ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

POLLUTION PREVENTION GUIDELINES

PREVENTING POLLUTION ON INDUSTRIAL SITES: PPG11

These notes are for guidance only. They are produced by the Environment Agency in England and Wales, the Scottish Environment Protection Agency and the Environment and Heritage Service in Northern Ireland, referred to as the Agency or Agencies. Sites are considered according to the individual circumstances and contact with your local Agency 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

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 (except in Northern Ireland, where different legislation applies).

"Controlled waters" include all watercourses, canals 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 the 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. Any other waste produced on the 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. In addition, certain hazardous wastes are subject to the Special Waste Regulations 1996 (Reference 2). Separate legislation applies in Northern Ireland. Advice is available from the Agencies.

d. The storage, use and disposal of radioactive substances normally needs a licence from the Agency.

2. INTRODUCTION

Most pollution incidents are avoidable. Careful planning of facilities and operational procedures can reduce the risk of spillage and simple precautions can prevent a spillage becoming a pollution incident. Most of the measures needed to prevent pollution cost very little, especially if they are included at the design stage. In contrast, the costs of cleaning up a pollution incident and compensating fisheries owners and other downstream users can be very high. Pollution prevention measures may also offer substantial economic benefits, including saving expensive raw materials and products, minimise the frequency of site accidents, and reduce the risk of prosecution for water pollution offences. Introduction of pollution prevention measures is the first step, but to be effective, employees must understand why they are needed and be trained in their use.

3. SITE DRAINAGE

On most sites there will be two types of drain:

i. Surface water drains 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 5(a)).
ii. Foul drains should carry contaminated water, trade effluent and domestic sewage to a treatment works.

Wrongly connected effluents can cause severe pollution problems, which are often costly to remedy. Ensure that new or temporary facilities, such as sinks, showers, canteens, laboratories and washdown areas, are properly connected to the foul drain and not just the nearest drain, which might be the surface water system. Internal floor gullies, if provided, are readily contaminated and must be connected to the foul drain.

All drainage systems should be maintained in working order. A programme of regular inspections should be established and gullies and sumps should be cleaned as required by suitably registered contractors.

A frequently occurring factor in pollution incidents is a lack of awareness of the purpose of drains and gullies. Therefore, it is recommended that gullies, grids and manhole covers are colour coded to aid identification, using blue for surface water and red for foul. Use notices where appropriate and keep a set of up-to-date drainage plans on site.

4. SEWAGE AND WASTE WATER DISPOSAL

a. Domestic sewage

Care should be taken that all drainage from welfare facilities such as toilets, showers and canteens is connected to the foul drainage system. Such connections may require approval from the sewerage undertaker.

b. Trade effluent

In addition to process effluent, trade effluent also includes compressor or boiler blowdown, steam condensates, cooling water, pressure testing liquids, air conditioning water and vehicle and plant cleaning effluent. Before making a discharge, the alternatives should be considered carefully, including recycling, minimisation and reuse on site. All such discharges require prior consent either from the local sewerage undertaker for discharges to the foul sewer, or from the Agency for discharges to watercourse or groundwater. Both of these consents will incur charges and you will be responsible for complying with the terms of the consent. Failure to do so may result in prosecution. You should ensure that:

i. Responsibility for the discharge is clearly defined.
ii. The effluent discharge point is clearly marked.
iii. The sampling point is safe and accessible at all times.
iv. Regular visual inspections are made, samples taken and tests carried out if appropriate.

5. SURFACE WATER DRAINAGE

Surface water drainage discharges to a watercourse or to groundwater via a soakaway. Surface water must 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

Large car parks, access roads and hard surfaced areas can give rise to pollution due to oil drips 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 3), which describes options for treatment. These range from permeable surfaces and infiltration trenches, offering control at source, to end of pipe systems, such as swales and constructed wetlands. They are collectively known as “Sustainable Urban Drainage Systems”.

b. Oil separators

Where it is not possible to use sustainable drainage techniques, an oil separator may be required on the drainage from large parking areas or from the area immediately around above ground oil storage tanks, depending on the risk of contamination or spillage.

Guidelines for the selection and installation of oil separators are available (Reference 4). Oil separators need regular inspection and must be emptied when required, by a suitably registered contractor, in order to function effectively.

c. Consent to discharge

Should surface water drainage become contaminated, a consent to discharge will generally be required. However, if the guidance in this document is followed, and potential sources of contamination are isolated from the surface water systems, a discharge consent will not usually be required.

d. Cut-off valves

A cut-off valve on the drainage system provides improved security if used to isolate designated risk areas, for example during the delivery of hazardous chemicals or for areas regularly cleaned using chemicals. In some cases, these are used with off-line storage tanks. Their use ensures that a spillage can be retained on site for suitable treatment and disposal. Contaminated 'fire water' could also be contained in the event of a fire.

e. Roof water down pipes

Uncontaminated roof water should be discharged directly to the surface water system via direct drain points or sealed top, side entry gullies. Open gullies or grates should be avoided, as they provide an entry route for contamination. Roof drainage should not normally pass through any oil separator.

6. DELIVERY AND HANDLING OF MATERIALS

The handling of materials always involves a risk of spillages and accidents. It is therefore important to identify these risks so they can be minimised.

a. Loading and unloading areas should be designated, marked and isolated from the surface water drainage system.

b. The routes used for the movement of materials on site should be identified so that any necessary protection can be incorporated.

c. Yard areas used for storage, handling and manufacturing should be roofed to reduce the volume of contaminated drainage for disposal and drained to the foul sewer.

d. High risk areas, such as refuelling points should be isolated from the surface water system using ramps, roll-over bunds or stepped access.

e. Deliveries of oil and potentially hazardous materials should be supervised. If there is a spill, it should be contained and reported immediately. DO NOT HOSE IT DOWN.

f. Tankers should discharge via a lockable fixed coupling within the bunded area.

g. Automatic cut-off valves should be fitted to delivery pipes to prevent overfilling.

h. Where possible, pipelines should be sited above ground. If a pipeline is to be installed underground, it should be placed in a leak-tight protective sleeve or duct and subject to regular inspection and testing. Pipeline ducts should not be connected to the surface water drainage system.

7. STORAGE FACILITIES

a. Underground storage tanks are susceptible to damage and corrosion, and above ground facilities are preferred. In areas of high groundwater vulnerability (References 5 and 6) the Agency may object to the installation of underground storage tanks. Where underground storage is necessary, protective measures such as double skinned tanks and piping and leak detection may be required. In some circumstances, underground tanks may be fitted within a basement style bund.

b. All above ground storage tanks, drums and containers should be sited on an impermeable base within a bund. The bund should be constructed of a material impermeable to the liquid stored. For guidance on above ground oil storage, see Reference 7. Storage at or above roof level should be avoided.

c. Always use appropriately sized and constructed tanks or containers that will not leak or corrode, ensuring that they are clearly labeled with their contents and volume.

d. Drums and other liquid containers should be provided with drip trays when in use.

8. WASTE MANAGEMENT

Waste management is a complex area of legislation. This section provides a brief outline of the principal issues, but you are advised to contact your local Agency office for site specific guidance and advice.

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 material and waste disposal costs continue to rise (Reference 8).

b. Duty of Care and waste legislation

Under the Environmental Protection Act 1990, producers of waste have a Duty of Care to ensure that it is properly managed. Waste must be securely stored on site and the producer has a duty to ensure that the waste contractor who removes it is registered with the Agency and is informed of its nature. The burning of waste and on-site disposal are both subject to the Waste Management Licensing Regulations.

c. Storage

If waste cannot be eliminated, it must be stored and disposed of appropriately, which may, under some circumstances, require a licence from the Agency. Litter is polluting and must not be allowed to escape. Skips and containers should not be overfilled and should be covered, or waste storage areas enclosed, to prevent waste being blown out.

d. Swarf skips and compactors

Swarf skips and refuse compactors often leak polluting liquids. They should be placed on an impermeable base and isolated from the surface water drainage system, using a spill tray, raised kerbs or "roll-over" bunds. It is preferable to cover them, to avoid rainwater accumulation, and to connect the drainage to the foul sewer. Any leakage should be cleaned up straight away using sand or absorbent material. Compactors are exempt from the need for a waste management licence, but must be registered with the Agency.

e. Packaging regulation

If a company handles more than 50 tonnes of packaging per year, and has an annual turnover in excess of £2 million, it may be required to register with the Agency or a compliance scheme to ensure that the recovery and recycling obligations of the Producer Responsibility Obligations (Packaging Waste) Regulations 1997 are met.

f. Liquid wastes

Liquid wastes, including solvents and oil, must be securely stored in bunded compounds prior to collection by a registered waste contractor (see References 9 & 10). Under no circumstances should any waste liquids be discharged to the surface water system. Some liquid wastes may be discharged to the foul sewer via a designated facility, if an appropriate trade effluent consent is in place (see Section 1b).

g. Special wastes

Certain hazardous wastes including solvents and oils are defined as being "special wastes" and a more rigorous consignment note system applies (see Reference 2).

9. ROUTINE INSPECTION AND MAINTENANCE

A routine programme of inspection and maintenance for oil separators, effluent treatment plants, storage tanks (both above and below ground), pipework, drains, bund walls, notices and any pollution prevention equipment should be established. There should be a clear reporting procedure leading to rapid corrective measures where needed. Where possible, give staff personal responsibility for the maintenance programme.

10. CLEANING AND DEGREASING

All cleaning activities, including the cleaning of equipment, yards, floors, containers and vehicles, can produce large volumes of polluted water. All cleaning agents are potentially polluting, even those claimed by manufacturers to be 'biodegradable' or acceptable for discharge to drains. Water containing detergents, disinfectants, degreasers or any other cleaning agent, including effluent arising from pressure or steam cleaners (see Reference 11), must not enter surface water drains or soakaways.

a. All cleaning and washing operations should be carried out in designated areas isolated from the surface water system and draining to the foul sewer. The area should be clearly marked and use of a kerb surround or "roll-over" bund is recommended. Consideration should be given to water recycling.

b. Ensure all staff and contractors working on site are aware of the disposal facilities for wash waters by using clear signs. Use notices to identify surface water gullies, indicating clearly that they should not be used for the disposal of waste water.

c. Yard areas draining to the surface water system should not be degreased or steam cleaned unless:

(i) the gullies are sealed off and any liquid soaked up with absorbent material, or

(ii) a valve is fitted at the outlet to the system and closed during the cleaning operation. The accumulated washings should then be removed for disposal by a registered waste carrier.

11. DEMOLITION AND CONSTRUCTION

Construction and demolition activities on your site may generate waste and increase the risk of pollution (Reference 12). Ensure that old tanks and pipework are empty before they are disturbed and that any temporary chemical and oil storage facilities are bunded. Provision should be made for the treatment of silty water and remember that cement and concrete are harmful to watercourses.

12. STAFF TRAINING

Staff should be made aware of the relevant legislation and of their own responsibilities. Include pollution prevention information in on site staff and contractor training. Use newsletters, posters and notices to reinforce the message. Your local Agency office may be able to assist with training materials and speakers. Key staff should be familiar with the drainage systems, and carry out exercises to rehearse actions in the event of a spillage. They should have access to important telephone numbers such as the Emergency Services, the local water company and the Agency. Encourage staff to identify pollution risks and solutions, perhaps by using a staff suggestion scheme.

13. EMERGENCY PLANS

Carry out a complete inspection of the site to identify potential sources of pollution. Where these can be removed by changing practices, materials or other means, draw up an action plan to deal with them. An inventory of chemicals held should be made and kept up to date and available on site. Prepare contingency plans for all eventualities (see Reference 13 for guidance and a plan template) and locate instruction notices, appropriate equipment and materials (such as shovels, sand, absorbent materials and drain bungs) at accessible key locations. Consider the effect of a major fire and plan how to deal with contaminated fire water (Reference 14). Ensure that a named contact is available at all times to deal with emergencies and to liaise with the emergency services and the Agency.

14. SECURITY

Protect your site from vandalism and theft. Many pollution incidents are the result of poor security. Lock gates, doors and valves and make fences secure. Where possible, store materials under cover.

15. REFERENCES

1. Waste Management - The Duty of Care - A code of practice: ISBN 0-11-753210-X
2. 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
3. Sustainable Urban Drainage Systems - an introduction: SEPA/Environment Agency
4. PPG3: The use and design of oil separators in surface water drainage systems
5. Policy and Practice for the Protection of Groundwater: ISBN 0-11-310145-7
6. Groundwater Protection Strategy for Scotland: SEPA
7. PPG2: Above ground oil storage tanks
8. "Money for nothing, waste tips for free" waste minimisation video: Environment Agency: Telephone 0345 337700 to order a free copy.
9. PPG8: Safe storage and disposal of used oils
10. Solvent pollution and how to avoid it
11. PPG13: High pressure water and steam cleaners
12. PPG6: Working at demolition and construction sites
13. PPG21: Pollution incident response planning
14. PPG18: Pollution prevention measures for the control of spillages and fire fighting run-off

References 1 and 5 are available from the Stationery Office,
Tel: 08706 00 55 22

References 2-4, and 6-14 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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SEPA scottish environment protection agency
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