

Loss Prevention Standards

Preventing Pollution from Fire Fighting Run-off

Introduction

Many industries routinely store and use large quantities of potentially polluting substances within their sites. In the event 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 important to develop a site emergency plan, which among other things, considers the actions to be taken to control water run-off used to fight any fire on site.

Sites which are subject to the [Control of Major Accident Hazards Regulations 2015](#) (COMAH) are required to make arrangements for water used to fight fires on their sites.

Water is the most commonly used medium for fire fighting, however several major pollution incidents have occurred when water used for fighting fires has been allowed to reach nearby rivers or water courses.

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.

Legal Implications

Polluting a water course is an offence under the Water Resources Act.

Polluting a sewer by discharging material without the prior consent of the appropriate water undertaker (i.e. local Water Services Company) is an offence under the Water Industry Act. Additionally, operators of COMAH and certain permitted sites under the [Environmental Permitting \(England and Wales\) Regulations 2016](#) are required to make adequate plans and may find themselves in breach of regulations if these plans are not adequate.

In addition to prosecution, the Environment Agency can serve a works notice requiring environmental clean up or require repayment of clean up costs which the Agency incur. The [Environmental Damage \(Prevention and Remediation\) Regulations 2009](#) adopt a “polluter pays” principle and extend this legal duty further including “strict” as opposed to “fault based” liability in certain circumstances. Under these Regulations the financial penalties can also extend beyond traditional clean up (or primary) costs, to include complimentary and compensatory remediation. Costs of such incidents can run into many millions of pounds and are not covered as part of normal insurance policies.

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 which might result from any incident. The Environment Agency will be able to advise on the likely routes to surface and groundwaters, in conjunction with the Water Services Company who will be able to advise on sewerage routes. The Fire and Rescue Service 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 and may be required to protect both surface and foul water drainage systems. Examples of such systems include:

Containment Lagoons and Sacrificial Areas

Lagoons should be constructed which are of a capacity for retention of the area concerned. Areas such as car parks, ornamental gardens or sports fields may be appropriate, providing that they are isolated from the drainage system, can be made secure, and are designed to avoid contamination of groundwater.



Tanks

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

Penstocks and Shut-Off Valves

Shut-off valves or penstocks that can isolate parts of the site in an emergency are another alternative to prevent contaminated water reaching a drain or surface water.

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.

Bunds

Potentially environmentally damaging materials should always be stored in adequately bunded 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. Bunds cannot therefore normally be relied on as fire water protection, but they may be able to provide temporary containment to gain time.

Fire Fighting Strategies and Run-Off Management

Your emergency plan may consider fire fighting strategies and possible ways to reduce the amount of fire water run-off generated.

Advising the Authorities

As in all emergencies, the first step is to carry out appropriate evacuation systems and contact the Fire and Rescue Service. Then contact the Environment Agency. The Environment Agency is committed to the prevention of catastrophic pollution as a result of fire and will usually attend an incident in order to ensure, as far as is practicable, the protection of the aquatic environment from the results of the incident. They also keep stocks of appropriate equipment and materials to minimise the effects of an incident.

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 Emergency Services and the Environment Agency in the development of your plans
- Hold regular practices of these emergency plans
- Ensure the plans are regularly reviewed and revised as necessary
- Ensure that the Environment Agency emergency telephone number is readily available and that they are contacted in an incident

Additional Information

- [Guide to the Control of Major Accident Hazards Regulations \(COMAH\) 2015](#) – Health and Safety Executive
- [Pollution Prevention for Businesses](#) – GOV.UK
- [Pollution Prevention and Control](#) – Scottish Environment Protection Agency
- [The NIEA and Water Pollution](#) – Department of Agriculture, Environment and Rural Affairs: Northern Ireland
- [Preventing Water Pollution](#) – Business Wales

Further risk management information can be obtained from [Aviva Risk Management Solutions](#)

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