



Muons report

Greg Rakness (FNAL) Proton PMG / AEM 03-Oct-2024

https://indico.fnal.gov/event/66360/

Solenoids and cryo

- Recall: upstream Transport Solenoid (TSu) and downstream TS (TSd) are in the building
 - Scheme developed to allow insertion of anti-proton window and rotation of the charge-selection collimators...
 - Parts are being procured...





- Cryo infrastructure going in earnest
 - Connection of solenoids to cryo transfer lines is underway (next page)
 - Liquid nitrogen refurbishments ongoing
 - Full Flow Purifier expected soon
- Soon: Production Solenoid (PS) and then Detector Solenoid (DS)...
 - Plan to cool down solenoids this FY
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Splices completed to upstream Transport Solenoid

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- First solenoid with spliced superconductor end-to-end
- Making these connections means the position of these solenoids is fixed
 - Also sets the location of other solenoids as well as the production target





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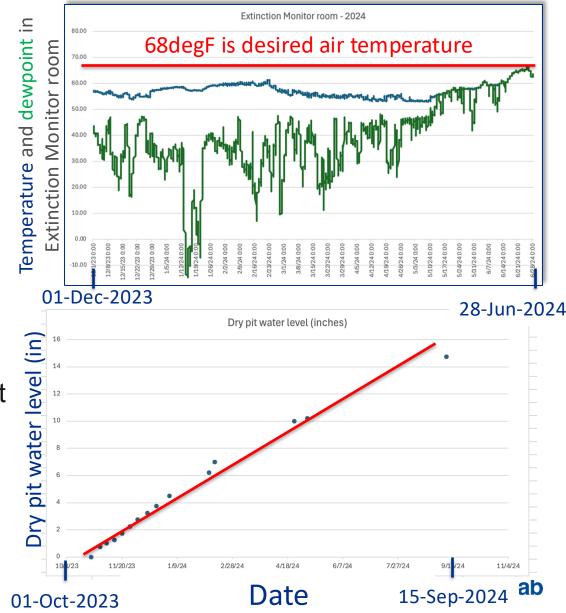
Emergency backup power issues

- During the regularly scheduled power outages this summer, experienced issues with backup power...
 - 17-July: at g-2, the Automatic Transfer Switch (ATS) failed to switch loads from main line power to backup diesel generator
 - This is the 3rd time this ATS has failed... a requisition is in process to replace this ATS
 - 26-Sep: at Mu2e, loads that were supposed to be powered by generator were found to be NOT powered (e.g., elevator, crane)
 - ... however, they were powered when line power returned, which means there is an issue either with the generator itself or the ATS
 - ISD is investigating this right now (during this meeting)



Issues with water, humidity, and temperature

- Water condenses during humid summer months...
 - Extinction Monitor room
 - ODH penetration near Production Solenoid (PS)
 - On wall in the catwalk above TSu and PS
- To address these issues...
 - Warm up building
 - Tune air handler baffles
- "Dry" pit: pit collects water at a steady rate all year
 - I.e., not only during the summer months
 - This is a more difficult problem to fix



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Mu2e subsystems

- In process of installing DAQ nodes
 - 31 of ~40 are in place
 - For some of the Mu2e online nodes, repurposing nodes from Muon g-2

Rack protection	Rack protection	Rack protection	Rack protection	Rack protection	Rack protection	Rack protection
2x switches? (none installed yet) mu2e-dcs-01	2x switches (1U to recuperate as in 4W?)		2x switches	RTF + 2 switches (1U to recuperate)	2x switches? (only one installed)	Chassis #8
						mu2e-extmon- (8, 13-14)
						mu2e-calo-08 (8, 10-12) mu2e-calo-07
						(8, 7-9) mu2e-calo-06 (8, 4-6)
mu2e-dl-01	Chassis #2	Chassis #3	Chassis #4	Chassis #5	Chassis #6	mu2e-calo-05 (8, 1-3)
Chassis #1	mu2e-cfo-01 (2, 13)	mu2e-crv-01 (3, 13)	mu2e-crv-02 (4, 13)	mu2e-crv-03 (5, 13)	mu2e-stm-01 (6, 13-14)	Chassis #7
mu2e-trk-14 (1, 10-12)	mu2e-trk-18 (2, 10-12)	mu2e-trk-04 (3, 10-12)	mu2e-trk-08 (4, 10-12)	mu2e-trk-10 (5, 10-12)	mu2e-calo-12 (6, 10-12)	mu2e-calo-04 (7, 10-12)
mu2e-trk-13 (1, 7-9)	mu2e-trk-17 (2, 7-9)	mu2e-trk-03 (3, 7-9)	mu2e-trk-07 (4, 7-9)	mu2e-trk-09 (5, 7-9)	mu2e-calo-11 (6, 7-9)	mu2e-calo-03 (7, 7-9)
mu2e-trk-12 (1, 4-6)	mu2e-trk-16 (2, 4-6)	mu2e-trk-02 (3, 4-6)	mu2e-trk-06 (4, 4-6)	mu2e-calo-14 (5, 4-6)	mu2e-calo-10 (6, 4-6)	mu2e-calo-02 (7, 4-6)
mu2e-trk-11	mu2e-trk-15	mu2e-trk-01	mu2e-trk-05	mu2e-calo-13	mu2e-calo-09	mu2e-calo-01

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- Expect Calorimeter to come to Mu2e in early 2025, followed by Tracker...
- Regarding bugs, animals, birds, ...
 - Oct 2023: Tracker leaks developed at lab 3 from Boxelder bugs
 - Have implemented mitigations at lab 3, currently monitoring to evaluate effectiveness
 - Need to figure out how to mitigate pests at Mu2e...

Muon experiments - collaboration activities

- Muon g-2 results
 - Analysis of Run 4-6 ongoing... expecting to release results in early 2025
 - Coordinating with theory initiative on release times so that theory can make their best predictions prior to the release of the data
 - Analysis of Muon Electric Dipole Moment and CPT + Lorentz Violation also ongoing
- 22-26 July: Muon g-2 physics week in Ann Arbor
- 23-27 Sept: Mu2e collaboration meeting
- 21-25 Oct: Mu2e Global Run #3

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Backup



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Calendar since May Proton PMG/AEM





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