Memorandum

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Date: February 12, 2024
To: John Scott, Rachel Madiar, Fermi Site Office
From: Matthew Quinn, SRSO
Re: DT Generator O 420.2D Determination

Matthew Quinn, UID:mquinn
Digitally signed by Matthew Quinn, UID:mquinn
Date: 2024.02.12 16:29:31 -06'00'

Message:

I have reviewed the applicability of DOE Order 420.2D (approved 9 September, 2022) to the Mu2e deuterium tritium (DT) neutron generator. The device is a commercial Starfire Industries model nGen 310, with a maximum accelerating potential of 140kV.

In accordance with DOE O 420.2D section 4.b, an approved Integrated Safety Management Program, in accordance with 48 CFR 970.5223-1, Integration of Environment, Safety, and Health into Work Planning and Execution, and DOE O 450.2, Integrated Safety Management, current version, may be used to satisfy requirements for 4.b.(1) and 4.b.(2). As Fermilab's Radiation Generating Device program is the Laboratory's ISM implementation for radiation generating devices and aligns with the requirements for the approved equivalency in DOE O 420.2D section 3.c.(3).(d) for neutron generators whose operating potential is below 600 keV.

The Starfire nGen 310 DT Generator has a maximum accelerating voltage of approximately 120 kV. This places the DT Generator as an "equivalent accelerator" treated as a Radiation Generating Device.

This device will be added to the list of Radiation Generating Devices specified in FRCM Article 362.