



**INLAND
WATERWAYS**
ASSOCIATION

GUIDANCE NOTE

*Control of
Substances
Hazardous to
Health (COSHH)*

CONTENTS

| | |
|---|-----------|
| Introduction | 3 |
| Control of Substances to Hazardous Health Regulations | 4 |
| Harm from Hazardous Substances | 5 |
| Identification of Hazardous Substances | 6 |
| Workplace Exposure Limits (WEL) | 8 |
| COSHH Assessment | 9 |
| Control Measures | 11 |
| Monitoring Exposure Health Surveillance | 12 |
| Effects of Contact on the Skin | 13 |
| REACH Regulations | 14 |
| An Example Framework for Implementing COSHH on a Restoration Project | 15 |
| COSHH Risk Assessment Form | 17 |

First published as v.1 in 2022. This is a web-friendly document and will be reviewed and updated when the source legislation changes. Any printed version may not be the latest version and a check should be made on IWA website. IWA has interpreted the current legislation, as dated in the document, in good faith but the reader should check for themselves that it is the latest version and that they are acting within the legal framework.

INTRODUCTION

Hazardous substances are found on many restoration sites and can be used in or created by the construction process. They might already be present on a site before you start work. Hazardous substances can take many forms, including solid, liquid, vapours, dusts, fumes and gases and can be artificial or natural.

The intention of the Control of Substances Hazardous to Health Regulations (2002) (COSHH) is to protect human health from harm through exposure to hazardous substances by either preventing exposure or controlling the level of exposure to safe levels.

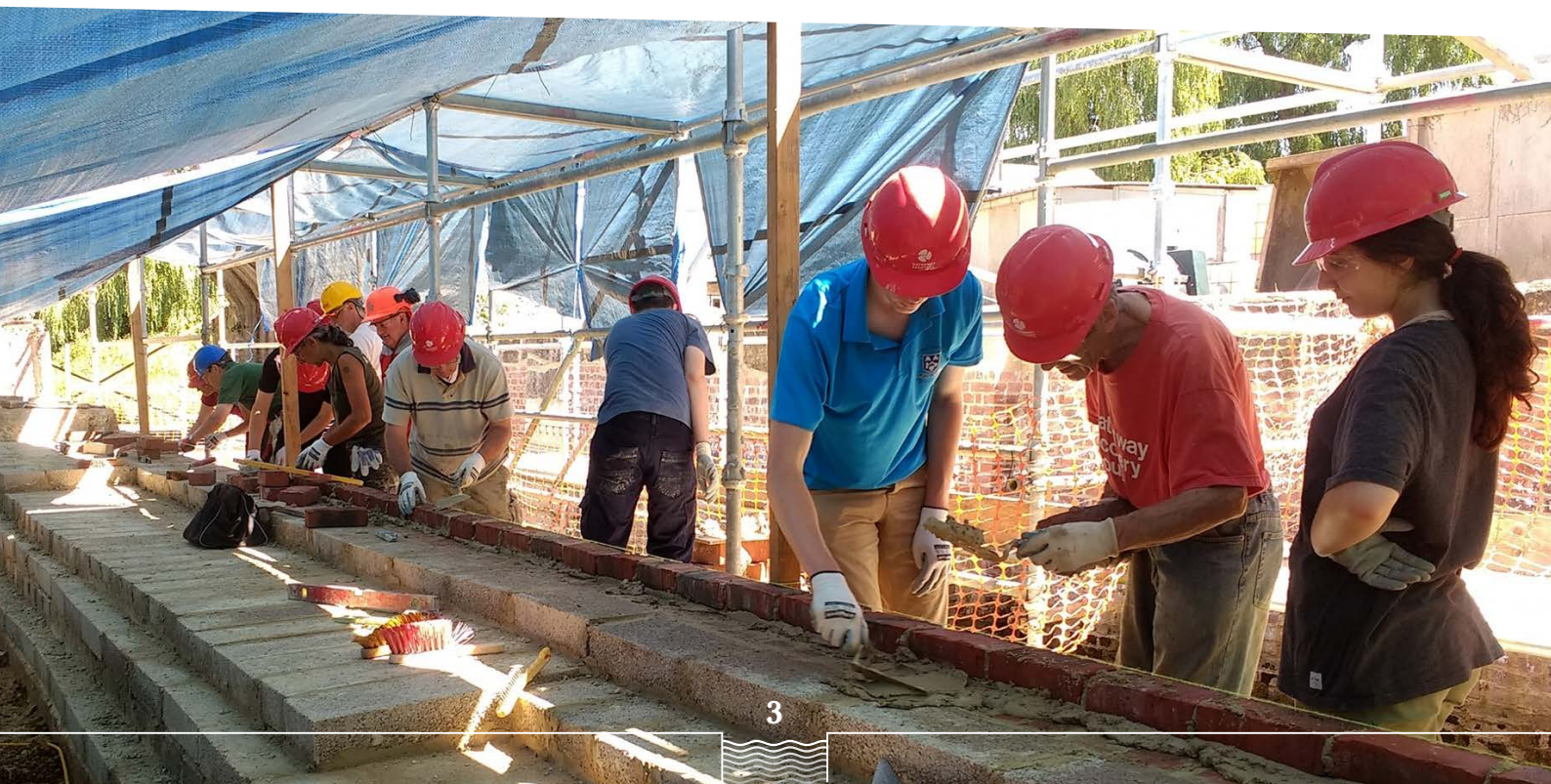
Asbestos and lead are covered by separate regulations. COSHH does not cover explosive or flammable properties that a substance may possess: the Dangerous Substances and Explosive Atmospheres Regulations cover this.

COSHH is particularly relevant to restoration volunteers because they probably will not come across many of the hazardous substances in everyday life. They may not understand the hazards that construction substances pose or the fact that hazardous substances can be created by construction activities, such as adding water to cement.

The provision of information and training on how to handle hazardous substances is very important and must be backed up with adequate supervision.

e

Examples of hazardous substances found on a restoration site: petrol, butane, lime, cement, wet concrete and mortar.



CONTROL OF SUBSTANCES TO HAZARDOUS HEALTH REGULATIONS (2002)

COSHH requires that the health risks to those who may come into contact with hazardous substances are established by carrying out an assessment and that appropriate control measures are put in place. The assessment should consider how the substance is to be used on site. The significant findings of the assessment and actions to control exposures should be written down and communicated to volunteers. The assessment must be reviewed if there is a change in the way the work is carried out or the results of monitoring show that the existing control measures are not effective.

The aim of COSHH is to avoid exposure, where reasonably practicable, to hazardous substances or to substitute them with less hazardous alternatives.

If the prevention of exposure is not possible, the level of exposure must be controlled through a combination of engineering controls, for example, using pouring devices or screens to prevent splashes or the use of dust extraction and safe systems of work. Personal protective equipment (PPE) as a control measure should not be considered until consideration of other measures has been exhausted.

Reasons for PPE being considered after other control measures:

- ① It only protects the wearer and then only if it is being used and maintained correctly.
- ② It often requires considerable management effort to ensure that it is used correctly.
- ③ It can be expensive.
- ④ It can be unpleasant to wear.



The Health and Safety Executive (HSE) has published an Approved Code of Practice and guidance, L5. A link is provided in useful resources on p.16.

HARM FROM HAZARDOUS SUBSTANCES

Hazardous substances can cause harm in a number of direct ways, such as irritation, burns, allergic reaction, poisoning and disease. Long term illness can be caused by hazardous substances. The substance can cause harm when it enters or comes in contact with the body. Harm may be caused by carcinogens (cause cancer), asthmagens (cause asthma symptoms), mutagens (cause mutation) or reprotoxic substances (toxic for reproduction, cause damage to the reproductive system: malformation of an embryo or foetus).

Hazardous substances can enter the body in four ways:



Inhalation

Breathing in substances in the form of a gas, vapour, fume, mist, aerosol or dust.



Absorption

Through the skin or eyes by contact with a substance that can penetrate unbroken skin, or is absorbed through unprotected cuts or grazes.



Injection

Contact with contaminated sharp objects or high-pressure equipment or splashes and jets entering the mouth or nose, such as hydraulic jets.



Ingestion

Swallowing particles of a hazardous substance resulting from hand to mouth transfer.



IDENTIFICATION OF HAZARDOUS SUBSTANCES

All substances used on a restoration project must be considered. Non-hazardous substances can be ruled out of a COSHH assessment.

Hazardous substances that are purchased are the easiest to identify because they must carry an appropriate warning symbol on the packaging. The Great Britain Classification, Labelling and Packaging regulation (GB CLP) has adopted the United Nations Globally Harmonised System of classification and labelling of chemicals.



The globally harmonised system on classification and labelling of chemicals:



Toxic (can be fatal) if it enters the body.



Contains gases under pressure. May explode if heated and cause burns.



Harmful skin, eye or respiratory irritation. May cause an allergic reaction, drowsiness or breathing difficulties.



Flammable gases, liquids, solids and aerosols. Heating may cause a fire.



Heating may cause an explosion.



Hazardous to the environment and aquatic life.



Oxidising gases, liquids and solids. May cause or intensify fire.



Damage to organs and may cause serious longer-term health hazards (such as carcinogenicity and respiratory sensitization).



Corrosive and can cause severe skin damage or burns.



Safety data sheets are available for substances that are hazardous and available to purchase. Manufacturers and suppliers have a legal duty to provide information and many have safety data sheets on their websites. Safety data sheets include details of the hazards present in the substance, how it should be handled and stored and emergency procedures. The safety data sheet is not the COSHH assessment. The information in the safety data sheet should be used to undertake the COSHH assessment.

Hazardous substances that are created by the work process, such as dust or fumes, carry no health warning. The created substance may have a workplace exposure limit (WEL) that must not be exceeded. This may require that exposure levels are measured unless exposure can be eliminated or controlled to a safe level.



It may not be possible to complete the measurement until work processes and substances are known. The COSHH information will need to be compiled as the work proceeds with regular reviews and amendments to control measures.

Other substances may already be present on the restoration site before work begins. These may be artificial or natural:

- 1** Soil, heavily contaminated with fuels, oils and other hazardous liquids that have seeped into the ground over many years.
- 2** Residues of substances left in pipework, underground tanks and drums.
- 3** Substances that were deliberately buried or dumped on the restoration site, such as asbestos.
- 4** The presence of rats or their carcasses and bovine faeces: can cause Leptospirosis (Weil's disease).
- 5** Infected syringes, needles and other items associated with drug taking and other medical waste.
- 6** Infected ground causing Tetanus.
- 7** Accumulations of pigeon or bat droppings: disturbance can cause a range of respiratory diseases.

It is useful to draw up an inventory of the materials and substances to be used or brought and stored on the restoration site. The inventory will allow the restoration group to make sure that appropriate safety data sheets are obtained from the manufacturers or suppliers.

The inventory can be used to identify substances that are created by the work processes and those substances known to be present on the site. It is important to keep the inventory up to date.



WORKPLACE EXPOSURE LIMITS (WEL)

WEL is defined as a concentration of the substance in the air that has been measured and averaged over a period of time, either long-term (eight hours) or short-term (15 minutes). Workplace monitoring is a specialist activity and must be carried out by someone who is competent (with necessary skills, knowledge, training and experience) and has the appropriate equipment. The Health and Safety Executive (HSE) publish a list of all WELs in guidance note EH40.

Control is defined as adequate when:

- 1 Principles of good practice are applied.
- 2 The WEL is not exceeded.
- 3 Exposure to asthmagens, carcinogens and mutagens is reduced to as low as reasonably practicable.



COSHH ASSESSMENT

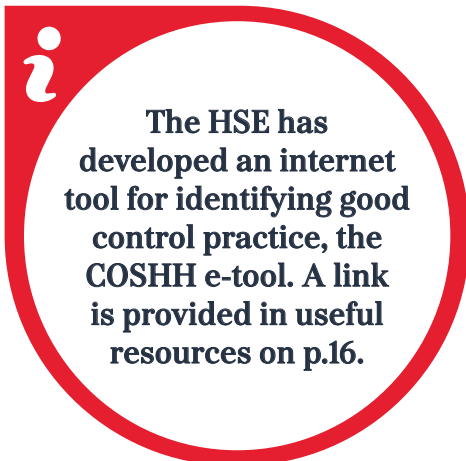
The assessment is the fundamental part of the COSHH regulations.

Step 1: Will volunteers or others be exposed to substances hazardous to health?

Part 2: If step 1 indicates substances hazardous to health will be used or created, you must identify actions to be taken to comply with COSHH regulations.

The definitions used in a COSHH assessment are:

- 1 **Substance:** Any natural or artificial substance in solid, liquid, gaseous or vapour form, and includes micro-organisms.
- 2 **Hazard:** The potential for the substance to cause harm, illness or damage to health.
- 3 **Risk:** The likelihood that the hazardous potential of the substance will be realized.



Each COSHH assessment must take account of the following:

- 1 The hazardous properties of the substance.
- 2 Information provided by the supplier on the potential harmful effects.
- 3 The type, level and duration of exposure.
- 4 The way in which the job will be carried out, including the amount of the substance used (or present in the case of substances created by a work process).
- 5 Work where there is the potential for high levels of exposure.
- 6 Any published WEL for the substance.
- 7 The effects of any control measures that are, or will be in place.
- 8 The results of any health surveillance and/or exposure monitoring that has been undertaken.
- 9 The risks where there is exposure to more than one hazardous substance at any one time.

The COSHH assessment can be carried out by anyone who has the necessary skills, knowledge and experience and has received the necessary information, instruction and training. The COSHH assessment is a considered judgement that balances the hazardous properties of the substance, the method by which it will be handled and the environment in which it will be used.

When carrying out the COSHH assessment you need to:

- 1** Know what substances and products you will be using, compile a list of hazardous substances present on the site and substances created by a work process.
- 2** Assess the health hazard they can cause by consulting manufacturers safety data sheets, determining the level of risk, degree of exposure and the action needed to eliminate or control exposure. Record the findings of the COSHH assessment. Review the COSHH assessment when changes on site indicate it is necessary.
- 3** Select control measures that eliminate or minimise the risk of exposure, by designing a work process that prevents exposure to or creation of hazardous substances, substituting or diluting the substance, using dust / fume extraction, using engineering controls or issuing suitable PPE (see page 11 for more information).
- 4** Consider who is exposed (user and/ or others), what is being done with the substance and how often and how much of a substance is being used and for how long.
- 5** Detail procedures for dealing with accidents, incidents and emergencies involving hazardous substances. Include first-aid provision, safety drills and practices identification and details of all hazards that are likely to occur.

Once you have completed the COSHH assessment you must:

- 1** Select appropriate PPE which is suitable for the substance and how it will be used. Include training in how to use and maintain the PPE.
- 2** Provide information, instruction and training to anyone using the substance so that they will be aware of the dangers of exposure and the precautions that should be taken.
- 3** Supervise anyone using the substances to ensure the precautions are being followed and any PPE is being used correctly.

The COSHH assessments, training, briefings, monitoring arrangements and health surveillance must be recorded and the records kept for 40 years.

CONTROL MEASURES

The preferable method of control is to replace the substance or process with a non-hazardous or less hazardous substance or process.

Where this is not possible the control measures must:

- 1 Ensure the safe handling, storage, transportation and disposal of hazardous substances.
- 2 Design suitable maintenance procedures that reduce the exposure to hazardous substances.
- 3 Reduce the number of people exposed, the level and duration of exposure and the quantity of hazardous substances present.
- 4 Include control of the working environment, including the provision of adequate ventilation.
- 5 Include adequate hygiene and washing facilities.

The hierarchy of controls is:



Engineering Controls
such as dust suppression using water on brick saws.

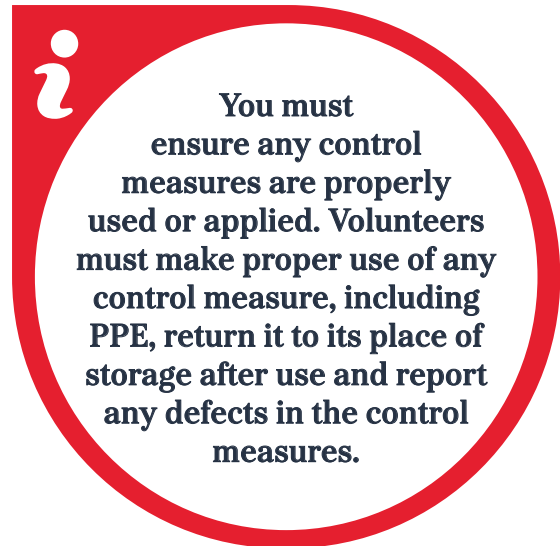


Organisational Controls
such as moving a work operation away from others.



Provision of Suitable PPE
(as last resort).

COSHH regulations contain further details of measures that must be taken to control exposure to carcinogens, mutagens and biological agents.



When working with hazardous substances, volunteers must practice a high standard of personal hygiene by removing any protective clothing and thoroughly washing hands and skin before eating, drinking or smoking, consuming food and drink or smoking in designated areas and keep personal protective clothing separate from ordinary clothing to avoid contamination.

Where control measures are provided they must be adequately maintained, examined and tested to ensure they are in efficient working order and remain clean; this includes PPE.

MONITORING EXPOSURE

The Approved Code of Practice defines monitoring as the use of suitable techniques to assess the level of exposure to substances hazardous to health.



Monitoring records must be kept in a suitable format and be available for 5 years. If the records are representative of personal exposures of identifiable volunteers, they must be kept for 40 years.

Monitoring is required when:

- 1 A serious health hazard could arise because of failure or deterioration of control measures.
- 2 It is necessary to ensure that a WEL or imposed work standard is not exceeded. Significant exposure to Silica dust may require monitoring.
- 3 It is necessary to carry out an additional check on the effectiveness of any control measure.

It is likely that monitoring would be carried out by specialist consultants.



Silica dust arising from saw cutting concrete, brick or stone may require monitoring.

HEALTH SURVEILLANCE

The main purpose of health surveillance is to detect problems with the health of volunteers at the earliest possible stage. Adverse health surveillance results may indicate the existing control measures are not working properly.

Health surveillance is usually carried out by an occupational health practitioner and recorded. Volunteers must have access to medical records that apply to them.

Health surveillance must be provided in the following circumstances:

- 1 If there is a disease associated with the substance, such as asthma, cancer or dermatitis.
- 2 When it is possible to detect the disease or adverse change and reduce the risk of further harm.
- 3 Where conditions of the workplace make it likely that the disease will appear.



Working on contaminated land often requires some form of health surveillance. Normally this would be done before, during and after the work so that a baseline can be established and a check that the control measures are working.

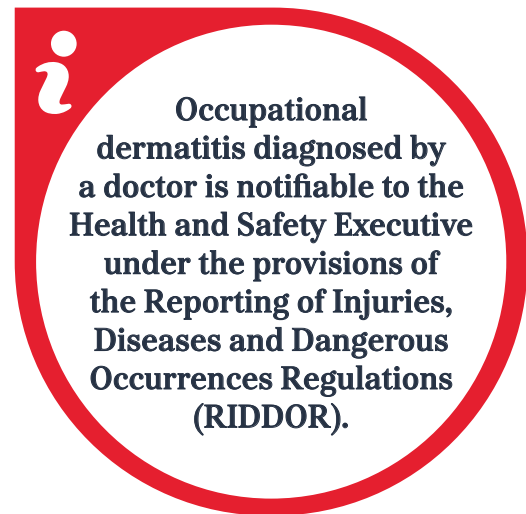
EFFECTS OF CONTACT ON THE SKIN

OCCUPATIONAL DERMATITIS

Occupational dermatitis is an inflammatory skin condition which is neither infectious nor contagious, but can lead to infection when the skin's natural barriers break down. It is essential that a COSHH assessment identifies the properties of the hazardous substances which may come into contact with the skin so that the correct type of overalls/gloves can be provided.

There are two types:

- 1 Contact (irritant) dermatitis is usually caused by the skin coming into contact with an irritant substance. Repeated exposure to heat or cold can also lead to physical damage to the skin making irritant dermatitis occur. Wet work which involves the hands being wet for long periods (more than two hours a day) or repeatedly getting wet can also lead to dermatitis. Most cases of dermatitis are of this type.
- 2 Sensitising dermatitis is also known as allergic contact dermatitis. Some people develop a sudden allergic reaction to a specific substance, which may occur after weeks, months or years of use. Once sensitising dermatitis has occurred any future exposure to the substance will produce an adverse reaction. Volunteers who are allergic to a substance should not be allowed to handle or have skin contact with all potentially irritant substances.



Many substances (strong acid or alkali) used in the construction industry have corrosive properties which can cause severe burns to the skin. Wellington boots are essential in preventing burns from standing or walking in wet concrete. Gloves should be available to protect users of such substances from chemical burns. Hot works processes have the potential to cause skin burns.

Skin contact with certain chemicals can cause a variety of reactions:

- 1 Mineral oils, including fuel oils and mould oils – can lead to inflammatory skin conditions, such as dermatitis, oil acne or even skin cancer. These may be caused by constant contact with oil or oily clothes and rags.
- 2 Chemicals, including strong alkalis and certain acids, chromates, formaldehyde are substances that can penetrate the skin causing ulcers and dermatitis, and some chemicals can cause skin cancer. The most significant chemicals for the construction industry are polycyclic aromatic hydrocarbons (PAHs) from products containing coal tar or pitch. This risk has been significantly reduced as petroleum-based alternatives to coal tar are now used.
- 3 Cement and lime can cause chronic dermatitis. Wetted cement and lime become more alkaline, corrosive and therefore potentially damaging to the skin.
- 4 Solvents and de-greasers, including paraffin, turpentine, petroleum products, thinners and similar solvents affect the skin by dissolving the natural oils which renders it more vulnerable to attack by other substances and bacteria.
- 5 Tar, pitch, bitumen products, including cresols and phenols like mineral oil cause inflammation, blisters and oil acne.
- 6 Radiation, light and heat radiation, including x-rays, beta and gamma radiation, extremes of radiation, temperature and humidity make the skin more susceptible to dermatitis and other skin problems.
- 7 Epoxy resin hardeners, glass fibres, certain woods, fungicides and insecticides may irritate the skin and lead to dermatitis.

REACH REGULATIONS

The aim of REACH regulations is to provide a high level of protection from harm from the use of chemicals. It makes manufacturers and importers responsible for understanding and managing the risks. REACH requires manufacturers and importers to register substances. The registration package is supported by a standard set of data.

These regulations concern:

| | |
|-----------|----------------------------------|
| R | Registration. |
| E | Evaluation. |
| A | Authorisation. |
| CH | Restriction of Chemicals. |

REACH operates alongside COSHH and is designed to ensure better information on the hazards of chemicals and how to use them safely is passed down the supply chain. It applies to substances manufactured or imported into the EU in quantities of one tonne or more. A link to the REACH web page is included on p.16.

AN EXAMPLE FRAMEWORK FOR IMPLEMENTING COSHH ON A RESTORATION PROJECT

Many restoration sites involve multiple different volunteer groups and it is important that all groups of volunteers are given sufficient information, instruction, training, protection and supervision. Implementation of COSHH should be integrated within the overall management strategy and included in the construction phase plan (Project Plan) under Construction (Design and Management) Regulations (CDM). Refer to guidance notes on Preparing the Project Plan and Construction (Design and Management) Regulations.

An example of the framework for implementation:

- 1 **The main resident restoration group** must identify the substances that will be used in the restoration, including those present on site and those generated by the construction process. A substance inventory will be prepared. Safety data sheets are obtained from the manufacturers and suppliers so that the restoration group can carry out the COSHH assessments and make arrangements for setting up controls to eliminate or manage the risk from hazardous substances. They are responsible for training site leaders in implementation of COSHH and control measures and for passing on information from COSHH assessments to visiting volunteer groups.

During the restoration work the restoration group must provide supervision to implement the controls and review them to ensure they are working. If substances are introduced to the restoration site, a COSHH assessment must be carried out and the substance inventory updated.

If needed, the restoration group will arrange for health surveillance checks to be carried out.
- 2 **The resident restoration group site managers/leaders** must be familiar with the COSHH assessments and the control measures identified. They must ensure that volunteers under their control are aware of the hazards of the substances they will be using and train them in the control measures identified in the COSHH assessment and ensure supervision is provided. For visiting volunteer groups the site manager/leader will need to ensure that the COSHH assessments have been passed on, are being followed and that any new substances that the visiting group bring onto site have a COSHH assessment and are added to the substance inventory. They should discuss the control measures with the volunteers and review the COSHH assessments where the control measures are found not to work.
- 3 **Visiting volunteer groups** must be familiar with the COSHH assessments and control measures identified by the resident restoration group. They must cooperate with the resident restoration group in the coordination of the COSHH assessment and control measures. They must ensure that volunteers under their control are aware of the hazards of the substances they will be using and train them in the control measures identified in the COSHH assessment and ensure supervision is provided. For any new substances they will be using, they must provide the resident restoration group with their COSHH assessment. If necessary the visiting group will arrange for health surveillance checks for their volunteers to be carried out.
- 4 **Volunteers** must follow the control measures and use any PPE provided in the correct manner. They must report any defects in the equipment provided and instances where the control measures are not working. They must attend, as directed, any health surveillance checks.

GUIDANCE NOTE

USEFUL RESOURCES:

Regulations

Signs and Symbols

ACoP

COSHH Assessments

Workplace Exposure Limits

HSE COSHH E-tools

HSE COSHH Essentials

REACH

Sign up to read the full Practical Restoration Handbook and supporting resources here:
waterways.org.uk/practicalrestorationhandbook



COSHH



**INLAND
WATERWAYS**
ASSOCIATION

Risk Assessment No: _____

| | | | |
|---|--|--|--|
| Material: | | | |
| Describe the activity or work process: (include how long and how often this is carried out and the quantity of substance used) | | | |
| | How long? | How often? | How much? |
| Location of process being carried out: | | | |
| Identify the person at risk: | Volunteers <input type="checkbox"/> | Contractors <input type="checkbox"/> | Public <input type="checkbox"/> |
| Name the substance involved in the process and its manufacturer: (a copy of a current safety data sheet for this substance should be attached to this assessment) | | | |
| Classification (state the category of danger) for more information, click on this link: hse.gov.uk/ | | | |
| <input type="checkbox"/> Very toxic | <input type="checkbox"/> Explosive | <input type="checkbox"/> Oxidising | <input type="checkbox"/> Environmental |
| <input type="checkbox"/> Toxic | <input type="checkbox"/> Irritant | <input type="checkbox"/> Extremely flammable | <input type="checkbox"/> Long-term health hazard |
| <input type="checkbox"/> Corrosive | <input type="checkbox"/> Sensitising | <input type="checkbox"/> Highly flammable | <input type="checkbox"/> Compressed gas |
| <input type="checkbox"/> Harmful | <input type="checkbox"/> Biological | <input type="checkbox"/> Flammable | |
| Hazard Type | | | |
| <input type="checkbox"/> Gas | <input type="checkbox"/> Vapour | <input type="checkbox"/> Mist | <input type="checkbox"/> Fume |
| <input type="checkbox"/> Dust | <input type="checkbox"/> Liquid | <input type="checkbox"/> Solid | _____ Other (state here) |
| Route of Exposure | | | |
| <input type="checkbox"/> Inhalation | <input type="checkbox"/> Skin | <input type="checkbox"/> Eyes | <input type="checkbox"/> Ingestion |
| | | | _____ Other (state here) |
| Substitution | | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Is it possible to use a less harmful substance to do the work? | | | |



| State the Risks to Health from Identified Hazards | | |
|---|--|--|
| Eyes : | Inhalation : | |
| Skin : | Ingestion : | |
| Control Measures (extraction, ventilation, training, supervision etc): Include special measures for vulnerable groups, such as disabled people and pregnant workers. Take account of those substances that are produced from activities undertaken by another volunteer group working on the site. | | |
| | | Certain substances can react adversely when they come into contact with others, please list any compatibility warnings here: |
| Is health surveillance or monitoring required? (health surveillance may be required for vulnerable persons i.e. pregnant/young workers with asthma dermatitis etc) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Personal Protective Equipment (state type and standard) | | |
| <input type="checkbox"/> Dust mask: | <input type="checkbox"/> Visor: | |
| <input type="checkbox"/> Respirator: | <input type="checkbox"/> Goggles: | |
| <input type="checkbox"/> Gloves: | <input type="checkbox"/> Overalls: | |
| <input type="checkbox"/> Footwear: | <input type="checkbox"/> Other: | |
| First Aid Measures | | |
| Eye Contact : | Inhalation : | |
| Skin Contact : | Ingestion : | |
| Fire (identify appropriate fire extinguishers here) | | |
| <input type="checkbox"/> Dry Powder <input type="checkbox"/> CO ² <input type="checkbox"/> Water <input type="checkbox"/> Foam <input type="checkbox"/> Fire Blanket | | |
| During combustion substances may give rise to harmful vapours/gases etc, please state here: | Storage | |
| Disposal of Substances & Contaminated Containers | | |
| <input type="checkbox"/> Hazardous Waste <input type="checkbox"/> Skip <input type="checkbox"/> Return to Depot <input type="checkbox"/> Return to Supplier Other (state here) : | Is exposure controlled? Yes <input type="checkbox"/> No <input type="checkbox"/> | |
| Risk Rating Following Control Measures: High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/> | | |
| Assessed By | Date | Review |





Historic England

*This project was partly funded by Historic England's
National Capacity Building Programme.*





The Inland Waterways Association is a non-profit distributing company limited by guarantee. Company registration number 612245. Charity registration number 212342. Registered office: Island House, Moor Road, Chesham HP5 1WA.