Pollution Prevention

Getting your site right

September 2009

Purpose

This session is designed to raise awareness on how to prevent and manage liquid spills

It offers good practice measures and ideas for improvements, many of which can be implemented at little or no cost

Setting the scene

- The nature of the work we do and the environment in which we do them mean that water pollution is a very real risk in the Railway Industry

- At any given time, someone somewhere will be storing, handling or using harmful liquids (oils, fuels etc) on behalf of Network Rail

- The use of these Liquids, either from equipment failure or human error, has the potential to result in a spillage or leak

Setting the scene

- Reducing the number of incidents will;
  - help deliver the job on time;
  - help protect the environment;
  - prevent the need for incurring clean up costs;
  - reduce the risk of prosecution;
  - protect reputation; and
  - improve performance.

Setting the scene

This session is divided into 5 sections to help you understand;

1) the standards and procedures (control measures) you need to comply with;

2) the actions you need to take on site to prevent a spill;

3) the actions to take should a spill occur;

4) how to report incidents; and

5) Promote positive behavioural change

Part 1: Control Measures

Controls

- Good site management is the *last* defence

- All preventative and mitigation measures should have been identified at the design and planning stages.

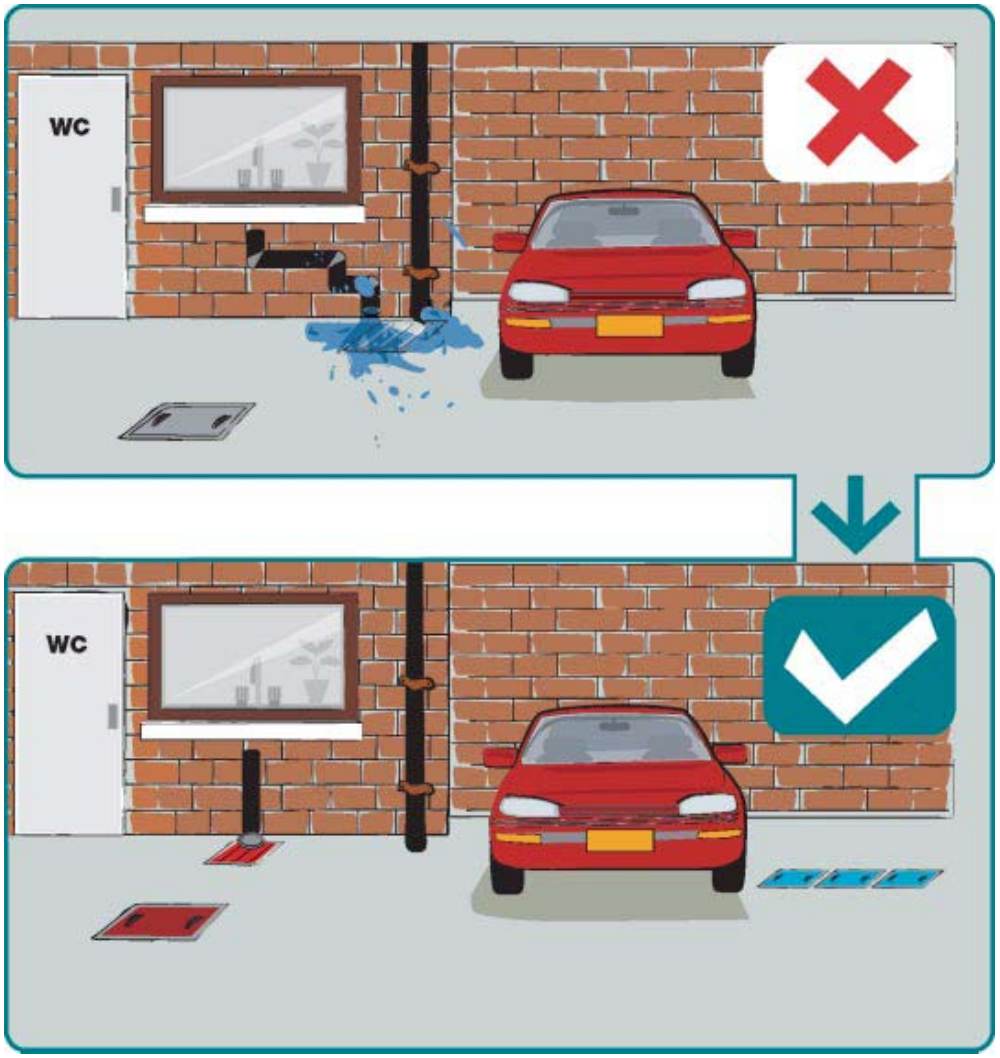
Controls – What can you do?

- Be familiar with the procedures & precautions you need to follow i.e.;
  - Environmental Management Plans
  - Pollution Incident Control Plans
  - Task Briefing Sheets

- Understand the site and the risks it presents
  - Any nearby watercourses, ponds or wetlands
  - Protected sites or species in close proximity

Consider and follow, where appropriate, the following advice and guidance.

Site Drainage



A good knowledge of all the drainage systems on your site is fundamental to prevent pollution.

Site Drainage

- It is important that every manhole, drainage grill or gully on your site is identified by carrying out a drain survey

- Without this knowledge it is impossible to be sure that all drainage is connected to the right system

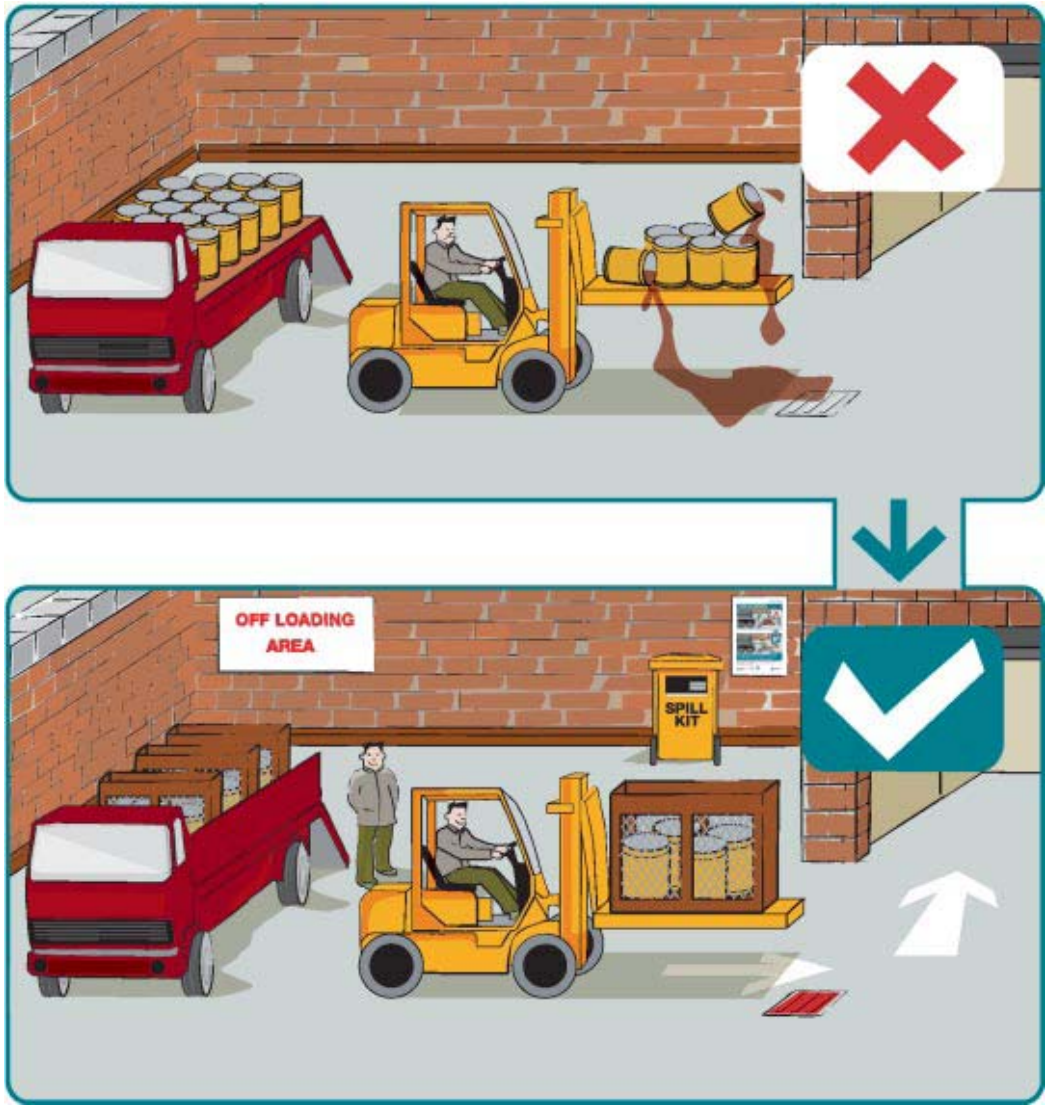
- Wrongly connected effluents can cause severe pollution and prove expensive and time consuming to trace, so it is essential to make sure that everything is connected correctly

Part 2: Prevention

Site Drainage – Site Action
What can you do?

- Familiarise yourself with site drainage
- Where practical, identify drains by colour coding
  - Blue for surface water
  - Red for foul water
- Remember only uncontaminated roof water can be discharged to surface water

Deliveries and Materials Handling



Delivery and handling of materials around your site is always a high risk activity.
Good working practices are essential.

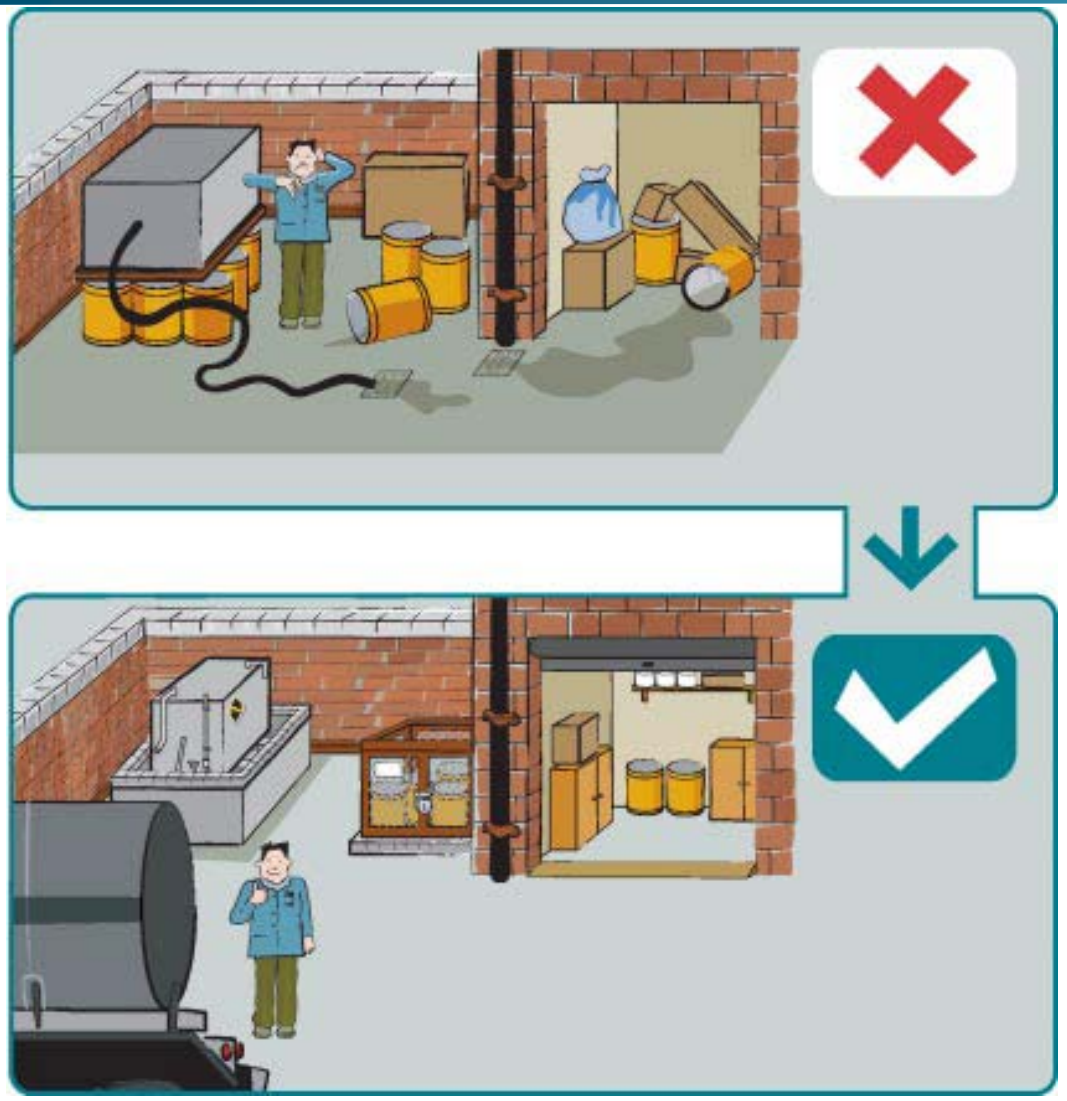
Deliveries and Materials Handling

- Special care should be taken during delivery, loading, unloading and transfer of all materials
- Its during these operations that incidents are more likely
- Making someone responsible for supervising deliveries can help avoid spillages

Deliveries and Materials Handling Site Action – What can you do?

- Follow procedures for supervising deliveries
- Manage all loading and unloading areas so that they are designated, clearly marked and isolated from surface water drainage.
- Minimise the quantity of materials stored on site

Storage



Poor storage of oils, chemicals and other materials represents a major risk to the environment

Storage

- Storage containers (tanks, intermediate bulk containers (IBCs), drums, bowsers, etc.) present a risk of spillage

- Site all containers in a safe and secure bunded manner

- Use the secondary containment systems provided;
  - Bunds, drips trays, double skinned tanks etc

Examples of bunded tanks

Compliant storage

Non compliant storage

Storage – Site Action
What can you do?

- Use appropriate containers

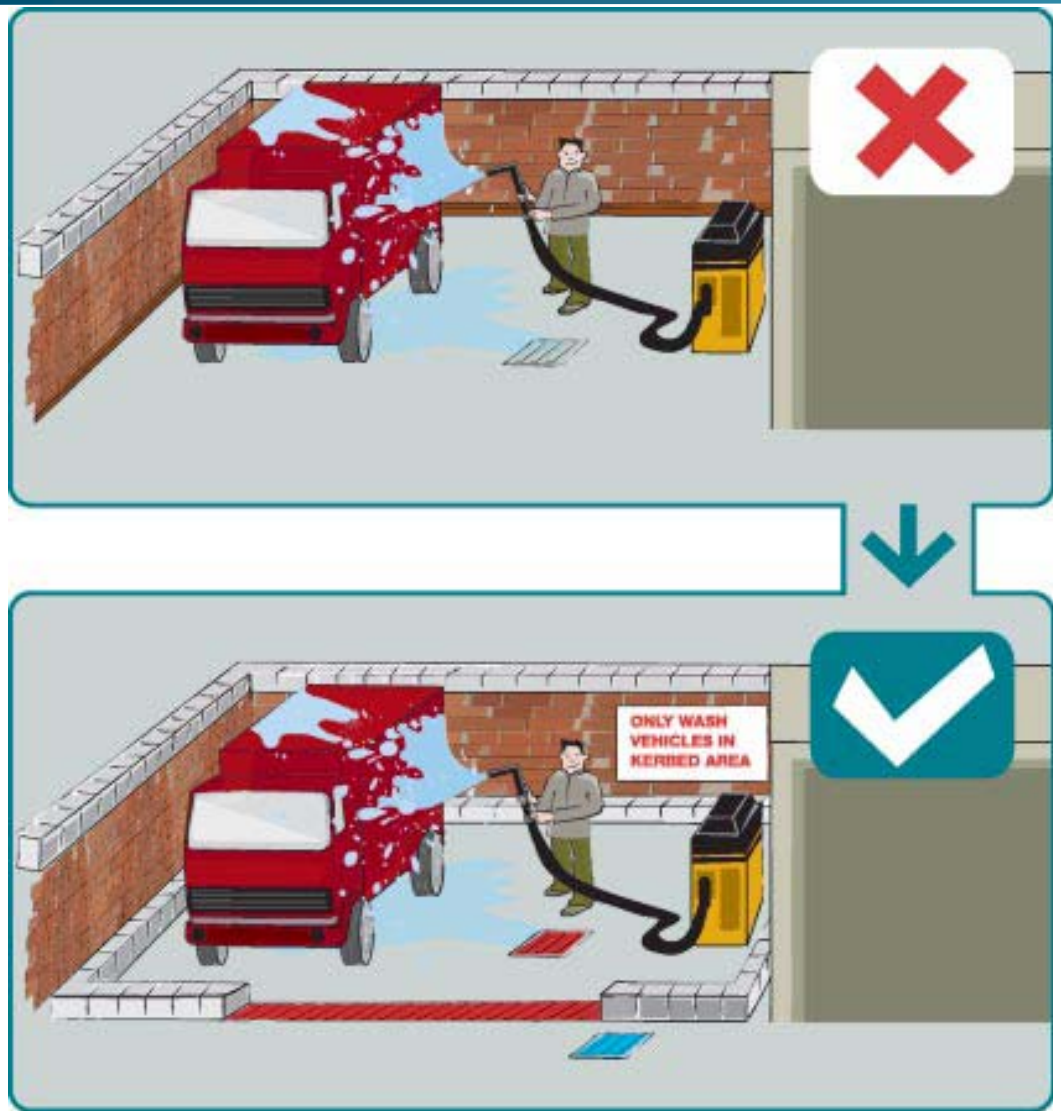
- Locate storage facilities at least 10m away from watercourses or surface water drains
- Protect containers from impacts

- Use the containment systems provided
- Report defects to your supervisor

Storage – Site Action
What can you do?

- Inspect all containment systems
  - Regularly remove rainwater that may have collected (i.e. in drip trays and bunds). NB Do not dispose of any contaminated water to surface water drains
  - Take action if any leaks identified
- Protect pipe work against corrosion & physical damage
- Follow security measures for the site and storage areas to prevent vandalism and theft

Effluents



Effluents require special consideration for their disposal.

Effluents

- Liquid wastes produced on a site are known as effluents, are polluting and must not be discharged to the surface water system

- Generally the best option is to discharge effluent to the public foul sewerage system (with the prior permission of the local Sewer Provider)

- Remember;
  - Clean water can go so surface (blue) water drains
  - Dirty water/wash water can go to foul (red) water drains
  - Treat oily waste as hazardous waste

Effluents – Site Action
What can you do?

- Carry out all washing/cleaning operations in designated areas

- Isolate cleaning or wash down areas from the surface water system - wash water should drain to the foul sewer

- Cleaning agents (i.e. detergents) are not suitable for discharge to surface water drains – even those described as ‘biodegradable’, ‘green’ or ‘environmentally friendly’ products

Effluents – Site Action
What can you do?

- Effluent is likely to contain silt, but silty water should never be pumped directly to a river, stream, gullies or surface water drain.

- Silt causes lasting damage to river life as it blocks fish gills, destroys spawning sites and insect habitats and stunts aquatic growth.

- Silt is generally a non toxic pollutant, it can be disposed of by pumping to a settlement tank

Groundwater Protection

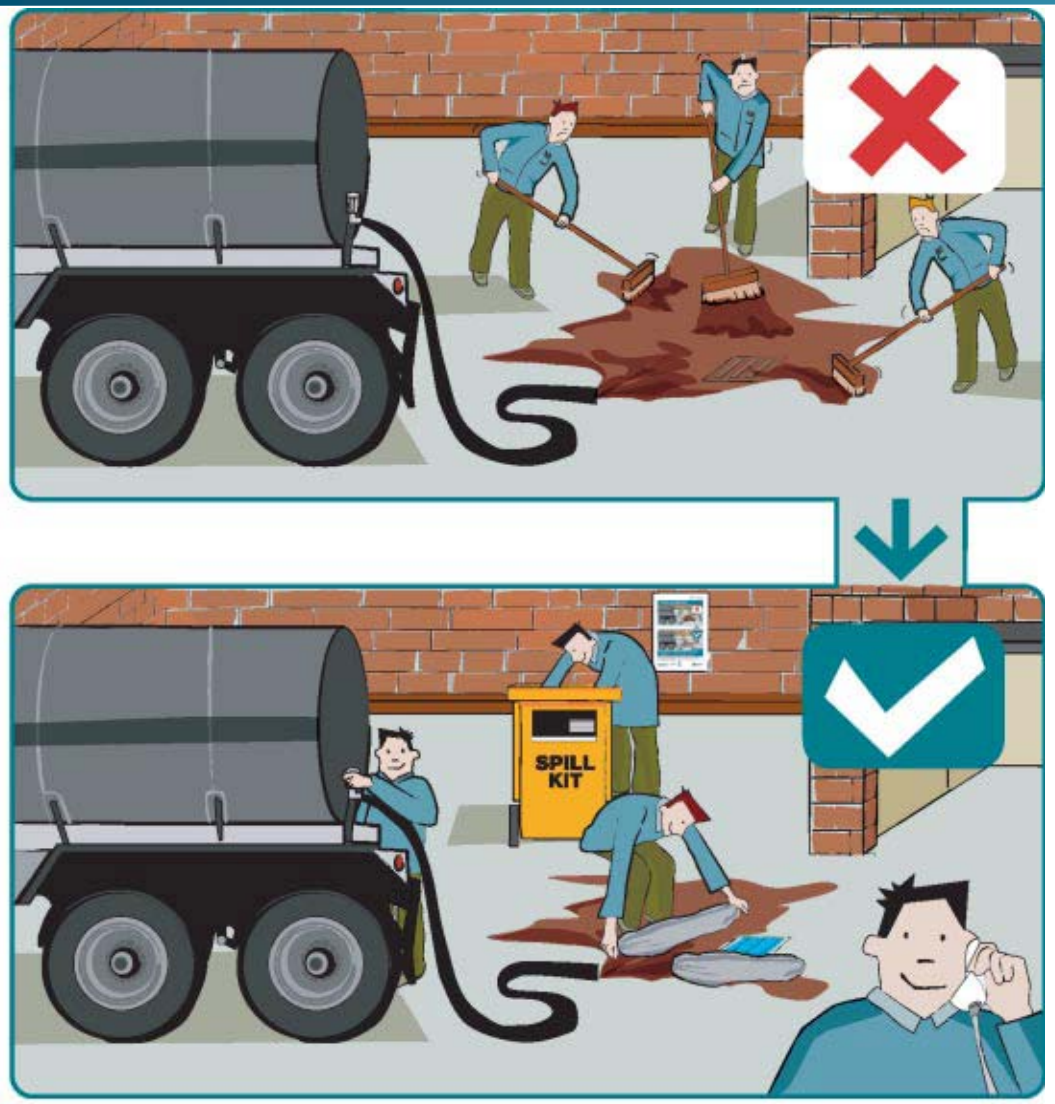
Groundwater is out of site, but must not be out of mind.
As a valuable resource it must be protected from pollution

Groundwater Protection

- Pollution can occur from discharges onto open ground and other porous surfaces or from drainage systems that soak into the ground (soakaways)
- Groundwater is very difficult and expensive to clean up
- Follow measures to minimise the risk of causing groundwater pollution

Part 3: Management and Response

Training and Emergencies



Training plays a crucial role in protecting the environment. Trained and knowledgeable staff can help protect or lessen the Effects of a pollution incident – saving both money and time.

Training and Emergencies

- In the event of an incident you need to;
  - understand your responsibilities and have the capability of fulfilling them
  - be aware what to do
  - If you don't, speak to your supervisor

- Make sure everyone is aware of how important it is to protect the environment

Training – Site Action
What can you do?

- Make sure everyone has been briefed on the contents of the EMP and PICP

- People who have a specific responsibility for procedures or plant should receive regular training
  - If you haven't, speak to your supervisor

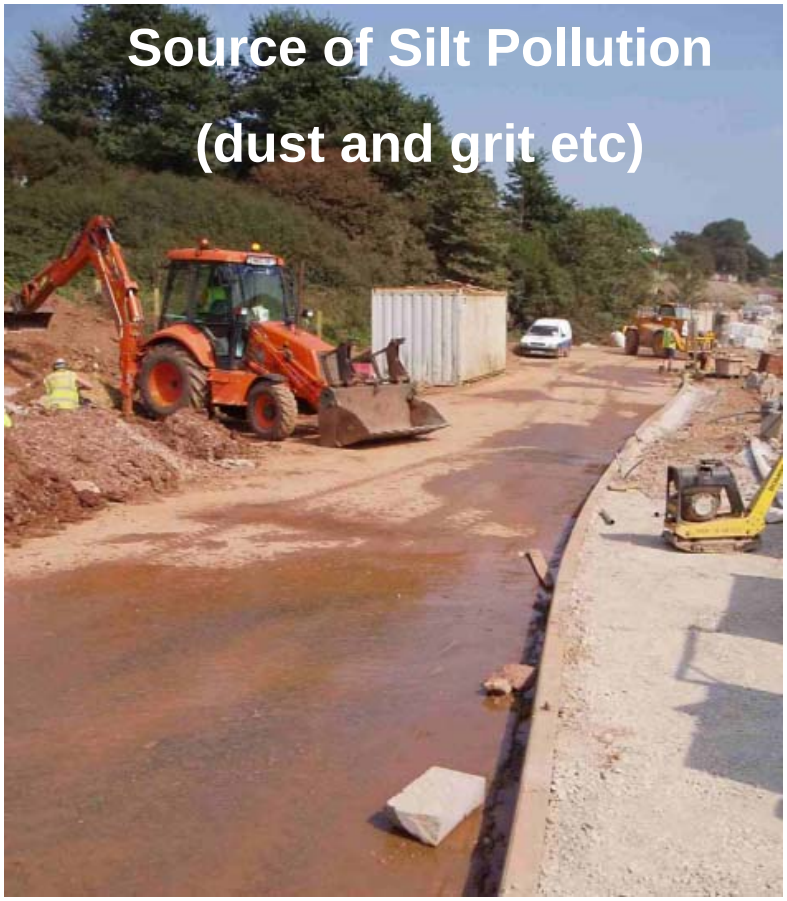
Emergencies – Site Action
What can you do?

- Know where your pollution control equipment to deal with spills is and be aware of how to use them
  - i.e. Spills kits – absorbent materials/drain blockers
  - If you don't, speak to your supervisor
  - Make sure that spill kits are kept fully stocked with any used items replaced ASAP

- Oily waste is hazardous/special and must be stored and disposed of accordingly

Consequences

Consequences



Consequences

Part 4: Reporting

Reporting

- In the Immediate aftermath report all incidents to;
  - Your supervisor
  - route control if on operational railway, or to the IGC if not;
  - Network Rail (usually the Project Manager); and the
  - environmental regulator (EA/SEPA where necessary - see next slide for explanation)

Regulator Reporting

- Contractors to report their incident direct to the regulator immediately if they have a;
  - Oil/diesel spill over 20 litres
  - Or any spill in a protected site or in a watercourse (including ponds, wetlands and ground waters)

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ENVIRONMENT AGENCY

SEPA
Scottish Environment Protection Agency

Part 5: Behavioural Change

Behavioural Change

- Incidents can be caused by one or more of the following;
  - a lapse of attention;
  - a genuine mistake (lack of training);
  - by cutting corners;
  - by simple rule breaking; or
  - due to environment factors – such as poor maintenance, house keeping or failure of equipment.

- **YOU have a responsibility to avoid causing incidents**

Closing Points

- 'Behaviours' are the last defence in preventing incidents

- Make sure you understand the risks and manage your self and your site according to your management plans

- If in doubt, speak to your supervisor