

Procedure

Work Health and Safety

Management of Hot Work

Document number: PRO-00009

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		Position	Name	Signature	Position	Name	Date	Signature
5	APPROVED	Manager, WHS	Joe Meissner	See Trim Ref D14/69894	CEO	Peter Dennis	23/1/2015	See Trim Ref D14/8990

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1. Purpose

Seqwater is committed to the health and safety of all people at the workplace. The purpose of this procedure is to provide instruction and information to manage risks associated with hot work.

This procedure supports the requirements described in Element 9 – Operational control of Seqwater’s WHS Management System (WHSMS) Framework.

This procedure adopts and is consistent with the requirements outlined in:

- AS 1674.1: Safety in welding and allied processes – Fire precautions
- AS 1940: The storage and handling of flammable and combustible liquids
- AS/NZS 2865: Safe working in confined space
- Confined Spaces Code of Practice 2011
- Welding Processes Code of Practice 2013
- WHS Hazard Identification and Risk Management Procedure ([PRO-00657](#)).

2. Scope

This procedure applies to all Seqwater workers, business groups and work activities.

3. Roles and responsibilities

Role	Responsibilities
Manager	<ul style="list-style-type: none"> • Approve designated hot work areas. • Liaise with appropriate authorities to determine if hot work can be conducted during a fire ban in emergency situations.
Line Supervisors	<ul style="list-style-type: none"> • Approve hot work when fire danger rating index is equal to very high or above. • Ensure workers and contractors are aware of this procedure. • Check that workers and contractors are complying with this procedure via routine inspections. • Identify permit recipients and assess their competency for hot work.
Permit Recipient	<ul style="list-style-type: none"> • Complete relevant sections of the hot work permit. • Check if any fire bans are in place to determine if manager approval is required to undertake hot work. • Check the fire danger rating index to determine if line supervisor approval is required to undertake hot work. • Select, document and implement appropriate risk controls prior to commencing hot work. • Ensure all workers undertaking the task have read and understand the conditions of the hot work permit (and any associated JSEA or RTHA).

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Role	Responsibilities
	<ul style="list-style-type: none"> Ensure that hot work has been completed in accordance with the requirements of the hot work permit and that the work area and equipment has been left in a safe condition. Ensure appropriate risk controls are selected, documented and implemented for post hot work monitoring.
Second Checker	<ul style="list-style-type: none"> Verify that the risk control measures defined in section 2 of the hot work permit are implemented prior to commencing hot work. Verify that the post hot work risk control measures are appropriate for the work being undertaken. Complete section 3 of the hot work permit.
Worker	<ul style="list-style-type: none"> Comply with the requirements of the hot work procedure. Comply with the requirements of any hot work permits and the JSEA / RTHA associated with the activity.

4. Procedure

4.1 Management of hot work

Hot work is a term used to describe heat and spark producing processes such as welding, flame cutting and grinding. The specific workplace hazards associated with hot work are:

- heat, open flames or flying sparks that are able to ignite any flammable materials, gases or vapours
- the hot work activity producing toxic fumes and gases
- the hot work activity leading to physical burns.

The management of the risks associated with performing hot work are a critical element in maintaining a safe workplace.

4.2 Identification of hot work

Hot work is defined as any process involving grinding, welding, thermal or oxygen cutting or heating, and other related heat-producing or spark-producing operations.

For the purpose of this procedure the use of bunsen burners in a laboratory environment or the use of a gas BBQ is not considered hot work.

The hot work flowchart included in Appendix A of this procedure outlines the process to be followed in assessing and undertaking hot work.

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4.3 Eliminating the need for a hot work permit

Due to the elevated level of risk associated with performing hot work in an uncontrolled environment, alternate work methods should be considered to eliminate the requirement for a hot work permit.

The following are examples of alternate work methods that should be considered, where practical, to avoid the need for a hot work permit:

- removal of equipment to a designated hot work zone
- mechanical fixings / chemical bonding of materials in lieu of welding
- threaded pipe fittings in lieu of soldering
- cold metal cutting equipment.

Should an alternate work method not be practical, and the work cannot be undertaken in a designated hot work zone, a hot work permit is required.

4.4 Worker competencies for hot work activities

Workers participating in hot work activities must be competent in:

- the proper use, wearing, storage and maintenance of Personal Protective Equipment (PPE)
- the proper use of fire suppression equipment
- how to work safely in hazardous environments, such as confined spaces
- first aid procedures
- how to access and interpret Safety Data Sheets (SDS) for hazardous chemicals

In addition, the following competences apply to specific hot work tasks:

- welders must hold the welding qualification commensurate with the welding task being performed
- grinders, thermal or oxygen cutting or heating equipment, or other related heat-producing or spark-producing equipment must only be operated by workers who are experienced and competent in using the equipment

4.5 Completing a hot work permit

The hot work flowchart included in Appendix A of this procedure defines the process to be followed to complete a hot work permit.

The hot work permit is divided into four (4) sections:

- details of hot work
- risk controls to be implemented
- verification of risk controls
- completion of work

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4.5.1 Section 1 - Details of hot work

The permit recipient is responsible for documenting the specific details of the hot work to be undertaken. This includes information on the:

- site and exact location of where the work is to be completed
- work order number the work is related to
- type of hot work to be completed
- date and time of when the hot work is to be completed
- permit recipient details

The permit recipient must check that there are no fire bans in place and document the outcome on the hot work permit. This can be done by calling the Fire Ban Hotline on 1800 020 440. If a fire ban is in place the permit recipient must notify their manager to determine whether the work can proceed. If approval for the hot work is given, the permit recipient must document on the hot work permit, who approved the work to proceed, and when approval was given.

The permit recipient must also check the fire danger rating and document the rating on the hot work permit. Fire danger ratings can be checked at <https://ruralfire.qld.gov.au/FDRG.html>. If the rating is listed as very high or above, the permit recipient must notify their line supervisor to determine whether the work can proceed. If approval is given, the permit recipient must document on the hot work permit who approved the hot work to proceed, and when approval was given.

4.5.2 Section 2 - Risk controls to be implemented

Pre hot work risk controls

The permit recipient is responsible for specifying the risk controls that will be implemented to minimise risks associated with the hot work. The following compulsory risk controls must be implemented for all hot work:

- hot work permit is to be displayed adjacent to the area where work is being conducted
- remove all flammable liquids/substances within the hot work area
- remove, cover, shield or wet all combustible materials, including vegetation, within the hot work area
- maintain a fire watch for the duration of the hot work and for a minimum of 30 minutes after the cessation of the hot work
- cover drains and other openings in the hot work area for the duration of the hot work
- provide at least one form of fire suppression equipment e.g. water hose and supply, fire blanket, fire extinguisher, fire sprinklers (a combination of suppression systems is preferred for hot work)

Additional risk controls must be implemented for the hot work based on the environmental hazards identified in the JSEA developed for the task. These environmental risk controls must also be documented on the hot work permit.

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Potential environmental hazards may include:

- fumes e.g. generated from galvanised pipes or coatings
- welding flash
- grinding
- chemicals
- noise
- fire and/or explosion
- electrical

Post hot work risk controls

The permit recipient must identify the specific risk controls that will be implemented after the hot work has been completed. These details must be recorded on the hot work permit.

Communication of risk controls

The permit recipient is responsible for communicating the risk controls to be implemented to the work team, ensuring they understand the details of the hot work and they understand their roles in implementing the required risk controls.

4.5.3 Section 3 - Verification of risk controls

After the permit recipient has completed section 2 of the hot work permit, the proposed risk controls will be verified by a second checker. The second checker cannot be the permit recipient. The second checker must ensure that the proposed risk controls have been implemented and are appropriate for the hot work to be undertaken.

The second checker will complete section 3 of the permit, which includes:

- name
- position
- date / time
- contact number.

By completing and signing section 3 of the hot work permit, the second checker has activated the permit and the hot work can commence.

4.5.4 Section 4 - Completion of work

The permit recipient is responsible for ensuring that the hot work has been completed in accordance with the hot work permit and that the work area and equipment have been left in a safe condition.

The permit recipient must not sign section 4 until they are satisfied that the nominated fire watch period (minimum 30 minutes unless otherwise stated on the hot work permit) has been completed and does not need to be extended or amended.

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4.6 Duration of hot work permit

A hot work permit is valid for a period of 12 hours from when it is first activated (signed by the second checker). A permit may not be extended past this timeframe.

A new hot work permit and a review of the associated JSEA are required for each 12 hours of work.

4.7 Designated hot work zone

A designated hot work zone may be established and authorised at a site by the relevant manager. A hot work permit is not required to undertake hot work in a designated hot work zone.

In order for an area to be designated a hot work zone, a risk assessment must be conducted and the outcomes of the risk assessment documented and retained in TRIM to confirm a hot work zone has been designated. All designated hot work zones are recorded on the Designated Hot Work Zone Register.

In order for an area to be designated a hot work zone, the following risk control measures must be implemented:

- Fire suppression equipment must be available i.e. water hose and supply, fire blanket, appropriate fire extinguishers or sprinklers.
- Fit for purpose furnishings e.g. no wooden / flammable furniture.
- Appropriate screens/barriers in place.
- No flammable liquids or substances stored within the hot work area.
- No combustible materials stored within the hot work area.
- No open drains or other openings within the hot work area.
- Signage that indicates the area is a designated hot work zone.
- Safe access and egress from the designated hot work zone.

Additional control measures, including ducted ventilation may be implemented depending on the outcome of the risk assessment.

4.8 Hot work in hazardous areas

A hazardous area is an area in which a flammable atmosphere is, or may be expected to be present. Hot work in hazardous areas requires special precautions to be implemented before it can be undertaken.

Examples of hazardous areas that may be encountered at Seqwater sites include:

- confined spaces
- flammable liquid and gas storage tanks and associated equipment (e.g. release points such as vents, fill points, dip points, safety relief devices)
- flammable liquid and gas dispensing equipment (e.g. vehicle filling stations, depots, LP gas filling stations)
- storage areas for flammable liquids in packages (e.g. oil store, store rooms, workshops)
- storage areas for flammable gases in cylinders

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- fume cupboards used for flammable liquids and gases
- laboratory areas where flammable liquids are used and stored
- painting booths used for flammable paints and lacquers
- application of flammable sealants and adhesives in enclosed areas
- areas around activities generating fine dusts of combustible material (lime, polymers, dry organic residues)
- containers such as drums, tanks and pipes that have not been properly decontaminated.

Before undertaking hot work in a hazardous area, a JSEA must be developed to specify how the work will be undertaken and the risk controls that will be implemented.

The JSEA must be developed in conjunction with the relevant operational procedure for the hazardous area, for example the Confined Space Management Procedure ([PRO-00443](#)) to ensure all hazards are assessed and appropriate risk controls implemented.

Examples of risk control measures to be implemented when undertaking hot work in hazardous areas are:

- controlling emissions of flammable vapours, gases and mists
- using ventilation systems to control vapours during both normal and abnormal conditions (e.g. leak or spill)
- installing systems to detect leaks of flammable gases or vapours and enable response actions to be taken
- purging all traces of flammable or combustible materials from drums, vessels and tanks which are to be cut/welded prior to cutting/welding, and preferably fill with an inert substance such as nitrogen gas or water
- reducing quantities of flammable and combustible materials, including items that contribute to the fire load but that are not hazardous chemicals themselves (e.g. wooden pallets, oil)
- ensuring equipment used in handling flammable hazardous chemicals is maintained in accordance with manufacturer's instructions
- checking work area is free from rubbish, paper or dust that could be potential fuel sources or produce dust explosions.

4.9 Planned burns

The contents of this procedure do not apply to planned burns. Planned burns must be conducted in accordance with the fire management plan for the relevant built or natural asset. The Principal Fire Management Officer, Operations, Catchments and Raw Water should be consulted in relation to any planned burns.

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4.10 Water sampling

Undertaking water sampling, in which the sample tap is flamed, does not require a hot work permit, provided the sample point is surrounded by an adequately cleared area to minimise fire risks. As a minimum, a JSEA must be completed prior to conducting the sampling activity.

Flaming of taps during fire ban periods is not permitted and an alternate method of disinfection must be used.

5. Training requirements

Training will be provided in accordance with the WHS Training, Competency & Behavioural Management Procedure ([PRO-01574](#)).

WHS training requirements will be recorded for identified roles in the WHS Training Needs Analysis.

6. Monitoring and auditing

Inspections of designated hot work zones will be undertaken at regular intervals to ensure the risk controls identified in this procedure are being implemented.

The application of this procedure shall be audited in accordance with the WHS Audit Schedule and the Internal Audit Procedure ([PRO-00002](#)).

Audit findings and hazard trending analysis will be reviewed at the Regional Improvement Committees (RWHSIC) and the WHS Steering Committee (WHSCC) and presented for management review to the Executive Leadership Team and the Seqwater Board in accordance with the WHS Reporting Procedure ([PRO-01605](#)).

7. Record keeping

All records are to be retained, archived and disposed of in accordance with the *Queensland State Archives General Retention and Disposal Schedule for Administrative Records*. Additional Guidance regarding mandatory record keeping requirements is provided in the WHS Records Keeping Matrix.

8. References

8.1 Legislation and other requirements

Description	Status	Location
<i>Work Health and Safety Act 2011</i>	Active	www.legislation.qld.gov.au
<i>Work Health and Safety Regulation 2011 (Qld)</i>	Active	www.legislation.qld.gov.au
<i>How to Manage Work Health and Safety Risks Code of Practice 2011 (Qld)</i>	Active	http://www.deir.qld.gov.au/workplace/resources/pdfs/manage-whs-risks-cop-2011.pdf

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<i>AS 1940: The storage and handling of flammable and combustible liquids</i>	Active	www.saiglobal.com.au
<i>AS/NZS 2865: Safe working in confined space</i>	Active	www.saiglobal.com.au
<i>AS 1674.1: Safety in welding and allied processes – Fire precautions</i>	Active	www.saiglobal.com.au
<i>Confined Spaces Code of Practice 2011</i>	Active	www.deir.qld.gov.au/workplace/resources/pdfs/confined-spaces-cop-2011.pdf
<i>Welding Processes Code of Practice 2013</i>	Active	www.deir.qld.gov.au/workplace/resources/pdfs/welding-processes-cop-2013.pdf

8.2 Supporting procedures

Description	Status	Location
PRO-00443 Confined Space Management Procedure	Draft	TRIM Ref: D13/8993
PRO-00002 Internal Audit Procedure	Active	TRIM Ref: D13/915
PRO-00657 WHS Hazard Identification and Risk Management Procedure	Active	TRIM Ref: D13/2085
PRO-01575 WHS Operational Control Procedure	Draft	TRIM Ref: D13/61646
PRO-01605 WHS Reporting Procedure	Draft	TRIM Ref: D14/6228

8.3 Supporting documents, forms and templates

Description	Status	Location
Corporate – Real Time Hazard Assessment (RTHA) Booklet (RSK-00222)	Active	TRIM Ref: D13/61877
Designated Hot Work Zone Register	Active	TRIM Ref: D14/11406
Hot Work Permit (FRM-00040)	Active	TRIM Ref: D13/32473
Hot Work Procedure Fact Sheet	Active	TRIM Ref: D13/42228
Job Safety and Environment Analysis Template (TEM-00013)	Active	TRIM Ref: D13/61698
WHS Record Keeping Matrix	Active	TRIM Ref: D13/70968
WHS Risk Assessment Guide (GDE-00044)	Active	TRIM Ref: D13/75796
WHS Risk Register Template (TEM-00023)	Active	TRIM Ref: D13/47874

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9. Definitions

Term	Definitions	
Competent person	A person who has, through a combination of training, education and experience, acquired knowledge and skills enabling that person to perform a specific task correctly.	
Designated hot work zone	An area specifically configured and provisioned for the safe undertaking of hot work e.g. workshops or a temporary facility that meets the requirements of section 4.4 of this procedure.	
Fire ban	<p>A ban imposed during a period when conditions are such that fires would ignite easier, be difficult to control and pose a danger to communities.</p> <p>Fire bans are issued by Queensland Fire and Emergency Service (QFES) and can be determined by calling the Fire Ban Information Line on 1800 020 440.</p>	
Fire danger rating index	Catastrophic	May be uncontrollable and fast moving. The flames will be higher than rooftops. Many people will be injured and thousands of homes and businesses will be destroyed.
	Extreme	May be uncontrollable, unpredictable and fast moving. The flames will be higher than rooftops. People will be injured and hundreds of homes and businesses will be destroyed.
	Severe	May be uncontrollable and move quickly, with flames that may be higher than rooftops. The fire may cause injuries and some homes and businesses to be destroyed.
	Very High	Difficult to control with flames that may burn into the treetops. Some homes and businesses may be damaged or destroyed.
	High	Can be controlled where loss of life is unlikely and damage to property will be limited.
	Low-Moderate	Can be easily controlled and post little or no risk to life or property.
Fire watch	A person who is designated to watch the work area for the duration of the hot work activities and maintain a watch on the area for a minimum of 30 minutes after the cessation of the hot work activities.	
Hazard	A situation that has the potential to harm a person and/or the environment and/or damage property.	
Hazardous area	An area in which an explosive atmosphere is present, or may be expected to be present, in quantities such as to require special precautions e.g. presence of vapours or gases, combustible liquids, dusts or fibres, or other flammable or	

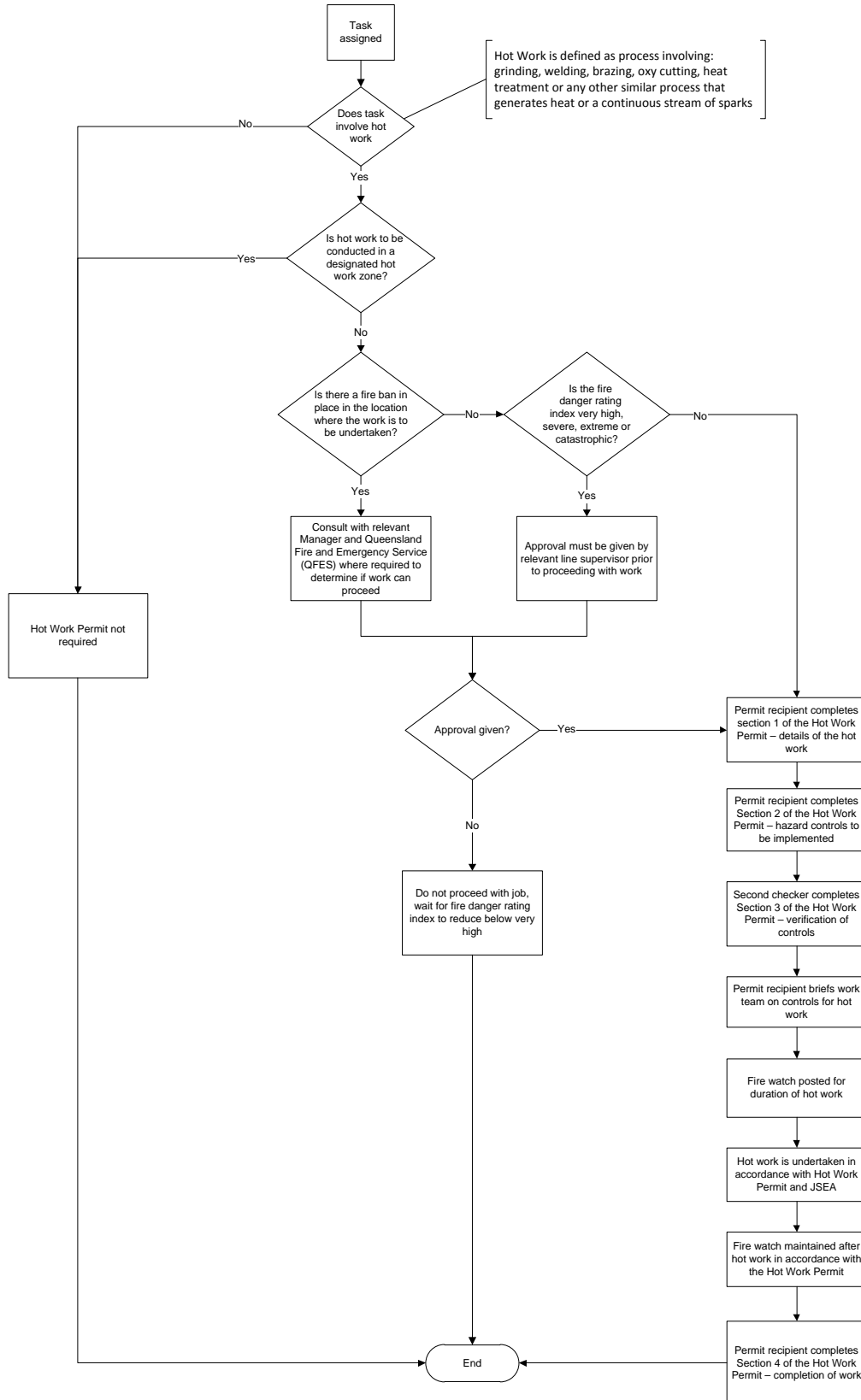
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Term	Definitions
	explosive materials.
Hot work	Any process involving grinding, welding, brazing, oxy cutting, heat treatment or any other similar process that generates heat or continuous streams of sparks (uncontrolled heat). Note: the use of Bunsen burners in a laboratory environment, tap flaming for water sampling or use of gas BBQ (controlled heat) is not considered hot work.
Hot work area	The area within a radius of 15m from the point where the hot work is to be undertaken, including the space above and below that area should be made safe by various techniques, preparation and testing, to ensure that any risk of fire or explosion resulting from the hot work is eliminated.
Hot work permit	A document that defines the details of the hot work to be undertaken, the fire rating in place at the time of the hot work and defines the controls implemented to undertake the hot work in a safe manner.
Ignition source	A source of energy sufficient to ignite a flammable atmosphere. Includes, but not limited to: naked flames, smoking, exposed incandescent material, electrical welding arcs and electrical or mechanical equipment not certified for use in the particular hazardous area zone, build-up of static electricity, spark generating equipment.
Job safety and environment analysis (JSEA)	A step-by-step method of identifying hazards, evaluating the risk, implementing control measures and providing a safe system of work.
Line supervisor	A line supervisor is a person with day-to-day supervisory responsibilities for workers within a functional area of the business. A line supervisor includes, but is not limited to, team leaders, coordinators and level 4 or 5 supervisors. A line supervisor is also considered a worker, but has additional responsibilities for the implementation of the WHS management system as identified in the WHS management system and/or position description.
Manager	A person with the responsibilities for managing a functional area of the business including the workers within the relevant functional area. This includes, but is not limited to, Level 3 managers, general managers and project managers. A manager is also considered a worker, however managers may have additional responsibilities for implementation of the WHS management system as well as any additional responsibilities as an officer of the business.
Permit recipient	The person who is responsible for the hot work and completes the relevant sections of the hot work permit. They must be a competent person to undertake hot work.
Planned burn	Reduces the amount of ground vegetation to decrease risk of bushfires.
Risk	Risk is the likelihood and consequence of injury or harm occurring when exposed to a hazard.
Risk control	Means taking action to eliminate health and safety risks so far as is reasonably practicable, and if that is not possible,

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Term	Definitions
	<p>minimising the risks so far as is reasonably practicable. Eliminating a hazard will also eliminate any risks associated with that hazard.</p>
Second Checker	<p>The competent person who reviews section 2 of the hot work permit and verifies that the documented controls are in place and appropriate for controlling the hazards of hot work.</p>
Workers	<p>Worker means a person who carries out work in any capacity for Seqwater, including work as:</p> <ul style="list-style-type: none"> • an employee • a contractor or subcontractor • an employee of a contractor or subcontractor • an employee of a labour hire company who has been assigned to work at Seqwater • an outworker • an apprentice or trainee • a student gaining work experience • a volunteer • a worker of prescribed class.

Appendix A – Hot work flowchart



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