Wet Work Operations

Wet work operations are repairs, maintenance, upgrades, etc., undertaken on any systems containing, or likely to contain, water or other fluids. This includes liquids within pipework, drainage or foul systems, pumping and mechanical equipment, tanks, etc.

During and following completion of wet work activities, buildings and property are at increased risk of damage and business disruption from accidental fluid release and this Loss Prevention Standard provides practical measures to help reduce the potential for such incidents.

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Wet Work Operations

Introduction

Escape of water or other fluids can cause significant damage to buildings, equipment and other contents, often requiring extensive and costly repairs. Even relatively minor liquid release events can lead to property damage, business interruption losses and impact sustainability objectives.

Effective management of wet work operations can help prevent or minimise these events and should apply to any work activities, including maintenance, repairs, upgrades, and similar tasks, where the escape of water, or other liquids, is foreseeable and could potentially lead to damage or losses.

This document provides practical guidance on managing wet work operations and recommended risk controls that can help prevent associated damage and losses.

Note: This Loss Prevention Standard relates to managing wet work operations and is focussed on property loss prevention and related risk management guidance. It is not intended to address liability exposures. The presumption is that all regulatory requirements, such as fire risk assessments and compliance with local building regulations, codes, or standards, have or will be met.

Understanding the Risks

Damage and disruption from the escape of water during and following wet work operations is a major cause of loss. The reasons for this include, but are not limited to:

Prior to the Works

- A lack of planning and risk assessment.
- Inappropriate allocation of tasks and responsibilities.
- Communication failures.

During the Works

- Deficiencies in on-site management and control.
- The use of inexperienced or untrained personnel.
- Incompatible materials or issues with the quality or type of materials and tools.
- Issues with the quality of workmanship.

Completion of the Works

- Lack of, or inadequate, wet work watch and supervision procedures.
- Inadequate work sign-off/completion procedures.
- Inadequate emergency response plans.

Managing the Risks

Water Management Plan

A Water Management Plan should be formalised for specific wet work operations, detailing the procedures and controls to be followed. This should consider:

Risk Assessment. An assessment of the escape of water risks, ideally by a person or team with sufficient knowledge of the premises, wet systems and associated history, which identifies:

- All potential sources of leaks, including hidden voids within walls, floors and/or ceilings.
  - ✓ This should include consideration of the complexity of systems; number of bathrooms, toilets, showers, kitchens, appliances, water tanks, cisterns; types of pipework and fittings; presence of air conditioning/sprinklers, etc.
- Factors that increase the risk,
  - ✓ Consider the number of storeys.
  - ✓ Levels of occupancy/non-occupancy.
  - ✓ Inadequate access during emergency events.
- The location and accessibility of any valves, drain lines, stopcocks, water tanks, cisterns, etc.
- Specific assets or areas of the premises that may be particularly vulnerable to damage.
- Any visible signs of, or known past issues, with leaks, e.g., condensation, black mould growth or staining of ceilings.

Risk Control Measures. Details of the prevention and control measures that are required or may be needed should any unexpected events take place:

- Cold weather management.
- Established procedures and formal employee training for the isolation of the water supplies in the event of an emergency.
- Installation of any leak detection and automatic shut off systems.
- Management controls for any minor works including routine maintenance.

Permit to Work. A Wet Work Permit is a formal authorisation document used to control and manage activities that involve introducing or handling water or other liquids within a building or facility. The purpose of a Wet Work Permit is to prevent accidental water damage, ensure proper isolation of systems, and confirm that risk mitigation measures are in place before, during, and after the work.

- The permit should be issued by a suitably experienced and competent person and be appropriately signed and dated.
- The permit should cover a specified time period and **must not** extend past the current shift or into the next day. If this is necessary, a new permit should be issued the following shift/day.
  - ✓ The work area and tasks will need to be risk assessed every day during prolonged works, if circumstances in the work area change.
- Regular spot checks should be undertaken by the permit issuer to ensure the permit is being fully complied with.
- The work and location should be inspected upon completion to ensure adequacy of the work, systems have been fully reinstated and are functional, and the location left in proper order.

Refer to the Aviva Loss Prevention Standard **Permit to Work Systems** for further guidance.

Wet Work Watch. A wet work watch is a designated person or team responsible for monitoring work operations on wet systems to promptly identify and respond to any liquid release, minimising the risk of water damage or operational disruption. Wet work watch arrangements should include:

- Continuous monitoring. The wet work watch should monitor the work location before, during, and after the wet works operation to detect any signs of leakage, overflow, spills, or unintentional wet systems activation.
  - ✓ Continuous monitoring should be in place for at least 1 hour after the works have been completed.
- Intermittent monitoring. Following the period of continuous monitoring, intermittent checks should be undertaken at appropriate frequencies.
  - ✓ Intermittent monitoring should be undertaken every 20 minutes for a period of up to 3 hours, based on a risk assessment and the exposures presented.
- Emergency Actions. The wet work watch team should be authorised to shut down works, activate any alarm equipment, open/close any necessary valves, drains or other relevant systems, deploy spill response equipment and procedures, etc.

Emergency Response. Emergency response and escalation plans including responsibilities and details of emergency contacts and arrangements, e.g.:

- Keyholders, plumbers, heating engineers, electrical contractors, etc.
- Details of occupants of neighbouring areas/properties who may be affected.
- Locations and methods for isolating main incoming water supplies.

Review. Regular review of the Water Management Plan to ensure it remains appropriate and fit for purpose.

- This should be undertaken at least annually, after any leak/incident and as part of any changes to the wet systems and/or premises where wet systems are present.

Actions - Prior to the Work

- Consider if the wet work operations can be avoided?
  - ✓ Is there a less hazardous way to complete the work?
- Have Risk Assessment and Method Statements (RAMS) been completed detailing the work proposed?
  - ✓ Does this include any other higher hazard activities such as hot work, working at height, etc? If so, ensure these activities are fully risk assessed and appropriate precautions are taken.
  - ✓ Have the RAMS been shared with and acknowledged by the relevant teams/persons?

  Refer to the Aviva Loss Prevention Standard **Hot Work Operations** for further guidance.
- Have all relevant stakeholders been informed of the upcoming work?
- This should include employees, managers as well as visitors, contractors, etc., who may be present whilst the wet works are being undertaken or potentially affected by the works.
- Where contractors are used to carry out the work, checks must be undertaken to ensure:
  - ✓ Suitable and sufficient competence to undertake the work.
  - ✓ Adequacy of public liability insurance arrangements.

Refer to the Aviva Loss Prevention Standard **Managing Contractors – Property** for further guidance.

- Has a permit been issued by a competent, authorised person for the period of work over an appropriate time period following an inspection of the area by relevant stakeholders?
- Have any floor/wall penetrations, cracks and other openings through which a leaking liquid could pass, been protected from potential damage?
- Have any electrical and any other sensitive equipment or vulnerable contents, and materials been removed or protected from potential damage?
- Have any drains in the location of the wet works been checked to ensure they are clear and functioning?
- Are the relevant shut-off/stop cock valves identified, accessible and clearly labelled?
  - ✓ To assure they operate as expected, have these valves been inspected, tested/exercised before the work commences?
- Will the wet system need to be drained down? If so, is there a system in place to prevent refilling during the wet works?
  - ✓ The wet system should only be drained to a facility that can take the expected flow rate and volume.
  - ✓ The wet system being drained should be protected from damage or interference that may cause a leak of the drainage arrangements.
  - ✓ A control mechanism should be in place to ensure any valves that have been closed or opened as part of the wet works cannot be accidentally opened or closed during the works.
- Has a competent person/persons been designated as wet work watch?
  - ✓ Are they suitably qualified, trained and experienced with the wet work hazards involved?
  - ✓ Are they authorised to stop work if hazardous conditions develop and are they familiar with the emergency response plans?
- Is adequate spill response equipment available at the work location?
  - ✓ Suggested items include but not restricted to:
    - High-volume wet vacuums with discharge hoses.
    - Portable sump pumps.
    - Heavy duty absorbent brooms and/or rubber squeegees.
    - Sandbags.
    - Plastic sheeting.
    - Pipe clamps.
    - Dehumidifiers.
    - Appropriate personal protective equipment (PPE).
    - Safety/warning signage, hazard tape, etc.
- Is there an emergency response plan in place in relation to liquid releases or leaks?
  - ✓ Does this address the specific wet systems and works to be undertaken?
  - ✓ Does it clearly detail what actions should be taken and by whom?
  - ✓ Are the individuals involved in this work adequately trained and familiar with the emergency response procedures?
  - ✓ Does the plan involve a number of individuals to cover holiday/sickness?

During the Work

The Wet work watch must:

- Ensure all areas are visually observed and inspected with no signs of leaking or damage.
  - ✓ Across a large building or multiple floors this may require more than one wet work watch.
- Remain on continuous watch throughout the work (including covering any breaks taken).
- Ensure that the works are progressing as planned.
- Identify leaks or signs of potential leaks.
- Respond if a leak/suspected leak occurs, e.g., isolate water, utilise spill kits, follow the emergency response plan.
- Stop the works if they are concerned with the exposure created or if there are any issues identified.

Completion of the Work

- Check that no leaks are present.
  - ✓ Where possible any drained systems should be pneumatically pressure tested for leaks, system integrity and joint quality, prior to reintroduction of the water/fluid. Ideally the test air pressure should be held at the maximum expected pressure in the operating system for at least 2 hours. Any air leaks found should be rectified and the test repeated prior to any water/fluid being introduced.
- Reinstate any systems that might have been isolated as part of the work.
  - ✓ This should include any gas, fire, explosion or security detection or protection equipment.
- Ensure the wet work watch has been appropriately managed.
  - ✓ The watch must be in place continuously for a minimum of 1 hour after the work has been completed.
  - ✓ Following this, intermittent checks every 20 minutes for up to three hours should be considered, based on a risk assessment and the exposures presented.
- If the work is taking place over multiple shifts or days, check that nothing is leaking at the end of each shift/day and close off the permit to work.
  - ✓ Ensure the wet system remains in a safe state before leaving at the end of the shift or day.
  - ✓ Precautions may be necessary to prevent any overnight workers, such as cleaners, or the next shift from accessing the work area along with appropriate warning signage.
- Where wet systems remain live/charged during wet works, consider whether additional safety measures should be introduced, such as:
  - ✓ Pressure monitoring and pressure gauges.
  - ✓ Thermographic imagery.
- When all stakeholders are satisfied the work has been completed satisfactorily, and all systems fully reinstated, ensure the permit to work is closed, signed and dated
- If there are any concerns around the quality of the work, the materials or fittings being used and/or the system, then additional physical presence across all potentially affected areas should be provided until the exposure is resolved.
  - ✓ The building should not be left unattended if there is a concern a leak may occur.
- Use a thermal imaging camera on the wet system to ensure the fluid within is distributed as expected and/or there are no hidden leaks.

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.

- Leak detection and prevention - **Leaksafe**
- Leak detection and prevention - **Quensus**
- Thermal Imaging Cameras and PAT Testing Equipment - **Pass**

For more information please visit: Aviva Risk Management Solutions – Specialist Partners

Sources and Useful Links

- Risk Management Guides | Aviva Risk Management Solutions - Aviva Risk Management Solutions
- Insurer Requirements for Enhanced Escape of Water Protection Based on Approved Document G of the UK Buildings Regulations

Note: Whilst UK standards and legislation are referenced in this document, other international standards and legislation should be referenced where applicable.

Additional Information

Relevant Aviva Loss Prevention Standards include:

- **Escape of Water and Other Fluids**
- **Escape of Water - 10 Top Tips**
- **Escape of Water - Installation and Maintenance**
- **Escape of Water on Construction Sites**
- **Escape of Water - Responding to Incidents**

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.*

*The cost of calls to 03 prefixed numbers are charged at national call rates (charges may vary dependent on your network provider) and are usually included in inclusive minute plans from landlines and mobiles. For our joint protection telephone calls may be recorded and/or monitored.

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