

**Princeton Plasma Physics Laboratory
Procedure**

Procedure Title: D-Site Work Permits

Number D/D-Site-OP-AD-09	Revision: 10	Effective Date: 2/11/15 Expiration Date: 2/11/18 (2 yr. unless otherwise stipulated)
---------------------------------	---------------------	--

Procedure Approvals

Author C.A. Gentile	Charles A. Gentile <small>Digitally signed by Charles A. Gentile DN: cn=Charles A. Gentile, o, ou, email=cgentile@pppl.gov, c=US Date: 2015.02.11 11:27:54 -05'00'</small>	Date
ATI A. vonHalle	Alfred von Halle <small>Digitally signed by Alfred von Halle DN: cn=Alfred von Halle, o, ou, email=avonhalle@pppl.gov, c=US Date: 2015.02.10 11:18:19 -05'00'</small>	Date
RLM M.D. Williams	Mike Williams <small>Digitally signed by Mike Williams DN: cn=Mike Williams, o=PPPL, ou=Engineering, email=williams@pppl.gov, c=US Date: 2015.02.11 11:36:00 -05'00'</small>	Date

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)

CONTROLLED COPY

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

REVIEWERS (designated by RLM)	
Accountable Technical Individual	A. vonHalle
Test Director	
Independent Reviewer	
D-Site Shift Supervisor	W. Blanchard, R. Camp, R. H. Carnevale, C. Gentile
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	
Environmental, Safety, & Health	E. Perry
Industrial Hygiene	
Health Physics	G. Ascione
Project Management	T. Stevenson

TRAINING (designated by RLM)			
No training required _____ Instructor _____			
Personnel (group, job title or individual name)	Read Only	Instruction Pre-job Briefing	Hands On
Users	✓		
NSTX Accessors	✓		
RLM M. Williams Mike Williams			
<small>Digitally signed by Mike Williams DN: cn=Mike Williams, o=PPPL, ou=Engineering, email=williams@pppl.gov, c=US Date: 2015.02.11 11:36:22 -05'00'</small>			

CONTROLLED COPY

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 means 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.

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), Radioactive Waste Storage Facility (RWSF), 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 determined by the Engineering Department Head.

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 Work Permit (Attachment II), Attachment I 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);
 - 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.

2.2 Requirements (continued)

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-16 *Control of Hazardous Energy Sources via Lockout/Tag out of Energy Isolation Devices*
4. ENG-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-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), Radioactive Waste Storage Facility (RSWF), 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 Work Permit as described in steps 3 through 5 and presents the Work Permit to the D-Site Shift Supervisor.
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 – Completes sections 1 through 4 of 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 WP by signing on the reverse side of the WP. In so doing, the Job Supervisor confirms that no unsurveyed 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 and signs the closeout portion of the WP as required.

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.
5. Signs the closeout portion of the WP as required.

CONTROLLED COPY

- 4.3 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 WP as appropriate.
 2. Completes the D-Site Shift Supervisor section of the work permit. The D-Site Shift Supervisor can, at his/her discretion, extend work permit control to other areas or concerns, not specifically addressed on the permit, as conditions warrant. Additional concerns are addressed in the "Comment" field at the bottom of the permit.
 3. The D-Site Shift Supervisor signs his approval of the WP. Enters any comment relevant to the WP, including if the WP is for a non-standard area.
 4. Assigns a WP# to the Work Permit and maintains the log.
 5. Reviews completed and closed out WP's and forwards to the Operations Center.

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

CONTROLLED COPY

D-SITE WORK PERMIT NO.:**Job Supervisor MUST complete 1 through 22 before review and approval by D-Site Shift Supervisor****GENERAL**

- 1) Name of Job Supervisor: _____ **Tele #** _____ **Date:** _____
- 2) Names of additional workers? _____
- 3) Tools? _____
- 4) Description of work? _____
- 5) Estimated Date/Time of completion: _____
- 6) HP required? NO YES
- 7) IH required? NO YES
- 8) QC required? NO YES

LOCATION/AREA Work Permits for NSTX-U require a copy at the NTC. Job supervisor to supply copy to NTC

- 9) **TTC** **TCB** **Location** _____
- D-SITE ROOF** **LECS** **STACK** **RWP?** **HP Approval** _____
- GALLERY** **TRITIUM AREA** **RWP?** **HP Approval** _____
- MER** **RWSF** **RWP?** **HP Approval** _____
- *NSTX-U TC** **Other Area not listed**

*Does this NSTX-U job involve any material with a Radiation sticker? YES NO

*If yes, then all material must be surveyed by HP prior to leaving NTC. _____ Job Supervisor

DOCUMENTATION

- 10) Attachment I?
- 11) Run Copy Procedure? **Proc#** _____
- 12) Installation Procedure? **IP #** _____
- 13) ESU Impairment Tag/FLAME Permit required?
- 14) DOOR Permit required?
- 15) CONFINED SPACE permit required? **CSP #** _____
- 16) RADIATION WORK permit required? **RWP #** _____
- 17) LIFT procedure required? **Lift Pro #** _____
- 18) T2 GASEOUS/WATER permit required? **OP-AD-77**
- 19) Material being removed from NCSX CW TC **If yes, then material must be surveyed.**
- 20) T2 line break or vent required? **OP-AD-77**
- 21) Job Hazard Analysis completed **ESH-004**

22) SIGNATURE of Job Supervisor Individual/Date**D-SITE SHIFT SUPERVISOR APPROVAL**

D-Site Shift Supervisor approves the commencement of this task: _____

Comments/Restrictions: _____

WORK PERMIT CLOSEOUT

Task(s) complete (or secured) tools removed and area clean:

Job Supervisor (or designee)

Date

Closed Out by:

D-Site Shift Supervisor

Date

Comments (if applicable):

CONTROLLED COPY
1