

Accelerator Readiness Review Determination

This Form will be used to determine what level of review is needed for a given new/change in activity, using the flowchart on page 4 for guidance.

Title: Neutrino Muon (NM) Restart & E1039 #1 Date: 10/20/22

Scope

Restart of the NM beamline and E1039, except for aspects related to the frozen ammonia target. The Shielding Assessment and SAD/ASE cover all aspects for NM beamline and E1039 operation, and will be within the scope of this review. Hardware, processes & personnel for NM beam operations and E1039 operation of the CH2 targets will be within the scope of this review. Hardware, processes & personnel for E1039 operation of the frozen ammonia target will take place during E1039 #2 review.

Considerations Attach additional pages as necessary to provide full descriptions. Discuss if something is considered significant or not.

Does the activity involve operations of an accelerator, OR only support functions?	Accelerator
If the activity involves operations of an accelerator, is the accelerator considered "equivalent" or "exempt" as defined in DOE O 420.2c §3.c? (i.e., managed as an RGD)	Not exempt or equivalent
Is this activity (i.e., support function, accelerator, RDG, etc.) new or existing?	Existing beamline, new experiment
If the activity is existing accelerator operations, is this resuming previous operations, OR a new module/mode of operations?	Resuming previous beamline operations, new experiment
What changes/modifications have been made? (i.e., equipment, shielding, interlocks, controls, operations, hazards, procedures, etc.)	Equipment: none. Shielding: enclosures-none, target pile-new configuration. Interlock: none. Controls: none. Operations: none. Hazards: enclosure/beamline - none, experiment hazards - same but details different, new ammonia.
How long has it been since the accelerator operated in this area?	Turned off 2017.
Since the last time beam was operated, have there been any significant change in personnel? (For accelerator operations.) (i.e., Operators, RSO, DSO, Beamline Physicists, Machine Department, etc.)	Operations: Crew Chiefs same, all new Ops. RSO: yes. DSO: yes. Beamline physicist: no. Machine Dept: no. PPD: Div. management changed, technical staff the same. Experiment collaboration: 30% new 70% returning.

Review Level

- Full ARR^{1,4}
 Primarily external review committee
 Primarily internal review committee
 Limited Scope ARR^{1,2,4}
 Primarily external review committee
 Primarily internal review committee
 ORC(s)^{2,3,4}
 Internal reviewers
 Include external reviewer(s)/SME(s)
 None⁴

¹ Use Fermilab Accelerator Readiness Review (ARR) Plan to plan & facilitate review, and obtain approval to begin operations.

² Specify which elements will and will not be reviewed on Page 2 of this Form. Justify reasoning for elements from DOE O 420.2c and the associated CRD that will not be reviewed.

³ For activities that do not require an ARR, the ORC process and tool may be used to document both reviews of individual equipment/subsystems as well as "full system" reviews.

⁴ For any new/restart activity involving accelerator beam, the Start-Up Sign-Off (SUSO) process described in ADAP-11-0001, Beam Permit, Running Condition and Startup, will be followed before beam operations.

Review Elements

Full ARRs should include all elements as required in DOE O 420.2c Section 4.b and associated CRD. For Limited Scope ARRs, justification should be provided for elements not included.

ELEMENTS FROM DOE O 420.2c & ASSOCIATED CRD	JUSTIFICATION FOR ELEMENTS NOT INCLUDED LIMITED SCOPE ARRs
An approved accelerator safety envelope (ASE)	Included
A safety assessment document (SAD)	Included
Clearly defined roles and responsibilities for accelerator activities, including those for training and procedures	Included - due to time since beam last operated. Ensure personnel are aware of their responsibility (personnel training) rather than defining who is responsible for what (that's already well established).
An unreviewed safety issue (USI) process	Not included - was part of previous Full ARR.
An accelerator readiness review (ARR) program that ensures facilities are adequately prepared for safe commissioning and operations	Not included - part of CAS.
A current listing/inventory of accelerators under DOE O 420.2c and exemptions or equivalencies granted in accordance with DOE O 420.2c paragraphs 3.c.(2) and 3.c.(3)	Not included - one Fermilab accelerator, no RGDs involved in this operation.
A Contractor Assurance System that maintains an internal assessment process	Not included - part of multiple other reviews of CAS.
A Facility Configuration Management Program that is related to accelerator safety	Included - components utilized for NM operation.
Credited Controls and appropriate administrative processes related to accelerator safety (e.g., training, procedures, etc.)	Included - processes utilized for NM operation.

Additional elements listed below should be considered for all levels of review. Indicate which elements will be included in the review.

ADDITIONAL ELEMENTS TO CONSIDER	
<input checked="" type="checkbox"/>	Scope of activities (i.e., beam operation, experiments, support work, etc.)
<input checked="" type="checkbox"/>	Commissioning and Operations plan(s)
<input type="checkbox"/>	Standard Operating Procedures (SOPs) (e.g., for equipment use, etc.)
<input checked="" type="checkbox"/>	Equipment and/or subsystem ORC(s)
<input checked="" type="checkbox"/>	Administrative controls (i.e., building access, training/qualifications requirements, etc.)
<input checked="" type="checkbox"/>	Personnel (i.e., roles and responsibilities, training & qualification program, etc.)
<input type="checkbox"/>	Other:
<input type="checkbox"/>	Other:

Determinations

Determinations should be made by the assigned RSO, DSO, Activity Owner & D/S/P Head and approved by the Senior Radiation Safety Office (SRSO) & Chief Safety Officer (CSO). Determinations should be communicated to the Fermilab Site Office (FSO) and other stakeholders (i.e., Director, Project Owner, etc.) as necessary.

Discussion *Summarize the considerations and/or discussion that led to the determination. Attach additional pages as needed.*

Although the NM beamline operation has remained unchanged, the number of years and the personnel turnover in that time warrant a limited scope ARR to ensure people and processes are in place and understood by new personnel. This Limited Scope ARR will cover updated Shielding Assessment and SAD Chapters (2-16 Neutrino and 3-07 SY120) addressing changes made to the target cave shielding accommodate the new E1039 experiment. Internal SMEs may be appropriate for the bulk of the review committee, ensuring an external Chair.

Determined By

Ben Russell, Digitally signed by Ben Russell, UID:brussel
 UID:brussel Date: 2022.11.01 15:06:21 -05'00'

Assigned RSO

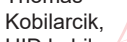
Katie Swanson, Digitally signed by Katie Swanson, UID:kswanson
 UID:kswanson Date: 2022.11.01 15:34:23 -05'00'

DSO

 Digitally signed by Richard Tesarek
 Date: 2022.11.01 15:41:24 -05'00'

Activity Owner

D/S/P Head

 Digitally signed by Thomas Kobilarcik, UID:kobilarc
 UID:kobilarc Date: 2022.11.02 07:15:07 -05'00'

Activity Owner

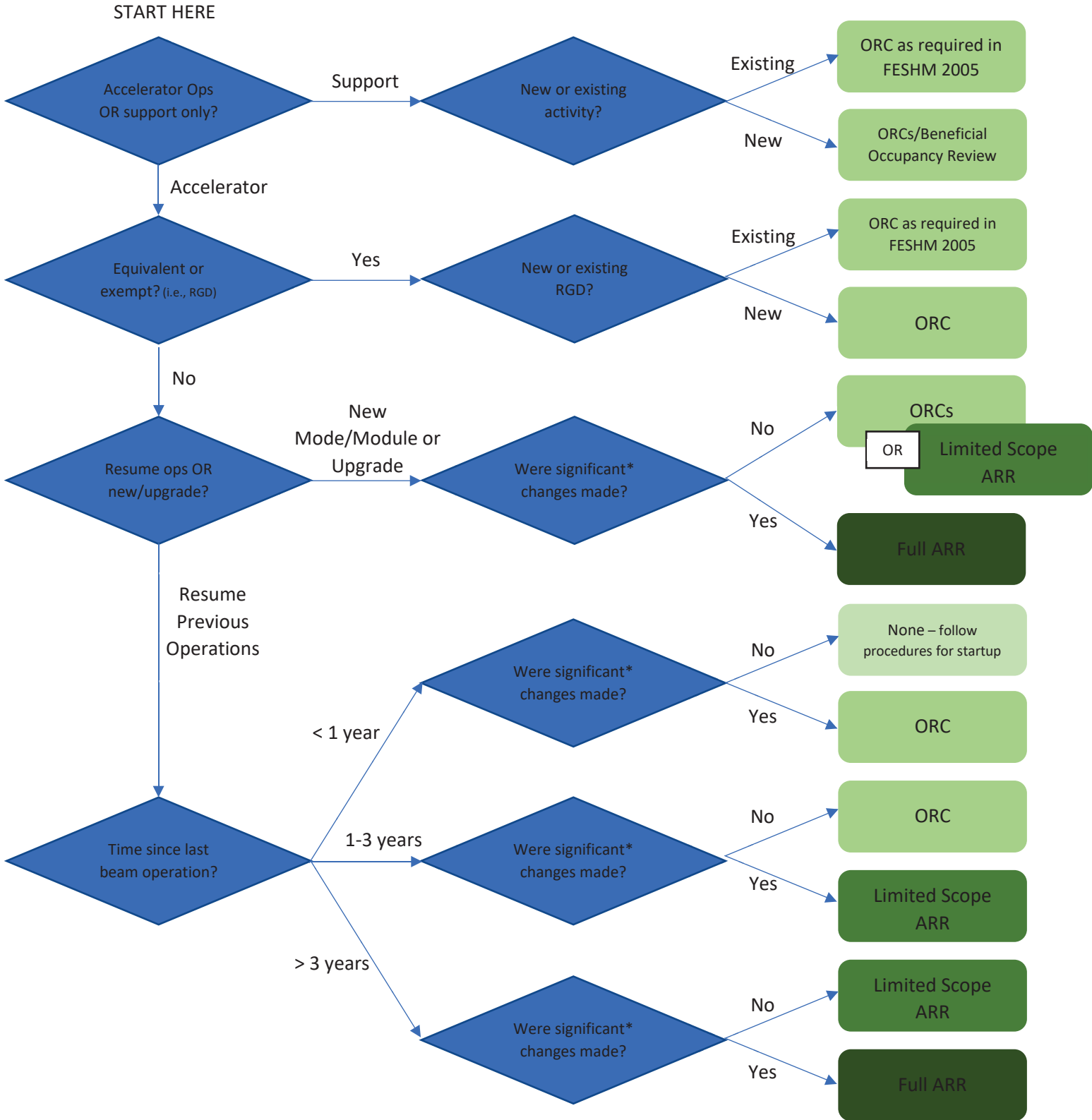
D/S/P Head

Approvals

 Senior Radiation Safety Officer (SRSO)

 Chief Safety Officer (CSO)

Determination Guidance Flowchart



*as determined by the RSO, DSO, Activity Owner and D/S/P Head