

A FIRST NATION'S GUIDE TO ENVIRONMENTAL EMERGENCIES



INTRODUCTION

This guide will outline important things to consider should an **environmental emergency**¹ affect your First Nations community.

An environmental emergency is simply an occurrence or natural disaster that affects or threatens the environment. It could be a flood, a landslide, or a poisonous or dangerous substance spill. It could be a small car accident that causes a truck to dump a few litres of gas into a ditch or it could be an oil spill that releases thousands of litres of oil into the ocean.

Many First Nations communities in BC have been affected by environmental emergencies, even within the last few years. The Gitga'at community of Hartley Bay were the first to arrive on scene when the Queen of the North ferry sank in March, 2006. The Squamish and Tseil-Waututh Nations got involved when a Burnaby pipeline was punctured in July, 2007, spraying an oil geyser 30 meters high into the air and surrounding area. The Metlakatla First Nation was impacted when a ship leaking diesel was towed past their seaweed and clam harvesting areas in May, 2008.

Whether an environmental emergency be “minor” or “major”, if it has the potential to affect your sensitivities it's important to get involved in **emergency response** and make your concerns known. Each First Nation in British Columbia has unique knowledge of local sensitivities that only they may be aware of. It's essential to make sure that these sensitivities are protected for the benefit of future generations and the continuation of First Nations culture.

This guide will describe what happens from the moment an emergency is reported until after clean-up is finished. It will highlight emergency response topics that may be relevant to First Nation communities. Most importantly, it will clarify how your community can get involved in emergency response to make sure your concerns are heard.

Cover page: Squamish Nation responders, 'Namgis First Nation responders, others.

¹ All words in bold, excluding words in headings, will be defined in Appendix G – Glossary of Terms

INFORMATION INCLUDED

This document will give First Nations communities a brief overview of what to expect if an environmental emergency impact their lands or interests. It is intended to be a guide and not a strict policy document.

Like everything, emergency response processes will evolve over time. We encourage the reader to obtain certified emergency response training to ensure their knowledge is up to date and to ensure they are prepared to safely respond to emergencies.

For a list of training resources, see Appendix E.



Ministry of
Environment

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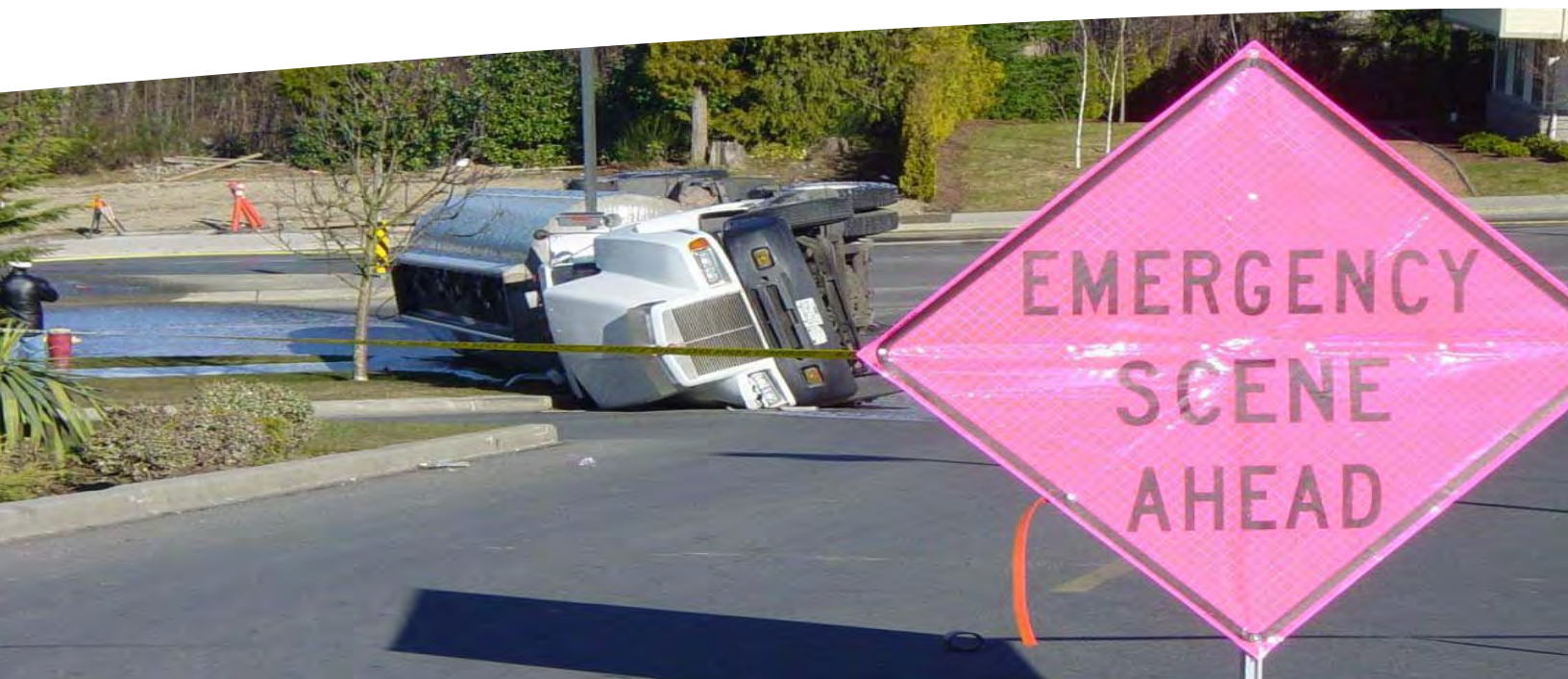
WHAT IS AN ENVIRONMENTAL EMERGENCY?

Roughly 4,000 spills and other environmental emergencies are reported each year in British Columbia. Though many are spills of very small quantities, there are about 12 - 24 fairly significant spills a year.

Whether an emergency is “minor” or “major”, it has the potential to impact the local area. As a First Nation, it is important to understand what environmental emergencies are and how you can get involved to protect your interests and sensitivities.

This section will explain:

- What environmental emergencies are
- Who is responsible for environmental emergencies
- How governments could get involved when environmental emergencies happen
- Which government agencies get involved and when
- How emergencies are reported and who is notified
- How potentially impacted First Nations are notified



WHAT IS AN ENVIRONMENTAL EMERGENCY?

An “environmental emergency” is simply an occurrence or natural disaster that affects or threatens the environment. A few examples could be:

- A flood
- A landslide
- A gas leak
- A debris flow
- A spill or leakage of oil or of a poisonous, dangerous or **hazardous substance**

Of the estimated 4,000 emergencies reported in BC each year, however, about 95% are spills or leakages of oil and hazardous substances. As such, this document will focus more on spills and substance leakages rather than natural disasters.

Examples

M/V Nestucca barge oil spill – 1988



About 3 kilometres off the coast of Washington, a tug boat rammed the tanker barge it was towing, the *M/V Nestucca*, and created a hole in its cargo hold. 874,000 litres of **Bunker C** oil spilled out and spread up and down the coast of Washington and to parts of southern British Columbia.

Cheakamus River train derailment – 2005

In the summer of 2005, a train derailment occurred in the Cheakamus River Canyon north of Squamish. Nine cars derailed, one of which spilled 40,000 litres of sodium hydroxide into the river. More than 500,000 fish were killed.



M/V Westwood Anette oil spill – 2006

In August, 2006, the *M/V Westwood Anette* punctured its starboard fuel tank on a metal piling at a dock terminal in Squamish. Approximately 29,000 litres of Bunker C oil spilled out and some moved into the estuary of the Squamish River.

WHO IS RESPONSIBLE FOR ENVIRONMENTAL EMERGENCIES?

Natural Disasters



If the environmental emergency is a flood, landslide or other natural disaster in BC, the Ministry of Environment will be directly involved in emergency response. The Ministry of Environment will work with local, provincial and federal government agencies, such as the Provincial Emergency Program, Environment Canada, etc. to manage the emergency.

Since natural disasters are far less common than hazardous

substance spills, this document will largely focus on hazardous substance spills.

Hazardous Substance Spills

The most common emergencies (about 95% of all emergencies) are spills or leakages of oil or hazardous substances. Whoever has possession, charge or control of a substance immediately before its spill is responsible to report it and to clean it up. It does not matter if it is an accident or not.

The responsible person or company is called the **Responsible Party**.

However, many different organizations will likely be involved in emergency response too. Emergency response could include things like evacuation, cleanup, shoreline assessments, communicating with the media, etc.



HOW COULD THE GOVERNMENT GET INVOLVED IF AN ENVIRONMENTAL EMERGENCY OCCURS?

A local, provincial or federal government agency will always be involved in environmental emergencies in some way. These situations describe the 4 possible levels of government involvement:

1) Government Led Emergency Response

If the emergency is a natural disaster, such as an earthquake, local authorities will lead emergency response. They can request additional support or resources from provincial and federal government agencies if needed.

2) Monitoring or Helping a Responsible Party

A Responsible Party is the person or company who had possession, charge or control of a substance immediately before its spill. If there is an identified Responsible Party (meaning, we know who they are), they are responsible for clean up, managing the emergency and all the costs involved.

However – a provincial or federal government agency will still monitor the Responsible Party to make sure their cleanup job is satisfactory and meets provincial clean-up standards. If they require or request help, government agencies can provide resources and expertise, billing their costs to the Responsible Party.

3) Taking Over from a Responsible Party

Sometimes, a Responsible Party might be unwilling or is not able to adequately clean up or respond to the spill, or they might not have enough money or resources. If this is the case, federal and/or provincial government agencies may take over emergency response and finish up.

Once emergency response is complete, the government agencies who took over will recover their costs from the Responsible Party.

4) If There is No Responsible Party Identified

If a spill does not have an identified Responsible Party, it is called an “**orphan spill**” or a “**mystery spill**.” For example, if someone caused a spill and (illegally) did not report it, it would be called an orphan spill.

In the event of an orphan spill, and if a local government is unwilling or unable to respond, a federal or provincial government agency (or both) could step in, depending on the origin of the spill and the seriousness of the spill, and make sure the spill is managed appropriately.

WHICH GOVERNMENT AGENCIES GET INVOLVED?

In British Columbia, the origin, location and other case-by-case circumstances of the environmental emergency determine which government agencies will be involved in emergency response, management and cleanup. Usually, any government agency with affected interests will be involved in some way or another. For example:

- First Nations – can be involved if their lands, people, interests or sensitivities are impacted
- Ministry of Environment – could be involved if any environmental emergency originates from or could impact provincial lands or resources. Provincial lands includes the ocean floor adjacent to BC
- Canadian Coast Guard – could be involved if the spill originates from a ship or could impact navigable waters
- Oil and Gas Commission – could be involved if a spill originates from a provincial oil or gas pipeline or facility
- National Energy Board – could be involved if a spill originates from an inter-provincial oil or gas pipeline or a facility they regulate
- Environment Canada – could be involved if the spill impacts or originates from an area falling under federal jurisdiction
- Provincial Emergency Program – All reportable spills or emergencies in BC are reported to the Provincial Emergency Program's 24-hour incident reporting line: **1-800-663-3456**. They can also support local government's response as needed
- Municipal / local governments – could be involved if their municipality or community is impacted
- CANUTEC – could be involved in certain circumstances. For example, incidents involving infectious substances, catastrophic cylinder failure, dangerous goods incident involving railway vehicles, ships or aircrafts

Other agencies could be involved depending on the origin and circumstances of the emergency. Clearly, many government agencies' interests often overlap one another. As such, they could all be involved in emergency response in some way.

An incident that perfectly displays agencies' overlapping interests is the Burnaby pipeline spill that occurred in July, 2007.

A crude oil pipeline was punctured by a construction crew digging in Burnaby. A 30 meter oil geyser sprayed into the air and covered the surrounding area with oil over a 25 minute period. As this picture displays, some oil escaped into the ocean waters of Burrard Inlet by seeping through storm and sewage drains.



In this well-known emergency, some of the agencies with impacted interests were:

- First Nations – The Squamish and Tsleil-Waututh Nations' traditional territories and interests were directly impacted
- Ministry of Environment – the spill impacted and originated from provincial lands
- The Canadian Coast Guard – the spill made its way into navigable waters by seeping through sewer and storm drains
- National Energy Board – the spill originated from an inter-provincial oil pipeline
- Environment Canada – the spill impacted an area under federal jurisdiction (the ocean's water)
- Municipal / local government – part of the City of Burnaby was directly impacted when it was covered with oil
- Vancouver Port Authority – the spill leaked into Burrard Inlet

The circumstances of this incident required many different agencies to respond to the environmental emergency. Since no two incidents are the same, different circumstances will mean different agencies are involved each time.



REPORTING AN ENVIRONMENTAL EMERGENCY

About 95% of all reported emergencies are hazardous substance spills. BC's ***Environmental Management Act*** determines that a person who has possession, charge or control of a substance immediately before its spill must, by law, immediately report the spill to the Provincial Emergency Program.

In short, it is illegal not to immediately report a spill you have caused.

To report a spill or another environmental emergency, call the Provincial Emergency Program (PEP) at:

1 - 800 - 663 - 3456

All reportable spills and other environmental emergencies are reported to the Provincial Emergency Program's 24-hour incident reporting line: **1-800-663-3456**.

Spills along Canada's pacific west coast can also be reported to 1-800-OILS-911. This number is easy to remember and all calls that are made to this number will automatically be

re-directed to the Provincial Emergency Program's 24-hour incident reporting line mentioned above.

The Provincial Emergency Program's call dispatcher will take down the incident details and notify the appropriate people.

What information is necessary?

When reporting a spill, the caller should be prepared to provide the dispatcher with the following information, if possible:

- reporter's name and contact phone number
- name and telephone number of the person who caused the spill (if known)
- location and time of the spill
- type and quantity of the substance spilled
- cause and effect of the spill
- details of action taken or proposed
- description of the spill location and surrounding area
- names of agencies on scene
- names of other persons or agencies advised concerning the spill



WHO GETS NOTIFIED?

Mandatory notifications

Once the details of any spill or emergency have been reported, the Provincial Emergency Program's call dispatcher must notify (in order):

- The Ministry of Environment

There is a provincial **Environmental Emergency Response Officer (EERO)** on duty at all times. They are verbally notified of all spills 24 hours a day, 7 days a week, 365 days a year.

- Environment Canada

Environment Canada must be notified of all spills. During business hours, they are notified electronically. After hours, the provincial Environmental Emergency Response Officer (EERO) on duty will decide (based upon the seriousness and circumstances of the emergency) if they should be contacted verbally or not.

Potential Notifications

As demonstrated on pages 10 – 11 of this document, many agencies besides the Ministry of Environment and Environment Canada may want to be involved if an environmental emergency might affect their interests.

The Provincial Emergency Program's call dispatcher or the Ministry of Environment will notify agencies if their interests might be impacted or depending on how and where the spill occurred.

HOW ARE POTENTIALLY IMPACTED FIRST NATIONS NOTIFIED?

If the person who reports the emergency reports that it might impact aboriginal reserves or people, the Provincial Emergency Program's call dispatcher will notify Indian and Northern Affairs Canada (INAC) and Public Safety Canada. Or, if the first responders who arrive at the emergency scene realize that aboriginal lands or people could be impacted, they can contact the Provincial Emergency Program and ask them to contact Indian and Northern Affairs Canada.

Indian and Northern Affairs Canada will then contact the potentially impacted First Nation.

Environment Canada, who is notified of all spills, also attempts to contact any potentially impacted First Nations. They often attempt to contact them directly. They will also call INAC to notify them of the situation and ask them to get a hold of the First Nation as well.

The Ministry of Environment, whenever possible, will also attempt to contact a First Nation directly if a significant spill might impact them.

EMERGENCY RESPONSE

An emergency's cleanup and management is usually called “emergency response.” The Ministry of Environment uses an organizational structure called the **Incident Command System (ICS)** to manage all emergencies. It is extremely important to have an understanding of the Incident Command System if you wish to get involved in environmental emergency response.

This section will describe:

- The Incident Command System (ICS) and its key concepts
- Roles and duties in the Incident Command System
- The important concept of **Unified Command (UC)**

It is important to understand these things so you can see how your First Nations community can fit into the picture. The next section will then describe ways that First Nations can get involved in emergency response.



THE INCIDENT COMMAND SYSTEM



The Incident Command System (often called ICS) is an emergency management system used when responding to emergencies. It is extremely important to have an understanding of the Incident Command System if you wish to get involved in environmental emergency response.

Though this document will outline it briefly, it is a good idea to take some Incident Command System and Emergency Management training. See Appendix E for information on training opportunities.

Basically, the Incident Command System is an organizational system that is used to manage emergencies efficiently. To ensure that emergency response, management and clean-up are effective and that no time is wasted, it is extremely important to be well organized.

Many spill response agencies and governments, including the BC provincial government, the United States, the United Kingdom and Australia, have adopted the Incident Command System as their official emergency management structure.

It is useful that so many organizations have decided to use the Incident Command System. It allows many different agencies, even from different countries, to:

- Work together to organize emergencies by using the same management system
- Work together to solve problems instead of competing to be “in charge” (this concept is called **Unified Command**)
- Decide together what the best plan of action is and stick to the same plan
- Use the same terminology
- Ensure that supervisors are overseeing a manageable number of people

KEY CONCEPTS IN THE INCIDENT COMMAND SYSTEM

Unified Command

If an emergency affects multiple or overlapping jurisdictions (see page 11 for an example) a Unified Command may be used. Each major organization whose interests have been impacted will have one representative sit on Unified Command. As a team, they will agree upon emergency response objectives, strategies, and an **Incident Action Plan** (the Incident Command System's term for a plan of action).

In short, many different agencies agree to work together instead of working independently.

In BC, Unified Command can be made up of representatives from the Responsible Party, federal government agencies, provincial government agencies, First Nations, local or municipal governments, and Incident Command staff.

More detailed information on this important topic will be provided on pages 21 – 23.

Common Terminology

By using the same terminology, many different organizations and agencies (e.g. Police, fire, and ambulance) can work together and can understand each other without confusion. Using the same terminology ensures that emergency responders are communicating clearly and effectively.

This is also helpful if different countries (e.g. Canada and the United States) have to work together during an emergency. Provided they speak the same language, completely separate jurisdictions will be trained in the same system and will use the same terms.

Span of Control

Maintaining “span of control” simply means that no one is supervising more than 7 people at a time. Ideally, no one should actually be supervising more than 5 people at a time.

Span of control goes hand in hand with modular organization. If someone is getting overwhelmed and is supervising too many people or handling too many things, it may be time to create another “pod” with support supervisors and workers.

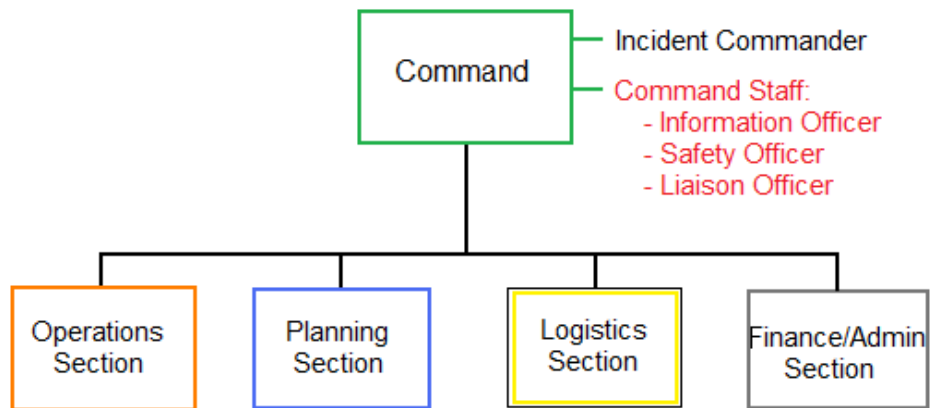
See the next page for clarification.

Modular Organization

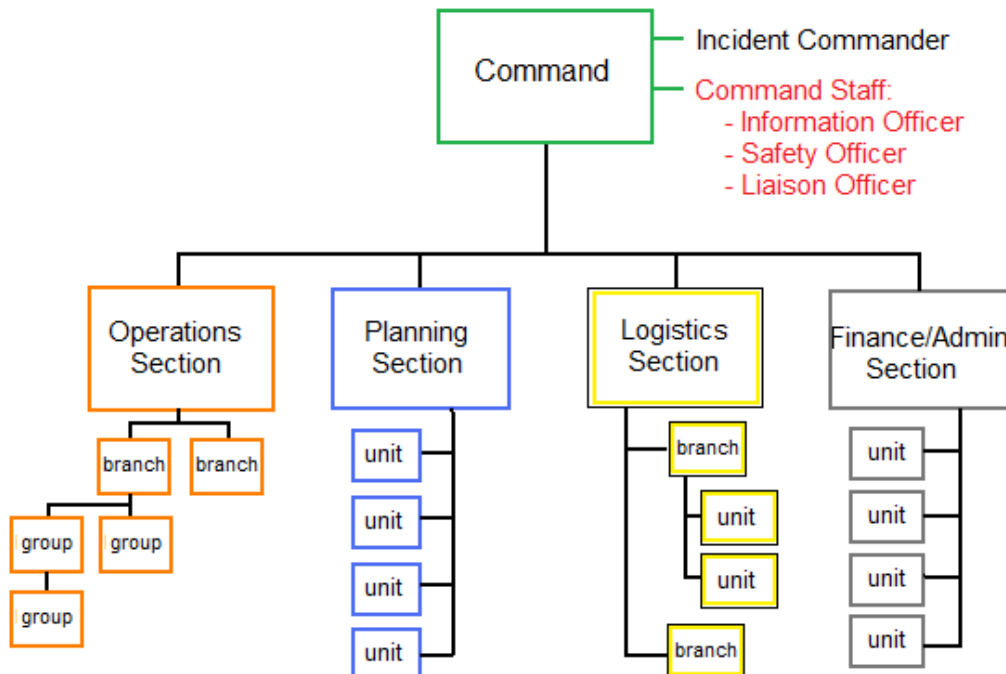
The Incident Command System is useful because emergency response builds “from the ground up.” This means that small emergencies will have fewer people involved whereas big emergencies will have more people involved.

The following graphs will demonstrate how modular organization expands and contracts depending on the size of the emergency.

A small emergency’s modular organization (less people) may look like this:



Whereas a large emergency’s modular organization (more people) will have added branches, units, supervisors, etc. and may look more like this:



ROLES IN THE INCIDENT COMMAND SYSTEM

Command



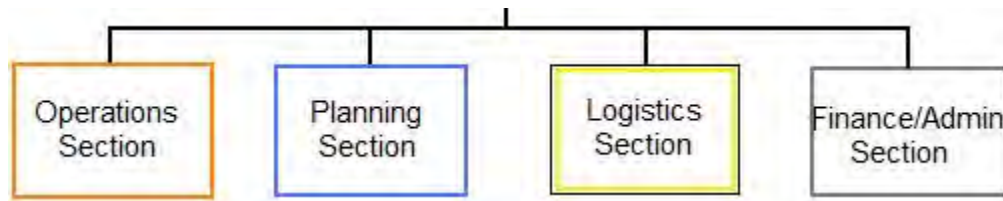
Command is made up of an **Incident Commander** (the boss) and **Command Staff** (the helpers). Command Staff is made up of an **Information Officer**, a **Safety Officer** and a **Liaison Officer**.

If the person, company or government agency directing the emergency response supports the concept of Unified Command, other agencies may also participate in Command to make sure their concerns are considered. Unified Command will be further explained on pages 21 – 23.

Command Duties

Incident Commander	“the boss.” In charge of managing <u>overall</u> emergency response. Makes any executive or final decisions.
Command Staff	made up of an Information Officer, a Safety Officer and a Liaison Officer. They are “the helpers” who report to the Incident Commander.
Information Officer	in charge of providing information to the public, media, and other agencies or organizations.
Safety Officer	in charge of monitoring safety hazards or unsafe situations. They must ensure all personnel are safe.
Liaison Officer	in charge of coordinating stakeholder groups and assisting or cooperating agencies.

Sections



Each of these sections has a Chief that will report directly to Command Staff.

Section Duties

Operations – “the doers”

This section of the Incident Command System (ICS) carries out all “on the ground” operations during emergency response. These people receive an Incident Action Plan from the Planning Section and carry it out. For example, Operations could include beach clean-up crews, wildlife rescue staff, oil collection crews, etc.

Planning – “the thinkers”

This section of ICS collects all information about the incident and develops an Incident Action Plan; the Incident Action Plan simply determines what should be done during the next **Operational Period** (e.g. 6 hours, 12 hours – whatever is decided upon) to make sure cleanup is effective. Planning gives the Incident Action Plan to the Operations section to be carried out.

Logistics – “the getters”

This section of ICS is in charge of obtaining any necessary resources. For example – shelter and food for staff, boats for cleanup crew, medical support, etc.

Finance – “the payers”

This section of ICS tracks and documents all costs associated with the incident. This needs to be recorded so the Responsible Party has a record of what they will pay for.

UNIFIED COMMAND

The concept of Unified Command is very important. When an emergency affects more than one jurisdiction, more than one level of government, or requires a multi-agency response, each affected group may have one representative sit on a Unified Command.

As a team, Unified Command will agree upon emergency response objectives, strategies and a plan of action.

To recap, a Unified Command structure can be used when an emergency:

- Involves more than one jurisdiction (e.g. Canada and the United States)
- Involves one or more jurisdiction, level of government and/or a company (e.g. The provincial government, a First Nation and the Responsible Party)
- Requires multiple types of emergency services (e.g. Fire, police, and ambulance)

The purpose of Unified Command is to bring all emergency responders together to agree upon common goals, such as:

- To ensure the protection of people, property and the environment
- To agree upon emergency response priorities and formulate a plan together



A Unified Command structure would replace a Single Command structure (described on page 19) with a structure more like the one pictured below:



In a Single Command structure, an Incident Commander would normally be “the boss” responsible for overall emergency management and would have final decision making power. Under a Unified Command, as you can see above, an Incident Commander will be just one part of the decision making team trying to reach consensus on a plan of action.

Even in a Unified Command structure, however, no agency gives up their jurisdictional responsibility. They therefore maintain final say in matters that fall under their jurisdiction.

The following are just a few examples of agencies with jurisdictional responsibilities:

- Ministry of Environment – the lead provincial agency for all spills impacting the province
- Canadian Coast Guard – the lead federal agency for all spills that originate from a ship
- Environment Canada – the lead federal agency for all spills that originate from federal lands or facilities
- National Energy Board – the lead federal agency for spills that originate from inter-provincial pipelines or facilities they regulate

Important Note

It is important to note that while most agencies support the concept of Unified Command, not all agencies do. It is used depending on the circumstances of the environmental emergency. Though it is often used, it is not always used.

Even if a Unified Command is not used, there are still ways for your First Nation to be involved in emergency response. See the next section for detailed information.

Example of a Unified Command

For an example of Unified Command, see the agencies and scenario explained on pages 10 – 11.

HOW CAN A FIRST NATION GET INVOLVED IN EMERGENCY RESPONSE?

There are many different ways for your First Nation to get involved if an environmental emergency affects your interests or sensitivities.

It is important to have a community emergency plan prepared beforehand to ensure your community is able to effectively and efficiently take action when an emergency occurs.

If an environmental emergency actually does affect your interests, there are quite a few ways that your community can get involved.

This section will cover:

- The benefits of community planning and how to go about it
- How your community can get involved in emergency response



THE BENEFITS OF EMERGENCY PLANNING

The benefits of preparing your community for an environmental emergency are immeasurable. Emergency planning can:

- Ensure your community is prepared to react swiftly and decisively
- Save crucial **notification time** by pre-designating an emergency contact person for your community
- Save time by identifying and mapping local sensitivities and other information beforehand
- Determine who will be appointed to make decisions and share information on behalf of your community

How to create an emergency plan

Use the Emergency Planning Checklist in this section to develop an emergency plan with your community.

If you require further assistance or guidance you may want to contact the First Nations' Emergency Services Society (FNESS).

FNESS is a registered non-profit society that operates under the direction of a First Nations Board of Directors. Their website provides emergency planning guides and templates, or they can work with your community to develop a specific community emergency plan.

Contact them for further information.

First Nations' Emergency Services Society
Suite 1257 – 409 Granville Street
Vancouver BC
V6C 1T2

Tel: (604) 669-7305
Fax: (604) 669-9832
BC Toll Free 1-888-822-3388

Website: www.fness.bc.ca

Online Resources

The Government of Canada also has many Emergency Preparedness resources available online. Check out www.getprepared.ca for many online resources.

EMERGENCY PLANNING CHECKLIST

We encourage you to gather the following information and include it in your community's emergency plan:

- Pre-designate an emergency contact person from your community who has a 24/7 phone number and can notify the rest of the community if an emergency occurs.

Distribute this person's name and 24/7 contact information to:

- Local emergency response personnel such as the local fire department and police station.
- Your region's Environmental Emergency Response Officer (EERO). As described on page 13, an Environmental Emergency Response Officer is a Ministry of Environment employee who is the first person notified when a spill has been reported.

To determine who your region's Environmental Emergency Response Officer is, call a Ministry of Environment regional office. A list of regional offices is listed in Appendix D and can also be found at <http://www.env.gov.bc.ca/eemp/contact.htm>.

- Pre-designate someone from your community who has decision making power and will make decisions on behalf of your community during an emergency.
- A map of your traditional territory.
- A map outlining your preferred area of notification – if an emergency occurs near or on your territory, to what extent do you want to be notified? If it impacts just your reserve or cultural sensitivities? Or the whole of your traditional territory?
- A map identifying significant traditional resources that could be affected by an emergency (eg. Food harvesting areas, petro glyphs, burial sites, etc.).

Since this map could be viewed by non-community members during emergency response, you do not have to explain why a site is culturally sensitive if you are not comfortable doing so – just mark the site as “culturally sensitive.” If this is the case, however, make sure you prioritize which areas are the most important to protect (number them in order and include it on the map).

- A list of sensitive sites that may require elder accompaniment, designated accompaniment (e.g. someone with hereditary responsibilities) or other.

- ☑ A list of areas that may be more or less sensitive depending on the season, gathering cycles, etc.
- ☑ A list of assets your community can provide during emergency response such as estimated number of boats, areas that could be used for shelter, hotels and food sources, available contractors, etc.
- ☑ A list of community members or trained staff whose expertise could be helpful during emergency response. For example, community members may have experience in archaeology, fisheries, habitat monitoring, etc.

Be sure to include 24 / 7 contact information for these people.

ROLES FIRST NATIONS CAN FILL IN THE INCIDENT COMMAND SYSTEM

The most effective way for a First Nations community to get involved in environmental emergency response is to fill various roles in the Incident Command System. As described in the previous section, the Incident Command System is an organizational system that is used to manage emergencies efficiently.

There are many roles in the Incident Command System that can be filled by your First Nation's community members. Read the following information about roles that can be filled and who would be an appropriate community member to fill such a role.

Unified Command

To recap, a Unified Command can be used when an emergency affects more than one jurisdiction or group of people. Each organization that is directly affected by the emergency may have one representative sit on Unified Command. As a team, Unified Command will decide upon **incident** objectives, strategies and a plan of action.

If a First Nation has been directly impacted by an environmental emergency and if a Unified Command is used, they can have a representative sit on Unified Command. Since Unified Command makes high-level, strategic decisions that decide how emergency response will be carried out and what the priorities are, it is very important that your Unified Command representative be someone who is authorized to make decisions on behalf of your community.

For example, an appropriate person could be an elected chief, a hereditary chief, a leader in another traditional governance structure, or a local elder with the community's support. However, the decision is up to your community.

If your community is able to develop a community emergency plan before anything has happened, it is a good idea to identify who this person will be beforehand. It could save precious time if an emergency actually happens.

Liaison Officer

Sometimes, a Unified Command is not used. Or, in some circumstances, a First Nation who has been impacted by an emergency may not have the capacity or an appropriate person to sit on Unified Command. Or, for whatever reason, they may not want to be involved in the decision making process.

If this is the case, a First Nation can still be kept up-to-date or can provide input to Command or Unified Command through a Liaison Officer. The Liaison Officer, one of the members of Command Staff, will sit on Unified Command and can relay information on behalf of the First Nation. They will also relay information back to the First Nation and keep them up-to-date.

Operations Section

Operations staff are the “doers.” They are the people who perform on-the-ground duties during emergency response. Operations staff could include beach clean-up crews, wildlife rescue staff, oil collection crews, **Shoreline Cleanup and Assessment Techniques (SCAT)** teams, boat skippers, etc.

If a First Nations community has been impacted by an environmental emergency, community members are able to work in Operations if they have the appropriate skills and training to ensure health and safety of themselves and the all responders involved.

Volunteers and Workers

Volunteers are generally not accepted due to injury and liability issues, especially for on-water operations or substance recovery of any kind. You can seriously injure yourself if you are not trained to deal with hazardous materials.

However, depending on the emergency’s circumstances, volunteers may be provided with training for certain tasks if they have skills or knowledge that provide value to emergency response efforts. They could subsequently be included as paid members of the spill response workforce.

Shoreline Cleanup and Assessment Techniques (SCAT)

One role in Operations that First Nations frequently fill is on a Shoreline Cleanup and Assessment Techniques (SCAT) team.

SCAT teams go to shorelines that have been polluted or oiled and collect data about the current conditions. This information is then relayed to the Planning Section of the Incident Command System to enable them to set priorities and determine an Incident Action Plan.

SCAT teams are responsible for things like evaluating oil, substance or shoreline conditions, factoring in and documenting shoreline types, identifying sensitive resources, determining the need for cleanup, and recommending cleanup methods.

Contractors

If you have community members who are interested in receiving training in emergency response to be able to safely take part in on-water operations, your nation may want to discuss potentially signing up as a **contractor** with Burrard Clean Operations, a marine spill response company who often response to spills.

If your First Nation is interested in signing on as a contractor with Burrard Clean Operations to carry out duties related to oil recovery, e-mail them and express your interest at mail@burrardclean.com.

You can also call the Burrard Clean Operations head office in Burnaby at (604) 294-6001 (extension 200). The administrator will direct your call appropriately, usually depending on geographical location.

Burrard Clean accepts contractors depending on certain circumstances. For example, if they already have many contractors signed on in your area of BC, they may not need another contractor at that time.

Nevertheless, it is still a good idea to express interest if your community wants to be hired as a contractor. You never know when they will need contractors in a certain area.

Planning Section

Planning staff are the “thinkers” – they collect all information about the incident and develop what is called an Incident Action Plan. The Incident Action Plan simply establishes what will be done during the next operational period (eg. 6 hours, 12 hours – whatever is decided) and prioritizes what should be cleaned up or focused on first.

Within the Planning Section, there are a few units First Nations should get involved in to be most effective:

Environmental Unit

The Environmental Unit is responsible for environmental monitoring and for making strategic recommendations. They may use visual observations, computer modeling, tidal, weather and current information, and other information to identify sensitive areas and determine cleanup priorities.

For example, the Environmental Unit could use trajectory maps to estimate where spilled product will travel to next. Using that information, they could recommend that the area should be protected with boom.

It is essential to have a local First Nations person taking part in the Environmental Unit. Cultural sensitivities, such as burial sites or food harvesting areas, may not be immediately apparent to emergency responders who are not from the area.

Having local knowledge of the area can also save time during emergency response. For example, if a local First Nation can identify tidal actions or irregularities that are known to occur, it would provide critical, specific information to responders that more generic, large-scale tidal information does not provide.

Regional Environmental Emergency Team (REET)

If a few federal agencies are involved in spill response (such as the Canadian Coast Guard, Environment Canada, etc.), what is called a Regional Environmental Emergency Team (REET) will often be activated. The REET is typically co-chaired by Environment Canada and the BC Ministry of Environment.

Agencies with environmental mandates, local representatives and key stakeholders, including provincial government agencies and First Nations, may have one or more specialists sit on REET to develop recommendations about spill response and establish environmental protection priorities.

REET serves as an advisory team that assists the Environmental Unit (described above) with technical expertise, provides environmental priorities for consideration, and can provide approvals for certain response tactics (e.g. the use of chemical dispersants or in-situ burning).

The REET also provides Incident Command with advice about the Incident Action Plan created by the Planning Unit. First Nations are welcome to participate in both the REET and the Environmental Unit.

Various other roles in Planning

If your First Nation has community members who are trained or employed in fields that may aid spill response decision making, they may be able to fill a variety of roles in Planning.

Examples could be community members who are trained archaeologists, cultural specialists, environmental officers or monitors, etc.

Logistics Section

Logistics staff are “the getters.” They obtain any necessary resources to carry out emergency response. For example, they would find things like shelter and food for staff, additional boats for cleanup crews, medical support, extra oil skimmers, etc.

First Nations may decide not to participate in the logistics section as it does not deal with strategic decision making.

However, the Logistics Section could include First Nation representatives to help them find resources that may be in the immediate area. This is especially helpful if an emergency occurs in a remote area of BC where responders have limited knowledge of the locally available resources.

In remote areas, it is more efficient and cost effective to use local resources (e.g. shelter, food, boats) than to bring them in from elsewhere.

Finance Section

Again, this section of ICS does not usually involve local First Nations since it does not deal with strategic decision making. However, that is not to say that First Nations cannot be involved.

A community member with financial experience may want to be involved with the Finance Section.

EMERGENCY RESPONSE DECISION MAKING

Decisions that are made during emergency response depend on a variety of factors such as:

- Location of an emergency (remote or central area)
- Type of location impacted (river, ocean, land)
- Type of emergency (earthquake, oil spill, etc.)
- Time elapsed since the emergency occurred
- Type of product spilled, if applicable

Different types of emergencies require different types of decisions and solutions. In general, however, decisions made during emergency response are guided by 2 important principles:

- Think ahead – it may already be too late to protect a resource at risk
- **Net Environmental Benefit** – are the decisions being made going to accelerate the location's rate of recovery or hinder it?

This section will explain:

- Examples of land, inland water and ocean emergencies
- The important concept of Net Environmental Benefit
- Things to consider when cleanup is finished



TYPES OF EMERGENCIES

Land Emergencies

Land, of course, can be impacted at any time by a natural disaster such as an earthquake, landslide or flood. Hazardous substance spills, however, can be much more frequent.

Common spills on land are:

- Sewage spills
- Oil spills – general and hydraulic oils, etc.
- Fuel spills – diesel, gasoline, home heating fuels, etc.

Fuel and petroleum products are the most common land spills. The Skeena Region from 2005 – 2007, for example, had petroleum products make up 70% of all spills reported.



Inland waters emergencies

Inland water emergencies, which affect lakes and rivers, often have a number of issues to consider. If a spill occurs in a river, you must consider the impact that the spill will have downstream. It is essential to “think ahead” in the most literal way when responding to a spill in a river.

If a spill occurs in a lake, there could be cross-lake impacts to consider as well.



Marine (ocean) emergencies

Marine emergencies, such as oil spills, usually get more attention than land or inland waters spills. The media and the public tend to notice marine spills and focus on them for a longer period of time.



For types of spills on water and how to identify them, see Appendix A.

For potential cleanup techniques on land and water, see Appendix B.

NET ENVIRONMENTAL BENEFIT (NEB)

The concept of Net Environmental Benefit (NEB) is an extremely important one. NEB is an underlying principle of spill response that guides strategic decisions that are made. Basically, the Net Environmental Benefit of a proposed decision (say, pressure washing a shoreline) must accelerate the rate of recovery at that location, not hinder it.

This means that, in some cases, some amount of spilled product may be left behind for Mother Nature to clean up naturally. This concept, relying on natural processes to clean up pollution, is called **monitored natural attenuation** and is a safe process if monitored properly. For more information, see: <http://www.clu-in.org/download/citizens/mna.pdf>

Though a decision to leave some product behind may seem outrageous to many, in some cases it is actually better for the earth to leave some product behind.

Example – Russia

In 1994, a spill occurred in the Komi Republic of Russia. Spill responders took the opportunity to experiment with the principle of Net Environmental Benefit and monitored natural attenuation. They selected two test plots, “Test Patch A” and “Test Patch B.”

They performed aggressive cleanup techniques on Test Patch A to ensure all traces of oil were removed. The plot was basically bare when they finished.

In the spring of 1996, Test Patch A’s surface soil had been washed off and only a few new plants had grown – just a few scattered grass plants. No shrubs or large plants re-grew. There was clear evidence of delayed recovery.

In the pictures below, you can see how cleaning up every single drop of oil actually delayed the recovery of the area.



Patch A after cleanup - all oil removed



One year later

They performed less aggressive cleanup techniques on Test Patch B, leaving visible amounts of oil on the plants and shrubs and in the surface soil layer.

In the spring of 1996, oil could still be seen on the branches of new growth plants. However, new growth leaves appeared to be quite healthy. The re-growth of a complete grass cover was also quite evident along with re-growth of bushes and shrubs.

This plot, which had oil left on it to recover naturally, had basically recovered in terms of plant cover.



Patch B after cleanup – some oil left

One year later

Photo credit: all by Ed Owens, Polaris Applied Sciences, Inc.

The lesson learned is that too much removal (Test Patch A) delayed the area's recovery by impacting plant roots and removing top soil. Partial oil removal, however, (Test Patch B) accelerated natural recovery and did not damage the perennial shrubs and bushes or annual grasses. They re-grew the next spring.

Example – Exxon Valdez

In March of 1989, the *M/V Exxon Valdez* spilled 40 million litres of crude oil into the sea after it struck a reef in Prince William Sound, Alaska. It is considered to be one of the most devastating man-made spills at sea.

Due to the rocky shoreline that was oiled, spill responders decided to use hot water high pressure flushing to clean the beach. However, this cleanup technique also removed and destroyed the microbial populations on the shoreline. Many of these organisms (like

plankton) are the basis of the coastal marine food chain, and others (e.g. certain bacteria and fungi) are actually capable of assisting with the biodegradation of oil.

Though scientific advice (at the time) and public pressure encouraged spill responders to clean up *everything*, hindsight and studies after cleanup completion showed that their actions actually hindered the location's recovery.

Example - Squamish Estuary

A more recent spill occurred in August, 2006, at the Squamish dock terminal north of Vancouver. The *M/V Westwood Anette* struck a metal piling and spilled 29,000 liters of Bunker C oil into the sea.

High winds blew oil into the estuary of the Squamish River and the estuary marshes were heavily contaminated.

After considering the Net Environmental Benefit of proposed cleanup techniques, spill responders decided to leave some oil in the marsh to allow the estuary to recover naturally.

Though the public and media heavily criticised spill responders for this decision, it had been determined that the marsh was extremely sensitive. To send 100 cleanup personnel tramping in with gum boots would damage the ecosystem more than leaving some product behind to degrade naturally.



Other examples

Net Environmental Benefit guides all cleanup decisions made by emergency responders. No matter what cleanup technique you decide on, there are always trade-offs.

Say there is a large patch of oil floating in the ocean. Responders can use chemical dispersants to dissolve the oil into the water column so that birds will not land on the patch and get oily.

But what about the fish that are now swimming in that same water column?

Or, say a truck hauling oil flips over on a highway and the oil spills into a ditch. It may be possible to do an “in-situ burn” (an on-site burn) of the pooled oil. However, you are then releasing heavy smoke into the air and atmosphere.

For each situation, all the pros and cons must be weighed to determine what the best decision is to support the location’s Net Environmental Benefit.

WHAT DOES NET ENVIRONMENTAL BENEFIT MEAN FOR FIRST NATIONS?

Net Environmental Benefit is based upon accelerating the natural recovery of land that has been impacted by a spill and preventing further impacts that could occur by the use of cleanup techniques.

It is interesting that NEB both aligns with and contradicts an aboriginal point of view that is consistently found : to ensure that land is managed in a sustainable and undistruptive manner.

On one hand, the concept of NEB, which ensures that the land’s long term benefits and natural, healthy recovery are considered and that sustainable decisions are made, sounds like some aboriginal peoples’ perspective.

At face value, however, leaving any quantity of product on the land seems to greatly oppose this perspective.

NEB is a tough and bittersweet concept for many people to grasp. To hear that a hazardous substance is not being removed often doesn’t make sense to those who have to live with any amount of hazardous substance in their backyard, see their children playing on contaminated beaches or harvest food that has been polluted.

Though spill responders must continue to abide by the principle of Net Environmental Benefit, it’s important to understand why they make the decisions that they do. They

truly have the environment's best interests at heart and, though it is hard to live within the short term, it is for the benefit of the location in the long term.

WHAT TO CONSIDER WHEN EMERGENCY RESPONSE HAS ENDED

When the emergency response phase has ended, there may be ongoing activities such as further ongoing cleanup, remediation, monitoring and restoration.

There may be ongoing health issues and there will surely be many lessons to learn from what has just taken place.

Food Safety Concerns

There can be food safety concerns to consider after a spill has occurred, particularly for aboriginal people who often harvest food from the land.

If you are concerned about the safety of your traditionally harvested food due to the result of a hazardous substance spill, contact Health Canada's regional BC office:

Suite 405, Winch Building
Sinclair Centre
757 West Hastings Street
Vancouver, BC
V6C 1A1

Phone: (604) 666-2083

Fax: (604) 666-2258

Monitoring and Sampling

If ongoing monitoring and sampling are required, the Incident Commander or Unified Command can recommend or direct the Responsible Party to ensure that these things take place. The Responsible Party will typically hire a contractor to provide monitoring and sampling services. Or, an agency with jurisdiction may provide their expertise and services, billing their costs to the Responsible Party.

Sometimes the Regional Environmental Emergencies Team (REET) will be consulted to provide input and to ensure that monitoring and/or sampling plans meet agency requirements.

Contaminated Sites

After the substantial amounts of hazardous product have been removed and the “emergency” response phase has ended, a spill incident’s location may become what is called a **Contaminated Site**.

A contaminated site is defined as an area of land in which the soil or underlying groundwater or sediment contains a hazardous waste or substance in an amount or concentration that exceeds provincial environmental quality standards. A site is contaminated if it is unsuitable for specific uses of land, water and sediment.

If your First Nation’s lands are contaminated as a result of a spill your First Nation will likely have an interest in working with the Responsible Party to ensure cleanup is appropriately addressed.

For basic “Contaminated Sites 101” information, see:

<http://www.env.gov.bc.ca/epd/remediation/cs101.htm>

Contaminated Site Remediation

Depending upon various triggers, a contaminated site may have to be remediated, or cleaned up, to provincial cleanup standards (based on scientifically acceptable substance concentrations at the site), as determined by the Ministry of Environment.

For more information, check out Fact Sheets 13, 14 and 15 available at:

http://www.env.gov.bc.ca/epd/remediation/fact_sheets/index.htm

Certificate of Compliance

A Certificate of Compliance is a certificate issued by the Ministry of Environment stating that a contaminated site has been cleaned up to meet the environmental quality standards applicable to a site (i.e. the standards listed in the Fact Sheets mentioned above).

It is not mandatory for a Responsible Party to obtain a Certificate of Compliance once they have remediated a contaminated site, but many do. A Certificate of Compliance may be required by a municipality before issuing approval to proceed with site development, rezoning, subdivision, etc. A certificate may also be required for property transfer or financing.

If a contaminated site is or was located near your First Nation’s area of interest, you may be able to check if the Responsible Party obtained a Certificate of Compliance to determine if the site was cleaned up to provincial standards.

To do so, you can check the Ministry of Environment's Land Remediation website at <http://www.env.gov.bc.ca/epd/remediation/forms/index.htm> where various request forms and further information is available. Note that requesting information about a site may have a fee, depending on the level of information that you want.

If you lack internet access, you can call the Ministry of Environment's Environmental Management Branch at (250) 387 – 9971 and explain what you are calling about.

THE COST OF EMERGENCY RESPONSE

Emergency response is an extremely costly affair whether it is a large incident or a small incident.

The *M/V Exxon Valdez* spill in 1989 cost Exxon an estimated 1.28 billion in cleanup costs. This figure does not include the value of killed wildlife, the compensation for polluting a virgin wilderness or the many lawsuits launched against the company by local fishermen and wildlife groups.

Even a smaller emergency such as a semi-truck flipping into a ditch and spilling 50,000 litres of diesel could easily cost upwards of \$100,000 for emergency response.

There are different kinds of costs and all sorts of issues that come along with them. This section will explain:

- Operational costs versus environmental compensation
- Getting paid for emergency response
- Ways to get your First Nation's costs covered



OPERATIONAL COSTS VERSUS ENVIRONMENTAL COMPENSATION

Canada's *Marine Liability Act* and BC's *Environmental Management Act* determine that the Responsible Party must pay for all reasonable costs caused by emergency response and cleanup.

Sometimes after an environmental emergency long court cases ensue as the Responsible Party attempts to minimize their costs through the courts. Sometimes a court must decide what a "reasonable" cost is and what is not.

During and after emergency response, the Responsible Party will usually try to minimize or control their costs as much as possible. There are 2 kinds of costs associated with an environmental emergency:

Operational Costs

Operational costs are the fees for activities carried out during emergency response.

Operational costs could include things like:

- Personnel wages
- Personnel care (food, shelter, clothing, etc.)
- Emergency response equipment rental (boats, hazmat suits, etc.)
- Replacement or repair of equipment damaged during emergency response
- Transportation of equipment to the incident's location

Environmental Compensation

Environmental compensation costs are additional fees paid by the Responsible Party (the spiller) as a result of pollution that they caused.

Environmental compensation costs could include things like:

- Fees and fines for causing pollution
- Compensating individuals for loss of livelihood (e.g. fish are killed, therefore a fisherperson can't make as much as they used to)
- Lawsuits launched against the Responsible Party for contaminating the local environment or natural resources

GETTING PAID FOR EMERGENCY RESPONSE

Being a contractor

Community members who are interested in working in Operations (and being paid for it) must be hired. Volunteers are not accepted due to possible injury and liability issues.

If your First Nation is interested in signing on as a contractor with Burrard Clean Operations to be trained and paid to carry out oil or hazardous substance recovery duties in the Operations Section (beach cleanup, on-water oil collection, etc.), e-mail them and express your interest at mail@burrardclean.com.

You can also call Burrard Clean Operation's head office in Burnaby at (604) 294-6001 (extension 200). The administrator will direct your call appropriately, usually depending on your geographical location.

Burrard Clean accepts contractors depending on certain circumstances, however. For example, if they already have many contractors signed on in your area of BC, they may not need another contractor at that time.

Nevertheless, it is still a good idea to express interest if your community wants to be hired as a contractor. You never know when they will need contractors in a certain area of BC.

If you are not a contractor

If your community is not trained as a contractor with Burrard Clean Operations, then you will not be able to participate in substance recovery operations (such as on-water oil recovery).

However, depending on the spill's circumstances, individuals may be trained to complete certain tasks (such as participating in Shoreline Cleanup and Assessment Techniques teams) and will become a member of the paid emergency response workforce.

These situations will be reviewed on a case-by-case basis.

Get your costs approved

At the end of the day, an organization (such as the Responsible Party or a government agency) will have to foot the bill for emergency response. These bills can run up into the millions of dollars.

The organization paying the bills usually wants to approve all activities and their associated fees before they are carried out. This means that if members of your

community get involved in emergency response before getting the approval of the Responsible Party (or government agency directing spill response), they are unlikely to pay you if they have not approved it first.

If your community is involved in emergency response in some way and wants to be paid for their activities, be sure to document your fees and get the Responsible Party (or government agency directing spill response) to sign their signature on your work plan and fees before you commence, thereby confirming that they have seen it and will pay you.

In this situation it is best to talk to the Incident Commander or Unified Command to work out something that benefits everyone involved.

If your community is signed on as a contractor with Burrard Clean Operations, they will handle the financial side of things and ensure that you are paid.

WAYS TO GET YOUR FIRST NATION'S COSTS COVERED

Environmental Damages Fund

Oftentimes, polluters will have to pay fines or penalties for causing spills or pollution. Through the Environmental Damages Fund, courts can guarantee that the money from pollution penalties and settlements is directly invested to repair the actual harm done by the pollution.

Environment Canada administers the fund and accounts for each award separately. This means that the money can then be used to fund projects in the same community in which the pollution has occurred.

The money in the fund is allocated to local organizations that often use it as “seed money” to find partners who contribute additional money and resources. Groups who receive funding must carry out their projects in a technically feasible, scientifically sound and cost-effective way.

Aboriginal groups are eligible to apply for this funding. For more information and application guides check out: <http://www.ec.gc.ca/edf-fde>.

If that link ever changes, simply go to www.ec.gc.ca and search “Environmental Damages Fund.”

Ship Source Oil Pollution Fund

If you are a coastal First Nation who has been impacted by a spill that occurred from a ship, you may be able to recover some costs from the Ship-Source Oil Pollution Fund.

You may be eligible to apply for:

- Claims for oil pollution damage from a ship
- Claims for costs and expenses of oil spill clean-up including the cost of preventative measures
- Claims for oil pollution damage and clean-up costs where the cause of the oil pollution damage is unknown (i.e. a mystery spill)

For more information, including eligibility criteria and application information, see: <http://www.ssopfund.gc.ca>.

Note: Submission of claims requires a detailed summary of records pertaining to incident details and expenses or costs incurred.



APPENDIX A - OIL ON WATER SLICK IDENTIFICATION

This information was compiled and generously shared by Burrard Clean Operations. The information was compiled from information on the National Oceanic and Atmospheric Administration (NOAA) website: www.noaa.gov

OIL IDENTIFICATION

There are five primary terms used to represent oil colours on water. Using the terminology presented in this Job Aid will promote consistency among observers province wide.

Colour Codes – Note that oil colour codes use single-letter capitals.

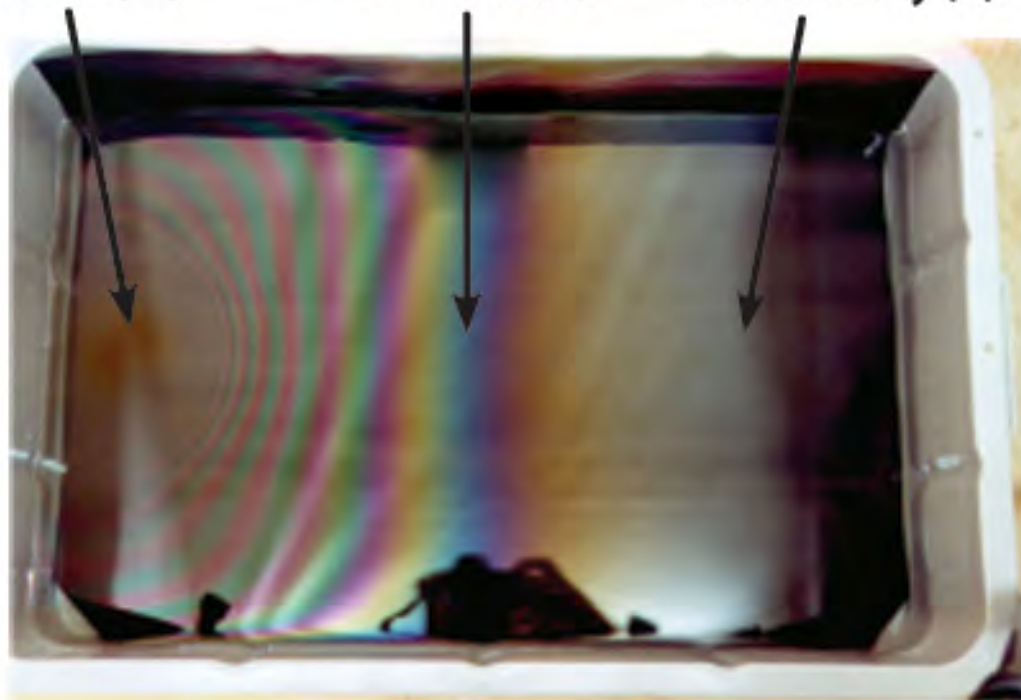
Common Descriptors	Code
Silver Sheen	S
Rainbow	R
Metallic	M
Transitional	T
Dark	D

Oil Colour/Appearance

Metallic (M)

Rainbow (R)

Silver/Gray (S)



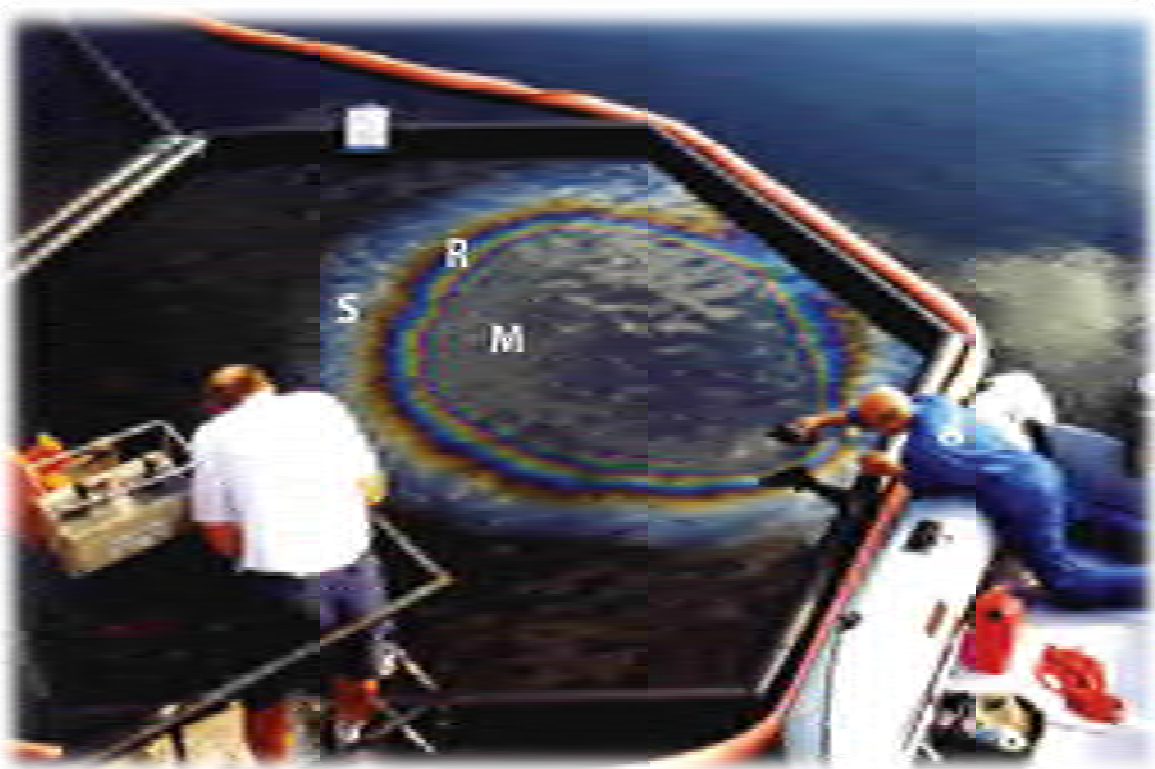
Examples: rainbow (R)

silver/gray (S)

metallic (M) dull down sheens

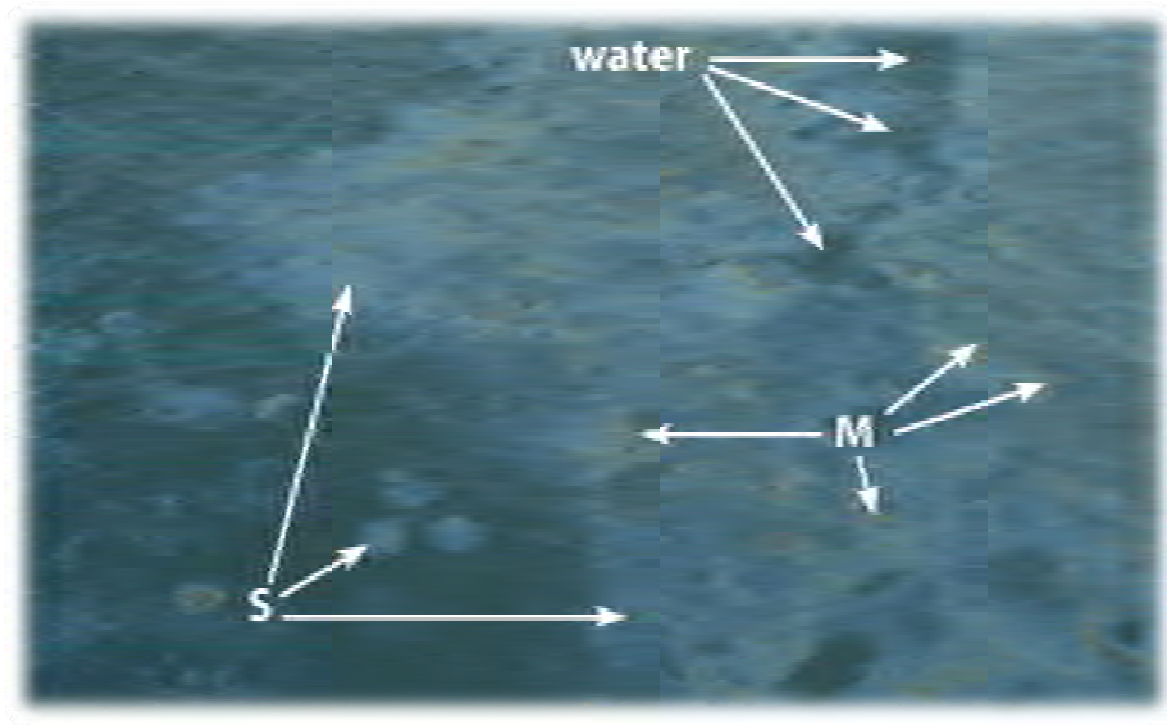


Oil layers that look metallic reflect the color of the sky, but with some element of oil colour.



Silver/gray sheen (S), Rainbow (R), and Metallic (M) oil colours.

A sheen surfacing from a sunken vessel



Patches of **silver/gray (S)** and minimal amounts of **rainbow (R)** and metallic (M) dull brown sheens. Observation altitude: **50-100 ft.**

Fresh Diesel Slick

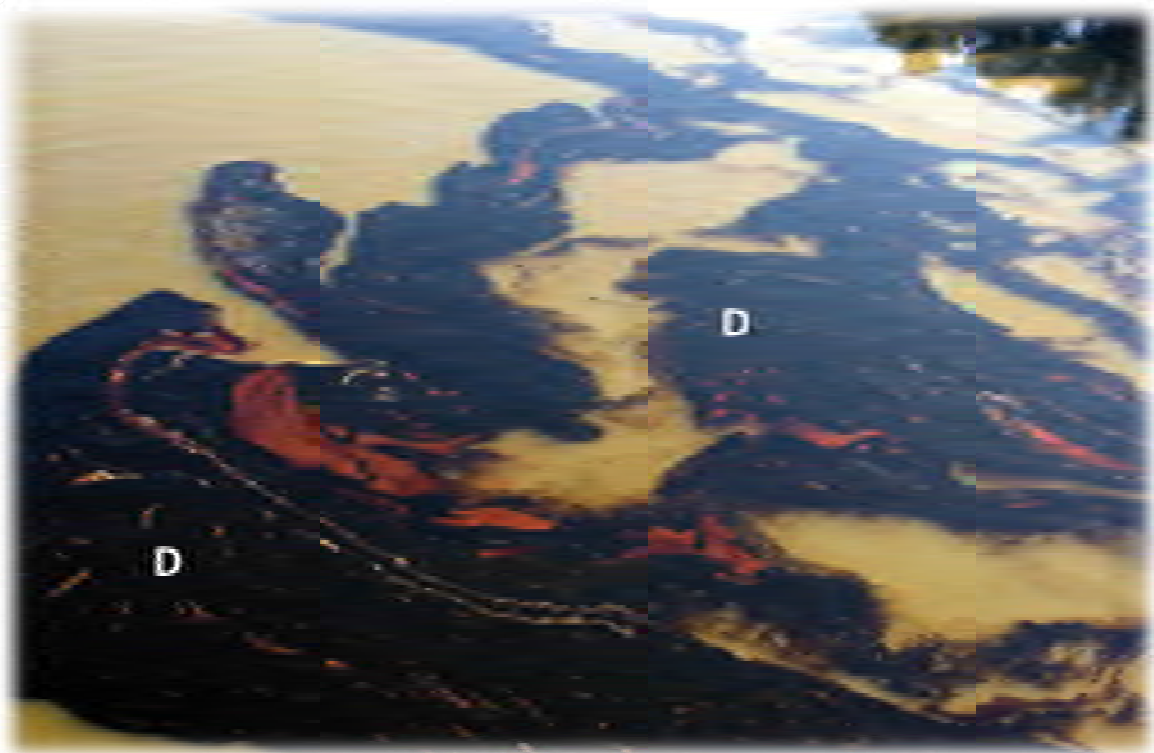


Metallic (M) dull brown slick in center fading to **Rainbow (R)** and **Silver/gray (S)** along the edges. Observation altitude: **300 ft.**

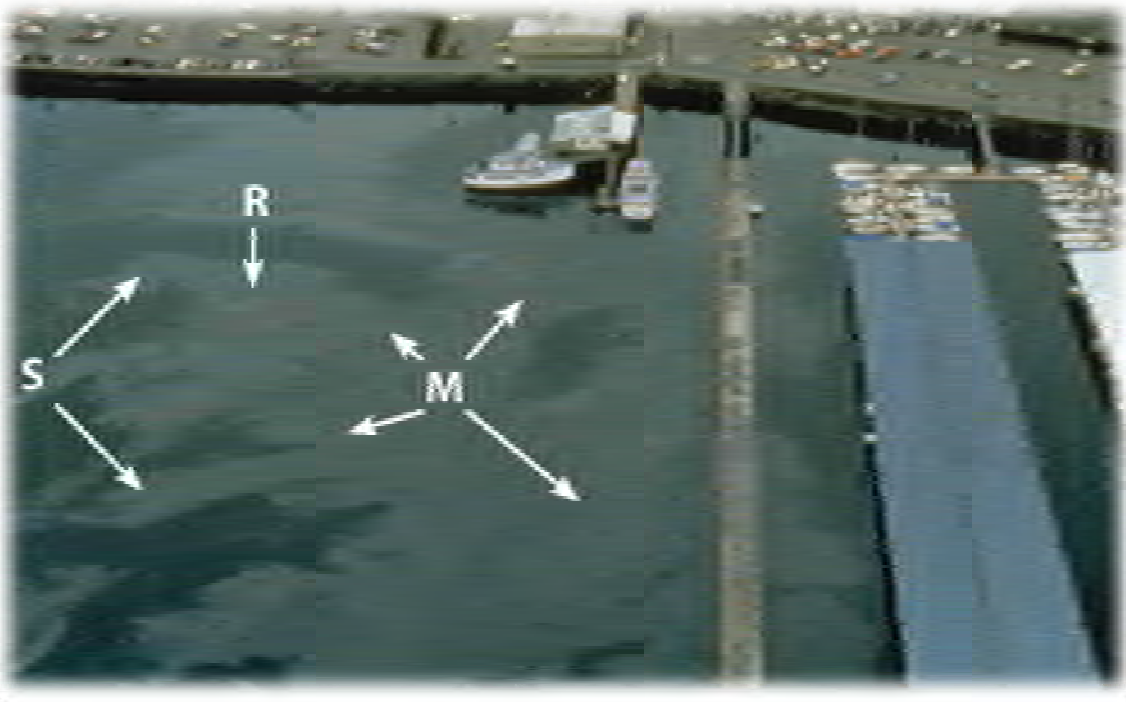
Black Dark (D) Oil leaking from barge - Black oil true colour **dark (D)** forming **streamers (st)** from barge. Observation altitude: **400 ft.**



Black Dark (D) Oil - Note the small orange-ish streaks and patches of emulsified oil.



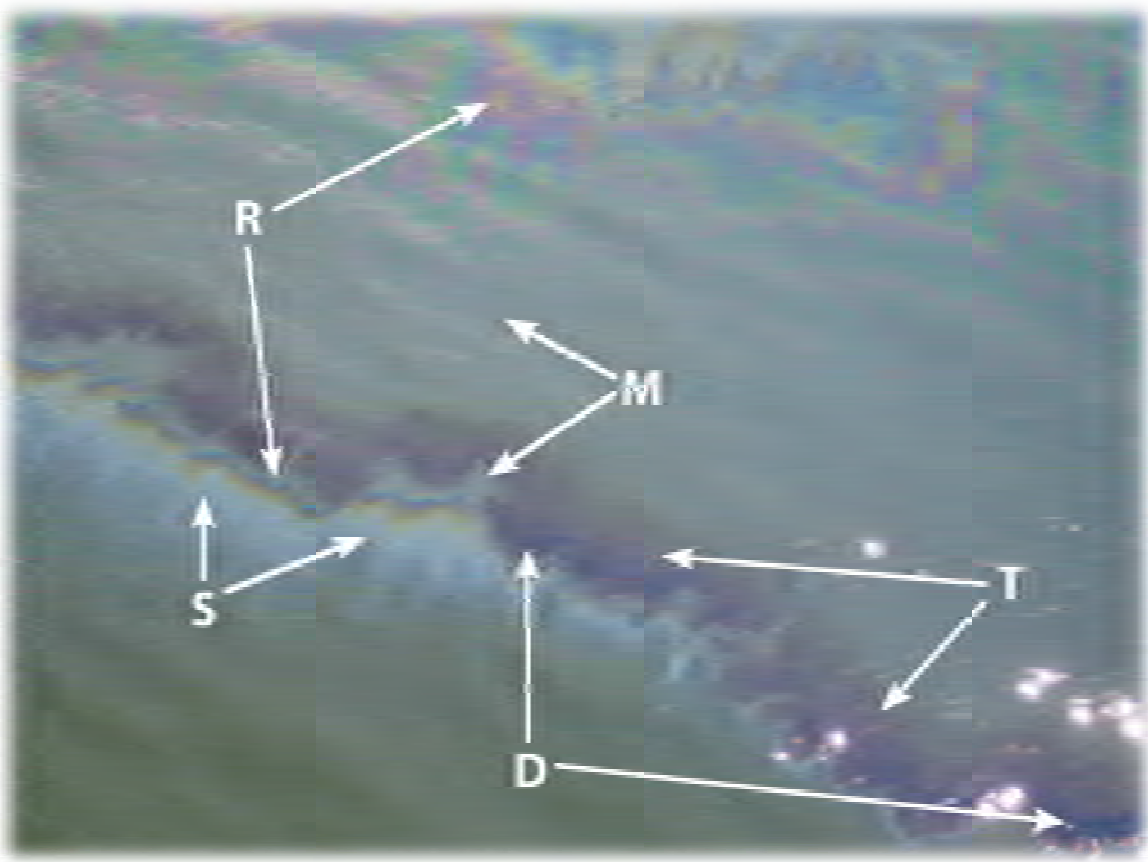
Diesel spill in a marina



Oil spreading out into **metallic (M)** or dull brown layer, **rainbow (R)** and **silver/gray (S)** sheens in and around piers. Very light wind and currents.

Observation altitude: **500 ft.**

Summary – five primary colour codes



FALSE POSITIVES

The following are water and biological phenomenon that may be observed and mistaken for oil.

Kelp beds



Kelp beds are frequently mistaken for oil. Sometimes kelp bulbs may be mistaken as tarballs.

Observation altitude: **800 ft at very oblique angle.**

Jellyfish



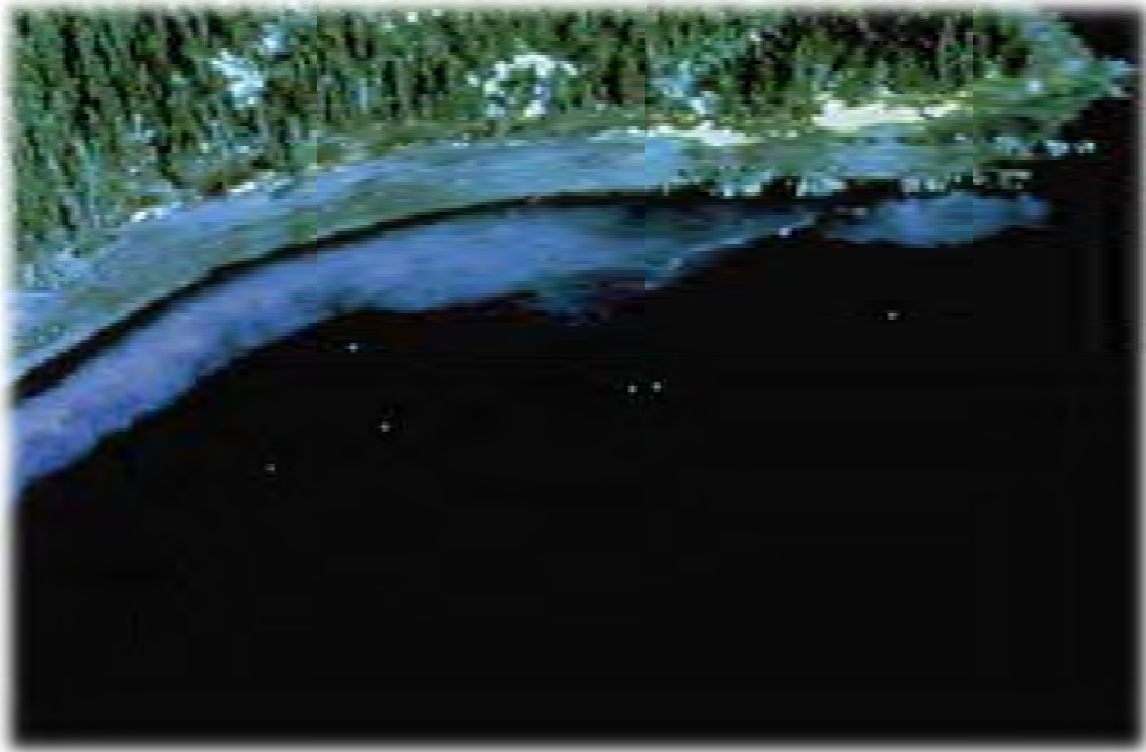
Large accumulations of jellyfish (spring/summer) are often mistaken for oil. Observation altitude: **50 ft.**

Red Tide



Red tide blooms are sometimes reported as oil. Observation altitude: **1500 ft.**

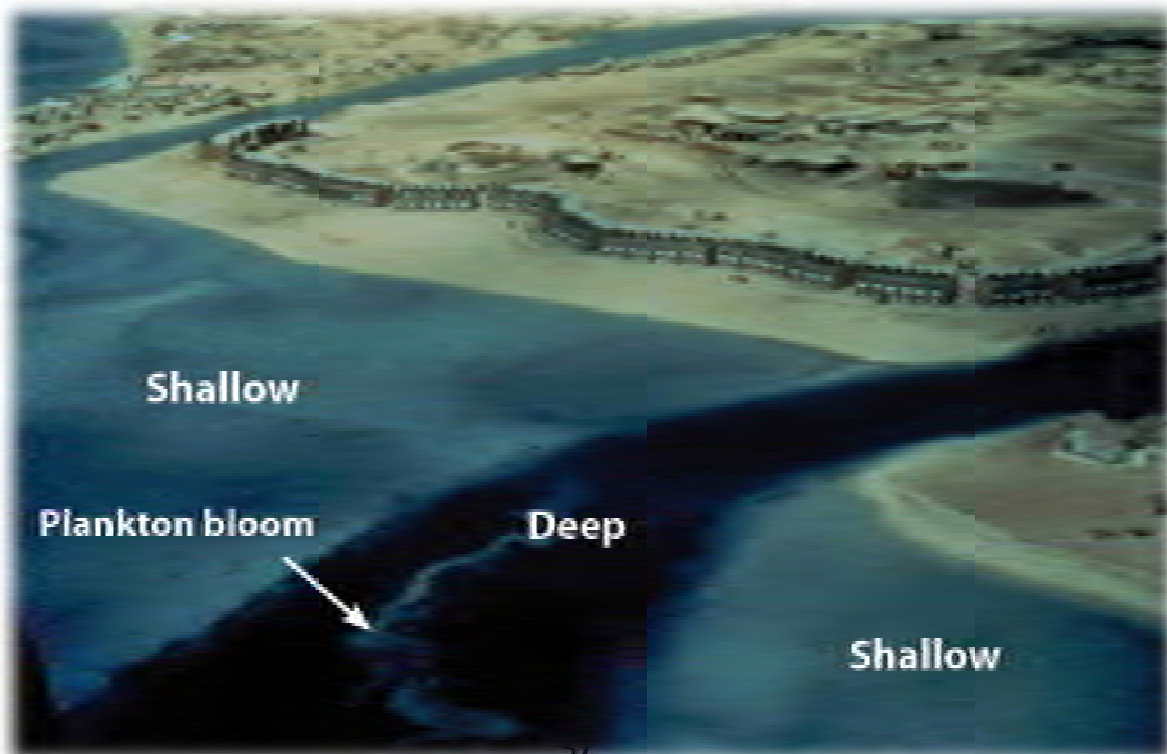
Herring Spawn



Herring spawn along the shoreline can easily be mistaken for silver sheen.

Observation altitude: **1200 ft.**

Depth Change



Cloud Shadows



At times, cloud shadows on water may have the appearance of oil. Inspect closely and check for sheen.

Water Density Changes



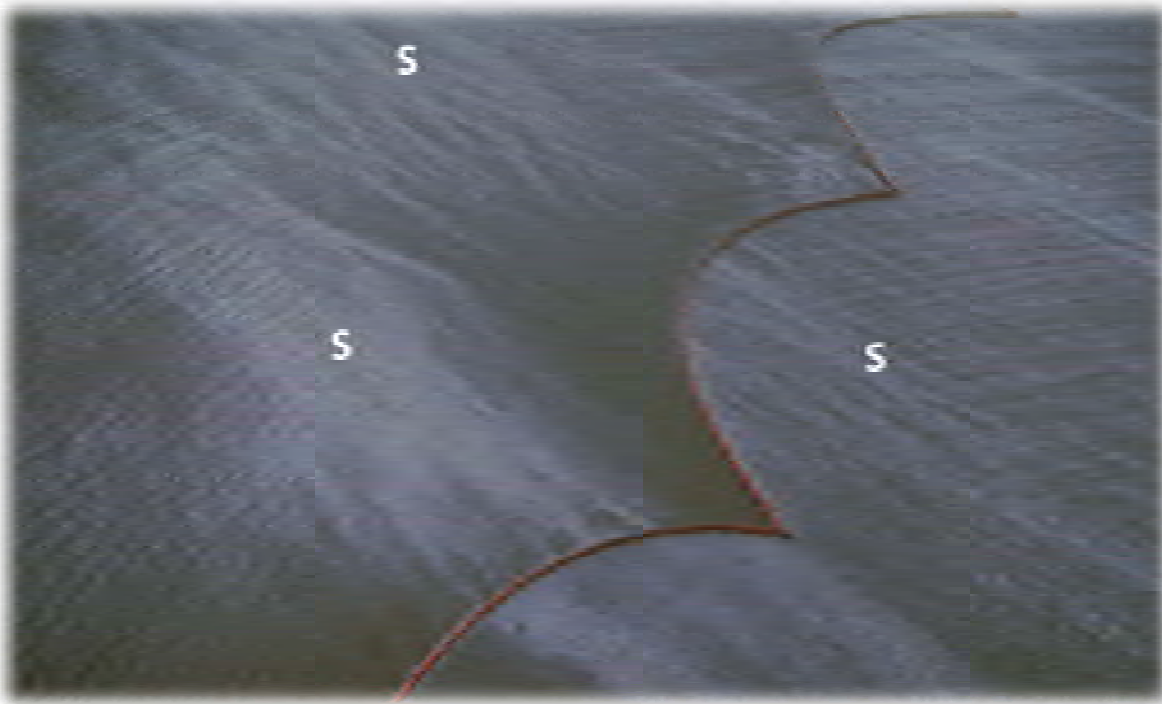
The dark water in the photo is fresh water, while the lighter shade is salt water. Photo credit: NASA.

OPERATIONAL EFFECTIVENESS



Oil being contained within boom (without entrainment). This is possible with low currents until boom reaches holding capacity. Observation altitude: **500 ft.**

Entrainment

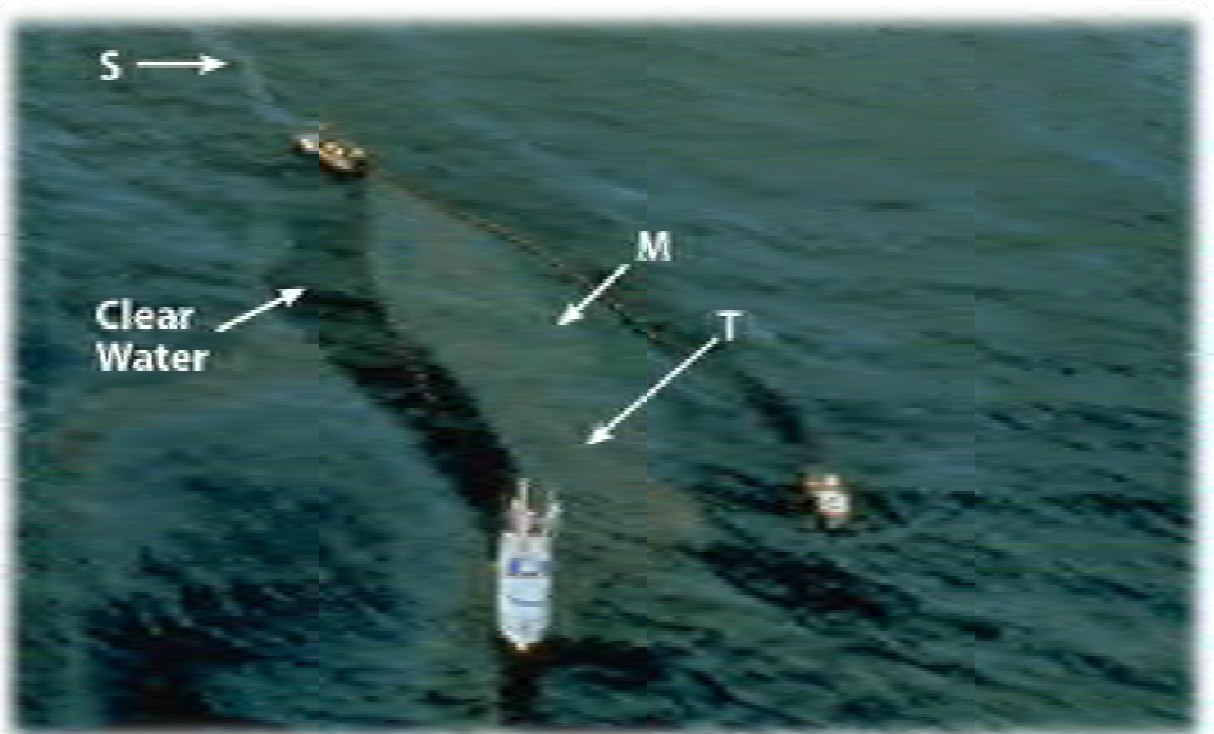


Entrainment of oil under boom deployed in high current. Observation altitude: **500 ft.**

Containment - Dark black (D) oil contained between boom and shoreline under very calm wind and current conditions. Observation altitude: **300 ft.**



Boom Towing - Boom towed in front of skimmer, funnelling oil into skimmer. Observed at **500 ft.**



APPENDIX B - POTENTIAL CLEANUP TECHNIQUES

The best type of cleanup method will be completely dependent upon the emergency's circumstances. Location, length of time since the emergency happened, substance and the type of land that is impacted all play huge factors in determining what cleanup methods are most effective.

Some examples of possible cleanup methods (excluding natural recovery) are²:

Physical Cleaning – Washing and Recovery

- Flooding – lifts the oil so it can be recovered
- Low pressure cold or warm or hot water wash – can be effective but you must ensure you are not causing more damage by eroding the land and killing microorganisms
- High pressure warm or hot water wash – this technique can be used on ships hulls, etc. but not for habitat recovery (see picture below)
- Steam cleaning
- Sand blasting



Pressure washing wharf pilings.

² Polaris Applied Sciences, Inc. *Shorelines and Oil Spill Response in British Columbia: Training Course Notebook*, pg. 6-15.

Physical Cleaning – Removal and Disposal

- Manual removal – e.g. people, rakes and shovels
- Vacuums – can only be used for pooled oil, not oil that is floating on the water
- Mechanical removal – e.g. scrapers, bulldozers, backhoes
- Vegetation removal/cropping – if much vegetation is oiled, the area can be flooded so the roots of the vegetation are protected. The top of the oiled vegetation is then burned off, leaving the roots to continue growing.
- Passive sorbent collection/removal – can be used at a variety of tide heights. For example, when the tide is high, leave sorbents at a lower tide line. When the tide goes out, the oil will be trapped on the sorbent material while the water continues out.



Raking up gross contamination.



Removing oiled vegetation.



Mechanical removal.



Oiled sorbents.

Physical Cleaning – In-Situ Treatment

- Surf Washing – rework the sediment
- **In-Situ Burning** – burn off large patches of product



In-situ oil burns.

Chemical/Biological Treatment

- Dispersants – disperses the product allowing it to mix into the water column
- Shoreline cleaners
- Solidifiers
- Bioremediation/Nutrient enrichment – done at the “polishing” stage of cleanup



Releasing dispersants.



APPENDIX C - SPILL RESPONSE ALLIANCES

Fisherman's Oil Spill Emergency Team (FOSET)

The Fisherman's Oil Spill Emergency Team is made up of fishermen or fisherwomen who are able to use their local knowledge of coastal waters and general expertise on the water to help with spill response.

If your First Nation is along the coast and has community members who might be interested in being a part of FOSET, contact Burrard Clean Operations, a marine spill response organization, to get more information.

E-mail mail@burrardclean.com or call their head office at (604) 294-6001 (extension 200) to express your interest. However, Burrard Clean may only accept new FOSET members depending on certain circumstances, such as your location versus areas of the coast that require coverage.

Burrard Clean Operations will provide successful FOSET members with comprehensive spill response training.

BC/Pacific States Oil Spill Task Force

The BC/Pacific States Oil Spill Task Force was authorized by a Memorandum of Cooperation signed in 1989 by the Governors of Alaska, Washington, Oregon, and California and the Premier of British Columbia following the *Nestucca* and *Exxon Valdez* oil spills that affected both the United States and Canada. The Task Force now also includes the state of Hawaii.

More information about the BC/Pacific States Oil Spill Task Force can be found on their website at <http://www.oilspilltaskforce.org/>.

CANUSDIX and CANUSPAC

Alliances have been made between British Columbia and its neighbouring states of Alaska and Washington to ensure Canada and the USA are prepared to work together if a transboundary spill impacts both countries.

All US and Canadian spill response organizations and governments who would be involved in a transboundary spill have agreed upon a Canada-United States Joint Marine Pollution Contingency Plan.

The Plan will be used if there is a spill in the transboundary areas of the CANUSDIX Annex or the CANUSPAC Annex.

The CANUSDIX area is the transboundary border between Alaska and BC including the Dixon Entrance and the Portland Canal.

The CANUSPAC area is the transboundary border area between BC and Washington.

For more information, you can check out: http://www.pacific.ccg-gcc.gc.ca/er/Canusanex/index_e.htm.

First Nations Inter-Agency Emergency Management Committee (FNIEUM)

The intention of the First Nations Inter-Agency Emergency Management Committee is to improve emergency management and community resiliency in BC First Nation communities by working with key stakeholders to develop an integrated, culturally sensitive emergency management structure. FNIEUM will be a dynamic and active committee that will develop an effective approach to emergency management for First Nation people.

The FNIEUM Committee will host representatives from, but are not limited to, the First Nation Leadership Council, Indian and Northern Affairs Canada, the Provincial Emergency Program, the First Nations' Emergency Services Society, the First Nation Forestry Council, the Ministry of Aboriginal Relations and Reconciliation, Environment Canada, the Ministry of Environment, the Canadian Coast Guard, the Department of Fisheries and Oceans, and Health Canada.

This alliance was formed in mid-2008 so keep an eye out for them as they continue to develop.

**APPENDIX D - MINISTRY OF ENVIRONMENT
ENVIRONMENTAL EMERGENCY RESPONSE
OFFICERS**

Environmental Emergency Response Officer (EERO) Policy and Procedure:

The Ministry of Environment Act, Section 5, item (i) provides the legal mandate for an Environmental Emergency Management Program. The Environmental Management Act, Section 80 (spill response) provides the legal mandate and scope of EERO involvement in spills. Section 87 of the Act, additional power for the EERO's and Incident Management Team (IMT). (See Section 6.0 Use of Environmental Management Act).

The Emergency Program Act and its regulations (Ministry of Public Safety and Solicitor General) define the emergency planning, preparedness and response by the Ministry of Environment as the key provincial agency (Schedule 1) for hazardous material threats and spills. Section 6 of the Emergency Program Act provides the legal mandate for the Ministry to have overall management of provincial response to spills of oil or hazardous materials – particularly at the site (incident command post) and field (tactical) levels of provincial response. Activities at these levels are referred to as the “tactical delivery” of emergency response, versus supporting response from Emergency Operations Centres – whether Provincial or Ministry.

The decision by an EERO on whether to attend a spill and the level of involvement will be based on the capabilities of the Responsible Party (spiller/polluter) to manage the emergency, the response capability and timing of other agencies or jurisdictions, and the potential for adverse public and environmental impact.

Roles of an EERO at a spill:

The Ministry Field response activity will be guided by the nature of the emergency and its potential impact on personal safety, human health, the environment, provincial services and infrastructure, and private property. Response priorities, as prescribed in the BC Emergency Response Management System (BCERMS), are:

- I. Provide for the safety and health of all responders;
- II. Save lives;
- III. Reduce suffering;
- IV. Protect public health;
- V. Protect government infrastructure;
- VI. Protect property
- VII. Protect the environment
- VIII. Reduce economic and social losses.

For spills where there is a known Responsible Party (RP) on-scene, the EERO will communicate provincial priorities and provide full opportunity for the RP to assume overall incident management for the spill which entails, but not limited to, establishing the response strategy and tactical decisions. The EERO assumes a “technical specialist” role and provides advice to the RP.

The EERO assumes a “provincial incident commander” function, preferable in a unified command, when pursuing provincial priorities (public, commercial, environmental) or to augment the RP, local Government and/or Federal agency response strategy/objectives with Provincial resources (people and equipment)

For spills where there is a local or Federal Government involvement on-scene, the EERO will attempt to establish a unified command under the Incident Command System (ICS) protocol, either functional or jurisdictional, when communicating provincial priorities, augmenting the response or both. The EERO assumes a “technical specialist” role providing hazardous material advice to local or federal government

Site and Field Response Activities:

When applicable, the following incident management actions/activities will be taken by an EERO or Incident Management Team at a spill site:

- I. Jointly coordinate response activities with other involved agencies according to ICS and unified command/team integration to the fullest extent possible;
- II. Confirm the identity and nature of the hazard/threat, determine and communicate the required level of personal protection, and the number of trained support personnel required;
- III. Determine the hazardous material zones: exclusion (hot); decontamination (warm), with appropriate demarcations;
- IV. Conduct a preliminary assessment of the possible impacts on the surrounding human and natural environment to determine and communicate priorities for public safety and environmental protection;
- V. Ensure the development of or jointly develop a safety plan, response strategy and incident action plan (verbal or written);
- VI. Determine if additional Ministry or Provincial agency support is required

- VII. Ensure safe field (tactical) operations for mitigating the threat or spill impact with government, contracted, or resource combination thereof; and
- VIII. Determine the need for provincial media/information officer.

Taking over the Management of an Incident from a Responsible Party

If an EERO or Incident Commander of an IMT intends to take over the management of a spill incident, valid reasons for assuming spill management may involve one or more of the following:

- i. Inadequate experience or training by the “RP” including their hired or contracted personnel, to respond safely to or meet public safety/environment protection objectives;
- ii. The responsible party is not working according to any defined response strategy or an incident action plan;
- iii. Insufficient equipment to respond effectively or safely;
- iv. Delay in addressing an imminent threat or an escalating spill incident;
- v. Disregard of public safety and environmental protection;
- vi. An unwillingness or inability to finance the response efforts.

Explicit reasons for assuming incident management must be documented and communicated to the RP.

Spill Response Readiness:

EERO’s shall carry a pager or cellular and will have access to an emergency response vehicle and appropriate response equipment.

At an incident site an EERO will ensure:

- I. The EERO’s personal protective equipment is checked immediately before use;
- II. The buddy system is used when involving personal protection equipment Level A and B responses to spills/emissions. Individuals must be properly trained and equipped for the level of personal protection required, and in the case of Level A, for decontamination;
- III. A safety plan has been established on evacuations routes, decontamination, ambulance/hospital locations and other important elements and communicated to response personnel; and,
- IV. Ensure a backup team is in use during any entry into the hot zone of the incident.

Organization of Environmental Emergency Response Officer (EERO)

The Province has been divided into 3 major regions and a number of sub regions to which each EERO will be assigned as follows. For each major region indicated there is a Senior Environmental Emergency Response Officer to which all the full time and back up EERO's will report to.

<u>Coastal Region</u>	<u>Interior Region</u>	<u>Northern Region</u>
Surrey: Senior EERO Harold Riedler	Kamloops: Senior EERO Dennis Redford	Smithers: Senior EERO Norm Fallows
Surrey: Ryan Fuller EERO	Kamloops: Rick Wagner EERO	Prince George Dale Bull EERO
Nanaimo: Alex Grant EERO	Cranbrook: Veron Novosad EERO	Fort St John: Terry Sawchuk EERO
Nanaimo: Bernie MacKay EERO	Nelson: Ed Stockerl B/U EERO	Fort St John: Reg Marquardt B/U EERO
	Penticton: Bill Michael B/U EERO	

Environmental Emergency Response Officers (EEROs) are situated across the province in 9 regions. To contact an EERO in any of the nine regions, please contact the regional office. Use the map below to determine which region you are in and then find the contact information on the next page.

For regional websites, go to: <http://www.env.gov.bc.ca/eemp/contact.htm>



VANCOUVER ISLAND

2080 Labieux Road
Nanaimo, B.C. V9T 6J9

Phone: 250- 751- 3100
Fax: 250- 751- 3103

1) LOWER MAINLAND

#200 – 10470 152nd Street
Surrey, B.C. V3R 0Y3

Phone: 604- 582- 5200
Fax: 604- 930- 7119

2) THOMPSON

1259 Dalhousie Drive
Kamloops, B.C. V2C 5Z5

Phone: 250- 371- 6200
Fax: 250- 828- 4000

3) KOOTENAYS

401 - 333 Victoria Street
Nelson, B.C. V1L 4K3

Phone: 250- 354- 6333
Fax: 250- 354- 6332

4) CARIBOO

400 - 640 Borland Street
Williams Lake, B.C. V2G 4T1

Phone: 250- 398- 4530
Fax: 250- 398- 4214

5) SKEENA

3726 Alfred Street
Bag 5000
Smithers B.C. V0J 2N0

Phone: 250- 847- 7260
Fax: 250- 847- 7591

6) OMINECA

#325 - 1011 Fourth Avenue
Prince George B.C. V2L 3H9

Phone: 250- 565- 6135
Fax: 250- 565- 6629

7) OKANAGAN

102 Industrial Place
Penticton, B.C. V2A 7C8

Phone: 250- 490- 8200
Fax: 250- 490- 2231

8) PEACE

Room 400, 10003 - 110th Ave.
Fort St. John B.C. V1J 6M7

Phone: 250- 787- 3411
Fax: 250- 787- 3490

APPENDIX E - TRAINING AND FUNDING OPPORTUNITIES

Getting your community prepared for an environmental emergency can save precious time when an emergency occurs. Be sure to read the Emergency Planning section on pages 25 – 27 to start preparing your community's emergency plan.

In addition to have a plan prepared, it would be beneficial to train community members in emergency management and the Incident Command System.

TRAINING OPPORTUNITIES

Exercises

Burrard Clean Operations, a marine spill response company that is hired for spill response services along BC's coast, attempt to invite local First Nations to any spill response exercises they complete.

Depending on what area of the coast they are performing the exercise or drill, they will contact local First Nations to see if they would like to participate.

Courses

Justice Institute of British Columbia (JIBC)

- Emergency Management Division - <http://www.jibc.ca/emergency/index.htm>
- Many courses can be taken online
- Some courses are sponsored if offered through the Provincial Emergency Program (see below)

B.C. Ministry of Environment

- Introduction to (ICS) Incident Command System
- <http://www.env.gov.bc.ca/eemp/resources/icsintro.htm#3>

FEMA Emergency Management Institute

- Introduction to (ICS) Incident Command System
- <http://training.fema.gov/EMIWeb/IS/ICSResources/index.htm>

First Nations Emergency Services Society (FNESS)

- www.fness.bc.ca
- Helps develop community emergency plans
- Provides emergency management training to First Nations for free (includes JIBC courses)

Provincial Emergency Program (PEP)

- Provides sponsored courses, many of which are offered through the JIBC.
- <http://www.pep.bc.ca/training/training.html> has a list of available courses
- http://www.pep.bc.ca/training/on_line.html also describes a list of courses that are available strictly online

Environment Canada (EC)

- Environment Canada sometimes has courses open to the public
- <http://www.ec.gc.ca/ee-ue/default.asp?lang=en&n=6C1DC30B#workshps> provides a list of training and courses they offer
- To see which classes are available to the public and when, you will have to contact your local Environmental Emergencies Regional Office
- The link for the Pacific/Yukon Regional webpage is here:
<http://www.pyr.ec.gc.ca/EN/contact/index.shtml>

Canadian Coast Guard (CCG)

- The CCG sometimes has training opportunities open to the public; these could include, but are not limited to, spill legislation, spill behaviour and spill response.
- http://www.ccg-gcc.gc.ca/eng/CCG/Environmental_Response
- To inquire about training potentially offered to the public, contact CCG's Richmond Environmental Response office at 604-270-1150.

Long-Term Training Opportunities

If you have taken classes already in the field of Environmental Emergencies or have a very serious interest in it, you may want to check out the following agencies that provide long term programs:

- Northwest Community College
Coastal Guardian Watchman Training
<http://www.nwcc.bc.ca/Programs/CoastGuardian/WatchmanTraining.cfm>
- Interactive Oil Spill Training Center Inc.
602 - 2222 Bellevue Ave.
West Vancouver, BC V7V 1C7 Canada

Tel: (604) 922-4522 Fax: (604) 926-1431
email: training@iostc.com

www.iostc.com

IOSTC developed a joint Oil Spill Management Program with Capilano University. See www.osmprogram.com for more information or contact IOSTC directly.

FUNDING OPPORTUNITIES

New Relationship Trust – www.newrelationshiptrust.ca

- Various funding opportunities are available – some up to \$50,000 per project
- Check out <http://www.newrelationshiptrust.ca/programs/capacity> for information on the available programs

Coast Opportunity Funds – www.coastfunds.ca

- Funding opportunities for First Nations within the Great Bear Rainforest
- Conservation Fund – www.coastfunds.ca/first-nations-consercation-funds

Provincial Emergency Program – Joint Emergency Preparedness Program

- <http://www.pep.bc.ca/jepp/jepp.html>
- The Joint Emergency Preparedness Program (JEPP) enables the Federal Government to contribute to or to jointly undertake projects with the provinces and territories in support of a uniform level of emergency preparedness and response across Canada.
- JEPP cost-sharing assistance is available to local government and provincial ministry projects, not to individuals.

Department of Canadian Heritage

- funding application for Aboriginal Programs/Organizations
http://www.pch.gc.ca/progs/pa-app/progs/pcaa-afcp/form_e.pdf

Environment Canada (EC)

- The objective of the Aboriginal Critical Habitat Protection Fund is to protect and recover the critical habitat of species at risk on Aboriginal lands. Various funding initiatives. Available to various agencies.
http://www.sararegistry.gc.ca/involved/funding/default_e.cfm

- Funding can be requested for projects that focus on improving the environment and increasing environmental awareness and capacity in the community. Only available to non-profit groups.

http://www.ec.gc.ca/ecoaction/what_is_e.html

APPENDIX F – ONLINE RESOURCES

For further information about environmental emergencies, check out the following websites.

Ministry of Environment – Environmental Emergencies Program

This website will provide you with further information about environmental emergency processes in British Columbia, contact information and provincial spill response plans.

<http://www.env.gov.bc.ca/eemp/>

First Nations Emergency Services Society (FNESS)

FNESS provides emergency planning services and training to First Nations communities. Their website provides emergency planning guides and templates or they can work with your community to develop a specific community emergency plan.

<http://www.fness.bc.ca>

Environment Canada (EC)

Environment Canada's website provides a plethora of information related to all things environmental.

<http://ec.gc.ca/>

For more specific information about their environmental emergencies program, check out <http://www.ec.gc.ca/ee-ue>.

Canadian Coast Guard

Through its Environmental Response program, the Canadian Coast Guard (CCG) is responsible for ensuring the cleanup of ship-sourced spills of oil and other pollutants into Canadian waters.

http://www.ccg-gcc.gc.ca/eng/CCG/Environmental_Response

Provincial Emergency Program

<http://www.pep.bc.ca>

Indian and Northern Affairs Canada

<http://ainc-inac.gc.ca/enr/en>

Transport Canada – Marine Transportation

<http://www.tc.gc.ca/marine>

International Tanker Owners Pollution Federation (ITOPF)

This great website has information about the fate and effect of oil, cleanup and recovery techniques and things to consider when emergency planning.

<http://www.itopf.com/>

International Oil Pollution Compensation Funds

<http://www.iopcfund.org/>

National Oceanic and Atmospheric Administration (NOAA)

www.noaa.gov

US Environmental Protection Agency (USEPA)

www.epa.gov

APPENDIX G – GLOSSARY OF TERMS

Bunker C - A thick, sticky oil produced by blending heavy residual oils with a lighter oil. When spilled on water, Bunker C usually spreads into thick, dark coloured slicks, which can contain large amounts of oil.

Certificate of Compliance - A Certificate of Compliance is a certificate issued by the Ministry of Environment stating that a contaminated site has been cleaned up to meet the required environmental quality standards applicable to a site.

Command Staff - The Command Staff consists of the Information Officer, Safety Officer and Liaison Officer who report directly to the Incident Commander.

Common Terminology - A key concept of the Incident Command System that ensures all emergency responders, even from different jurisdictions and agencies, use the same terminology. This provides clear and effective communication.

Contaminated Site - In British Columbia, a contaminated site is defined as an area of land in which the soil or underlying groundwater or sediment contains a hazardous waste or substance in an amount or concentration that exceeds provincial environmental quality standards. A site is contaminated if it is unsuitable for specific uses of land, water and sediment.

Contractor - A person, group of people or business who provide a service to another entity or company under terms identified in a contract. Unlike a regular employee, a contractor does not work regularly for a company.

Emergency response - Immediate response to manage, contain or mitigate the effects of a threatening incident. It can include the use of an emergency management system, such as the Incident Command System. In the case of a spill, “emergency response” is often also used interchangeably with “spill response,” even though spill response is technically just one part of emergency response actions.

Environmental emergency - an occurrence or natural disaster that affects or threatens the environment. The most common environmental emergencies are spills or leakages of oil or hazardous substances. An “environmental emergency” is often also called an “incident.”

Environmental Emergency Response Officer - Ministry of Environment employees who are trained to deal with environmental emergencies. They are verbally notified of all emergencies in the province of BC, 24 hours a day, 7 days a week, 365 days a year and will respond as needed.

Environmental Management Act - The *Environmental Management Act* (EMA) is a piece of legislation that gives authority to the province to protect human health and the quality of water, land and air in British Columbia. The EMA also enables the use of administrative penalties, informational orders and economic instruments to assist in achieving compliance.

Environmental Unit - Unit responsible for providing recommendations on environmental matter associated with emergency response, including strategic assessment, modeling, surveillance and environmental monitoring and permitting.

Finance Section - A section of the Incident Command System that is responsible for tracking all incident costs and financial considerations.

Hazardous substances - Materials that are hazardous or dangerous.

Incident - An occurrence either man-made or caused by natural phenomena that requires action by emergency service personnel to prevent or minimize loss of life or damage to property and/or natural resources. An “environmental emergency” is often called an “incident.”

Incident Action Plan - The Incident Action Plan, which is initially prepared at the first meeting, contains objectives to control the incident’s strategy and specific action plans for the next operational period. One Incident Action Plan is made for each operational period.

Incident Commander - The person responsible for managing overall emergency Response and with final decision making power.

Incident Command Post - The location at which the major Command functions take place (decision making, preparing the Incident Action Plan, etc.).

Incident Command System (ICS) - A standardized, on-scene emergency management system. It is designed to allow its user(s) to work together without being hindered by jurisdictional boundaries or different internal emergency management systems.

Information Officer - The Information Officer is a member of Command Staff who reports to the Incident Commander. They are responsible for providing incident information to the public, news media and cooperating agencies or organizations.

In-situ Burn - Burning spilled oil to reduce impact to an area.

Jurisdiction - A range or sphere of authority. At an incident, public agencies have jurisdiction related to their legal responsibilities. Jurisdictional authority at an incident can be political / geographical (e.g. First Nations, municipal, provincial or federal boundary lines) or functional (e.g. police department, health department).

Liaison Officer - The Liaison Officer is a member of Command Staff who reports to the Incident Commander. They are responsible for coordinating with stakeholder groups and representatives from assisting and cooperating agencies.

Logistics Section - A section of the Incident Command System responsible for finding and providing facilities, services and materials for the incident.

Modular Organization - A key concept of the Incident Command System that ensures that emergency response is well organized and builds “from the ground up.” This means that smaller emergencies will have fewer people involved and larger emergencies will have more people involved.

Monitored Natural Attenuation - The remedial approach that allows natural processes to reduce concentrations of contaminants to acceptable levels.

Mystery spill - A spill with no identified Responsible Party. Also called an orphan spill.

Net Environmental Benefit - Net Environmental Benefit (NEB) is an underlying principle of spill response and guides strategic decisions that are made. The Net Environmental Benefit of a proposed decision must accelerate the rate of recovery at that location, not hinder it.

Notification time - The time it takes to notify an agency or organization that an emergency might affect their interests.

Operational Period - A scheduled period of time to carry out the operational actions set out in the Incident Action Plan. Operational periods can be various lengths, usually not over 24 hours.

Operations Section – A section of the Incident Command System responsible for all “on the ground” operations directly applicable to the incident.

Orphan spill - A spill with no identified Responsible Party. Also called a mystery spill.

Planning Section - A section of the Incident Command System responsible for collecting, evaluating and disseminating information related to the incident and for preparing and documenting the Incident Action Plan.

Regional Environmental Emergencies Team - A federal organization that is established to bring together and support lead federal agencies (e.g. Canadian Coast Guard, Environment Canada) who are involved in the incident and agree on recommendations to establish public safety and environmental protection priorities. Input can include information from federal, provincial, First Nations or local governments and stakeholders.

Responsible Party - The owner / operator of a vessel or facility that caused a spill.

Safety Officer - The Safety Officer is a member of Command Staff who reports to the Incident Commander. They are responsible for monitoring and assessing safety hazards or unsafe situations and for developing measures to ensure personnel are safe.

Section - Organizational levels that are responsible for different segments of the Incident Command System, including: Operations, Planning, Logistics and Finance.

Shoreline Cleanup and Assessment Techniques (SCAT) - SCAT teams use standardized procedures and terminology to document information on shoreline oiling conditions in the event of a spill.

Span of Control - Span of Control means controlling how many organizational groupings one person is managing. One person should not be managing more than 7 things, ideally no more than 5 things.

Unified Command - A unified team which manages an incident by deciding together upon incident objectives and strategies.