

### 6.3 Use of Potentially Harmful Substances

Highway maintenance activities frequently require the use of materials or substances that may be considered harmful to both humans and the environment. Wood preservatives, pesticides, road salts, and dust palliatives are examples of compounds that carry exposure warnings requiring workers to use personal protective equipment and make efforts to minimize their personal exposure because of risks to human health. Such substances also have the potential to harm plants, animals, and other organisms and to degrade soil, air, or water quality in a variety of ways. Toxic effects to some organisms like fish and other aquatic life may occur with only small exposures. In other cases, the effect may be more chronic with harmful substances enduring for long periods in sediment and soil.



#### Environmental Issues

Primary environmental issues relating to the use of potentially harmful substances are summarized in the following table. It should be noted that site-specific conditions might present additional issues you will need to address in planning and undertaking your works.

Work Activity	Potential Environmental Impacts	Performance Standards and Legal Requirements
Working with Harmful Substances – General	May introduce deleterious substances to a stream or roadside watercourse through runoff	No release of any substance that could be deleterious (toxic) to fish or fish habitat ( <i>Fisheries Act</i> , Sections 34(1) and 36(3)). Disposal of all waste materials in accordance with the <i>Act</i> and reporting of any hazardous materials ( <i>Environmental Management Act</i> )
	May damage roadside riparian vegetation or other significant habitats depending on method of application	No harmful alteration, disruption or destruction of fish habitat without authorization ( <i>Fisheries Act</i> , Section 35(1)).

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Work Activity	Potential Environmental Impacts	Performance Standards and Legal Requirements
Using Treated Wood Products	If used below the high water mark of a watercourse it may release preservatives toxic to fish.	No release of any substance that could be deleterious (toxic) to fish or fish habitat ( <i>Fisheries Act</i> , Sections 34(1) and 36(3)). Reporting of any polluting substance spills ( <i>Environmental Management Act</i> , Section 79(5)) and disposal of all waste materials in accordance with the Act ( <i>Environmental Management Act</i> , Waste Disposal Regulation).
Noxious Weed / Invasive Plant Control (See Section 5.10)	May introduce deleterious substances to a watercourse when chemical management methods are implemented	No use, handling, release, transport, storage, or disposal of a pesticide in a manner that causes or is likely to cause an unreasonable adverse effect ( <i>Integrated Pest Management Act</i> and Regulations). No release of any substance that could be deleterious (toxic) to fish or fish habitat ( <i>Fisheries Act</i> , Sections 34(1) and 36(3)). No harmful alteration, disruption or destruction of fish habitat without authorization ( <i>Fisheries Act</i> , Section 35(1)).
Application of Winter Aggregate and De-icing (Salt) Compounds (See Section 5.9)	May introduce deleterious substances to a watercourse through application or improper materials containment	No release of any substance that could be deleterious (toxic) to fish or fish habitat ( <i>Fisheries Act</i> , Sections 34(1) and 36(3)).
	May damage vegetation, soil, surface or groundwater quality through potential salt leaching	Disposal of all waste materials in accordance with the Act and reporting of any hazardous materials ( <i>Environmental Management Act</i> ).
Dust Control (See Section 5.3)	May damage roadside riparian vegetation or other significant habitats through the over-spraying of de-icing compounds	No harmful alteration, disruption or destruction of fish habitat without authorization ( <i>Fisheries Act</i> , Section 35(1)).
	May introduce sediment or other deleterious substances through runoff or by direct application of dust control chemicals to watercourses at crossings	No release of any substance that could be deleterious (toxic) to fish or fish habitat ( <i>Fisheries Act</i> , Sections 34(1) and 36(3)).
	May damage roadside riparian vegetation or other significant habitats through the over-spraying of road shoulders	No harmful alteration, disruption or destruction of fish habitat without authorization ( <i>Fisheries Act</i> , Section 35(1)).
	May contaminate surface waters, groundwater, and soils through improper storage or disposal of dust control palliatives	Reporting of any polluting substance spills ( <i>Environmental Management Act</i> , Section 79(5)) and disposal of all waste materials in accordance with the Act ( <i>Environmental Management Act</i> , Waste Disposal Regulation). No release of any substance that could be deleterious (toxic) to fish or fish habitat ( <i>Fisheries Act</i> , Sections 34(1) and 36(3)).

Work Activity	Potential Environmental Impacts	Performance Standards and Legal Requirements
<b>Rest Area Maintenance</b> <i>(See Section 5.11)</i>	May introduce chlorinating compounds (used to treat potable water), wood preservatives, cleaning products, etc., to soil or water	Reporting of any polluting substance spills ( <i>Environmental Management Act</i> , Section 79(5)) and disposal of all waste materials in accordance with the <i>Act</i> ( <i>Environmental Management Act</i> , Waste Disposal Regulation).  No release of any substance that could be deleterious (toxic) to fish or fish habitat ( <i>Fisheries Act</i> , Sections 34(1) and 36(3)).



### Environmental Best Practices

The following BPs are provided as guidelines to help you ensure your routine works are completed in compliance with the performance standards and environmental legislation. Please note that the general BPs provided apply for most work activities within this category; if BPs specific to the activity are available they are also noted below.

#### Regulatory Agency Contact

- Prior to using potentially harmful substances as part of your management activities, identify any sensitive habitat areas, including wetted ditches and natural watercourses (streams, lakes and marine foreshores), found within your work area that may be of concern to regulatory agencies.
- Meet with the appropriate regulatory agency contact, as listed in Section 8, to discuss site-specific environmental protection measures. Refer to Section 7 for information on the Memorandum of Understanding with MoE and the recommended protocol for maintaining regular communications with regulatory agencies.

#### Material Selection

- Consider the use of alternative substances in environmentally sensitive areas (i.e., near watercourses).

#### Materials Storage

- Store hazardous materials in accordance with applicable regulations and ensure that deleterious substances are handled with care.
- Ensure that hazardous materials use, storage and disposal is in accordance with the information contained in their Material Safety Data Sheets.
- Store potentially harmful substances such as wood preservatives, pesticides, and road salts on impermeable surfaces to prevent their release to soils and groundwater.

#### Emergency Spills

Keep a spill containment kit readily accessible on-site in the event of a release of a deleterious substance into the environment.

#### Emergency Contacts

MoE's Environmental Emergency Management Program can be contacted through the BC Provincial Emergency Program (PEP) at 1-800-663-3456

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- Minimize loss at storage piles. Keep storage piles of materials containing potentially harmful substances (road salt) well covered and dry to prevent chemical release through leaching and storm water runoff.
- Have a spill response plan in place and spill kits on site.

### Equipment Use

- Ensure equipment is selected and operated to accurately apply potentially harmful substances.
- Mix any hazardous materials to be used in a contained area to reduce the risk of contaminating soils or surface waters adjacent to the road surface.
- Clean tools and equipment off-site to prevent the release of wash water that may contain potentially harmful substances.
- Use caution during loading of trucks and transport of substances to minimize loss of materials.



### Key Information Sources

The documents and websites listed below are recommended resources for winter road maintenance. They can provide examples of existing protocols and management strategies, as well as additional information on specific operational BPs.

### MoT Technical Circulars:

Use of Hog Fuel for Road Construction Purposes T-17/06

Dust Abatement Chemicals T-5/94

These and all other MoT Technical Circulars are available at:

[http://www.th.gov.bc.ca/Publications/Circulars/Current\\_technical.asp](http://www.th.gov.bc.ca/Publications/Circulars/Current_technical.asp)

### Locally Developed BPs

**(Provide any locally-developed BPs):**

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### Other Resources:

**Recognized Products List.** Ministry of Transportation.

[http://www.th.gov.bc.ca/publications/eng\\_publications/geotech/rpl.htm](http://www.th.gov.bc.ca/publications/eng_publications/geotech/rpl.htm)

**Best Management Practices to Mitigate Road Dust from Winter Traction.**

Environmental Protection Division, Ministry of Environment. March 2005.

[http://www.env.gov.bc.ca/air/airquality/pdfs/roaddustbmp\\_june05.pdf](http://www.env.gov.bc.ca/air/airquality/pdfs/roaddustbmp_june05.pdf)

**Water Quality Best Management Practices Compendium Website.**

Environmental Protection Division, Ministry of Environment.

[http://www.env.gov.bc.ca/wat/wq/nps/BMP\\_Compndium/nps\\_bmp.htm](http://www.env.gov.bc.ca/wat/wq/nps/BMP_Compndium/nps_bmp.htm)

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**Roadsalt and Winter Maintenance for British Columbia Municipalities, Best Management Practices to Protect Water Quality.** Warrington, P.D. December 1998

<http://www.env.gov.bc.ca/wat/wq/bmps/roadsalt.html>

**Environmental Impacts of Road Salts.** Environment Canada Science and Environment Bulletin. January/February 2002.

[http://www.ec.gc.ca/science/sandejan02/article3\\_e.html](http://www.ec.gc.ca/science/sandejan02/article3_e.html)

**Dust Palliative Selection and Application Guide.** Nov. 1999. Bolander, Peter and Alan Yamada. San Dimas Technology and Development Centre.

[http://www.ecy.wa.gov/programs/air/pdfs/Dust\\_Palliative.pdf](http://www.ecy.wa.gov/programs/air/pdfs/Dust_Palliative.pdf)

**Pesticide Wise Environmental Fate.** BC Ministry of Agriculture and Lands. 2007. [http://www.al.gov.bc.ca/pesticides/c\\_2.htm](http://www.al.gov.bc.ca/pesticides/c_2.htm)

**Guidelines to Protect Fish and Fish Habitat From Treated Wood Used in Aquatic Environments in the Pacific Region.**

<http://www.wwpinstitute.org/pdffiles/treatedwoodguidelines.pdf>



### Checklist for Environmental Protection Requirements

- Is your proposed work considered a “routine” maintenance activity? If not, approvals or permits may be required. Contact your local municipal, provincial, or federal regulatory agency staff.
- Has this project been discussed with local environmental regulatory staff? In addition to the BP information presented, other site-specific conditions may apply.
- Have site-specific environmental protection requirements been identified? List below:
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