

Executive Session
Director's Preliminary Review
(Assessment of Readiness for CD-1)
of the Mu2e Project

November 17, 2010

Jim Yeck

Agenda for Exec Session

- Charge to Reviewers
- Review Agenda
- DOE O 413.3 Critical Decision Table
- Document Requirements
- Write-up
- Discussion

Charge

The Committee is to conduct a Director's Preliminary Review of the Muon to Electron Conversion Experiment (Mu2e) Project to assess its progress towards a planned CD-1 Lehman Review, anticipated to take place in March 2011. The Mu2e Project will construct a new facility to enable the world's most sensitive search for charged lepton flavor violation by searching for the conversion of a muon to an electron in the field of a nucleus. Mu2e will be ~10,000 more sensitive than the world's current best limit. The project consists of modifications to the existing Fermilab accelerator complex, construction of a new external beamline, construction of a new detector hall on the Fermilab site and construction of a new detector to search for muon conversion. The detector includes a complex system of superconducting solenoids, a collimation and charge selection scheme for producing the world's most intense muon beam, a low mass tracking detector operating in vacuum, a crystal calorimeter and a cosmic ray veto. Many aspects of the project will be executed by other collaborating National Laboratories and universities.

Mu2e received CD-0 on November 25, 2009. The Project is now working towards CD-1, with the goal of being ready for a Lehman Review in March 2011. The purpose of this review is to assess the progress that the project team is making towards readiness for CD-1, evaluate the likelihood of being ready for a CD-1 review by March of 2011 and to recommend any actions to be taken to improve the likelihood of being ready on that time scale.

Charge Continued

The review team is asked to address the following questions:

1. Is the Project making adequate progress on the development of the technical designs and alternatives to create a sound Conceptual Design Report, as required to be ready for a successful CD-1 Review in March?
2. Is the Project making adequate progress in developing the resource loaded schedules required to support the cost and schedule ranges to be presented for CD-1?
3. Is the Project making adequate progress in the preparation of other required documentation for CD-1?
4. Are the Project organization and staffing levels, both current and planned, adequate to manage the work leading to a successful CD-1 review and beyond?
5. Are there other issues related to CD-1 readiness that the Project needs to address?
6. Does it appear likely that the Mu2e Project can be ready for a CD-1 review in March of 2011?

The review is scheduled to last one day. At the close of the review the Committee is asked to present its answers to the charge questions and include recommendations concerning actions that need to be taken to ensure a successful CD-1 Review on the planned time scale. The report presented at the closeout should be in written form and will be the final report from this review.

Agenda

8:00 am	Committee Executive Session (30)	Jim Yeck
8:30 am	Welcome (10).....	Peter Garbincius
8:40 am	Project Overview (60).....	Ron Ray
9:40 am	WBS 1.7 Calorimeter (25)	Stefano Miscetti (video)
10:05 am	Break (15)	
10:20 am	Preliminary HA (15)	Nathan Duff
10:35 am	NEPA Strategy (15)	Teri Dykhuis
10:50 am	Resource Loaded Schedule Development (20)	David Leeb
11:10 am	WBS 1.2 Accelerator (30).....	SteveWerkema
11:40 am	WBS 1.3 Civil (20)	Tom Lackowski
12:00 pm	Working Lunch – Committee (60)	
1:00 pm	WBS 1.4 Solenoids (30)	Mike Lamm
1:30 pm	WBS 1.5 Muon Channel (20)	Sandor Feher
1:50 pm	WBS 1.6 Tracker (20).....	Aseet Mukerjee
2:10 pm	WBS 1.8 Cosmic Ray Veto (20).....	Craig Dukes
2:30 pm	WBS 1.9 DAQ (20).....	Mark Bowden
2:50 pm	Break (15)	
3:05 pm	Wrap-up Discussion (30)	All
3:35 pm	Committee Executive Session/Write-up	Jim Yeck
5:00 pm	Closeout	All
5:30 pm	Adjourn	

DOE O 413.3 Critical Decision Table

Preconceptual Planning	Conceptual Design	Preliminary Design	Final Design	Construction	Operations
◇	◇	◇	◇	◇	◇
CD-0	CD-1	CD-2	CD-3	CD-4	
Approve Mission Need	Approve Alternative Selection & Cost Range	Approve Performance Baseline	Approve Start of Construction	Approve Start of Operations or Project Completion	

Actions Authorized by Critical Decision (CD) Approval				
CD-0	CD-1	CD-2	CD-3	CD-4
<ul style="list-style-type: none"> Proceed with Conceptual Design Request PED funding Start monthly PARS & Quarterly Project Performance reporting 	<ul style="list-style-type: none"> Allow Expenditure of PED Funds for preliminary design Approval of long-lead procurement if necessary 	<ul style="list-style-type: none"> Establish Performance Baseline Continue design Request construction funding 	<ul style="list-style-type: none"> Approve expenditure of funds for construction 	<ul style="list-style-type: none"> Allow start of operations or project completion
Non-Nuclear Facilities--Prerequisite Activities for CDs				
<ul style="list-style-type: none"> Review of Mission Need Statement (MSN) by Office of Program Analysis & Evaluation (CF-20) for \$100M or greater. Perform Mission Need Independent Project Review (IPR) for Major System (MS) projects (>=\$750K) Perform Pre-conceptual Planning Evaluate Information Technology (IT) projects with Departmental Enterprise Architecture framework 	<ul style="list-style-type: none"> Review of Acquisition Strategy (AS) (OECM review for MS project) Review of Conceptual Design <ul style="list-style-type: none"> Requirements Analysis Risk Analysis Alternative Analysis Value Management determination Assess Requirements Analysis, Risk Analysis, Alternative Analysis, & Value Management. Appoint FPD Establish & charter Integrated Project Team Ensure compliance with One-for-One Replacement requirement for building square footage Ensure Integrated Safety Management Implementation Ensure consideration for High Performance Sustainable Building Assess if QA Program is acceptable 	<ul style="list-style-type: none"> Perform Baseline External Independent Review (EIR) & validation by OECM for \$100M or greater. Perform Independent Cost Review or Independent Cost Estimates for MS project as part of EIR Program IPR for \$20M to less than \$100M Review of Preliminary Design Establish compliant project EVMS for \$20M or more, & OECM certifiable EVMS for project TPC with \$50M or more Conduct Value Engineering (as applicable) Incorporate High Performance Sustainable Building provisions into design Determine if QA Program is acceptable 	<ul style="list-style-type: none"> Perform Executability EIR by OECM for MS projects Perform IPR for Non-MS projects by Program (SC) 	<ul style="list-style-type: none"> Verify Key Performance Parameter or Completion Criteria achieved Perform Readiness Assessment or Operational Readiness Review Revise environmental management system. <p><u>Post CD-4 Closeout</u></p> <ul style="list-style-type: none"> Perform Final Administrative & Financial Closeout Conduct Post Implementation Review for IT projects
Hazard Category 1, 2, and 3 Nuclear Facilities--Additional Prerequisite Activities/Documents for CDs				
	<ul style="list-style-type: none"> Perform Technical IPR Prepare Conceptual Safety Design Report (SDR) Prepare a Preliminary Safety Validation Report (PSVR) 	<ul style="list-style-type: none"> Prepare Preliminary SDR Prepare a PSVR based on updated design 	<ul style="list-style-type: none"> Prepare Preliminary Documented Safety Analysis Report (SAR) Prepare SER 	<ul style="list-style-type: none"> Prepare Documented SAR with Technical Safety Requirements Prepare SER
Prerequisite Documents				
<ul style="list-style-type: none"> MNS Tailoring Strategy 	<ul style="list-style-type: none"> Acquisition Strategy Conceptual Design Report Risk Management Plan Risk Assessment Preliminary PEP Preliminary Hazard Analysis (HA) Preliminary Security Vulnerability Assessment Report (SVAR) Initial Cyber Security Plan for IT projects. QA Program Documentation 	<ul style="list-style-type: none"> Performance Baseline Preliminary Design Updated Risk Assessment Updated PEP Updated HA (Approved at Field Level) Updated Preliminary SVAR NEPA Documentation Updated Initial Cyber Security Plan for IT projects 	<ul style="list-style-type: none"> Final Design Updated CD-2 documents Updated QA Program An Approved Construction Project Safety & Health Plan Updated Cyber Security Plan for IT projects 	<ul style="list-style-type: none"> Checkout, Testing & Commissioning Plan Project Transition/ Closeout Plan Updated QA Program Finalized QA Plan, SVAR, HIA Report, Construction Project Safety & Health Plan, Finalized Cyber Security Plan for IT projects & completed Certification & Accreditation, as required <p><u>Post CD-4 Closeout</u></p> <ul style="list-style-type: none"> Final Project Closeout Report Lessons Learned Report Required Operational Documentation
AS-Acquisition Strategy EIR-External Independent Review EVMS-Earned Value Mgmt. System HA-Hazard Analysis IPR-Independent Project Review	MNS-Mission Need Statement MS-Major Systems OECM-Office of Engr. & Const. Mgmt. QA-Quality Assurance PSVR- Prelim. Safety Validation Report	SAR-Safety Analysis Report SDR-Safety Design Report SER-Safety Evaluation Report SVAR-Security Vulnerability Assess. Report TPC-Total Project Cost		
Budget Related Documents				
<ul style="list-style-type: none"> After CD-0 approval, Exhibit 300 for Projects =>\$20M: Annual submission initiated during the federal budget cycle when funds are requested. Project Data Sheets: Annual submission initiated during the federal budget cycle when TEC funds are requested. 				

CD-1 Documentation

- Acquisition Strategy
- Preliminary Project Execution Plan (PEP)
- Preliminary Project Management Plan (PMP)
- Assumptions Document
- Conceptual Design Report (CDR)
- Baseline Range and Resource Loaded Schedule
- Configuration Management Plan
- Preliminary Hazard Analysis Report
- Risk Management Plan and Risk Assessment
- Value Management Documentation
- Quality Assurance Program Documentation

Write-up

- Write-up template (Review Closeout Presentation Format) is posted on Director's Review Webpage.

http://www.fnal.gov/directorate/OPMO/Projects/Mu2e/DirRev/2010/11_17/FinalReport_DR_Mu2e_2010-11-17.docx

- Discuss reviewer assignments and write-up process

Discussion

- Questions and Answers