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### 1 PURPOSE

1.1 This procedure is intended to address any and all hot work or similar operations and activities, including but not limited to: welding, brazing, torch cutting, grinding, and torch soldering, with the goal of preventing hot work associated fires.


### 2 SCOPE – APPLIES TO WHERE & WHEN THE WORK INSTRUCTION IS USED

2.1 This procedure applies to operations and activities, under normal conditions and reasonably foreseeable situations, in the office and facilities of MTS Test Division and applies as referenced within the scope of the EHS Manual.

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### 3 DEFINITIONS AND ACRONYMS

- 3.1 **Hot Work Operators (HWO):** employees who are experienced and proficient at performing the hot work operations = must always obtain a Hot Work Permit prior to beginning any hot work activity but **are not** allowed to issue their own permits
- 3.2 **Area Mangers/Supervisors and or designated Permit Authorizing Individuals (PAI):** inspects hot work sites prior to the start of hot work operations and uses the permit form checkboxes to evaluate the area. PAI may designate an employee to serve as the fire watch. Once all requirements on the permit form are confirmed and satisfied the PAI signs the permit, and contacts the EHS or designated Facilities representative for their review/initials, then posts the permit in the area where the work is to be performed.
- 3.3 **Environmental Health and Safety/Facilities Representatives:** oversees the hot work permit program for hot work operations and the use of all permit forms. Are responsible for designating and or supporting employees acting as the Permit Authorizing Individual (PAI) with the issuance and fulfillment of the Hot Work Permits = must review the hot work area/location and confirm all the required aspects of the permit are satisfied, prior to final initials applied/ sign off and the initiation of any activities.
- 3.4 **Fire Watch:** Posted to monitor the safety of hot work operations and watch for fires when needed. Fire Watches are posted/designated by the PAI, when the situation or conditions require one during hot work (as noted in section 5.1.3), and per required MTS protocol, for a **minimum of 30 minutes after all hot work project activities have been completed**
- 3.5 **Designated Hot Work Areas:** A permanent location designed and designated for hot work where permits are not required = areas must meet the following criteria:
  - area contains non-combustible fire resistive materials/construction and is free of all combustible or flammable material
  - must be adequately segregated from adjacent areas
  - must be equipped with fire extinguishers
  - must have been inspected and reviewed by EH&S

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## 4 RESPONSIBILITIES

Prior to any Hot Work Initiation: MTS utilizes a **three part formal Hot Work Permit Form (Part A/ Part B/ Back Emergency Contact-** pages) that must be filled out by the Operator and the Permit Authorizing Individual, prior to final review, and initial by the EH&S or Facilities representative BEFORE any hot work can begin -\*SEE HOT WORK PERMIT FORM PICTURES AND DETAILS BELOW\*.

### Responsibilities

#### 4.1 EHS Department and Facilities


4.1.1 EH&S and Facilities departments are responsible for developing and maintaining this Hot Work Permit Procedure, including the initial training of all staff to the procedure and the general awareness instruction of qualified Hot Work Operators and Permit Authorizing Individuals to perform the hot work, issuance of the permits themselves to the PAI, and review/sign off/initial of the permit prior to hot work initiation.

#### 4.2 Hot Work Operator

- 4.2.1 Determines a need for hot work and is experienced and proficient at the hot work task to be performed.
- 4.2.2 Ensures the area around hot work activities is in compliance with the safety requirements of the Of Work Permit.
- 4.2.3 Contacts the Permit Authorizing Individual.
- 4.2.4 Completes signing the hot work once all permit safety guidelines are satisfied and returns to the PAI for review and signature.
- 4.2.5 Completes the back side of the hot work permit form detailing MTS emergency contact information – prior to project initiation and working with the PAI

#### 4.3 Permit Authorizing Individual

- 4.3.1 Inspects the hot work site and reviews/completes, then signs the Hot Work Permit Form.
- 4.3.2 Posts/assigns a Fire Watch (could the PAI themselves).
- 4.3.3 Once all permit safety guidelines are satisfied, the PAI signs, presents the form to the EH&S or Facilities contact for review, approval, and signature, then posts the permit in the work area.


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#### 4.4 Fire Watch Designee

- 4.4.1 Assigned by the permit authorizing individual (note: as needed, in some cases the fire watch can be performed by the PAI as well) and must be on hand per provisions of the hot work program = MTS requires a minimum fire watch of 30 minutes following any and all hot work permit activities, or when conditions call for the immediate use of one during activities  
  - \*Note: Contractors are asked to provide their own fire watch personnel for permit required activities when at all possible.
- 4.4.2 Must be in reasonable, close proximity of a fire extinguisher unit and be familiar with its operation and use. Fire extinguisher units should be up to date, inspected/signed off, and confirmed fully charged prior to any standby/fire watch use
- 4.4.3 Signs/completes the fire watch section of the permit (Signoff and Final Checkup Signature Lines) when completed (after at least 30 minutes), and turns into the permit authorizing individual for final submission and filing with the EHS /Facilities representative

## 5 PROCEDURE

- 5.1 Safety Measures required by the Hot Work Permit
  - 5.1.1 The 35-Foot Rule:
    - 5.1.1.1 All flammable and combustible materials within a 35-foot radius of hot work must be removed.
    - 5.1.1.2 When flammable and combustible materials within a 35-foot radius of hot work cannot be removed they must be covered with flame retardant tarps and a fire watch must be posted during hot work activities.
    - 5.1.1.3 Floors and surfaces within a 35-foot radius of the hot work area must be swept free of combustible dust or debris.
    - 5.1.1.4 All openings or cracks in the walls, floors, or ducts that are potential travel passages for sparks, heat and flames must be covered.
  - 5.1.2 Fire Detection and Suppression:
    - 5.1.2.1 A fire Extinguisher must be readily available, accessible, inspected and fully operational
    - 5.1.2.2 In certain cases, smoke detection and alarm systems may be covered

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for the duration of the hot work permit, to prevent false alarms (red tag - out of service tags should be attached to units to inform all in the area that detection systems have been temporarily suspended)


5.1.2.3 Individual sprinkler heads in the direct area of the hot work may be covered with a wet rag to prevent accidental activation (red tag – out of service tag should be attached to units to inform all that detection systems have been temporarily suspended)

**5.1.3 Fire Watch – must immediately be posted by the PAI under the following conditions (\*Note: would need to be an additional staff member to the hot work operator w/fire extinguisher awareness) :**

- 5.1.3.1 Combustible materials cannot be removed from within a 35 foot radius of the hot work location
- 5.1.3.2 wall or floor openings that expose combustible materials in adjacent locations are within a 35 foot radius of hot work area (including concealed spaces in walls/floors)
- 5.1.3.3 Combustible materials are adjacent to the opposite side of a partition, wall, ceiling or roof area and can be ignited

**5.1.4 General Guidelines**

- 5.1.4.1 work should be performed using alternative methods, other than hot work, whenever possible
- 5.1.4.2 hot work should be performed in designated hot work areas and locations, whenever it is practical
- 5.1.4.3 Where practicable all combustibles shall be relocated at least 35 feet from the work site and when impracticable, combustibles shall be protected with flame proofed covers or otherwise shielded with metal, welding blankets, or fireproof guards/curtains
- 5.1.4.4 Ducts that might carry sparks to distant combustibles shall be suitably protected or shut down (Facilities/EHS review and approval required)
- 5.1.4.3 a hot **work permit is valid for one day and one area** and should be posted in the area of the hot work for the full duration of the activity
- 5.1.4.5 a copy of every permit shall be filed by EH&S /Facilities in a designated location and **kept for at least 6 months**

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**6 GRAPHICS & PERMIT REQUIREMENTS**

6.1.5 Hot Work Permit Form



**HOT WORK PERMIT**

All temporary operations involving open flames or producing heat and/or sparks require a Hot Work Permit. This includes, but is not limited to, brazing, cutting, grinding, soldering, thawing, and welding.

**PART A**

**INSTRUCTIONS FOR FIRE SAFETY SUPERVISOR**

1. Verify precautions listed at right (or do not proceed with the work).
2. Complete PLY 1 and retain for job files.
3. Post PLY 2 in vicinity of hot work.

DATE: \_\_\_\_\_ JOB NO.: \_\_\_\_\_

LOCATION/BUILDING & FLOOR (Be Specific): \_\_\_\_\_

DESCRIPTION OF WORK BEING PERFORMED: \_\_\_\_\_

NAME OF PERSON DOING HOT WORK: \_\_\_\_\_

The above location has been examined, the precautions checked on the Hot Work Checklist have been taken to prevent fire, and permission is authorized for this work.

SIGNED: \_\_\_\_\_ (Fire Safety Supervisor)

SIGNED: \_\_\_\_\_ (Person doing Hot Work)

SIGNED: \_\_\_\_\_ (Fire Watch)

TIME STARTED: Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM/PM

PERMIT EXPIRES: Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM/PM

**HOT WORK CHECKLIST**

- Sprinklers and fire hoses streams in service/operable.
- Hot Work equipment in good condition (e.g., power source, welding leads, torches, etc.)
- Multi-purpose fire extinguisher and/or water pump can.

**REQUIREMENTS WITHIN 35 FEET OF WORK**

- Dust, lint, debris, flammable liquids and oily deposits removed.
- Explosive atmosphere in area eliminated.
- Combustible floors (e.g., wood, tile, carpeting) wet down, covered with damp sand or fire blankets.
- Flammable and combustible material, remove where possible. Otherwise protected with fire blankets, guards, or metal shields.
- All wall and floor openings covered.
- Walkways protected beneath hot work.

**WORK ON WALLS OR CEILINGS**

- Combustibles moved away from other side of wall.

**WORK IN CONFINED SPACES**

- Confined space cleaned of all combustibles (example: grease, oil, flammable vapors).
- Containers purged of flammable liquids/vapors.
- Company confined space guidelines followed.

**FIRE WATCH/HOT WORK AREA MONITORING**

- Fire watch will be provided during and for 30 minutes after work, including any coffee or lunch breaks.
- Fire watch is supplied with an extinguisher, and/or water pump can, also making use of other extinguishers located throughout work area.
- Fire watch is trained in use of this equipment and familiar with location of sounding alarm.
- Fire watch is required for opposite side of walls, above, and below floors and ceilings.

**OTHER PRECAUTIONS TAKEN**

\_\_\_\_\_


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FILL OUT EMERGENCY INFORMATION ON BACK OF PLY 2.  
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**MTS – Part A Hot Work Permit Form - to be filled out, completed and signed by all involved parties prior to project initiation**

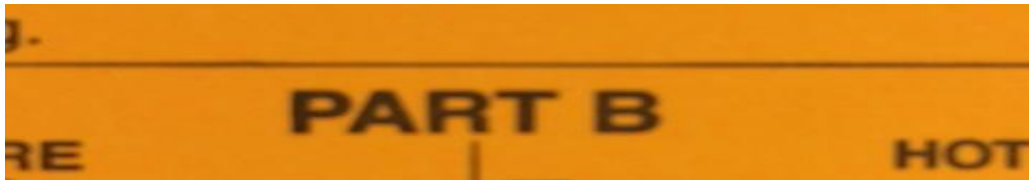


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**MTS – Back Side of the Hot Work Permit Form - to be filled out and completed by the operator or PAI, prior to project initiation, to convey who and or what number to contact in case of an emergency**

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**HOT WORK PERMIT**

All temporary operations involving open flames or producing heat and/or sparks require a Hot Work Permit. This includes, but is not limited to, brazing, cutting, grinding, soldering, thawing, and welding.

**INSTRUCTIONS FOR FIRE SAFETY SUPERVISOR**

- Verify precautions listed at right (or do not proceed with the work).
- Complete PLY 1 and retain for job files.
- Post PLY 2 in vicinity of hot work.

**PART B**

**HOT WORK CHECKLIST**

- Sprinklers and fire hoses streams in service/operable.
- Hot Work equipment in good condition (e.g., power source, welding leads, torches, etc.)
- Multi-purpose fire extinguisher and/or water pump can.

**REQUIREMENTS WITHIN 35 FEET OF WORK**

- Dust, lint, debris, flammable liquids and oily deposits removed.
- Explosive atmosphere in area eliminated.
- Combustible floors (e.g., wood, tile, carpeting) wet down, covered with damp sand or fire blankets.
- Flammable and combustible material, remove where possible. Otherwise protected with fire blankets, guards, or metal shields.
- All wall and floor openings covered.
- Walkways protected beneath hot work.

**WORK ON WALLS OR CEILINGS**

- Combustibles moved away from other side of wall.

**WORK IN CONFINED SPACES**

- Confined space cleaned of all combustibles (example: grease, oil, flammable vapors).
- Containers purged of flammable liquids/vapors.
- Company confined space guidelines followed.

**FIRE WATCH/HOT WORK AREA MONITORING**

- Fire watch to be provided during and for 30 minutes after work, including any coffee or lunch breaks.
- Fire watch is supplied with an extinguisher, and/or water pump can, also making use of other extinguishers located throughout work area.
- Fire watch is trained in use of this equipment and familiar with location of sounding alarm.
- Fire watch is required for opposite side of walls, above, and below floors and ceilings.

**OTHER PRECAUTIONS TAKEN**

**FIRE WATCH SIGNOFF**

Work area and all adjacent areas to which sparks and heat might have spread were inspected during the fire watch period and were found fire safe.

Signed: \_\_\_\_\_

**FINAL CHECKUP (minimum 30 minutes after Hot Work)**

Work area was monitored for \_\_\_\_\_ hour(s) following Hot Work and found fire safe.

Signed: \_\_\_\_\_

**STARTED:** Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM/PM


**PERMIT EXPIRES:** Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM/PM

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**MTS – Part B Hot Work Permit Form – Bottom Fire Watch Section to be completed and signed at the end of the project, following the 30 minute minimum fire watch period & final checkup confirmation**



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**6.1.6. Operations not requiring a hot work permit**


- fixed grinding wheels
- electric soldering irons
- Bunsen or similar burners in controlled laboratories

**6.1.7 Non-Permissible Hot Work Conditions**

- Areas where the building sprinkler system is impaired/broke, prior to the project initiation
- When the entire building fire detection system is shut down, prior to the project initiation
- In the presence of any explosive atmosphere where mixtures of flammable gases, vapors, liquids, or dusts may exist
- In any tank system, drum or other container and equipment that may have contained materials that could create explosive atmospheres
- In areas near storage of large quantities of exposed, readily ignitable material (paper, bulk flammables, etc..)
- When not authorized by management

**6.1.8 Training Requirements**

6.1.8.1 **All** individuals involved with hot work at MTS (managers/supervisors – EH&S/Facilities, permit authorizing individuals, hot work operators, and fire watch personnel) are required to have completed the employee and or contractor (as applicable), EHS-General Awareness training, which includes a section pertaining to hot work, permits and key elements of this procedure as well as the initial review of this procedure

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6.1.8.2 Refresher training is required annually with the general awareness training - contractors when their badges are renewed (yearly) and employees through the LMS annually

**7 ASSOCIATED QUALITY RECORDS – AS STATED IN THE QUALITY RECORDS LIST**

Required Record
Hot Work Permit Form
MTS – Employee and Contractor General Awareness Training

**8 REFERENCE FORMS / TEMPLATES / DOCUMENTS**

Form / Template / Document Title	Location
OSHA 1910.252 – Welding, Cutting and Brazing	OSHA Website
NFPA Standard 51B	NFPA website

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**9 CURRENT REVISION'S TRAINING REQUIREMENTS**


Training requirements are determined by the document owner.

1. Select Awareness **and/or** Formal training requirements.
2. List (below) the functions or groups that require the training.

Select (mark X)	Training Type	Training Definition
X	Awareness	Awareness training is conducted by communication, which is sent/delivered by the approver/author/owner of the document to the affected employees/groups.
	Formal	Formal training requires the approver/author/owner to collect/store evidence that the affected employees/groups were trained.

**Functions/Groups that require awareness to this procedure:**

- Awareness: EHS Department, Facilities, all pertinent Operations Group Staff and related support personnel, Contractors/Vendors who may conduct hot work activities.

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## 10 REVISION HISTORY & APPROVAL

Revision History			
Rev	Description of Change	Author	Effective Date
A	Original	Bob Klenotich	10/15/12
B	Section 2 revised scope: removed Chanhassen.	Paula Williams	04/23/2014
C	Sections 4, 5 and 6 all revised w/pictures and examples of the permit form for completion clarification	James Kinney	06/30/15

Approval of Current Revision		
Name / Function	Signature	Date
Rod Christensen / Director of Quality Management (EHS Manual)	On file	01/29/2014 (scope change only from Rev A, per Quality Management Rep)
Bob Klenotich / EHS Manager-Document Originator	On file	02/12/2014 (scope change only from Rev A, per EHS Manager)
James Kinney / EHS Manager-Document Originator	On file	06/19/2015 (content change and revision from Rev B, per EHS Manager)