

August 21, 2020

Dr. Nigel S. Lockyer
Director

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Dear ARR Committee Members,

Thank you for agreeing to serve as a member of the Accelerator Readiness Review (ARR) Committee for the restart of the 400 MeV beamline to support 400 MeV Test Area (MTA) beam operations, which will in turn support the Irradiation Test Area (ITA). This committee will assess the updates in this area for commissioning and operations of MTA in support of the Irradiation Test Area (ITA). The members of the ARR Committee will assist Fermilab in determining if the facility is ready to safely begin commissioning and operation with beam.

The ARR is scheduled to take place September 9-11, 2020. The plan is for a 2 ½ day review consisting of remote presentations from Subject Matter Experts, on-site field visits with staff, remote and/or on-site executive session time, and a remote closeout with laboratory management on Friday morning, September 11th. The attached Logistics & COVID-19 Protocols document describes the ARR plan in more detail. The ARR Committee Charge is also attached to this letter.

I look forward to your participation, observations, and recommendations regarding the laboratory's readiness to begin MTA operations. Maddie Schoell and Matt Quinn will facilitate the ARR process, provide you with advance copies of documents, and ensure you have access to the resources and information you need. Thank you in advance for your help.

Sincerely,



Nigel S. Lockyer
Director of Fermilab

Cc: R. Snyder	M. Convery	K. Burkett	E. Niner	M. Quinn
M. Bollinger	P. Czarapata	R. Ford	K. Gregory	R. Lewis
J. Scott	T. Kobilarcik	P. Merkel	M. Michels	K. Swanson
R. Madiar	J. M. St. John	J. Freeman	A. Kenney	M. Schoell
M. Lindgren	J. Frieman	M. Kiburg	E. McHugh	S. McGimpsey

Accelerator Readiness Review for beam Operations of the 400 MeV Test Area (MTA)

September 9-11, 2020

Charge

Over the past several months, updates were made to the 400 MeV beamline and associated experimental hall. The 400 MeV beamline transports beam from the Linac to the experimental hall. A removable stripping foil was added to the beamline so that either H- or protons could be transported to the hall. A shielding block cave was installed in the experimental hall to allow higher intensity beam on test apparatus.

The experimental area – known as the Irradiation Test Area (ITA) – will support experiments studying the radiation effects on materials. Material will be intentionally irradiated; however the facility is not intended to be used as an isotope production facility and any radionuclides produced are incidental to the radiation effects studies. The 400 MeV beamline and ITA are known collectively as the "MeV Test Area (MTA)".

To be fully prepared to achieve the goals of the Fermilab experimental program, the laboratory is commissioning an Accelerator Readiness Review (ARR) for the restart of the MTA beamline in support of the ITA. The committee is requested to conduct a readiness review of the modifications of this beamline and experimental hall to assess if the hardware, personnel, and administrative systems and programs are ready for commissioning and operations within the proposed Accelerator Safety Envelope (ASE).

To support operation of MTA, a shielding assessment, *Shielding Assessment Document for the MeV Test Area at the Fermilab Linac Endstation*, was developed. The Safety Assessment Document (SAD) Chapter for MuCool was updated to reflect current operations for MTA for the Fermilab SAD, and the Fermilab ASE were revised based on the shielding assessment and the updated SAD Chapter. The shielding assessment, SAD Chapter and ASE have been revised in accordance with Fermilab policies and are pending approval by the Laboratory.

In performance of the readiness review for MTA and the identification of potential issues, the review committee is asked to address the following charge questions. Finally, the committee should present findings, comments, noteworthy practices, recommendations and specific answers to the charge questions at a closeout meeting with Fermilab's management. A final written report is requested within two weeks after the review.

ARR Charge Questions

1. Are the necessary program elements from DOE O 420.2C, *Safety of Accelerator Facilities*, and the associated Contractor Requirements Document (CRD) in place for MTA operations?
 - a. Accelerator Safety Envelope (ASE);
 - b. Safety Assessment Document (SAD);
 - i. Developed based on a Shielding Assessment (SA)
 - c. Clearly defined roles and responsibilities for individuals involved in accelerator activities in support of MTA (i.e., MTA staff, Main Control Room (MCR) & ES&H), including those for training and procedures;
 - d. A facility Configuration Management Program that is related to accelerator safety; and
 - e. Credited control and appropriate administrative processes related to accelerator safety (e.g., training, procedures, etc.)
2. Are the procedures for reviewing and approving proposed experiments, within the scope of the SAD and USI process, well defined and understood? Are they adequate in determining that the facility will not be used as an isotope production facility?
3. Are the procedures for experimental installation, retrieval, storage and release well defined and understood?