

**Princeton Plasma Physics Laboratory  
Procedure**

**Procedure Title: D-Site Work Permits**

|                                 |                     |  |
|---------------------------------|---------------------|--|
| <b>Number</b> D/D-Site-OP-AD-09 | <b>Revision:</b> 11 | <b>Effective Date:</b> 8/30/17   |
|                                 |                     | <b>Expiration Date:</b> 8/30/20<br>(2 yr. unless otherwise stipulated) |

**Procedure Approvals**

|                            |                     |                          |
|----------------------------|---------------------|--------------------------|
| <b>Author</b> C.A. Gentile | <i>C.A. Gentile</i> | <b>Date</b> Aug 30, 2017 |
| <b>ATI</b> C.A. Gentile    | <i>C.A. Gentile</i> | <b>Date</b> Aug 30, 2017 |
| <b>RLM</b> A. vonHalle     | <i>A. vonHalle</i>  | <b>Date</b> Aug 30, 2017 |

**Responsible Department:** Engineering and Infrastructure

**Procedure Requirements  
Designated by RLM**

**LABWIDE:**

|  |   |
|--|---|
| Work Planning Form # _____ (ENG-032)   | Lockout/Tagout (ESH-016)                              |
| Confined Space Permit (5008, Sec. 8, Chap 5)   | Lift Procedure (ENG-021)                              |
| Master Equip. List Mod (MC-002/003)  | ES&H Review (NEPA, IH, etc.)                          |
| RWP (HP-OP-20)   | Independent Review                                    |
| ATI Walkdown   | Pre-job Brief   |
| Post-job Brief   | Hazard Analysis                                       |
| Run Copy Required (performance of procedure must be documented and archived per ENG-030 page 10) | Special archiving requested for completed Run Copies: |

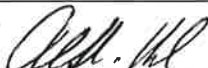
**D-SITE SPECIFIC:**

|   |   |
|---|---|
| D-Site Work Permit (OP-AD-09)                   | Door Permit (OP-G-93)                   |
| Work on Tritium Contaminated Systems (OP-AD-77) | Activity Certification Committee Review |
| Pre-job brief (ENG-030)                         | T-MOD (ENG-03)                          |
|   |   |

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**D-Site Work Permits  
D/DSITE-OP-AD-09**

| <b>REVIEWERS (designated by RLM)</b>                  |  |
|---|--|
| Accountable Technical Individual                      | C. Gentile   |
| Test Director   |  |
| Independent Reviewer                                  |  |
| D-Site Shift Supervisors                              | W. Blanchard, R. Camp, C. Gentile, S. DePasquale, G. Ascione |
| NSTX-U  |  |
| D-Site Caretaking                                     |  |
| Vacuum  |  |
| Tritium   |  |
| Quality Assurance/Quality Control.                    |  |
| Maintenance and Operations Division                   |  |
| Energy Conversion System/Motor Control System         |  |
| Heating Systems                                       |  |
| Environmental Restoration & Waste Management Division |  |
| Construction Manager                                  | E. Perry   |
| Environmental, Safety, & Health                       | J. Levine  |
| Industrial Hygiene                                    |  |
| Health Physics  | G. Ascione   |
| Project Management                                    | T. Stevenson   |

| <b>TRAINING (designated by RLM)</b>   |           |                                    |             |
|---|-----------|------------------------------------|-------------|
| No training required _____ Instructor _____   |           |                                    |             |
| Personnel (group, job title or individual name)   | Read Only | Instruction<br>Pre-job<br>Briefing | Hands<br>On |
| <b>Users</b>  | ✓         |                                    |             |
| <b>NSTX Accessors</b>   | ✓         |                                    |             |
|   |           |                                    |             |
|   |           |                                    |             |
| RLM A. vonHalle  |           |                                    |             |

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## 1.0 PURPOSE

The purpose of this procedure is to establish a system of Work Permits (WP) to control tasks within the D-Site Facility. The Work Permit system is a mechanism to control and coordinate work activities; maintain a safe working environment; implement rules for maintaining workplace cleanliness; and recording of tasks. In addition, provisions for documenting the evolution of routine or minor activities are also included. Users of the Work Permit System should plan for sufficient time for appropriate safety reviews, surveys, and D-Site Shift Supervisor reviews. The D-Site work permit system is a paperless, on-line electronic system. Access to the D-Site Work permit system is from the PPPL Shift Supervisors web page. For NSTX-U construction activities, work flow will be approved and controlled via OP-AD-129, Work Control Center Operating Procedure for NSTX Upgrade.

## 2.0 SCOPE

### 2.1 Applicability

1. Work Permits are applicable at all times and shall be used to authorize work activities in the NSTX Test Cell (NTC), the Tokamak Test Cell (TTC), Test Cell Basement (TCB), Tritium Area (TA), Mechanical Equipment Room (MER), and the D-site roof areas (during NSTX-U Run Periods). Work Permits are also applicable for work that may affect the Liquid Effluent Collection System (LECS), D-Site Stack, NTC, TTC, TCB, MER, Tritium Area, and other areas as required.

### 2.2 Requirements

1. Except for access to the D-Site roofs during NSTX-U Run Periods, Work Permits are not required for the following activities provided personnel do not enter radiation or contamination fields:
  - Inspections;
  - Supervisory personnel exercising purely supervisory functions;
  - Personnel performing routine startup, shutdown, surveillance, monitoring, or minor adjustment activities (when these activities do not require tools);
  - Personnel performing safety inspections;
  - Guided tour groups.
2. While most activities require an approved procedure, Attachment 1 provides a method for documenting the evolution control requirements for minor or routine activities as an alternative to a run-copy procedure or IP. Examples of when an **Attachment I CANNOT be used include:**
  - Interfacing to a working experimental vacuum system that involves any possible risk to the vacuum, or exposes someone to the content of that volume. This includes replacing vacuum oil, removing flanges, or venting direct vacuum appendages;
  - Any Lockout/Tag requiring a written procedure per ES&H-16;
  - Tritium contaminated line breaks;
  - Work in a radiation field (above 2.4 mrem/hr);

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- Tritium contaminated water release or draining;
  - Work that would make equipment inoperable as described in OP-AD-77, HVAC, tritium stack and area monitors, and tritium systems;
  - Use of materials with industrial hygiene hazards as determined in the JHA
  - System removals that may interface with other operating systems.
  - Modifications to the NSTX Grounding System.
  - Any Lockout/Tagout requiring an equipment-specific procedure per ESH-016
3. **Specifically included for using Attachment I are work activities involving:**
- Movement of material and equipment within a radiological controlled area under an approved, current RWP.
  - Relocation and field fittings of equipment
  - Equipment troubleshooting and repair using approved safing and access procedures.
4. Activities approved under Attachment I should be at the highest level of assembly possible (to minimize the number of permits), and multiple tasks within the same work discipline may be grouped on a single permit with the concurrence of the D-Site Shift Supervisor. If there are questions as to the appropriate permit to use, contact the D-Site Shift Supervisor (%163).

### 3.0 REFERENCES

1. ESHD-5008 *PPPL ES&H Manual*
2. ESH-004, *Job Hazard Analysis*
3. ESH-016 *Control of Hazardous Energy Sources via Lockout/Tag out of Energy Isolation Devices*
4. FNG-036 *Control of Temporary Modifications*
5. HP-OP-04, *Surface Contamination Surveys*
6. HP-OP-06, *Monitoring for Occupational Exposure to Airborne Tritium*
7. HP-OP-12, *Radiological Work Permit Procedure*
8. OP-AD-24 *Experimental Area Cleanliness*
9. OP-AD-39 *Conduct of Operations*
10. OP-AD-56 *Control of Equipment and System Status*
11. OP-AD-77 *Operating and Maintenance of Tritium Contaminated Systems*
12. OP-AD-129 *Work Control Center Operating Procedure for NSTX upgrade*
13. OP-AD-115, *Moving Radioactive/Contaminated Material To/From D-Site*

## 4.0 PROCEDURE

### 4.1 Job Supervisor

1. Identifies the need to do work in the NSTX-U Test Cell (NTC), Tokamak Test Cell (TTC), Test Cell Basement (TCB), Tritium Area, Mechanical Equipment Room (MER), the D-site roof areas, areas determined by the Engineering Department Head., or identifies activities that might affect these areas. Ensures that all workers are qualified for tasks that they will perform.
2. Fully completes the appropriate on-line electric Work Permit as described in steps 3 through 5.
3. Completes the following sections of Attachment II:

General – identifies the Job Supervisor point of contact (telephone number); identifies date and time of intended entry, and expected closeout date; any additional workers and their tools; and a description of the work. Indicates whether QC, IH or HP support are required (if QC, IH or HP is needed for the job, notifies QC, IH or HP prior to the start of the job).

Location – identifies the location(s) of the work activities.

Documentation – identifies the documents controlling the work activity (Work Planning Form, IP other Procedure, or Attachment I); indicates if Lockout/Tag out, RWP, Flame Permit, Door Permit, Tritium Release Permit, Lift Procedure, and/or Confined Space Permits are required. Ensures a Job Hazard Analysis has been completed for the activity.

The Job Supervisor shall assure that all workers on the job are fully cognizant of all work area cleanliness and safety concerns.

4. For MINOR Activities – Details procedural steps in Attachment I.

4.1 Job Supervisor (continued)

5. The Job Supervisor signs and dates the WP. It is the responsibility of the responsible individual to complete the WP in sufficient time prior to the anticipated start of work and to ensure that the D-Site Shift Supervisor has reviewed and approved it.
6. At the conclusion of the activity or at the request of The D-Site Shift Supervisor, the Job Supervisor (or designee) closes out. The Job Supervisor confirms that no un-surveyed material has been removed from the TC, TCB, or TA, that all tools have been removed and that all areas where work has been done are safe and clean.

4.2 QC

1. Assists in work activities as needed.

4.3 HP

1. Provides The D-Site Shift Supervisor with Global Surveys and specific surveys, and radiation levels and stay times to be entered on the WP.
2. Writes Radiation Work Permits (RWP's) as needed, surveys material to be removed from the TTC, TA, or the NSTX-U TC. Assists in the work activities as needed. Writes RWP's for roof access as required by HP.
3. Performs surveys of the D-Site roof areas for radiation and contamination levels at HP's discretion.
4. Assures that there are no HP concerns for D-Site roof access.

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- 4.4 D-Site Shift Supervisor
1. Reviews the Job Supervisor portion of the WP for completeness and acceptability. In consultation with the Job Supervisor, modifies the Work Permit as appropriate.
  2. Approves or Disapproves D-Site Work Permits as needed.
  3. Close out Work Permits as appropriate.

## 5.0 ACRONYMS

|        |   |
|--------|---|
| FCPC   | Field Coil Power Conversion                 |
| HP     | Health Physics                              |
| HVAC   | Heating, Ventilation, and Air Conditioning  |
| IH     | Industrial Hygiene                          |
| MER    | Mechanical Equipment Room                   |
| MG     | Motor Generator                             |
| NBPC   | Neutral Beam Power Conversion               |
| NEPA   | National Environmental Policy Act           |
| TTC    | Tokamak Test Cell                           |
| NSTX-U | National Spherical Torus Experiment Upgrade |
| NTC    | NSTX-U Test Cell                            |
| QC     | Quality Control                             |
| RWP    | Radiation Work Permit                       |
| TA     | Tritium Area                                |
| TC     | Test Cell                                   |
| TCB    | Test Cell Basement                          |
| WP     | Work Permit                                 |

# Work Permit Entry Form

Work Permit No **PENDING**

Date Submitted **8/28/2017**

Status **AWAITING APPROVAL**

REQUIRED ITEMS HIGHLIGHTED IN YELLOW

Email HINT: Click the email down arrow first then begin typing your email address and click on yours.

|  |                      |
|--|----------------------|
| Job Supervisor Email   | <input type="text"/> |
| Select a location using the arrow to the right or enter in a new one | <input type="text"/> |
| Names of Additional Workers  | <input type="text"/> |
| Tools?   | <input type="text"/> |
| Description of Work  | <input type="text"/> |
| Est Completion Date  | <input type="text"/> |

Name Phone

HP Required? Yes • No

IH Required? Yes • No

QC Required? Yes • No

Does job involve radioactive material? Yes • No

Note: If yes, then all material must be surveyed by HP prior to leaving RCA.

Flame Permit Required? Yes • No

Drilling or Penetration Permit Required? Yes • No

Door Permit Required? Yes • No

Lift Procedure Required? Yes • No

Confined Space Permit Required? Yes • No

T2 Gas or Water Release Permit Required? Yes • No

Radiation Work Permit Required? Yes • No

T2 line break or vent Required? Yes • No

### 3. A JHA AND either a Procedure or Attachment 1 are REQUIRED!

Choose Procedure Yes • No  
one: Attachment 1 Yes • No

JHA has been completed:  
Yes

A Branch Head MUST approve Attachment I (if used)

In the box below, enter either a Procedure Number OR Attachment 1 Details of work to be performed.

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