Environment Canada Environnement Canada
Atlantic Region Région de l'Atlantique

Information Bulletin

The Role of Environment Canada in Emergency Response

A discussion of the roles and responsibilities of Environment Canada in environmental emergency situations.

Canada

Environment Canada - 25 Years of
Environmental Achievement

Environnement Canada -
25 années de réussites environnementales

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INTRODUCTION

In 1973, following the spill of oil from the tanker "Arrow" in Chedabucto Bay, Nova Scotia, the federal government issued a Cabinet Directive which specified Environment Canada's responsibilities in dealing with environmental emergencies. The Directive required Environment Canada to develop an environmental emergency program; to coordinate the federal government's response in the event of an environmental emergency; to develop and maintain the capability to provide technical advice in emergency situations; to prepare for and be able to respond to environmental emergencies, and to develop, assess and test new response tools. This mandate was supported in a Federal Policy for Emergencies approved in May 1995. The overall responsibility within Environment Canada for coordinating the delivery of the environmental emergencies program was assigned to the Environmental Protection Service.

The mandate of the Environmental Emergencies program is further defined as the provision of national and international leadership, and scientific and technical services to respond to natural hazards and severe meteorological events, and to prevent and respond to oil and chemical spill emergencies leading to environmental damages. The objectives of the program are to reduce the frequency and severity of accidental releases of deleterious substances to the environment through effective prevention, preparedness and response strategies at the regional and national level. The Environmental Emergencies program is set up to provide a strong, coordinated framework for all phases of emergency management through the development and application of a number of tools related to planning, training and exercises, response mechanisms and incident prevention protocols. The program personnel also provide communication management within the department in crisis situations and participate in international fora to shape and influence environmental emergency related conventions and agreements.

LEGISLATIVE AND POLICY ELEMENTS

Historically, the management of environmental emergencies in Canada has mainly been reactive, relying on local and then regional personnel to handle emergency incidents, including the environmental aspects of such incidents. As experience with environmental emergencies grew both nationally and internationally, it became clear that it was both ineffective and costly to deal with emergencies **after** they occur. The federal government realized the need to develop a more practical framework, one which included more elements than simply response.

The necessary factors for an effectively managed environmental emergency program include: prevention, preparedness, response and recovery. Prevention provides the ability to anticipate, prevent or reduce the probability of the accidental release of a substance; preparedness to establish the ability to respond to such events, response to undertake timely actions to stop the release and mitigate its effects, and recovery to restore the environment, which includes mitigation measures and compensation for environmental damages. This philosophy, with particular emphasis on pollution prevention, is the key to Environment Canada's current policy for dealing with

environmental emergencies.
More than 60 federal statutes contain some reference to emergency situations, but none of these laws comprehensively covers all the key elements of environmental emergencies. For example, the Canada Fisheries Act prohibits the deposit of deleterious substances into waters frequented by fish or in any place where such a substance could enter waters frequented by fish, and does apply to some aspects of emergency prevention and response. The Canadian Environmental Protection Act (CEPA) controls the management of toxic substances and also has some application to emergency prevention and response. Environment Canada draws it's major legislative mandate for emergencies from these two federal Acts.

ENVIRONMENTAL EMERGENCIES - ATLANTIC REGION

General

In the Atlantic Region, the Environmental Emergencies Section (EES) is a multi-disciplinary team which delivers the departmental responsibilities for environmental emergencies in the four Atlantic provinces. In most cases, EES acts as an environmental advisor to another federal agency, the province, a municipality or industry in planning for and responding to pollution emergencies. In some cases, EES may assume the lead role in coordinating a response, for example, when a spill occurs at a federal facility or when a land-based spill enters waters frequented by fish. In these situations, EES is mandated to oversee the response undertaken by the party responsible for the spill.
In situations where the environment is not being adequately protected, EES may take actions, within the limits of the law, and arrange for and/or supervise cleanup operations. This occurs in those situations where immediate action is essential to prevent a real or imminent threat of significant environmental damage.

EES Responsibilities

EES's major responsibilities include: developing and maintaining an effective spill response capability; coordinating input from other parts of the department, (specifically the Atmospheric Environment Branch, the Environmental Conservation Branch and other sections within the Environmental Protection Branch); providing advice on the environmental impact and control of contaminants in an emergency situation; coordinating environmental response operations when Environment Canada has the lead in an emergency response, and providing advice and information to the public, industry, other government agencies and the academic community.

Spill Reporting/Alerting

In discharging its responsibilities, EES undertakes a number of activities related to emergency prevention and response. One of the most important elements of EES's response capability is the maintenance of a 24-hour emergency reporting system to receive and communicate reports on spills and other environmental emergency situations. More than 2500 calls are managed through this system every year.
Adequate protection of the environment requires that response systems be put in

place in a timely manner, regardless of when the emergency occurs. When a pollution emergency is reported, the EES team member responding to the call evaluates the situation, verifies that all other applicable response agencies have been contacted, and is prepared to act if necessary.
EES maintains an up-to-date listing of regional environmental emergency services, both government and private, and can access any of them to report an incident, to request assistance or advice, or to coordinate response activities.

Other Elements of Emergency Response

- There are some incidents where a spill has the potential to affect shorelines, and, in these circumstances, EES will assist in establishing priorities for shoreline protection and cleanup. In order to establish such priorities, EES has developed a Shoreline Cleanup and Assessment Technique (SCAT) that allows the use of standardized terminology. SCAT teams undertake comprehensive surveys of shoreline and oiling conditions. They collect information related to the types and characteristics of oil stranded on the shoreline, the geomorphologic features of the shoreline, and the environmental resources at risk, either from existing information sources or from field evaluations conducted at the time of a spill.
- To assist others in developing and maintaining effective environmental emergency response capability, and to enhance public awareness EES routinely provides scientific and technical information to communities, schools, and other groups.
- During environmental emergency events for which Environment Canada has the lead role and in others as well, the team provides timely briefings to senior management within the department.

Training and Public Education

EES works in partnership with all four Atlantic provinces to sponsor and deliver training sessions for those responsible for initial on-scene response to environmental emergencies. These "first responders" include fire fighters, industy representatives, environmental non-government organizations (ENGOs), and staff of other federal and provincial agencies.
Training sessions cover such topics as shoreline cleanup assessment; SCAT procedures; fish kill response procedures; contingency planning and sensitivity mapping. Each year EES also participates in spill response training exercises with individual industries, governments and industrial associations.
EES also prepares and delivers scientific papers and contributes to the advancement of the science associated with effective emergency response and clean up.

Contingency Planning

One of the coordinating functions that EES undertakes is the provision of scientific advice and technical support to both government and industry in the development and testing of contingency plans. EES actively participates in exercises where contingency plans are tested in a field situation. In this way, staff gain first-hand knowledge and experience in emergency response mechanisms, and also can evaluate,

in practice, the effectiveness of existing contingency plans.
Within the region, a number of industrial committees and organizations (such as local Co-ops and the East Coast Response Corporation) have been established by the industries, mainly to respond to spills of their own products. EES staff assist these groups in the development of their contingency plans through the provision of environmental information, resource statistics, sensitivity data and information on legislative requirements.
Recently the Canada Shipping Act (CSA) has been amended to require that oil spill contingency plans be developed by all oil handling facilities and emergency response organizations. EES assists the Canadian Coast Guard in implementing these new requirements of the CSA by reviewing and assessing such plans to ensure that the procedures specified provide the necessary level of environmental protection in an emergency situation.
EES also participates in international marine spill exercises with the United States, and is a signatory to an Inland Boundary Spill Contingency Plan with the United States Environmental Protection Agency.

EES Resources in the Region

EES maintains an inventory of materials, equipment and resources in the region to ensure it is always prepared to effectively respond to an environmental emergency. For example, it can provide quick and ready access to a number of computerized data bases which contain information that may be crucial in developing adequate responses to emergency situations.
In addition, EES has access to and regularly updates the National Database on Trends in Emergency Situations (NATES). This database is a powerful planning tool, providing information on the types of spills which occur, the locations, and the products spilled.
Other materials which EES uses in emergency situations include: portable sampling devices for measuring air, water and soil quality, and small boats, vehicles and up-to-date communications equipment.

The Regional Environmental Emergency Team (REET)

In an environmental emergency situation, comprehensive environmental information must be made available in a timely fashion. Regional and national committees have been established to bring together those individuals whose expertise is necessary to mount an effective response to an environmental emergency. These committees are the Regional Environmental Emergency Teams (REET), and they exist in all regions of the country with the first one having been established in 1973 in the Atlantic Region.
The Atlantic Region REET includes members from federal and provincial government agencies, and industry associations, all of whom have specific expertise and/or responsibilities in planning for and responding to environmental emergencies. The core team meets at least once every year and members share technical, scientific and legislative information on prevention and response technologies and contingency planning. They also revisit roles and responsibilities of team members and update and/or revise them as necessary.
The REET maintains a significant amount of expertise and knowledge on environmentally sensitive resources, which can be used in

emergency situations to assist with decisions on protection and cleanup. The REET also provides training on spill response and contingency planning, and conducts tests and trials of response equipment and techniques to ensure everything works as it should.
In an emergency situation, the REET is mobilized and acts mainly to provide advice to the On Scene Commander (OSC), the person in charge of the emergency response activities. The types of events in which the REET is most likely to be involved are larger spills of oil and other hazardous materials which local authorities and organizations are unable to manage with their own resources; chemical fires and explosions, or spills which could cross international borders.
When a REET is activated to respond to an environmental emergency offshore, it draws on the expertise and experience of its members to provide advice on such matters as the direction in which an offshore spill might move; the methods to track it; the techniques that might be effective in removing the spill, and whether or not chemicals, mainly dispersants, should or could be used. The REET also assists in the decisions relating to shoreline protection and cleanup priorities; the probable impacts of a spill on wildlife and sensitive shoreline areas, and the appropriate ways to deal with the wastes generated during a spill cleanup. The REET also provides information on weather patterns, wind and wave conditions and predicted storm events to assist in the planning and implementation of response activities.

Sensitivity Mapping

Environmental sensitivity maps are useful tools employed by agencies and organizations responding to oil spills. They consolidate data from many sources and allow an accurate identification of resources at risk during and immediately after an oil spill. They provide first responders with the information they need to determine protection priorities and to select appropriate cleanup and spill treatment options.
Environment Canada, in partnership with other government agencies and the oil industy, has been developing a computer-based national sensitivity mapping system to meet the needs of the individuals and organizations who respond to oil spill emergencies in this country.
In the Atlantic Region, the regional mapping project covers the shorelines of the four Atlantic provinces, approximately 40,000 kilometers.The regional mapping project has incorporated data from existing sources, including geomorphological information from previous coastal studies, aerial photographs and aerial videos. Data on biological and human use and resources available for logistical support in a cleanup effort will be incorporated into the system, as will shoreline protection, treatment and cleanup strategies.
All the information will be available in a user-friendly, readily accessible format. The computerized maps will assist experts during the critical period of first response, and provide invaluable data on which to base environmental protection and cleanup decisions.

OIL SPILL RESEARCH

The Emergencies Science Division at the Environmental Technology Center in Ottawa conducts the majority of the research associated with environmental emergency prevention and response on behalf of Environment Canada. Scientists at the Center study **oil properties and behaviour**, develop

portable kits for on-site analysis, and continually update an Oil Properties catalogue which can be used in an emergency situation to predict the fate of various types of oil. They also conduct experiments related to **in-situ countermeasures** to determine the environmental acceptability of various field techniques. For example, in the summer of 1993, staff from the Center were very much involved in evaluating the in-situ burning of spilled oil in an experiment off the coast of Newfoundland.

One of the most active areas of research is the testing of **oil spill treating agents** for toxicity and effectiveness in dealing with an oil spill. New **analytical techniques** to detect oil biodegradation products are being developed, as are new methods to measure the extent of and processes contributing to the weathering of an oil slick.

General research into **oil spill remote sensing** is also carried out with emphasis on developing and assessing new techniques, and evaluating new technologies.

Cleanup methods for oiled shorelines are continually evaluated, and cleanup assessment manuals prepared by the Center are periodically updated. Because oil spills are often left to degrade naturally, studies are conducted on the **monitoring of fate and effects of oil spills** and also on natural and enhanced methods of bioremediation of various types of oil.

The Center maintains a **response capability** consisting of a fully equipped mobile laboratory, portable monitoring equipment, sampling and analytical gear, and fully trained personnel. They can be called upon to assist any region in the event of an environmental emergency where the unique capabilities and expertise of the Center's staff are needed.

CONCLUSION

The principle focus of EES is to provide superior protection for the environment in an emergency situation. In the course of delivering their responsibilities on a day-to-day basis, Section members concentrate on planning emergency measures; responding to information requests and reports of unusual incidents and spill situations; acquiring knowledge of the regional environment, training people in emergency response and contingency planning, and developing and testing response equipment and procedures.

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