



Commissioning & Operations: Overall Commissioning Plan

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MTA Accelerator Readiness Review

2020 September 9

Overall Commissioning Plan

Pre-Checkout

Set Up for Initial Pilot Beam

Commission 400 MeV Beam

- Beam Studies as needed for optimization

Ongoing coordination

Pre-Checkout

Power Supplies

LCW System

Vacuum

Instrumentation

Controls

Pre-Checkout

Power Supplies

LCW System

Vacuum

Instrumentation

Controls

- All magnets load-verified
- All magnets have permission to power
 - Resistance nominal
 - Klixons securely connected
 - Klixons pass drop test
 - Power leads securely connected
- All magnets have passed powered checkout list
 - Current readbacks are good
 - For pulsed magnets, no problem with pulsed operation
- All magnets have been given permission to operate

Pre-Checkout

Power Supplies

LCW System

Vacuum

Instrumentation

Controls

- All valves open
- Flow and pressure as expected

Pre-Checkout

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Instrumentation

Controls

- All vacuum beam valves responding and open
- Final vacuum stable and good

Pre-Checkout

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Instrumentation

Controls

- Multiwire systems operational
 - Pass “flash” test
 - Mechanical control working
 - High voltage continuity good
 - Stable at operational high voltage
- Toroids calibrated in-situ and reading out
- Any Beam Loss Monitors tested from enclosure
 - HV ok
 - Values reading out
- Beam Position Monitors checked out

Pre-Checkout

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Controls

- Instrument readings and setting being logged
- All devices in alarm lists or D59

Initial Setup

- Inhibit possible beam transport using beam switch
- Establish a low duty cycle of 1 pulse every supercycle, with lowest reproducibly achievable pulse size (approx. 6 μ s chop)
- Turn on all magnet power supplies and set to nominal values
- Verify that magnets and their ramps are operational
- Insert multiwires into beamline

Commission 400 MeV Beam

- Verify that “Initial Setup” is complete
- Start MultiWire plots
- Start BPM/BLM plots
- Ask Crew Chief to enable MTA beam switch
- Establish beam through the MTA beamline
- Make a D1 save file once beam is established to the final multiwire
 - Also save at milestones along the way

Once beam has been established with reasonable efficiency to the final multiwire, a series of **beam studies** can be conducted to confirm and adjust the MTA beamline.

Ongoing coordination

Beamline physicist attends MWF 9 o'clock Operations Coordination meetings

Before making changes to beam line settings, beamline physicist communicates clearly with Crew Chief

Beamline physicist sets up displays, control system pages, etc. and communicates with Operators both live and by e-log to document and establish best practices

Beamline physicist communicates with ITA Facility Coordinator to establish beam parameters and understand relevant aspects of each experiment

...Nothing happens without coordination w/ Ops and ITA Facility!