

## 1. RISK ASSESSMENT

### 1.1 Requirements

The hot work authorising officer (HW authorising officer), in conjunction with the employee/contractor conducting the hot work activity (operator) and the fire-watch, must complete a risk assessment of the hot work prior to the activity, taking into account:

- the type of hot work;
- the environment where the hot work will be conducted.

The HW authorising officer must ensure that all the controls identified during the risk assessment process are documented on the hot work permit. A safe work method statement (SWMS) or equivalent for the activity must be available during the hot work risk assessment process.

During the risk assessment process, the HW authorising officer, where reasonably practicable, should consult with the elected employee health and safety representative (HSR) in the area where the hot work will be conducted.

### 1.2 Rationale

The risk assessment process will identify and document the hazards and the controls required to conduct the hot work safely.

A SWMS ensures that all risks associated with activity are taken into account, not only those risks associated with the hot work.

By including the operator and the fire-watch responsible for the work, the HW authorising officer ensures that all personnel are aware of the hazards and controls associated with the activity.

Hot work may impact on the health and safety of employees in the area that the work will be conducted. The HSR can provide safety information to the employees.

## 2. DOCUMENTATION, FORMS AND PROCESS

### 2.1 Forms

#### 2.1.1 Requirements

All hot work is by permit only.

Prior to hot work, the HW authorising officer must document on the permit:

- the date of the hot work;
- the permit expiry time; and
- the control measures that were identified during the risk assessment.

#### NOTE:

The hot work permit cannot be authorised without the SWMS.

#### NOTE:

The HW authorising officer cannot be the person carrying out the hot work.

The type of hot work and the control measures are included in sections 1 to 15 of the hot work permit. All sections must be completed, and are listed as follows:

1. Identification (identifies the location)
2. Description of hot work including:
  - the immediate vicinity has been assessed for conflicting activities
  - a safe work method statement is available
3. Confined space entry (Confined space entry will require a confined space entry permit)
4. Isolation (of services, including fire detection systems)
5. Combustible materials
6. Sparks/heat (that will be generated)
7. Fumes (that will be generated)
8. Communication
9. Personal protective equipment and other equipment
10. Personnel (operator(s) and fire-watch(es))
11. Emergency plans
12. Safe to commence (Signature of HW authorising officer)
13. University of Melbourne start time
14. University of Melbourne finish time
15. Sign off (Signature of HW authorising officer)

Sections 1 to 12 must be completed prior commencing hot work.

Section 13 must be completed at the start of the hot work activity.

Section 14 must be completed at the finish of the hot work activity.

Section 15 must be completed when all tools and equipment have been removed from the site, fire detection has been reactivated (if applicable) and the area has been made safe.

A draft example of the hot work permit is available from <http://safety.unimelb.edu.au/#hazard-topics> .

### **2.1.2 Rationale**

Significant hazards are associated with hot work. A permit system ensures that strict controls are adopted, which will:

- ensure the safety of personnel conducting the hot work;
- ensure the safety personnel in the area who may be affected by the work; and
- reduce the risk of property damage.

A permit is only valid for a set duration, so it is important to include the date and the time that it will expire.

## 2.2 Process

### 2.2.1 Requirements

1. The HW authorising officer, after authorising the permit (section 12), must retain a copy of the permit for the duration of the work. The permit is now considered “open”.
2. The personnel conducting the work must:
  - retain a copy of the hot work permit and SWMS throughout the life of the hot work; and
  - notify the “contact” on the permit (section 13) at the start time.
3. At the end of the hot work the personnel conducting the work must:
  - ensure that all equipment and tools have been removed from the area, that fire detection systems have been reactivated (if they were isolated during the hot work) and that the area has been made safe;
  - notify the “contact” on the permit (section 14) that the work is completed; and
  - return the permit and the SWMS to the HW authorising officer.
4. The authorising officer must ensure the area has been made safe and fire detection systems have been reactivated (if they were isolated during the hot work) and sign off the permit. The permit is now considered “closed”.

If the HW authorising officer opening the permit is unable to sign off the permit, another HW authorising officer can close the permit. A hand over (briefing) of the activity, including the hot work permit and SWMS must be given to the new HW authorising officer.

### 2.2.2 Rationale

The HW authorising officer has oversight of the hot work undertaken. The HW authorising officer must be satisfied that the controls on the permit are sufficient, and must ensure that a contact person (section 13), other than the operator and fire-watch, are aware that hot work is taking place.

This provides two levels of safety. That is:

- firstly, a nominated person is contacted at the commencement of hot work and the completion of hot work; and
- secondly, the HW authorising officer opens and closes the permit.

## 3. SECTIONS 1 TO 15 ON PERMIT

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The top section of the hot work permit lists:

- Hot work permit number

This is the unique number for that permit only. These are printed as sequential numbers in the hot work permit pad.

- Date of hot work

This is the date that the hot work will be undertaken. This is the same date that the HW authorising officer authorises the hot work.

- Permit expires

This is the time that the hot work permit will expire. Hot work beyond this time will not be authorised. For hot work after this time, a new hot work permit will be required.

The HW authorising officer must discuss with the operator the approximate times that activity will start and end. The expiry time must be based on this.

## 3.1 Section 1 – Identification

### 3.1.1 Requirements

Fill out all relevant information in order to clearly identify the location of the hot work activity, including:

- Building/location

The location will include the room/space where the hot work is being undertaken.

- Address
- Building number
- Work order/BR number (if applicable).

### 3.1.2 Rationale

A hot work permit is valid only for the location indicated on the permit.

The controls identified for conducting hot work safely are specific to the location and may not be adequate for another area. For example a multistory building will have different isolation points for different levels. Additionally there may be different environments from one location to the next.

## 3.2 Section 2 – Description of work

### 3.2.1 Requirements

Provide a brief description of the hot work/activities.

Conduct an assessment of the immediate vicinity to ensure that there are no conflicting activities.

Ensure that a SWMS is included with the permit.

### 3.2.2 Rationale

This assists with the hazard and identification process and provides information to the HW authorising officer. It also ensures that hot work permit is valid for the actual work.

If there are conflicting activities in the immediate vicinity the HW authorising officer can determine, in consultation with the person(s) undertaking the conflicting activity, the scheduling of these activities.

If the work is significantly altered or likely to be altered then a new permit may be required.

## 3.3 Section 3 – Confined space entry

### 3.3.1 Requirements

Indicate on the permit if confined space entry **is** or **is not** required.

If confined space entry is required, then a confined space entry permit must also be completed and attached to the hot work permit. List the confined space entry permit number on the confined hot work permit.

For more information see the [Confined spaces risk management procedure](#).

A draft example of the confined space entry work permit available at <http://safety.unimelb.edu.au/#hazard-topics> .

### 3.3.2 Rationale

Confined space entry must be carried out in accordance with University's procedure for confined spaces, which includes the requirement for a confined space entry permit.

Confined space entry presents unique hazards such as suffocation, electrocution and entrapment, which can result in severe injury or loss of life. It is important that confined space entry is strictly controlled in a manner similar to hot work activities.

Because the two activities (hot work and confined space entry) are linked, it is important that the permits are kept together.

## 3.4 Section 4 – Isolation

### 3.4.1 Requirements

All services and parts/equipment in or near the hot work that could be a hazard during the activity must be locked out, tagged and isolated in accordance with the University's lock-out, tagging and isolation procedure. These services and parts/equipment should be identified on the permit.

For more information see the [Lockout, tagging and isolation – OHS requirements procedure](#).

Fire detection services in or near the hot work that could be activated during the activity must be isolated. Contact Infrastructure Services, Campus Services to arrange isolation of fire detection services, and document this on the permit.

### 3.4.2 Rationale

Services near the activity may be hazardous to the operator or other personnel in the area. For example, the work may be near an extraction outlet that removes flammable fumes from a laboratory. Heat from the hot work may come into contact with the fumes, causing fire and/or explosion.

Parts/equipment within an area (e.g. a machinery space) may also be hazardous to the operator. For example, there may be moving parts within the machinery space that could result in entrapment.

If fire detection services are not isolated prior to the activity, the system may be activated, resulting in a false alarm.

## 3.5 Section 5 – Combustible materials

### 3.5.1 Requirements

Prior to the hot work, all removable combustible materials (e.g. wood, paper or rubbish) should be cleared from the area.

Tick the yes box on the permit to record that all removable combustible materials have been cleared from the area.

Combustible materials that cannot be cleared from the area should be covered or screened (see section 6 – Sparks/heat).

### 3.5.2 Rationale

Combustible materials within the hot work area can start fires, particularly where the hot work produces sparks. The operator, who is concentrating on the activity, may not initially notice a fire, creating conditions where the fire can spread rapidly.

## 3.6 Section 6 – Sparks/heat

### 3.6.1 Requirements

Determine where:

- heat is likely to conduct; and
- sparks are likely to fall.

Tick the controls that will be required.

Some examples of possible controls are:

- If heat will be applied directly to a tank that once contained a flammable liquid/gas, then the tank could be cleaned/purged first.
- If sparks may fall down a penetration onto the level below, damaging the building or expensive equipment, then the penetration could be covered with a fire blanket.

### 3.6.2 Rationale

This section is concerned with possible adverse outcomes not only in the immediate area around the hot work, but also in the surrounding environment.

## 3.7 Section 7 – Fumes

### 3.7.1 Requirements

Indicate on the permit if the activity **will** or **will not** cause fumes.

If the answer is yes, list the required controls.

### 3.7.2 Rationale

Heat and sparks associated with hot work are likely to produce fumes, either from:

- the actual process, such as welding fumes during welding; or
- the burning byproducts, such as fumes from burning surface paint.

In the latter example, there are additional hazards associated with burning paint producing unknown byproducts.

The location of the activity must also be taken into account, because the same activity undertaken in different locations could require different controls. For example, outside welding activities may produce fumes that affect the operator. In this case respiratory protection, as indicated on the welding rod's MSDS, would be appropriate. However, inside welding activities may produce fumes that affect the operator and the surrounding environment. In this case respiratory protection, as indicated on the welding rod's MSDS, as well as localised fume extraction, would be appropriate.

## 3.8 Section 8 – Communication

### 3.8.1 Requirements

In the communication section:

- if a fire-watch is required, tick the yes box and list the type of communication on the permit
- if a fire-watch is not required, tick the N/A (not applicable) box on the permit.

Examples of communication include:

- voice;
- radio;
- hand signals; and
- telephone.

### **3.8.2 Rationale**

The operator and the fire-watch need to establish the best method of communication prior to the hot work activity. In the event of an emergency, communication needs to be effective and immediate.

## **3.9 Section 9 – PPE and other equipment**

### **3.9.1 Requirements**

Personal protective equipment (PPE) and other equipment requirements must be ticked off on the permit.

As a minimum the following safety equipment should be included:

- warning signs, barricades, traffic management signs; and
- fire blankets, fire extinguisher.

Emergency equipment can also be ticked off in this section.

### **3.9.2 Rationale**

This section not only provides a list of all the PPE and other equipment required to carry out the hot work safely but it also functions as a checklist.

If access to the area of hot work needs to be restricted (e.g. diverting pedestrian traffic), barricades and signage must be erected.

## **3.10 Section 10 – Personnel**

### **3.10.1 Requirements for operators**

The operator(s) must be listed on the permit, must be competent to carry out the work and must be fully briefed on the activity and its associated hazards and controls.

### **3.10.2 Rationale for operator requirements**

To conduct the work safely, operators must understand the hazards and controls associated with hot work activities. A competent, trained operator who understands the nature of the work is required.

### **3.10.3 Requirements for fire-watch personnel**

Fire-watch personnel must be listed on the permit, and must be fully briefed on the activity and its associated hazards and controls, including their designated position during the work.

Except in the following situations, fire-watch personnel must not leave their designated position:

- The operator has completed the hot work and the area is safe.
- Another designated fire-watch (named on the permit) relieves the fire-watch.

- The fire-watch needs to raise the alarm or get help. They should then return immediately.
- The fire-watch's life is in immediate danger if they stay.

### 3.10.4 Rationale for fire-watch personnel requirements

Fire-watch personnel must understand both the hazards and controls associated with hot work activities. A competent fire-watch who understands the nature of the work is required.

The main responsibility of the fire-watch is to ensure the continual safety of the area and personnel as the work progresses. The fire-watch must be located in a position where they can provide maximum benefit. Normally this is at a location where hot work may have an adverse effect on the environment and cannot be directly or continually seen by the operator. For example, if sparks are falling from one level to another, where controls cannot adequately stop all sparks from falling.

The fire-watch may also be required to:

- alert the operator to leave the area in the case of emergency; and
- initiate emergency procedures, such as contacting the emergency contact listed on the permit (section 11).

## 3.11 Section 11 – Emergency plans

### 3.11.1 Requirements

Emergency contact numbers must be listed on the permit. There may be more than one number, particularly if the hot work is likely to extend beyond business hours.

An appropriate emergency contact number must be answered at all times, and that the person answering must be able to initiate appropriate emergency measures. For example, at the Parkville campus, the security telephone number (8344 6666) should be considered.

The emergency equipment required should be listed on the permit. The emergency equipment provided should anticipate emergency outcomes that could occur if the controls fail. The risk assessment process and controls listed on the permit will help with identifying suitable equipment.

### 3.11.2 Rationale

Emergency situations from hot work activities can occur suddenly, with little or no warning, and can rapidly deteriorate, resulting in significant property damage, injury or death.

It is essential that if an emergency occurs, the emergency plan can be implemented quickly and efficiently.

## 3.12 Section 12 – Safe to commence – authorising officer

### 3.12.1 Requirements

The HW authorising officer must sign the permit to indicate that all controls on the permit are adequate and have been initiated.

If the HW authorising officer is not satisfied that all hot work activity requirements have been met, they should not sign the permit and should outline the additional controls required.

Hot work activity cannot commence without the permit being signed by the HW authorising officer.

### 3.12.2 Rationale

The HW authorising officer has control over the hot work process, including opening and closing the permit, and is therefore responsible for ensuring the controls listed on the permit are appropriate and initiated.

The HW authorising officer also determines and keeps a record of the expiry time. This is important because if the permit is not returned before the expiry time, the HW authorising officer must establish the cause and prepare to initiate emergency procedures.

## 3.13 Section 13 – University of Melbourne start time

### 3.13.1 Requirements

A university contact person, other than the HW authorising officer, is listed in this section of the permit.

List the time that this person is contacted and the telephone number on the permit. The time will be based on the actual commencement of the hot work activity.

### 3.13.2 Rationale

This contact person is an additional checkpoint for tracking an open permit. The person should be available throughout the entire hot work process.

Examples of a suitable University contact person are:

- the same person nominated as the emergency contact (e.g. Security); or
- the person who requested the work.

The contact time should be the actual start time of the hot work. This may be later than the opening time of the permit.

## 3.14 Section 14 – University of Melbourne finish time

### 3.14.1 Requirements

The contact in section 14 is the same as section 13.

List the contact time and the telephone number on the permit. The time should be the actual time of completion of the hot work activity.

### 3.14.2 Rationale

The contact time is based on the actual finish of the hot work activity because there can be a delay between the completion and closing the permit.

## 3.15 Section 15 – Sign off – HW authorising officer

### 3.15.1 Requirements

On completion of the work, all personnel must make the area safe by removing tools, equipment, signs, barricades and so on.

If the fire detection system was isolated, Infrastructure Services, Campus Services must be contacted to reactivate it.

The HW authorising officer must sign off the permit confirming that the above has occurred.

The authorising officer shall retain permit for 30 days.

### 3.15.2 Rationale

After any hot work activity it is important to ensure that the area can be safely reinstated to its normal or expected state. Not only does this include removing tools, equipment, signs and barricades, but it also includes not creating a delayed opportunity for fire or other damage (for example smoldering embers).

The HW authorising officer has control over the hot work activity process, including opening and closing the permit, and is therefore responsible for ensuring that, on completion of work, all personnel are accounted for and that the area has been made safe and returned to its original state. That includes the reactivation of fire detection systems that were isolated.

Where it is not reasonably practicable to return the area to pre-activity conditions, then other controls must be in place to limit unauthorised access, for example, temporary barriers and signs.

Industry standards and practices require that permits are held for 30 days.

For use in conjunction with the [Hot work risk management procedure](#).

For further information, refer to <http://safety.unimelb.edu.au/#hazard-topics> or contact your [Local Health & Safety contact](#).