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1. Purpose

This procedure establishes the requirements for planning, assessing, authorising, controlling and undertaking hot work safely.

The procedure aims to prevent fire, explosion and injury arising from hot work activities by ensuring:

- appropriate planning and coordination of work activities
- identification and assessment of hazards and risks
- implementation of control measures
- application of Hot Work Permits where required
- effective supervision, monitoring and completion of hot work activities.

2. Scope

This procedure applies to all:

- team members and contractors undertaking, supervising or managing hot work activities
- hot work activities including welding, thermal cutting, oxy-fuel cutting, grinding, heating and any other activity that generates heat, flame or sparks capable of igniting surrounding materials
- workplaces and locations under Unitywater's management or control where hot work is undertaken.

Out of scope:

- Principal Contractors appointed under the [Work Health and Safety Regulation 2011](#), and their subcontractors, where hot work is undertaken within a defined work area under the Principal Contractor's control. In these cases, hot work must be managed under the Principal Contractor's safety management system.

3. Roles and responsibilities

Position title	Responsible for
Head of Health, Safety, Environment and Quality	As Document Owner responsible for: - Conducting and/or delegating regular reviews to ensure this document and related resources (e.g. forms, website) remain fit for purpose, consistent and current. - Approving this document for publication. - Ensuring all relevant stakeholders and team members have been consulted and feedback is captured and actioned (where applicable). - Ensuring appropriate communication or training is provided to relevant team members when implementing new, amended or obsolete document (if applicable). - Monitoring compliance with internal/external requirements (e.g. monitor legislation changes and assess/update this document when required).
Executive Manager	Executive Managers are responsible for ensuring that: - Hot work undertaken during AFDRS Catastrophic conditions is authorised in accordance with this procedure. - Hot work undertaken during a State of Fire Emergency is authorised in accordance with this procedure. - Adequate resources are available to enable compliance with this procedure. - Appropriate assurance activities are implemented to monitor compliance with this procedure.
Branch Manager	Branch Managers are responsible for ensuring that: - Team members undertaking hot work are trained and competent in accordance with this procedure. - Designated Hot Work Areas are approved following completion of an appropriate risk assessment. - Hot work undertaken during AFDRS Extreme conditions and Local Fire Ban conditions is authorised where required by this procedure. - Compliance with this procedure is monitored through audits, inspections and reviews.
Team Leader	Team Leaders are responsible for ensuring that: - Hot work activities are planned and coordinated in accordance with this procedure. - A Person in Control of the Work (PICOW) is appointed where required. - Competent personnel are assigned to undertake hot work activities. - Required permits, approvals, isolations and risk assessments have been completed before work commences. - Appropriate equipment, PPE and resources are available to undertake hot work safely.

Position title	Responsible for
Person in Control of the Work (PICOW)	The Person in Control of the Work (PICOW) is responsible for ensuring that: - Hot work activities are planned, coordinated and undertaken in accordance with this procedure. - Hot Work Permits are obtained and valid prior to commencement of hot work where required. - Required permits, approvals, isolations and risk assessments remain in place before and during the work. - Atmospheric monitoring is undertaken where required. - A fire watch is appointed and maintained where required. - Appropriate control measures are implemented and maintained throughout the work. - Emergency arrangements appropriate to the work location are confirmed before hot work commences. - Interface risks with other work activities are identified and managed. - Hot work is suspended where controls are not in place, conditions change, or work can no longer be undertaken safely. - Hot work is completed safely, and the work area is left in a safe condition. - Incidents, near misses and permit deviations are reported in accordance with Pr8202 – Incident Reporting and Notification Procedure.
Fire Watch	The Fire Watch is responsible for ensuring that: - A dedicated fire watch is maintained during hot work and for the nominated post-work fire watch period for signs of fire, heat or smouldering materials. - Suitable fire-fighting equipment remains immediately available throughout the hot work activity and fire watch period. - The alarm is raised, and assistance is summoned immediately where a fire or other emergency occurs. - The PICOW is immediately notified if unsafe conditions are identified or the fire watch period needs to be extended.
Team members & Contractors	Team members and contractors are responsible for ensuring that: - They comply with this procedure the Hot Work Permit and any associated permits applicable to the task. - All identified control measures are implemented and maintained. - Equipment and PPE are used correctly, and any defects are reported before use. - Hazards, changing conditions, incidents, near misses and permit deviations are immediately reported. - Hot work is stopped where conditions become unsafe or required control measures can no longer be maintained. - Good housekeeping is maintained within the work area throughout the hot work activities - Advise the Document Owner if this document is not consistent with current practices. - Where possible, minimise printing and avoid creating duplicate copies of this document. Ensure current versions are sourced from the Document Centre.

4. Planning the work

Hot work must be fully planned before work commences. Planning ensures hazards are identified, controls are implemented, and work can be completed safely.

Planning is a pre-work decision stage only and does not authorise the work to proceed.

The Person in Control of the Work (PICOW) must ensure the following have been considered and confirmed during planning:

- the work scope and hot work activity type (e.g. welding, cutting, grinding, ignition sources) has been defined
- the work area has been coordinated with affected persons and operational areas
- the work area and surrounding environment have been inspected at a planning level
- interface risks with other work activities have been identified
- flammable materials, gases, vapours, dusts and other fire loads have been identified
- confined, enclosed or restricted areas have been identified
- environmental conditions (including wind and external ignition risk) have been considered
- suitable exclusion zones can be established during execution
- emergency response requirements relevant to the location have been identified
- required permits, isolations and authorisations have been identified.

Hot work must not commence until Section 5 Hot Work Permit requirements have been satisfied and Section 6 Hot work controls are in place.

4.1 Coordination of work activities

Hot work must be coordinated with other work activities in the area to prevent simultaneous operations risk.

The PICOW must ensure the following are identified and coordinated during planning:

- other work groups and stakeholders who may be affected by the hot work
- conflicting activities that may introduce ignition sources or flammable exposure risks
- plant, process or operational activities that may influence atmospheric or fire risk conditions
- work sequencing and timing considerations to prevent overlap of high-risk activities
- requirements for communication and coordination with affected personnel prior to commencement.

Where conflicts are identified, they must be escalated and resolved prior to hot work commencing.

4.2 Hazard identification and risk assessment

An On-the-Job risk assessment must be completed prior to hot work commencing in accordance with [Pr9306](#) – Risk Management Procedure.

The purpose of the On-the-Job risk assessment is to identify hazards associated with the planned hot work activity and determine the required controls to be implemented prior to work commencing (refer 6 Hot work controls).

Hazard identification must consider:

- potential ignition sources associated with the task (e.g. sparks, flame, heat, grinding debris)
- presence of flammable or combustible materials, gases, vapours and dusts
- potential for oxygen-enriched or oxygen-deficient atmospheres
- confined, enclosed or partially enclosed spaces
- structural fire load and combustibles within and adjacent to the work area
- electrical hazards and energy sources
- interaction with nearby operations and public interface risks.

5. Hot Work Permit requirements

Hot work must not commence unless the requirements of this section are satisfied.

A Hot Work Permit is required prior to commencement of hot work unless the work is undertaken within a designated hot work area (refer Section 5.5 Designated hot work areas).

Hot work permits are issued and managed through Beakon in accordance with [Pr8996](#) – Permit to Work Procedure.

Hot Work Permits:

- are valid only for the specified work, location and duration
- are not transferable or reuseable
- must be in place prior to commencement of work.

All hot work requiring a permit must have an On-the-Job risk assessment completed in accordance with [Pr9306](#)– Risk Management Procedure. The risk assessment supports permit issue and must be completed prior to work commencing.

Where hot work is undertaken in conjunction with confined space entry or work at height, additional permits may be required.

5.1 When a Hot Work Permit is required

A Hot Work Permit is required for any:

- work involving a naked flame
- work involving an ignition source in the following areas:
 - hazardous areas listed in 6.2 Hazardous areas
 - gas Type Authorisation Areas
 - biogas Hazardous Areas
 - within 10 metres of where flammable gases or vapours may be present

Examples of hot work include welding, thermal cutting, oxy-fuel cutting, flame cutting, brazing, soldering, grinding, heating and any other activity that produces uncontained flames, heat, sparks or other ignition sources capable of igniting surrounding materials.

5.2 Exemptions

The following activities do not require a Hot Work Permit:

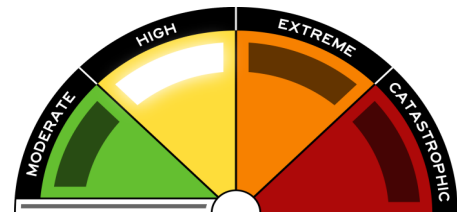
- work undertaken within a designated hot work area
- use of Bunsen burners in laboratory environments
- use of gas BBQs (fire danger and fire ban conditions must still be assessed prior to use)
- water sampling involving flaming of a sample tap, where the surrounding area has been adequately cleared to reduce fire risk.

Flaming of sample taps is not permitted during fire ban periods. Where fire ban conditions apply, an alternative disinfection method must be used.

5.3 Fire danger ratings (AFDRS)

Hot work must consider the [Australian Fire Danger Rating System \(AFDRS\)](#).

Hot work must not proceed where restrictions apply unless required authorisation has been obtained.



Approval requirements are defined in Table 1. All approvals must be recorded on the Hot Work Permit.

The applicable AFDRS rating for the work location must be verified prior to commencement of hot work using the [Monitor Fire Danger Ratings](#) page of the Queensland Fire Department (QFD) website.

Table 1 – Hot Work Authority for AFDRS

Rating	Description	Unitywater Hot Work Authoriser
Catastrophic	• Extreme fire conditions where fires are likely to be uncontrollable. • Hot work must not be undertaken in these conditions unless specific executive authorisation has been obtained in writing and attached to the Hot Work Permit.	Executive Manager (EM) <i>The EM may also advise the CEO of the work required and the risk prior to authorisation.</i>
Extreme	• Severe fire conditions with high potential for rapid fire spread. • Hot work requires Branch Manager approval.	Branch Manager
High	• Elevated fire risk conditions. • Hot work may proceed in accordance with site requirements.	Not applicable
Moderate	• Normal operating conditions. • Hot work may proceed in accordance with this procedure.	Not applicable

5.4 Fire bans and authorisations

Hot work must not be undertaken during a declared fire ban unless authorisation has been obtained.

Fire bans are declared by Queensland Fire Department (QFD) and may include Local Fire Bans or State Fire Emergency conditions. You can check them on the QFD [Fire bans and restrictions page](#).

If unsure whether a fire ban is in place, confirm via the Fire Ban Hotline (1800 020 440).

When a fire ban is in place:

- additional restrictions may apply to hot work activities
- authorisation must be obtained prior to commencement
- approvals must be recorded on the Hot Work Permit and supported with written evidence.

Authorisation must be obtained from:

- Branch Manager (or delegate) for Local Fire Bans
- Executive Manager (or delegate) for State Fire Emergency conditions.

5.5 Designated hot work areas

A designated hot work area is a formally assessed area where hot work may be undertaken without a Hot Work Permit.

At Unitywater, designated hot work areas include approved workshop areas such as the Northern Service Centre workshop.

Designated hot work areas must have:

- fire suppression equipment available and accessible
- no flammable liquids or combustible materials stored
- non-combustible fixtures and surfaces
- physical barriers or screens where required
- clear signage identifying the area as a designated hot work area
- safe access and egress maintained at all times.

Designated hot work areas must be:

- approved by the relevant Branch Manager
- supported by a general risk assessment in accordance with [Pr9306](#)– Risk Management Procedure
- reviewed periodically to ensure controls remain effective.

6. Hot work controls

6.1 Elimination of hot work

Where reasonably practical, alternatives to hot work must be considered to eliminate the need for activities involving heat, flames or ignition sources.

Examples of alternative methods include:

- mechanical fixings or chemical bonding instead of welding
- threaded fittings instead of soldering
- cold cutting methods instead of thermal cutting processes.

Where elimination is not reasonably practicable, hot work must be undertaken in accordance with this procedure, including obtaining a Hot Work Permit where required (refer Section 5 Hot Work Permit requirements).

6.2 Hazardous areas

A hazardous area is a location where a flammable atmosphere is, or may be, present.

Examples of hazardous areas include:

- confined spaces
- flammable liquid and gas storage tanks and associated equipment (including vents, fill points, dip points, and pressure relief devices)
- fuel and gas dispensing areas
- storage areas for flammable liquids and gases
- laboratories and fume cupboards where flammable substances are used or stored
- paint spraying and coating areas
- enclosed areas where flammable sealants or adhesives are used
- areas where combustible dust may be generated
- containers, tanks, drums, or pipelines that have not been fully decontaminated.

Where hot work is undertaken within a hazardous area, additional controls must be implemented based on the risk assessment.

6.3 Atmospheric monitoring

Atmospheric monitoring must be undertaken where there is a risk of flammable gases, vapours, combustible dusts, or oxygen-deficient or oxygen-enriched atmospheres.

Atmospheric monitoring must:

- be undertaken prior to commencement of hot work
- confirm atmospheric conditions are within acceptable limits before work begins
- continue where conditions may change during the work
- be undertaken by a competent person using suitable calibrated monitoring equipment
- include monitoring for flammable gases or vapours, oxygen concentration and toxic atmospheres where identified by the risk assessment.

Hot work must not commence or continue where atmospheric monitoring identifies unsafe conditions.

Portable gas detection equipment must be used in accordance with [Pr11416](#) – Portable Gas Detection Procedure.

6.4 General control measures

Control measures must be selected based on the hazards identified during the risk assessment and implemented before hot work commences. Multiple controls may be required depending on the work activity, work environment and identified risks.

6.4.1 Area preparation

The work area must be prepared to minimise the risk of fire, explosion or damage before hot work commences.

Where applicable:

- combustible materials must be removed where reasonably practicable or protected where they cannot be removed
- adjacent structures, plant, equipment and surfaces exposed to sparks, slag or radiant heat must be protected
- drains, pits and other openings that may allow the spread of fire or flammable vapours must be isolated, sealed or otherwise protected.
- suitable screens, blankets or other protective materials must be used where required to contain sparks or hot material
- environmental conditions, including wind strength and direction, must be assessed prior to commencement of hot work. Hot work must not proceed where conditions may cause sparks, slag or hot material to spread beyond the controlled work area.
- potential hazardous materials (including asbestos-containing materials, legacy coatings or contaminated residues) must be identified during planning and managed in accordance with [Pr9679](#) – Asbestos Management Procedure and [Pr8181](#) – Hazardous Chemicals Safety Management Manual.

6.4.2 Isolation

Plant, equipment and energy sources that may introduce a fire, explosion or other safety risk must be isolated where required by the risk assessment.

Isolation activities must be undertaken in accordance with [Pr8182](#) – Isolation – Lock Out Tag Out (LOTO) Procedure.

Where applicable, this includes isolating:

- electrical, mechanical or process energy sources
- fire detection systems
- tanks, vessels, valves, vents and pipelines
- plant or process equipment that may introduce flammable atmospheres or hazardous conditions.

Fire detection systems must be reinstated as soon as reasonably practicable following completion of the work.

6.4.3 Barriers and exclusion zones

Barriers and exclusion zones must be established where required to prevent unauthorised access and protect persons from hot work hazards.

Barriers and exclusion zones must be established in accordance with [Pr11417](#) – Barricading Requirements Guide.

Where applicable:

- suitable warning signage must be installed
- emergency access and egress routes must remain unobstructed
- exclusion zones must be maintained for the duration of the work.

6.4.4 Ventilation

Adequate ventilation must be provided where required to control fumes, gases, vapours or airborne contaminants generated during hot work.

Ventilation systems must not introduce additional fire or explosion hazards.

6.4.5 Plant and equipment

Plant and equipment used for hot work must be suitable for the task, maintained in a safe condition and used in accordance with the manufacturer's instructions.

Where applicable:

- electrical equipment must be tested and within inspection requirements
- grinder discs must be suitable for the equipment and free from defects
- required guards and safety devices must be fitted and functional
- flashback arrestors must be fitted to gas equipment and maintained in accordance with manufacturer requirements
- gas cylinders (including LPG and process gas cylinders) must be secured, positioned to minimise exposure to heat and ignition sources and used in accordance with manufacturer requirements.

6.4.6 Personal protective equipment (PPE)

Personnel undertaking hot work must use PPE appropriate to the task and identified by the risk assessment.

PPE must be selected, used, maintained and inspected in accordance with [Pr8185](#) – Personal Protective Equipment – PPE – Procedure.

6.4.7 Housekeeping

The work area must be maintained in a clean and orderly condition before, during and after hot work.

Where applicable:

- combustible waste must be removed regularly
- combustible materials that cannot be removed must remain protected
- gas cylinders, hoses and equipment must be positioned to minimise damage and trip hazards

- access to firefighting equipment, emergency exits, and escape routes must be maintained.

6.5 Fire protection systems

Where reasonably practicable, fixed fire protection systems must remain operational while hot work is undertaken.

Where fire protection systems are isolated:

- the isolation must be authorised in accordance with applicable procedures
- alternative fire protection measures must be implemented before hot work commences
- fire protection systems must be reinstated as soon as reasonably practicable following completion of the work.

6.6 Firefighting equipment

Suitable firefighting equipment must be provided prior to the commencement of hot work.

The type and quantity of equipment must be appropriate for the work activity, work environment and identified fire risks, including the class of fire that may occur.

Firefighting equipment must be:

- maintained in a serviceable condition
- readily accessible for the duration of the hot work activity
- available for immediate use in the event of an emergency.

7. Work execution and monitoring

Hot work must be undertaken in accordance with the Hot Work Permit, including all specified conditions, controls and timeframes.

7.1 Fire Watch

A Fire Watch must be appointed for all hot work undertaken outside a Designated Hot Work Area and must be dedicated to Fire Watch duties for the duration of the hot work and the post-work Fire Watch period.

The Fire Watch must:

- monitor the work area during hot work activities
- remain in place during hot work and for at least 30 minutes after the hot work is completed, unless a longer period is identified by the permit or risk assessment
- inspect the work area and surrounding areas for signs of fire, heat or smouldering materials
- have immediate access to suitable firefighting equipment
- have a reliable means of communication to raise the alarm and summon assistance if required
- notify the PICOW if the fire watch period needs to be extended.

Where hot work is undertaken within a confined space, the requirements of [Pr8174](#) – Confined Space Procedure must also be complied with.

The Confined Space Standby Person must not also perform the Fire Watch role where this would affect their ability to carry out either role safely.

7.2 Stop work

Hot work must be stopped immediately where any of the following occurs:

- permit conditions are no longer met
- a change in conditions introduces a new or uncontrolled risk
- atmospheric monitoring identifies unsafe conditions
- fire protection systems become unavailable or impaired
- fire, smoke, smouldering material or any other unsafe condition is identified.

Where hot work is stopped due to an unsafe condition, the area must be made safe and controlled before work may recommence.

If a fire occurs that cannot be immediately and safely extinguished, all personnel involved in the hot work must:

- stop work
- raise the alarm
- evacuate the area where required
- respond in accordance with site emergency procedures.

Hot work must not recommence until:

- hazards have been reassessed
- appropriate controls have been implemented
- it is safe to resume work
- required permits and approvals remain valid or have been updated where necessary.

Hot work may only recommence with approval from the PICOW.

8. Completion of hot work

Hot work must be completed in accordance with the Hot Work Permit and all specified conditions.

On completion of hot work, the PICOW must ensure:

- all equipment has been made safe
- energy sources have been isolated and/or returned to a safe state where required
- the work area has been inspected and left in a safe condition
- combustible materials, waste and temporary controls have been removed or made safe
- any isolated fire protection systems have been reinstated

- any incidents, near misses or permit deviations are reported in accordance with [Pr8202](#) – Incident Reporting and Notification Procedure.

The Hot Work Permit must not be closed until:

- the nominated fire watch period (minimum 30 minutes, unless otherwise specified on the permit) has been completed
- the work area has been inspected and confirmed free from fire, smouldering materials, or other hazards
- any permit conditions have been satisfied.

9. Training

Personnel involved in hot work must be competent to perform their allocated tasks.

Competency must be appropriate to the nature of the work being undertaken and may include:

- safe use of hot work equipment relevant to the task
- selection, use and maintenance of appropriate PPE
- use of fire-fighting equipment appropriate to the task
- awareness of hazards associated with working in hazardous environments, including confined spaces and hazardous areas
- completion of any required licences, qualifications, or certifications relevant to the work being undertaken.

Where SDS access is required, personnel must be able to access and interpret Safety Data Sheets via Chemwatch GoldFFX in accordance with [Pr8015](#) – Chemwatch (GoldFFX) User Guide.

10. Recordkeeping

The table below identifies the types of records relating to this documented process and their storage location:

Table 1: Recordkeeping

Type of record	Storage location
Hot Work Permits	Beakon
Hot Work Risk Assessments	Beakon
Fire Ban Authorisations	Attached to the relevant Hot Work Permit in Beakon

11. Definitions

Table 2: Definitions, abbreviations and acronyms

Term	Meaning
AFDRS	Australian Fire Danger Rating System.
Atmospheric monitoring	Testing of the atmosphere using suitable gas detection equipment to identify flammable gases, vapours, toxic atmospheres, or unsafe oxygen levels.
Competent person	A person who has acquired the knowledge, skills and experience necessary to perform the task safely and in accordance with applicable legislation and procedures.
Designated hot work area	A controlled area that has been formally assessed and approved for hot work to be undertaken without a Hot Work Permit.
Exclusion zone	A clearly defined area established to control access and protect persons from hazards associated with hot work activities.
Fire ban	A declared fire prohibition or restriction issued by the relevant authority.
Fire protection system	A fixed or installed system designed to detect, control or suppress fire, including fire detection, alarms, sprinklers and hydrant systems.
Fire watch	A competent person specifically appointed to monitor the work area for signs of fire during hot work and for the nominated post-work monitoring period. The fire watch must be dedicated to this task when required.
Hazardous area	An area where an explosive atmosphere may be present due to flammable gases, vapours, mists or combustible dusts.
Hot work	Any process involving grinding, welding, thermal or oxygen cutting, heating, or any other activity that generates heat, flame or sparks that could ignite surrounding materials.
Hot Work Permit	Written authorisation that specifies the conditions and controls required to undertake hot work safely outside a Designated Hot Work Area.
Isolation	The process of removing or controlling energy sources to prevent unintended release in accordance with Pr8182
On-the-job risk assessment	A documented risk assessment completed at the work location prior to commencement of hot work, in accordance with Pr9306 – Risk Management Procedure.
PICOW Person in control of the work	The person responsible for planning, coordinating and controlling the work activity to ensure it is carried out safely and in accordance with applicable procedures and permit requirements.

12. References and resources

Table 3: References and resources

Source	Reference
External	Work Health and Safety Regulation 2011
	Australian Fire Danger Rating System (AFDRS)
	QFD Monitor Fire Danger Warnings
	QFD Fire bans and restrictions page
Internal	Pr8015 – Chemwatch (GoldFFX) User Guide
	Pr8174 – Confined Space Procedure
	Pr8181 – Hazardous Chemicals Safety Management Manual
	Pr8182 – Isolation – Lock Out Tag Out (LOTO) Procedure
	Pr8185 – Personal Protective Equipment – PPE – Procedure
	Pr8202 – Incident Reporting and Notification Procedure
	Pr8996 – Permit to Work Procedure
	Pr9306 – Risk Management Procedure
	Pr9679 – Asbestos Management Procedure
	Pr11416 – Portable Gas Detection Procedure
	Pr11417 – Barricading Requirements Guide