

PPPL	PRINCETON PLASMA PHYSICS LABORATORY	PROCEDURE	No. ENG-030 Rev 1 page 1 of 15
Subject: PPPL Technical Procedures for Experimental Facilities	Effective Date: March 25, 2002	Initiated by: Head, Engineering and Technical Infrastructure	
	Supersedes: Rev 0, dated 10/1/99 and TCR-ENG-030,R0-001	Approved: Director	

Applicability

This document is applicable to all experimental programs and facilities at PPPL. This procedure covers the following specific types of experimental facility procedures: access, administrative, alarm response, emergency operations, general operations, installation, integrated system test, maintenance, preoperational test, repairs, and system operations. It does not cover general laboratory procedures or Division internal procedures.

Introduction

This procedure specifies the requirements for creation, revision, approval, and implementation of procedures intended for both tritium and non-tritium systems. Procedures may be required as part of the Work Planning System (ref. ENG-032) or at the discretion of line management. Procedures approved prior to the effective date of this procedure may continue to be used; major and minor revisions of such procedures should be done according to this procedure. Technical procedures must comply with Laboratory-wide Policies, Procedures, and Manuals, applicable Safety Assessments and Safety Analyses, and governing project or site-specific policies and procedures.

Reference Documents

- a) ENG-032, Work Planning System
- b) P-032, Hierarchy of Documents
- c) P-048, Safety Analysis and Review System Program
- d) OP-AD-79, Procedural Requirements for Operation and Maintenance of Tritium Containing and/or Contaminated Systems
- e) ENG-029, Technical Definitions and Acronyms
- f) Plan: PPPL ISM Document, Integrated Safety Management implementation
- g) OP-AD-09, D-Site work permits

Definitions

Access Procedure Procedures that are used to remove or minimize all hazards in an area prior to or during personnel access.

Accountable Technical Individual (ATI)	The ATI is appointed by the Responsible Line Manager (RLM) and is accountable for the technical content and accuracy of the procedure. The ATI works with the RLM and procedure writer to meet the technical requirements specified in the Procedure Requirements Checklist.
Administrative Operations Procedures	Procedures that provide direction for the administration and conduct of PPPL operations. Examples of the topics covered by Administrative Procedures include the duties of operations personnel and project specific conduct of operations.
Alarm Response Procedures	Written instructions that identify the source and probable cause of an alarm and define systems operator actions to be taken in response to specific system or component alarms. Additionally, these procedures describe the actions required by Security Personnel for the notification of subsystems personnel for certain alarm conditions.
Emergency Operations Procedures	Written instructions designating actions to be taken in the event of abnormal conditions which, if not corrected, could result in injury to personnel, damage to equipment, or an uncontrolled release of toxic substances or radiation to the environment. EO procedures coordinate operational interactions between different systems and augment individual Alarm Response Procedures to ensure smooth integration of overall facility response to emergencies.
General Operating Procedures	Written instructions which describe the major steps required to pass from one normal operating mode to the next; e.g., Glow Discharge Cleaning (GDC) to Pulse Discharge Cleaning (PDC). They coordinate operational interactions between the different systems, and augment the individual System Operations Procedures to ensure smooth integration of overall facilities operations.
Installation Procedures	Procedures that outline, define, and describe the prerequisites, requirements, safety considerations, and actions entailed in the installation of all equipment. At D-Site Installation procedures are required in the Test Cell, the Test Cell Basement, the Tritium Systems area of D-SITE, Mechanical Equipment Room, Liquid Effluent Collection System and Tanks, the Mockup Decon / Cleanroom Facility, and the NSTX Test Cell as described in OP-AD-09. At C-Site Installation Procedures are left to the discretion of the RLM.
Integrated Test Procedures	Written instructions that define the equipment, methods, and steps required to test the integrated operation or interactions of multiple systems.

Maintenance Procedures	Approved and controlled documents that specify the actions required to perform Preventive Maintenance on PPPL Programmatic Equipment.
Minor Procedure Change (MPC)	An interim change to a procedure to allow deviation from the procedure or make minor corrections that do not alter the intent or scope of the procedure as determined appropriate by the RLM.
Preoperational Test Procedures	Written instructions that define the equipment, methods and steps required to test equipment and systems in order to qualify them as fully operational at predetermined performance levels. These tests are normally conducted prior to the initial operation of a system, after a long shutdown period, and after some critical maintenance or repair tasks to assure systems are fully operational.
Repair Procedures	Procedures that specify the actions required to perform repairs on PPPL programmatic equipment. Repair procedures are required: <ol style="list-style-type: none">When the repairs involve personnel or equipment safety considerations,On equipment governing the movement or containment of tritium, orFor repair of a tritium containing system or potentially tritium contaminated systems.
Responsible Line Manager (RLM)	The manager who accepts responsibility for the work and the process leading to the performance of the work. This includes accepting responsibility for the change and the process leading to the change and all associated procedure changes. These individuals are identified by the Department Heads. The list of approved RLMs is available on the Engineering & Technology Department home page.
Run copy	A copy of a controlled document issued for use in the field and stamped "Run Copy." This copy is to be used to document the performance of the procedure.
Satellite Areas	Physics areas outside of the Operations Center which are authorized to issue run copies of approved procedures.
System Engineer	The individual assigned responsibility by line management for a specific system, such as the C-Site Motor Control System. A list of approved system engineers is available on the Engineering Department web page.

Systems Operations
Procedures

Approved and controlled procedures that specify the prerequisites, requirements, and actions for operating individual systems in various modes. The procedures describe the normal startup, startup after a long shutdown, shutdown, periodic testing, and operation of a single system or subsystem, using checklists to specify and document action steps wherever feasible.

Test Director

The individual assigned responsibility to manage a test defined by an Integrated System or Preoperational Test Procedure.

Responsibilities

Each procedure has an assigned writer, Accountable Technical Individual (ATI), and Responsible Line Manager (RLM). The ATI is appointed by the RLM and is accountable for the technical content and accuracy of the procedure. The RLM has responsibility for the writing, approval, execution, and consequences of procedures and their revisions that s/he approves. In addition, individuals performing work under the guidance of a technical procedure are responsible to adhere to the steps of the procedure unless verbal concurrence is obtained from the ATI.

Procedural Details

This procedure is divided into six sections. They are:

- A. Types of procedures
- B. General rules applicable to all procedures
- C. Planning, writing, reviewing, and approving of new procedures or major revisions to existing procedures
- D. Implementing minor procedure changes (MPCs)
- E. Use of run copies
- F. Cyclical review of procedures
- G. Satellite Areas
- H. Procedure Training/ Pre and Post-Job Briefs

A. Types of Procedures

The types of procedures covered by this procedure are: access, administrative operations, alarm response, emergency operations, general operating, installation, integrated test, maintenance, preoperational test, repair, and systems operations.

B. General Rules Applicable to all Procedures

All procedures are required to list the procedure number, revision number, and page number in the upper right corner.

Definitions and acronyms for use within procedures are contained in ENG-029.

Attachment 1 contains the following:

- Types of procedures
- Numbering convention for these procedures
- The identification of the Accountable Technical Individual and Responsible Line Manager, by position.
- Review requirements.

General rules and guidelines applicable to all procedures are:

1. The principles and functions of Integrated Safety Management should be considered when developing procedures. The guiding principles are line management responsibility for safety, clear roles and responsibilities, competence commensurate with responsibilities, balanced priorities, identification of safety standards and requirements, and hazard controls tailored to work being performed. The functions are to define the work, analyze the hazard, develop/implement controls, perform the work, and provide feedback and improvement.
2. Upper tier documents should be referenced as appropriate.
3. A procedure should consist of step-by-step instructions for the work to be done. If steps in a procedure section do not have to be performed in a specified sequence or specific steps should only be performed when certain conditions prevail, they should be so indicated.
4. Procedures should be written in sufficient detail as to be understandable by the field personnel performing the work and by the technical and safety reviewers. Ancillary detail for background, explanation, reference data, instruction, etc., should be placed in well organized and clearly titled appendix sections.
5. A blank signoff line should be provided in the document for each critical action step of the procedure. These lines should be initialed by the individual executing the procedure to indicate and document that the required actions have been taken. A substitute is to have signoff lines at the end of sections of the procedure.
6. Steps or sections requiring verification or independent verification should contain an additional blank line in the document for the verifying person to initial
7. Hold points requiring consultation with the system engineer or ATI should be used if the analysis of data taken during the performance of the procedure is used as criteria in determining future actions in the procedure.
8. Checklists may be included to expedite extensive series of action steps. Each step of the checklists should be initialed or simply checked; in the later case, there should be a sign off line for the person completing the checklist.
9. All text, drawings, graphs, etc. should utilize 8-1/2 X 11 inch format. Full size drawings are acceptable when needed
10. Sections of the procedures. With the exception of the alarm and emergency operations procedures, all procedures should contain the following sections, as applicable:
 - a) Purpose A brief statement explaining the purpose of the equipment or system to which it applies, the reason the procedure is being run, and the purpose of the document.
 - b) Scope A summary of what the procedure covers or includes, any special circumstances deemed necessary to perform the procedure, and any limitations on the applicability of the procedure for given facility conditions or systems

- c) Responsibilities Responsibilities of the various positions involved in the procedure.
- d) Definitions
- e) Reference A listing of documents that may need to be accessed and that have information or instructions relevant to the procedure. Unnecessary references should be avoided. References may include appropriate codes and standards, design drawings, procedures, vendor manuals, etc
- f) Background Background information relevant to the procedure
- g) Special Tools, Equipment, and Materials: List of equipment, tools, apparatus, and consumables needed to perform the procedure which may not be readily available.
- h) Precautions/Limitations A list of potential hazards and how they should be mitigated. This alerts the individuals to the concerns or dangers that may or will exist during execution of the procedure and the safeguards which should or must be implemented. The appropriate warnings and cautions required to protect personnel and equipment are inserted in the procedure prior to the step to which they pertain.
- i) Prerequisites A list of specific activities or special plant conditions which must be performed or exist prior to execution of the procedure. The supporting systems required to be operational for the procedure should be listed. Verification of performance of prerequisite tests should be listed and documented by a check-list. Prerequisites identified should be clear, concise instructions, each written as a single task.
- j) Step-by-step instructions Instructions for the procedure. Test criteria for test procedures.
- k) Acceptance Criteria Relevant for test procedures only.
- l) Emergency Actions For any anticipated emergencies, steps required to leave system in safe state.
- m) Records Records required to be maintained
- n) Final Conditions Final conditions that the system should be left in at the end of the procedure.
- o) Completion Signoff Signatures of ATI, system engineer, physicist, as appropriate, to acknowledge that work has been properly completed.
- p) Appendices For forms, checklists, test data sheets, calibration sheets etc.
- q) Qualifications Qualification or training requirements for those who will execute the procedure.

Attachment 2 contains additional rules and guidelines for Alarm Response Procedures.

Integrated System Test Procedures (ISTPs) require the appointment of a Test Director by the RLM or ATI. Preoperational Test Procedures (PTPs) may require such an appointment. The name of the Test Director shall be entered into the run copy. Test exceptions must be approved by the ATI and documented in the run copy.

C. Planning, writing, reviewing, and approving new procedures or major revisions to existing procedures

<u>Responsibility</u>	<u>Action</u>
Responsible Line Manager (RLM)	<ol style="list-style-type: none"> 1. Determines the need for a procedure to be developed, written, revised, or implemented. Assigns the individual who will write the procedure and the Accountable Technical Individual (ATI). 2. Determines the need for an Independent Review and identifies the appropriate individual. Note that Independent Review is required for all procedures governing the movement and containment of tritium or maintenance of a tritium containing system or potentially tritium contaminated system. 3. Completes the Procedure Requirements portion of the Procedure Cover Sheet (Attachment 3). Determines which organization(s) and individual(s) should review the draft procedure based on the items selected on the Procedure Requirements and indicates so.
Procedure Writer	<ol style="list-style-type: none"> 4. Obtains a procedure number or a revision number from the Operations Center. 5. Researches and writes a draft procedure or revision in accordance with this procedure and in compliance with applicable sections of the ES&H Manual, 5008. Identifies all hazards and the appropriate methods for mitigation. Reviews all Minor Procedure Changes (MPCs) against the existing procedure revision to assure proper inclusion. This step includes identifying any potential hazards to the environment, public, or workers that may result from execution of the procedure and establishing controls to mitigate these hazards.
ATI and Procedure Writer	<ol style="list-style-type: none"> 6. Investigate and resolve any potential conflicts with documents of higher precedence (See Section 4, Hierarchy of Documents).

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| Procedure Writer | 7. Prepares, if revising an existing procedure, a Revision Sheet (Attachment 4) to identify briefly the reason for the revision. |
| | 8. Distributes the draft procedure and Revision Sheet if applicable, Specifies due date for comments. |
| ATI | 9. Performs a consistency check and walkdown of the procedure, if specified in the Procedure Requirements. Generates a marked up copy of the procedure and/or marked up drawings and diagrams, as appropriate. |
| Procedure Reviewers
(may be individually or
via peer review) | 10. Marks up procedure and returns to writer in a timely manner. Signs next to name on the list of reviewers if does not require feedback on comments. |
| ATI and Procedure
Writer | 11. Receive, evaluate, and resolve the comments, suggestions, or objections generated by the reviews of steps 9 and 10. Obtains signature of reviewer indicating concurrence with resolution if not already on "Reviewers" form. |
| RLM | 12. Reviews procedure and comment resolution objections for technical and ES&H impact on the systems, equipment, operation, or personnel. |
| Independent Reviewer | 13. Per OP-AD-79, an Independent Reviewer is required for any procedure governing the movement of tritium, containment of tritium, or maintenance of a tritium containing system or potentially tritium contaminated system. The RLM specifies the Independent Reviewer who completes that review as described in OP-AD-79. |
| ATI and Procedure
Writer | 14. Resolve Independent Reviewer's comments. |
| Procedure Writer | 15. Signs the 'Author' approval line on the Procedure Cover Sheet (Attachment 3) |
| ATI | 16. Checks the final procedure package and signs if satisfied with all comment resolutions. |
| | 17. Fills in the training information on the Training Requirements (Attachment 3). |

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| RLM | 18. Reviews the final procedure package and, if satisfied, signs the procedure. Otherwise, identifies concerns to ATI and procedure writer. |
| | 19. Forwards copy of the procedure with the training requirements to Human Resources. |
| RLM | 20. Forwards the original of the procedure and the documentation, including all marked up copies of the draft procedures containing comments and drawings, to the Operations Center. |

D. MINOR PROCEDURE CHANGES

Minor procedure changes (MPCs) are only allowed for changes that do not alter the intent or scope of the procedure as determined by the RLM.

If a proposed change would alter the intent or scope of the procedure, the steps of Part C of this procedure must be followed. Also, a maximum of four active MPCs are allowed for a procedure. If the proposed MPC is the fifth, the steps of Part C of this procedure must be followed.

Responsibility

Action

MPC Originator

1. Determines the need for an MPC to an existing procedure and completes the MPC form (Attachment 5).

Attaches copies of pages to be changed clearly indicating the changes. Changes shall be initialed and dated. Indicates all affected pages on the MPC form. Determines if the MPC could significantly impact ES&H or affect other operations; if so, notes the concern on the MPC Form.

2. Requests MPC number from the Operations Center and writes MPC number on any attached sheets.

Operations Center

3. Assigns the MPC number.

ATI and RLM

4. Perform a technical review of the MPC to determine if the MPC significantly alters the scope or intent of the original. If yes, a major revision of the procedure is required.

5. Reviews the MPC to determine if executing the modified procedure could potentially result in a significant ES&H impact. If so, requests ES&H Division review.

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| ES&H Division | 6. Reviews the impact of the MPC on ES&H considerations. Signs MPC upon satisfactory resolution of any ES&H concerns. |
| RLM | 7. Signs MPC indicating concurrence with the proposed change and that steps 1 – 6 above were properly performed. |
| RLM | 8. Forwards signed copy to the Operations Center. |
| Operations Center | 9. Files MPC with original procedure. Assures that all current run copies of the procedure and any new distributions of the procedure contain all open MPCs. |
| MPC Originator | 10. Attaches signed copy of the MPC to the run copy of the procedure in use when the MPC was generated, if required. Either replaces pages in the run copy of the procedure with annotated pages or notes changes in the procedure at the affected steps. |

E. RUN COPY PROCEDURE

Run copies are official copies of approved and controlled procedures issued for use in the field and are required when performing specific technical activities such as general operating procedures, installation procedures, pre-operational and integrated system test procedures, maintenance or repair procedures, and access procedures. Run copies are not required for procedures that are established and maintained to safely conduct more global project activities as is the case in administrative, alarm response, and emergency operations procedures. They are stamped "Run Copy" and used to document the actual performance of the procedure. Run copies are usually issued directed by the Operations Center though they may be issued from official Satellite Areas (section F).

The following rules apply for the execution of run copies:

- a) All blanks shall be filled in with the required information.
- b) With concurrence (oral or written) of the Accountable Technical Individual (ATI), steps may be marked not applicable, e.g., writing "N/A" or crossing out blank spaces, or writing "N/A" and placing an arrow down a column.
- c) In the event that a run is terminated, add after the last step performed, "Run Terminated", along with an explanation of what caused the termination. Blank spaces after the "Run Terminated" do not have to be marked N/A.
- d) Entry errors shall be corrected, with concurrence of the ATI, by drawing a single line through the incorrect information and entering the correct information adjacent to it or in space available with reference to the deleted information. The individual making the correction shall initial and date the deleted information.

- e) Unusual conditions: In the event that a procedure activity is interrupted prior to completion for a reason such as procedure conflicts, procedure inadequate for the intended task, or when unexpected results occur, the operator shall bring the equipment to a safe condition, not necessarily shutting down the equipment. For parameters exceeding the specified maximum/minimum values, the out-of-specification condition shall be circled in the procedure and promptly reported to the System Engineer. The causes of the unusual condition shall be promptly investigated with supervisors becoming involved as appropriate. Disposition of the circled parameter shall be explained in the comment section of the procedure or in the margin, as appropriate.

Note that in emergency situations only, operators have the authority to deviate from written procedures during an emergency if necessary to protect personnel and equipment. The deviation shall be documented in the procedure and the operator's supervisor shall be promptly notified. In all cases where the supervisor can be contacted without undue risk, the operator shall obtain his permission to deviate from the procedure.

Responsibility

Authorized User

Action

1. Obtains a run copy from the Operations Center or Satellite Area. The Authorized User must be trained on the procedure prior to obtaining the run copy.
2. Conducts pre-job brief, if necessary. The briefing should be documented on a Record of Training Sheet (Attachment 6). Topics to be covered in the brief are:
 - a) The purpose and scope of the procedure
 - b) The procedure prerequisites
 - c) The roles of the participants
 - d) How communications among the participants will be conducted during the procedure
 - e) Who will be responsible for overseeing the work activity
 - f) Safety related issues including hazards and how they are mitigated
 - g) Post-procedure activities (e.g. restoration of equipment, system turnover).
 - h) Other issues of concern (meal breaks, shift changes, etc.)

Participants should be given the opportunity to ask questions or express concerns.

Authorized User

3. Executes procedure in accordance with planned operations using trained and qualified personnel. Documents compliance with the procedure in the run copy of the procedure. Unqualified personnel-in-training are permitted to operate a system only under the constant direct supervision of a fully qualified operator.
4. Writes MPC's if required following the steps of part C.
5. Conducts post job brief, when appropriate. Post job briefs are valuable if the procedure is expected to be executed again in the future or if problems were encountered in the execution of the procedure.
6. Ensures that all required signoffs are in the procedure and annotates the applicable portions of the document for the given operation. Returns completed "run copies" to the Operations Center.

Lost or unexecuted procedures:

- a. In the event that a completed run copy is lost, the person who received the run copy shall notify the Operations Center and complete Attachment 7.
- b. If controlled run copies are distributed for planned operations and subsequent events result in the cancellation of the planned operations, the user of these run copies will contact the Operations Center and cancel the run copies.

F. Cyclical Review of Procedures

All procedures must be reviewed every three years to determine if any changes are required.

Responsibility

Action

Operations Center

1. Sends out a Document Review Request to the ATI and RLM prior to three year expiration of procedures.

ATI, RLM

2. Evaluates procedures to determine if any changes are required and implements these changes per Parts C and D of this procedure. If no changes are needed, a new signature page must be generated.

G. Procedure training/ Pre and Post-Job Briefs

Training on the use of a procedure is required to ensure that the procedure is carried out as intended by the author and the Accountable Technical Individual (ATI). The Responsible Line Manager (RLM) will make the final decision on what level of procedure training is appropriate and specify that requirement on page 2 of attachment 3. Training considerations are as follows:

No Training Required	The RLM may determine that no training is required for a particular procedure. This is appropriate in the case where the procedure is to be performed only by the author or ATI of a procedure
Read Only	“Read Only” training is prescribed in cases where either a group is expected to read and understand a procedure in support of general activities (such as in the case of Administrative, Alarm Response, and Emergency Operations procedures) <u>OR</u> when a person or group performing the procedure is expected to read and understand a procedure when issued a Run Copy (as in the case of other types of procedures). In the case of Administrative, Alarm Response, and Emergency Operations procedures, training is a pre-requisite for starting general project operations and a well defined set of employees will be trained on these procedures before operations begin. “Read Only” training on these procedures should be documented on a Record of Training form (attachment 6) and forwarded to the Human Resources and Training office. In the case of other types of procedures (general operations procedures, installation procedures, pre-operational and integrated system test procedures, maintenance procedures, repair procedures, and access procedures), the completed Run Copy on file in the Operations Center will serve as a record of “Read Only” training.
Pre-Job Briefs	Pre-Job Briefs and instructional discussions are prescribed by the RLM in cases where it is appropriate that the responsibilities of the participants in specific work activities be further reinforced. These discussions should also include related safety issues such as job hazards and required permits , and respond to all questions and concerns of the participants. This training should be documented on a Record of Training form and forwarded to Human Resources.

Post-Job Briefs

Post-Job Briefs are prescribed by the RLM if the procedure is expected to be executed again in the future or if problems were encountered in the execution of the procedure. Discussions at a Post-Job Brief should include the parts of the procedure that went well, improvements that can be made, any safety related issues, and overall lessons learned. Minutes of the Post-Job Brief should be sent to the Operations Center with the completed Run Copy of the procedure and to the Responsible Line Manager for review and for further distribution as appropriate.

G. Satellite Areas

Satellite areas are physical areas outside of the Operations Center which are authorized to issue run copies of approved procedures. Typically, this authorization is limited to those procedures related to the work performed in the area.

Responsibility

Action

RLM

1. Requests, from the Operations Center, creation of a Satellite Area providing appropriate justification and documenting type of work to be performed in the area. Identifies individual responsible for the integrity of the Satellite Area and types of procedures to be located in the Satellite Area.

Operations Center

2. Approves the Satellite Area with the appropriate limitations.
3. Assures that copies of all appropriate, approved procedures are transmitted to the Satellite Area. Maintains lists of procedures located in each Satellite Area.

Individuals responsible for Satellite Area

4. Assures that usage of run copies issued from the Satellite Area adhere to the requirements of part E.

Attachments

1. Procedure Review and Approval Matrix
2. Alarm Response Procedures
3. Procedure Cover Sheet
4. Revision Sheet
5. Minor Procedure Change (MPC) Approval Form
6. Record of Training form
7. Lost or Destroyed Run Copies Form



Procedure Review and Approval Matrix

Note: If the procedure is applicable for entire D-Site or C-Site omit project designation

FOR C-SITE

Procedure Type/Name	Accountable Technical Individual (ATI)¹	Responsible Line Manager (RLM)	Required Reviews
Administrative C-Project-OP-AD-XX	As designated by RLM	Department Head	None
General Operations C-Project-OP-G-XX	As designated by RLM	System/Project Division Head	None
System Preoperational Test Plan C-Project-PTP-Sys-XX	System Engineer	System/Project Division Head	None
Integrated System Test Procedure C-Project-ISTP-XX	As designated by RLM	System/Project Division Head	None
System Operations C-Project-OP-Sys-XX	System Engineer	System/Project Division Head	None
Alarm Procedure C-Project-AP-Sys-XX	System Engineer	System/Project Division Head	None
Installation Procedure C-Project-IP-XXX	System Engineer	Responsible Branch Head	None
Maintenance Procedure C-Project-MP-Sys-XX	System Engineer	Responsible Branch Head	None
Repair Procedure C-Project-RP-Sys-XX	System Engineer	Responsible Branch Head	None

FOR D-SITE

Procedure Type/Name	Accountable Technical Individual (ATI)¹	Responsible Line Manager (RLM)	Required Reviews
Administrative D-Project-OP-AD-XX	As designated by RLM	D-Site Manager	None
General Operations D-Project-OP-G-XX	As designated by RLM	Caretaking Manager	Tritium (1) and D-Site Shift Supervisor (2)

¹ Lists of system engineers and approved RLMs are available on the Engineering and Technology Department web page.

Alarm Response D-Project-OP-AR-XX	System Engineer	System Division Head	Tritium (1) and D-Site Shift Supervisor(2)
Emergency Operations D-Project-OP-EO-XX	As designated by RLM	Caretaking Manager	Tritium (1) and D-Site Shift Supervisor (2)
System Preoperational Test D-Project-PTP-Sys-XX	System Engineer	System Division Head	Tritium (1)
Integrated System Test Proc. D-Project-ISTP-XX	As designated by RLM	System Division Head	Tritium (1) and D-Site Shift Supervisor (2)
System Operations D-Project-OP-Sys-XX	System Engineer	System Division Head	Tritium (1)
Access procedure D-Project-AP-Sys-XX	System Engineer	System Division Head	Tritium (1)
Installation Procedure D-Project-IP-XXX (non-tritium)	System Engineer	Responsible Branch Head	Operations (3)
Installation Procedure D-Project-IP-XXX (tritium)	System Engineer	Caretaking Manager	Operations (3) Tritium (1)
Maintenance Procedure D-Project-MP-Sys-XX (non-tritium)	System Engineer	Responsible Branch Head	None
Maintenance Procedure D-Project-MP-Sys-XX (Tritium)	System Engineer	Caretaking Manager	Tritium (1)
Repair Procedure D-Project-RP-Sys-XX (non-tritium)	System Engineer	Responsible Branch Head	None
Repair Procedure D-Project-RP-Sys-XX (Tritium)	System Engineer	Caretaking Manager	Tritium (1)

Notes for:

1. Tritium - Independent Review required for any procedure governing the movement of tritium, containment of tritium or maintenance of a tritium containing system or potentially tritium contaminated system. The RLM specifies the Independent Reviewer.
2. Shift Supervisor - D-Site Shift Supervisor review required. Check Shift Supervisor for procedure review on Attachment 4.
3. Operations - Review of the procedure for any work in the Tritium Area by the Tritium Systems Supervisor. For the TFTR Test Cell, Test Cell Basement and DARM, by the Caretaking Manager. For the NSTX Test Cell, the NSTX Construction Manager..

ALARM RESPONSE PROCEDURES (SITE-PROJECT-OP-AR-XX)

A recommended format for Alarm Response Action and Checklist is included in this attachment. Alarm Response Procedures are written for one of two groups:

1. Communication Officer of Security Personnel
2. Subsystem Personnel

Since it is impractical for operations personnel responding to alarms or emergency situations to obtain “run copies” of procedures from the Operations Center, controlled copies of the Alarm Response Procedures and Emergency Operations Procedure (or checklist associated with these procedures) will be distributed to Satellite Stations. Upon completion of these procedures (or checklists), these completed procedures will be returned to the Operations Center and handled in a way similar to other issued “run copy.”

A . Alarm Response for Communication Officer of Security Personnel**1 . Format**

The format should include the following sections:

1. Purpose
2. Scope
3. Responsibilities
4. References
5. Alarm Description
6. Alarm Precedence
7. Procedure
 - a. Security Actions
 - b. System Personnel Actions
8. Alarm Response Checklist

2 . Content Description

1. Alarm Response Procedures for Security Personnel are written mainly to ensure prompt notification of cognizant personnel in the event of an alarm condition. They are also written for conditions that require Security Personnel to perform minor actions to abate an alarm condition.
2. The Alarm Description should describe the indication (as seen in the C-Site Security Office) of the alarm condition.
3. The Alarm Procedures should contain a prioritized list of Alarm Response Procedures in the order to which they should be executed.
4. The Alarm Response Checklist is the portion to be used by Security personnel during the alarm event. The checklist should be an abbreviated version of the Alarm Response Procedure.

B . Alarm Response for Subsystems Personnel

1 . Format

The format should include the following sections (when applicable):

1. Title line containing the alarm name, panel name, and facility location of the panel
2. The set point and source of the alarm
3. The most probable cause(s)
4. Automatic actions (if applicable)
5. Immediate operator actions
6. Subsequent Recovery Operator Actions
7. References and applicable drawing numbers (if applicable)

2 . Content Description

1. Alarm Response Procedures for subsystems personnel are written mainly to ensure the proper actions of subsystems personnel to an alarm condition or report of an alarm condition from security personnel.
2. Each individual Alarm Response Procedure should contain concise information, including the origin and most probable cause of the specific alarm condition.
3. "Immediate Operator Action" Section should contain:
 - a. Steps to: confirm that an alarm condition exists
 - b. Steps to verify that the automatic actions occurred successfully;
 - c. Steps required to determine the cause of the alarm condition; and, if necessary,
 - d. Steps required to place the equipment in a safe condition or,
 - e. If necessary, instructions to execute an Emergency Procedure.
4. "Subsequent Recovery Operator Action" section should contain steps to verify proper execution of the "Immediate Actions" and additional steps to place the system in a normal configuration.
5. Alarm Response Procedures do not take the place of Emergency Operations Procedures. They should not supersede any higher precedence procedure.
6. If an alarm condition could lead to an Emergency Operation Procedure, appropriate instructions should be included in the Operator Action section.

ALARM RESPONSE CHECKLIST

PRINCETON PLASMA PHYSICS LABORATORY <i>PROJECT NAME PROJECT</i>	System/Panel # Row-Number
PANEL LOCATION: <i>System, Panel Number</i>	Annunciator Nomenclature
SYSTEM: <i>Enter system name here</i>	
INITIATING DEVICE: <i>Instrument responsible for alarm initiation</i>	

Setpoint: If applicable

ALARM RESPONSE

A	<u>POSSIBLE CAUSE(S) OF ALARM</u> <i>Enter a list of any scenarios , malfunctions or problems which could lead to the initiation of this alarm.</i>	
B	<u>AUTOMATIC ACTION (S)</u> <i>Enter a list of all actions which happen automatically due to the initiation of this alarm.</i>	
C	<u>CONTROL ROOM OBSERVATION(S)</u> <i>Enter a list of all observations/indications including any TRECAMS observations that should be available as a result of this alarm.</i>	<u>LOCAL OBSERVATION (S) INDICATION</u> <i>Enter a list of any indications in the area of the system equipment which could be observed during this alarm.</i>
D	<u>IMMEDIATE OPERATOR ACTION</u> <i>Enter a list of actions required to place the affected system(s) in a safe condition.. Include in this list any actions required to inform the appropriate personnel of the alarmed condition.</i>	
E	<u>CONSEQUENCES</u> <i>Enter a list of potential consequences due to receipt of this alarm.</i>	

PROCEDURE COVER SHEET

Princeton Plasma Physics Laboratory Procedure			
Procedure Title:			
Number	Revision:	Effective Date:	
		Expiration Date: <i>(2 yr. unless otherwise stipulated)</i>	
Procedure Approvals			
Author		Date	
ATI		Date	
RLM		Date	
Responsible Division:			
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 (GEN-005)		ES&H Review (NEPA, IH, etc.)
	RWP (HP-OP-20)		Independent Review
	ATI Walkdown		Pre-job Brief
	Post-job Brief		Hazard Analysis
D-SITE SPECIFIC:			
	D-Site Work Permit (OP-AD-09)		Door Permit (OP-G-93)
	Tritium Work Permit (OP-AD-49)		USQD (OP-AD-63)
	Pre-job brief (OP-AD-79)		T-MOD (OP-AD-03)
	** DCA/DCN (OP-AD-104) # _____		

** OP-AD-104 was voided by procedure ENG-032. However, DCAs that were open at the time of adoption of ENG-032 are still considered valid for work approval purposes.

REVIEWERS (designated by RLM)

Accountable Technical Individual

Test Director

Independent Reviewer

D-Site Shift Supervisor

NSTX

D-Site Caretaking

Vacuum

Computer

Tritium

Quality Assurance/Quality Control

AC Power

Maintenance and Operations Division

Energy Conversion Systems

Engineering

Environmental Restoration & Waste Management Division

Water Systems

Neutral Beam (Heating Systems Branch of Electrical Engineering)

Radiofrequency (Heating Systems Branch of Electrical Engineering)

Diagnostics

Environmental, Safety, & Health

TRAINING (designated by RLM)

No training required _____ Instructor _____

Personnel (group, job title or individual name)	Read Only*	Instruction	Hands-On

Training Rep. _____

RLM _____

* "Read Only" training for Administrative, Alarm Response, and Emergency Operations procedures must be documented on a Record of Training form (attachment 6). The completed Run Copy will serve as the documentation of "Read Only" training for all other types of procedures.

REVISION SHEET

Document No. _____

Rev. _____

Description	Prepared by	Date

MINOR PROCEDURE CHANGE (MPC) APPROVAL FORM

COMPLETED BY REQUESTER

Procedure Title >				No. >	
Rev >		Procedure Issue Date >		Procedure Expiration Date >	
MPC No. >		MPC Issue Date >		MPC Expiration Date >	

Change Requested: (Attach Additional Documents, If Necessary):

Reason for Change: (Attach Additional Documents, If Necessary):

Training Determination	None Required >		Read Before Use >	
Does the MPC "significantly impact ES&H?"		Yes >		No >
Type of MPC (Check ONLY One):		Temporary/Limited >		Permanent >
Person Requesting Change	<i>Printed Name</i>	<i>Signature</i>	<i>Date</i>	

REVIEW AND APPROVAL

Technical Review Accountable Technical Individual from Procedure Cover Sheet	<i>Signature</i>	<i>Date</i>
ES&H Division Review (Only if MPC "significantly impacts ES&H"):	<i>Signature</i>	<i>Date</i>
Approval Responsible Line Manager from Procedure Cover Sheet	<i>Signature</i>	<i>Date</i>

RECORD OF TRAINING**COURSE TITLE (From Training Office), DOCUMENT TITLE, OR TOPIC:****DOCUMENT NUMBER:** _____ **REVISION AND/OR DATE:** _____**TYPE OF TRAINING (check one):**
 Read Only Instructional Discussion Video
 Small Group Meeting Practical/Hands Only Other _____
INSTRUCTOR: _____ **SIGNATURE:** _____
(please print)

Use reverse side for any additional information or comments.

ATTENDANCE INFORMATION				
PRINT NAME CLEARLY	SIGNATURE	DATE	SUPERVISOR (Print Name)	DB
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				

*Just a Reminder...***To ensure proper posting of the information contained herein, please complete this training form and deliver original in person to Human Resources and Training, C-Site, LOB B172.**

Received by Training Office: Initials _____ Date _____

REPORTING LOST OR DESTROYED RUN COPY FORM

COMPLETED BY REQUESTER

Procedure Title >		No. >	
Rev >	Run Copy Issue Date >	Procedure Completion Date >	

Results of performance of this procedure:

Technical Data recorded during performance of this procedure:

Does this Procedure need to be repeated?		Yes >	No >
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Person Requesting Change	<i>Printed Name</i>	<i>Signature</i>	<i>Date</i>
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REVIEW AND APPROVAL TO CLOSE RUN COPY

Technical Review Accountable Technical Individual from Procedure Cover Sheet	<i>Signature</i>	<i>Date</i>
ES&H Division Review <i>(Only if ES&H related data is recorded on this run copy).</i>	<i>Signature</i>	<i>Date</i>
Approval Responsible Line Manager from Procedure Cover Sheet	<i>Signature</i>	<i>Date</i>