

# HOSPITALS AND HEALTH CARE ESTABLISHMENTS: PPG 25

# POLLUTION PREVENTION GUIDELINES

*These guidelines have been drawn up to assist all those involved in the management and maintenance of hospitals and health care establishments. Compliance with this guidance should minimise the risk of pollution occurring. The guidelines are jointly produced by the Environment Agency for England and Wales, the Scottish Environment Protection Agency and the Environment and Heritage Service for Northern Ireland, referred to as the Agency or Agencies. Every site is different and will need to be considered individually and consultation with your local Agency office is advisable. Contact details will be found at the end of these guidelines.*

## 1. INTRODUCTION

- a. The Agencies are responsible for the protection of “controlled waters” from pollution, for the prevention of pollution of the environment and harm to human health by waste management activities, and for the regulation of radioactive substances, and industrial processes with the greatest potential for impact on the environment, including some hospital boilerhouses.  
  
“Controlled waters” include all watercourses, lakes, lochs, coastal waters and water contained in underground strata (groundwater) and it is an offence to pollute such waters, either deliberately or accidentally. In addition, the formal consent of the Agency is required for many discharges to controlled waters, including both direct discharges and discharges to soakaways. Such consents are granted subject to conditions and are not issued automatically.
- b. Discharges to the public foul sewer require authorisation by the sewerage undertaker and may be subject to terms and conditions of a trade effluent consent. Where reference is made to disposal to sewer, this should always be subject to such approval.
- c. “Controlled Waste” is defined as waste from households, commerce or industry. All controlled wastes, except for householders disposing of their own waste, is subject to the Duty of Care (Reference 1). In addition, certain wastes are defined as “Special Wastes” and are subject to more rigorous controls. Advice is available from the Agencies.
- d. A Registration Certificate is required from the Agency for the keeping and use of open and closed sources of radioactivity and an Authorisation Certificate is required for the accumulation and disposal of radioactive wastes. The certificates specify limitations and conditions. Such wastes can be in solid, aqueous liquid, organic liquid or gaseous forms. Advice on radioactive waste disposals should be sought from the organisation’s Radiological Protection Advisor and from the Agencies.
- e. The regulation of incinerators is complex and it is recommended that advice is sought from the Agency if waste is to be incinerated. In most cases, the incinerator will be regulated by the Agency. However, in England and Wales the local Authority are responsible for those incinerators where the capacity is less than 1 tonne/hr and where the waste is not subject to the requirements of EC Directive 94/67 on the Incineration of Hazardous Wastes. In certain circumstances, for example where clinical waste from another healthcare establishment is stored and incinerated on site, there may be additional waste management licencing implications.

## 2. SITE DRAINAGE

A frequently occurring factor in pollution incidents is a lack of awareness of the purpose of drains and gullies. On most sites there will be two types of drainage:

- i. Surface water drains, which should carry only uncontaminated rainwater from roofs and clean yard areas to a watercourse or soakaway. Under some circumstances, treatment may be required before discharge (see Section 4a).
- ii. Foul drains, which should carry contaminated water, trade effluent and domestic sewage to a sewage treatment works.

It is recommended that gullies, grids and manhole covers are colour coded to aid identification, using blue for surface water and red for foul and arrows to indicate the direction of flow. Use notices where appropriate and keep a set of up-to-date drainage plans on site.

### 3. SEWAGE AND WASTE WATER DISPOSAL

Sewage and waste-waters include all effluent from bathrooms, kitchens, laboratories, sluice rooms, laundries, boilers, clinics and vehicle wash down areas. All these effluents must be connected to the foul sewer (see Section 1b), as should potentially polluted areas, such as compactor and waste storage areas. Where no public foul sewer is available, establishments may provide their own treatment facility. This will require consent from the Agency. In the case of new or proposed establishments early consultation is advised, so that the appropriate systems can be designed (PPG4 - Reference 2). Radioactive disposals to sewer will need to be within the conditions in a Certificate of Authorisation.

#### a. Cleaning of laboratory, clinical and kitchen equipment and vehicles

Waste-waters from the cleaning of equipment and vehicles must not be discharged into surface water drains, watercourses or soakaways, but may be discharged to the foul sewer. No detergents are suitable for discharge to surface drains, even if described as bio-degradable. A designated and clearly marked cleaning area should be provided, discharging either to the foul sewer, or to a containment facility for collection and appropriate disposal by a registered waste carrier to a licensed site. Alternatively, for vehicle washing, closed loop recycling systems are available. See PPG13 - Reference 3 for further guidance on high pressure and steam cleaning.

#### b. Floor cleaning and window cleaning

Waste-waters from floor scrubbing machines and from window cleaning must not be discharged into surface water drains. Provision should be made for such effluent to be discharged to the foul sewer and staff and contractors should be made fully aware of the correct disposal procedure.

#### c. Discharges from air conditioning and heating systems

Under no circumstances should chemically treated water from any air conditioning, heating systems or boilerhouses be discharged into surface water drains. Such waste-waters will either need to be collected and disposed of by a registered waste carrier or discharged to the foul sewer. Internal floor drainage systems for associated plant and chemical storage/dosing areas must not be connected to surface water drains.

### 4. SURFACE WATER DRAINAGE

Surface water drainage discharges to a watercourse, or to groundwater via a soakaway. Surface water should therefore be clean and uncontaminated. A discharge of waste-water to the surface water drain will result in pollution.

#### a. Treatment of surface water drainage

Surface water can be contaminated with silt, heavy metals, chemicals and oil that can be detrimental to watercourses and groundwater. For example, large hospital car parks can give rise to pollution due to oil from vehicles and the accumulation of dust and litter. The run-off from such areas may require treatment before discharge. The Agencies have published guidance on surface water disposal (Reference 4), which describes options for treatment.

#### b. Oil separators

Where there is a risk of oil contamination or spillage, an oil separator may be required, for example from refuelling areas or the area immediately around above ground oil storage tanks. Guidelines for the selection and installation of oil separators are available (PPG3 - Reference 5). Where installed, they should be regularly inspected and emptied as appropriate by a registered waste carrier.

#### c. Roof water

To prevent the risk of contamination, roof water down pipes should connect to the surface water drainage system via direct drain points or sealed top, side entry gullies. Open gullies or grates should be avoided. Hospitals and health care establishments often have buildings with flat roofs and pipes, tanks or cooling towers are commonly situated on the roof. If these facilities leak, there is the potential for the liquid to enter the roof water down pipes and hence to cause pollution of the surface water system. It is therefore recommended that such installations be avoided. If this is not possible, it is recommended that the Agency is contacted to discuss suitable precautions to minimise the pollution risk.

### 5. WASTE MANAGEMENT

This is critical in the health care sector, as several discrete waste streams, with different levels of potential hazard are involved. The associated costs in handling, and properly disposing of, these arisings are increasing. An effective waste management strategy will ensure these costs are kept to a minimum by ensuring proper segregation and storage of wastes. Waste minimisation and the potential for re-use and recycling should be part of the strategy, as significant savings may be made (see References 6 and 7 for further information).

#### a. General

Waste producers have a Duty of Care (Reference 1) to ensure the wastes they produce are properly dealt with. This means waste should be stored securely and disposed of by a registered waste carrier to a suitably licensed facility. To discharge this duty, it is therefore essential to segregate different classes of waste, by clearly marking and colour coding clinical, special and general waste. This ensures waste streams follow the most appropriate waste management route. Radioactive waste needs to be accumulated and disposed of in accordance with the Certificate of Authorisation and must be separated, marked clearly and handled appropriately.

## **b. Clinical waste**

This is a complex area of waste management that can not be covered adequately here. For further information see Reference 8. In general, this waste has to be incinerated or otherwise rendered safe (for example by microwaving or auto-claving) and then, depending on the type of clinical waste, land filled. Clinical wastes must be strictly segregated and any opportunity to minimise the waste produced, such as the use of durable rather than disposable containers, should be examined carefully, as significant savings may be possible.

## **c. Special Waste**

Some waste chemicals, biological agents and all Prescription Only Medicines are subject to the Special Waste Regulations 1996, which impose additional controls on movement and disposal. Some Special Wastes may also be clinical wastes (Reference 9 and 10). Should you be in any doubt on this issue please call your local Agency office for help.

## **d. Compactors**

Refuse compactors can produce highly polluting liquors and must be isolated from the surface water drainage system. It is best to drain the area to the foul sewer and to provide a roof to minimize the discharge. Clinical wastes should not be disposed of using compactors. Compacting waste, other than Special Waste, in skips is exempt from Waste Management Licensing, provided it is carried out at the place where the waste is produced, without risk to the environment or harm to human health and it has been registered with the Agency.

## **e. Radioactive waste**

There are a number of acceptable disposal routes for radioactive wastes. Only routes specified in an organisation's Authorisation may be used for disposal and the volume and activity limits must be complied with. The acceptability of particular routes is assessed when an organisation applies for a new or revised Authorisation. Solid wastes containing very low levels of radioactivity are frequently disposed of with other refuse, via local authorities or contractors for landfilling. Aqueous liquids are often discharged to foul sewer. Organic liquids can be incinerated in a clinical or hazardous waste incinerator and gaseous wastes are often discharged to air through an appropriate extract system.

# **6. OIL STORAGE**

## **a. Above ground**

Detailed guidelines for above ground storage tanks are available (PPG2 - Reference 11). Above ground storage tanks, drums or containers should be sited on an impervious base within an oil tight bund wall and storage at or above roof level should be avoided.

## **b. Below ground**

Underground oil tanks and pipelines may be subject to damage or corrosion and therefore above ground facilities are preferred. When this is not practicable, appropriate protective measures against damage and corrosion, such as double wall piping or laying the pipe in a conduit, should be provided. Regular inspection and pressure testing are essential, especially where groundwater pollution could occur. In some areas, where groundwater sources are vulnerable and need protection from contamination, underground tanks may be subject to special restrictions (Reference 12).

## **c. Fuel delivery**

Delivery areas should be isolated from general yard drainage by a raised kerb and any drainage from within this area should pass through a suitable oil separator. All deliveries should be supervised by trained staff and absorbent materials should be kept at hand to deal with any spillages.

## **d. Boilerhouse**

Pumps within the internal sump of boilerhouses should be manually operated and discharged to the foul sewer through an oil separator of an approved design.

## **e. Standby generators**

Standby generators and their oil supply system should be provided with suitable bunding to ensure that any oil leak is contained. Particular care is needed with automatic pumping systems from bulk fuel storage to header or day tanks, to ensure that overpumping can not occur.

# **7. 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 an up-to-date drainage plan should be maintained, hazards identified and a contingency plan developed, giving advice on what action to take and who should be informed. The plan should be clearly displayed and regular exercises undertaken (see PPG21 - Reference 13 for guidance on writing a contingency plan and a plan template). Appropriate spill kits or absorbent materials should be held on site and staff should be trained in what to do in an emergency.

# **8. SWIMMING POOLS**

Swimming pool and filter backwash water are highly polluting and should be discharged to the foul sewer. If no sewer is available, contact your local Agency office to discuss the best method of treatment and disposal. Treatment chemicals have a high potential for pollution and in general should be securely stored in an area where any spillages would be contained.

## 9. CONTRACTORS

All contractors working on site must comply with the Duty of Care and should be made aware of pollution prevention measures and relevant environmental management procedures adopted by the hospital or health care establishment.

## 10. REFERENCES

1. Waste Management - Duty of Care - A code of practice (revised 1996): ISBN 0-11-753210-X: The Stationery Office Tel. 08706 005522
  2. PPG 4: Disposal of sewage where no mains drainage is available
  3. PPG13: High pressure water and steam cleaners
  4. Sustainable Urban Drainage - an Introduction: SEPA/Environment Agency
  5. PPG3: The use and design of oil separators in surface water drainage systems
  6. "Money for nothing, waste tips for free" Waste Minimisation good practice guide and video. Environment Agency: Telephone 0345 337700 to order a free copy.
  7. The Environmental Technology Best Practice Programme can offer both strategic and specific waste minimisation advice on 0800 585794
  8. Safe Disposal of Clinical Waste: HSC (Joint HSE/Environment Agency/SEPA guidance) ISBN 0-7176-2492-7: HSE Books, Telephone: 01787 881165
  9. Classification of Special Waste: Information sheet 1: Environment Agency  
Use of the consignment note: Information sheet 2: Environment Agency  
Obtaining and sending consignment notes: Information sheet 3: Environment Agency  
A Guide to the Special Waste Regulations 1996: SEPA  
A Guide to the Special Waste Regulations (Northern Ireland) 1998: Environment and Heritage Service
  10. Special Waste Explanatory Note 001: Health care wastes
  11. PPG2: Above ground oil storage tanks
  12. Policy and Practice for the Protection of Groundwater in England and Wales: ISBN 1 873160372: The Stationery Office, Tel. 08706 005522  
Groundwater Protection Strategy for Scotland: SEPA
  13. PPG21: Pollution incident response planning
- References 2-6, 9-11 and 13 are available free from the Agencies

All the Agencies' pollution prevention guidance notes are available on the web sites listed below.

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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.

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