

## 1. RISK ASSESSMENT

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### 1.1 Requirements

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The HW Authorising Officer in conjunction with the employee/contractor conducting the hot work activity (operator) and firewatch 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.

During the risk assessment process HW Authorising Officer, where reasonably practicable, should consult with the HSR in the area where the hot work will be conducted.

### 1.2 Rationale

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

By including the operator and firewatch 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

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### 2.1 Forms

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#### 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.

The type of hot work and the control measures are included in the 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

#### **NOTE:**

The HW Authorising Officer cannot be the person carrying out the hot work.

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. PPE and other equipment
10. Personnel [Operator(s) and firewatch(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 activated (if applicable) and the area has been made safe.

Hot Work Permit:

[http://www.pb.unimelb.edu.au/ehs/ehs/ehsm\\_guidance/#hotwork](http://www.pb.unimelb.edu.au/ehs/ehs/ehsm_guidance/#hotwork)

## 2.1.2 Rationale

Due to the hazards associated with hot work a permit system ensures that strict controls are adopted to:

- 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 time period so it is important to include the date and the time that it will expire.

## 2.2 Process

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### 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 notify the "contact" on the permit (Section 13) at the start time.
3. The personnel conducting the work must notify the "contact" on the permit (Section 14) at the completion time.
4. The personnel conducting the work must ensure that all equipment and tools have been removed from

the area, that fire detection systems have been activated (if they were isolated during the hot work) and that the area has been made safe.

5. The personnel conducting the work must return the permit to the HW Authorising Officer at the completion of work.
6. The Authorising officer must ensure the area has been made safe and fire detection systems have been activated (if they were isolated during the hot work) and sign off the permit. The permit is now considered "closed".

Where the HW Authorising Officer opening the permit is unable to sign off the permit another prearranged Authorising officer can close the permit.

### **2.2.2 Rationale**

The HW Authorising Officer has oversight of the hot work undertaken. In addition to being satisfied with the controls on the permit, the HW Authorising Officer must ensure that personnel (other than the operator and firewatch) are aware that hot work is taking place and must be satisfied that the controls on the permit are satisfactory.

This provides two levels of safety. That is:

- firstly, a nominated person (see point 3.12 Section 12 – University of Melbourne Start Time) 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.

### **2.2.3 Note on Permit Expiry**

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. SECTIONS 1 TO 15 ON PERMIT**

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### **3.1 Section 1 – Identification**

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#### **3.1.1 Requirements**

Fill out all relevant information that clearly identifies the location of the hot work activity, including:

- Building/Location
- 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.

### **3.2 Section 2 – Description of Work**

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### 3.2.1 Requirements

Provide a brief description of the hot work/activities.

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

## 3.3 Section 3 – Confined Space Entry

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### 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.

Confined Space Entry Procedure:

[http://www.unimelb.edu.au/ehsm-new/11.html#11.16.](http://www.unimelb.edu.au/ehsm-new/11.html#11.16)

Confined Space Entry Permit:

[http://www.pb.unimelb.edu.au/ehs/ehs/ehsm\\_guidance/#confinedspace](http://www.pb.unimelb.edu.au/ehs/ehs/ehsm_guidance/#confinedspace)

### 3.3.2 Rationale

All 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 that may result in suffocation, electrocution, entrapment resulting in severe injury or loss of life. It is therefore 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

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### 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 out and isolated in accordance with the University's and isolation and lockout/tag out procedure. These services and parts/equipment should be identified on the permit.

Lockout/Tag Out Procedure:

[http://www.unimelb.edu.au/ehsm-new/11.html#11.27.](http://www.unimelb.edu.au/ehsm-new/11.html#11.27)

Fire detection services in or near the hot work that could be activated during the activity must be isolated. Contact Asset Services to arrange isolation of fire detection services.

Where Asset Services is required to isolate services this should also be documented 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 if 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 (eg 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 there is a likelihood that the system will be activated resulting in a false alarm.

## **3.5 Section 5 – Combustible Materials**

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### **3.5.1 Requirements**

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

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

Combustible materials that can not be cleared from the area should be covered/screened (see Section 6 – Sparks/Heat).

### **3.5.2 Rationale**

Combustible materials within the hot work area have been known to start fires particularly where the hot work produces sparks. In addition the operator who will be concentrating on the activity may not initially be aware that there is a fire providing conditions for it to rapidly spread.

## **3.6 Section 6 – Sparks/Heat**

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### **3.6.1 Requirements**

Determine where:

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

Tick the controls that will be required. In the two examples given above, this may include:

- cleaning/purging of the tank; and
- covering the penetration with a fire blanket.

### **3.6.2 Rationale**

This section pays particular attention not only to the possible adverse outcomes of the hot work in the immediate area but also in surrounding environment. For example heat may be applied directly to a tank that once contained a flammable liquid/gas or sparks may fall down a penetration onto the level below damaging the building or expensive equipment.

## **3.7 Section 7 – Fumes**

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### **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 Rational

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. Whereas 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, and localised extraction would be appropriate.

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## 3.8 Section 8 – Communication

### 3.8.1 Requirements

In the communication section tick the yes box and list the type of communication on the permit if a firewatch is required.

In the communication section tick the N/A (not applicable) box on the permit if a firewatch is not required.

Examples of communication include:

- voice
- radio
- hand signals
- telephone

### 3.8.2 Rationale

The operator and the firewatch 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.

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## 3.9 Section 9 – PPE and Other Equipment

### 3.9.1 Requirements

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;
- 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.

Where access to the area of hot work requires restrictions (eg diverting pedestrian traffic) barricades and signage must be erected.

## **3.10 Section 10 – Personnel**

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### **3.10.1 Requirements for Operators**

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

### **3.10.2 Rationale for Operators**

To conduct the work safely operators must understand both the hazards and controls associated with hot work activities. A competent, trained operator who understands the nature of the work assists in this process.

### **3.10.3 Requirements for Firewatch Personnel**

Firewatch personnel must be listed on the permit and fully briefed on the activity and its associated hazards and controls, including their required location.

Except under the following situations firewatch personnel must not leave their designated position:

- The operator has completed the hot work and the area is safe.
- Another designated firewatch (named on the permit) relieves the firewatch.
- To raise the alarm or get help. Return immediately.
- The firewatch's life is in immediate danger if they stay.

### **3.10.4 Rationale for Firewatch Personnel**

Firewatch personnel must understand both the hazards and controls associated with hot work activities. A competent firewatch who understands the nature of the work assists in this process.

The main responsibility of the firewatch is to ensure the continuous safety of the area and personnel. The firewatch must be located in a position of maximum benefit. Normally this is at a location where hot work may have an adverse affect on the environment and can not be directly or continually viewed by the operator. For example sparks falling from one level to another, where controls can not adequately stop all sparks from falling.

The firewatch may also be required to:

- alerting the operator to leave the area in the case of emergency; and
- initiating emergency procedures, such as contacting the emergency contact listed on the permit (Section 11)

## **3.11 Section 11 – Emergency Plans**

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### **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 into after hours.

Emergency contact numbers must take into account that they will be answered at all times and that the person answering can initiate appropriate emergency measures. For example at the Parkville campus the security telephone number (8344 6666) should be considered.

The emergency equipment required for hot work should be listed on the permit. The safety equipment should be

based on emergency outcomes that may result if the control(s) fails. The risk assessment process and controls listed on the permit will help with this process.

### **3.11.2 Rationale**

Emergency situations from hot work activities can:

- occur suddenly and with little or no warning; and
- rapidly deteriorate resulting in significant injury, death or property damage.

It is therefore essential that if an emergency occurs that the emergency plan is affected efficiently, quickly and without delay.

## **3.12 Section 12 – Safe to Commence – Authoring Officer**

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### **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.

Where 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 can not 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 are therefore responsible for ensuring that 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 be prepared to initiate emergency procedures.

## **3.13 Section 13 – University of Melbourne Start Time**

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### **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**

The contact person ensures an additional process for tracking an open permit and should be someone who will be available throughout the entire hot work process.

Examples of a university contact person are:

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

The contact time is based on the actual start of the hot work activity because there can be a delay between the opening the permit and the commencement.

## 3.14 Section 14 – University of Melbourne Finish Time

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### 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 will be based on the 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

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### 3.15.1 Requirements

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

Where the fire detection system was isolated Asset Services must be contacted to reactivate it.

The HW Authorising Officer shall sign off the permit indicating that the above has occurred.

The authorising officer shall retain permit for thirty days.

### 3.15.2 Rationale

The HW Authorising Officer has control over the hot work activity process, including opening and closing the permit, and are 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 *Environment, Health & Safety Manual 11.30 .New. Hot Work*.

For further information, refer to <http://www.unimelb.edu.au/ehsm-new/11.html#11.30> or contact your EHS Adviser/Manager in the EHS Unit.