

Accelerator Readiness Review (ARR) for the Updated Safety Assessment Document (SAD) and Accelerator Safety Envelope (ASE)

August 15-17, 2023

Charge

The revised DOE O 420.2D *Safety of Accelerators* was issued September 9, 2022, and Fermilab has been implementing updates to ensure robust compliance with the revised Order throughout FY23.

Fermilab also received a letter from FSO identifying multiple comments following a review of the Safety Assessment Document (SAD) and Accelerator Safety Envelope (ASE) on January 4, 2023. Fermilab has provided proposed solutions to the comments, and is awaiting confirmation that the proposed solutions are acceptable.

Additionally, Fermilab has a FY23 PEMP Notable to “update and externally validate an updated SAD and ASE to reflect the requirements in the DOE O 420.2D, the current configuration, and a consistent authorization operating limit.” This review is the “external validation” review, as part of the PEMP notable.

Updates made to the Fermilab SAD and ASE incorporate updates to ensure compliance with the updated DOE O 420.2D as well as implement the proposed solutions to the FSO comments. Updates include:

- Completely revamped organizational structure of the Fermilab SAD and ASE
- Incorporation of new accelerators (previously managed as Radiation Generating Devices (RGD) under DOE O 420.2C)
- Incorporation of new and expanded Risk Assessments within each segment and/or accelerator’s SAD Chapter
- Incorporated Common Risk Matrix tables for Standard Industrial Hazards (SIHs)
- Expanded template for Accelerator Safety Envelopes (ASEs) including details of how the Configuration Management Program and Unreviewed Safety Issue (USI) Program apply to the applicable accelerator, and detailed lists of the required Credited Controls

All updated Programs and Documents are pending FSO approval, which we do not anticipate until after the conclusion of this review and the DOE Assist Visit review tentatively scheduled for September 2023. We ask that the review team look at the updated documents to validate that the approach taken in the updates is appropriate and in alignment with the requirements of DOE O 420.2D and FSO Expectations per the January 4, 2023 letter.

Charge Questions

1. Pending FSO approval of updated programs and documents, is the Lab's updated approach appropriate for meeting the requirements of DOE O 420.2D and addressing the comments provided by FSO in the January 4, 2023 letter?
2. Is the approach for use of Compensatory Measures appropriate?
3. Is the methodology used for Risk Assessments appropriate?
4. Is the approach for instituting Credited Controls for ODH components within applicable accelerator facilities appropriate?
5. Is the approach for implementing a consistent authorization operating limit appropriate?