



# NOvA Working Group Meeting

January 18, 2006

2:00 – 4:00 PM

Snake Pit

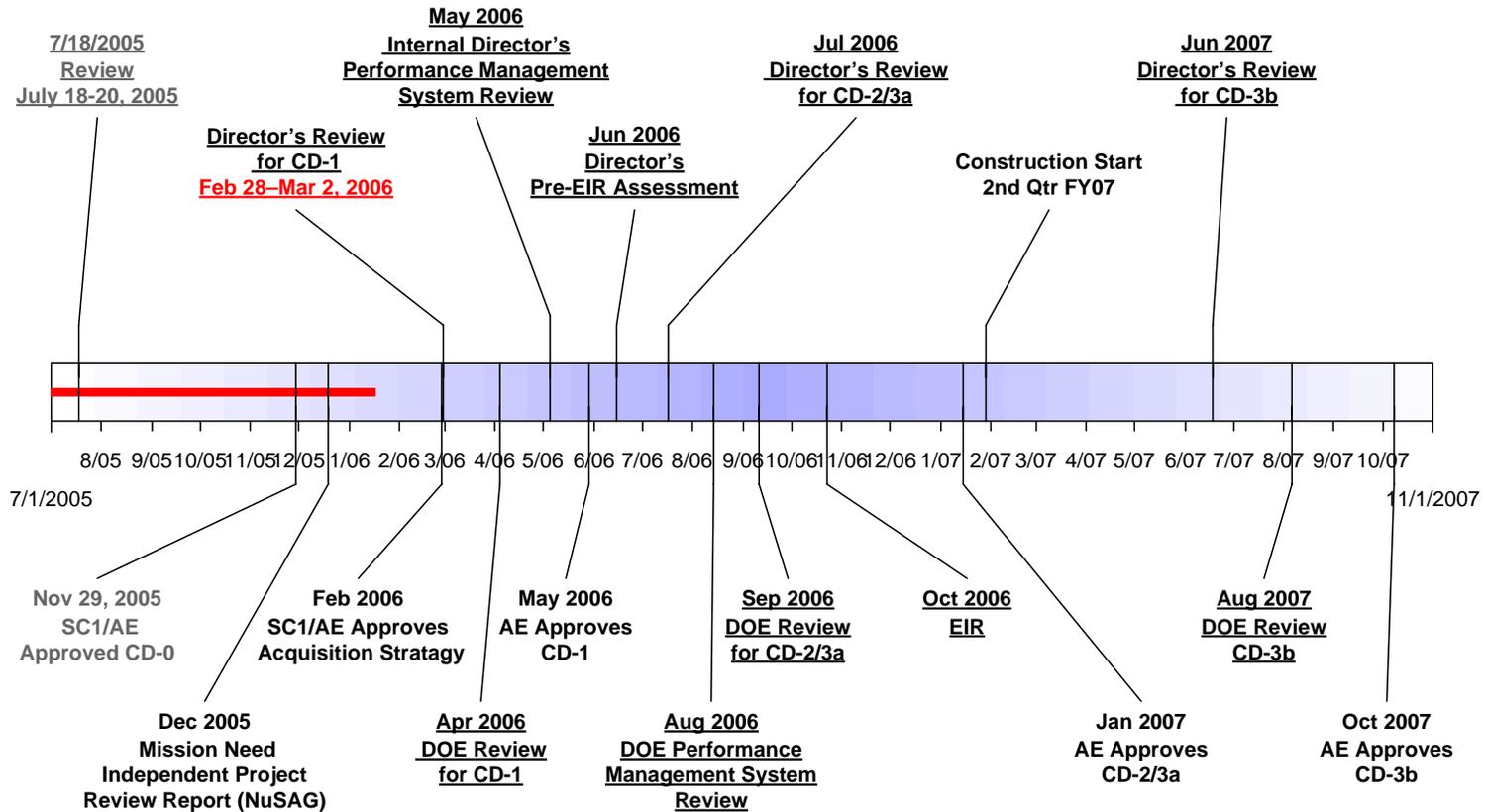
# Agenda

- 1) Feedback on interchanges between the Directorate and OHEP [Mont]
- 2) Review NOvA Timeline [Ed Temple]
- 3) Design-Build Discussion [John Cooper/ Mike Procario]
- 4) Discuss CD-1 Director's Review [Ed Temple/John Cooper/All]
  - a) Review Date
  - b) Charge
  - c) Agenda
  - d) Reviewers
- 5) NOvA Progress Report and Status on Preparation of Project Documents [John Cooper/Ron Ray]
- 6) Status of Action Items [John Cooper]



# DRAFT NOVA Project Timeline for Critical Decisions & Reviews

Updated 17-Jan-06



Note:  
Text in Red indicates change from prior version



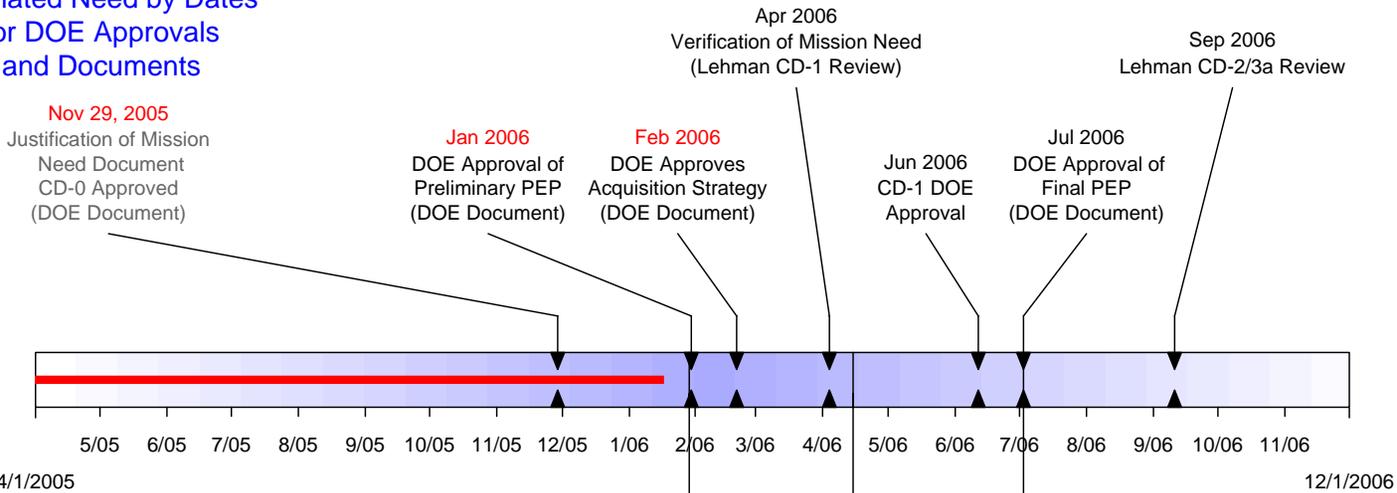
# NOVA Project

## Draft Critical Design Prerequisites

Updated 06-Dec-05



### Estimated Need by Dates for DOE Approvals and Documents



### Target Completion Dates for NOVA Documents

- Jan 2006:
  - Conceptual Design Report (CDR)
  - Baseline Range and Resource Loaded Schedule
  - Draft Configuration Management Document
  - Preliminary PMP
  - Preliminary Hazard Analysis Report
  - Value Management Documentation
  - Draft Risk Management Plan
- Apr 2006:
  - Performance Management System Document (EVMS)
- Jul 2006:
  - Technical Design Report (TDR)
  - Baseline Cost Est. and Baseline Resource Loaded Schedule
  - Final Configuration Management Document
  - Final PMP
  - NEPA and Approved Safety Documents
  - Final Design & Procurement Packages for Long Lead Time Items
  - Updated Value Management Documentation
  - Final Risk Management Plan

Note:  
Text in Red indicates change from prior version

# New Draft CD-1 Review Charge

This charge is for the Committee to conduct a Director's CD-1 Review of the proposed NOvA project at Fermilab. The review is to assure that all the requirements have been met for DOE to approve CD-1. CD-1 is defined as "Approve Alternative Selection and Cost Range". As part of this assessment the questions listed in Attachment 1 of this charge should be addressed. Additionally the committee is to review and comment on Project's response and actions taken on the recommendations from the Director's Preliminary Review of NOvA on July 18-20, 2005. Constructive comments on presentation content, format, and style are also requested.

Approval of CD-1 by DOE officials is based on a Conceptual Design documented in Conceptual Design Report (CDR) for the project. A preliminary baseline range for the cost, schedule and scope are to be defined at this point in the project. Some additional documents that support the CD-1 determination are an Acquisition Plan, Preliminary Project Execution Plan (PEP), Project Data Sheet for design and the Preliminary Hazard Analysis report. The technical part of the review will focus on the conceptual designs for the Detector and Building. It will answer the questions, will these designs meet the requirements and specifications and are the designs sound. The cost, schedule and scope ranges are usually based on an initial set of documentation such as the following: WBS – Work Breakdown Structure, WBS Dictionary, BOE – Basis of Estimate documentation, risk and contingency analyses, RLS – Resource Loaded Schedule, and time phased funding and cost profiles. The committee is asked to review each of these items, for quality, completeness, and accuracy. Furthermore, the committee is asked to review and assess the quality of and comment on the additional formal project management documentation required for CD-1 approval.

# New Draft CD-1 Review Charge (continued)

Fermilab and NOvA are planning for CD-3 approval to allow construction to start the first quarter of FY2008. To achieve this goal NOvA will need a DOE CD-2 Review by the fall of 2006. To advance the development of NOvA's Preliminary & Final Design effort and Value Management activities, PED (Project Engineering and Design) Funds are being requested to start in FY2007. Additionally, LLP (Long Lead Procurement) Funds may be pursued for significant activities that impact the critical path. Therefore, the committee is asked to comment as appropriate on NOvA's status regarding readiness "plans for utilizing PED Funding." Again, appropriate constructive comments on what remains to be done are requested.

Finally, the committee should present findings, comments, and conclusions at a closeout meeting with NOvA's and Fermilab's management and provide a written report soon after the review.

# New Draft CD-1 Review Charge (continued)

Attachment 1 - Charge for the Director's CD-1 Review of the NOvA Project

## Technical

- Are the requirements that form the basis for the design and engineering phase of the project clearly documented?
- Has a Conceptual Design Report (CDR) been developed that includes a clear and concise description of the alternatives analyzed, the basis for the alternative selected, how the alternative meets the approved mission need, the functions/requirements that define the alternative, and demonstrates the capability for success?
- Is the conceptual design process approached methodically to ensure that they arrived at solution or alternatives that are not merely responsive to an approved need, but are within the current technology, are affordable, and provide the best value to DOE?
- Does the conceptual design clearly and concisely describe the recommended alternative, the requirements and functions that must be performed and the key performance parameters that form the basis of the Performance Baseline?
- Has the Project employed value management as early as possible in the project development and design process so recommendations can be included in the planning and implemented without delaying the progress of the project or causing significant rework of completed designs?
- Is the Project's Value Management process an organized effort directed at analyzing the functions of systems, equipment, facilities, services, and supplies for the purpose of achieving the essential functions at the lowest life-cycle cost consistent with required performance, quality, reliability and safety? Has the value management assessment been documented.

# New Draft CD-1 Review Charge

## (continued)

- Has the Project's requirements analysis process developed the programmatic, system, functional or technical requirements for hardware, software, facilities, personnel, procedures, technical data, personnel training, and initial spares needed to acquire, test, deploy, operate, and maintain a capital asset? Does the requirements analysis provide the underpinning of the conceptual design process and connect the solution to the need?
- Do the Project's system functional requirements include sufficient detail to establish the criteria or limits against which the actual capability of the as-built or remediated system can be accepted?
- Do the subsystem and component requirements provide the individual specification required of the subsystem or component that are necessary for the item to appropriately support the larger system?
- Has the Project identified specific standards which include codes, standards, regulations, and needed discipline (electrical, mechanical, nuclear, fire, radiation control, etc.) requirements to procure, fabricate, construct, inspect, and test the components, subsystems, and systems?
- Can the design be built? Does the design meet the technical specifications? Is it a reasonable design?

# New Draft CD-1 Review Charge (continued)

## Cost

- Has the project developed a life-cycle cost estimate that includes costs for research and development, testing, production, facilities, operations, maintenance, personnel, environmental compliance, and disposal, which would include decontamination and demolition?
- Do the cost estimates for each WBS (or cost) element have a sound documented basis and are they reasonable?
- Does an obligation profile exist?
- Has the project established a realistic cost estimate for the work associated with performing Preliminary Design, Final Design and Value Management activities to request an appropriate level of PED (Project Engineering and Design) Funds?
- Has the project identified potential LLP (Long Lead Procurements) activities and established appropriate cost estimates for those procurements?

# New Draft CD-1 Review Charge (continued)

## Schedule

- Does the Project's Work Breakdown Structure (WBS) define the total capability to be developed or produced; display the total capability as a product-oriented family tree composed of hardware, software, services, data, facilities and other components; and relate the elements of work to each other and to the end product?
- Is the Project's Work Breakdown Structures (WBS) product-oriented to provide the insight to the resources loaded and critical path analysis necessary to ensure that the project is under control?
- Is a schedule developed and resource loaded?
- Are the activity durations reasonable for the assumed resources?
- Is the schedule duration feasible for the resources assigned to accomplish the tasks?
- Does the schedule contain appropriate levels of milestones, sufficient quantity of milestones for tracking progress and do they appear to be achievable?
- Does the schedule include activities for design reviews, which include assessment of the designs readiness for procuring prototypes, preproduction and production materials?
- Has the activities associated with the Preliminary Design, Final Design and Value Management activities been appropriated identified in the schedule so they can be properly tracked if PED funds are used?
- If LLP (Long Range Procurements) have been identified, does accelerating those activities improve the overall project critical path or reduce the risk impact on the critical path?

# New Draft CD-1 Review Charge (continued)

## Management

- Is the NOVA Project reporting a comparison of contractor performance with the conceptual design schedule and cost plan since receiving CD-0?
- Does an Acquisition Strategy exist that accounts for risks and mitigation strategies and has it been reviewed by OMBE?
- Has the Project conducted a comprehensive risk analysis to fully understand the risks for each potential alternative as a significant factor in the recommendation of a specific alternative?
- Is the purpose of the Project's Risk Process not to solely to avoid risks, but to understand the risks to an acquisition and devise methodologies and strategies for managing the risks?
- Is there an appropriate management organizational structure in place to accomplish the design and construction?
- Is the organization structure documented, responsibilities defined and appropriate for the scope of work?
- Are there adequate staffing resources available or planned for this effort?
- Is there a funding plan available or proposed to meet the resource requirements to realize the project?
- Has a Risk Assessment been performed, mitigations identified, actions taken and do they seem appropriate?

# 1<sup>st</sup> Version of Draft Review Agenda (17-Jan-06 John Cooper Email)

Here's my view of the agenda / speakers for a Feb 28 Plenary Director's CD-1 review:

Scientific Performance Requirements -- Gary Feldman (15 min ?)  
Project Overview -- John Cooper (could I possibly do this in only 60 min?, took 2 hr last time)  
Project Cost Drivers -- Ron Ray (30 ?) maybe 5 min from Bob Cibic also?

Then just go through the L2 WBS by manager:

Site and Building -- Steve Dixon (30 ?)  
Scintillator -- Stuart Mufson (30)  
Fiber -- Carl Bromberg (20)  
Extrusions -- Rich Talaga (30)  
Extrusion Modules -- Ken Heller (40)  
Electronics -- Leon Mualem (40)  
DAQ -- Leon Mualem (zero, incl above)  
Near Detector Assembly -- Dave Ayres (zero, incl below)  
Far Detector Assembly -- Dave Ayres (45)

probably > 340 min ? Seems like a very full day....

# Reviewers from July 2005

## Director's Preliminary Review

- Giorgio Apollinari
- Dmitri Denisov
- Stuart Fuess
- Karen Hellman
- Dean Hoffer
- Michael Lindgren
- Patrick Lukens
- Randy Ortgiesen
- Rich Stanek
- Linda Stutte
- Ed Temple
- Peter Wilson
- Heidi Schellman
- Sushil Sharma

# Action Items

- a) Understand Limitations on “Design Build” Chapter 16. [Mike Procario]
- b) Draft Agenda for CD-1 Directors Review. [John Cooper]
- c) Status EAW Contractors progress towards completing final report for both sites. [Steve Dixon]
- d) Provide request for space required for NOvA operations to be performed at Fermi Lab i.e. Liquid Scintillator Mixing and early assembly prototype. [John Cooper]