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Muon g-2 Experiment Operational Readiness Review

October 2-3, 2017

CHARGE

The Muon g-2 experiment completed the installation of its detectors and began commissioning with muon beam a few weeks before the summer shutdown of the accelerator complex this year. The commissioning of the experiment will be completed once the beam returns in November and physics data-taking operations will begin. The primary goal of the experiment is to measure the muon's anomalous magnetic moment with a precision of 0.14 parts per million, a four-fold improvement compared to the BNL E821 result, to shed light on the >3 sigma deviation from the Standard Model, seen in the BNL experiment.

We would like the committee to review the preparations of the experiment for running, plans for maintenance & operations of the detectors, and data taking and analysis, including the current status of the detector, the status of the online and offline software, and the run plan.

In particular:

1. Is there a completed Experiment Operations Plan (EOP) document? The document should include (a) an outline of the Science goals (b) a description of operations tasks and how they will be covered, (c) ES&H activities and how they will be managed, (d) organization charts showing the management structure for the experiment and how it interfaces with the laboratory, (e) Fermilab resources and roles as they pertain to each Division (f) the model for data processing and analysis including the computing budget and effort required, (g) a list of the identified resources available, and (h) a description of the roles and responsibilities of each institution together with a list of support required by each institution from funding agencies.

2. Has it been demonstrated that the experiment is ready for physics-quality data taking? If not, what actions are required to make it ready? Is there a clear plan for monitoring (the beam and) the data quality and has the associated infrastructure been tested? If not, what actions are required to adequately monitor the data quality?

3. Is there a well-understood run plan for FY18, consistent with accelerator

schedule and performance? Have adequate resources from the laboratory and the collaboration been identified for an efficient and safe running of the experiment and for maintenance of the detector, and is it clear who is responsible for what?

4. Are there robust plans for data processing and data analysis? Have adequate resources from the laboratory and the collaboration been identified for data analysis to meet these goals?

5. Are there clear goals set for reporting and publishing the results from the experiment in a timely fashion?

6. Does the committee recommend further actions to ensure full exploitation of the muon g-2 experimental program?

We request a brief written closeout report from the committee addressing these questions by October 31, 2017.