

UNREVIEWED SAFETY ISSUE DETERMINATION (USID) FORM

Title of USID: _____

Description of Proposed Activity: _____

Does the proposed activity or discovered condition affect information in the [Fermilab SAD](#) regarding safety analyses, administrative controls, or credited controls? If so specify the relevant sections. _____

Does the proposed activity or discovered condition affect any of the requirements in the [Fermilab ASE](#)? If so specify the relevant sections. _____

USI Determination Criteria:

- Yes No Could the change significantly increase the probability of occurrence of an accident previously evaluated in the SAD?
- Yes No Could the change significantly increase the consequence of an accident previously evaluated in the SAD?
- Yes No Could the change significantly increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the SAD?
- Yes No Could the change significantly increase the consequence of a malfunction of equipment important to safety previously evaluated in the SAD?
- Yes No Could the change create the possibility of a different type of accident than previously evaluated in the SAD that would have a potentially significant safety consequence?
- Yes No Could the change increase the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the SAD?

Justification: (use attachment if necessary) _____

USI Determination: A USI is determined to exist if the answer to any of the 6 questions above is “Yes”. If the answer to all 6 questions is “No”, then no USI exists.

- No Proposed activity may be implemented following the applicable FESHM or FRCM chapter requirements.
- Yes Director’s approval is required prior to implementation.

For a positive USI Determination, does the ASE require changes?

- No Proposed activity may be implemented following the applicable FESHM or FRCM chapter requirements. Attach a copy of this USI Determination after Director’s approval to the applicable SAD Chapter.
- Yes DOE-FSO Manager’s approval is required prior to operation.

Check documents requiring creation or modification

- PHAR/PHAD Shielding Assessment
- SAD ASE

Preparer _____ Date _____

Senior Radiation Safety Officer _____ Date _____

Approval:

Chief Safety Officer _____ Date _____

Director (for positive USIDs) _____ Date _____

Note: Contact your Division Safety Officer with any questions regarding this form.

Installation of the Muon Campus Resonant Extraction Septa – Additional Information

Operation of the Delivery Ring is currently limited to 13 watts. Once the Mu2e experiment goes into operation, the operational beam power will be 8 KW and the losses expected on the extraction septa will be 80 watts. Additional shielding has been placed over the extraction septa's installation location as well as several other devices in the area. Earlier in 2022 we completed studies to determine the effectiveness of this shielding. During these studies we intentionally lost all of the beam we were operating with on the extraction Lambertson, just downstream of where the septa will be installed. The shielding over the Lambertson consists of 36 inches of steel as does the shielding over the septa location. During our study we deposited 9 watts of beam on the Lambertson continuously and measured a peak rate of 1.02 mrem/hr in the service building above. Since the operating limit for the Delivery Ring is 13 watts, the highest dose that we would be able to deliver to the service building would be 1.5 mrem/hr. The doors of the service building are posted as a controlled area protected by chipmunks with a trip level of 2.5 mrem/hr. For all practical purposes, the beam power in the Delivery Ring will be kept well under the 13 watt operating limit until efficient operations are established. Expected losses on the septa should remain well below 13 watts until the new 8 KW shielding assessment is approved.