Health Canada Santé Canada

Risk Assessment *and* Public Involvement at Contaminated Sites

Making the Connection

Guidance

What is Risk Assessment?

Risk assessment is a tool used to estimate whether or not a chemical in air, water, soil or sediment might pose a risk to human health, and if so, under what circumstances.

The four key steps to the risk assessment process are outlined in Figure 1.

Step I – Problem Formulation
- Site Characterization
- Identification of chemicals of potential concern (using guidelines/standards)
- Characterization of receptors and exposure pathways

Step II – Exposure Assessment
- Estimation of receptor exposures to chemicals of potential concern

Step III – Toxicity Assessment
- Determination of safe exposure limits for chemicals of potential concern

Step IV – Risk Characterization
- Comparison of predicted exposures to exposure limits

Figure 1. The Risk Assessment Process

Risk assessment helps government agencies and scientists identify potential health impacts and determine realistic goals for reducing exposure to chemicals so that there are no significant health threats to the public.

What is Public Involvement?

Public involvement (PI) is an open dialogue and transparent process that allows affected communities and other stakeholders to participate in and influence the decision-making process at contaminated sites. Specifically, stakeholders can help identify what the problems are, how serious they are and how might they be corrected or mitigated.

There are many levels of public involvement, and a wide array of approaches that can be employed. Each level and approach represents a different degree of public interaction. As the degree of interaction increases, the degree of stakeholder influence also grows.

Degrees of Public Involvement

Information-sharing: Factual information is needed to describe a policy, program or process. A decision has already been made, and there is no opportunity to influence the outcome.

Gather Information: Information is needed on general views, perspectives, opinions and concerns. There may not be a firm commitment to do anything with the information collected.

Consulting: Generally a two-way information exchange. Individuals and groups have an interest in the issue and will likely be affected by the outcome. There is an opportunity to influence the final outcome.

Engaging: Stakeholders begin to develop an ongoing relationship with the department. Stakeholders are involved in both defining the issues and the process used to address them.

Partnering: Government delegates authority for decision-making to other groups, shares decision-making powers, or manages jointly, with potential legal ramifications being shared with or sole responsibility of other groups.

More Information

Contaminated Sites Division
5th Floor, 269 Laurier Avenue West
Ottawa, Ontario K1A 0K9
e-mail: cs-sc@hc-sc.gc.ca

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Guidance

What's the connection?

Risk assessment is a science-based process for determining the potential risk, where risk is defined as:

Risk = Exposure x Toxicity.

However, stakeholders often have a different perception of risk which is influenced by what they know and how they have been told about it. This perception can be summarized by the equation:

Risk = Hazard x Outrage.

Stakeholder outrage is often generated because of a failure to inform, poor communication of potential health risks, and lack of effective public engagement and involvement.

Meaningful, timely and effective public involvement will lead to better departmental decision-making and more effective management of contaminated sites under the Federal Contaminated Sites Action Plan. Consequently, involving stakeholders who have potential concerns about the health and safety of their families and communities in the risk assessment process will help to build better stakeholder relationships and reduce public outrage. Meaningful public involvement can also help to:

- effectively resolve problems;
- make informed decisions;
- reach a common goal;
- identify and implement risk management strategies acceptable to those most at risk;
- build trust; and,
- avoid conflicts and delays.

Public involvement should not be employed only after the risk assessment phase. Presenting a risk assessment as if it were *un fait accompli* fails to recognize the value that stakeholders can bring to hazard identification or perception. Public involvement is most effective if conducted throughout the entire process, from site identification/assessment, through clean up and any follow-up and post-remediation monitoring phases (see Table 1).

Is public involvement always a part of the process?

Public Involvement should be considered when…

- Communities are located near the contaminated site
- Traditional and country foods currently being utilized in the area could be impacted
- There is public interest in the project
- There is a perceived threat to public health, whether real or not
- Those directly affected by the project expect to be involved
- There is a policy, program, or regulatory requirement
- There are emerging issues related to the project development (i.e., emerging legislation, policy or legal actions)

When public involvement is appropriate, the level of involvement may be different for each project.

Making it work!

The site identification/assessment, risk assessment and risk management/clean up phases offer many different opportunities to involve stakeholders. Each site will present unique circumstances and the level of public involvement must be tailored to needs and expectations of each community and/or stakeholder group that may be affected by the contaminated site. There is no one cookie-cutter approach to making it work. However, if there are any consistent components of a successful public involvement process, they are:

- **Do it early**
- **Do it openly**
- **Do it often**

Advice

The Contaminated Sites Division's team of Public Involvement Specialists is available to provide advice to custodial departments. We are committed to supporting you in your public involvement endeavors. Give us a call.

Ontario/Capital Region
Brenda Pichette 613-952-9349

Atlantic Region
Rosanne LeBlanc 902-426-5397

Quebec
Frédéric Valcin 450-646-1353

Alberta and NWT
Tannis Topolnisky 780-495-4850

BC and Yukon
Sharon McCarthy 604-666-5714

Table 1. Opportunities and Tools for Public Involvement (PI)

Site Activity	PI Opportunity	Sample PI Tools/Activities
Site Identification		
• Site identification through FCSAP or Federal Contaminated Sites Inventory	• Determination of the need for a PI Plan	• Go / No Go tool
Site Assessment		
• Investigation of the contaminated site • Desktop / historical review (past activities, potential sources of contamination, conceptual exposure model) • Intrusive / site sampling (contamination delineation, update of conceptual exposure model, preliminary human health risk assessment)	• Preparation of PI Plan • Stakeholder analysis • Capacity building assessment • Assessment of psychosocial factors affecting the population in relation to the site • Identification of stakeholders needs regarding end-use of site • Ongoing information and education on assessment and remediation processes	• PI Guidance Manual • Community Capacity-Building Manual • Psychosocial Factors Manual • Public meetings / workshops • Training sessions • Open houses • Question & Answer sheets • Newsletters
Detailed Quantitative Human Health Risk Assessment		

• Problem formulation
• Exposure assessment
• Hazard assessment
• Risk characterization
	• PI Plan
	• Surveys / door-to-door interviews
	• Advisory committees
	• Training sessions
	• Public meetings
	• Information centre
		• Stakeholders' input on:
		  ▪ Exposure pathways
		  ▪ Receptors
		  ▪ Contaminants of potential concern
		  ▪ Safe exposure limits
		• Information, education and participation of stakeholders in whole risk assessment process

Risk Management / Site Remediation		

• Design and implementation of remediation plan
• Design and implementation of long-term monitoring plan
• Evaluation of remediation strategies
	• PI Plan
	• Information centre
	• Advisory committees
	• Public meetings
	• Question & Answer sheets
	• Newsletters
		• Stakeholders' input on:
		  ▪ Validation of remedial objectives
		  ▪ Validation of long-term monitoring and evaluation strategies
		• Information/education/participation of stakeholders at all steps