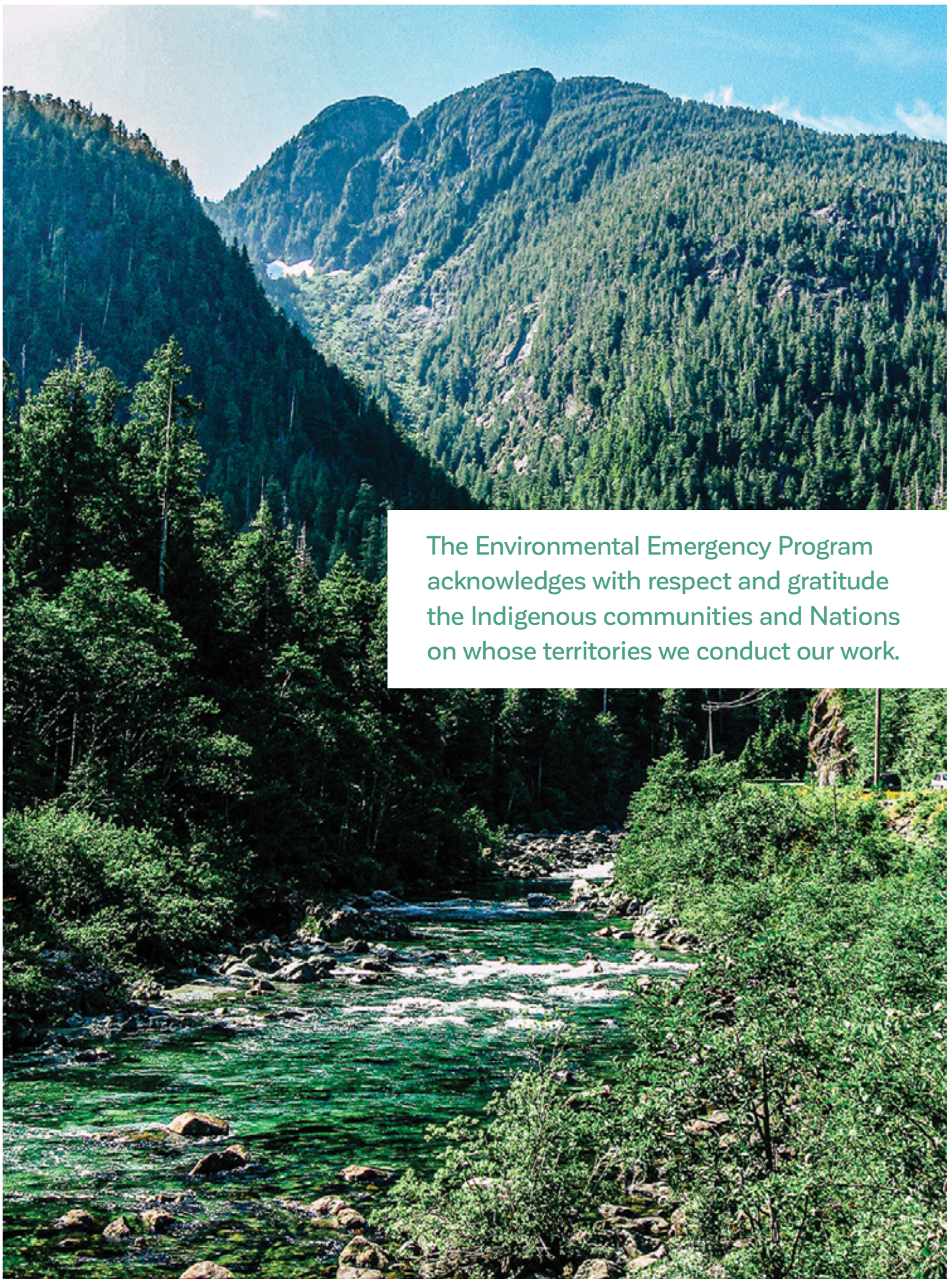


Environmental Emergency Program

2017/19 REPORT TO LEGISLATURE





The Environmental Emergency Program acknowledges with respect and gratitude the Indigenous communities and Nations on whose territories we conduct our work.

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Letter from the Assistant Deputy Minister

British Columbia's Environmental Emergency Program leads our Province's activities to prepare for and respond to hazardous spills and other natural or human-caused threats. The thorough and effective work of the program helps keep residents of B.C. safe and healthy while minimizing environmental impacts.

To support continuous improvement, Section 91.7 of the Environmental Management Act outlines the Minister's duty to regularly report on the effectiveness of our spill response regime. I am pleased to submit the Environmental Emergency Program's first report, describing its work from October 30, 2017, to March 31, 2019.

Substantial changes and growth to the program occurred during this period. Division 2.1 of the Environmental Management Act came into effect on October 30, 2017, and this update to the legislation allowed the Province to set new requirements for industry to prepare for, respond to and recover from environmental emergencies.

While implementing three new regulations to support the legislation, the program also maintained its operational functions. During the reporting period, the program received more than 6,000 reports of spills and other threats. Ninety-three of these incidents were significant enough to require substantial attention from the program.

To cite just one example, a spill in the Southern Interior released more than 50,000 litres of diesel and gasoline into a mountain river. The Environmental Emergency Program team took immediate action at the site of the spill and in the Ministry Emergency Operations Centre in Victoria. They worked with local Indigenous communities, local governments, stakeholders and other authorities involved to contain the spill, coordinate and monitor clean-up work, and assess the impacts on the environment.

Other priorities for the program have included planning for specific measures to respond to catastrophic incidents, ranging from tanker spills to tsunamis and earthquakes, and partnering with agencies in Canada and the United States, such as the Oil Spill Task Force and the Canada-United States Joint Marine Pollution Contingency Plan.

As the Assistant Deputy Minister responsible for the Environmental Protection Division, I want to thank the Environmental Emergency Program team and our various partners. I also wish to acknowledge the leadership of former Environmental Protection Division Assistant Deputy Minister, David Morel, Executive Directors Kevin Butterworth and Cameron Lewis, and Director Pader Brach, who all served during the reporting period.

This report demonstrates the Environmental Emergency Program's leadership in environmental emergency preparedness, response and recovery. I am proud to be a part of this important work, which benefits and protects all British Columbians.

Laurel Nash
Assistant Deputy Minister
Environmental Protection Division
B.C. Ministry of Environment & Climate Change Strategy

Acronyms used in this report

BCEMS	B.C. Emergency Management System
CCG	Canadian Coast Guard
CCME	Canadian Council of Ministers of the Environment
EEP	Environmental Emergency Program
EERO	Environmental Emergency Response Officer
EMA	Environmental Management Act
EMBC	Emergency Management B.C.
ENV	B.C. Ministry of Environment and Climate Change Strategy
FNHA	First Nations Health Authority
GVIRP	Greater Vancouver Integrated Response Plan
ICS	Incident Command System
IIMS	Integrated Incident Management System
JCP	Canada-US Joint Contingency Plan
OSTF	Pacific States British Columbia Oil Spill Task Force
ROB	Regional Operations Branch
SCAT	Shoreline Cleanup and Assessment Technique
WCMRC	Western Canada Marine Response Corporation

Executive Summary

B.C.'s **Environmental Emergency Program** (EEP) leads the province's response to hazardous material spills and other environmental emergencies. This report describes the program's activities for the period from October 30, 2017 to March 30, 2019.

To extend and strengthen our ability to minimize environmental emergencies and to respond when incidents occur, **EEP builds relationships with other organizations** in federal, provincial, municipal and Indigenous governments, the private sector and neighbouring jurisdictions. Through these relationships, the organizations can share information, plan and coordinate actions when needed.

Over the past 18 months, EEP has minimized adverse impacts to human health and the environment through strong regulatory oversight, ensuring the team is trained in best practices. The program will continue to build our capacities in the coming months and work to prepare for, respond to and recover from environmental emergencies.

With 52 staff in 12 B.C. communities, including 29 at the Victoria headquarters and Emergency Operations Centre, EEP has personnel and resources to respond at the site when required.

EEP received over 6,000 reports of spills or other environmental emergencies in the reporting period. Of these, 93 were spills that had the potential to cause imminent damage to human health or the environment

- ▶ Over 45 percent of spills resulted from **equipment failure**. Eight percent resulted from **human error** and a further five percent resulted from **motor vehicle incidents**
- ▶ Almost 43 percent of spills involved **flammable materials**, mainly hydrocarbons such as diesel, gasoline and other fuels
- ▶ The number of reported spills was divided relatively evenly across our four response regions in the province



Shoreline Assessment Cleanup Technique
Dallas Road Beach, Victoria B.C.

Action includes work before, during and after an incident:

- ▶ **Preparedness** – The program builds capacity to respond effectively by working closely with other responder organizations, coordinating an integrated incident information management system and regulating potential spillers to ensure they have adequate plans to minimize environmental harm. Staff are trained to manage spills including a minimum 95 hours of hazardous materials training for response officers.
- ▶ **Response** – EEP works with the responsible person (the spiller) and other agencies to meet provincial regulations and minimize impacts when a spill occurs.
- ▶ **Recovery** – The program oversees spillers' recovery plans to restore the environment and recoup government costs related to an incident.



Fuel spill, Surrey B.C.

Unknown odour traced in Squamish

What happens when EEP receives a call?

November 15, 2017 —When a Squamish resident called Emergency Management B.C. (EMBC) to report a strong smell of diesel, an Environmental Emergency Response Officer (EERO) asked District of Squamish staff for more information. District staff thought the odour might be coming from nearby holding ponds where a crew was doing clean-up and followed up by isolating the area to prevent possible contamination of the nearby Squamish River estuary.

A senior EERO investigated further and found a dark sludgy material in the holding pond. It had an unfamiliar odour somewhat like a hydrocarbon. The EERO directed the District to take steps to find the source and contacted an emergency response contractor to help the District contain and recover material from the retention pond and municipal drains. The EERO notified the Squamish Nation of the incident.

The EERO and three municipal workers knocked on neighbouring doors and opened the stormwater system to trace the source. District staff noted strong vapours in the stormwater system. They followed the vapours to a property that was being prepared for residential development.

EEP response officers asked the District to determine whether an environmental site assessment had been filed for the site. The District of Squamish located a report that indicated the potential presence of an underground storage tank on the northeast corner of the property. The land developer was unaware of the tank when work was done on the site several months before the odour was reported. The EERO instructed the owner to excavate for the hidden tank. They found a large tank filled with degraded kerosene, which had been mixing with stormwater through a broken pipe. The tank was connected to the stormwater system and it had likely been there for many decades. A high water table caused by recent rains allowed the tank to overflow into storm sewers and eventually to the ocean.

The EERO requested the District to place booms and absorbent material at stormwater outfalls to remove any contaminants from the retention pond and estuary. Site clean-up and remedial operations continued for several days.

This incident highlights the importance of considering all potential sources of pollution when responding to a case of unknown contamination. It demonstrates the need to engage with other agencies early in the response so the appropriate resources are available to prevent further pollution from occurring.



Response exercise, Terrace B.C.

B.C.'s Environmental Emergency Program — Who We Are and What We Do

When an environmental emergency such as the escape of hazardous chemicals occurs, quick, effective action can help prevent harm and protect the environment. In 1996, British Columbia's Legislative Assembly delegated responsibility for such emergency responses to the Ministry of Environment requiring the ministry to create the Environmental Emergency Program (EEP) to act as the provincial lead for hazardous materials spills and to protect the welfare of the public in the event of an environmental emergency or disaster.

To deliver on the EEP mandate, the program carries out a wide range of activities:

- ▶ Prepare for and respond to oil spills, chemical spills and spills of any substance that could disturb or harm the natural environment
- ▶ Provide Environmental Emergency Response Officers (EEROs) to assess conditions and oversee the response when an incident occurs.
- ▶ Provide scientific advice and site support in an incident
- ▶ Oversee and regulate environmental recovery following a spill
- ▶ Work with partner agencies to effectively coordinate the roles and responsibilities of all responders in an incident
- ▶ Develop policies, procedures, plans, operational guidelines, cooperative agreements and technical documents to ensure effective coordinated action in an emergency

Recently, EEP has focused on developing and implementing regulations to ensure that transporters of hazardous materials prepare for, respond to and take appropriate recovery action in response to spills that could harm or disturb the environment, human health or infrastructure.



Annual response meeting and refresher, Penticton B.C.



Truck rollover, Peace Region B.C.

The legislation

The Ministry of Environment Act says:

4. (2) ... the purposes and functions of the ministry include the following:

(i) to plan for, coordinate, implement and manage **a program to protect the welfare of the public in the event of an environmental emergency or disaster.**

Emergency Program Act

2. (2) The Provincial Emergency Program is responsible for carrying out the powers and duties vested in it under this Act or by the minister.

The Act defines a “**disaster**” as a calamity that

(a) is caused by accident, fire, explosion or technical failure or by the forces of nature, and

(b) has resulted in serious harm to the health, safety or welfare of people, or in widespread damage to property.

It defines an “**emergency**” as a present or imminent event or circumstance that

(a) is caused by accident, fire, explosion, technical failure or the forces of nature, and

(b) requires prompt coordination of action or special regulation of persons or property to protect the health, safety or welfare of a person or to limit damage to property.

The Ministry of Environment and Climate Change Strategy (ENV) is delegated under the **Emergency Program Management Regulation** as the lead provincial agency for hazardous material spills and harmful substances.

The Environmental Management Act (EMA) says “**environment**” means air, land, water and all other external conditions or influences under which humans, animals and plants live or are developed.

It sets out requirements for **spill preparedness, response and recovery**. EMA regulations include:

- ▶ Spill Preparedness, Response and Recovery Regulation
- ▶ Spill Contingency Planning Regulation
- ▶ Spill Reporting Regulation

The EMA also ensures the proper disposal of hazardous wastes and pollutants and supports the **polluter-pay principle** – those who create pollution should bear the costs for the damage done to the natural environment. In this respect, the Province can recover expenses for spill response actions taken by the Province during a spill response.

Our Team

EEP carries out activities to protect the environment with 52 staff, including:

- ▶ Environmental Emergency Response Officers
- ▶ Emergency Planning Analysts
- ▶ Training Officer
- ▶ Logistics Coordinator
- ▶ Business Applications Advisor
- ▶ Information Officer
- ▶ Environmental Recovery Specialists
- ▶ Indigenous Engagement Lead
- ▶ Administrative Assistants
- ▶ Project Management Analysts
- ▶ Management team

Managing environmental emergencies requires diverse and highly specialized skills. The EEP team has experience from academia, policy and legislation, emergency management and first response settings.

Responding requires strong pre-event planning and coordination. The program team has diverse experience in this area, including multi-jurisdictional and international emergency management experience. Highly trained EEROs monitor spill response, conduct safety assessments and notify agencies and communities who may be affected.

Twenty-nine staff are based in Victoria, while 23 work in other strategically located communities throughout B.C. EEP comprises four regions: Vancouver Island, Lower Mainland, Southern Interior and the Northern region.





EERO monitoring air quality in Goldstream Provincial Park B.C.

Our Activities

Program activities focus on measures before, during and after an environmental emergency. The chart shows many typical activities, but emergency management is fluid and many functions cross organizational categories:



Common functions across all three categories of activities include: planning; taking part in the development and implementation of legislation, regulations and policy; and providing training, site support, emergency activation and deployments.



EERO assessing abandoned barrel,
Quadra Island B.C.

Environmental Emergencies Timeline

Before the formation of EEP, incidents related to hazardous materials spills were the responsibility of the Waste Management Program. However, two large marine spills on the Pacific coast emphasized the need for British Columbia to better respond to and manage large environmental emergencies.

Although the initial focus of EEP was on catastrophic events related to crude oil spills from tankers, the scope of the program has expanded. The following timeline highlights major spills, regulatory changes and actions taken that have shaped the program over the last 31 years.

Date	Event
December 1988	Nestucca Oil Barge Spill – A collision between a tug and barge resulted in 230,000 US gallons of fuel oil being spilled off the coast of Washington state. The oil slick dispersed over 800 square miles and into Canadian waters.
March 1989	Exxon Valdez Spill – Approximately 11 million US gallons of crude oil spilled into Prince William Sound, Alaska, resulting in one of the worst human-caused environmental disasters.
July 1990	EEP was formed with a mandate of ensuring effective provincial preparedness and response to specific environmental hazards.
August 2000	Pine River Oil Spill – Ruptured Pembina Pipeline Corporation pipeline spilled approximately 985,000 litres of light crude oil along the Pine River near Chetwynd, B.C. The environmental impact included mortality to fish, insects and some wildlife. The river water supply to the District of Chetwynd was shut off and the use of many groundwater wells near the river was discontinued.
August 2005	Cheakamus River Derailment – Nine Canadian National Railway cars from a freight train derailed and crashed into the Cheakamus River in B.C. Approximately 40,000 litres of caustic soda (sodium hydroxide) entered the river, killing an estimated 500,000 fish from 10 different species, including chinook salmon, coho salmon, pink salmon, and rainbow trout, both freshwater and ocean-dwelling.
July 2007	Westridge Pipeline Spill – Ruptured Kinder Morgan pipeline carrying crude oil to the Westridge Marine Terminal in Burnaby, B.C., spilled approximately 224,000 litres of heavy synthetic crude oil blend was spilled. Approximately 40 per cent of the oil entered the storm drain system and reached Burrard Inlet and Kask Creek.
July 2013	Lac-Mégantic – A train derailment resulted in a spill of approximately six million litres of crude oil, which caught fire and destroyed much of the downtown core.
August 2014	Mount Polley – A dam enclosing a tailing storage facility failed, releasing over 21 million cubic metres of water and mine tailings into the surrounding environment and watercourse.
April 2015	M/V Marathassa – A bulk carrier vessel discharged approximately 2,800 litres of fuel oil into English Bay, a major economic hub for Vancouver and western Canada.
October 2016	Nathan E. Stewart – A tug-barge struck a reef near Bella Bella, releasing approximately 110,000 litres of diesel oil into the marine environment.
October 2017	Phase 1 spill regulations came into effect, extending the liability for spills of liquid petroleum products to both the owner and transporter and requiring transporters to have plans in place to manage spills.
December 2018	EEP increased staff from 19 people in 2014 to 48 people in 2018 to address expanded roles and responsibilities.
January 2019	The Minister of Environment and Climate Change Strategy proposed Phase 2 spill regulations to build on Phase 1 and improve preparedness, response and recovery from potential spills.

Preparedness

Preparedness is the process of building capacity to respond effectively when an emergency occurs. Key to preparedness for our program is building on best practices and lessons learned from other incidents, both in B.C. and in other parts of the world.

This preparation encompasses a range of high-level and on-the-ground activities, including:

- ▶ **Planning** for catastrophic events and ensuring that essential services continue
- ▶ Conducting staff **training** and participating in **exercises**, internally and externally with partners
- ▶ Developing internal **policy** to direct our actions
- ▶ Developing **legislation and regulations** to ensure that those creating a risk are better prepared to respond to a spill and to hold responsible persons more accountable when spills occur
- ▶ **Advising other agencies** about existing and anticipated legislation, regulations and EEP's mandate
- ▶ Developing systems to **manage information** effectively and share it with other emergency responders in critical situations



EERO assisting in post-wildfire re-entry, Ashcroft B.C.

Implementing Regulations

The Government of B.C. brought Division 2.1, Spill Preparedness, Response and Recovery, of the [Environmental Management Act](#) into force as of October 30, 2017, and issued three new regulations: [Spill Contingency Planning Regulation](#); [Spill Reporting Regulation](#); and [Spill Preparedness, Response and Recovery Regulation](#).

Division 2.1 and the new regulations, known as Phase 1, set a foundation for strengthening spill preparedness, response and recovery in B.C.

The team has been working with local governments, Indigenous Nations and stakeholder groups to help them understand and meet the new requirements. To assist spillers, EEP developed nine fact sheets and three detailed guidance documents during the reporting period. The [Environmental Emergency Program](#) website describes these items in greater detail in the [Regulations](#) section.

Spill Contingency Planning

To demonstrate preparedness, transporters of large amounts of liquid petroleum products are required to develop and test spill contingency plans. These transporters include pipelines, trucks and rail operators transporting over 10,000 litres of liquid petroleum products.

The plans must show how the transporter will respond to a spill by providing information about the type of hazard; the location of equipment, personnel and other resources, including maps; human health and safety; communications; waste management; wildlife; spill response; and training, including use of the Incident Command System (ICS).

Spill Reporting

Those in control of a spilled substance or one at risk of spilling must meet defined reporting requirements to ensure that ENV has information to assess spill impacts and fulfill its responsibilities. For all reportable spills that meet criteria defined in the regulation, the spiller must file an *Initial Report*, an *Update-to-Minister Report* if a spill response lasts longer than 30 days or information has changed, and an *End-of-Spill Report*. If ordered, they may also have to file a *Lessons-Learned Report*.

The *End-of-Spill Report* and *Update-to-Minister Report* requirements came into effect on October 30, 2018. During the reporting period, EEP received 733 *End-of-Spill Reports* and 17 *Update-to-Minister Reports*.

Specific information on each report is available on the [EEP Spill Reporting webpage](#)

Spill Preparedness, Response and Recovery

In addition to immediate clean-up, the spiller may have to prepare a recovery plan describing the impacts of the spill and the response actions. Impacts could include effects on the environment, human health, residential property, community well-being, business profitability and cultural heritage sites. The recovery plan focuses on returning the natural environment to its pre-spill condition, as far as feasible.

The regulations also provide that the government can recover its costs of responding to a spill, including employees' or contractors' time, equipment and other services.

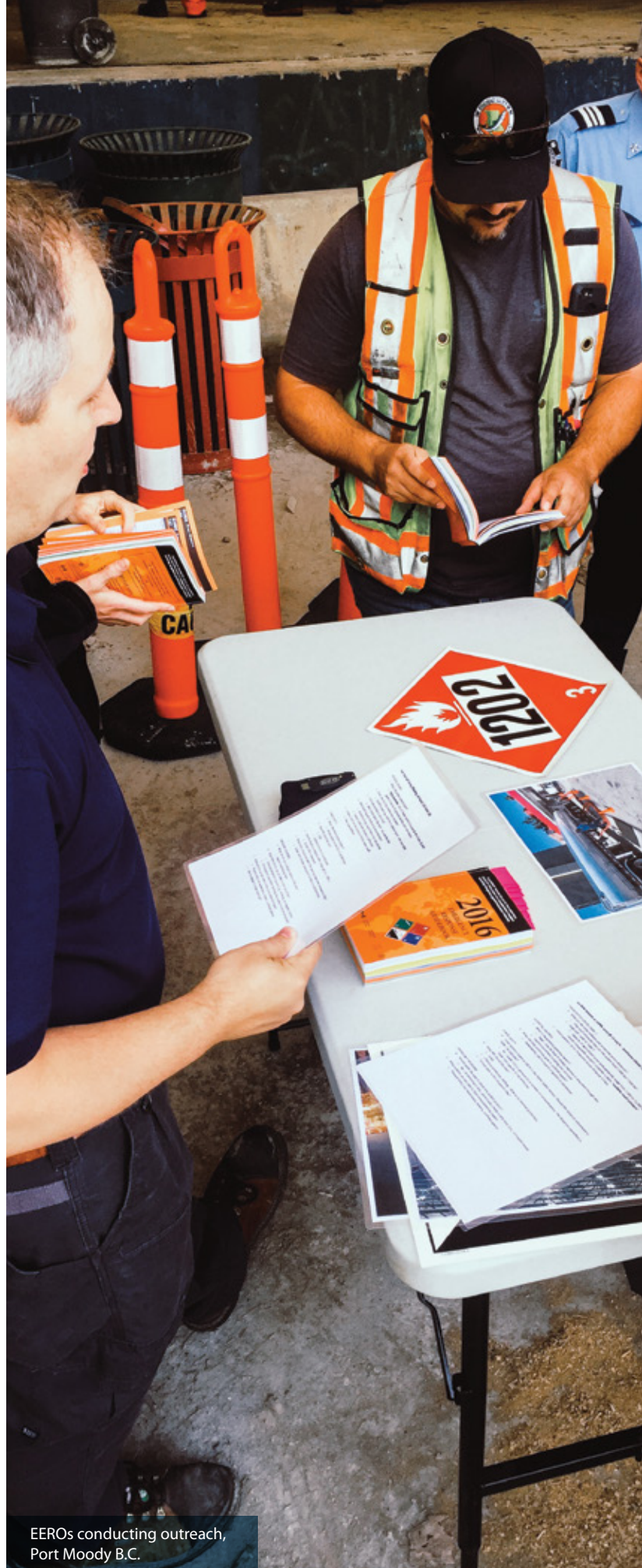
Operations regulated by the British Columbia Oil and Gas Commission are exempt from the spill contingency planning requirements in section 91.11 of EMA. These operations are governed by a comprehensive emergency preparedness and response system under the *Oil and Gas Activities Act* 2008.

Compliance Strategy

EEP has partnered with the Regional Operations Branch (ROB) of ENV to develop a compliance and enforcement strategy for the Division 2.1 amendment to EMA and the three Phase 1 regulations. As of March 2019, EEP has allocated one full-time employee, the Provincial Spills Specialist, to the Compliance Section of ROB. Situated inside ROB, the Provincial Spills Specialist is able to draw upon the experience and knowledge of that branch's compliance experts. The project has strategically engaged other key resources including policy analysts with EEP and the Environmental Sustainability and Strategic Policy Division. A true product of teamwork and collaboration, the project is working on the following key milestones:

- ▶ Promoting voluntary compliance by participating in select conferences alongside the ROB Compliance Section, developing and delivering brochures and writing articles for trade publications
- ▶ Preparing amendments to the Administrative Penalties Regulation under EMA to provide a full suite of enforcement tools
- ▶ Providing guidance documents for new order powers to ensure that they are used efficiently, legally and transparently
- ▶ Updating current compliance and enforcement systems to include Division 2.1 and related regulations
- ▶ Developing tools for compliance verification

With the recent addition of the Senior Spills Specialist, the momentum gained through the development of the compliance and enforcement strategy for the Phase 1 regulations will continue to grow and encompass the upcoming Phase 2 regulations.



EEROs conducting outreach,
Port Moody B.C.

Upcoming Regulatory Development

On February 28, 2018, the Province announced that it would develop additional regulations (Phase 2) to build on the spill preparedness, response and recovery that were the focus of the regulations that came into effect October 30, 2017.

EEP considered four topics related to Phase 2 regulations:

- ▶ Response times to ensure timely responses following a spill
- ▶ Geographic response plans to ensure that resources are available to support an immediate response, considering the unique characteristics of a given area
- ▶ Loss of public use to ensure compensation for local communities when the negative impacts of a spill cause loss of public use (for example, when access to a beach is limited following a spill)
- ▶ Marine application of regulatory powers to ensure a consistent standard of protection in both marine and terrestrial settings

Engagement

Engagement activities related to Phase 2 were conducted from February to August 2018. They included:

- ▶ Seven regional meetings led by the First Nations Fisheries Council in Fort St. John, Kamloops, Prince Rupert, Bella Bella, Prince George, Nanaimo and Richmond
- ▶ Technical working groups held in person and through conference calls
- ▶ Emails and a questionnaire circulated through Engage B.C., receiving 12,821 written comments

Through these processes, EEP received comments from Indigenous communities, federal and local governments, industry, environmental and other stakeholder organizations, and the public. Four engagement [summary reports](#) were released and posted on the program website on August 29, 2019.

Moving Forward

EEP has used the comments we received to recommend the appropriate directions for the next set of regulations. Phase two regulations are now being considered. New requirements may include timely responses following a spill and the development of Geographic Response Plans (GRPs) to consider the unique characteristics of an area.



EEP team members attending the 2019 Clean Pacific Conference, Vancouver B.C.

Other Preparedness Projects

Provincial Emergency Operations Centres

Our team provide specialized knowledge about hazardous materials to the Provincial Emergency Coordination Centre, B.C.'s highest level emergency coordination centre.

For example, during the 2018 floods in central B.C., program staff advised on how to safely remove and dispose of materials ranging from fuel tanks to waterlogged drywall.

Based on these and other wildfire and flood responses in the reporting period, EEP worked to define the role that our staff should play when supporting EMBC Emergency Operations Centres. The clarification will allow EEP to coordinate responses relating to hazardous material spills in a disaster and allocate staff efficiently while maintaining our regular responsibilities.

Catastrophic Disaster Planning

A catastrophic disaster, such as a major earthquake and potential ensuing tsunami, is a complex event and will require the activation and integration of all decision-makers and response organizations to affect a coordinated response. Working within BCEMS at the provincial central coordination level at EMBC's Provincial Emergency Coordination Centre, EEP has three designated Catastrophic Response Actions (CRA) requiring the program to plan for and lead the coordination of response to hazardous material spills. The three CRAs include:

- ▶ Setting up the Environmental Branch of the Operations Section at the Provincial Emergency Coordination Centre
- ▶ Providing environmental impact assessments related to hazardous material spills
- ▶ Coordinating responses to hazardous material spills

EEP has developed a framework and a draft strategy to develop, test and implement the CRAs. The timeframe to meet an initial level of catastrophic response coordination capability aligns with EMBC's full-scale earthquake exercise, Exercise Coastal Response 2022. Exercise Coastal Response 2022 is an opportunity for EEP to work with key partners and stakeholders to test plans, policies, procedures and even legislation to be better prepared for a real event.

Business Continuity Management Program

In the event of a disruption such as a building fire, flood, strike or riot, the program must be able to continue operations. To ensure this, EEP has developed a business continuity plan. An internal policy team assessed program-specific risks to evaluate potential disruptions to the program's responsibilities. The business continuity program meets the requirements of Chapter 16 of the Government of B.C. Core Policy and Procedure Manual as well as guidelines defined by the Disaster Recovery Institute and the Canadian Standards Association's Emergency and Continuity Management Program. These standards include communications procedures and steps to restore business operations.

Integrated Incident Management System

Reviews of past program and incident reports have shown that greater collaboration, coordination and communications lead to more efficient responses when emergencies occur.

The report on the 2017 wildfires and floods by George Abbott and Chief Maureen Chapman, [Addressing the New Normal: 21st Century Disaster Management in British Columbia \(PDF, 16.2 MB\)](#), also pointed to the importance of communication and effective collaboration.

EEP is leading a project to acquire and implement an integrated incident management system (IIMS). This system will support an all-hazards emergency incident management platform that can be shared with other emergency management agencies to enable fast, effective decision-making and action to improve environmental protection and public safety.



EEP Preparedness team member demonstrating Geographical Information Systems capabilities and uses, Victoria B.C.

IIMS in a simulated emergency scenario

When IIMS is fully implemented, in an emergency such as a major fuel spill beside a salmon-bearing river, police, firefighters or other first responders identify the risk and phone EMBC's Emergency Coordination Centre. The centre records information about the spill in the IIMS and notifies the EERO on call.

The EERO assesses the spill to determine which agencies to notify, and the call centre notifies the agencies needed. The response officer also gathers information, which is recorded in the IIMS, to assess whether an on-site response is needed. While an average of 12 spills are reported each day, only two, on average, result in a response on site. The incident classification and assessment, as well as related comments and justifications, are recorded in the IIMS.

After risk assessment, the EERO follows up with a response depending on the situation. For example, if a spill involves regulated facilities like a pulp mill, the EERO creates a task in IIMS for an industry compliance and enforcement representative to review the spill information. If a spill requires an EERO to go to the site, once there, the EERO records site information, including images, in the IIMS through a mobile device.

EMBC, Health Emergency Management B.C. and ENV management can view the locations of all the day's spills on a map that shows their organization's regional boundaries. Management can also monitor each day's workload and report on spills, outcomes and any trends.

Costs associated with a spill may be recovered from the responsible person; therefore, the EERO records time spent working on the incident as well as any expenses.

Engagement

To ensure that the integrated system meets the needs of all emergency management partners, EEP has been working with stakeholders from the larger emergency management sector. Those actively involved on the IIMS working group include:

- ▶ EMBC
- ▶ Health Emergency Management B.C.
- ▶ GeoBC
- ▶ B.C. Parks
- ▶ Land Remediation Branch, ENV
- ▶ Information, Innovation and Technology Division
- ▶ B.C. Wildfire Service

EEP continues to engage other stakeholders through participation on the Cross-ministry Information Management/Information Technology Committee, reporting to the ADM Committee on Emergency Management.

Major Milestones

The IIMS project achieved key milestones in the period from October 2017 to March 2019, including analysis of scope, needs, requirements and options. The EEP team consulted with stakeholders from other agencies, developed an architecture analysis and design, and validated the plans with stakeholders. They developed a procurement plan and will issue a request for proposals in the 2019-20 fiscal year.

Next Steps

In the coming year, EEP will continue to engage with stakeholders, issue a request for proposals and pilot the IIMS within EEP.



EEP team members reviewing geographical information about a spill, Victoria B.C.

Response

EEROs are located throughout the province. They are deployed to incidents to oversee the response and provide guidance as required. During an environmental emergency, EEROs can:

- ▶ Oversee the spill clean-up to make sure the responsible person is cleaning up the spill appropriately
- ▶ Establish public safety and environmental protection priorities and update stakeholders on response actions taken
- ▶ Identify resources at risk and assess priorities for shoreline clean-up options using the Shoreline Cleanup Assessment Technique (SCAT)
- ▶ Take on the role of Incident Commander on behalf of the Province to make unified decisions with representatives from partner agencies, the spiller and the affected communities.
- ▶ Provide technical expertise, specialized knowledge or equipment

The provincial government must be prepared to lead an incident should the responsible person be unknown or be unable to fulfill its response obligations as set out in section 91.2 of the Environmental Management Act.

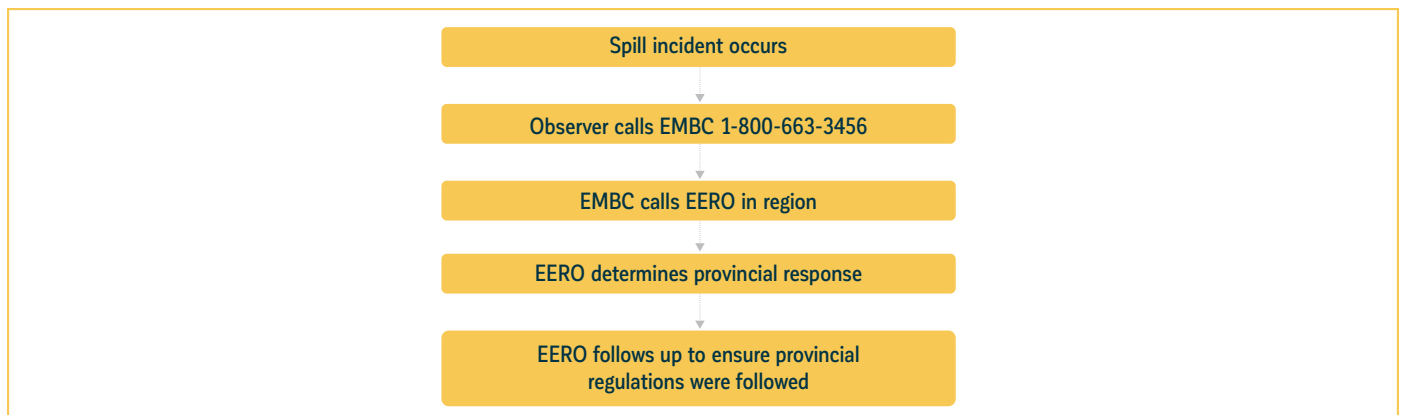
Once EEROs arrive on site, they assess the situation that caused the spill, the material spilled, the receiving environment and the response needed, with a focus on the safety of responders, the public, the environment and infrastructure. They frequently work with other agencies, as the situation requires.

What Happens in an EEP Response?

While information gathering and initial decision-making follow a similar pattern, each response is unique. The chart below shows an overview of the typical process.

After EMBC contacts an EERO, the response officer determines which level of government (federal, provincial or local) has primary jurisdiction and who needs to be notified. The officer decides what level of follow-up is required based on the EEP spill risk assessment matrix. This matrix helps the EERO decide which spills are the highest priority for attending in person.

- ▶ For **low-risk incidents**, an officer receives the report and assesses whether follow-up action is required and what follow-up actions are appropriate. Most low-risk incidents do not require a response officer to attend the site
- ▶ For **moderate-risk incidents**, an officer conducts a telephone investigation and determines the need for a field response
- ▶ For **high-risk incidents**, an officer immediately begins additional notifications. High-risk incidents almost always require a field response



Incident Command System

The Incident Command System (ICS) is a standardized approach to the command, control, and coordination of emergency response providing a common hierarchy within which responders from multiple agencies can be effective.

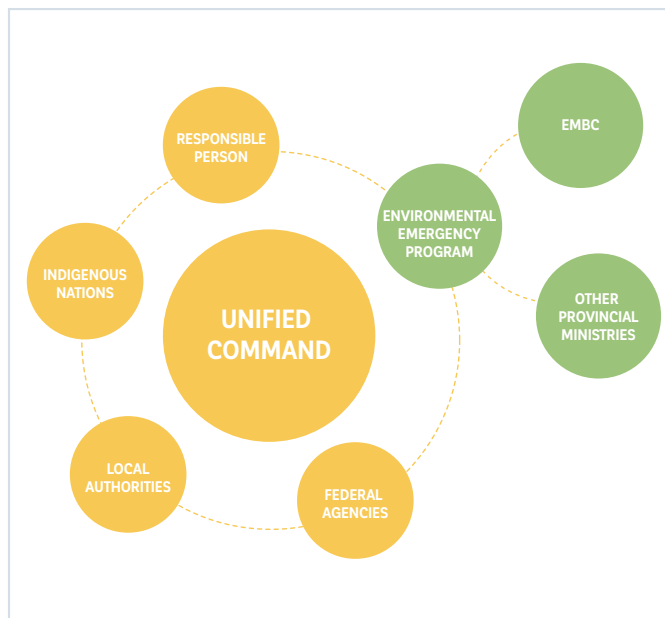
When EEP responds to a complex incident, the ICS allows personnel from different agencies to work in a common management structure with common terminology and to avoid duplication. It also provides a framework for logistical and administrative support to resource operational staff.

When multiple partners are involved in a spill, in the ICS, a Unified Command is an authority structure in which the role of incident commander is shared by two or more individuals, each representing their respective agency or level of government.

Unified Command is part of the B.C. Emergency Management System (BCEMS) standard. It brings together the Incident Commanders of all major organizations involved to coordinate an effective response while at the same time carrying out their own jurisdictional responsibilities. It ensures the coordination, participation and support of all organizations with specific responsibilities.

EEP Duty Manager

The purpose of the EEP Duty Manager is to provide incident support to response officers during work hours and after hours where required. The Duty Manager maintains weekly 24-hour availability and is responsible for providing Code 2 notifications to ministry executive. If an incident escalates beyond the Duty Manager's support capacity, the Duty Manager may ask a Ministry Emergency Operations Centre (MEOC) Director to take on the lead support role. Additional support from the Incident Management Team may also be required.



Code 1 and Code 2 Notifications

Code 2 incidents are often substantial spills and/or those that are not readily confinable. They may have the potential to cause imminent damage to human health or the environment. They often have longer remediation or recovery times. For these reasons, Code 2 spills require EMBC to send additional notifications to partners, stakeholders, agencies or impacted communities. Examples include:

- ▶ A large fuel spill from a tanker truck
- ▶ A pipeline leak
- ▶ A hazardous material spill from a train derailment
- ▶ A vessel sinking on the Fraser River

Code 1 incidents are all others. Code 1 incidents are generally smaller spills or releases that are straightforward to clean up. They typically allow quick environmental remediation or a short natural recovery period. They require fewer notifications to partners, stakeholders, agencies or impacted communities. Examples include:

- ▶ Releases from regulated facilities that exceed permitted amounts
- ▶ Minor oil sheens in marine and fresh water
- ▶ Small fuel leaks from motor vehicle incidents



EEP Logistics Section Chief in the Victoria MEOC

Ministry Emergency Operations Centre

When a spill is at a scope and scale where EEROs at the incident site require additional resources and coordinated communications, the Ministry Emergency Operations Centre (MEOC) is activated. The MEOC is located in Victoria and has the necessary equipment for immediate activation. The MEOC has a roster of subject matter experts from within ENV or other natural resource ministries to draw from when needed. The MEOC was activated for the Lina Island grounding, September 2018, the Goldstream motor vehicle incident, May 2018, and the Salmo motor vehicle incident, March 2019.

The MEOC operates according to the [B.C. Emergency Management System](#).

MEOC activities include:

- ▶ Assisting with notifications and chairing coordination calls
- ▶ Providing logistical support to EEP staff at the incident site with material and equipment
- ▶ Providing incident updates to program management and ministry executive

- ▶ Liaising and coordinating information with other programs, agencies and the media
- ▶ Coordinating deployments including travel and accommodation
- ▶ Activating and deploying Natural Resource Sector subject matter experts
- ▶ Providing technical advice, research and policy guidance during a spill
- ▶ Recovering costs and managing documents

EEP continually reviews past incidents and after action reports, policies and training plans to ensure that the MEOC is effectively assisting the site, communicating and coordinating with appropriate agencies, and communicating with EEP management and ministry executive. Training for MEOC roles and deployment to incident sites is ongoing and will continue to be enhanced over the coming years.

Responding to Diverse Environmental Emergencies

Every year, EEP receives thousands of calls regarding spills in B.C., yet every spill is unique. The type of product spilled, the receiving environment and the communities impacted all influence the way we respond to a spill.

The selected incidents that follow, one from each EEP response region, illustrate the diversity and complexity

of incidents that B.C. faces each year: the sinking of a tug; a motor vehicle incident; the grounding of an accommodation barge; and a substantial release of fuel into an ecologically important river. These four incidents show the potential for significant impacts and risks to human health and the environment that spills can cause.



Shoreline cleanup effort,
Plumper Bay, Esquimalt B.C.
Source: CCG

Tugboat capsizes in Fraser River

Spill Incident – Lower Mainland Region

August 13, 2018 – In the late hours of the evening, the tugboat George H. Ledcor capsized off Deering Island in the north arm of the Fraser River. Diesel fuel from its 22,000-litre tanks began leaking into the river, threatening public beaches, critical salmon habitat and intertidal salt marshes.

Two nearby tugs helped stabilize the tug and rescue four crew members. The Canadian Coast Guard (CCG) and Western Canada Marine Response Corporation (WCMRC) quickly responded and deployed booms, absorbent pads and a skimmer to contain diesel fuel on the water's surface and prevent the spilled diesel from spreading downstream. EEP activated the MEOC and four EEROs were immediately deployed to the Incident Command Post, established at the CCG Sea Island Base.

Jurisdiction is shared by CCG, ENV, the Musqueam First Nation and the City of Richmond. Unified Command also included the Ledcor Group and the owner of the tug to ensure coordinated and effective decision-making.

By the following evening, dive crews capped vents to prevent further diesel leaks and minimize impacts to the environment. EEP and the Canadian Wildlife Service conducted a wildlife survey of the area and assembled SCAT teams to survey the shoreline. The Incident Management Team coordinated with the Port of Vancouver and Marine Traffic Control Services to reduce marine traffic that might disturb the booms.



Ledcor Tug Incident, Fraser River B.C.
Source: CCG

As the incident progressed, additional EEP team members were deployed to support planning and lead the SCAT team. A Hazardous Waste Management Specialist and a subject matter expert from ENV worked to develop and implement the incident waste management plan.

Response crews prepared the tug for righting and towing. A large crane arrived on August 15 and successfully righted the tug. Salvage crews pumped water from the vessel to tanks for disposal, and the tug was taken out of the water on August 16. Throughout the process, EEP experts monitored the action and supervised the plan to safely dispose of the fuel-contaminated water and used absorbent materials. They continued to do sampling and impact assessments until August 30, 2018.

Several jurisdictions, various levels of government and the Ledcor Group worked closely together in the response, leading to quick and effective action to prevent widespread contamination of the Fraser River.

"Unified Command was fortunate to have the Musqueam Nation providing input, advice and local knowledge on behalf of their government, the Squamish and Tsleil-Waututh Nations. Together with the active participation from the responsible person, the CCG, the City of Richmond and ENV, Unified Command supported all levels of government to raise their concerns, legal requirements and expectations, and ultimately to move without any setbacks."

—Ken Meeks,
Environmental Emergency Response Officer,
Surrey, Provincial Incident Commander.



Ledcor Tug Incident, Fraser River B.C.
Source: CCG

Fuel truck overturns in Goldstream Park

Spill Incident – Vancouver Island Region

May 24, 2018 – The drivers of a fuel truck and a transit van received minor injuries when their vehicles collided on a narrow stretch of Highway 1 just inside the boundaries of Goldstream Provincial Park, near Langford. The fuel tanker rolled onto its side carrying 2,300 litres of furnace oil and 2,200 litres of gasoline.

The location was not far from the site of a significant fuel leak in 2011 that affected the Goldstream estuary. A leak from the new collision could have repeated the substantial environmental impacts of the 2011 collision.

West Shore RCMP closed the highway in both directions, called for an ambulance for the two injured drivers and contacted the Langford Fire Department. An EERO went to the site immediately to assess the response underway and contacted the MEOC for additional resources.

The Langford Fire Department controlled the fuel leak from the van, and when firefighters found cracks in the hatch of one of the truck's fuel compartments, they installed a cover to minimize risks. After confirming the volume of fuel that could potentially be released into the environment, it became clear additional support was needed; the Langford Fire Department asked for assistance from the Capital Regional District Fire Hazmat Team.

Emergency response contractors called by the truck owner/operator, FAS Gas, used absorbent materials to contain any leaks. To minimize impacts if a fuel spill occurred, the EEROs requested additional spill response measures, including the damming of storm drains and the use of absorbent pads and berms, to reduce the risk of a catastrophic release into the Goldstream environment.

After the RCMP finished the collision investigation, they released the site for clean-up. While the owner/operator of the fuel truck would typically be responsible for the clean-up, he was hospitalized as a result of the motor-vehicle incident. The EERO modified the response structure.

The response officer and the Langford Fire Department took responsibility for responder and public safety, and the EERO also liaised with Transport Canada and the B.C.

Ministry of Transportation and Infrastructure to minimize environmental impacts and restore traffic flow through the transportation corridor. Impacted local communities, Malahat and Tsartlip First Nations were notified so they would be ready to take part if the situation deteriorated and threatened the environment.

The MEOC used geospatial data to identify sensitive areas and liaised with Canada's National Environmental Emergencies Centre and also provided consistent information to media outlets.

The emergency response contractor removed the fuel oil from the truck after the Langford and CRD hazmat teams provided safe access to the fuel tanks. The EERO assisted in supervising the site during the off-loading, salvage and eventual movement of the tanker truck, while ensuring compliance with Transport Canada regulations and provincial requirements.

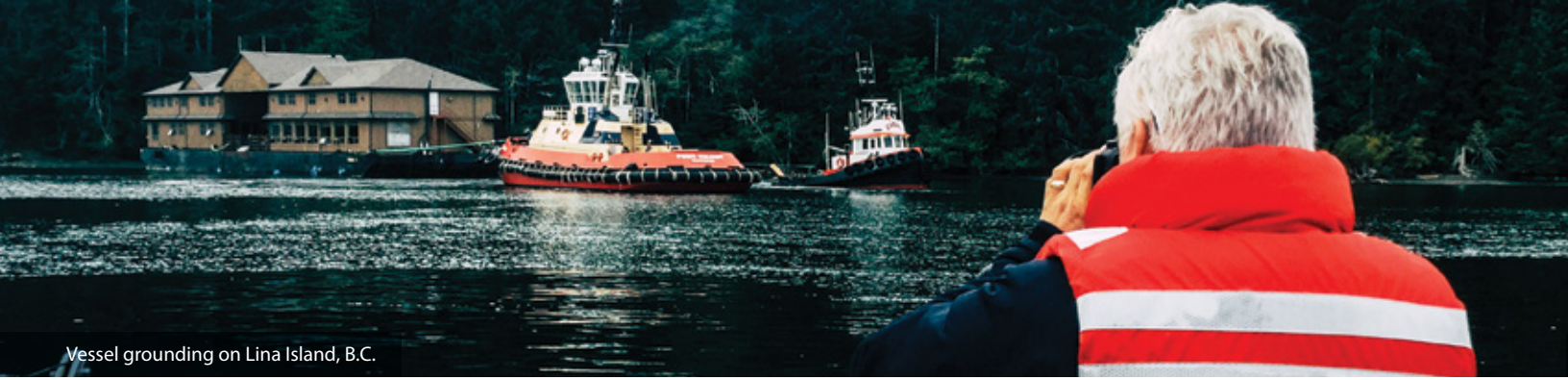
The highway was re-opened shortly after midnight, and fuel that leaked from the van and tanker truck was cleaned up overnight. EEROs conducted a site assessment the next day and concluded that a minimal amount of fuel had leaked and that no significant damage to the local environment had occurred.

"The Incident Command System was a huge success when the operator could not take direct action. It allowed us to provide leadership and technical advice to protect responder and public safety once the RCMP had released the site. Effective communication ensured that all who required the information in a timely fashion received it. This prevented a repeat of the 2011 fuel spill that had catastrophic effects on the Goldstream estuary."

—John Kervel,
Environmental Emergency Response Officer,
Nanaimo, Incident Commander



Fuel truck rollover,
Goldstream Park B.C.



Vessel grounding on Lina Island, B.C.

Resort barge grounds on Haida Gwaii's east coast

Spill Incident – Northern Region

September 7, 2018 – Following a successful first season operating the 12-room Ocean House as a floating fishing lodge, the Haida Enterprise Corporation, or HaiCo, was hauling the barge south to overwinter in Vancouver. With one person on board overnight, the vessel broke from its anchor moorings, drifted 10 kilometres and ran aground at Guudaa Kunt'as Gwaay.yaay, Lina Island, near the village of Queen Charlotte.

The grounding damaged the hull of the barge and its onboard fuel system, reported to be carrying 17,000 litres of gasoline and 12,000 litres of diesel. Thousands of litres of gasoline and diesel spilled into the hull of the vessel, while seawater entered through the damaged hull.

Bulkheads and watertight doors kept the fuel within the hull with minimal leakage, but they also trapped explosive vapours, creating an extremely flammable atmosphere in the lower levels of the barge and preventing safe access to control the leaking fuel.

With the potential for a spill and explosion due to the trapped vapours, CCG informed EEP, which initially deployed three EEROs and activated the MEOC in Victoria. On-scene responders established a Unified Command consisting of ENV, the CCG, the Council of Haida Nation, the Village of Queen Charlotte, HaiCo and technical experts from several industry partners.

EEROs from Smithers, Nanaimo and Prince George took part in Incident Command. They acted as Provincial Incident Commander, Environmental Unit Lead, and Sampling Coordinator, and led the response to remove the contaminated fuel and seawater. Additional EEP team members, including three additional EEROs and a Waste Management Specialist, supported operations at the site.

The Victoria EEP team supported the MEOC with logistics, liaised with media outlets and managed finances.

To minimize contamination of beaches and the marine environment, response crews placed floating booms around the site and monitored conditions along the shore. Air quality sampling for hydrocarbons ensured that the site was safe for workers.

EEP brought in experts familiar with hazardous materials in potentially explosive conditions in the marine environment. A specialist entered the barge and used a chemical foam to suppress the production of explosive vapours. With the vapours under control, crews pumped over 160,000 litres of fuel and oily wastewater from the hull and into tanker trucks on a barge over several days. Salvage specialists could then ventilate and patch the hull and refloat the barge.

"The grounding presented unique challenges and risks, creating an extreme hazard to emergency responders. The team's careful action prevented significant spills and safely removed a large amount of gasoline and diesel. The incident was an opportunity to learn how to manage a novel hazardous situation while preventing serious environmental consequences."

—Dale Bull,
Senior Environmental Emergency Response Officer,
Prince George, Planning Section Chief

Tanker spills fuel into Salmo River

Spill Incident – Southern Interior Region

March 27, 2019 – Up to 51,000 litres of diesel and gasoline spilled into the South Salmo River when a fuel tanker missed a turn and slid sideways down a steep embankment southeast of Salmo. This incident resulted in a fatality of the driver. Fumes prevented police from remaining on the scene, but officers informed EEP and the trucking company, Westcan Bulk Transport, of the spill. An EERO from Cranbrook was deployed and arrived on site within 90 minutes of receiving the call.

The South Salmo River merges with the Salmo River, then joins the Pend-d'Oreille River and ultimately flows into the United States. The need to protect downstream water users' health, as well as river wildlife, guided the response measures.

EEROs joined Westcan Bulk Transport in Unified Command. EEP activated the MEOC in Victoria and sent other ministry workers with specialized skills to the site within 12 hours of being notified of the incident. As lack of cellular coverage made communications difficult at the incident site, the team set up an Incident Command Post at a hotel in Creston.

The Interior Health Authority advised downstream water users and Washington state authorities to avoid water that smelled of fuel, although no water intakes were identified in the downstream area. Westcan dispatched staff from its Edmonton head office and contracted a response company, a SCAT contractor and environmental consultants.

Containment booms and absorbent pads were used to collect fuel while contractors removed the tanker. Environmental contractors together with an EERO took a helicopter flight to assess downstream impacts. They found sheens along the water for approximately 14 kilometres to the confluence of the Salmo and Pend-d'Oreille Rivers. From there, lighter sheens continued to B.C. Hydro's Seven Mile Dam, 25 kilometres from the impact site.

A contractor reported seeing half a dozen dead minnows on March 28, but none were reported the following day. The Environment Unit developed plans for surface water sampling, wildlife management, waste management, aquatic and habitat assessment, and SCAT. Provincial representatives worked with contractors to assess the shoreline, create maps of the affected areas and provide recommendations for clean-up. The Ktunaxa Nation Council sent a Senior Fishery Guardian who was involved in the fisheries impact assessment.

The Unified Command approved the plans and contractors began to carry them out the following day. By March 30, although contractors noted more dead fish and invertebrate species in a two-kilometre stretch downstream of the incident, sheens were much diminished as the fuel evaporated.

Although the turbidity of the South Salmo River led to quick evaporation of the fuel, it also led to a substantial amount of fuel being trapped in the cobbles on the riverbed. Contractors used a specialized "spider" excavator to lift and replace the cobbles to allow the river to wash fuel to downstream collection points. After two and a half weeks the environment was restored to the point that operations could stand down.

"The release of thousands of litres of diesel and gasoline into the South Salmo River could have been catastrophic. But effective collaboration between EEP and Westcan Bulk Transport minimized harm to the environment by allowing for thorough assessment of the spill and a rapid response."

—Veron Novosad,
Environmental Emergency Response
Officer, Cranbrook

Spill Reports Across B.C.

EEP received over 6,000 reports of spills or other environmental emergencies in the October 30, 2017, to March 30, 2019, reporting period. Of these, 93 were ranked as Code 2 reports. The risk of an environmental emergency is not new to British Columbia. The number of dangerous goods incidents increased based on an increase in the transportation of liquid petroleum products through the province by rail, pipeline, and truck.

Total spill reports by region

Within each of the four regions of the province, the number of reports ranges from 1,230 to 2,193 per region, reflecting the population and economic diversity of the province:

Region	Code 1 Reports	Code 2 Reports	All reports	% of all reports
Lower Mainland Region	2,157	36	2,193	36%
Northern Region	1,271	22	1,293	21%
Southern Interior Region	1,212	18	1,230	20%
Vancouver Island Region	1,429	17	1,446	23%
Total	6,069	93	6,162	100%



EERO assessing abandoned barrel, Quadra Island B.C.



The map shows the location of Code 2 reports in each region. The charts on the following pages analyze the types of reports further.

Locations of Code 2 reports in each region

Analysis of Spill Reports

EEP is the lead provincial regulator for spills, although it is the responsibility of each spiller to manage its own spills. EMBC receives an Initial Spill Report through its Emergency Coordination Centre. Using the information from the Initial Report, EMBC creates a dangerous goods incident report to record all the information provided from the initial phone call. B.C. averaged 12 spill reports a day in the reporting period; spills can vary from minor refrigerant releases to significant hazardous material spills.

The following figures summarize key data for the period from October 30, 2017 to March 31, 2019.

The EEP Spill Tracking Database

The EEP spill tracking database is for informational and statistical purposes. It contains all available information collected from the caller and any immediate follow-up by the response officer involved. Information may be updated as an incident is investigated further.

Causes of Spills

Equipment failure causes the highest number of spills, 45 percent of the total amount. These result mainly from ruptured equipment lines, radiators and similar equipment on the property of the responsible person.

Spills resulting from a natural occurrence account for five percent of the total; these reports usually follow heavy rainfall, which can overwhelm holding tanks and settlement ponds.

Spills are listed as unknown when the responsible person or source is unknown, or when it is not possible to identify the cause of the spill. For example, a sheen on water may be reported with no identifiable source. Over 25 percent of reported spills come from unknown sources.

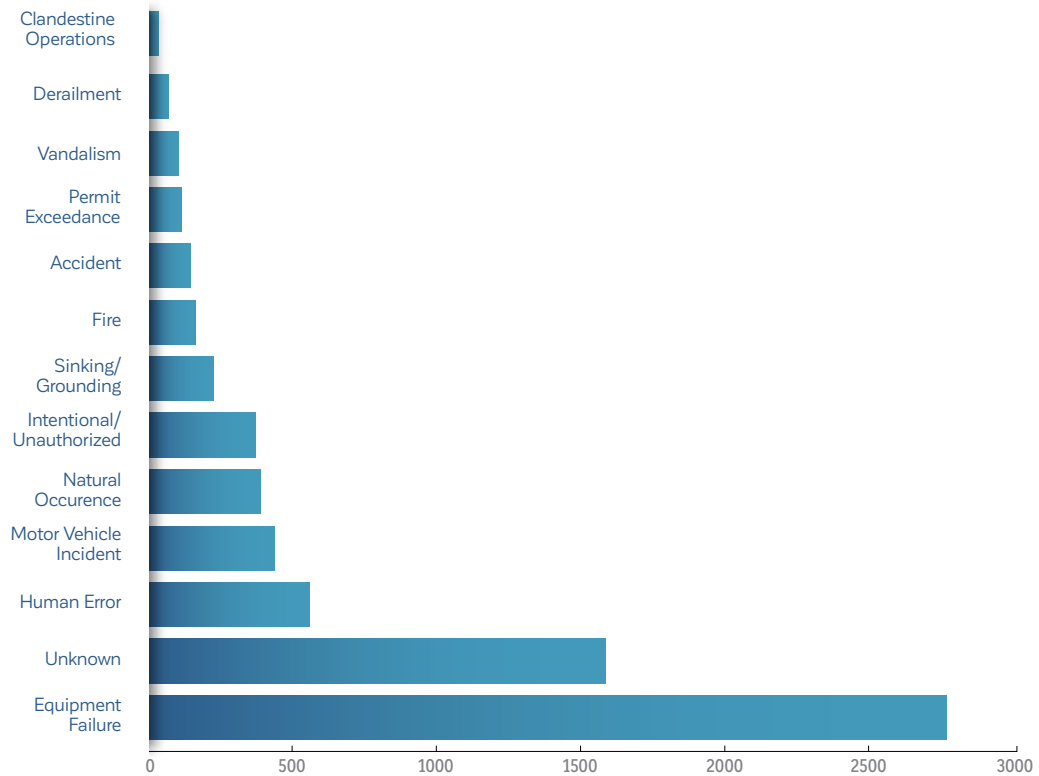
Materials Spilled

Hydrocarbons such as gasoline, diesel and heating fuel are by far the most common substances spilled, as they are widely used for transportation, heating and other purposes.

Non-hazardous pollutants are materials that are not immediately dangerous to health or life but can still have an impact on the public and the environment. For example, while drinking water is not hazardous in itself, a release of chlorinated drinking water to a stream can cause harm to sensitive aquatic invertebrates and fish species.

Materials are listed as miscellaneous when they cannot be easily categorized into one hazard or another, often because they are a combination of products.

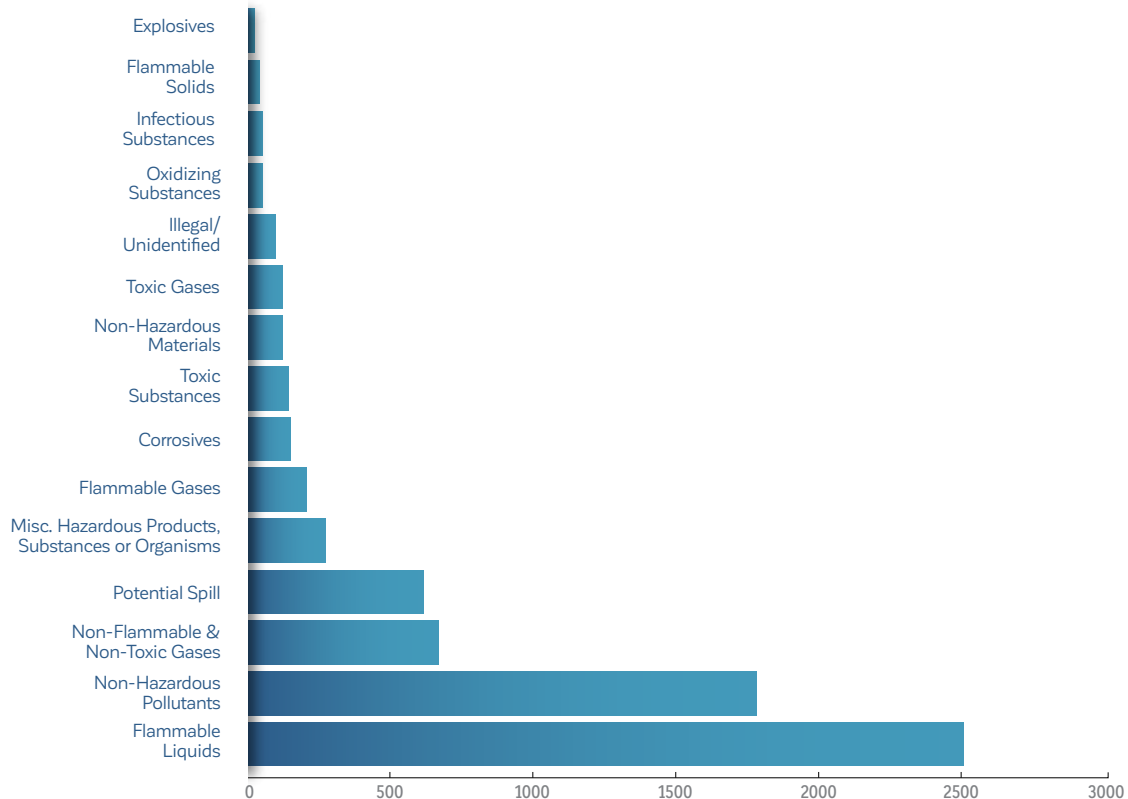
Causes of Reported Spills



October 30, 2017 to March 30, 2019

Source: EEP Spill Tracking Database

Materials Spilled



October 30, 2017 to March 30, 2019

Source: EEP Spill Tracking Database

Analysis of Spill Reports

Impacted Environment

Reported spills occurred mainly on land and in the marine environment, reflecting the fact that B.C. is a mountainous, coastal province with transportation corridors on land and alongside water bodies. Together, land and marine incidents account for 65 percent of reported spills.

Most releases to the air result from equipment failure in refrigerant systems. Refrigerant gases tend to be non-toxic and non-flammable and dissipate quickly into the air.

Though wetlands have the smallest number of spills reported, they are among the most vulnerable environments. Wetlands often have high diversity of flora and fauna, including large numbers of endangered species, which can make them more susceptible to the impacts from spills.

The potential category refers to reports of potential releases where no actual spill occurred or impact was reported. An example of this would be a derelict vessel found on the shore after a storm with no spill or release to the environment.

Spills by Sector

Spills by sector indicates the business sector in which the responsible company operates. The commercial, industrial, mining and transportation sectors are significant, generally because they are the largest users of petroleum products. The oil and gas sector includes only companies that extract raw petroleum products or transport them to refineries.

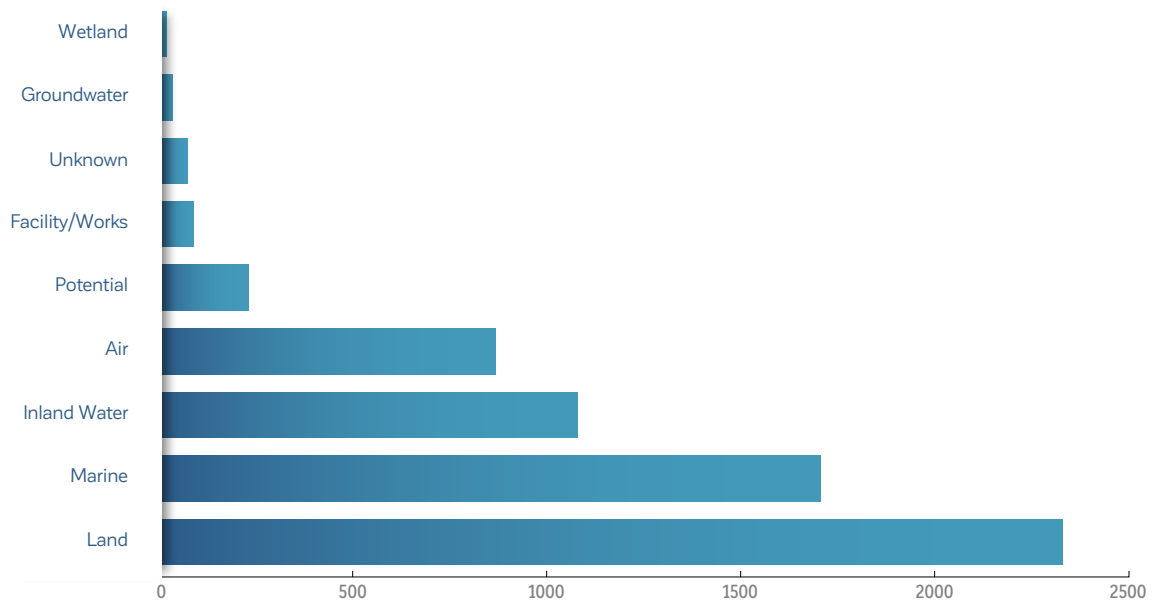
The government sector involves drinking water and wastewater treatment facilities, fire fighting water runoff and other government-controlled processes.

The unknown sector, 20 percent of the total, indicates spills in which the origin is not known. These are generally sheens on water with no readily recognizable source.



EERO conducting shoreline survey with Environment and Climate Change Canada, Delta B.C.

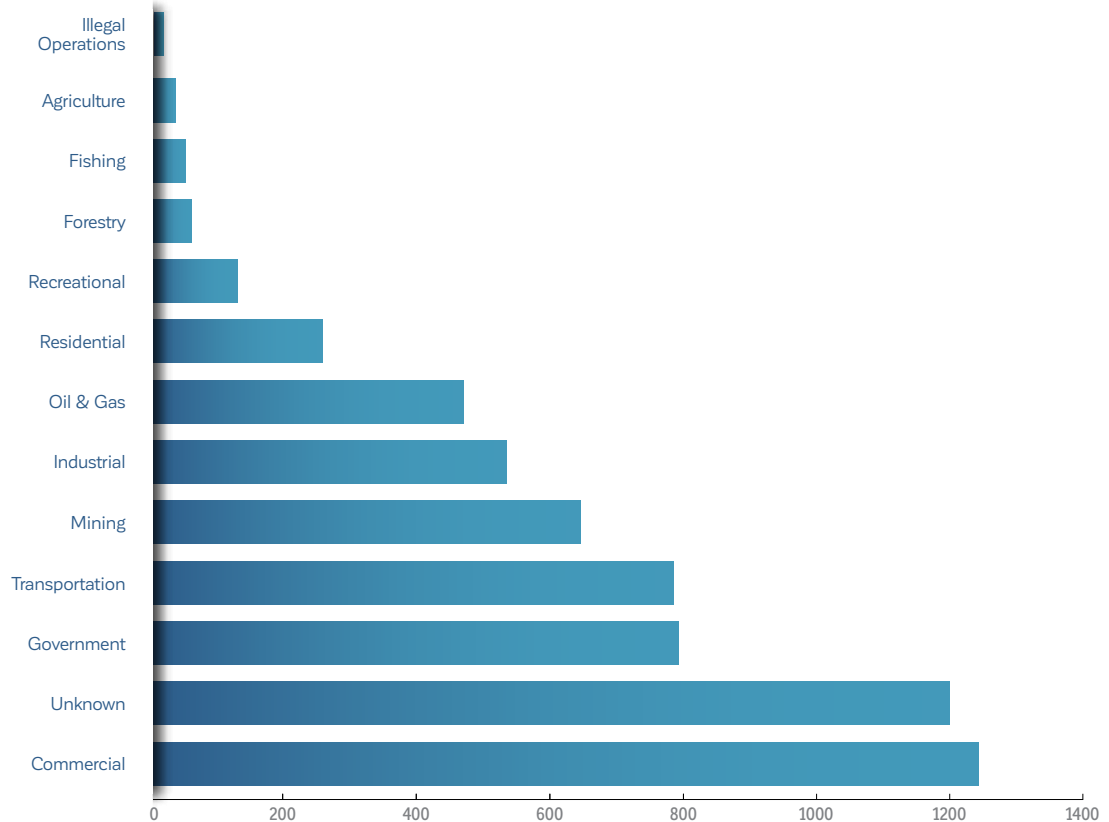
Environments Impacted by Spills



October 30, 2017 to March 30, 2019

Source: EEP Spill Tracking Database

Spills by Sector



October 30, 2017 to March 30, 2019

Source: EEP Spill Tracking Database

Technical Training and Equipment

EEP is B.C.'s lead agency for responses to the release of hazardous materials and we play a lead role in other environmental emergencies. Program officers must respond safely 24 hours a day in all weather and geographical conditions, including marine, river, lake, mountain environments and areas with potential for chemical exposure. High-risk spills are often associated with motor vehicle or vessel incidents, pipeline leaks, train derailments, industrial operations or clandestine drug labs.

The response team needs a high level of training for personal safety, to protect the public and to mitigate environmental impacts. While all EEP staff receive technical training, because EEROs deal directly with potential hazards, they receive a minimum of 95 hours of hazardous materials training before taking any field calls.

EEROs represent the province during multi-jurisdictional spill responses and receive specialized training in leading a spill response as well as the highest level of training in ICS.

Modernized Training

In the reporting period from October 2017 to March 2019, program training was modernized and now includes over 650 hours of training for EEROs, spread over a two-and-a-half-year period. EEP hired a Senior Environmental Emergency Training Officer, trained four new EEROs and trained two in-house instructors in Verbal Judo, which uses persuasive communication to reduce confrontations and gain voluntary compliance.

EEP held annual meetings in 2017 and 2018 to allow all response staff to maintain their competency and training, and to discuss strategic directions. The program also delivered training sessions to EMBC, the RCMP Clandestine Lab Enforcement and Response Team and various local fire departments across the province.

Future Plans

In the second phase of training, our officers will take 80 or more hours of specialized industry training, including Swiftwater training. EEP develops its own courses and will aim to host at least 10 group training events to maintain proficiency across the province.

Technical and practical training

All EEP staff receive response training including:

- ▶ Incident Command System
- ▶ Media Relations
- ▶ Spill Response 100
- ▶ Hazmat Awareness
- ▶ Workplace Hazardous Materials Information System
- ▶ Working Alone and in Isolation

EEROs receive training on the use of specialized equipment, including:

- ▶ Personal protective equipment associated with hazardous materials
- ▶ Firefighter turnout gear
- ▶ Self-contained breathing apparatus
- ▶ Air monitoring equipment
- ▶ Radiological monitors
- ▶ Water and ground sampling equipment

EEROs also receive training in the use of emergency vehicles, including:

- ▶ Emergency Vehicle Operations (high-speed driving, cornering, lights and sirens)
- ▶ Defensive Driving and Collision Avoidance
- ▶ Off-road Driving and 4x4 Operations
- ▶ Emergency Vehicle Driving Regulations

Materials and Equipment

The health and safety of our EEROs and the public require the use of specific supplies and protective equipment. These include:

- ▶ Radiation detectors, water quality meters and air quality meters
- ▶ Breathing apparatus, hazmat protection suits and fire protection suits
- ▶ Satellite phones to provide communications in remote locations and to ensure operations can continue in a major disaster
- ▶ 4x4 response trucks, personal floatation equipment, spill containment supplies, cameras, GPS equipment and specialized clothing

The need for secure, uninterrupted communications between headquarters and regional offices, as well as the increase in the number of EEROs, has led the program to increase purchases of vehicles and equipment in the reporting period.

Collaborative Exercises

EEP personnel regularly attend external exercises run by industry and by other agencies, such as EMBC, WCMRC and the CCG. In addition to helping our staff develop their skills and refresh previous training, these exercises also strengthen the program's connections to industry and allow it to develop relationships with other personnel likely to be involved with incident response.

During the reporting period, EEP took part in 25 exercises, including those with:

- ▶ Canadian Coast Guard
- ▶ CN Rail and CP Rail
- ▶ Fortis B.C.
- ▶ Trans Mountain Pipeline
- ▶ Oil and gas industry
- ▶ Western Canada Marine Response Corporation
- ▶ Western Canadian Spill Services

EEP conducted internal exercises involving the activation and operation of the MEOC to ensure that staff know their roles and responsibilities.



EEROs assisting post-wildfire community re-entry, Ashcroft B.C.

Post-Spill Recovery

Following a spill that causes environmental harm, the Environmental Management Act requires the responsible person to take effective action to address the threat or hazard and restore the environment. The EEP recovery section ensures compliance with this requirement.

Four full-time staff make up the recovery section. The staff are scientists trained in environmental impact assessments, aquatic ecology, marine biology, wildlife biology, toxicology and environmental restoration.

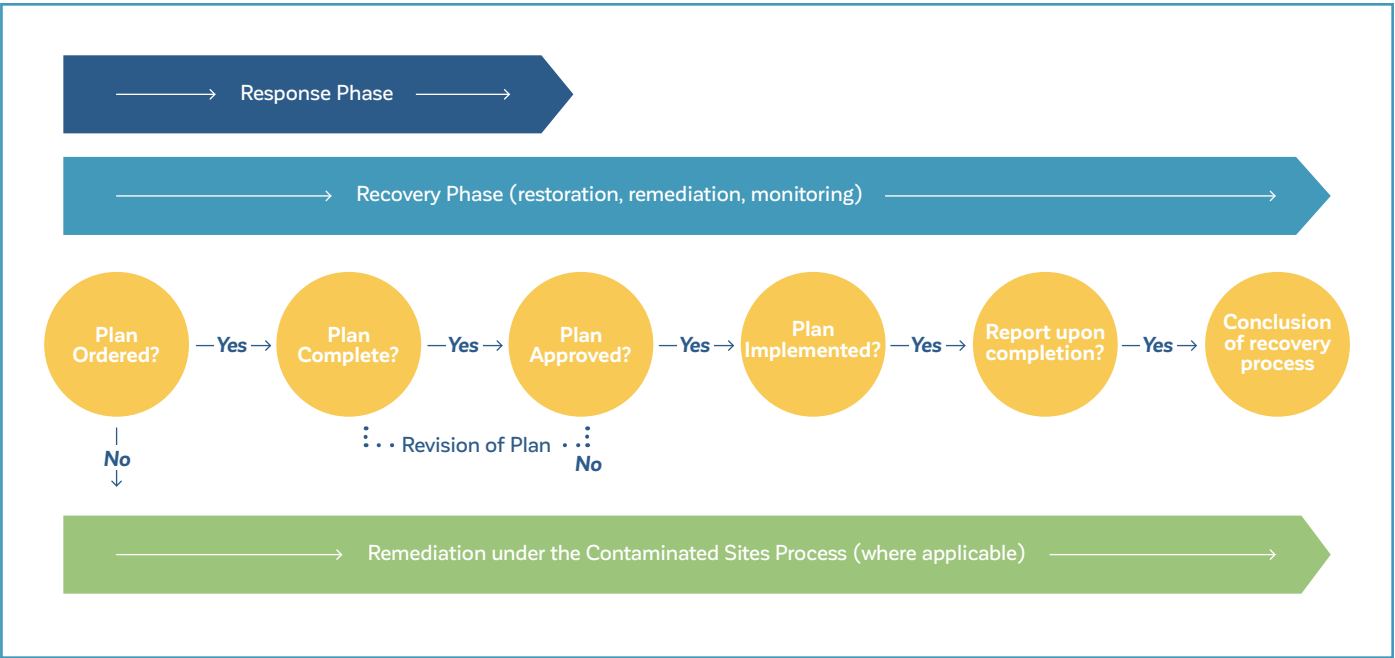
The recovery section of EEP:

- ▶ Oversees and regulates **environmental recovery** after a spill
- ▶ Provides scientific **advice and support** to incident response teams
- ▶ Orders spillers to develop and submit **recovery plans** if warranted
- ▶ Develops policies and procedures for **spill recovery**
- ▶ Develops guidance pieces to educate communities affected by a spill about **existing compensation funds**
- ▶ Leads the administration of **program cost recovery**

When a spill occurs, the legislation requires that the spiller identify and evaluate the immediate risks to and impacts on the environment, human health or infrastructure. When necessary, the spiller is also required to recover contaminants, protect the environment from further harm and to restore the environment.

If a spiller’s actions are not sufficient to comply with the regulation, EEP can order those responsible to take further steps. In addition, the spiller may have to submit a recovery plan in accordance with the Spill Preparedness, Response and Recovery Regulation. In February 2018, the recovery section issued the first order under the regulation.

The diagram illustrates the typical process.





EERO attending coal spill near Mission Creek B.C.



Restoration progress that has taken place, June 2019, Mission Creek B.C.

Cost Recovery

Under the “polluter-pay principle,” those who pose a risk to the environment and public safety must cover the cost of preventing further harm and repairing the impacts of a spill. The recovery section has developed guidelines on allocating and collecting costs incurred by the Province of British Columbia. In the 2018/19 fiscal year, EEP recovered spill-related costs of \$877,403.

Future Priorities

The recovery section will continue developing procedures to guide future activities, including:

- ▶ Guidance for external parties on how to conduct sampling and monitoring to meet Ministry expectations after a spill
- ▶ Guidance for EEP staff on how to transition from the response phase of an emergency to the recovery phase, while meeting the requirements of the Contaminated Sites Regulation
- ▶ Guidance on cost recovery for communities affected by spills

Mission Creek Recovery Plan

On January 19, 2018, a loaded CN coal train derailed between the communities of New Hazelton and South Hazelton, near the junction of the Bulkley and Skeena rivers. Approximately 2,900 tons of coal spilled onto the ice surface and into ice-free sections of Mission Creek. CN began clean-up actions; however, some of its actions caused substantial degradation to the environment. Because of concerns around impacts of the response actions, and because of the lack of community and Indigenous engagement, the EEP recovery section issued its first recovery order to CN on February 8, 2018.

Under the order, CN designed a recovery plan that outlined the actions it would take to recover the damage caused to the creek and surrounding vegetation. CN undertook engagement with impacted Gitksan and Wet’suwet’en First Nations and stakeholders including the communities around New Hazelton. Water quality sampling and monitoring began in February 2018, and fish were detected in Mission Creek in both 2018 and 2019.

CN has submitted three versions of their recovery plan. No plan has been in full compliance with the Spill Preparedness, Response and Recovery Regulation. When a plan does not meet the regulatory requirements, a warning letter is issued which directs amendments for an updated version. The EEP recovery team conducts a critical review and evaluation of each recovery plan. CN and their qualified professional are currently completing updates to the recovery plan, due October 15, 2019.

The EEP recovery team visited the spill site in June 2019 to assess the success of the recovery actions and to meet with impacted Indigenous Nations, provincial and local government agencies, and other stakeholders. The site is recovering well and EEP is happy with the restoration progress that has taken place. Long-term monitoring of the site will be required to ensure the continued success of vegetation re-growth and creek bank stability.

Outreach and Engagement

EEP conducts various forms of outreach and engagement, both to improve its ability to respond to emergencies effectively and to share information with stakeholders, including the public.

Outreach involves working with partners and stakeholders to become familiar with each other prior to an event.

Engagement is consultation and collaboration with Indigenous communities, federal and local governments, industry, environmental and other stakeholder organizations, and the public to solicit feedback relating to the current and proposed work of the program.

Outreach Activities

Engaging with response partners before an event helps to ensure smoother responses by becoming familiar with each other's roles, responsibilities and capabilities. EEROs typically coordinate outreach activities in their region.

To build efficient and practical working relationships with other organizations, EEP participates in a variety of activities including:

- ▶ Meeting with local emergency management organizations
- ▶ Providing information to local first responders regarding hazardous materials
- ▶ Taking part in public exhibitions
- ▶ Attending EMBC seasonal readiness meetings
- ▶ Attending emergency response conferences

Engagement Activities

The EEP team works with Indigenous communities, federal and local governments, industry, environmental and other stakeholder organizations, and the public to solicit feedback and build their knowledge of legislation, regulations, plans and policy.

For example, EEP has described spill reporting requirements to several municipalities, water associations and industrial organizations, and has reviewed responsibilities with B.C. Parks personnel. The program held engagement sessions with the trucking industry on spill contingency plans. Most of the engagement over this reporting period was associated with the development of the Phase 2 regulations. These are summarized in the section of this report on policy development.

During the reporting period, EEP took part in engagement activities with organizations and agencies including:

- ▶ Indigenous Nations
- ▶ Municipalities
- ▶ Regional districts
- ▶ Provincial ministries
- ▶ Federal government
- ▶ Industry associations
- ▶ Non-government organizations such as first responders and highway maintenance contractors

Awareness Through Social Media

In 2017, EEP launched our first Twitter account (@SpillsInfoBC) and began posting a combination of incident-related and educational information.

Providing real-time information on evolving incidents through social media will help reduce the spread of misinformation and build public trust.

EEP also posts educational tweets to improve public awareness of what we do and how we prepare for, respond to and recover from spills in B.C. Anyone can engage with these public, online posts by liking, sharing and commenting on them. This engagement builds relationships and increases knowledge about environmental emergency preparedness and response.



Response exercise near Terrace B.C.



EEP outreach, Grand Forks B.C.



Response exercise near Terrace B.C.



Annual owl incubator decontamination for the Northern Spotted Owl Breeding Program, Langley B.C.

Indigenous Engagement

EEP conducts a variety of activities with B.C. Indigenous Nations to advise about the services the program can provide, and the application of the *Environmental Management Act*. Program staff solicit advice and expertise from Indigenous Nations in relation to environmental emergencies that may affect Indigenous peoples and their traditional territories and resources.

Some key activities in the reporting period included:

Lower Fraser Fisheries Alliance meeting

The LFFA represents 30 Indigenous Nations in the Lower Fraser region and works collaboratively to manage fisheries and support cultural and spiritual traditions. Local response officers met with the LFFA in December 2017 to discuss emergency response and communication in the event of a spill affecting the Lower Fraser River. The LFFA gained a better understanding of EEP's capabilities and mandate, while EEP was able to elicit perspectives on the needs and interests of the LFFA and associated Indigenous Nations.

Spill Response Forum

The LFFA hosted a one-day forum on February 18, 2019, including approximately 10 Indigenous Nations from the Lower Fraser River, CCG, the Department of Fisheries and Oceans, Environment Canada, the National Energy Board, WCMRC, the First Nations Health Authority (FNHA) and ENV. Program officers described provincial spill response capacity and new regulations and gathered a list of questions for staff to address. Indigenous representatives posed questions on spill response that resulted in seven overarching questions for the program. Responses to these questions are now being drafted and helped EEP to identify important gaps

First Nations Health Authority

The FNHA administers a variety of health programs and services for Indigenous people living in B.C. Program staff met with the FNHA in May 2018 to review how EEP relates

to health issues for Indigenous people throughout the province and to continue to build the relationship between EEP and the FNHA. FNHA learned of the size, scope and mandate of EEP and gained a better understanding of areas in which collaboration could occur between the two agencies during a response and in later phases.

Northern First Nations

EEP met with representatives of the Taku River Tlingit First Nation and the Iskut Band in July 2018 to present a program overview and discuss how all groups can work effectively together. This engagement was an opportunity for EEP to build rapport and get some face to face at the community-level, while also serving to increase awareness in northern Indigenous Nations with respect to the strengths and limitations of the program.

Nisga'a Emergency Preparedness Conference

Throughout March and April 2019, EEP was involved in the planning of the Nisga'a Emergency Preparedness Conference, a two-day conference in early May 2019. It was attended by a wide variety of emergency organizations featuring presentations and information booths. Representatives of Indigenous communities and organizations, and provincial emergency response agencies from across the country were in attendance. The event raised awareness of the program among Indigenous and non-Indigenous emergency organizations and it was an opportunity for EEP to build rapport and trust at the community level.



EEP attending the Nisga'a Emergency Preparedness Conference, Nisga'a Nation

External Initiatives

EEP works with numerous external agencies in areas related to spill coordination, response and emergency planning. Through discussions with other agencies, EEP ensures that roles and responsibilities are clearly defined, and strengthens its overall spill preparedness, response and recovery framework.

Key initiatives include:

- ▶ **Greater Vancouver Integrated Response Plan (GVIRP)** – The GVIRP is an operational plan initiated by the CCG to guide multi-agency, on-water responses to serious oil pollution incidents in or near English Bay and Burrard Inlet. EEP has two staff on the Environmental Response Sub-Committee who provide expert advice relating to changes to the Plan.
- ▶ **Juan de Fuca Integrated Response Plan** – As with the GVIRP, the CCG has begun developing area plans for spills in the Strait of Juan de Fuca, with EEP as one of its partners.
- ▶ **Canada-US Joint Contingency Plan (JCP)** – The JCP is a cooperative arrangement between Canada and the United States providing for a coordinated mechanism to plan, prepare for and respond to spills in contiguous waters. EEP acts as the provincial representative for the Juan de Fuca region, the Dixon Entrance and the inland boundaries between B.C. and the states of Montana, Washington and Idaho.
- ▶ **Canadian Council of Ministers of the Environment (CCME)** – EEP is a member of the CCME Environmental Emergencies Working Group, established to enhance the response to environmental emergencies; to ensure that environmental factors receive consideration in response actions; to build a common understanding of roles; and to share lessons learned from incidents.

- ▶ **Pacific States and British Columbia Oil Spill Task Force (OSTF)** – Under the OSTF, representatives from state and provincial environmental agencies in the Pacific coastal area collect and share data on oil spills, coordinate oil spill prevention projects and promote regulatory safeguards. B.C.'s Deputy Minister of the Environment and Climate Change Strategy and EEP's Preparedness Manager represent British Columbia on the task force.
- ▶ **Places of Refuge Contingency Plan (Pacific Region)** – The Transport Canada Place of Refuge Plan provides ships in distress with a designated location to stabilize their condition and reduce potential hazards. The Haida Nation, EEP and Transport Canada collaborated to identify potential places of refuge around Haida Gwaii. EEP continues to provide input and recommendations through technical workshops and further planning for the south coast of B.C.

Environmental Emergencies Working Group

EEP staff worked with the Environmental Emergencies Working Group, which reports to the Canadian Council of Ministers of the Environment, to develop a critical tool for responders across Canada. For federal, provincial and territorial jurisdictions, the CCME Primary Notification Toolkit for Environmental Emergencies outlines who must report an environmental emergency and how to report it based on the type of incident. This toolkit allows responders to quickly determine whom they are legally required to notify in the event of an incident. It improves EEP's ability to respond efficiently and focus resources on actions directly related to protecting the environment.

Revenues and Expenditures

EEP receives funding from the Consolidated Revenue Fund of the Province of British Columbia. The program also recovers certain costs that are charged to those responsible for spills.

The table and notes below summarize the expenditures and cost recovery revenue for the two fiscal years covered by this report.

	Fiscal Year 2017/18	Fiscal Year 2018/19
Expenditures		
Salaries and benefits	\$4,050,111	\$4,676,665
Staff training, exercises and travel	\$292,593	\$390,972
Professional services	\$113,261	\$1,277,810
All other expenditures	\$672,667	\$840,382
Total	\$5,128,634	\$7,185,830
Revenue		
EEP cost recovery	\$213,374	\$877,403

Notes

Expenditures

Staff travel, training and exercises includes:

- ▶ Staff travel to and from spill incident sites
- ▶ Meeting with consultants, Indigenous and local governments, the public, stakeholders and other ministry staff
- ▶ Professional development and training to maintain technical competence
- ▶ Emergency management career development training and exercises
- ▶ Conference attendance
- ▶ Engagement and outreach travel

Professional services refers to work that is contracted out. Examples are professional and specialized expertise in policy development and contractor services in spill preparedness, response and recovery.

Other expenditures include operating expenses.

Revenue

EEP, in accordance with the polluter-pay principle, seeks cost recovery for government expenditures related to spill response actions as outlined in section 91.4 of EMA.



Message from the Director

The Environmental Emergency Program increased the scope of work in each of its three pillars – preparedness, response and recovery – during the reporting period from October 2017 to March 2019.

- ▶ Our preparedness section developed and implemented new regulations under the Environmental Management Act to increase the level of preparedness required of hazardous materials transporters
- ▶ Our response section received over 6,000 reports of spills or other environmental emergencies. It increased its level of training to ensure staff could operate safely in dangerous situations and remain the provincial leaders in hazardous materials and spill response
- ▶ The recovery section developed policy and procedures that ensure spillers meet their regulatory requirements and restore the environment to an acceptable level

For the coming year, we have identified the priorities to make sure we build on these achievements and fulfill our mandate.

To ensure **preparedness**, we will:

- ▶ Continue to implement regulations while further developing our compliance and enforcement strategy
- ▶ Acquire and implement the incident management system and modernize the ministry operations centre
- ▶ Further develop response planning and business continuity planning
- ▶ Update our Indigenous guide to environmental emergencies

To ensure the most effective **response** possible, we will:

- ▶ Build on past successes that have focused on the program's immediate response capacity by developing sustained response capacity for moderate to significant spill events that require extended response

- ▶ Establish procedures to meet performance indicators we have adopted regarding readiness, response and safety
- ▶ Implement a new staff training plan and safe work practices to meet the requirements of our hazard risk assessment
- ▶ Develop and implement a communications strategy to expand use of our information officers
- ▶ Increase outreach to Indigenous communities and organizations

To ensure **recovery** of the environment and affected communities, we will:

- ▶ Complete our development of guidance on sampling and monitoring procedures
- ▶ Build and implement internal spill recovery procedures that align with Land Remediation requirements
- ▶ Develop cost recovery guidance for Indigenous and other communities
- ▶ Oversee the CN Rail recovery plan for Mission Creek, with special attention to requirements for Indigenous community engagement

Our staff have worked diligently to achieve their objectives, but spill response planning is a collaborative effort. I would like to acknowledge and thank our Indigenous partners, federal counterparts, members of the public and various stakeholders for providing advice and feedback that has helped inform our policies and daily operations. We will continue to work with these groups to preserve our respectful relationships and improve our ability to make informed decisions.

I am confident that in the new year, our team will continue to meet and expand the ability of the Environmental Emergency Program to protect and preserve the environment of British Columbia and the health and safety of its residents.

Pader Brach

Director, Environmental Emergency Program
Environmental Protection Division
B.C. Ministry of Environment & Climate Change Strategy

For further information, please visit our website:
www.gov.bc.ca/environmental-spill-response

Follow us on Twitter! @SpillsInfoBC

**Please report all hazardous materials incidents
in B.C. to the B.C. Spill Reporting Line:**
1-800-663-3456

All photographs were taken by the B.C. Ministry of Environment
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Ministry of
Environment and
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