



FERMI NATIONAL ACCELERATOR LABORATORY

FERMI NATIONAL ACCELERATOR LABORATORY UNREVIEWED SAFETY ISSUE (USI) PROCES

Revision 0 August 11, 2023

Appendix B of the Safety Assessment Document

Unreviewed Safety Issue (USI) Process

Approval Page

Directorate & Fermi Site Office Final Approval

Final approval of the Unreviewed Safety Issue (USI) Process is granted by the Fermilab Director and the DOE Field Element Manager.

Director, Fermi National Accelerator Laboratory

DOE Field Element Manager, Fermi Site Office

Revision History

Author	Rev. No.	Date	Description of Change
Maddie Schoell	0	August 11, 2023	Initial issue of the Unreviewed Safety Issue (USI) Process within Appendix B of the SAD. Updating process to align with DOE O 420.2D. <ul style="list-style-type: none"> • Removed the term “significant” from evaluation questions, replaced with Risk Categorization determinations from DOE-HDBK-1163-2020 • Split the USID Form into two parts, one for the initiator and one for ESH Accelerator Safety Department • Incorporation of Reviewed Safety Issue (RSI) at the end of the USI Process

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Unreviewed Safety Issue (USI) Process Overview

The Unreviewed Safety Issue (USI) Process provides a standard approach for accelerators to review Unreviewed Safety Issues (“issues”) to determine if the issue is adequately addressed by the current Safety Assessment Document (SAD) and an approved Accelerator Safety Envelope (ASE). Unreviewed Safety Issues (“issues”) fall into two categories: (1) proposed activities, or (2) discovered conditions.

Initiating the USI Process

The USI Process shall be utilized when there is a reasonable chance that an issue could affect the probability or consequence of an accident from that evaluated in the Fermilab SAD or introduce an accident or malfunction of a different type than any evaluated in the SAD. An Unreviewed Safety Issue Determination (USID) Form is used to perform evaluations of issues. A USID Form is initiated by Directorate/Division line managers, project managers, project engineers, or ES&H personnel.

Issues that warrant evaluation include, but are not limited to:

- New accelerators, accelerator segments, or experimental areas
- Modifications to existing accelerators, accelerator segments, or experimental areas
- Planned excavation or construction within the Excavation Waiver Prohibited Zone
- Discovery of missing Credited Controls
- Potential compromise of soil berms (to determine if the required Credited Control shielding was impacted)
- Potential compromise of required fencing (to determine if the required configuration of the Credited Control fencing was impacted)
- Use of a Compensatory Measure as allowed in the ASE
- Decommissioning activities

Performing the Evaluation

The initiator of the USID Form completes the first portion of the form: describing the proposed activity or discovered condition, identifying the applicable SAD Chapter and ASE that covers the area where the proposed activity/discovered condition will/did occur, determine if the hazards associated with the proposed activity/discovered condition are covered within the SAD, and determine if the proposed activity/discovered condition impact Credited Controls identified in the applicable ASE.

The USID Form is then submitted to ES&H Division Accelerator Safety Department personnel for evaluation of the issue. During this evaluation, a series of questions are asked to determine if the issue introduces new or worse accidents of accelerator specific hazards than what is currently evaluated in the SAD.

At the result of the evaluation, it can be determined that the issue is already fully covered within the SAD and ASE, or that this issue is not yet fully covered within the SAD and ASE and additional actions are needed. Additional actions may include, but are not limited to: updated shielding analysis, updated ODH

analysis, updating the SAD and/or ASE, replacing deficient Credited Controls, or implementing a Compensatory Measure.

Determinations are agreed upon by the ES&H Division Accelerator Safety Department personnel performing the evaluation and the affected area/machine owner, and any necessary additional actions are documented and tracked to completion in iTrack. Once issues are adequately evaluated, they become Reviewed Safety Issues (RSIs).

Approvals and Operations

All RSIs are approved by the Senior Radiation Safety Officer (SRSO) and Chief Safety Officer (CSO). RSIs that require updates to the SAD and/or ASE require additional approval by the Lab Director and the DOE Field Element Manager.

The USI Process must be complete, meaning that any identified actions are completed, and the RSI is approved, prior to beginning operations (for proposed activities) or resuming operations (for discovered conditions).

Electronic copies of approved RSIs are saved in the ES&H Division Document Database (ES&H DocDB).

Notifications and Reporting

Once proposed activities are known, the responsible line manager, project manager, and/or project engineers should notify the ES&H Division Radiological Protection personnel to begin the USI Process.

Upon discovery of a discovered condition, the individual making the discovery shall notify the responsible Directorate/Division/Project line manager and the ES&H Division Radiological Protection and Accelerator Safety Department personnel. The operators for the affected accelerator shall be contacted to cease operation. ES&H Division Accelerator Safety personnel are responsible for notifying the SRSO, CSO, the affected Directorate Associate Lab Director or Division Senior Director, and the Fermilab DOE Site Office (FSO) Facility Representative.

The SRSO shall determine whether the issue warrants further reporting, including possible Occurrence Reporting and Processing System (ORPS) and Noncompliance Tracking System (NTS) reporting.