

PPPL	Princeton Plasma Physics Laboratory	PROCEDURE	ESH-025 Rev 0 page 1 of 10
Subject: Operations Hazard Classification Criteria and Safety Certification System	Effective Date: February 12, 2016	Initiated by: Head, ES&H Department	
	Supersedes: ESH 5008 Section 11 Chapter 1 - Operations Hazard Criteria, and Chapter 2 - Safety Certification System	Approved: Director	

MANAGEMENT SYSTEM

Management System (Primary): 09.00 ESH and Integrated Safety Management (ESH)
Management System Owner: Head, ES&H Department
Management Process: 09.09 ES&H - Operations Hazard Criteria and Safety Certification
Process Owner: Head, ES&H Department
Subject Matter Expert (SME): Head, ES&H Department

APPLICABILITY

This procedure applies to all proposed operations and projects in PPPL.

INTRODUCTION

The purpose of this procedure is to classify operations (i.e., projects or experimental devices) as to their hazard level, to indicate the required control actions to be performed for each hazard level, and to specify the approval level required. This procedure also establishes a system to require, issue, review, and control Safety Certificates. The Safety Certification System provides a formalized, standardized means of assuring independent review and authorization of High Hazard operations designated in accordance with this procedure. Reviews and authorizations conducted under this procedure are in addition to NEPA reviews and certifications required by procedure ESH-014.

SCOPE

Hazard Classification are required for all operations (i.e., projects or experimental devices), Safety Certificates are required for all operations which have been designated by the responsible Department Head to be High Hazard. These Certificates will be issued by the ES&H Executive Board (ES&H/EB). For High Hazard operations, the ES&H/EB will appoint an Activity Certification Committee (ACC) to review the proposed operation. The Safety Certificate constitutes PPPL approval to conduct the High Hazard operation within the Safety Envelope and constraints indicated therein. Other approvals (e.g., DOE) may also be required to commence operations such as nuclear facilities.

Final hazard classifications, along with all required approvals and documentation as stated in this procedure shall be completed prior to implementation of any new operations.

REFERENCE DOCUMENTS

DOE Order 225.1B	Accident Investigations
DOE-STD-1027	Hazard Characterization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports
10 CFR 830 Subpart B	Nuclear Safety Management, Safety Basis Requirements
O-021	ES&H Executive Board Charter
O-022	Safety Review Committee Charter

ESH-014 NEPA Review System
PPPL Lithium Safety Program document

DEFINITIONS & ACRONYMS

ACC Activity Certification Committee

ES&H/EB Environment, Safety & Health Executive Board (PPPL document O-021)

MSW Management Safety Walkthrough which involves participation by PPPL management (including those independent of the High Hazard operation) in a physical walkdown of the High Hazard facility.

Operations At PPPL, operations as defined here are generally synonymous with projects or experimental devices. Operations do not include activities that involve hazards that are routinely encountered and accepted in the course of everyday living by the vast majority of the general public.

Pre-Job Briefing (PJB) This is a briefing conducted by the supervisor with the employee in which the supervisor explains the job that the employee is to perform. It includes a description of hazards and potential risks associated with the job and emphasizes safety precautions required and the correct sequence of operations, as well as the description of required protective equipment. Recent changes to relevant equipment and/or procedures are considered. See also procedure ESH-004, Job Hazard Analysis.

Project Hazard Analysis A brief summary of an operation, including identification of hazards associated with the operation, and design features and administrative controls to mitigate these.

Risk A quantitative or qualitative expression of possible loss that considers both the probability that a hazard will cause harm and the consequences of that event.

Safety Analysis A documented process to systematically identify the hazards of a PPPL operation, to describe and analyze the adequacy of the measures taken to eliminate, control or mitigate identified hazards, and to analyze and evaluate potential accidents and their associated risks.

Documented Safety Analysis (DSA) A DSA is a documented analysis of the extent to which a hazard category 1, 2 or 3 nuclear facility (as defined in DOE-STD-1027) can be operated safely with respect to workers, the public, and the environment, including a description of the conditions, safe boundaries, and hazard controls that provide the basis for ensuring safety. DSAs are approved by DOE. Details on the requirements for a DSA and related documentation are included in 10 CFR 830 Subpart B.

Safety Assessment Document (SAD) This document presents the safety assessment of a High Hazard operation (and may be used for other hazard level operations if deemed desirable). The SAD provides descriptions of relevant structures, systems and components, identification of hazards associated with the operation, and design features and administrative controls to mitigate these. The topics to be addressed are discussed in Attachments 1, 2 and 4. The SAD shall be reviewed by the PPPL Safety Review Committee (SRC) per PPPL document O-022 and approved by the Deputy Director for Operations. Preparation and review of SADs for lithium operations must also follow the guidelines in the PPPL Lithium Safety Program document.

Safety Certificate This is a document that authorizes start-up and/or continuing operation of a high hazard operation, and is issued by the ES&H/EB after review and documentation per Procedure Part B of this procedure.

Safety Envelope The Safety Envelope, which is the basis for the conditions and limitations in the Safety Certificate authorizing a High Hazard operation, constitutes the provisions that must be satisfied to permit the High Hazard operation to proceed or continue.

SRC Safety Review Committee (PPPL document O-022)

Unreviewed Safety Issue (USI) and Unreviewed Safety Issue Determination (USID) A USID is performed for a High Hazard operation to evaluate a proposed change (e.g., a new machine component, change in operating parameters, etc.) or new information to determine whether there are any impacts on the approved SAD, approved Safety Envelope (documented in the SAD), and/or approved Safety Certificate. If the Safety Envelope and/or Safety Certificate are affected, a USI exists and the Responsible Line Manager (RLM) for the operation would determine the necessary changes that need to be made to the Safety Certificate, and the ACC would present those changes to the ES&H Executive Board. The Board would then approve or disapprove the changes, and the Safety Certificate would be revised as needed. The operation then would need to make any approved changes.

HAZARD CLASSIFICATIONS (see Lithium Safety Program document for additional guidance on classification of lithium work)

1. Low Hazard Operations

A low hazard operation presents minor onsite and negligible offsite impacts to people or the environment. Typical low hazard operations include operation of small research devices and experiments.

2. Moderate Hazard Operations

A moderate hazard operation can present considerable potential onsite impacts to people or the environment, but at most only minor offsite impacts. Typical moderate hazard operations include operation of moderate sized research devices and experiments, and/or may involve one or more of the following:

- a. Operation of an energy storage capacitor bank.
- b. Operations where personnel safety interlocks may need to be bypassed or rendered inoperative.
- c. Operations involving confined space entry.
- d. Operations involving crane operation.

3. High Hazard Operations

A high hazard operation can present potential for serious onsite and/or offsite impacts to people or the environment. Operations are defined high hazard due to their intrinsic hazards or due to a collection of lower hazards that increase the probability of a serious accident. Typical high hazard operations or their potential effects are as follows:

- a. Large research devices and experiments such as the NSTX-Upgrade.
- b. Any operation where there is a real possibility of > \$2.5 Million property loss or damage, including costs of cleaning, decontaminating, renovating, replacing, or rehabilitating property [threshold for appointing an Accident Investigation Board per DOE 225.1B].

- c. Any operation where there is a real possibility of ≥ 100 mrem effective dose equivalent to an offsite individual [ES&HD 5008, Section 10, Table 10.7].
- d. Any operation where there is a real possibility of ≥ 600 mrem effective dose equivalent to any occupational worker [ES&HD 5008, Section 10.210]

4. Nuclear Facility

In addition to the classifications in 1-3 above, a PPPL operation that will involve quantities of radionuclides must be evaluated using the criteria of DOE-STD-1027 to determine if classification as a Category 1, 2 or 3 nuclear facility is required.

HAZARD CONTROL TECHNIQUES

1. Low Hazard Control Techniques

Applicable safety training, on the job training, pre-job briefings and adequate management supervision are primary techniques of low hazard control. Preparation of a Job Hazard Analysis (JHA) in accordance with PPPL procedure ESH-004 is required for low hazard operations.

2. Moderate Hazard Control Techniques

Pre-job briefing, training, personnel certification, written permits, written approvals, and coordination of activities are the primary control techniques.

Periodic management walk-throughs and safety inspections should be employed for moderate hazard operations.

A project hazard analysis is required. A Safety Assessment Document (SAD) may be directed by the responsible Department Head or the ES&H-EB, or may be prepared at the discretion of the responsible Project Head or Principal Investigator. These documents must be reviewed by the PPPL Safety Review Committee (SRC) and approved by the Deputy Director for Operations. See Attachments 1, 2 & 4 for topics to be addressed in project hazards analyses and SADs.

3. High Hazard Control Techniques

A safety certificate is required for all High Hazard operations. A Safety Assessment Document (SAD) shall be prepared, reviewed and approved by the PPPL Safety Review Committee (SRC) and appointed Activity Certification Committee (ACC). See Attachments 1, 2 & 4 for topics to be addressed in SADs.

4. Nuclear Facilities Control Techniques

In addition to the applicable techniques in 1-3 above, Category 1, 2 or 3 nuclear facilities require Documented Safety Analyses (DSAs) approved by DOE (see 10 CFR 830, Subpart B).

SECTION A.

Hazard Classification

All operations (i.e., projects or experimental devices) at PPPL shall be classified as either LOW, MODERATE, OR HIGH hazard operations. Hazard classification shall be determined by the responsible Department Head or his/her designee, in consultation with the Principle Investigator, the ES&H Department Head, and with the concurrence of the Deputy Director for Operations.

Nuclear operations shall also be classified in accordance with DOE-STD-1027, “Hazard Characterization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports, ” as required by 10CFR830, Subpart B (“Nuclear Safety Management, Safety Basis Requirements”).

Responsibility

Action

- | | |
|--|---|
| Principle Investigator | 1. Defines new operation or projects for implementation in PPPL. |
| | 2. Confers with responsible Department Head or his/her designee using Attachments 2 and 4 to define operational hazards. |
| Principle Investigator and Department Head | 3. Consults with the ES&H Department Head, and with the concurrence of the Deputy Director for Operations agrees on Hazard Classification. |
| Responsible Line Manager | 4. Approves the conduct of low hazard operations, and written documentation of the approval is provided by the RLM signing the JHA. |
| Department Head | 5. Approves the conduct of moderate hazard operations with written documentation of the approval. |
| Department Head | 6. For High Hazard operations, requests the ES&H/EB to appoint an Activity Certification Committee (ACC). |
| ES&H/EB | 7. Appoints an ACC to review the proposed High Hazard operation to support issuance by the ES&H/EB of a safety certificate for the operation allowing for appropriate lead time. See Section B of this Procedure. |

SECTION B.

Safety Certificate (High Hazard Operations)

(Nuclear facilities require separate approvals by DOE to commence operations. See 10CFR830, Subpart B)

Responsibility Action

ES&H/EB

1. Appoints an Activity Certification Committee (ACC) to arrange for reviews of all supporting analyses and documentation required for a safety certificate. The ACC should consist of at least two (2) members who are not part of the activity’s line organization and have knowledge and experience commensurate with performing the necessary reviews. The ACC will remain intact for the duration of the High Hazard operation or until dissolved by the ES&H/EB. DOE employees may be asked to serve on the ACC as ex officio members.
2. The ES&H/EB may solicit help from a non-PPPL source to assist or serve on the ACC.

RLM/Line
Management

3. Prepares all required information to support the granting of a Safety Certificate, including any proposed constraints to ensure safe operations.
4. Arranges for all required supporting analyses and documentation for the Safety Certificate, and provides them to the ACC, allowing for appropriate lead time.
5. Responds to all action items and requests for further information by the ACC.
6. Information provided by line management to the ACC to support their review for issuance of a Safety Certificate should include, but not necessarily be limited to:
 - a. Safety Assessment Document (SAD) (or Documented Safety Analysis (DSA) for nuclear facilities).
 - b. Preoperational test plans, and any necessary emergency response plans.
 - c. Operating procedures relevant to the safe conduct of operations.
 - d. 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.
 - e. Other information deemed relevant by the ACC.

- ACC
7. Performs review of information provided by line management, and physical inspections and walk-downs of appropriate sub-systems.
 8. Maintains a core group of subject matter experts specific to the technical requirements of the ACC. Calls on appropriate personnel external to the ACC (e.g., Safety Division, Site Protection Division, etc.) to participate in the safety review process conducted by the ACC, and to provide assistance as required to support issuance of a Safety Certificate.
 9. Replaces ACC membership as appropriate to maintain core competency within the committee.
 10. Consults, as required, with line management, DOE and the Environment, Safety, & Health Department on safety and environmental matters pertaining to the High Hazard operation under its review.
 11. Conducts safety reviews supporting issuance of Safety Certificates.
- RLM
12. Meets with the ACC Chairperson to determine if a Management Safety Walkthrough (MSW) should be performed of the planned operation to help verify readiness when the High Hazard Operation is ready to commence. This MSW, including correction of any deficiencies deemed important to operational readiness, must be completed prior to issuance of a Safety Certificate by the ES&H/EB.
- ACC
13. Recommends to the ES&H/EB issuance or denial of Safety Certificates along with any necessary special conditions or constraints on which the issuance of Safety Certificates should be based.
- ES&H/EB
14. Based on the ACC recommendations, the results of the MSW and completion of corrective actions for any deficiencies that are important to operational readiness, and other factors deemed relevant by the ES&H/EB, the Board will decide on issuance of the Safety Certificate. The Safety Certificate Form (see Attachment 4) should be completed by the Responsible Line Manager and approved by the ES&H/EB Chairperson.
- RLM
15. Retains the original approved Safety Certificate. Posts a copy of the Certificate prominently in a location visible to the operations personnel for the High Hazard operation. Operates within the stated constraints of the Certificate.
 16. Take necessary action to close out a Safety Certificate upon completion of the operations for which it was issued.
 17. Upon completion of the operation or activity covered by a Safety Certificate, the Responsible Line Manager shall remove the posted

copy of the Safety Certificate and indicate and initial the date of activity completion on the original Safety Certificate. The original Safety Certificate should be retained by the Responsible Line Manager. Copies of the closed out Safety Certificate should be sent to the ES&H/EB Chairperson and the Head of the ES&H Department.

SECTION C.

Modifying a Project Hazard Analysis or SAD

When activities associated with an operation require a change to a project hazard analysis or SAD, the change can be made either by revising and re-approving the analysis or SAD, or by processing a USID Form (see Attachment 3). Up to six (6) such Change Approval Forms can be processed for a specific SAD or Project Hazard Analysis Revision #. If a seventh change is needed, the analysis or SAD must be revised and re-approved. Changes to a SAD for a high hazard operation may also result from application of the USID process; see Section D. (Note: revisions to a DSA for a Category 1, 2 or 3 nuclear facility must follow the requirements of 10 CFR 830 Subpart B).

Modifying a SAD or Project Hazard Analysis

<u>Responsibility</u>	<u>Action</u>
RLM	1. Submits proposed changes to the SAD or Project Hazard Analysis to the USID Evaluator (Head, ES&H) using a USID Form (Attachment 3).
USID Evaluator	2. Completes the USID Form. If no USI is involved (High Hazard operation; see also Section D), submits Form and document changes to the SRC Chairperson for review.
SRC Chairperson or full SRC	3. Reviews changes to the SAD or Project Hazard Analysis. After approval, signs USID Form and sends to RLM for Project Hazard Analysis (copy USID Evaluator), or to Deputy Director for Operations for SAD.
Deputy Director for Operations	4. Approves changes to the SAD, signs USID Form and sends it to the RLM (copy to USID Evaluator).
RLM	5. Inform all affected workers of the changes covered by the USID Form and SAD/Project Hazard Analysis revision.
	6. Files approved USID Forms in Project files.

SECTION D.

Unreviewed Safety Issue Determinations (USIDs) – High Hazard Operation Only

A USID is performed for a High Hazard operation to evaluate a proposed change (e.g., a new machine component, change in operating parameters, etc.) or new information to determine whether there are any impacts on the approved SAD, approved Safety Envelope, and/or approved Safety Certificate. If the Safety Envelope and/or Safety Certificate are affected, a USI exists and the Responsible Line Manager (RLM) for the operation would determine the necessary changes that need to be made to the Safety Certificate, and the ACC would present those changes to the ES&H Executive Board. The Board would then approve or disapprove the changes, and the Safety Certificate would be revised as needed. The approved changes could then be made to the High Hazard operation.

Responsibility

Action

RLM

1. Reviews proposed changes to an existing High Hazard operation using an ECN, the Work Planning System, Technical Procedure Modification (MPC or T-Mod), Design or Peer Review, or other means for any potential Unreviewed Safety Issues (USI's) or changes to the SAD. If a potential USI or SAD change exists, fills out a USID form, Attachment 3, and submits it to the USID Evaluator (Head, ES&H) to complete the USID.

USID Evaluator

2. Completes the USID Form. If Evaluator determines that no USI is involved, follows process in Section C, "Modifying a SAD or Project Hazard Analysis". If USI exists, also informs RLM and provides USID Form to ACC Chairperson to start process for modifying the Safety Envelope and Safety Certificate.

RLM

3. Works with the ACC to modify the Safety Certificate and request approval from the ES&H/EB, following the steps outlined in Section B for the initial Safety Certificate.

ACC

4. Presents the changes to the Safety Certificate to the ES&H Executive Board.

ES&H/EB

5. Approves or disapproves the changes to the Safety Certificate.

RLM

6. Implements approved changes to the High Hazard Operation.

TRAINING (SECTION REQUIRED FOR ALL PROCEDURES)

Head, ES&H
Department

1. Target Audience: RLMs, Principle Investigators, Department Heads
Instructor: Head, ES&H Department

Training Method:

Read only

Email distribution only

Frequency:

Once only

Other: When changes are made to this procedure

RECORDS REQUIREMENTS SPECIFIC TO THIS PROCEDURE

Records Custodians must assure records are maintained as follows:

Record	Record Custodian	Location	Retention Time
Safety Certificate	RLM	Operations records	Review annually. Cutoff when superseded, obsolete, or cancelled. Destroy 25 years after cutoff. PENDING - DO NOT DESTROY Hold indefinitely – DOE <i>Reference: Environmental Records (1.b.4.b)</i>
Safety Assessment Document	RLM	Operations records	
Safety Assessment Report	RLM	Operations records	
SAD/Project Hazard Analysis Change Approval Form	RLM	Operations records	

ATTACHMENTS

Attachment 1 Hazard Analysis

Attachment 2 Suggested Elements for Project Hazard Analysis, SAD and SAR

Attachment 3 Unreviewed Safety Issue Determination (USID) Form

Attachment 4 SAD and SAR Hazard Review Checklist

Attachment 5 Safety Certificate Form - Typical

HAZARD ANALYSIS

The following topics must be addressed in project hazard analyses and Safety Assessment Documents (SADs):

1. An overview of the operation (project or experimental device), including mission, goals, and/or objectives. The Safety Envelope should also be defined for the operation.
2. Descriptions of structures, systems and components relevant to the operation, with emphasis on environment, safety and health (ES&H) features.
3. Identification of hazards associated with the operation and methods employed for their mitigation. A Review Checklist to assist line management in determining the potential hazards encountered for an operation is found in Attachment 4.
4. Discussion of the Safety Envelope for SADs associated with High Hazard operations,
5. Description of how operations will be conducted, with emphasis on ES&H features.

The depth of the discussions of these topics should be commensurate with the hazard level and the severity of the specific hazards associated with the operation. Additional topics may also be addressed.

Attachment 4 provides some suggested analytical elements that can be used in performing a project hazard analysis or SAD. The ES&H Department can be consulted for additional guidance. High hazard operations should perform failure modes and effects analyses (FMEAs) and include them in their SADs.

1. **Energy and Hazardous Material Analysis** - the process of identifying the types of energy, (kinetic, potential, electrical, radiation, etc.) or hazardous material, their sources and potential target(s) should an unwanted transfer of energy or hazardous material occur.
2. **Barrier Analysis** - the process of identifying the types and location of barriers present to control the source of energy or hazardous material, e.g., on the source, on the target, between the two, or separation of source and target by time and space.
3. **Protective Devices Analysis** – the process of determining the adequacy of protective devices, e.g., personal equipment, interlocks, etc.
4. **Failure Mode and Effects Analysis (FMEA)** - a FMEA is a detailed analysis of the failure modes in and the effects of those failures on components, subsystems, systems, etc., ultimately to determine the effects on the level of safety present in the system.
5. **Event Tree Analysis (ETA)** - an ETA is a logic block diagram for systematically determining, through event identification, the effects on the safety of the project and systems.
6. **Fault Tree Analysis (FTA)** - an FTA is a logic block diagram for systematically determining, through fault identification, the probability of failures in components and systems and the safety effects.
7. **Component Hazard Analysis** - an analysis and study to determine the effects of failures on safety at the component level.
8. **Subsystem Hazard Analysis** - a detailed study of a particular subsystem (a system that together with other systems, make up a larger, more complex system) to determine the effects on safety should that subsystem fail or malfunction.
9. **System Hazard Analysis** - a detailed study of an entire system, or project, to detect the effects of failures on safety of the overall system or any of its subsystems.
10. **Support of Operations Hazard Analysis** - a projected analysis to identify hazards associated with the operating and support functions of a system.
11. **Inspection and Maintenance Hazard Analysis** - the process of identifying hazards resulting from maintenance actions and to determine the adequacy of the inspection requirements.
12. **Sneak Circuit Analysis** - a study of electrical or electronic circuitry and their components to assure that they are completely isolated from other circuits and cannot activate unwanted states in associated circuits and/or other components.
13. **Human Factors Analysis** - an analysis of that part of the machine that interfaces with people to determine if the machine is suitably/safely designed for the people who will operate it.

USID Evaluation No. _____

Description of Proposed Change (including new information):

1. Does this change require a revision to an approved SAD or Project Hazard Analysis? If Yes, provide specific changes (attach markup if needed), and indicate Title of SAD or Project Hazard Analysis, Document Revision #, and Change #.

YES [] NO []

Explanation

2. Are previously documented hazard consequences changed in likelihood or severity?

YES [] NO []

Explanation

3. Are new hazards or new hazard consequences involved?

YES [] NO []

Explanation

4. Does this change require a revision to an approved Safety Envelope and/or Safety Certificate? If Yes, a USI exists and the ACC must evaluate the change and present the proposed revision to the ES&H Executive Board for approval. Board approval of the revised Safety Certificate is required prior to operating with the proposed change.

YES [] NO []

Explanation

Reviews and Approvals

Responsible Line Manager (RLM) _____

USID Evaluator (Head ES&H) _____

SRC Chairperson (SAD/Project Hazard Analysis Changes) _____

Deputy Director for Operations (SAD changes) _____

ACC Chairperson (USIs only) _____

ES&H Executive Board Chairperson (USIs only) _____

A maximum of six (6) Change Approval Forms may be approved for a specific SAD or Project Hazard Analysis Revision # before the document must be revised. RLM's must inform all affected workers of the changes covered on an approved Change Approval Form

SAD AND SAR HAZARD REVIEW CHECKLIST **Attachment 4**

Exposure or Failure Cost	No Exposure or No Cost	Possible Exposure or Less than \$100,000 Cost	Probable Exposure or over \$100,000 and less than \$2,500,000 Cost	Standard Condition or greater than \$2,500,000 Cost
Potential Project Hazards				
A. Personnel Exposures				
Chemical				
Radio Frequency or Microwave (Radiation)				
Magnetic (5G, 30G, 1T)				
Radiation				
Nanoparticles				
Beryllium				
Asbestos				
Cryogenic				
Fire/Smoke				
Electrical (Arc/Flash, Shock, etc.)				
Heat/Cold				
Noise				
Pathogens				
Compressed Gas/Air				
Laser				
Dusts/Fumes/Aerosols				
Flash (e.g. Welding)				
B. Equipment Failures				
Explosion				
Electrical				
Flooding				
Hazardous Energy Release				
Hazardous Leaks				
Fire				
Collapse				
Uncontrolled Operation				
Crane Operations				
C. Environmental Exposures (Air/Water/Ground)				
Radiation				
Chemical				
Nanoparticles				
Water Release				
Pathogens				
Waste Management				

SAD AND SAR HAZARD REVIEW CHECKLIST **Attachment 4**

Exposure or Failure Cost	No Exposure or No Cost	Possible Exposure or Less than \$100,000 Cost	Probable Exposure or over \$100,000 and less than \$2,500,000 Cost	Standard Condition or greater than \$2,500,000 Cost
Potential Project Hazards				
Chemical				
Pathogen				
Radiological				
Solid				
Liquid				
Other Hazards				
D. Infrastructure Damages				
Fire				
Flooding				
Collapse				
Weakening				
Containment Breach				
E. Operations Conditions				
Special PPE requirements				
Heat Exposure				
Noise				
Cold Exposure				
Vibrations				
Confined Space				
Outdoor Operation				
Mobile Equipment				
Combustible Liquids				
Fall Exposure				
Pressure System				
Vacuum System				
Physical Exertion				
F. Nuclear Operations	Special Conditions defined in DOE-STD-1027			
G. Other				

**Safety Certificate****LOCATION** (Site, Area, Bldg., Room, etc.):**ACTIVITY** (Brief Description):**CONDITIONS/LIMITATIONS:****RESPONSIBLE LINE MANAGER:****APPROVED BY** (ES&H/EB Chairperson):**ACTIVITY COMPLETED** (Dated and Signed by Responsible Line Manager):