

# GENERAL GUIDE TO THE PREVENTION OF WATER POLLUTION: PPG1

# POLLUTION PREVENTION GUIDELINES

*These guidelines are intended as an introduction to both pollution prevention and the Agencies' series of pollution prevention guidance notes. They are produced by the Environment Agency for England & Wales, the Scottish Environment Protection Agency and the Environment and Heritage Service in Northern Ireland, referred to jointly as the Agency or Agencies. Sites are considered according to the individual circumstances, and consultation with your local office is advisable. Contact details will be found at the end of these guidelines.*

*Note that in these guidelines the term 'oil separator' is used. This has the same meaning as 'oil interceptor'.*

## 1. LEGAL FRAMEWORK

The Agencies are responsible for both the protection of "controlled waters" from pollution under the Water Resources Act 1991 in England and Wales, the Control of Pollution Act 1974 (as amended) in Scotland and the Water Act 1972 in Northern Ireland. They are also responsible for the prevention of pollution of the environment, harm to human health and detriment to local amenity by waste management activities under the Environmental Protection Act 1990 (except in Northern Ireland where different legislation applies). The release of the most seriously polluting substances to water, land or air may be subject to additional regulation under the system of Integrated Pollution Control introduced by the Environmental Protection Act 1990.

It is an offence to cause pollution of controlled waters either deliberately or accidentally. "Controlled waters" include all watercourses and water contained in underground strata (or "groundwater"). In addition, the formal consent of the Agency is required for many discharges to controlled waters. Consents are granted subject to conditions and are not issued automatically.

All discharges to the foul sewer require authorisation by the sewerage undertaker and may be subject to the terms and conditions of a trade effluent consent.

Any other waste produced on an industrial site will be subject to the Duty of Care (Reference 1) under the Environmental Protection Act 1990 and may also be subject to control under the Waste Management Licensing Regulations 1994. Certain hazardous wastes are subject to the Special Waste Regulations 1996 (amended in Scotland). Separate legislation applies in Northern Ireland. Advice is available from the Agencies.

## 2. INTRODUCTION

Many thousands of pollution incidents occur each year, from factories, farms, transport activities or even homes. Although each site and activity is different, the general principles of pollution prevention are much the same.

Most pollution incidents are avoidable given careful planning of operations and facilities to reduce the risk of spillage, and simple precautions to prevent a spillage causing pollution. Often the necessary measures cost little, especially if included at the design stage. In contrast, the costs of cleaning up a pollution incident can be very high, and will, wherever possible, be recovered from the polluter.

## 3. SITE DRAINAGE

### a. Drainage

On most sites there will be two types of drain. Surface water drains, including land drains and most road drains, should carry only uncontaminated rainwater as they will lead directly to a local river, stream or soakaway. The foul water drain is designed to carry contaminated waste water safely to a storage lagoon, treatment system or sewage works for treatment. Prior agreement from the local sewerage undertaker is required before connection to the public foul water system.

#### **b. Surface water treatment**

Surface water can be contaminated with silt, heavy metals, chemicals and oil which can be damaging in watercourses and groundwater. In many cases, it will require treatment by controlling the pollution at its source or just before the discharge point. For options, see Reference 2. In areas where there is a high risk of oil pollution, it may be necessary to install an oil separator to protect the surface water system and reduce the risk of pollution. Detailed guidelines on separators are available (Reference 3).

#### **c. Wrong connections**

Wrongly connected effluents can cause severe pollution problems which can be difficult to remedy. Sources of dirty water, such as sinks and toilets, should be connected to the foul sewer, not just the nearest drain. Manhole covers and gullies should be clearly marked, for example by colour coding with red for foul and blue for surface water, and site drainage plans should be readily accessible.

#### **d. Garage forecourts and fuel delivery areas**

Due to the potential for pollution from garage forecourts and fuel delivery areas, oil separation will be required. Effluent resulting from the cleaning of forecourts must not be discharged to controlled waters. Details of surface water disposal and other potentially polluting activities are included in Reference 4.

#### **e. Cleaning activities**

Wash waters from mobile pressure washers should not be discharged to surface water drains, watercourses or soakaways. No detergents are suitable for discharge to surface drains, even if described as bio-degradable, so such activities should be carried out in designated, kerbed areas draining to the foul sewer (subject to the approval of the local sewerage undertaker). Alternatively, closed loop vehicle wash recycling systems are available. For further details see Reference 5.

#### **f. Sewage disposal**

All foul sewage should pass to the local foul sewer if possible. If not, other arrangements should be discussed with your local Agency office (see Reference 6). Most alternatives will normally require the Agency's formal consent.

#### **g. Chemical storage areas**

Drainage from such areas presents special problems and there should be full consultation with your local Agency office to minimise pollution risks.

### **4. CONTINGENCY PLANS**

Spillages and fire fighting run-off water from a site may have potential to cause enormous damage to controlled waters. It is recommended that appropriate spill kits or absorbent materials are held on site. It is essential that staff know what to do in an emergency. An up-to-date drainage plan should be maintained, hazards identified and a contingency plan, giving advice on what action to take and who should be informed, drawn up. These plans should be clearly displayed and regular exercises undertaken. Detailed guidance is given in Reference 7

### **5. DELIVERIES AND SECURITY**

#### **a. Deliveries**

Special care should be taken during deliveries, particularly when hazardous materials are involved. Deliveries should be supervised at all times, tanks and containers should be labelled with the nature and volume of their contents, and the content levels should be checked prior to delivery to prevent overfilling.

#### **b. Delivery areas**

Loading and unloading areas should be clearly marked and isolated from the surface water drainage system either by catch pits or sumps with isolating valves or by roofing. Cut-off valves in the drainage system and raised kerb surrounds may be needed, with drainage to the foul sewer if possible. Delivery pipes should be fitted with automatic cut-off valves to prevent overfilling. Consultation with the Agency is recommended.

### **c. Security**

Vandalism and theft are frequent causes of pollution. Lockable valves should be fitted on all storage tanks, fences should be secure and doors and gates kept locked. Where possible, materials should be stored under cover and potential pollutants should be transferred into safe storage without delay.

## **6. OIL STORAGE AND PIPELINES**

### **a. Storage**

In general, any oil storage tank and oil stored in drums should be sited on an impervious base within an oil-tight bund with no drainage outlet. All fill pipes, draw pipes and sight gauges should be enclosed within the bund, and the tank vent pipe should be directed downwards into it (see Reference 8). Advice on the construction of bund walls is available (References 9 and 10). For guidance on the safe storage and disposal of used oils see Reference 11.

### **b. Pipelines**

Site pipelines in an accessible position above the ground where possible. Underground oil storage tanks and pipelines may be subject to damage and corrosion. Where a pipeline has to be laid underground, it should be resistant to corrosion and placed in a protective sleeve or a duct with open grating covers for inspection purposes. Underground tanks and pipelines may be subject to special restrictions where there is a risk to groundwaters.

## **7. WASTE STORAGE AND DISPOSAL**

### **a. Reduction, re-use and recycling**

Methods to reduce the amount of wastes, such as re-use and recycling, should be considered. Significant savings may be made as the cost of raw materials and waste disposal continue to rise. Advice on waste minimisation and local initiatives can be obtained from your nearest Agency office. Independent advice on this and on any other environmental problem is available free through the national Environmental Helpline on 0800 585794.

### **b. Duty of Care and waste legislation**

Producers of waste must ensure that it does not escape from their control and is passed on to an registered carrier accompanied by a full description. As a result of changes in waste legislation in 1996 waste mineral oil is now a special waste. Contact your local Agency office for further advice.

### **c. Storage**

All wastes must be stored in designated areas which are isolated from surface drains and banded to contain any spillages. Rubbish compactors should be covered to prevent the build up of contaminated rainwater and drained to the foul sewer to prevent polluting liquid entering the surface water drains. Compactor hydraulics should be maintained in good order.

## **8. CONSTRUCTION AND DEMOLITION**

Detailed guidance is available covering various aspects of construction and demolition (Reference 12). It is important to note that where site dewatering is involved, the prior approval of the Agency must be obtained. Any discharge must be free from solids in suspension, oil or other polluting materials. Silt is a non-toxic pollutant and in the absence of other contaminants, silty water can be disposed of by pumping to the foul sewer, a settlement tank or over a grassed area. However, if the silty water has been contaminated by any other pollutant, you should consult with the Agency on its disposal.

## **9. AGRICULTURE**

Agricultural activities have resulted in significant water pollution in the past and continue to have the potential to do so unless properly managed. Detailed guidance on preventing pollution from agricultural activities is available (see Reference 13).

## **10. GROUNDWATER POLLUTION**

Spillage or incorrect storage of chemicals or waste materials on unprotected land can result in liquid pollutants seeping through the soil, causing serious harm to groundwater, a vital source of drinking water. Chlorinated solvents are the most widespread and severe cause of groundwater pollution and

their use and disposal requires special care.

## 11. FLOODPLAIN DEVELOPMENTS

All drainage manhole covers which lie within a flood plain should be of the sealed, screw down cover design, and sink waste gullies should be built up above flood level. The construction and use of chemical stores within the flood plain requires prior consultation with the Agency.

## 12. REFERENCES

1. Waste Management - The Duty of Care - A Code of Practice: The Stationery Office. ISBN 0-11-753210-X
2. A Guide to Sustainable Urban Drainage: SEPA/Environment Agency
3. PPG3 - The use and design of oil separators in surface water drainage systems
4. PPG7 - Fuelling stations: Construction and operation
5. PPG13 - The use of high pressure water and steam cleaners
6. PPG4 - Disposal of sewage where no mains drainage is available
7. PPG18 - Control of spillages and fire fighting run-off
8. PPG2 - Above ground oil storage tanks
9. Masonry bunds for oil storage tanks
10. Concrete bunds for oil storage tanks
11. PPG8 - Safe storage and disposal of used oils
12. PPG6 - Working at demolition and construction sites
13. Codes of Good Agricultural Practice for the Protection of Water, Soil and Air: MAFF Publications, Telephone: 0645 556000

Prevention of Environmental Pollution from Agricultural Activity: The Scottish Office Agricultural and Fisheries Department (SOAFD), Edinburgh

Water - Preventing Pollution, series of 11 leaflets: Department of Agriculture for Northern Ireland

References 2-12 are available free of charge from your local Agency office

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The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water in England, Wales, Scotland and Northern Ireland.

## EMERGENCY HOTLINE

# 0800 80 70 60



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