APPENDIX E

Scottish Environment Protection Agency

Pollution Prevention Guidelines

ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

POLLUTION PREVENTION GUIDELINES

GENERAL GUIDE TO THE PREVENTION OF POLLUTION: PPG1

These guidelines are an introduction to both pollution prevention and the guidance notes on this subject produced by the Environment Agency for England & Wales, the Scottish Environment Protection Agency and the Environment and Heritage Service in Northern Ireland. These bodies are referred to in these notes as the Agency or Agencies. Each site and potential source of pollution should be assessed individually and we advise you to consult your local Agency office. Contact details are listed 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. INTRODUCTION

Businesses and individuals are responsible for complying with environmental regulations and for preventing pollution of air, land and water. Many thousands of pollution incidents occur each year, originating from factories, farms, transport activities and even homes. Each incident is an offence and can result in prosecution as well as environmental damage. However, most cases are avoidable, given careful planning of operations, responsible waste management and suitable facilities to reduce the risk of spillage - along with simple precautions to deal with any spillages, in case they occur.

Responsible waste management can ensure that you comply with the relevant regulations, while minimising waste can reduce the amount of waste produced, which in turn cuts the risk of environmental damage and the costs of waste disposal.

The series of Pollution Prevention Guidance notes (known as PPGs), of which this is the first, provides practical advice that will help you to avoid causing pollution, minimise waste and comply with the requirements of the law. Often the necessary measures cost little, especially if you think about them early on, for example at the design stage, and can save you money, too. In contrast, the fines for failing to comply with the relevant regulations or the costs of cleaning up pollution (which are recovered from the polluter wherever possible) can be very high.

The guidance notes cover either a topic of relevance to many sectors, such as oil storage or the use of pressure washers, or are specific to a particular type of site, such as schools, vehicle-servicing garages or hospitals. In general, they are cross-referenced to reduce repetition; the guidance on hospitals, for example, refers to the guidance on oil storage and does not repeat it in detail. You may therefore need several different guidance notes for any one site or operation. Additional guidance on complying with environmental regulations is available - see Reference 1.

2. AVAILABILITY

The PPGs are published jointly by the three principal environmental regulators in the UK, and appear on the Environment Agency and SEPA web sites. A full list of PPGs and small numbers of them can be ordered, free of charge, from the local Agency offices (listed at the end of these guidelines). Bulk supplies are also available, although a charge to cover printing costs may be made.

3. LEGAL FRAMEWORK

The Agencies are responsible for protecting "controlled waters" from pollution, for preventing waste management from polluting the environment, causing harm to human health and detriment to local amenity and for regulating radioactive substances (except in Northern Ireland). The release of the most seriously polluting substances to water, land or air from prescribed processes may be subject to additional regulation under the system of Integrated Pollution Control introduced by the Environmental Protection Act 1990.

"Controlled waters" include all watercourses, lakes, lochs, canals, coastal waters and water contained in underground strata (or "groundwater"), and it is an offence to pollute such waters - deliberately or accidentally. In addition, the formal consent of the Agency is required for many discharges to controlled waters, including direct discharges and discharges to soakaways. Such consents are granted subject to conditions, and are not issued automatically.

Any other waste produced on a site will be subject to the Duty of Care (Reference 2) and may also be subject to control under the Waste Management Licensing Regulations 1994. In addition, certain wastes are defined as "Special Wastes" and are subject to more rigorous controls (Reference 3). Advice is available from the Agencies.

The Agencies are also responsible for implementing the legislation on packaging, which affects companies with an annual turnover above £2 million and handling more than 50 tonnes of packaging per year (see Reference 4).

All discharges to the foul sewer (see 4a) require authorisation by the sewerage undertaker and may be subject to the terms and conditions of a trade effluent consent.

4. SITE DRAINAGE

a. Drainage

Most existing sites will have two types of drain. Surface water drains, including land drains and most road drains, should carry only uncontaminated rainwater, as they will lead 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. In the case of an isolated house, or a small community biological treatment plant, care should be taken not to overload this by disposing of disinfectant or grease down the foul drain (see PPG4 – Reference 5). Prior agreement from the local sewerage undertaker is required before you connect to the public foul water system. Where significant work is being undertaken on an existing site or a new development, the Agencies encourage the consideration of an alternative approach for surface drainage, which uses a combination of techniques known collectively as **S**ustainable **D**rainage **S**ystems (SuDS). This approach has significant environmental benefits and may also have lower installation costs. See Reference 6 for further details.

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. SuDS may provide a suitable solution (see Reference 6). 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. See separate guidelines for details (PPG3 - Reference 7).

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 and the nearest drain. Manhole covers and gullies should be clearly marked, 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

Because of the potential for pollution from these areas, oil separation is required. Effluent resulting from the cleaning of forecourts must not be discharged to surface water drains, watercourses or soakaways. Details of surface water disposal and other potentially polluting activities are included in PPG7 – Reference 8.

e. Cleaning activities

Wash waters from mobile pressure washers should not be discharged to surface water drains, watercourses or soakaways. Even if described as bio-degradable, detergents are not suitable for discharge to surface drains, so such activities should be carried out in designated areas draining to the foul sewer (subject to the approval of the local sewerage undertaker). Alternatively, closed loop vehicle wash recycling systems are available. See PPG13 - Reference 9 for further details.

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 PPG4 - Reference 5). Most alternatives will normally require the formal consent of the Agency.

g. Chemical storage areas

Drainage from such areas presents special problems and you should consult fully with your local Agency office to minimise the pollution risks.

5. WASTE STORAGE AND DISPOSAL

a. Reduce, re-use and recycle

Methods to reduce the amount of waste generated in the first place, together with the re-use and recycling of wastes, must be considered. There is scope for significant savings, as the costs 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 Envirowise Helpline on 0800 585794.

b. Duty of Care and waste legislation

To prevent fly-tipping, producers of waste must ensure that it remains under their control and is passed on only to a registered waste carrier and is accompanied by a full description. Some wastes, such as used mineral oil, are subject to the Special Waste Regulations, which impose additional controls on movement and disposal (Reference 3). Contact your local Agency office for further advice.

c. Storage

All wastes must be stored in designated areas that are isolated from surface drains and bunded 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.

6. 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 levels should be checked before delivery to prevent overfilling.

b. Delivery areas

Where possible, loading and unloading areas should be roofed and drained to the foul sewer. If not, they should be clearly marked and isolated from the surface water drainage system, either by catch-pits or sumps with isolating valves. Cut-off valves in the drainage system and raised kerb surrounds may be needed. Delivery pipes should be fitted with automatic cut-off valves to prevent overfilling. You are recommended to consult with the Agency.

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.

7. OIL STORAGE AND PIPELINES

The storage of oil at industrial, commercial, institutional and institutional residential premises in England is to be the subject of new regulations due to be introduced in late 2000. Similar regulations for Wales and Scotland are under consideration. These will introduce statutory minimum storage standards. PPG2 - Reference 10 covers above ground oil storage, with the key points listed below;

a. Storage

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. Advice is available on the construction of bund walls (References 11 and 12) and the storage and disposal of used oils (PPG8 - Reference 13).

b. Pipelines

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

8. CONTINGENCY PLANS

Spillages and run-off water from fire-fighting may have the potential to cause enormous damage to controlled waters (see PPG18 - Reference 14). 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 drawn up, giving advice on what action to take and who to inform. These plans should be displayed clearly and regular exercises undertaken. Guidance on the development of a pollution incident response plan and a template plan are provided in PPG21 - Reference 15.

9. CONSTRUCTION AND DEMOLITION

Detailed guidance is available on construction and demolition (PPG6 - Reference 16). It is important to note that the prior approval of the Agency must be obtained where site de-watering might result in a discharge to controlled waters. 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 may be disposed of by pumping to the foul sewer, a settlement tank or over a grassed area. However, if any other contaminant is present, you should consult the Agency on its disposal.

10. AGRICULTURE

Agricultural activities have resulted in significant water pollution in the past, and continue to have the potential to cause such damage unless properly managed. Detailed guidance on preventing pollution from agricultural activities is available (see Reference 17).

11. GROUNDWATER POLLUTION

Spillage, incorrect storage of chemicals or waste materials or unsuitable disposal activities can result in pollutants seeping through the soil, causing serious harm to groundwater – which is a vital source of drinking water. Chlorinated solvents are the most widespread and severe cause of groundwater pollution, and handling them requires special care. The Agencies have strong powers to take action relating to the storage, handling, use or disposal of certain dangerous substances posing a risk of contaminating groundwaters. The prior authorisation of the Agency is required before you dispose of wastes containing certain dangerous substances into or onto land, and advice on this is available from your local Agency office.

12. REFERENCES

1. NetRegs - www.environment-agency.gov.uk/netregs
2. Waste Management - The Duty of Care - A Code of Practice Revised 1996): ISBN 0-11-753210-X: The Stationery Office Tel. 08706 005522
3. A guide to the Special Waste Regulation: 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
4. Producer responsibility obligations (packaging waste) Regulations 1997: SEPA/Environment Agency
5. PPG4: Disposal of sewage where no mains drainage is available
6. Sustainable Urban Drainage – an introduction: SEPA/Environment Agency/EHS(NI)
7. PPG3: Use and design of oil separators in surface water drainage systems
8. PPG7: Fuelling stations: construction and operation
9. PPG13: The use of high pressure water and steam cleaners
10. PPG2: Above ground oil storage tanks
11. Masonry bunds for oil storage tanks
12. Concrete bunds for oil storage tanks
13. PPG8: Safe storage and disposal of used oils
14. PPG18: Managing fire water and major spillages
15. PPG21: Pollution incident response planning
16. PPG6: Working at demolition and construction sites
17. 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 Executive Rural Affairs Department (SERAD), Edinburgh

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

    References 3-16 are available from the Agency

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

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Fax: 01349 863 987

SOUTH WEST AREA
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Fax: 01355 574 688

SOUTH EAST AREA
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Fax: 028 9025 4777

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

SEPA scottish environment protection agency

ENVIRONMENT AGENCY

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ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

POLLUTION PREVENTION GUIDELINES

WORKS IN, NEAR OR LIABLE TO AFFECT WATERCOURSES: PPG5

These guidelines have been drawn up to assist all those who may have cause to work in or near watercourses. They have been jointly produced by the Environment Agency for England and Wales, the Scottish Environment Protection Agency the and the Environment and Heritage Service in Northern Ireland, referred to as the Agency or Agencies. Compliance with this guidance should minimise the risk of pollution occurring. Every site is different and will need to be considered individually. Consultation with your local Agency office is advisable before any work is started. Contact details can be found at the end of these guidelines.

1. LEGAL FRAMEWORK

a. The Agencies are responsible for both the protection of "controlled waters" from pollution and for the prevention of pollution of the environment, harm to human health and detriment to local amenity by waste management activities.

"Controlled waters" include all watercourses, lakes, lochs, coastal waters and water contained in underground strata (or "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. All discharges to the public foul sewer require authorization by the sewerage undertaker and may be subject to the terms and conditions of a trade effluent consent.

c. Any other waste produced on a site will be subject to the Duty of Care (Reference 1) and may also be subject to control under the Waste Management Licensing Regulations 1994. In addition, certain wastes are defined as "Special Wastes" and are subject to more rigorous controls (Reference 2). Advice is available from the Agencies.

d. In England and Wales, the Environment Agency also has powers and responsibilities for flood defence. Under the Water Resources Act 1991, prior consent must be obtained for any structure in, over or under a 'main' river (defined in the Water Resources Act 1991). Under the Land Drainage Act 1991, consent is also required for the erection of mill dams, weirs, and similar obstructions and for culverts in 'ordinary' watercourses (defined by the Land Drainage Act 1991).

These controls are supplemented by regional byelaws which regulate certain other activities on and in the vicinity of main rivers. The extent of the area of land subject to this control varies from region to region and also depends on the type of facility being protected. For example, the area of land subject to byelaw control will usually be greater in the vicinity of sea defences than in the vicinity of main rivers. Seek advice from your local Agency office about local byelaw distances and other specific areas subject to byelaw control.

In addition, the Environment Agency must be given 7 days written notice of any intention to temporarily divert flow of any watercourse, carry out works within the river channel or commence any operations in the river channel so that suitable arrangements can be made concerning fishery interests.

In Scotland, new powers are due to be introduced which will require that any person proposing to carry out drainage works will have to consult with SEPA beforehand on the precautions to be taken to prevent pollution.

2. INTRODUCTION

Most pollution incidents are avoidable. Careful planning can reduce the risk of pollution. Most of the measures needed to prevent pollution cost very little, especially if they are included at the planning stage of any scheme or project. In contrast, the costs of cleaning up a pollution incident can be very high. There are also serious consequences of a prosecution for environmental offences. Any work carried out in or near watercourses must be regarded as high risk with significant potential to cause pollution.

Potential pollutants of concern include silt, cement, concrete, fuel, lubricating and shutter release oils, petrol, sewage, bridge cleaning debris and other waste materials.

The Agency has produced specific guidance for pollution prevention at construction and demolition sites (PPG6 - Reference 3) which should be followed in conjunction with this guidance if applicable.

3. GENERAL PRECAUTIONS

In planning and carrying out any work in or near rivers, streams, ditches and other watercourses, precautions must be taken to ensure their complete protection against pollution, silting and erosion.

Any work on or near foul sewers, (especially trunk sewers), underground oil/chemical pipelines or fluid filled electricity cables poses a major threat of pollution if damage occurs. At least 7 days prior notification of an intention to work on these structures should be given to the Agency, enabling appropriate pollution prevention measures and emergency procedures to be agreed.

The use of industrial by-products at locations where drainage from the material could directly or indirectly enter surface or groundwater must be discussed with the Agency. Such materials must be suitable for the purpose, well weathered and must not pose a leachate problem (Reference 4).

4. SILT

Silt causes lasting damage to river life such as fish, insects and plants and can also build up to cause flooding. Water containing silt should never be pumped or allowed to flow directly into a river, stream or surface water drain. Silty water can arise from dewatering excavations, exposed ground, stockpiles, plant and wheel washing, site roads and disturbance of the river bed. Where possible, silty water should be disposed of to the foul sewer with the prior agreement of the sewerage undertaker (see Section 1b). Discharges to streams, watercourses or soakaways must have Agency approval which should be obtained well in advance. Suitable treatment will be required, such as the use of a lagoon, tank or grassed area to settle solids. For fine silts, flocculants may be required to aid settlement, although these should be used with care because of their potential for pollution.

a. Pumping

Care should be taken with the discharge to watercourse of any pumped clean water from dewatering or overpumping operations. If it is carried out with a powerful pump and/or at a high rate, then the river bed and bank could be disturbed and eroded, producing silty river water. Therefore pumped discharges must be made using a pump of a suitable size for the situation and at a rate which will not cause river bed disturbance.

b. Excavations

Where possible prevent water from entering excavations. Use cut off ditches to prevent entry of surface water and well point dewatering or cut-off walls for groundwater. Use the corner of the excavation as a pump sump and avoid disturbing that corner. Do not allow personnel or plant to disturb water in the excavation. For work in river channels, the use of coffer dams is recommended to keep river water out of the working area.

c. Exposed ground and stockpiles

Minimise the amount of exposed ground and soil stockpiles. Seeding or covering stockpiles and constructing silt fences from a suitable geotextile may be useful in reducing silt levels in run-off water.

d. Site roads and river crossings

Site roads and approaches to river crossings must be regularly brushed or scraped and kept free from dust and mud deposits. The inclusion of small dams in roadside ditches may assist silt retention, especially on steep slopes. If a river is to be frequently crossed, a permanent bridge or pipe crossing should be constructed. This would make fording of the river, and the consequent disturbance of the bed, unnecessary.

e. Bank restoration

Where possible, bank restoration should be carried out by vehicles operating from the bank rather than the river.

5. CONCRETE AND CEMENT

Fresh concrete and cement are very alkaline and corrosive and can cause serious pollution in watercourses. It is essential to ensure that the use of wet concrete and cement in or close to any watercourse is carefully controlled so as to minimise the risk of any material entering the water, particularly from shuttered structures or the washing of equipment. The use of quick setting mixes may be appropriate.

For long term projects involving on-site concrete production, careful initial siting of concrete mixing facilities is vital. A settlement and recirculation system for water reuse should be considered. This will minimise the risk of pollution and reduce water usage. Washing out and cleaning of concrete batching plant or ready mix lorries should be carried out in a contained area as far from the watercourse as practical.

6. OIL AND CHEMICALS

a. Storage

Fuel, oil and chemical storage must be sited on an impervious base within a bund and secured. The base and bund walls must be impermeable to the material stored and of adequate capacity. Detailed guidelines concerning above ground oil storage tanks are available (PPG2 - Reference 5). Leaking or empty drums must be removed from the site immediately and disposed of via a registered waste disposal contractor.

b. Security

All valves and trigger guns should be protected from vandalism and unauthorised interference and should be turned off and securely locked when not in use. Any tanks or drums should be stored in a secure container or compound, which should be kept locked when not in use. Bowsers should be stored within site security compounds.

c. Refuelling

The risk of spilling fuel is at its greatest during refuelling of plant. Where possible, refuel mobile plant in a designated area, preferably on an impermeable surface well away from any drains or watercourses. Keep a spill kit available and use a bunded bowser. Never leave a vehicle unattended during refuelling or jam open a delivery valve. Check hoses and valves regularly for signs of wear, and ensure that they are turned off and securely locked when not in use. Diesel pumps and similar equipment should be placed on drip trays to collect minor spillages or leaks. These should be checked regularly and any accumulated oil removed for appropriate disposal.

d. Biodegradable oils

When working in or near rivers, the use of biodegradable chainsaw chain bar lubricant and biodegradable hydraulic oil in plant is recommended. The Environment Agency has adopted a policy to do so for its own operations, and those working on its behalf will be required to do so by the year 2005.

7. BRIDGE CLEANING AND REPAINTING

Where bridges or other structures over, or adjacent to, rivers are being cleaned or repainted, debris should be prevented from falling into the watercourse or onto the embankment. Provision for the collection of solid debris, including spent abrasive materials and waste paint, should be incorporated into working methods. Where possible physical cleaning methods should be adopted in preference to the use of liquid chemicals such as caustic and acid solutions. If such liquids are used the effluent must be fully contained. The Agency can advise on the required pollution prevention measures (PPG23 - Reference 6).

8. HERBICIDE USE

The use of herbicides in or near rivers requires the written approval of the Agency. If approval is given, the user is responsible for ensuring that the interests of other river users are not adversely affected. Please contact the Agency for further details.

9. EMERGENCIES

If it is unavoidable that oil and chemicals have to be used within close proximity of a stream, river or any other watercourse, then it is recommended that a suitable spill kit or absorbent materials are held in the vicinity and that an appropriate temporary bund is put in place. In the event of any spillage, the spilt material should be contained (using absorbents such as sand, soil or commercially available booms or pads) and the Agency notified immediately, using the emergency hotline number listed at the end of this guidance.

10. REFERENCES

1. Waste Management - The Duty of Care - A code of practice (revised 1996): ISBN: 0-11-753210-X: The Stationery Office: Tel. 08706 00 55 22

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. PPG6: Working at construction and demolition sites

4. Use of industrial by-products in road construction - water quality effects, Report 167: CIRIA (Construction Industry Research and Information Association) ISBN: 0-86017-475-1: Tel. 020 7222 8891

5. PPG2: Above ground oil storage tanks

6. PPG23: Maintenance of structures over water

References 2, 3, 5 & 6 are available free of charge 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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SEPA scottish environment protection agency
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ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

WORKING AT CONSTRUCTION AND DEMOLITION SITES: PPG6

POLLUTION PREVENTION GUIDELINES

These guidelines are intended to assist those in the construction and demolition industry with responsibility for managing the environmental impact of their activities. Compliance with these should minimise the effect of the work on the environment. The guidelines are jointly produced by the Environment Agency for 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 individual circumstances and early consultation with your local Agency office is advisable. Contact details will be found at the end of these guidelines.

1. LEGAL FRAMEWORK

a. The Agencies are responsible for both the protection of "controlled waters" from pollution and 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.

"Controlled waters" include all watercourses, lakes, lochs, coastal waters and water contained in underground strata (or "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 granted automatically.

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

c. Any other waste produced on a construction 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. Separate legislation applies in Northern Ireland. Advice is available from the Agencies.

2. INTRODUCTION

Most pollution incidents are avoidable. Careful planning can reduce the risk of pollution. Most of the measures needed to prevent pollution cost very little, especially if they are included at the planning stage. In contrast, the costs of cleaning up a pollution incident can be very high. Moreover, pollution prevention and waste minimisation measures may offer substantial economic benefits. These include reducing the need for expensive raw materials, fewer site accidents and a reduced risk of prosecution for environmental offences. Introduction of pollution prevention measures is the first step, but for these to be effective, managers must be committed and employees must understand why they are needed and be suitably trained. Further guidance on the control of water pollution from construction sites (Reference 2) and a video for use in training sessions is available (Reference 3).

Where a watercourse runs through or adjacent to a site, extra care will be needed, for example to prevent waste from the site being deposited in the watercourse. Additional guidance for such sites is available from the Agencies (PPG5-Reference 4).

3. PLANNING AND PREPARATION

a. In planning and carrying out any works, precautions must be taken to ensure the complete protection of watercourses and groundwater against pollution. These should include an investigation of past use of the site to ensure that the operations will not disturb contaminated land and a survey of the siting and contents of all storage tanks and pipelines. The Industry profiles published by DEFRA (Reference 5) will assist in identifying potential contamination and ways to reduce their impact, based on former industrial uses of the site. If there is any contaminated land on site, the Local Authority and local Agency officer should be consulted on its remediation or disposal.

b. Any underground services on the site should be identified and clearly marked before demolition or construction work begins and precautions taken to prevent damage to them. Old storage tanks should be checked and safely emptied before they are moved.

c. Arrange a site meeting with the local Agency officer before work commences. The advice given both before work starts and during the operations may prevent serious problems arising.

d. Vandalism and theft are common causes of pollution. Sites should be adequately protected by secure fences and locked access where possible.

4. SITE DRAINAGE

In developed areas it is likely that there will be two types of drainage from a site. It is recommended that manholes on site are colour coded, for example using blue for surface water and red for foul.

a. Surface Water

The surface water drain is designed to carry uncontaminated rainwater directly to a local stream, river or soakaway. In some cases this may be some distance from the site. Nothing which could cause pollution, including silty water, should enter the surface water drains.

b. Foul Water

The foul water drain carries contaminated water to a sewage works for treatment before discharge to a watercourse or soakaway. It may be possible to pump dirty water to a foul sewer, provided the approval of the water undertaker has been received. Where no foul sewer is available, alternative arrangements will be necessary for sewage disposal - see (PPG4-Reference 6).

5. DELIVERIES

Special care should be taken during deliveries, especially when fuels and hazardous materials are being handled. Ensure that all deliveries are supervised by a responsible person, that storage tank levels are checked before delivery to prevent overfilling and that the product is delivered to the correct tank. Put in place a contingency plan and suitable materials to deal with any incident. Ensure that employees know what to do in the event of a spillage. If properly dealt with, a spillage need not result in pollution.

6. STORAGE

Many of the materials used in construction operations, such as oil, chemicals, cement, lime, cleaning materials and paint have the potential to cause serious pollution.

a. Fuels, oils and chemicals

All fuel, oil and chemical storage must be sited on an impervious base within a bund and secured. The base and bund walls must be impermeable to the material stored and of an adequate capacity. Detailed guidelines concerning above ground oil storage tanks are available (PPG2-Reference 7). Storage at or above roof level should be avoided.

Leaking or empty oil drums must be removed from the site immediately and disposed of via a licensed waste disposal contractor.

b. Security

All valves and trigger guns should be protected from vandalism and unauthorised interference and should be turned off and securely locked when not in use. Any tanks or drums should be stored in a secure container or compound, which should be kept locked when not in use. Bowsers should be stored within site security compounds when not in use.

c. Marking

The contents of any tank should be clearly marked on the tank, and a notice displayed requiring that valves and trigger guns be locked when not in use.

d. Removal

Before any tank is moved or perforated at the end of a contract or particularly during demolition works, all contents and residues must be emptied by a competent operator (see 7c) for safe disposal. Pipes may contain significant quantities of oil or chemicals, and should be carefully drained and then capped, or valves closed, to prevent spillage.

7. WASTE MANAGEMENT

The correct handling, storage and disposal of waste materials is vital if environmental harm and public complaint are to be avoided. Schemes which aim to minimise waste and increase recycling are not only beneficial to the environment but can also reduce costs. The Duty of Care (Reference 1) requires waste producers to ensure that waste does not escape from their control and is passed only to an authorised person accompanied by a full written description.
Consider how noise and dust emissions can be minimised and do not burn waste on site, as this will cause both pollution and annoyance to neighbours.

a. Waste minimisation

Waste disposal is increasingly costly. Waste minimisation involves reducing the volume of waste produced, reusing the material again (without reprocessing) or recycling (which involves an element of reprocessing). All of these can bring benefits to the environment and significant savings in terms of management time, wasted materials, transport and disposal charges and landfill tax. Further details on waste minimisation for the construction industry will be found in References 8 & 9. Note that concrete crushing plant may require authorisation from the local authority.

b. Waste treatment and storage

All wastes must be stored in designated areas which are isolated from surface drains. Under some circumstances, for example if storing or treating material from a contaminated site, a waste management licence may be required. Skips should be covered to prevent dust and litter being blown out and rainwater accumulation and should be regularly inspected and replaced when full. Where possible, separate skips should be provided so that wastes can be segregated for recycling or to prevent cross contamination. Used chemical containers may need special handling and the manufacturer's instructions should be followed. If plant maintenance is carried out on site, used oil should be stored in a bunded area for collection. Oil and fuel filters should also be stored in a designated bin in a bunded area for separate collection and recycling (PPG8-Reference 10). Used oil and filters are "special waste" - see 7c.

c. Waste disposal

Under the Duty of Care, the waste producer has a duty to ensure that the waste contractor who removes the waste is registered with the Agency. A written description of the waste must be given to the contractor. Certain hazardous wastes are defined as being "special wastes" and a more rigorous consignment note system applies. If there is any doubt, contact the Agency for advice.

8. SILT

Water containing silt should never be pumped directly into a river, stream or surface water drain. Silty water can arise from excavations, exposed ground, stockpiles, plant and wheel washing and site roads.

a. Excavations

Where possible prevent water from entering excavations. Use cut-off ditches to prevent entry of surface water and well point dewatering or cut-off walls for ground water. Use the corner of the excavation as a pump sump and avoid disturbing that corner. Do not allow personnel or plant to disturb water in the excavation.

b. Exposed ground and stockpiles

Minimise the amount of exposed ground and stockpiles. Stockpiles can be seeded or covered and silt fences constructed from a suitable geotextile may be useful.

c. Plant and wheel washing

Wheel washes and plant washing facilities should be securely constructed with no overflow and the effluent should be contained for proper treatment and disposal. A detailed guidance note on the use of pressure washers is available (PPG13-Reference 11)

d. Site roads

These should be regularly brushed or scraped and kept free from dust and mud deposits. In dry weather dust suppression measures may be required.

e. Dealing with silty water

Always ensure that adequate provision for dealing with silty water is included in the site working plan. All discharges off the site will require approval. Where possible discharge to the foul sewer (see section 4b). Discharges to streams, watercourses or soakaways must have the approval of the Agency, which should be obtained well in advance. (A discharge consent can take up to four months to obtain, or even longer for difficult cases). Suitable treatment will be required, which could involve the use of a settlement lagoon or tank or a grassed area.

9. REFUELLING

The risk of spilling of fuel is at its greatest during refuelling of plant. Where possible, refuel mobile plant in a designated area, preferably on an impermeable surface and away from any drains or watercourses. Keep a spill kit available. Never leave a vehicle unattended during refuelling or jam open a delivery valve. Check hoses and valves regularly for signs of wear and ensure that they are turned off and securely locked when not in use. Diesel pumps and similar equipment should be placed on drip trays to collect minor spillages. These should be checked regularly and any accumulated oil removed for disposal.

10. CONCRETE

Concrete is highly alkaline and corrosive and can have a devastating impact on watercourses. It is essential to take particular care with all works involving concrete and cement especially if working near a river, stream or surface water drain. Suitable provision should be made for the washing out of concrete mixing plant or ready mix concrete lorries. Such washings must not be allowed to flow into any drain or watercourse.

11. EMERGENCIES

In the event of a spillage on site, the material should be contained (using an absorbent material such as sand or soil or commercially available booms) and the Agency notified immediately using the emergency hotline number listed at the end of this guidance.

12. REFERENCES

1. Waste Management- The Duty of Care - A code of practice (revised 1996). ISBN: 0-11-753210-X: The Stationery Office Telephone: 08706 005522
2. "Building a cleaner future" training video pack: CIRIA/Environment Agency. To order, telephone 0845 7337700
3. Control of pollution from construction sites: C532
4. PPG5: Working in or near rivers
5. DOE Industry Profiles: DEFRA Publications, Telephone: 08459 556000
6. PPG4: Disposal of sewage where no mains drainage is available
7. PPG2: Above ground oil storage tanks
8. Waste Minimisation and Recycling in Construction - A site handbook: SP133
9. Managing materials and components on site: SP146

References 2, 8 & 9 are published by CIRIA (Construction Industry Research and Information Association) Telephone: 020 7222 8891

10. PPG8: Safe storage and disposal of used oils
11. PPG13: High pressure water and steam cleaners

References 2, 4, 6, 7, 10 & 11 are available free of charge, from the Agencies

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

ENVIRONMENT AGENCY

HEAD OFFICE
Rio House, Waterside Drive, , Aztec West
Almondsbury, Bristol BS32 4UD.
Tel: 01454 624 400 Fax: 01454 624 409
World Wide Web: http: //www.environment-agency.gov.uk

REGIONAL OFFICES

ANGLIAN
Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: 01733 371 811
Fax: 01733 231 840

MIDLANDS
Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel: 0121 711 2324
Fax: 0121 711 5824

NORTH EAST
Rivers House
21 Park Square South
Leeds LS1 2QG
Tel: 0113 244 0191
Fax: 0113 246 1889

NORTH WEST
PO Box 12
Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653 999
Fax: 01925 415 961

SOUTHERN
Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: 01903 832 000
Fax: 01903 821 832

SOUTH WEST
Manley House
Kestrel Way
Exeter EX2 7LQ
Tel: 01392 444 000
Fax: 01392 444 238

THAMES
Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: 0118 953 5000
Fax: 0118 950 0388

WALES
Ty Cambria/
Cambria House
29 Newport Road
Cardiff CF24 0TP
Tel: 029 2077 0088
Fax: 029 2079 8555

SCOTTISH ENVIRONMENT PROTECTION AGENCY

CORPORATE OFFICE
Erskine Court
The Castle Business Park
Stirling FK9 4TR
Tel: 01786 457 700
Fax: 01786 446 885
World Wide Web: http: //www.sepa.org.uk

AREA OFFICES

HIGHLANDS, ISLAND AND GRAMPIAN AREA
Graesser House
Fodderty Way
Dingwall Business Park
Dingwall IV15 9XB
Tel: 01349 862 021
Fax: 01349 863 987

SOUTH WEST AREA
SEPA West
5 Redwood Crescent
Peel Park
East Kilbride G74 5PP
Tel: 01355 574 200
Fax: 01355 574 688

SOUTH EAST AREA
Clearwater House
Heriot-Watt Research Park
Avenue North
Riccarton
Edinburgh EH14 4AP
Tel: 0131 449 7296
Fax: 0131 449 7277

ENVIRONMENT & HERITAGE SERVICE

Calvert House,
23 Castle Place,
Belfast
BT1 1FY
Tel: 028 9025 4868
Fax: 028 9025 4777
World Wide Web: http: //www.ehsni.gov.uk

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

SEPA Scottish Environment Protection Agency

ENVIRONMENT AGENCY

ENVIRONMENT AND HERITAGE SERVICE

ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

Printed on Cyclus TCF Recycled Paper.

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February 2004

ENVIRONMENT AND HERITAGE SERVICE

SEPA Scottish Environment Protection Agency

ENVIRONMENT AGENCY

Environmental Alliance – working together

Pollution Prevention Guidelines

pollution incident response planning: PPG 21

These guidance notes have been drawn up to assist those developing site-specific pollution incident response plans to prevent and mitigate damage to the environment caused by accidents such as spillages and fires. They are aimed at those sites which do not have a statutory duty to prepare such plans e.g. under the Control of Major Accident Hazards Regulations (COMAH) and the Pollution Prevention and Control (PPC) Regulations for which more detailed plans may be required. These notes have been jointly produced by the Environment Agency for England and Wales, the Scottish Environment Protection Agency and the Environment and Heritage Service in Northern Ireland, which are referred to here as the Agency or Agencies.

1. Introduction

The guidance given in PPG11 (Reference 1) on preventing pollution on industrial sites provides basic advice. Further information on techniques for managing run-off generated in the event of a fire ('fire water') and major spillages is available in PPG18 (Reference 2).

This document provides supplementary advice on pollution incident response planning. It explains why a plan is needed, what information should be included and provides a suggested template for those preparing a plan. It is intended principally for organisations, authorities and employees with responsibility for medium to large sites, but much of the information is relevant to smaller sites and especially those where high risk activities are carried out. The guidance aims to help managers and operators consider the appropriate level of detail for a specific site, taking into account the risks and the site layout.

2. Why produce a pollution incident response plan?

Most industrial and commercial sites have the potential to cause significant environmental harm and to threaten both water resources and public health. The Agencies' Pollution Prevention Guidance Notes aim to reduce the risk of an incident occurring, but there will always be a residual risk of a spillage or a fire that could cause serious environmental problems. In addition to the obvious threat posed by chemicals and oils, even materials that are non-hazardous to humans, such as foods and beverages, can cause serious environmental harm. The run-off generated in the event of a fire can also be very damaging and atmospheric deposition could have a long-range impact.

The environmental impact of an incident may be long term and, in the case of groundwater, may persist for decades or even longer. As a result, the legal consequences and clean-up operation can be costly. Rivers, sewers, culverts, drains, surface water soakaways, porous or unmade ground, water distribution systems and service ducts all present routes for pollutants to quickly enter the surrounding environment (including surface water and groundwater). Thus, the effects of a discharge may not be evident on site, but may become apparent some distance away. Any incident response plan should take into account the vulnerability of groundwater both beneath and down-gradient of the site.

In most cases, an incident of this kind need not result in serious environmental damage provided appropriate pollution prevention measures are in place or immediately available. The key is to have a contingency or pollution incident response plan in place. This need not be costly to prepare, but could minimise the consequences of an incident.

3. Producing an incident response plan

The centre pages of this guidance note are designed for easy removal and may be used as a framework for a site incident response plan, which can be modified to meet individual site or operator requirements. The following information could be included in the plan.

a. Cover page

This should give details of the site and the roles/names of those people for whom the plan is relevant. The page should incorporate:

Box 1 Company name and full postal address of site
Box 2 A brief description of the main business activities on-site (specify those with a high potential for environmental harm)
Box 3 Date plan was completed and date it is due to be reviewed
Box 4 The 'signing off' of the plan by an appropriate company manager
Box 5 A list of recipients of the completed plan.

b. Contact list

This should list contact numbers for:

- emergency services
- relevant environmental regulators
- local water supplier and sewer provider
- Health and Safety Executive (HSE)
- specialist clean-up contractors.

The list should also identify key holders and staff to be contacted in the event of a significant incident (including their home and mobile numbers). Contact numbers for sources of specialist advice such as chemical suppliers and manufacturers whose products are held on-site should also be given.

c. Site drainage plan

This should be a clear diagram of the site showing layout and access details, along with a schematic representation of the site drainage arrangements. An example of a site drainage plan is shown below.

- Use red to mark for foul drainage on the plan and blue for surface water drainage. Indicate the direction of flow clearly.
- Use a similar approach for drain covers on-site. These can also be numbered to assist identification and painted red for foul sewers or blue for surface water; mark a red 'C' on combined sewage systems.
- Mark off-site discharge points for surface water and trade effluent clearly. Also mark the location of any soakaways.
- Identify the sewage treatment works to which sewage and trade effluent discharge, along with the nearest foul sewer pumping station serving the site (the local sewer provider should have this information).
- Show any watercourse, spring, borehole or well located within or near the site.
- Indicate the direction of flow (or depth for boreholes and wells), surface water outfalls from the site and suitable points for installing pollution control booms or a dam.
- If possible, install permanent boom anchor points at a suitable location, taking into account possible flow conditions.

A site drainage plan should show/identify the following:

i. General layout of buildings

ii. Site access routes for emergency services (marked clearly)

iii. Location of process areas and any on-site treatment facilities for trade effluent or domestic sewage

iv. Areas or facilities used for storage of raw materials, products and wastes (include details of tank sizes)

v. Any bunded areas together with details of products stored and estimated retention capacity

vi. Any potentially sensitive areas of porous or unmade ground

vii. Location, depth and construction details of any soakaways receiving surface water discharges

viii. Location of the mains water supply stopcock and any sprinkler control valves

ix. Location of hydrants, 'fireboxes' (see Section 5) and pollution prevention materials (e.g. spill kits)

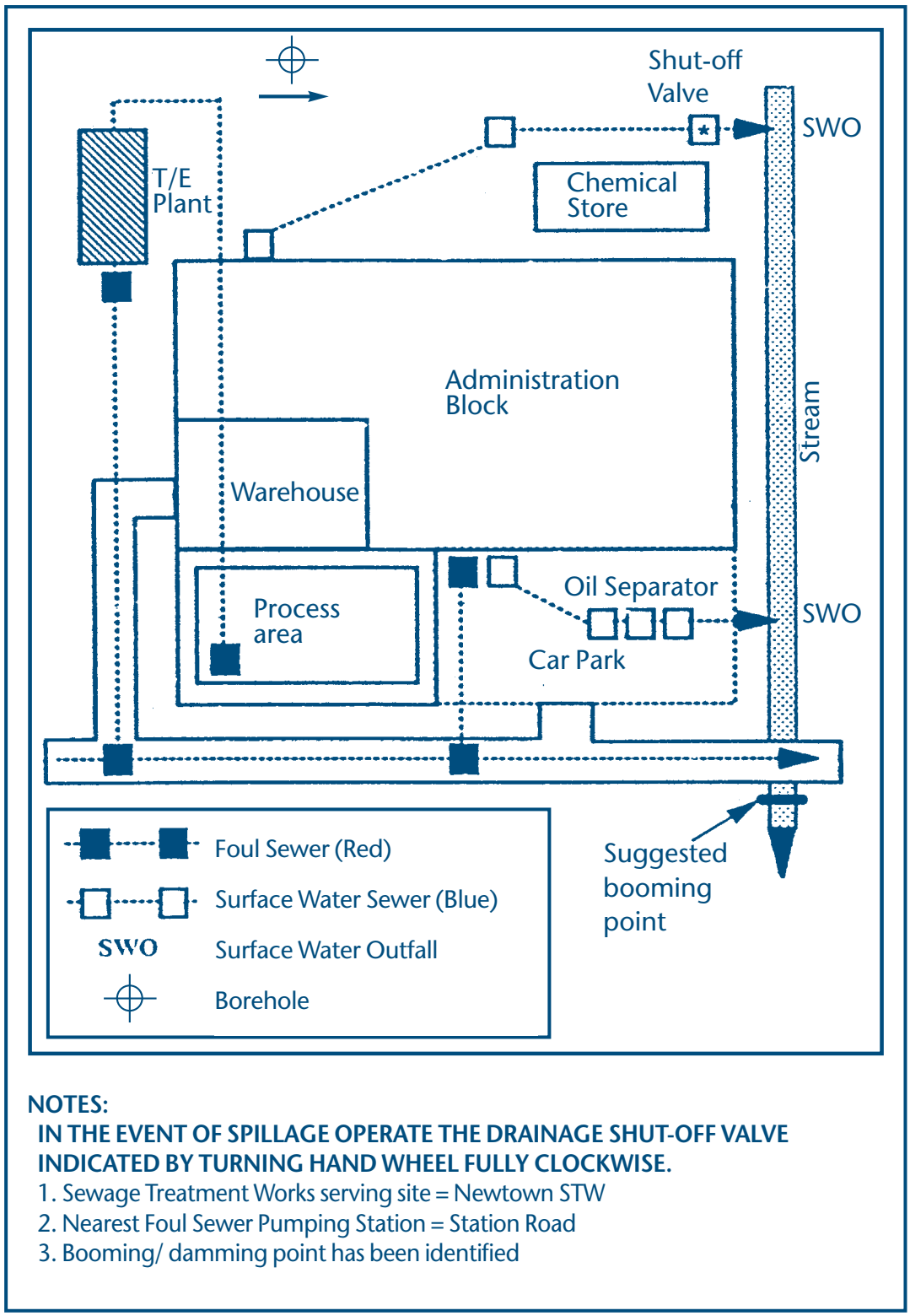
x. Facilities such as:

- inspection points for the detection of pollution
- oil separators
- retention or balancing tanks
- fire water retention ponds
- containment tanks and pollution control devices (e.g. shut-off valves in drains)
- sites suitable for portable storage tanks or for blocking drains

Provide a brief description of how they operate and ensure such facilities are clearly labelled aboveground.

In many cases, additional plans will be required to provide detailed information. These should be attached to the plan and referenced within it.

SITE DRAINAGE
PLAN - EXAMPLE



NOTES:

IN THE EVENT OF SPILLAGE OPERATE THE DRAINAGE SHUT-OFF VALVE INDICATED BY TURNING HAND WHEEL FULLY CLOCKWISE.

1. Sewage Treatment Works serving site = Newtown STW
2. Nearest Foul Sewer Pumping Station = Station Road
3. Booming/ damming point has been identified

POLLUTION
INCIDENT RESPONSE PLAN

For:

Nature of Business:

Date of Plan: **Review date:**

Approved by: **Date:**

	Copies to:		Date Sent:
Environment Agency/SEPA/EHS		.....	
Fire Authority		.....	
Police		.....	
Sewer provider		.....	
Water supplier		.....	
Local Authority		.....	
Other		.....	

CONTENTS

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2. EMERGENCY CONTACT DETAILS

Emergency Services:	999 or 112
Local Police:	
Doctor:	
Environment Hotline:	0800 80 70 60 (24hr Emergency Hotline)
Environment Regulator (Local Office):	

	Office Hours	Out of Hours
Local authority:		
Sewer provider:		
Water supplier:		
Gas supplier:		
Electricity supplier:		
Waste management contractor:		
Specialist advice:		
Specialist clean-up contractors:		

COMPANY CONTACTS: (Out of Hours)

Managing director:	
Site manager:	
Environmental manager:	
Foreman:	
Head office contact:	

3. SITE DRAINAGE PLAN

4. CHEMICAL, PRODUCT AND WASTE INVENTORY

Maximum Quantities at Peak Times

Trade name	Substance	Solid/liquid/gas or powder	Container size	Maximum quantity

d. **Site chemical, product and waste inventory**
The inventory should provide an up-to-date record of all substances stored on-site, together with an indication of the maximum quantity likely to be stored. Product data sheets and Control of Substances Hazardous to Health (COSHH) assessments should be attached for any substances posing a risk to health or the environment.

All stores, bulk storage vessels, drums or containers used for storing oils, chemicals or other potentially polluting materials (e.g. milk or other foodstuff) should be marked on the site plan. If oils or chemicals are regularly stored or held away from fixed installations or storage areas in any significant quantity (e.g. in production areas), indicate their whereabouts on the site plan. If there are a number of chemical process lines, it is recommended that an annotated sketch plan of each is included.

e. **Emergency procedures**
Detailed emergency procedures should be produced in addition to completing the template provided at the end of this guidance. These procedures should define:

- the scope of activities covered
- staff responsibilities
- procedures for dealing with events such as spillages and leaking containers.

The level of response will depend on health and safety issues, staff training, the level of personal protective equipment (PPE) available, the nature of any spilled materials and the types of pollution control equipment available on the site. The appropriate level of response will, therefore, be site-specific. It is important to consider what could happen in the worst case and to take this into account when developing procedures.

A checklist of actions can be useful and should typically address the following issues:

i. Fire fighting strategy. This should be discussed with the fire service. If 'controlled burn' is an agreed option, this should be clearly stated (see Reference 2 for details).

ii. Alerting nearby properties, downstream abstractors or environmentally sensitive sites that could be affected by an incident.

iii. The consequences of an incident at nearby properties.

iv. Procedures for alerting staff on-site and, where appropriate, adjacent sites. This should include evacuation procedures.

v. Contacting the emergency services, relevant Agency, local authority and other organisations, and dealing with the media.

vi. Substances posing particular risks (these should be highlighted in the emergency plan).

vii. The selection of the appropriate level of PPE.

viii. The means of making leaking containers safe.

ix. Procedures for containing leaks, spills and fire-fighting run-off and for the protection of any on-site effluent treatment plant. The location and use of spill kits, drain blockers and other pollution control equipment and the operation of pollution control devices should be clearly documented. Stocks of pollution control equipment and materials held locally by other organisations should be identified and contact details for clean-up companies should be kept up-to-date.

x. Procedures for the recovery of spilled product and the safe handling and legal disposal of any wastes arising from the incident. PPG18 (Reference 2) contains some useful relevant information.

4. Producing an incident response plan

The effectiveness of any site incident response plan will depend on staff training. All staff and contractors working on-site should be made aware of the plan and should know their role if an incident occurs. Exercises should be carried out periodically to familiarise staff with the operation of the plan and to test its effectiveness. Records of staff training should be maintained.

Training should include:

- awareness of the potential for harm to both personnel and the environment from the materials held on-site;
- awareness of the sensitivity of the environment surrounding the facility;
- use of the correct PPE;
- reporting to the relevant Agency if there is a risk of surface, groundwater or land contamination;
- reporting to the local sewer provider if a discharge to the foul or combined sewer is involved;
- clean-up, safe handling and legal disposal of contaminated materials and wastes resulting from an incident (including arrangements for the use of specialist contractors and services);
- the appropriate decontamination or legal disposal of contaminated PPE.

5. Distribution and revision

If you wish, you may forward a copy of your plan to your local Agency office for comment. Having taken into account any relevant comments, distribute copies of the completed plan to the organisations recorded on the front page. Keep a copy of the plan on-site in an easily accessible location away from the main building such as a gatehouse or a dedicated 'firebox' to which the emergency services can readily gain access. A notice at the site entrance should indicate the location of the plan.

Any information supplied in such a plan will be treated by the Agency as confidential. However, it may be discussed with other organisations to whom a copy of the plan has been sent (e.g. the fire service) as part of the Agency's incident response planning.

Finally, in order for the plan to remain effective, it is vital that it is reviewed regularly and that any significant changes are reflected in a revised plan. Ensure that revised copies are sent to all plan holders and that old versions are destroyed.

6. References

1. PPG11: Preventing pollution on industrial sites

2. PPG18: Managing fire water and major spillages

Other relevant documents include:

PPG22: Dealing with spillages on highways

PPG26: Storage and handling of drums & intermediate bulk containers

All Pollution Prevention Guidance Notes (PPGs) are available via the Agencies' websites (see below) or from your local Agency office.

These notes are for guidance only and following the good practice described does not remove the reader's obligation to ensure relevant legislation is complied with at all times and that their activities do not result in the release of polluting matter to the environment. Pollution of the environment is a criminal offence and compliance with one or more Guidance Notes is not a defence to such offences. It is recommended that references to other sources of guidance are checked to ensure still current.

ENVIRONMENT AGENCY
GENERAL ENQUIRY LINE
0845 9 333 111

ENVIRONMENT AGENCY
EMERGENCY HOTLINE
0800 80 70 60

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

Pollution Prevention Guidance notes (PPGs) are available to download from the Agencies websites, see details below.

Environment Agency
www.environment-agency.gov.uk

HEAD OFFICE
Rio House
Waterside Drive
Aztec West
Almondsbury
Bristol BS32 4UD
Tel: 01454 624 400
Fax: 01454 624 409

Scottish Environment Protection Agency
www.sepa.org.uk

CORPORATE OFFICE
Erskine Court
The Castle Business Park
Stirling FK9 4TR
Tel: 01786 457 700
Fax: 01786 461 425

Environment and Heritage Service
www.ehsni.gov.uk

HEAD OFFICE
Calvert House
23 Castle Place
Belfast BT1 1FY
Tel: 028 9025 4868
Fax: 028 9025 4777

ENVIRONMENT AND HERITAGE SERVICE

SEPA Scottish Environment Protection Agency

ENVIRONMENT AGENCY

Environmental Alliance – working together

HO-02/04--12K-BHUP-AMP-EP146B

ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

DEALING WITH SPILLAGES ON HIGHWAYS: PPG22

POLLUTION PREVENTION GUIDELINES

These notes are intended to assist those involved with spillages on highways in the identification of measures to prevent and mitigate pollution to the water environment. They do not give advice on public health and other aspects of such an incident. They have been produced by the Environment Agency for England & Wales, the Scottish Environment Protection Agency and the Environment and Heritage Service in Northern Ireland, which are referred here to as the Agency or Agencies. Further advice may be obtained by contacting your local Agency office, details of which appear at the end of these guidelines.

1. LEGAL FRAMEWORK

The Agencies are responsible for the protection of "controlled waters" from pollution and for the prevention of pollution of the environment, harm to human health and detriment to local amenity by waste management activities (except in Northern Ireland where different legislation applies).

It is an offence to cause pollution of controlled waters either deliberately or accidentally. "Controlled waters" include all watercourses, lakes, lochs and water contained in underground strata (or groundwater).

2. SCOPE

The response to spillage on the highway can involve a number of parties. These may include the emergency services, environment agencies, highway maintenance organisations, hauliers and consignors, companies committed to the CHEMSAFE scheme (Reference 1) and Local Authorities, each with a different role to play.

These guidelines are concerned with controlling the pollution that results from road traffic accidents (RTAs), spillages and illegal disposal of polluting substances on the highway. These can vary from small fuel spillages following a RTA, to major incidents involving the loss of chemicals or other potentially polluting materials (see Section 4) from drums, bulk containers or tankers. Although major incidents are rare, their potential for environmental damage is high. Effects can include the closure of public water intakes and other abstractions, damage to fisheries and river ecosystems and disruption of recreational and other river uses. They may also involve the polluter in considerable expense in clean up costs and the potential for prosecution. It is therefore vital that those involved have suitable emergency plans in place and can provide a prompt and practical response that will minimise the impact of such incidents.

3. ROLE OF THE AGENCY

In any incident on a highway, the Agency's role will be to advise on and, if necessary take responsibility for, remedial actions to prevent and/or mitigate the effects of pollution, as well as ensuring that any resultant wastes are correctly disposed of. Although the Agency will act alone to prevent pollution if necessary, a co-operative approach is encouraged and other parties can play an important part.

4. CONTAINMENT OR DILUTION OF A SPILLAGE

The Agency would prefer all spillages on the highway to be contained. However, it is accepted that actions taken to preserve life and health must take precedence over other considerations at the scene of an incident and that, under such circumstances, containment may not be possible.

The transport of dangerous goods is covered under UK and European Regulations (Reference 2) and these place a duty on the consignor to provide information on the hazards the product poses and the appropriate action to take in the event of an incident. This will usually recommend containment, with dilution reserved only for those substances most hazardous to health.

Low hazard products such as milk, beer, soft drinks, detergents, paint and dye should also be contained, as these products are often highly polluting. Although they are not covered by any specific legislation, such loads may be placarded under a voluntary "Black and White" marking scheme (Reference 3).

In all circumstances involving the spillage or potential spillage of substances on the highway, it is important that the Agency is notified as soon as possible by the parties involved so that it can provide advice and take appropriate action. If dilution is required at the scene of the incident, or pollution is unavoidable, there may still be actions that can be taken further down stream to mitigate the effects, including the prompt notification of downstream users.

Where decontamination procedures need to be used, it is important that all reasonably practicable steps are taken to protect the environment. The Agency should be informed as soon as possible when decontamination procedures are being used, so that appropriate advice can be given.

5. CONTAINMENT METHODS

Prompt action following a spillage can prevent or reduce its effects, whilst inappropriate action may cause or worsen the polluting effects. The response in the first thirty minutes to such spillages is often crucial. Containment may be on the highway, within the drainage system or in the watercourse. There are a number of containment techniques available, some of which are described below. However, at all times Health and Safety should be taken into account in deciding the appropriate response.

During the planning of new roads or road improvements, the Agency will liaise with the highway authority or developer on the need for spillage containment. The provisions made should be appropriate to the risk of accidents and the sensitivity of the receiving water. There may be circumstances where the Agency presses for retrospective modifications to the drainage system to enable containment to be provided at sites of high spillage risk or in areas draining to sensitive receiving waters.

a. Spillage control devices

Pollution control devices such as oil separators, penstocks, catchpits and lagoons may be installed as part of the highway drainage system to contain pollutants. Oil separators and catchpits may contain small and medium spills directly, although they are likely to be overwhelmed by larger spillages unless fitted with a shut off valve, which should be closed as soon as possible.

The location of these devices should be clearly marked on suitable drainage catchment plans (see Section 6) and indicated in any emergency response plans. These should be readily available to the Agency and emergency services. The use of a road side sign clearly indicating the location and type of device is recommended. Type approval must be sought for any signs that are placed within the highway boundary from the highway authority. Regular exercises to ensure familiarity with the location and operation of these devices are recommended.

It is important that any such structures are regularly inspected and maintained. For example, oil separators should be regularly inspected and emptied when required and the operation of valves and structures routinely checked. (Reference 4).

When shut off valves, penstocks or other means are provided to isolate the drainage from the outfall, it is important to ensure that the drainage system upstream can provide sufficient

capacity to allow full containment of any possible spillage. This will permit subsequent safe removal by licensed contractors. Pollution control devices such as oil separators, sedimentation tanks and ponds can provide containment in an emergency, so careful consideration should be given to the siting of the means of shutting off the drainage system. Further advice on the containment volumes required is available from the Agencies. Whenever a drainage system is shut down in this way, care must be taken during periods of rain to avoid flooding that could itself cause a hazard.

b. Pollution control equipment and materials

There are many types of portable equipment and materials available for containing and removing pollution which may also be used in conjunction with spillage control devices. A short description of each is given below.

i. Sand and sand bags

Sand, which should be kept dry, may be used to soak up spillages of oil and chemicals. Once contaminated it should be properly disposed of and not washed into drainage systems. Sand bags are more versatile and can be used to channel substances to a collection point, to block off drains, contain spills or to dam ditches.

ii. Proprietary absorbents

Usually taking the form of granules, sheets, pillows or loose powders, these absorbents are designed to deal with hydrocarbon spills, although there are varieties that can be used on aqueous chemical spills and some that can be used on both. Once contaminated, these products must be properly disposed of.

iii. Booms

Although designed for use on watercourses to control oil and other floating liquids, booms may also be used to isolate drains or to contain or divert spillages on hard surfaces. There are two main types. An absorbent boom is filled with loose absorbent fibres, which can be designed for hydrocarbons, aqueous chemicals or both. A physical barrier boom is made from materials such as PVC or PU. Some are inflated with air and/or water.

iv. Surface drain seals

These are used to seal a drain by covering the surface of a drainage gully. This type comes in a variety of forms, including purpose made devices such as clay mats and water filled bags. Alternatively, they can be improvised using available materials such as a car footwell mat or a simple sheet of polythene, weighed down with sand or earth.

v. Below ground drain seals

These can be fitted inside a pipe or gully. These are usually purpose made bags or tubes which are inflated with air, although a builder's drain bung can also be effective. By using a pipe seal, the capacity of the drainage system may be utilised as a temporary containment system to hold the pollutant safely, until it can be dealt with properly. In some cases, it may be possible to hose any remaining spilt material on the road surface into the blocked drain, allowing the incident to be dealt with more quickly and safely. However, care must be taken to ensure that the pressure head of the contained liquid does not cause the pipeblocker to fail. Extreme care should be exercised to ensure that a person installing or removing a drainage blocker is not exposed to any hazardous conditions or materials. Care also has to be taken to ensure that the contained pollutant does not overflow and bypass contained drainage systems.

vi. Sealing devices and substances for damaged containers

These devices and materials are designed for use when a tank, storage drum or valve has been punctured or damaged. Leak sealing equipment may take the form of a pad or clamp, which is put over the damaged area like a plaster, or may be preshaped and inserted into the damaged area and then inflated. Leak sealing putties are also available, ready made or supplied in a dry powder form to be mixed with water. These can be applied over the damaged area to form a temporary seal. A more permanent method may be required before moving the damaged vessel.

vii. Overdrums and portable tanks

Overdrums are designed to safely store a leaking or damaged drum. They can also be used as a temporary store for a small quantity of a spilt liquid. For larger quantities, portable tanks in a range of sizes are available. In many cases, the use of a disposable liner will allow an overdrum or portable tank to be reused.

viii. Neutralising agents

Many substances can be safely neutralised once contained, for example Soda Ash may be used for dealing with acid spillages. This should only be undertaken with expert advice, which will be available through the owner or consignor of the spilt substance.

If a soluble inorganic substance enters the water environment it may be possible to chemically neutralise the substance. This will need to be considered on a case by case basis. However, in most cases the only option with these substances will be to dam the watercourse to contain the pollutant for subsequent removal.

c. Availability of equipment and materials

Stocks of some materials may be held by the Agencies and may therefore be available to deal with spillages. Many Fire Services have been supplied with pollution control equipment, which can be brought rapidly to the scene of an incident.

A few large chemical companies belonging to the CHEMSAFE Response Network (Reference 1) may also hold stocks of suitable equipment and materials which could be brought to the scene for use by the responding company.

Highway maintenance organisations are encouraged to keep stocks of suitable equipment and materials at their depots and it is recommended that vehicle operators carry a limited quantity of appropriate absorbent and sealing materials on their vehicles, for use by the driver or emergency services where safe and practical to do so. The rapid response to a leak or spillage this allows will prevent or mitigate pollution in many cases.

There are a number of companies offering an emergency response service. Further details should be obtained directly from such companies, a list of which is available from the Agency.

d. Improvised equipment

Proprietary equipment may not be always be readily available. In these situations, containment may still be possible using locally available materials. Examples include the use of salvage sheets or tarpaulin and wooden planks to produce a temporary boom in a river, the use of fire hoses as a boom on the highway, straw bales used as a boom and absorbent and the use of a shovel to spread earth onto small spillages or to construct a dam.

6. HIGHWAY PLANS

A vital part of dealing with a spillage is the rapid identification of the watercourse or soakaway to which the affected highway drains and the means by which the drainage system can be shut off. Drainage systems can be very complex and valuable time can be wasted in locating outfalls and pollution control devices. For heavily used highways, or those passing through sensitive areas, highway maintenance organisations and other road operators can assist by supplying accurate and up to date drainage catchment plans for use by emergency service. These plans should identify carriageway catchment areas and outfalls and relate these to the recommended means of control, which should be identified and described. The plans should be as simple as possible and should not contain unnecessary detail. For other roads, drainage plans should be kept up to date and should be readily available. Highway maintenance organisations should have procedures in place to ensure that plans can be supplied quickly and that they, or an individual with an understanding of the drainage system, can be contacted quickly in the event of an incident.

7. FIRES

Fire fighting run-off from a vehicle fire can be highly polluting, due to the materials being transported, combustion products and the use of fire fighting foam. The Agency may therefore seek containment of the run-off. In some cases, the option of allowing a fire to burn in a controlled way may be less harmful than the effects of contaminated firewater run-off. This option will obviously depend on the risks associated with a particular site. Although the Agency might recommend a controlled burn, the decision and responsibility will rest with the Fire Service.

8. CLEAN UP

a. Waste disposal

Once contained, the pollutant should be disposed of as soon as possible to prevent further risk to the environment. The Agency itself has no direct responsibility for the disposal of pollutants following an incident and will only act when all other routes have been exhausted, or the response time scale is unacceptable. In normal circumstances, the Agency would expect the polluter, highway maintenance organisation or riparian owner to carry out or organise the clean up using licensed contractors. This includes the emptying of oil separators and trapped gullies, the excavation of french drains, ditches and soakaways and the disposal of abandoned drums, contaminated packaging and used absorbents.

In most cases, contained substances should be removed by registered waste carriers and taken to a licensed site for disposal or recovery, although in some cases it may be possible to use the foul sewer if available and if the sewerage undertaker approves. The movement of the waste will need to be documented with a transfer note under the Duty of Care Regulations 1991, or if it is a special waste, with a special waste consignment note under the Special Waste Regulations 1996. The producer will need to keep these notes for a statutory period of two years for transfer notes or three years for consignment notes. The legislation in Northern Ireland is slightly different and local advice should be sought.

In the case of a special waste consignment, there is normally a requirement for three days notice to be given to the Agency prior to movement. In an emergency where there is a threat to the public or the environment, the officer in charge (who may be the Fire Service Incident Commander or the most senior Police Officer present) may decide to have the material removed to a safe holding location. Under these circumstances the requirement for consignment notices is waived, as long as details are provided to the Agency as soon as possible. The subsequent removal and disposal of the waste will be subject to the normal provisions for pre-notification and the use of a licensed waste contractor.

b. Sewer jetting

Where pollution has entered sewers or drainage systems, these will need to be jetted to remove residues. The local sewerage undertaker should be consulted if public sewers are involved. Effluent generated by this process must be contained and disposed of by a licensed waste contractor.

c. Highway cleaning

In some cases, there is a need to protect the surface of the highway from attack by an aggressive spilt substance and to make it safe for road users. Pollution can occur if chemicals such as detergent are used to remove residues from the road surface and the resulting emulsified liquid is allowed to enter drains or the water environment. Emulsified liquids will also interfere with the operation of oil separators. The Agency should, therefore, be consulted on the techniques and substances used. If this process is to be undertaken, then either:

i) Soak up all the liquid using absorbent material, which should be disposed of at a licensed site. Sealing of road gullies may be appropriate to prevent liquid or absorbent materials entering the drainage system.

or

ii) Any valves or penstocks fitted in the drainage system should be closed during the clean up operation. Alternatively, drains could be blocked using drain or pipe blockers. The accumulated washings should then be removed and correctly disposed of.

9. VEHICLE RECOVERY

Particular care should be taken during the recovery of vehicles which have overturned or been damaged in an incident to ensure that there is no further spillage and that damaged tanks, vessels or other containers do not rupture. Specific guidance is available for distribution management and emergency response personnel (Reference 5) which defines the roles and responsibilities of the parties involved in the recovery operation. Not only do

these help to identify a competent recovery contractor, but they facilitate the hazard evaluation and risk assessment processes which need to be carried out to establish a safe system of work for whatever recovery action is subsequently agreed.

10. JOINT RESPONSE PLANS

As the response to incidents on the highway may involve a number of parties, the development of joint emergency response plans involving organisations likely to be involved in any spill is encouraged. This would include plans outlining responsibilities, contact details and resources available at a county level or regional level. In some cases, plans for specific sensitive areas, such as a large interchange draining to an environmentally sensitive area, may be appropriate. In addition to the above information they should include more specific details such as drainage arrangements, the location of any outfalls and pollution control devices, and an appropriate response strategy. As a minimum, the police and fire service should have standing procedures and contact numbers for the agencies in all cases where there is a risk of pollution from a RTA.

11. REFERENCES

1. CHEMSAFE: Assistance in Chemical Distribution Emergencies: Second Edition, December 1996. ISBN:1 85879 050 4
2. The Carriage of Dangerous Goods by road Regulations 1996, SI 1996 No.2095: The Stationery Office, Tel: 020 7873 0011/9090
3. New Black and White Scheme for non-hazardous substances
4. PPG 3: The use and design of oil separators in surface water drainage systems
5. Recovery of road tankers and tank containers carrying dangerous substances - Guidelines for distribution management and emergency personnel: January 1998. ISBN: 1 85897 069 5

References 1 and 5 are available from the Chemical Industries Association, Tel: 020 7834 3399

References 3 and 4 are available from the Agencies

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

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World Wide Web: http: //www.ehsni.gov.uk

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