What if the salt escapes?

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Environment Officer
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Pollutants

- Many apparently innocuous substances can be very harmful in the water environment
  - Milk
  - Beer
  - Silt / mud
  - Sugar
  - Paint
  - Cement
  - SALT

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Context – Water Quality

- Significant improvements over last 30 years
- Return of fish to many rivers
  - Present in urban rivers & streams
- More susceptible to background contamination and pollution incidents.

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Impact of Salt

- Sodium, Chloride, Anti-caking agent (e.g. Sodium ferrocyanide), additives (e.g. Molasses), sediment.

- Low level but frequent loss

- Catastrophic loss

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Low level, frequent loss

- Poorly constructed stores and drainage may allow continuous loss of low levels of salt
  - Constant feed of pollutants into watercourse or groundwater
  - Impacts not visually obvious
  - Change in the ecosystem of the stream and loss of sensitive species
  - Harmful to vegetation
  - Long term contamination of groundwater
    - May take many decades to recover

Catastrophic loss

- Failure of structural integrity of store
- Flooding of store
  - Serious pollution incident
  - Significant fish kill
  - Closure of water abstraction
  - Long term damage to groundwater

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The Law

- Environmental Permitting (England & Wales) Regulations 2010
  - Offence to undertake a Water Discharge Activity or Groundwater Activity without a permit
  - Water Discharge / Groundwater Activity involves the discharge of poisonous, noxious or polluting matter into a watercourse or groundwater
  - The offence is causing the entry of polluting matter, there is no requirement to have caused a pollution incident.

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Penalties

- Up to £50,000 in a Magistrates Court
- Unlimited fine in Crown Court
  - New sentencing guidelines
  - Fines recently in £100,000s for serious incidents

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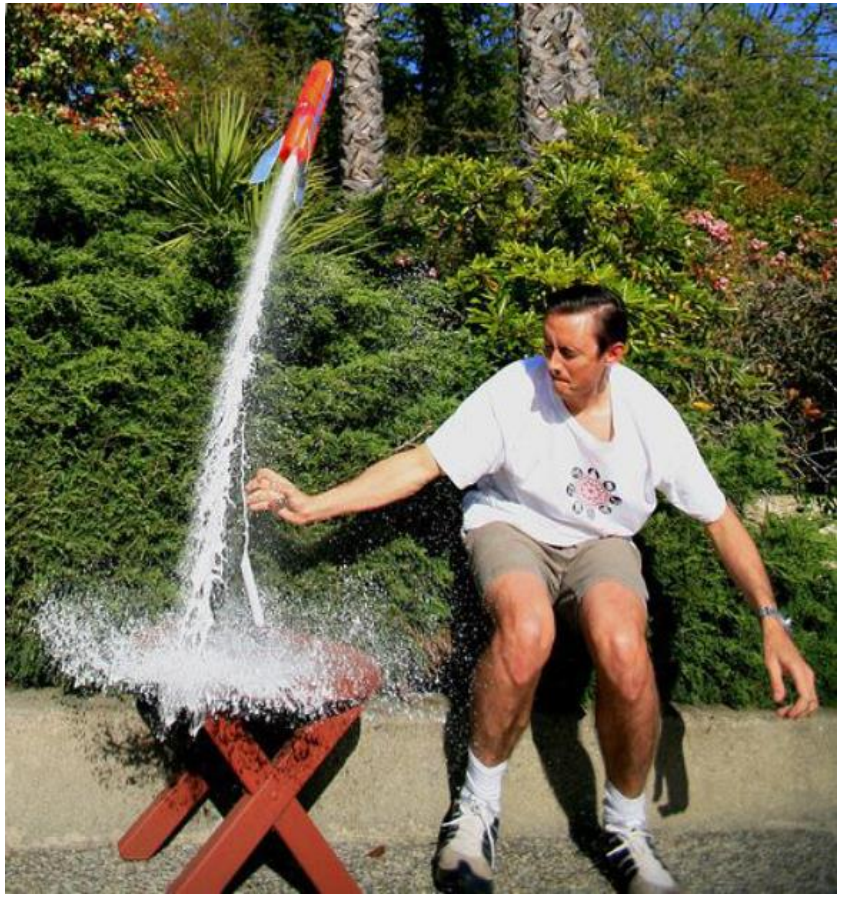
Pollution Prevention

Fortunately it's not rocket science!



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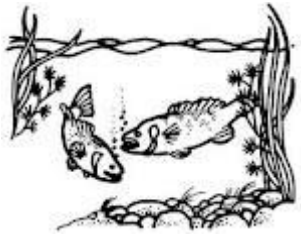
Principles of Pollution Prevention

Source

Pathway

Receptor



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Assess the risk

Keep source-pathway-receptor in mind

- Proximity to watercourses or drains
- Sensitivity of groundwater
- Flooding from rivers or surface water
- Vehicle access / movement
- Where do drains lead to?
  - Drainage survey?

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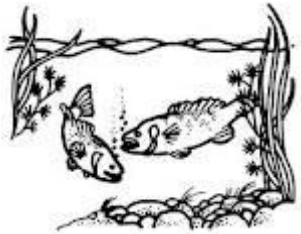
SOIL

Principles of Pollution Prevention

Source

Pathway

Receptor



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Break the link

- Remove, isolate or relocate the high risk activity away from drained areas
- Remove or divert drains in high risk areas
- Separate clean from dirty
- Bund or protect tanks and storage
- Provide spill kits and drain covers
- Install cut-off valves

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Practical examples

- Site the store on an impermeable base
- Roof the store – keep clean water clean!
- Cover the stockpile if roof not practical
- Collect contaminated drainage
- Direct drainage to foul sewer or sealed tank
- Prevent spread of salt into yard areas
- Prevent runoff from other areas entering store area & vice versa

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Tanks

- Tanks used for storage of additives e.g. Brine
  - Must be bunded and on an impermeable area
  - Pipes and valves within the bunded area
  - No drains or holes in the bund
  - Consider roofing the area to prevent rain collecting in bund
  - Dispose of bund contents properly if contaminated
  - Protect delivery areas

Maintain good practice

- Colour code foul and surface water drains
- Inform and educate workforce, delivery drivers, contractors etc.
- Implement good management procedures
  - E.g. Supervised deliveries
  - Inspection of tanks, bunds & other protection measures
- Written environmental management system
- Audit regularly and act where necessary
- Appropriately trained staff
- Good housekeeping – tidy site

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Drains coloured red for foul and blue for clean water. But does everyone on site know what these colours mean?

ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

POLLUTION PREVENTION GUIDELINES

POLLUTION PREVENTION GUIDELINES HIGHWAY DEPOTS: PPG10

These notes are for guidance only and are produced by the Environment Agency for England & Wales, the Scottish Environment Protection Agency and the Environment and Heritage Service in Northern Ireland, referred to jointly as the Agency or Agencies. They indicate the possible pollution risks from highway maintenance depots and how they can be minimised. Although existing sites are encouraged to comply, it is not intended that the requirements should apply retrospectively unless pollution has occurred or the risk that it might is unacceptable. If you have questions relating to the points in the note or believe pollution could be arising from your site, please contact your local Agency office. 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 (except in Northern Ireland, where different legislation applies).

"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 appropriate sewerage undertaker and may be subject to the terms and conditions of a trade effluent consent. Where reference is made in this guidance to disposal to sewer, such approval must be sought.

c. Any other waste produced 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 wastes such as used oil and oil adsorbent material are subject to the Special Waste Regulations 1996 (Reference 2). See Section 6 for further details.

2. DE-ICING ACTIVITIES

a. Introduction

The prevention of ice formation and the de-icing of highways within the UK is carried out almost exclusively using rock salt complying with BS3247. Approximately 2 million tonnes of rock salt are purchased annually for this purpose. The environmental impact of rock salt is well documented and providing the application rates specified within highway authority guidelines (Reference 3) are followed, the use of salt on highways is unlikely to lead to levels in the water environment that could affect aquatic life or drinking water supplies. However, because of the large quantities stored, there is the risk of pollution of rivers and groundwaters, due to run-off from rock salt stockpiles. This can come from both the salt itself and the sodium ferrocyanide anti-caking agent which is often added to it. Even when a stockpile is removed, the ground beneath it may remain contaminated. Other de-icing products (eg urea) can also pose a pollution hazard.

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Questions?

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