

Executive Session

**Director's Conceptual Design
Review of Muon g-2 Project
June 5-7, 2013**

Jon Kotcher

Agenda for Exec Session

- Charge and Review Focus
- Review Agenda
- Subcommittee Assignments
- Reviewer Writing Assignments
- Subcommittee Executive Sessions
- Reporting Structure
- Discussion

Charge

The Committee is to conduct a Director's Review of the Muon g-2 Project. **This review is an Independent Design Review (IDR) of the Project's conceptual Design.** The Muon g-2 Project received CD-0 on September 18, 2012. Muon g-2 anticipates receiving DOE Critical Decision 1 (CD-1) "Approve Alternative Selection & Cost Range" late summer of 2013.

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The Independent Conceptual Design Review is to **verify that Muon g-2's design is technically adequate and should achieve the Project's scientific goals.** To meet the requirements for CD-1 the design has to be at the conceptual level or greater. The committee will make their assessment based on Muon g-2's Conceptual Design Report (CDR), drawings, specifications, and discussions with the project team.

The committee is to assess the progress of the Muon g-2 in their preparations to meet the CD-1 requirements of DOE O 413.3B. **To meet CD-1 readiness Muon g-2's conceptual design needs to be sound and achievable.** The review committee is asked to address the following questions to assess the Project's progress:

1. Are the science goals and physics requirements clearly stated and documented? Have the science goals and physics requirements been adequately translated into technical performance requirements and specifications?
2. Is the design technically adequate? Is the design likely to meet the technical requirements needed to carry out the scientific goals?

Charge (Continued)

3. Can the design be constructed, inspected, tested, installed, operated and maintained in a satisfactory way?
4. Is there adequate supporting documentation to support the conceptual design and the transition to developing the preliminary design?
5. Are the risks (on technical, cost, and schedule basis) of the selected base design approach and alternatives understood and are appropriate steps being taken to manage and mitigate these risks? Have areas been identified where value engineering should be done? If value engineering has been performed is it documented?
6. Are the project organization and lines of responsibility clearly defined and sufficient to ensure the successful engineering and design of the project? Are the design interfaces between the Accelerator Systems, Experimental Facilities, and Conventional Facilities groups understood and well enough defined to ensure a coordinated effort and an integrated design, including the Muon Campus AIPs/GGPs? Is there a reasonable plan in place for implementing configuration management to ensure changes to the technical requirements/specifications are controlled and communicated to all affected groups?

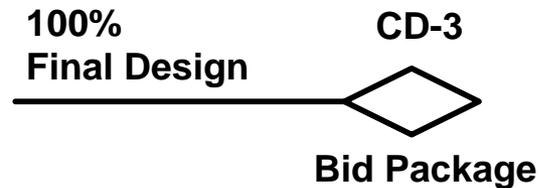
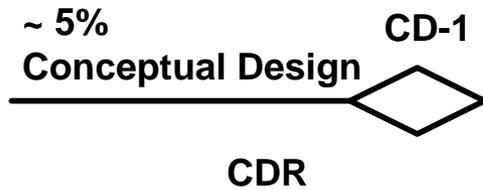
Finally, the **committee should present findings, comments, recommendations, and answers to the above questions at a closeout meeting** with Muon g-2 and Fermilab's management. A written report will be provided within two weeks after the review.

Review Focus

- This is NOT a Cost, Schedule, or Management Review.
- This is a technical review of the Conceptual Design.
- This review will satisfy the requirement of a Independent Design Review for CD-1

Project Design Phases

CD-0



Agenda

Wednesday, June 05

EXECUTIVE SESSION – Comitium (WH2SE)

8:30 – 9:00 AM 40 Executive Session

PLENARY SESSION –One West (WH1W)

9:00 – 9:10	AM	10	Welcome	Jack Anderson
9:10 – 10:00	AM	50	Project Overview	Chris Polly
10:00 – 10:40	AM	40	WBS 476.2 Accelerator	Mary Convery

10:40 – 10:55 AM 15 BREAK

10:55 – 11:20	AM	25	WBS 476.3 Ring	Hogan Nguyen
11:20 – 11:35	AM	15	WBS 476.3.8 Field	David Kawall
11:35 – 12:15	AM	40	WBS 476.4 Detectors	Brendan Casey

12:15 – 1:15 PM 60 LUNCH – Tables Available on WH2XO

PARALLEL BREAKOUT SESSIONS

1:15 – 3:00 PM 105

Session 1: WBS 476.02 Accelerators (**Target, Yields, & Instrumentation**) – Comitium (WH2SE)

Session 2: WBS 476.03 Ring (**Storage Ring and Chambers**) – Snake Pit (WH2NE)

Session 3: WBS 476.04 Detectors – (**Introduction and Tracking**) – Black Hole (WH2NW)

3:00 – 3:15 AM 15 BREAK

Agenda continued

PARALLEL BREAKOUT SESSIONS - continued

3:15 – 5:00 PM 105

Session 1: WBS 476.02 Accelerators (**Target, Yields, & Instrumentation**) – Comitium (WH2SE)

Session 2: WBS 476.03 Ring (**Storage Ring and Chambers**) – Snake Pit (WH2NE)

Session 3: WBS 476.04 Detectors – (**Introduction and Tracking**) – Black Hole (WH2NW)

5:00 – 5:45 PM Subcommittee Executive Sessions – in Breakout Rooms

5:45 – 6:30 PM Executive Session – Comitium (WH2SE)

Thursday, June 06

PARALLEL BREAKOUT SESSIONS - continued

8:00 – 9:30 AM 90

Session 1: WBS 476.02 Accelerators (**Target, Yields, & Instrumentation**) – Comitium (WH2SE)

Session 2: WBS 476.03 Ring (**Storage Ring and Chambers**) – Snake Pit (WH2NE)

Session 3: WBS 476.04 Detectors – (**Introduction and Tracking**) – Black Hole (WH2NW)

9:30 – 9:45 AM 15 BREAK – Outside Comitium (WH2SE)

PARALLEL BREAKOUT SESSIONS - continued

10:00 – 11:30 AM 90

Session 1: WBS 476.02 Accelerators (**Target, Yields, & Instrumentation**) – Comitium (WH2SE)

Session 2: WBS 476.03 Ring (**Storage Ring and Chambers**) – Snake Pit (WH2NE)

Session 3: WBS 476.04 Detectors – (**Introduction and Tracking**) – Black Hole (WH2NW)

11:30 – 12:30 PM

LUNCH for Committee – Tables Available on WH2XO

Agenda continued

12:30– 1:30	PM	60	Response to reviewer questions from Day One and questions from the morning breakout sessions – Comitium (WH2SE)
1:30 – 3:30	PM		Subcommittee Executive Session/Report writing – in Breakout Rooms
3:15 – 3:30	PM	15	BREAK – Outside Comitium (WH-2SE)
3:30 – 5:00	PM		Executive Session/Report writing - Comitium (WH2SE)

Friday, June 07

8:30 –11:30	AM		Full Committee Executive Session Dry Run – Comitium (WH2SE) With BREAK 10:15 -10:30 – Outside Comitium (WH2SE)
11:30	AM		Closeout Presentations – One West (WH1W)
12:30	PM		Adjourn

Reviewer Subcommittee Breakout Assignments

Subcommittee Breakouts	Members
1. Accelerator (WBS 476.02) - Comitium (WH-2SE)	Mike Syphers* – Michigan State University Bob Webber – FNAL Retired
1. Ring (WBS 476.03) – Snake Pit (WH-2NE)	Matthias Perdekamp* – UIUC Mike Tartaglia - FNAL
1. Detectors (WBS 476.04) – Black Hole (WH-2NW)	Alan Hahn* - FNAL Harry Cheung - FNAL

* Indicates Subcommittee Lead

Reviewer Writing Assignments

Executive Summary	<u>Jon Kotcher</u>
1.0 Introduction	
2.0 Accelerator	<u>Mike Syphers*</u> Bob Webber
3.0 Ring	<u>Matthias Perdekamp*</u> Mike Tartaglia
4.0 Detectors	<u>Alan Hahn*</u> Harry Cheung
5.0 Charge Questions	
5.1 Are the science goals and physics requirements clearly stated and documented? Have the science goals and physics requirements been adequately translated into technical performance requirements and specifications?	<u>Each Subcommittee</u>
5.2 Is the design technically adequate? Is the design likely to meet the technical requirements needed to carry out the scientific goals?	<u>Each Subcommittee</u>
5.3 Can the design be constructed, inspected, tested, installed, operated and maintained in a satisfactory way?	<u>Each Subcommittee</u>
5.4 Is there adequate supporting documentation to support the conceptual design and the transition to developing the preliminary design?	<u>Each Subcommittee</u>

Note: * Indicates Subcommittee Lead and integrator of write-ups
Underlined names are the primary writer.

Reviewer Writing Assignments (continued)

<p>5.5 Are the risks (on technical, cost, and schedule basis) of the selected base design approach and alternatives understood and are appropriate steps being taken to manage and mitigate these risks? Have areas been identified where value engineering should be done? If value engineering has been performed is it documented?</p>	<p><u>Each Subcommittee</u></p>
<p>5.6 Are the project organization and lines of responsibility clearly defined and sufficient to ensure the successful engineering and design of the project? Are the design interfaces between the Accelerator Systems, Experimental Facilities, and Conventional Facilities groups understood and well enough defined to ensure a coordinated effort and an integrated design, including the Muon Campus AIPs/GGPs? Is there a reasonable plan in place for implementing configuration management to ensure changes to the technical requirements/specifications are controlled and communicated to all affected groups?</p>	<p><u>Jon Kotcher</u> All</p>

Note: * Indicates Subcommittee Lead and integrator of write-ups
Underlined names are the primary writer.

Reporting Structure

- Results of the review are to be documented as findings, comments, and recommendations.
- The answers to the charge questions are to include feedback from each subcommittee. Answers should be an assessment of the overall project design.
- Findings, Comments , Recommendations and answers to the questions are to be presented in writing at a closeout with Muon g-2 and Fermilab's management.

Findings, Comments, and Recommendations

- Findings
 - Findings are statements of fact that summarize noteworthy information presented during the review.
- Comments
 - Comments are judgment statements about the facts presented during the review. The reviewers' comments are based on their experiences and expertise.
 - The comments are to be evaluated by the project team and actions taken as deemed appropriate.
- Recommendations
 - Recommendations are statements of actions that should be addressed by the project team.
 - A response to the recommendation is expected and that the actions taken would be reported on during future reviews.

Reviewer Write-ups

- Write-up template (Review Closeout Presentation Format) is posted on Director's Review Webpage. http://www.fnal.gov/directorate/OPMO/Projects/g-2/DirRev/20130605/Closeout_Presentation_Template_Muon_g-2_DI_ICD_Review.docx
- Write-ups (including answers to charge questions) are to be sent to Mary Tolian at mtolian@fnal.gov prior to 7:30 AM on Friday, June 07 for the Closeout Dry Run starting at 8:30 AM in the Comitium
- A final report will be issued within 2 weeks after the closeout.

Discussion

- Questions and Answers