



1.0 INTRODUCTION

This directive establishes a system to require, issue, review, and control Safety Certificates (SC) (see form on page 9). The Safety Certification System will provide a formalized, standardized means of assuring independent review of major projects involving potentially hazardous facilities and operations.

Note: This certification is not to be confused with Hazardous Operations Permits issued by the Safety Office, Digging Permits issued by Plant Maintenance and Engineering, or any other permits which may be required by PPPL. These permits are described in other appropriate HSDs.

1.1 POLICY

Safety Certificates shall be required for all projects, work orders, or jobs which fall within the designation of HIGH HAZARD (See HSD-5003). These Certificates will be issued by the Departmental Safety Officer (DSO). For designated major projects (e.g., PBX-M, TFTR, CIT), the Executive Safety Board (ESB) will appoint an Activity Certification Committee to review the project. The SC constitutes a license to operate the facility within the constraints indicated therein.

2.0 RESPONSIBILITIES

2.1 LINE MANAGEMENT

Line management has primary responsibility for declaring a project to be HIGH HAZARD. Once this has been done, line management must submit a request for certification, provide all requested information, and operate within stated constraints.

2.2 DEPARTMENTAL SAFETY OFFICERS (DSOs)

On request of line management, the responsible DSO will review requests for Safety Certificates within his assigned area of responsibility. As necessary, the DSO will consult with the Safety Office prior to granting certification. A DSO may appoint ad hoc safety committees for the purpose of reviewing specific projects and making recommendations to the DSO as to approval/disapproval. The DSO will issue Safety Certificates for operations and projects within his assigned area of responsibility.

2.3 EXECUTIVE SAFETY BOARD (ESB)

The ESB will identify selected major projects requiring SCs, and for each such project appoint an Activity Certification Committee (ACC). The ACC will remain intact for the duration of the project or until dissolved by the ESB.



In addition, the ESB will:

- A. Resolve differences in opinion on whether an operation is high hazard.
- B. Resolve issues concerning safety requirements involved in the granting of Safety Certificates.
- C. Serve as an appeal channel when safety operations are in dispute.
- D. Support, modify, or overrule decisions of an Activity Certification Committee.

2.4 COGNIZANT MANAGER

The cognizant Project Manager will:

- A. Work with the cognizant DSO or Activity Certification Committee Chairman early in the conceptual design of a new activity to determine the level of hazard and the need for a Safety Certificate.
- B. Prepare the Safety Certification Request (Appendixes A & B) and arrange for all required supporting analyses and documentation, allowing for appropriate lead time.
- C. Respond to all action items and requests for further information by the DSO or Activity Certification Committee.
- D. When necessary, take action to obtain renewal of a Safety Certificate.
- E. Take necessary action to close out a Safety Certificate upon completion of the operations for which it was issued.
- F. If appropriate, appeal rejection of a Safety Certification Request through the appropriate Division Head to the Executive Safety Board.

2.5 COGNIZANT ACTIVITY CERTIFICATION COMMITTEE

The cognizant Activity Certification Committee will:

- A. Conduct safety reviews of requests for Safety Certificates.
- B. Recommend issuance of Safety Certificates (Appendix C).
- C. Consult, as required, with the Safety Office and with Special Hazards Committees on safety and environmental matters.



- D. Specify to the DSO the need for qualified operators or other special conditions on which the approval is based.
- E. Refer major safety issues and/or questions of significant risk assessment to the Executive Safety Board.

2.6 THE SAFETY OFFICE WILL:

- A. Participate (ex officio) in the safety review process.
- B. Maintain records of all Safety Certificate approvals and renewals.
- C. Provide overall surveillance of the Safety Certificate System.

3.0 REQUIREMENTS

3.1 A preoperational test plan, including emergency response plans, is required with the request for an SC.

3.1.1 After the issuance of an SC, scheduled drills of emergency and/or safety equipment or controls shall be performed periodically.

3.1.2 A procedure defining these scheduled drills, reviewed and approved by the Safety Office, shall be submitted with the request.

3.2 An approved Operating Procedure, with step-by-step details for the sequence of operations to be performed including safety and emergency provisions and warnings, shall be submitted as part of the request for Safety Certification (see HSD-5015 and HSD-5016).

4.0 PRACTICES AND PROCEDURES

4.1 INITIAL REQUEST FOR A SAFETY CERTIFICATE

4.1.1 When it has been decided to undertake a new activity requiring a Safety Certificate, the responsible manager shall contact the DSO or the cognizant ACC and arrange for a meeting. At this meeting, the requestor shall describe the design, siting considerations, and operating conditions and present the results of the Preliminary Hazards Analysis (PHA) (Ref. HSD-5003). The DSO or ACC shall indicate the nature and detail of documentation, analyses, etc., required to accompany the formal Safety Certificate Request. The DSO or ACC may also advise the requestor to consult with other groups such as the Safety Office, Special Hazard Committees, Emergency Preparedness Committee, etc. and may furnish examples of the analysis and documentation required. The key element is the early notification and continuing involvement of the DSO or ACC throughout the initial stages of the project.



4.1.2 When the design is complete, and no less than 60 days prior to the planned initiation of operations, the requestor shall prepare and submit a Safety Certificate Request Form (see Appendix A) signed by his immediate supervisor and by the Head of his Division.

4.1.3 The DSO or ACC shall review the proposed operation. In no case should a review by an ACC be made by less than two (2) members.

4.1.4 The DSO or ACC may consult with advisory bodies such as the Special Hazards Committee, the Safety Office, etc. for the purpose of discussion, etc. The opinions and/or concurrences or clarifications shall be documented and preserved as part of the review board. The DSO, when satisfied, issues a Safety Certificate noting limitations or conditions.

4.1.5 The DSO retains the originals of: (1) the Safety Certificate Request, (2) all supporting documentation, and (3) the Safety Certificate. A copy of the Certificate and a copy of the Safety Certificate Request is sent to the requestor and Safety Office.

4.2 RENEWAL OF A SAFETY CERTIFICATE

If there have been no changes to the operation and the activity will not be completed by the expiration date on the SC, a Safety Certificate Renewal Request shall be completed and forwarded to the DSO. The request for renewal of the existing Safety Certificate is to be submitted at least 60 days prior to the expiration date. The DSO shall review the renewal request and, if acceptable, approve the renewal. A copy of the renewed Safety Certificate and the Safety Certificate Renewal Request shall be sent to the requestor. Copies are also sent to the Safety Office. The originals are retained by the DSO.

4.3 MODIFICATION OF A SAFETY CERTIFICATE

If there is a change to be made to the purpose, procedures, operational limits, constraints, or design of the activity, a modification of the Safety Certificate must be requested. To accomplish this, the requestor submits a Safety Certificate Request employing the sequence and procedures of paragraph 4.1. The accompanying documentation should consist primarily of amendments to the documents originally submitted together with the appropriate explanatory narrative. The cognizant DSO or ACC will then conduct the necessary reviews. When approved, the DSO will either issue a new certificate or make the necessary revisions to the existing certificate. The records of the review shall be added to those of the original certificate. The revised certificate is posted by the requestor with copies of the revised certificate being sent to the Safety Office.

4.4 COMPLETION OF AN ACTIVITY

Upon completion of the operation or activity covered by a Safety Certificate, the responsible individual shall:



Remove, date, and sign his copy of the Safety Certificate and return the certificate to the DSO, who will remove the original from the files, mark it cancelled, and forward a copy to the Safety Office.

NOTE: A disposal plan for any hazardous materials shall have been defined and may require a new or modified SC. The procedures defined herein shall be followed.

4.5 SUPPORTING DOCUMENTATION

Accompanying each Safety Certificate Request shall be pertinent documentation as agreed upon in the first meeting with the Project Committee. This documentation should be sufficient to permit the reviewers to understand and assess the hazards that are involved in the activity, the safety standards applied, the operational safeguards planned, etc. In general, the amount or extent of supporting documentation necessary will depend upon the complexity of the experiment, the risk of failure, and the potential severity of a failure. Typically, the documentation to the ACC should include, but not necessarily be limited to:

- A. A brief technical description of the experiment or activity, including the desired range of environmental test parameters and siting factors such as maximum stored energy and quantity-distance criteria.
- B. Schematic diagrams or drawings (dated and with approval signatures) of the equipment, test hardware, control systems, electrical systems for the facility, (indicating class of electrical equipment used), and flow systems (including parts list, line sizes, working pressures, materials, etc.)
- C. Operational procedures and check sheets, where appropriate, shall include safety monitoring data, permissives, abort limits, red-line limits, emergency shutdown procedures, etc. Check sheets will be approved by a knowledgeable level of supervision prior to DSO/Activity Certification Committee review. Operating procedures or manuals for any supporting equipment must also be included.
- D. Hazards Identification, Analysis and Control Documentation. A system and subsystems analysis should be performed to determine the hazards potential of the system, including a worst case incident and/or maximum credible accident. In this analysis, the following should be considered: potential failure modes; methods of detection, elimination and control of hazards; analysis of stored energy and related containment structure; and analysis of trade-offs with alternative schemes and relative costs. Particular attention should be given to any potential interactions with other systems or facility power. The severity of failures should be identified and categorized in accordance with HSD-5003.



- E. Design Margins and Operating Limits Documentation. To minimize the chance of failure, an analysis of design limits and/or red-line operating limits (with analytical methods used and results of supporting calculations) shall be provided. Wherever possible, designs are to be fail-safe or fail-passive. Safety factors or safety margins and quantity-distance criteria must be provided as appropriate.
- F. Plot Plan of Activity Area. A drawing of the activity area showing equipment, type and location of personnel, protective equipment, warning signs, and barricades and/or warning lights used during tests shall be provided.
- G. Certification of Qualified Operators. When the circumstances of the activity warrant medical and/or technical certification of operating personnel, the specific certification requirements shall be submitted. This submission shall document the medical, training, and/or experience requirements. Names of certified personnel shall also be submitted.
- H. Emergency Plan. Should include all procedures for shutdown, evacuation, sequence of notifications, etc.
- I. Level of Buddy System Required. The proper level of protection to ensure the safety of personnel as prescribed in the Safety Manual shall be specified.
- J. Users Radiological Training and Experience Record. When the use of radioactive materials or radiation-producing equipment is involved, a User Form for each user shall be attached. A user is defined as a person qualified by training and experience to use radioactive material and ionizing radiation-producing devices in a safe manner. The user is responsible for safekeeping of such material and equipment that is in the Safety Certificate.

5.0 DEFINITIONS

SC - Safety Certificate
 ACC - Activity Certification Committee
 PHA - Preliminary Hazards Analysis
 DSO - Departmental Safety Officer

6.0 REFERENCES

HSD 5001 - Safety Policy
 HSD 5002 - Safety Organization
 HSD 5003 - Operations Hazards Criteria
 HSD 5015 - Written Operating Procedures



	SAFETY CERTIFICATE REQUEST	SUBMITTAL DATE: _____
	ORIGINAL _____ RENEWAL _____ REQUESTER _____ <i>(print)</i>	DEPARTMENT: _____ DIVISION: _____ BRANCH: _____
1) <u>WHAT</u> <i>(Specify the type of test, experiment, operation, etc.)</i>		
2) <u>WHERE</u> <i>(Specify the location: site, area, bldg., room, etc.)</i>		
3) <u>WHO</u> <i>(Specify the person, group responsible)</i>		
4) <u>WHEN</u> <i>(Specify the date of start-up and estimated duration)</i>		
5) <u>WHY</u> <i>(Specify the objectives to be accomplished)</i>		
6) <u>HOW</u> <i>(Specify the methods by which the objectives will be attained)</i>		
7) <u>HAZARD ANALYSIS/RISK ASSESSMENT</u> <i>(Summarize and attach analysis)</i>		
8) <u>WHAT IF</u> <i>(Specify the necessary emergency action and list personnel responsible)</i>		
9) <u>REQUEST AUTHORIZATION</u>		
REQUESTOR'S SIGNATURE _____		DATE _____
SUPERVISOR'S SIGNATURE _____		DATE _____
DIVISION HEAD'S SIGNATURE _____		DATE _____

APPENDIX A. SAFETY CERTIFICATE REQUEST FORM

**APPENDIX B****INSTRUCTIONS****FOR COMPLETING THE SAFETY CERTIFICATE REQUEST**

General Information (Heading Blocks of Form):

Indicate whether the request is being made for the first time (original) or if it is a renewal. Specify the originator's department, division, branch, and the date of submittal of the request.

1. **WHAT** The task shall be clearly defined. The materials to be used, test conditions, drawing numbers, specifications, and procedure numbers shall be specified. (Note: Drawings, specifications, and procedures should accompany the request.)
2. **WHERE** Specify all sites, areas, buildings, laboratories, rooms, etc. where the tasks are to be performed.
3. **WHO** Indicate the names of the group, primary person, and his immediate supervisor who are responsible for conducting the test.
4. **WHEN** Indicate the expected start-up and completion dates. Also, for phased operations, indicate the start-up and duration of each phase.
5. **WHY** Define the objectives of the test, experiment, etc. as concisely as possible. Reference procedure or operating manual paragraphs as necessary and applicable.
6. **HOW** Define the methods, facilities, equipment, and types of personnel to be employed in meeting the objectives. Personnel certifications/qualifications as necessary for the effort shall also be included. Indicate any conditions/limitations which should be imposed.
7. The results of the Hazard Analysis/Risk Assessment shall be summarized and supporting documentation submitted.
8. **WHAT IF** Define the procedures to be followed in case of emergency. Specify the names and phone numbers (work and home) of personnel who will be in control during the different types of emergencies that might occur.
9. Requestor, Supervisor, and Division Head shall review, approve, sign, and date the request.

PPPL

PRINCETON PLASMA PHYSICS LABORATORY
HEALTH & SAFETY DIRECTIVES

HSD 5004

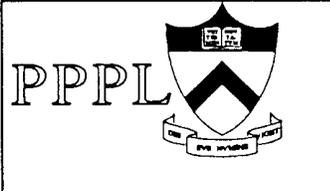
SAFETY CERTIFICATION SYSTEM



DATE: 12/1/89

REVISION 2

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SAFETY CERTIFICATE

Certification by:

Certificate #

Date:

Exp. Date:

Replaces Certificate #:

LOCATION (*Site, Area, Bldg., Room, etc.*)

ACTIVITY (*Test, Experiment, Operation, etc.*)

Person Responsible Phone

Alternate Phone

Emergency Contact Phone

CONDITIONS/LIMITATIONS:

CERTIFICATE REQUESTED BY:

NAME:

DEPT.

DIV.

BRANCH:

REQUEST REVIEWED BY:

REQUEST APPROVED BY:

ACTIVITY COMPLETED:

DATE:

APPENDIX C. CERTIFICATE FORM