



Ref No C0304

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Preventing Pollution from Fire Fighting Run-Off

The Problem

Many industries routinely store and use large quantities of potentially polluting substances within their sites. In case of a spillage and particularly in the case of a fire, these substances could rapidly be transmitted to the nearest water course where they may give rise to a severe pollution problem.

It is therefore very important to develop a site emergency plan which, among other things, considers the actions to be taken to control run-off of water used to fight any fire on site.

Water is the most commonly used medium for fire fighting as it is cheap, plentiful and generally effective. In most circumstances it is non-hazardous. However, several major pollution incidents have occurred when water used for fighting fires has been allowed to reach nearby rivers or watercourses.

Fire fighting run-off may be polluting due to the actual materials on site, their combustion products and/ or the use of fire-fighting foam.

Fire Prevention

Clearly the maximum effort should be directed towards fire prevention. Every effort should be made to avoid creating the circumstances which lead to an actual event occurring.

Mitigating the Effect of Fire Water Run-Off

The first step is to assess the likely route of any run off from the site, then to calculate the likely volumes of fire water that might result from any incident. You should consider the likely routes to surface and groundwaters, and on sewerage routes. The Fire department should be involved in the volume estimation and will advise on the quantities and the volume of containment required, based on fire fighting best practice.

Containment Systems

Fire fighting water containment should be considered over and above the requirements for ordinary bunding (for example of chemical stores or tanks). In this case, we are looking at secondary containment systems.

A containment system may be required to protect both surface and foul water drainage systems. The methods used may be permanent or temporary and the following are possibilities for consideration:

1. Containment Lagoons and Sacrificial Areas

Lagoons should be constructed which are of a capacity for retention of the area concerned. The area does not have to be a dedicated retention area; an area that could be "sacrificed" in an emergency would suffice. Areas such as car parks, ornamental gardens or sports fields may be appropriate, providing that they are isolated from the drainage system and can be made secure.

2. Tanks

Permanent or portable tanks are another option for firewater retention. They must be constructed of a material resistant to the substances retained and tanks should be vented.

3. Penstocks and Shut-off Valves

Shut off valves or penstocks which can isolate parts of the site in an emergency are another alternative to prevent contaminated water reaching a drain or surface water. In this case the contaminated water is held within the drainage system, and removed as soon as practicable (and with the approval of the appropriate authority)

Once the method has been chosen, the authorities should be informed in case there are any fundamental problems arising from this decision. Keep adequate plans of your emergency arrangements and ensure that site personnel are aware of them.

4. Bunds

Potentially environmentally damaging materials should always be stored in adequately banded areas. Bunds are normally arranged to hold the total of the tank volume, plus 10%, this being the volume of the initial fire-fighting or fire protection water or foam. However, much more than this volume would be required to fight a fire. Therefore bunds cannot normally be relied on as fire water protection, but they may be able to provide temporary containment to gain time.

Letting the Authorities Know

There are several levels of government involved in managing environmental issues. Environment Canada is involved at the Federal Level, but most provinces also has an agency who will respond to provincial environmental. The list provided is taken from Environment Canada's website (see references). You should research the proper local procedures and contacts before a spill and to involve the appropriate authorities in the design of your emergency plan.

Key action steps

- Examine, and where necessary develop, your emergency plan to take account of the potential polluting effects of any water used in fighting a fire at your premises.
- Involve the local Emergency Services and the appropriate government agency in the development of your plans.
- Hold regular practices of these emergency plans.
- Make sure that the plans are reviewed and revised regularly.
- Ensure that the telephone numbers for Emergency contacts are readily available and that they are contacted in an incident.

References

Environment Canada
National Office
Ottawa ON, K1A 0H3
Telephone: (800) 668-6767 [in Canada only] or (819) 997-2800
TTY: (819) 994-0736
Fax: (819) 953-2225
www.ec.gc.ca

Canadian Centre for Pollution Prevention
100 Charlotte Street
Sarnia, ON N7T 4R2
Tel: 519-337-3423 or 1-800-667-9790
Fax: 519-337-3486 or e-mail info@c2p2online.com
www.C2p2online.com

Canadian Environmental Emergencies Notification System	
Province	Telephone Numbers
Newfoundland & Labrador	Canadian Coast Guard Marine Communications and Traffic Services Centre (709) 772-2083 (800) 563-9089 (accessible within province)
Prince Edward Island	Canadian Coast Guard Operations Centre (902) 426-6030
Nova Scotia	Canadian Coast Guard Operations Centre (902) 426-6030 (800) 565-1633 (long distance outside Halifax area)
New Brunswick	Canadian Coast Guard Operations Centre (902) 426-6030
Quebec	Environment Canada (866) 283-2333 Ministry of the Environment of Quebec (866) 694-5454
Ontario	Ministry of the Environment - Spills Action Centre (416) 325-3000 (800) 268-6060
Manitoba	Ministry of the Environment (204) 944-4888 (call collect outside Winnipeg)
Saskatchewan	Ministry of the Environment (800) 667-7525
Alberta	Ministry of the Environment (780) 442-4505 (800) 222-6514 (accessible within province)
Northwest Territories	24 hour Spill Line (867) 920-8130
Nunavut	24 hour Spill Line (867) 920-8130
British Columbia	Environment Canada (604) 666-6100
Yukon Territory	Environment Canada (867) 667-7244

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