of Environment Lands and Parks published *An Introduction to Pollution Prevention Planning.*

The International Organization for Standardization (ISO) has developed a standard for environmental management systems. This standard, known as the ISO 14000 series, is voluntary and is presently available in draft form. It calls for each registrant to have an environmental policy. Pollution prevention must be stressed and registrants are required to commit to continual improvement. The adoption of an environmental management system does not guarantee better environmental performance. However, it supports and makes more probable such an outcome and thus can be expected to contribute to the prevention of future contamination.

Most regulators are not unhappy with their rate of progress towards a strong pollution prevention regime. However, many acknowledge that there is a long way to go in:

- designing the future regulatory regime and determining the respective roles of command and control and voluntary approaches,
- developing and implementing appropriate market-based incentives,
- making appropriate use of financial assurances and insurance, and
- developing and implementing full cost or internalized pricing.

Another apparent need is an early warning and reaction system for contamination when it does occur. Better enforcement of potentially contaminating activities, early detection of leaks or improper treatment and

immediate corrective actions are all important in reducing future contamination of lands and water resources.

Stakeholders, as much as regulators, believe that there is much left to do. Canada has only scratched the surface of market-based instruments. Businesses want the flexibility in response that such instruments allow. They want more opportunity for voluntary approaches. Environmental non-governmental organizations are skeptical of the reasons that market-based and voluntary approaches are being pursued and are worried about loss of public control. However, they too are supportive of the broad goals of pollution prevention.

It is urgent that the future regulatory regime be defined soon. How do the various components interact to produce a system? Who will be accountable for which elements? Until this is resolved, skeptics will remain skeptics and understandably so. This is a priority for Canadians - to give all the interests the comfort they need, to reassure them that the regulatory regime will be open to the public, that it will be effective in protecting the environment, that it will be predictable, that it will be flexible in embracing innovative approaches and that it will identify and punish those whose environmental performance is poor.

SUMMARY OF ISSUES

- **How can better enforcement, improved early detection of releases of contaminants and appropriate and timely corrective actions when releases have been discovered be attained?**

- **In order to set the stage fully for pollution prevention, there is a need to develop and implement appropriate market-based instruments, voluntary approaches, financial assurances and full-cost pricing.**

- **It would be difficult to develop and implement a successful new regulatory regime in the absence of a broad national consensus.**

11.0 MISCELLANEOUS ISSUES

INTRODUCTION

There are a number of issues which do not fit well or exclusively within the previous headings. These issues include specific technical challenges, the need for more involvement of municipalities in planning broader and site specific regulatory approaches, the need for follow-up on what is already known, and the difficulties caused by technical jargon.

DISCUSSION OF ISSUES

Knowledge about specific contaminants, their mobility and associated health and environmental impacts continues to grow. The demand for this information, however, seems to outstrip the rate of such growth. There is much to learn about the behaviour and toxicity of specific contaminants. For example, how might guidelines be set for total petroleum hydrocarbons (TPH) when the constituents change from case to case? How does one assess the ecological effects of volatile compounds which don't stay in the soil long enough for existing tests to measure their impact? What kinds of management solutions can meet environment and health protection needs and still be sensitive to economic requirements?

There are challenges in restoring certain soils, particularly the fine-grained clays. As an example, while thermal phase separation has proved very effective in treating certain soil - contaminant combinations, it failed in recent tests on wood-treating chemicals in clay soils. Bio-remediation has held great promise for both *insitu* and *exsitu* treatment of certain contaminants. However, its limitations are still being revealed. On occasion, sites will need to be cleaned up to background or near-background levels. For some contaminants, this is not possible due to a lack of the appropriate technology. In short, there are numerous technical challenges which ought to be addressed on a priority basis.

Municipalities have often been too distant from policy-level discussions on contaminated sites. That order of government will be increasingly implicated in environmental protection. The impact of government budget reductions is being pushed to the next lower order of government. The federal government off-loads to the provinces and the provinces to the municipalities. In most cases, municipal government is the final stop. Implementation can end up being their responsibility.

Better communication among orders of governments, especially between provincial and municipal governments would be helpful. Municipal governments are implicated and have a right to a voice in such issues as liability allocation, bankruptcy and insolvency legislation and practice, brownfields re-development and the resolution of the "how clean is clean"

debate. Integration of provincial and municipal actions on contaminated sites is critical in setting clean-up criteria for land being returned to particular uses. Remediation consistent with industrial or commercial land uses cannot safely support residential uses or zoning. Provincial governments direct remediation while municipal governments do zoning. It is important that these actions be mutually supportive.

Some ongoing contaminated site creation problems result, not from a lack of knowledge of the problem or how to correct or avoid it, but from a lack of political will to require the corrective actions. The example that most easily springs to mind is that of underground storage tanks of service stations in the Prairie Provinces. Many service stations in small communities are family-owned. A government order to replace their underground storage tanks with new double-walled tanks with leak detection capability, could stretch owners' financing abilities to the breaking point. In turn, the loss of a service station in a hamlet in decline could hasten that decline and thus, carries a high political price. The "solution" has often been to "grandfather" the small operators, giving them an additional 10 or 15 years to comply. Thus, contaminants are allowed to begin or continue to leak. What are the future costs of this sanctioned inaction? Sites more difficult and expensive to clean-up? Another generation of orphan sites? Perhaps it is another example of "you can pay me now, or you can pay me later."

Finally, the creation and use of awkward, ambiguous or even misleading terms is harmful to communication and understanding. This is illustrated by three examples. A word used throughout this report is "remediation". It is possible that many readers will think of remediation as a synonym for restoration or rehabilitation. However, remediation has come to include containment and management of contaminants. This can be confusing and frustrating and can lead to more cynicism on the part of the public.

Another example of a term that can cause discomfort or result in derisive comment is the use of "halo", not to denote something related to spiritual purity or the after-life, but to mean an area of contaminant concentrations in excess of background. This is a term with positive connotations used to describe something negative.

Of course, "sustainable development" seems destined to be one of the most inconsistently-used terms in history. Not because anyone attempts to be misleading, but because the term has a number of meanings that are accepted by various communities of interest. Thus, the term gets used to justify environmental initiatives one minute, economic initiatives the next and social policies the minute after that.

SUMMARY OF ISSUES

- **There is a need to address technical challenges even during this time of cutbacks. Setting priorities among those challenges will be critical.**

- **The lack of municipal involvement in developing policy and practice in regard to contaminated sites will continue to be problematic if not rectified.**

- **Political will is sometimes lacking in the prevention or limiting of site contamination.**

- **Communication and understanding has rarely been an objective in the development and use of terminology.**

12.0 PUBLIC INVOLVEMENT

INTRODUCTION

Public understanding of contaminated sites is often relatively poor. This is not the fault of the public but simply reflects that information on the existence of sites is incomplete; that site characterization is often only partially complete; that we're still learning about contaminants, the receiving environment, human health and the interactions amongst them; and, that the technologies of analysis and remediation are advancing and distancing themselves from the public.

The consequence of this is that the public input to contaminated sites discussions may be fearful, imperfectly informed and very cautious and self-serving. This leads developers and governments, wrongly, to be hesitant to involve citizens fully. Instead, interest groups speak "for the public", though this may be entirely unsanctioned.

DISCUSSION OF ISSUES

When the quality of citizens' input to contaminated sites discussions is poor there are at least four possible causes:

- Firstly, information on contaminated sites is not widely available. Public registries are only now being established in a few jurisdictions in Canada. This makes it extremely difficult for the public to inform themselves. If one doesn't know that the site exists one cannot ask intelligent questions about it. One cannot seek involvement in its remediation or management.

- Secondly, the public is becoming skeptical of experts and their assurances of "no measurable effect" or "the contamination is virtually immobile" or, "the risk is at acceptable levels." The public has correctly discerned that expert opinions represent best judgment and that means different experts will give different answers of approximately equal credibility. This means that sometimes valid information on a site is assumed to be biased and is accordingly discounted by the public.

- Thirdly, our knowledge of the impacts of various pollutants is always evolving, it is not absolute or complete. What is considered to be insignificant today can become significant tomorrow or *vice versa*.

- Lastly, the gap between the levels of knowledge of the scientists, the regulators and developers on one hand and the general public on the other will get translated into a difference in the ability of individuals to participate in decision-making. Thus, those in the know may be heard to say, "yes, but the public won't understand," or "this is too technical; it'll be misunderstood," etc. This is exacerbated by the fact that technological

development is proceeding quickly and new techniques are being introduced and validated scientifically before they have any credibility with the public (e.g. risk assessment).

Why might the public want to get involved in discussions related to contaminated sites? There are elements of the public that are motivated to do the right thing for the broader environment. However, the prime motivation for the public seems to be public health; their own health, the health of their children or of future generations. A secondary motivation, but nonetheless a very important one, is the effect of contamination on the value of adjacent properties. Of most importance is the value of one's own property. This aspect can bring a community together in opposition to or acceptance of a particular clean-up or management plan.

There is a broader underlying reason why the public may want to be involved and that is that they wish to be masters of their own destiny, or, if not masters, they want at least to have some measure of control over what happens to them. At one time, the public was content to have their government speak for them, but that trust has diminished. This may have its genesis in governments' increasing tendency to listen to interest groups as representatives of the public instead of involving the broader public or it may stem from an understanding of governments' reduced capacity.

This desire for involvement on the part of the public runs up against the following views held variously by responsible parties, developers and regulators:

- we should talk to the public about this,
- but, they won't understand,
- the public will perceive problems where none exist,
- the media will blow those problems out of all proportion,
- the public is too emotional,
- it'll take too much time,
- they'll never be happy,
- it'll cost too much,
- the local politicians will use the opportunity for grandstanding, and
- it's too difficult to identify the legitimate representatives to whom we should talk.

Of course, this list overstates it for many and doesn't acknowledge that there are people in every organization that want to see proper, effective participation.

Experience has shown time and again that involvement should be early and substantive to be meaningful. Too often, good plans have been derailed because people that had the capability of derailing a solution were not engaged in the development of that solution. A good solution for a contaminated site is

one that will have achieved broad community ownership. This is not accomplished by holding one meeting at the end of a technical process.

Some will argue that this is a public relations job. Or, the phrase "the public must be educated" is heard. Indeed, there is a place for education. But it is important to remember that education is a two-way process. Good educators learn as much as they teach. There is no one party in possession of the whole truth. If one party believes they are, the process of imparting that information ceases to be education and instead becomes indoctrination. The information thus imparted ceases to be knowledge and becomes propaganda. Propaganda has a lesser and even negative value. A dialogue between the technical experts and the public would have significant value.

Recent Alberta experience may be instructive. Alberta Environmental Protection has found that the public can overcome its skepticism of techniques such as risk assessment as long as they are involved from the beginning. On a specific remediation project, this means involving the public before the choice is made to use a risk assessment approach. There are other models for combined public and stakeholder involvement that may have some application to issues of contaminated sites. The National Building Code approach may warrant attention.

It is noteworthy that it is not only responsible parties, developers and regulators who are from time to time guilty of discounting the value of public involvement. Many "public" interest groups do this also, excusing it because they don't have the resources to "fight cleanly" or "the developers hold all the cards," or "the regulators are in the pockets of the proponents," and so on.

A final issue is that there is cynicism among many interested parties that the government listens too much to the other interested parties. This is probably untrue in general but has some truth in individual cases. More importantly though, the attitude reflects the reality that processes could be more open so that interactions are visible and shared as much as possible.

If there are a few principles at the root of public involvement in resolving issues related to contaminated sites, they would be:

- there should be mutual respect for all interested parties to be involved in decision-making where the results may affect them,
- there should be a trust that people come to the table with good and serious intent in any shared decision-making process,
- there should be a belief that the public cannot only learn from involvement, but can also teach,
- involvement opportunities should be shared among all interested parties to be most positive and useful, and
- some groundwork is required to aid in the establishment of mutual respect and trust. It won't just happen.

SUMMARY OF ISSUES

- **How can the public be better informed about contaminated sites - their existence, the nature of contaminants, the ways in which contaminants move and the effects or lack of effects of particular contaminants on the environment and human health?**

- **Information systems to support easier public involvement either don't yet exist or are only in the early stages of development.**

- **General information about the existence of contaminated sites has not been readily available.**

- **How can the growing gap between the public and technical experts be bridged? New technologies are being validated scientifically but not publicly.**

- **Public involvement and the value the public brings to the deliberations on problems and solutions seems to be unrecognized by many decision-makers.**

- **Education is a two-way process but is too often thought to be one-way.**

- **What efforts can be taken to begin building trust among all interested parties?**

APPENDIX A

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APPENDIX B

PERSONAL COMMUNICATIONS

Bartlett, Carol Ann; Royal Bank of Canada
Baxter, Brent; Nova Scotia Environment
Benson, Beth; Waterfront Regeneration Trust
Botting, Dale; Canadian Federation of Independent Business
Camplong, Craig; RM Solutions
Cassils, Tony; Strategy and Environment
Ceroici, Walter; Alberta Environmental Protection
Clapp, Bob; Canadian Petroleum Products Institute
Creeber, Catherine; Dow Chemical Company Limited
Delaquis, Sylvie; Federation of Canadian Municipalities
Foote, Tom; Environment Canada
Gaudet, Connie: Environment Canada
Goffin, David; Canadian Chemical Producers' Association
Hains, Jacques; Industry Canada
Hanley, Terry; Saskatchewan Environment & Resource Management
Henderson, John; Nova Scotia Environment
Harries, Jim; Insurance Bureau of Canada
Hubbard, Lanny; British Columbia Environment, Lands and Parks
Krahe-Solomon, Monica; Saskatchewan Environment & Resource Management
Lauzon, Robert; Ministere de l'environnement et de la faune du Quebec
McKernan, John; Dale Intermediaries
McLeod, Glen; Manitoba Environment
Mitchell, Anne; Canadian Institute for Environmental Law and Policy
Power, Rob; Association of Site Assessors of Canada
Richards, Ken; Ontario Ministry of Environment and Energy
Schikaze, Kim; Canadian Environmental Auditing Association
Smith, Bruce; Saskatchewan Environment & Resource Management
Stephens, R. A. (Dick); Manitoba Environment
Steward, Louise; New Brunswick Environment
Therrien, Robert; Environment Canada
Wilson, Don; Standards Council of Canada