Loss prevention standards

Assessment of Pollution Risks

An estimation and evaluation of Environmental Risks must be carried out considering the source of pollution, a pathway for it to travel and a receptor. Suitable control measures must then be put in place to control the risk of pollution.

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Assessment of Pollution Risks

Introduction



When considering the assessment of a pollution risk from a given site or process, organisations and insurers have to weigh up a number of factors. These may seem quite straightforward, i.e. "*What is the risk of a pollution incident occurring on a site?*".

However, it becomes much more complicated when the format is amended to include "*What are the off-site consequences of an incident?*". These will need to take account of geographical and other factors that may be difficult to quantify.

What is Pollution?

Pollution is the effect that results from the release of any substance or energy to the environment that the receiving ecosystems are unable to absorb without sustaining damage. Harm may be seen in terms of damage to any aspect of the environment including plant or animal life, human health or damage to property.

Legislation

The amount and complexity of environmental legislation has grown greatly in recent years. Modern legislation is there to protect the environment and prevent pollution incidents which often constitute criminal offences.

Examples of environmental legislation include the:

- Environmental Protection Act 1990
- Water Resources Act 1991
- Environment Act 1995
- Pollution Prevention and Control Act 1999
- Clean Neighbourhoods and Environment Act 2005
- Environmental Damage (Prevention and Remediation) Regulations 2009
- Environmental Permitting (England and Wales) Regulations 2016

Pollution and Insurance

Pollution can result in claims, which can be costly, on a company's public liability policy if the pollution is a result of a "sudden and unforeseen" incident. Claims resulting from gradual pollution are excluded from this cover. Also excluded from cover are clean-up orders and cost recoveries imposed by the Environment Agency or other enforcing bodies. Any fines resulting from a prosecution are not covered by insurance, although some legal costs may be recovered. In addition, any evidence used in a criminal prosecution may be used in a claim for damages in a subsequent civil action.

The Solution

Organisations and insurance/risk managers recognise that identifying the risks and reducing them to the lowest practicable level presents the best option.

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Estimation and Evaluation of Environmental Risks

Environmental risk may be described as a combination of the likelihood of a pollution event occurring and the severity of the consequences of that event. If both are high, then the polluting event is regarded as very high risk. All environmental risks have three features, a:

- Source of pollution
- Pathway for it to travel
- Receptor (where the damage/harm is done)

Each of these needs to be considered separately in assessing the pollution risk from a particular event. For each source of pollution there can be several pathways and receptors.

The effects of pollution can be felt at great distance from the initiating event and can include pollutant release, damage to property, plants and animals and harm to human health. Each of these can pose problems to the risk assessor estimating the probability and consequences of such an incident.

A Five Step Assessment Procedure

1. Identify the hazards posed by the site and its activities/potential incidents
2. Identify the consequences of an incident
3. Identify the extent or magnitude of the consequences
4. Estimate the probability of the consequences identified
5. Estimate the risk of pollution at the site; this will be a combination of the probability of the event and of the consequences (nature and magnitude) of the release

Assessment

Site management systems will greatly affect the risks posed by ensuring that adequate control systems are in place. When estimating the extent and consequences of an incident, the geography and surroundings of the site must also be carefully considered.

Risk assessors should consider the pollutant pathways as well as the nature and toxicity of the release as pollutant pathways can be long and damage may occur at great distances from the site.

Estimation of liabilities may require computer modelling and should consider at the very least the impact of pathways through air; surface water; groundwater; and the soil, as pollution can travel through these media quickly and easily. Site drains also provide a quick and easy pathway for pollutants to leave the site.

Factors which can have a profound effect on the damage which may be incurred include the proximity and density of population; land use; water abstraction points; sewage works; fish farms; and boreholes. Assessment systems may have to be weighted to account for the relative importance of these various factors.

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Commercial Risk Assessment Methods

There are a number of models available commercially to assist in the estimation of environmental risk, such as:

- Hazard and Operability Studies (HAZOP)
- Failure Mode and Effects Analysis (FMEA)
- Fault Tree Analysis (FTA)
- Event Tree Analysis (ETA)
- Cause-Consequence Analysis (CCA)

There are an increasing number of sophisticated computer-based modelling systems available to predict the consequences arising from a major release of polluting material.

Research is currently being conducted into the effect of environmental management systems in reducing the incidence and severity of pollution incidents, and as an aid to insurers and organisations in the area of environmental risk.

Finding out the Facts

The first part of an environmental risk evaluation and subsequent implementation of a robust risk management strategy requires the gathering of data about the company, its location(s), and its processes and management systems. Also required is information about the surroundings; use of property; a full inventory of substances used, transported and stored on the site; together with the transport of wastes and other materials off site.

Those areas where legislation requires particular actions to prevent pollution, e.g. air cleaning equipment, effluent treatment and protection of storage facilities and pipelines by bunds and catchpits, are particularly important.

Conclusion

Pollution incidents can often be expensive both financially and in respect of an organisation's reputation. They can affect large areas and damage people, land and property. Pollution incidents can also leave a company liable in law and resultant costs may not be covered by insurance arrangements. From an insurer's viewpoint, large claims can result from pollution incidents due to the many possibilities for damage outside as well as within the premises.

Key Action Steps

- Review the activities, substances, quantities, and nature of processes on site. The well-tested strategy of elimination, reduction, substitution, isolation and control can be used as a good management tool for risk reduction
- Ensure that all legal liabilities are met in terms of authorisations, licences, permits and consents
- Ensure that your insurer is fully aware of the activities carried out by your business
- Develop and test emergency plans and review results

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Checklist

A generic Assessing Pollution Risks Checklist is presented in Appendix 1 which can be tailored to your own organisation.

Specialist Partner Solutions

Aviva Risk Management Solutions can offer access to a wide range of risk management products and services at preferential rates via our network of Specialist Partners.

For more information please visit:

Aviva Risk Management Solutions – Specialist Partners

Sources and Useful Links

- Pollution Prevention for Businesses – GOV.UK
- Pollution Prevention and Control – Scottish Environment Protection Agency
- The NIEA and Water Pollution – Department of Agriculture, Environment and Rural Affairs: Northern Ireland
- Preventing Water Pollution – Business Wales
- Guidelines for Environmental Risk Assessment and Management – GOV.UK
- Environmental Permitting (England and Wales) Regulations 2016
- Environmental Damage (Prevention and Remediation) Regulations 2009

Additional Information

Relevant Loss Prevention Standards include:

- Preventing Pollution from Fire Fighting Run-off
- Claims Defensibility

To find out more, please visit Aviva Risk Management Solutions or speak to one of our advisors.

Email us at riskadvice@aviva.com or call 0345 366 6666.*

*Calls may be recorded and/or monitored for our joint protection.

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Appendix 1 – Assessing Pollution Risks Checklist

Location	
Date	
Completed by (name and signature)	

	Assessing Pollution Risks Checklist	Y/N	Comments
1.	Have you identified the hazards posed by the site and its activities/potential incidents?		
2.	Have you identified the consequences of an incident?		
3.	Have you identified the extent or magnitude of the consequences?		
4.	Have you estimated the probability of the consequences identified?		
5.	Have you estimated the risk of pollution at the site?		
6.	Have you established suitable control measures to reduce the risk of pollution at the site?		
7.	Have you ensured that all legal liabilities are met in terms of authorisation, permits, licences and consents?		
8.	Have you ensured your insurer is fully aware of the activities carried out by your business?		
9.	Have you developed and tested emergency plans and reviewed results?		
10.	Additional comments:		

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02/09/21 V1.3

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