



Administrative Procedure

PRC-PRO-FP-40421

Hot Work

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Administrative Use

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Appendix B

Description of Change

New Procedure

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this procedure is to provide for implementation of the hot work requirements contained in PRC-STD-FP-40404, *Fire Protection Program*.

1.2 Scope

This Level 2 Management Control Procedure includes implementation requirements for hot work that is performed at CH2M HILL Plateau Remediation Company (CHPRC) controlled facilities or areas.

NOTE: *Hot Work is any temporary operation involving open flames or producing heat and/or sparks including brazing, cutting, grinding, soldering, arc or gas welding, plasma welding, or torch-applied roofing. Cutting and grinding classified as Hot Work is limited to operations that produce significant sources of heat or spraying sparks such that they are considered ignition sources to surrounding combustibles.*

1.3 Applicability

This procedure applies to all hot work performed at CHPRC controlled facilities or areas including other contractors and subcontractors performing work at CHPRC facilities or areas.

1.4 Implementation

This procedure is effective upon publication.

2.0 RESPONSIBILITIES

All responsibilities associated with this procedure are identified in the process steps.

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3.0 PROCESS

3.1 Hot Work Performed Outside of Designated Areas

Actionee	Step	Action
Responsible Manager/Field Work Supervisor (FWS)	1.	ENSURE that hot work is identified during work planning
	2.	ENSURE compliance with hot work requirements in accordance with PRC-STD-FP-40404.
	3.	ENSURE that a <i>CHPRC Hot Work Permit</i> (Site Form A-6006-115) is prepared and approved, if required, prior to performing hot work in accordance with PRC-STD-FP-40404. <ul style="list-style-type: none"> a. COMPLY with the requirements of the <i>Hot Work Permit</i>.
Fire Protection Engineer (FPE)	4.	REVIEW <u>AND</u> APPROVE all hot work permits.
	5.	Prior to approval, INSPECT the hot work area. <ul style="list-style-type: none"> a. ENSURE that specific additional controls, if identified, are documented in the Special Instructions/Remarks block on the hot work permit form.
	6.	APPROVE the Hot Work Permit.
Responsible Manager/FWS	7.	ENSURE that the hot work area is maintained in accordance with the conditions and controls specified on the Hot Work Permit for the duration of the hot work activity.
Worker	8.	PERFORM hot work in accordance with the requirements of PRC-STD-FP-40404 and the Hot Work Permit.

NOTE: *For hot work that extends beyond one shift, the oncoming supervisor, fire watch and worker for each subsequent shift must sign and date the hot work permit log sheet.*

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3.2 Hot Work Performed in Designated Areas

Actionee	Step	Action
Responsible Manager	1.	IDENTIFY areas requiring a designated <i>Hot Work Permit</i> .
	2.	OBTAIN a Designated Hot Work Permit in accordance with PRC-STD-FP-40404 and PRC-PRO-FP-40422, <i>Fire Marshal Interface</i> .
Worker	3.	PERFORM hot work in accordance with the requirements of PRC-STD-FP-40404 (see Appendix A) and the designated <i>Hot Work Permit</i> .
Deputy Fire Marshal (DFM)	4.	REVIEW <i>Hot Work Permit</i> annually.

4.0 FORMS*CHPRC Hot Work Permit, A-6006-115*

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5.0 RECORD IDENTIFICATION

All records are required to be managed in accordance with PRC-PRO-IRM-10588, *Records Management Processes*. OCRWM records are also managed in accordance with PRC-PRO-QA-19579, *OCRWM Records Management*.

Records Capture Table

Name of Record	Submittal Responsibility	Retention Responsibility	OCRWM Retention Schedule (If OCRWM Related)
Hot Work Permit	Requesting Organization	Requesting Organization	NA
Hanford Fire Marshal Permit (for designated areas)	Requesting Organization	Fire Marshal's Office	NA

6.0 SOURCES**6.1 Requirements**

NFPA 326, *Standard for Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair*
 PRC-PRO-FP-40422, *Fire Marshal Interface*
 PRC-STD-FP-40404, *Fire Protection Program*
 PRC-PRO-WKM-079, *Job Hazard Analysis*
 PRC-RD-SH-11258, *Confined Space*

6.2 References

PRC-PRO-IRM-10588, *Records Management Processes*
 PRC-PRO-QA-19579, *OCRWM Records Management*

7.0 APPENDIXES

Appendix A – Hot Work Requirements

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APPENDIX A - HOT WORK REQUIREMENTS**Hot Work**

A Job Hazards Analysis (JHA) **SHALL** be completed for hot work activities, when applicable, in accordance with PRC-PRO-WKM-079, *Job Hazard Analysis*

The Job Supervisor **SHALL** schedule the cognizant Fire Protection Engineer (FPE) review and approval at least 24 hours in advance for new projects.

NOTE: *When changes occur in the field which could impact the validity of the JHA, the JHA SHALL be reviewed (if necessary) and updated as required to reflect the field changes.*

Those performing hot work **SHALL** wear flame retardant (FR) Personal Protective Equipment (PPE) to at least the level determined through the JHA process to protect the worker from the effects of heat sparks and flame, unless approval to deviate is given on a case by case basis by the FPE (e.g., FR coveralls, leathers are acceptable in non-radiological areas, or FR/leather full front apron as a minimum for "low hazard" hot work).

The FR PPE requirement **SHALL NOT** be waived in a designated area if a designated fire watch is not provided.

All hot work in areas governed by an RWP **SHALL** require the use of fire retardant PPE. If the RWP requires a double set of anti-contamination coveralls, the outer set of coveralls **SHALL** be flame retardant.

NOTE: *Red FR coveralls (including hoods and boots) for use in radiological areas and brown FR coveralls for use in non-radiological areas are available through the Hanford Central Warehouse.*

Hot work equipment (torches, regulators, pressure-reducing valves, and manifolds, etc.) **SHALL** be listed or approved by a nationally recognized testing lab (NRTL) for the intended use.

Oxygen-fuel gas systems (e.g., oxygen/acetylene welding) **SHALL** be equipped with listed and/or approved backflow valves, flash arrestors, and pressure-relief devices.

When welding curtains, blankets, pads or equivalent are used they **SHALL** be listed or approved.

Hot work areas requiring scaffolding for access **SHALL** be constructed of metal planks or **SHALL** be approved by the cognizant FPE.

Hot work **SHALL** be performed in accordance with PRC-PRO-FP-40421, *Hot Work*.

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Fire Watch Requirements

A fire watch **SHALL** be required for all hot work outside of designated hot work areas and when required by the cognizant FPE inside designated areas.

Fire watches **SHALL NOT** be assigned other duties.

The fire watch **SHALL** have successfully completed Fire Watch Training (Course #044400), and be within the re-certification training date. The fire watch **SHALL** clearly understand the following when performing fire watch duties:

- The area to be fire watched
- Potential fire hazards (to personnel and property)
- Appropriate emergency procedures and actions
- Methods for sounding alarm(s)
- Procedure for manually activating fire suppression systems (if applicable)
- That he/she has the authority to stop the hot work operations if unsafe conditions develop

The fire-watch **SHALL** be provided with a fully charged and operable fire extinguisher at the worksite throughout the entire job. Ensure a separate extinguisher is brought to the worksite. Do not take a mounted extinguisher in the facility from its storage rack, except in case of fire.

A fire watch **SHALL** be maintained for at least ½ hour after completion of hot work operations in order to detect and extinguish smoldering fires.

For torch-applied roofing operations a fire watch **SHALL** be posted for at least 2 hours following completion of the operation.

Hot Work Performed in Designated Area

A Fire Marshal Permit **SHALL** be required to authorize an area as a designated hot work area. The Fire Marshal Permit **SHALL** be posted at the designated area. The permit **SHALL** address the following as a minimum:

- Criteria to which the area **SHALL** be maintained
- PPE requirements for fire related hazards

NOTE: Refer to AJHA for all PPE requirements

- Fire watch requirements per Section 3.16.1 of PRC-STD-FP-40404, *Fire Protection Program*
- Special circumstances pertaining to PPE/fire watch requirements. (Example: Establishing a fire watch in lieu of PPE requirements or vice versa for specific hot work operations)
- Criteria that would require a new permit, (i.e., facility modifications, etc).

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NOTE: *A dedicated fire watch is not required in a designated hot work area unless otherwise specified by the cognizant FPE.*

Designated areas **SHALL** be evaluated by the cognizant Deputy Fire Marshal (DFM) with consideration for:

- A specific area designed or approved for hot work
- Fire resistive or of noncombustible construction
- Essentially free of combustible and flammable contents
- Suitably segregated from adjacent areas

The cognizant DFM **SHALL** designate all controls in designated areas

NOTE:

- *A dedicated fire watch is not required in a designated hot work area unless otherwise specified by the cognizant FPE*
- *For the purposes of this procedure, a designated area is defined as a permanent location designed and approved for hot work operations to be performed regularly and suitably segregated from adjacent areas. The Fire Marshal Permit demonstrates that the area has been reviewed by a DFM to ensure it qualifies for a designated hot work area and establishes any applicable controls. The Job Supervisor and cognizant facility Manager are responsible to ensure the area is maintained in accordance with the requirements in this document and the Fire Marshal Permit*

The area **SHALL** be provided with a fully charged and serviced portable fire extinguisher (minimum 2A-10BC rating) that serves only the designated hot work area.

The area **SHALL** have adequate ventilation (consult Industrial Hygiene, if necessary). Inside buildings, the designated area **SHALL** be provided with visual protection, i.e. surrounded by a booth or screen.

Designated hot work area permits **SHALL** be reviewed annually and approved by the cognizant DFM.

Hot Work Performance Outside of Designated Areas

Hot work that is performed at locations other than in a designated hot work area **SHALL** require an approved *CHPRC Hot Work Permit* (Site Form A-6006-115) before each job with the exception of the following types of hot work:

- Sanding using grinders with sanding discs
- Peanut grinding
- Dremmel tool grinding
- Pedestal grinders

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- Pedestal sanders
- Rotary files
- Reciprocating saws
- Circular saws
- Nibblers
- German saws
- Electric soldering

NOTE: *The Hot Work permit will identify the fire related PPE requirements. Refer to AJHA for all PPE requirements.*

Cognizant FPE approval **SHALL** be required on all hot work permits.

The following high hazard hot work **SHALL** require notification of the Hanford Fire Marshal (FAX 373-5846 copy of the permit):

- SMAW- Shielded Metal Arc Welding-Stick Welding
- GMAW-Gas Metal Arc Welding –MIG Welding (Metal Inert Gas) wire feed welding, squirt gun welding
- FCAW-Flux Cored Arc Welding-Wire feed welding with a flux core in the wire
- CAC-A - Air Carbon Arc Cutting
- CAC-Carbon Arc Cutting (no air)
- PAC-Plasma Arc Cutting
- OFC-Oxy-Fuel Cutting (Cutting torch)
- Heavy Grinding-using Bayflex grinder, side grinder, 6” to 8” grinding wheel (disc)
- Light Grinding-using 4” and smaller grinding wheel
- Cut-off Saw

A fire-watch **SHALL** be established before starting the hot work.

The work area **SHALL** be inspected to ensure compliance with the following:

- The job relocated to avoid exposure if possible.
- Combustibles moved at least 35 feet away from the work or protected by noncombustible/fire retardant covers, shields, or blankets or, if appropriate, the combustible materials may be wetted.
- Shut down ducts that might carry sparks to distant combustibles.

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NOTE: *Combustible- A material that, in the form in which it is used and under the conditions anticipated, will ignite and burn.*

- All openings or cracks in walls, floors, systems, and equipment within 35 ft. of the work **SHALL** be covered or plugged to prevent sparks from reaching adjacent areas.
- Hot work to be performed near walls, partitions, ceilings or roofs of combustible construction **SHALL** be provided with fire-retardant shields or guards to prevent ignition.
- If hot work is to be performed on a wall, partition, ceiling or roof, precautions **SHALL** be taken to prevent ignition of combustibles on the opposite side by relocating combustibles. If it is impractical to relocate combustibles, a fire watch on the opposite side from the work **SHALL** be provided.
- Every elevated hot work operation **SHALL** be evaluated on a case-by-case basis by the cognizant FPE to determine a reasonable safe distance from hot work to combustible occupancies or construction. For elevated hot work, combustible materials **SHOULD** be either relocated a minimum of 50 ft. from the hot work area; or properly protected with fire retardant welding blankets; or the hot work operation isolated with welding screens. Suspend fire-resistive welding blankets under hot work conducted near the ceiling. Place noncombustible screens around hot work at the floor to trap sparks. The physical conditions involved may dictate relocation of combustibles beyond 50 ft.
- Welding **SHALL NOT** be performed on metal partitions, walls, ceilings, or roofs with combustible coverings or with combustible sandwich-type panel construction.
- When hot work is performed on pipes or other metal objects that are, or have been, in contact with combustible materials or flammable materials such as flammable liquids the configuration **SHALL** be evaluated by the cognizant FPE to ensure that heat conduction through the metal does not present the threat of ignition.
- If installed, automatic fire suppression systems **SHALL** be operable unless concurrence is obtained from the cognizant FPE.

NOTE: *Special precautions need to be taken to avoid accidental operation of the system. Consult with the cognizant FPE for appropriate special precautions to avoid inadvertent actuation of fire protection systems.*

- If installed, the Hanford Fire Department **SHALL** bypass or protect smoke/heat detectors that may be affected by the work, before the hot work begins (and restored to service as soon as possible after the job)

NOTE: *Depending on the operation, detectors may need to be covered or removed.*

- Before initiating hot work in spaces classified as confined spaces as defined in PRC-RD-SH-11258, *Confined Space*, the cognizant FPE **SHALL** evaluate the hazard based on NFPA 326 *Standard for Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair*
- Prior to hot work on small tanks, containers or piping, the FPE **SHALL** evaluate the hazard based on NFPA 326.