

MAKING WATER POLLUTION PREVENTION PAY

THE WATER POLLUTION
PREVENTION HANDBOOK

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SANDFIELD
PENSTOCK SOLUTIONS

Introducing the Author

My name is David Cole and I have devoted my career to designing practical solutions that prevent industrial pollution spills. I am passionate about protecting the environment.

I invented my first containment valve back in the 1990s while working as a maintenance engineer with the Ford Motor Company. The simple retrofit concept of Envirovalve® was designed to permanently place a deflated airbag in the drain so that in the event of a spill an operator could press a button to inflate the air bag and seal off the drains.

Hundreds of sites still use my original invention and a portable version is used by the Fire Service as part of the emergency response kit for dealing with fires on a daily basis. I have since designed and further developed a number of spill containment devices. The most recent reliable and automated spill containment device is the Hydro-Brake® Isolator drop seal valve, which you'll find more information on later in this handbook.

In 2014, I was invited by the Environment Agency to join the steering committee tasked with revising the main industry guidance for pollution containment in the UK, in the light of the Buncefield disaster and other major fires. Published by the Construction Industry Research and Information Association, CIRIA C736 "Containment Systems for the Prevention of Pollution", remains the key reference document for industry.

This tips handbook is designed as an introduction, to take you simply through what you need to know about pollution spill containment, and why, and to point you to more formal industry and statutory guidance.

Please be advised that this guide can only ever provide general guidance. Pollution spill containment is a complex, business-critical issue and you should always seek expert advice pertaining to your situation.

David Cole MSEE



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1. Ten Point Checklist

Y/N

Site drainage

1. Do you know where your drains go?

☐

• can you demonstrate that only clean water, such as roof drainage, flows to surface water drains

☐

• can you demonstrate that all contaminated water, such as sewage and trade effluent, flows to foul drains

☐

2 Do you have an up-to-date drainage plan of your site?

☐

3. Do you keep a record of when your drains are tested and maintained?

☐

Storing oils, chemicals and other polluting materials

4 Are storage containers fit for purpose, regularly inspected and maintained?

☐

5 Are storage areas and containers sited away from watercourses, surface water drains and unsurfaced areas?

☐

6 Do storage containers have secondary containment, such as a bund, to contain any leaks or spills?

☐

7 Do you have procedures for the safe delivery and handling of materials?

☐

Waste management

8 Is your storage and handling of waste safe, and does it comply with the law?

☐

Spill Containment Systems

9. Are you confident that your spill containment and systems will work in an emergency?

☐

Emergency response

10 Do you have a plan, equipment and training to deal with pollution and fire emergencies which are regularly tested?

☐

2. What If Scenarios

Imagine a spill, flood or fire happening right now...

- Do you know what to do?
- What would happen if it rained during the spill?
- How much water can be contained and where would it go?

Imagine a fire happening right now...

- Who will operate the containment plan?
- How much volume and flow will be produced from firefighting water and foam?
- What effect will weather conditions have on your containment plan?

The “Polluter Pays” Principle

“Causing or allowing pollution is a criminal offence. It can result in significant fines and even imprisonment for anyone found guilty.

Additionally, any individual responsible can be personally prosecuted if found guilty of an offence.

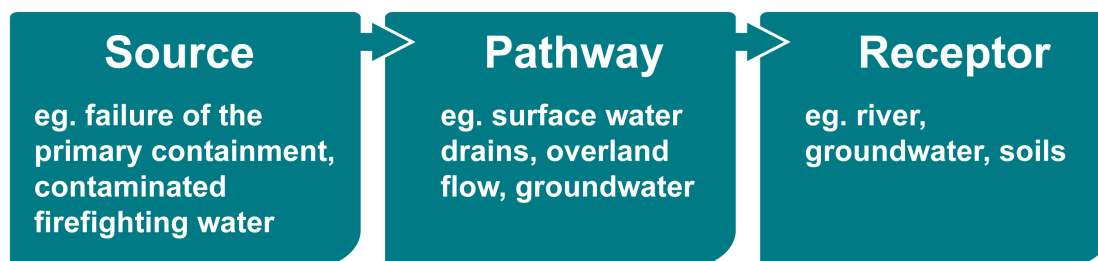
The “Polluter Pays” principle allows for the recovery of costs needed to put the environment back to how it was before the incident. Most companies believe that they are fully insured under their standard material damage liability policy, however an incident involving the regulator is unlikely to be fully covered under this type of policy.”

3. Where does water pollution come from?

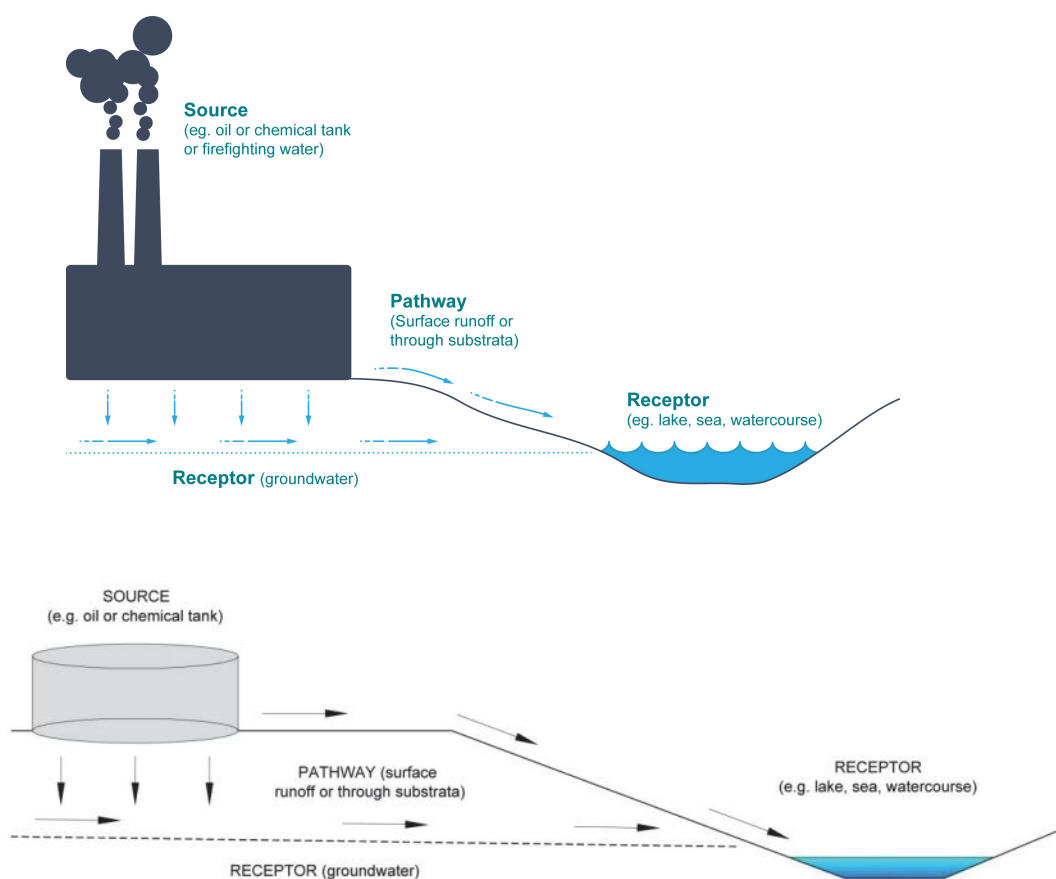
- Delivery and use of materials
- Overfilling containment vessels
- Plant equipment failure
- Containment failure
- Fires, explosion or failure to contain fire fighting water/foam
- Wrong sewer pipe connections
- Discharge of partially treated or raw effluent
- Vandalism
- Flooding
- Blocked or damaged drains

... And Where Does it Go?

"It's useful to think about surface water flow and containment on your site using the Source – Pathway – Receptor model"



CIRIA 736 Diagram



CIRIA736 containment systems for the prevention of pollution.

4. Firewater, what is it?

During a fire, sprinklers, fire fighting water and other materials, such as foam systems, will produce surface water runoff. This runoff will be a pollutant if allowed to escape a site.

Fire water runoff can consist of....

- Sprinkler water
- Rainfall
- Fire fighting water and foams
- On-site pollutants picked up and carried in the flow

People are often surprised when I tell them that the most likely environmental damage caused by fire at an industrial site is not a result of the fire itself, but the thousands of gallons of water that can be discharged to fight it.

A fire at a plastics recycling operation in Smethwick in 2013, notoriously thought to be started by a Chinese lantern, needed 14 million litres of water simply to contain it, equivalent to six Olympic swimming pools, according to the West Midlands Fire Service.



5. Drainage Systems and Spill Containment

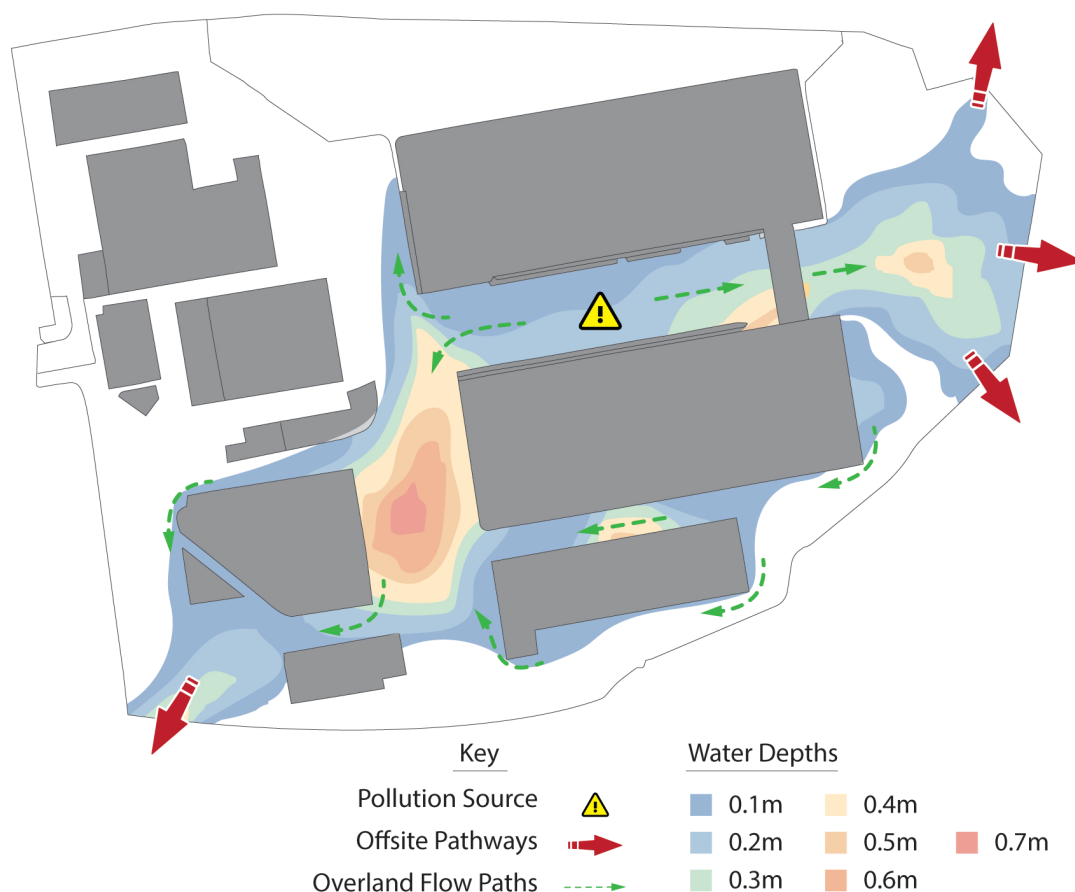
Drains are usually gravity or pump-fed, taking surface or foul water away from a building. If a spill, flood or fire occurs, the drainage network will be a main pathway for pollution.

Knowing where all the drains are on your site and maintaining them properly is essential. Over time, joints and pipe work will become damaged and should be inspected regularly. If the drains are blocked, cracked, unidentified or incorrectly connected there is little chance of preventing a pollution escape.

“Get a survey of the drains and sewers on your site, if you are not sure where they are.”

Hydraulic Modelling

Appointing a specialist hydraulic modelling service can be valuable, especially for companies with complex drainage and spill containment requirements. Surface water flows and pathways can be modelled in the system and the performance of any proposed containment design tested in the computer model prior to installation.



6. Containment System Testing

All on-site containment systems, such as sluice gates, shut-off valves and penstocks need to be regularly tested, serviced and maintained.

Pressure testing of drainage containment systems may be advisable to ensure shut-off systems are water tight in the event of a pollution emergency.

If one or more containment valves are fitted on your site, the drain run itself should be in a condition capable of containing the relevant head pressure. Drains should be tested to 0.5 bar static head when installed. Over time, joints and pipe work will become damaged, so they should be inspected regularly.

Many high risk sites utilise tertiary containment systems whereby the sealing of drains allows the filling of a tertiary bund area. If the drains or valves don't seal, the bund system is unlikely to fill.

In the event of a fire the runoff water may need to be held for several days or weeks, this can only be achieved if the system is fit for purpose and operational.

“Any site using containment valves should inspect and test routinely the operation and serviceability of any containment system. If the valves leak it is unlikely that they will prevent any pollution escape and it is probably not meeting your sites Environmental Management System or insurance requirements.”

7. Pollution Containment Regulation - What You Need To Know

Environmental Regulators

The Environment Agency (EA) is the Government body responsible for protecting and improving the environment in England, its devolved equivalents are National Resources Wales, the Northern Ireland Environment Agency and the Scottish Environmental Protection Agency. All have similar powers. However, for the purpose of this booklet, we'll use EA to refer to whichever environmental agency enforces legislation, having powers of Civil Sanctions. They can enter your site at will and impose on the spot fines.

C736 – The Key Industry Guidance

CIRIA's Containment Systems for the Prevention of Pollution (C736) is the key reference document referred to by the EA and recommended by relevant industry bodies and the Fire Service to guide the steps a company should take for water pollution containment and prevention. It can be downloaded for free from:

http://www.ciria.org/Resources/Free_publications/c736.aspx

Following the good practice advised in C736 will help you minimise the pollution risks associated with your operations.

Note on Environment Agency Pollution Prevention Guidelines (PPGs)

C736 refers to the EA's Pollution Prevention Guidelines (PPG's) which were archived in 2015 to the [National Archives](#). Archived content isn't updated and these will become progressively out of date and the accuracy of legal references cannot be guaranteed. However, they could still provide useful background and a starting point to help companies and their advisors to develop good practice.

The EA says it will continue to publish guidance on GOV.UK website to help people comply with the law, understand their rights or access Government services. The EA will be working with Defra to incorporate some regulatory content from PPGs into GOV.UK web content during 2016.

“As Government cuts bite, I believe the EA will increasingly be forced to relinquish its advisory role and take more enforcement action through prosecutions.

Should you have a pollution incident and you are operating within the C736 guidelines it will not prevent the clean-up cost, but it may minimise any risk of prosecution.”

8. Why you need to act responsibly

Penalties, Liabilities and Company Reputation

“To cause or allow pollution is against the law. Society is no longer prepared to accept businesses that don’t take their environmental responsibilities seriously.

“Magistrate courts can impose fines up to £50,000 for pollution offences. If the case goes to Crown Court there is no limit to the fine and **you could go to prison**. As the polluter you may also have to pay the FULL clean up and court costs.”

Source: Environment Agency Pollution Prevention Pays (January 2013)

Ineffective containment of pollutants can result not only in environmental harm but can lead to significant fines, remediation costs and reputational damage. In recent cases, companies have been fined up to £200,000 for not having adequate environmental protection. On top of this, companies will also be required by the EA to pay for the costs of the clean-up, which may run to millions of pounds.

In July 2010 five companies were fined a total of £9.5m for their part in the Buncefield catastrophe, a disaster that it is estimated had a total cost exceeding £1 billion.

As a general rule of thumb, for every £1 spent to deal with the actual incident it will cost a business another £20 in additional costs, such as fines, remediation, legal fees and loss of business.

“Some companies may be tempted to pay lip service to pollution containment and hope the worst never happens to them. But the commercial consequences of an unforeseen flood or pollution event could be catastrophic for your business.”

Corporate Governance

Corporate governance demands that asset owners understand the value of their portfolio, including future maintenance and risks to operation. This is clearly applicable to pollution containment systems.

Corporate social responsibility (CSR)

While companies regard legal compliance as a major priority, leading organisations are now striving to improve their reputational image and are becoming more open in the publication of information relating to their environmental performance. A pollution incident could have a significant negative impact on a company's reputation.

“At one time, fines imposed for pollution offences were trivial compared with the cost of installing protective measures, but this is no longer the case. It’s no longer acceptable for a company to take minimum steps and hope for the best.

The benefits of learning from past incidents, as well as some near misses, and new technologies, mean there are now some relatively straightforward ways of implementing preventative measures.”

Insurance

Since the introduction of the Environmental Damage (Prevention and Remediation) Regulations 2009 (now the Environmental Damage (Prevention and Remediation) (England) Regulations 2015), full liability for environmental harm has become more common. Most businesses have environmental liability cover, however this relates to third party claims only. Many insurers offer Environmental Impairment Liability cover (EIL) which specifically addresses the area of tort.

How environmental insurance works

There are four basic types of tort to any environmental claim.

- Negligence
- Nuisance
- Trespass
- Rylands v Fletcher. This relates to a nineteenth century case. A person bringing material to his site is responsible for any damage that they may cause to another party if it escapes.

All the above require a claim to be made by a third party to sue for damages.

“Ask your broker or insurer for details of your policy to check your level of cover.”

Remember - Pollution is Against the Law

As environmental damage is the responsibility of the EA, it does not qualify as a third party loss and the option to sue under tort is not available. Your site is, therefore, highly unlikely to have insurance cover that will pay for the costs of remediation and clean up of any environmental damage required by the EA.

“There is no limit to the remediation costs or charges following an incident, that you will be required by the EA to pay. Remediation costs could escalate from thousands to millions of pounds.”

9. Environmental Management Systems

The purpose of an Environmental Management System (EMS) is to prepare for, and plan the control of, an environmental incident. For the EMS to be of use it must be up to date, readily available and understood by all key staff, not kept on file in a remote shelf. Test

your EMS procedures in the same way you would test your fire drill and document all activity.

Your EMS should consider and plan for how to contain a pollution spill or fire.

Would your EMS hold up in an emergency?_

ISO14001

Businesses use ISO14001 to show they understand of the impact their business has on the environment. Having ISO14001 gives a business increased opportunities to manage its environmental responsibilities, but if pollution does occur, your EMS will still be open to scrutiny.

ISO14001 is not a single level; it is a moving target for a business wanting to achieve low carbon and environmental impact. All sites with ISO14001 will have committed to an EMS.

ISO14001 was updated for 2015 with some important changes, relating to understanding the organisation's strategic context and engagement with interested parties. Including:

- Greater focus on environmental performance improvement across the value chain.
- Evaluating organisational risks and opportunities in the context of external environmental conditions (eg. adapting to climate change, resource availability).
- Strengthening requirements on the involvement of top management and integration of environmental management into core business processes and alignment with business strategy.
- Greater clarity on external communication, including emphasis on data quality and assurance.

You should have a clear understanding of how these issues relate to a zero spill release to the environment.

If you have areas that wouldn't meet ISO14001 they should be noted as a non-compliance (NC) and passed to a responsible person. You cannot use ignorance as part of a defence following a pollution incident but failure to escalate a NC leaves the individual and company open to prosecution.

"Having ISO14001 does not make your spill containment systems compliant!"

10. Environmental Permitting

More than 4,000 companies operate under the Environmental Permitting (England and Wales) (EPR) regulations 2015. Permits are reviewed periodically and are regulated by the EA.

If your site operates under an environmental permit, you will need to show the EA what measures you have taken to deal with water pollution and spill containment.

Control of Major Accident Hazards Regulations (COMAH)

About 1,000 sites that manufacture, store or use dangerous substances exceeding certain thresholds in the UK are regulated under the COMAH (Control of Major Accidents and Hazards (COMAH) 1999); these are split into top tier and lower tier sites. These sites are required to undertake a 5-year Environmental Risk Assessment.

If you operate one or more sites under COMAH, you will be aware that revised regulations came into force on June 1 2015 and all regulated sites were given 12 months to review their compliance. COMAH sites that are vulnerable to flooding or pollution spills are strongly advised to review both their on-site protection and the risk assessment evidence they need to support it.

Staff Training

Any EMS and ISO14001 system will address staff training. Persons causing pollution can be held culpable. An act of pollution can result in a prison sentence for the responsible person.

“Making all staff aware of their responsibility to the environment can have a major impact on reducing incident and saving money. Staff cannot highlight hazards if they don’t have the skills or empowerment to deal with them.”

11. Designing a Containment System

Operators should follow the methods for risk assessment and containment design as outlined in C736, which is applicable to all types and sizes of containment system from the storage of Intermediate Bulk Containers (IBCs) in a warehouse to large tank farm sites. For the storage of certain materials, there are specific regulations that apply.

Wherever the containment capacity could potentially be exceeded, C736 is clear that operators should have a clear understanding of what would happen to the polluted water and have contingencies in place to minimise the risks. Ensuring a robust and reliable pollution containment system is not just a case of installing valves or bunds and hoping for the best. Determining the correct capacity for a containment system is one of the most important parts of the design process.

If the capacity of a system is too large, resources that might have been invested in other ways may have been wasted, whereas if a system is too small and is incapable of providing effective protection in the event of an incident, the cost of installation may equally have been wasted.

To assess the capacity of a system you need to ask:

- How much fire fighting water would be likely to be used in the event of a major fire?
- What is the impact of any ‘burn strategies’ that may be in place?
- Can fire fighting water be recirculated?

“It is important to consult widely with the regulatory authorities and in particular the Fire and Rescue Service, to ensure that the containment system is designed based on credible scenarios.”

12. Choosing the Right Pollution Spill Containment Device

Penstock Valves

Reference to a penstock as a generic term was removed from C736 in the latest revision. The advice is now to look and understand the problem before simply buying and installing equipment which may not work when put to the test.

A basic penstock valve uses metal-faced seals requiring a back pressure to create a seal. Drainage runs have a maximum operating pressure of 0.5 bar where a penstock valve works up to 16 bar. The continual flow of silt also prevents the valve seating correctly.

“Penstocks have been used for many years by industry as storm drain isolation valves but, in fact, they are unlikely to seal off a spill. Penstock valves are best suited to controlling and managing flows of clean process materials, rather than pollution spills.”

Spill Protection Equipment Options – The Pros and Cons

Spill Kits

Spill kits are used primarily as a reactive product to deal with a spill quickly and efficiently. They can be used to create containment around a spill to prevent the spillage spreading. Most of the materials used in spill kits are disposed of as contaminated waste.

The basic spill kit is designed to deal with relatively confined spills up to 250l. Using conventional above-ground spill kits to stop spills reaching drains can be a difficult challenge. The deployment will require staff to enter the spill area. Can someone safely reach the spill safely? Could the spill be an acid or give off a gas? Could someone slip when trying to reach the spill? When using a spill kit the spill and spill kit become contaminated waste and will need to be disposed of correctly.

Pros

- ✓ Cheap
- ✓ Industry accepted
- ✓ Ease of usage

Cons

- ✗ Land fill - the bigger the spill the more waste
- ✗ Reactive only
- ✗ Single usage
- ✗ Bunds

A bund is fitted around bulk storage facilities to contain a minimum of 110% of the stored material. Bunds are required to control residual loss as well as total failure. When outside, the bunds will fill with water if uncovered and rainwater levels must be prevented from exceeding the capacity. Bund pumps are the best option to keep bund water levels controlled. Many sites still rely on manual inspection and pumping. The bund pump must be suitable to filter any pollutant found in the bund water.

“During the Buncefield fire in 2005, bunds on the site failed causing uncontrolled contamination of the area around the site.”

Pros

- ✓ Fixed
- ✓ Industry accepted

Cons

- ✗ Must be maintained well, kept empty
- ✗ Expensive to build
- ✗ Often not built to standards due to cost
- ✗ Contamination of collected water

Pallet Bunds and Temporary Bunds

Pallet bunds are designed to carry oil drums and collect operating loss and spills. If stored outside, they will fill with water and require manually emptying. They are designed to contain 110% of stored material. Drums must be placed correctly and should be well-maintained to prevent failure.

Temporary bunds are used when dealing with major spills and fires. The runoff can be pumped into the bund to prevent pollution of controlled water. Bunds can also be used to store chemical, stock, or even fish from the watercourse, whilst maintenance is completed. They require manual placement and storage.

Pallet Bund

Pros

- ✓ Easy to use
- ✓ Industry accepted

Cons

- ✗ Fill with water if outside
- ✗ Need to be manually emptied to prevent spillage from overfilled bund
- ✗ Risk of over loading
- ✗ Plastic units not fire proof

Bunds

Pros

- ✓ Portable
- ✓ Easy to use
- ✓ Industry accepted

Cons

- ✗ Expensive
- ✗ Planned use only

Tertiary Bunding

Tertiary bunding relates to the third stage of bunding not covered by primary and secondary protection. The Tertiary bunding includes kerbs, road design and fencing. Tertiary containment design is often overlooked yet it is essential for control of spillages outside of the standard bundled areas. The tertiary design will either contain a spill or direct the flow to a designed catchment area.

Drain Covers

Drain covers can be flexible mats made of a chemical resistant material such as Neoprene, clay etc., or a fixed metal cover that can be clamped over a drain. They need to be deployed correctly and the operator will need to identify the spill hazard before entering the spill area and use the correct PPE. The covers prevent the spill entering the drain. When containing a spill with a drain cover other spill kit products will be needed to control and clear up the spill. When using drain covers it will encourage a spill to spread, increasing the need to quickly manage the area to prevent other drains being exposed.

Pros

- ✓ Low cost
- ✓ Industry accepted
- ✓ Can be reused (not clay mats)

Cons

- ✗ Manual handling
- ✗ Manual installation
- ✗ Can leak if not fitted correctly
- ✗ Require other measures to be used

Portable Bladder System - DrainBlok

The DrainBlok system can be used to temporarily stop a flow in a duct, normally used at a pre-identified location within the storm drain, turning the drain into a containment vessel. Using an airbag design, they can contain very large spills when combined with adequate and well-maintained site drainage. The equipment is deployed by a trained operator. DrainBlok can also be used as a proactive system whilst maintenance is carried out in a potential spill area. When used reactively to control a spillage, the collected material can be vacuumed and recycled. As with spill kits, the spill needs to be identified before personnel enter any hazard. The operator must observe that the system stays inflated.



Pros

- ✓ Large containment
- ✓ Industry accepted (Used by Fire service and Environment Agency)
- ✓ Recycle containment
- ✓ Part of EMS ISO14001
- ✓ Operators do not enter spill area

Cons

- ✗ Requires trained operation
- ✗ Bags can fail
- ✗ Drains need to be inspected
- ✗ Identify spill prior to operation

Fixed Bladder System

The fixed bladder system works in the same way as a portable bladder except that the airbag is fitted permanently into a pre-identified location. The stoppers can be inflated by the activation of a controller placed in a safe zone, thus reducing the need for staff to come into contact with a spillage. Fixed bladder systems seal off a site in a few minutes, but have proved difficult to test during regular Preventative Maintenance inspections. Once deployed, they can stay inflated for a reasonable time but any air loss within the system will result in failure.

Pros

- ✓ Easy to use with manual or remote activation
- ✓ Can be fully automated with alarms
- ✓ Supports ISO14001 fire water containment planning
- ✓ Fixed
- ✓ Industry accepted

Cons

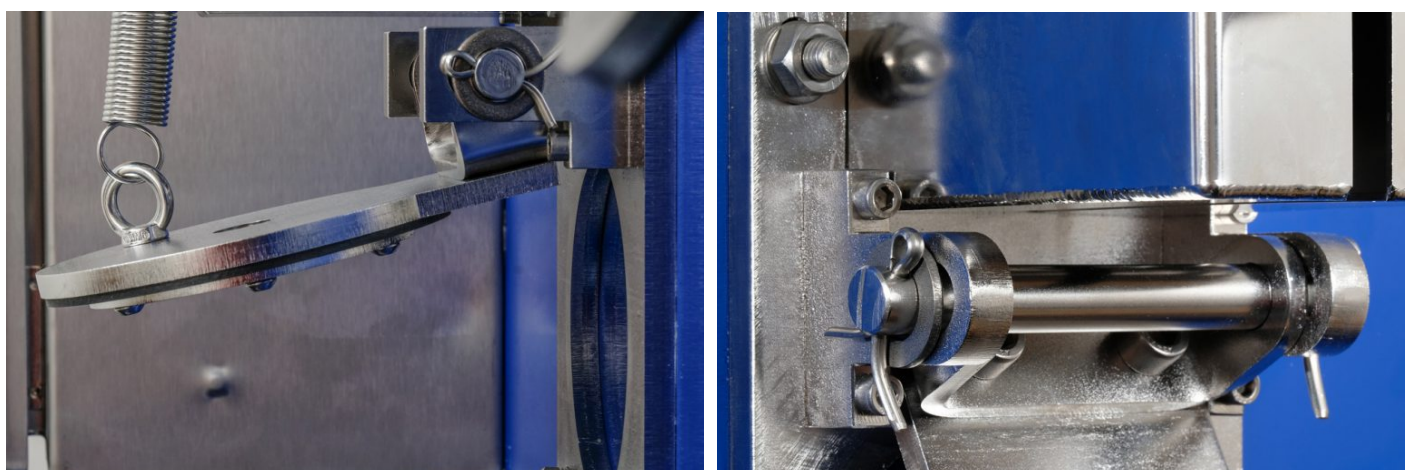
- ✗ Stopper can leak or fail
- ✗ Air leaks in system will prevent full operation
- ✗ Short term seal
- ✗ Susceptible to rodent damage
- ✗ Difficult to test
- ✗ Confined space entry needed when working in manhole
- ✗ Must be maintained

ToggleBlok

The ToggleBlok Valve is industry's only completely watertight pollution containment valve. The ToggleBlok Valve is a pneumatically-powered, mechanical locking valve which is supplied complete with a compact self-powering control panel. It protects receiving water-courses by blocking the release of flood water, polluted or fire fighting water from a site's storm drains. It is capable of being retrofitted into an existing manhole chamber as well as installed in a new chamber.

The valve can be closed remotely by means of GSM, bi-directional radio control or cloud-based communications systems. It can also be activated automatically via a site's fire alarm or Building Management System. Operated by a pneumatic power source, the valve is safe to use in a confined space or explosive atmosphere.

The ToggleBlok can be positioned at the drainage inlet or outlet. On the inlet, the valve will work as a passive non-return for flood control, preventing entry into the upstream flow.



Pros

- ✓ Watertight design
- ✓ Retrofittable
- ✓ Fail safe design
- ✓ Easy automated controls

Cons

- ✗ Needs regular inspection
- ✗ Silt can restrict operation

Spill Containment Equipment Comparison Table

Equipment	Reactive	Proactive	Ease of Remote Activation	Retrofittable	Manual Handling	Solar Powered	Testable	Sustainability & Recycling. L=LOW	Suitable for Firewater Containment	Comments
Spill Kit	Yes	No	N/A	Yes	Yes	N/A	No	L	No	Mainly used for maintenance and small volume spills, should be used by trained staff. Generates contaminated waste which requires disposal.
Fixed Bund	Yes	Yes	N/A	Yes	N/A	N/A	Yes	H	Yes	Refer to CIRIA736. Expensive and generally requires capital investment. Essential for high risk storage. Normally only protects the primary vessel.
Portable Bund	Yes	No	N/A	Yes	Yes	N/A	Yes	H	No	Designed for storage of IBC's mainly used in production areas.
Chemical Store	Yes	Yes	N/A	Yes	N/A	N/A	Yes	H	Yes	Primarily used for Chemical and IBC storage. Normally fitted with bunded base.
Drain Cover	Yes	No	N/A	Yes	Yes	N/A	Yes	L	Yes	Drain covers are part of the spill kit and require correct fitting. Clay mats are single use only. When used for spills it is important to use correct PPE. Can expose operator to the spillage. No containment capacity so tertiary area must be good to prevent ground contamination.
DrainBlok	Yes	Yes	N/A	Yes	Yes	N/A	Yes	L	No	DrainBlok can be used multiple times to seal off drainage. These are used by the fire service when the site has no control of drainage run off. Requires trained operators.
Fixed Bladder System	Yes	Yes	Yes	Yes	No	Yes	Yes	H	No	Uses a fixed bladder (stopper). Originally developed in 1998 as a single use emergency containment valve. Air leaks and rodent damage can make them unreliable. Any air leaks will result in containment loss. Easy to retrofit to most drains. Large stoppers are slow to inflate. Not suitable for long term fire water containment due to air leakage.
Penstock Valves / Sluice Gates	Yes	Yes	Yes	Yes	Yes/No	No	Yes	L	Yes/No	Penstocks require correct installation and are most suited to the water and process industry. Have been used as the preferred containment valve by the Environmental Regulators. The word Penstock is generic and fails to consider the leak rate of valves. Any site using a valve for containment should consider the need for the valve to stop all flow. Expensive and difficult to retrofit to drains.
ToggleBlok	Yes	Yes	Yes	Yes	Yes/No	Yes	Yes	H	Yes	Specifically designed as a drop seal valve for spill and fire water containment. Developed to use low power radio and solar power.

13. Seeking Expert Advice

It's highly advisable to seek expert advice before installing a water pollution containment system to not only ensure your site has a robust and reliable system, but also that you can demonstrate compliance to the regulator and to your insurer.

You may wish to consider:

- ✓ Consulting your relevant industry bodies and any specific guidance relevant to your industry.
- ✓ Asking for help from your local EA representative.
- ✓ Reviewing the effectiveness of any existing pollution containment devices you have on site.
- ✓ Seeking the expert help of a containment system manufacturer.
- ✓ Seeking expert help to design and construct a more robust and up-to-date containment system.
- ✓ Undertaking hydraulic modelling to ensure potential spills are mapped and your containment system tested in the model.

For more information contact Sandfield Penstock Solutions

Email penstocksolutions.co.uk

Tel: 01299 823158

Appendix: Statutes, Acts, Directives

ALL commercial sectors are governed by Environmental Regulation; this is enforced by the Regulator and Courts. A list of the main regulations are shown in the appendices.

This framework applies to any Commercial Organisation, Colleges/Universities, Local Authorities, Factories, Logistic, Transport, Fuel, Sole Traders etc. The fundamental aim of the legislation is to protect Public Health, animals, plants, land and water. The basis of the legislation is equal to all member states of the European Union.

Some European countries may not be addressing pollution as aggressively as the UK due to political and economic pressure. The Environmental Damage Regulations (EDR) is totally retrospective meaning that the polluter cannot leave a pollution legacy irrespective of circumstances.

Regulation and Legislation

- **European Environmental Liability Directive 2000/35/EC.**

The purpose of the ELD is to establish a framework of environmental liability based on the “polluter pays” principal. The Legislation covers any business including non-profit charities with Europe.

- **Environmental Permitting (England and Wales) Regulations 2010**

For businesses that manage or produce waste or emissions that may pollute the air, water or land.

- **Water Resources Act 1991.**

Part of a consolidation of legislation. The act governs water quality and quantity and the role of the regulator.

- **The Environmental Damage (Prevention and Remediation) (England) Regulations 2015**

They impose obligations on businesses to prevent or remediate environmental damage.

- **The Environmental Civil Sanctions (England) Order 2010**

Can be used by the Environment Agency for a range of non-criminal acts. The civil Sanctions allow the Environment agency to fine a business for minor offences without going to court.

- **Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy**

Newer Water Framework Directive adopted in 2000 is an operational tool, setting the objectives for water protection across all EU states.

Testimonials

"County Drains have been working with Dave for the past 10 years. We have found his knowledge of the Environment Regulations a benefit to our customers and the products he designs to prevent pollution are second to none.

Dave will study and Environmental situation and come up with a plan to prevent a major catastrophe, such as how to control fire water, spillages and also bio fuels such as Ad Blue.

We have no hesitation in recommending Dave Cole to any of our clients."

Stewart Osgood, Director, County Drains Leicester Ltd.

"Working with David allowed us to use existing site topography and drainage systems to maximise emergency containment on site:

- create meaningful quick response scenario's;
- which were easily communicated to and understood by regulatory bodies, emergency services and on site staff;
- satisfy our legal duties set out in our operational permit and under the COMAH regulations;
- operate the site, having confidence that we are able cope with emergency situations around the clock;
- install systems which were not over complicated allowing for rapid troubleshooting when faults are found during routine testing;
- plan for alternative arrangements when issues arise."

Graham Vaughan, HS&E Manager, Abbey Metal Finishing



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