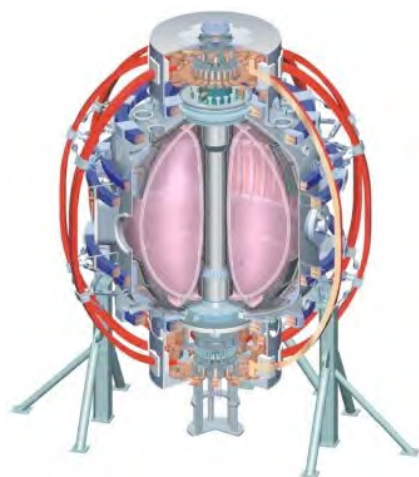


CD-1 Readiness

College W&M
Colorado Sch Mines
Columbia U
CompX
General Atomics
INEL
Johns Hopkins U
LANL
LLNL
Lodestar
MIT
Nova Photonics
New York U
Old Dominion U
ORNL
PPPL
PSI
Princeton U
Purdue U
SNL
Think Tank, Inc.
UC Davis
UC Irvine
UCLA
UCSD
U Colorado
U Illinois
U Maryland
U Rochester
U Washington
U Wisconsin



Ron Strykowski

Princeton Plasma Physics Laboratory

NSTX Upgrade Project

Office of Science Review

LSB, B318

December 15-16, 2009



Culham Sci Ctr
U St. Andrews
York U
Chubu U
Fukui U
Hiroshima U
Hyogo U
Kyoto U
Kyushu U
Kyushu Tokai U
NIFS
Niigata U
U Tokyo
JAEA
Hebrew U
Ioffe Inst
RRC Kurchatov Inst
TRINITY
KBSI
KAIST
POSTECH
ASIPP
ENEA, Frascati
CEA, Cadarache
IPP, Jülich
IPP, Garching
ASCR, Czech Rep
U Quebec

CD-1 Documentation Preparations

- Documentation prepared in compliance with DOE 413.3
- Applicability reviewed with DOE-PSO and DOE Office of Project Assessment.
- Documentation complete for CD-1

CD-1 Preparations Checklist

- Conceptual Design Review
 - Conducted October 28-29
 - Committee comprised of all external reviewers
- Conceptual Design Report
 - Presentation material
 - Chits, recommendations and disposition log
 - Closeout briefing
 - Formal CDR committee report
- Acquisition Strategy
 - Complete
- Preliminary Project Execution Plan (PPEP)
 - Complete
- Alternate Selection and Cost Range Document
 - Prepared

CD-1 Preparations Checklist *continued*

- Appointment of a Federal Project Director
 - Jeff Makiel appointed February 2009
 - Weekly meetings
- Integrated Project Team (IPT)
 - Team established and positions defined in the PPEP
 - IPT meetings started August 2009
 - Meetings every 3 weeks
- Long Lead Procurements
 - Identified (pre-CD-3 major procurements)
 - TF Copper (Mar 2010)
 - TF conductor machining (Jul 2010)
 - Friction stir-welding (Oct 2010)
 - OH Copper conductor (Oct 2010)
- Integrated Safety Management (ISM)
 - PPPL ISM System Description (rev 10 Oct 2008). DOE approved.

CD-1 Preparations Checklist *continued*

- Environmental Documents
 - NEPA Planning form 1443
 - Preliminary Hazard Analysis Plan
 - Environmental Evaluation Notification Form approved by DOE PSO March 2009
- Preliminary Security Vulnerability Assessment Report
 - Assessment provided to DOE PSO June 2009
- Preliminary Hazards Analysis Report
 - Prepared. rev 0 July 2009
- Quality Assurance Program
 - PPPL QA/QC program will be followed
 - PPPL QA policies 2,4&5; QA Procedures 01-15

CD-1 Preparations Checklist *continued*

- Other
 - General Requirements Documents (CS & NB) - complete
 - Work Planning Forms - complete
 - Work Breakdown Structure - complete
 - Cost and Schedule Estimates – complete
 - Detailed basis of estimates (WAF's)
 - Resource loaded schedule
 - Contingency model
 - Staffing plans (near term and long range)
 - Risk Registry prepared

Status of Charge Questions

- 1) Is the selected approach to upgrade the NSTX device technically sound?
 - The Technical solutions meet the NSTX Physics requirements
 - Technical challenges are well understood for this stage of the project
 - “Bundling” both upgrades is the most cost effective and efficient approach for meeting the GRD while minimizing impact to the operations plan.

- 2) Based on the current stage of project, have all the appropriate project risks been identified?
 - The risks identified at CD-0, such as the design for the TF flex joint, are being addressed and retired.
 - A Risk Registry has been prepared and implemented for tracking all identified risks.
 - A project review recommendation log tracks all open chits & recommendations from formal reviews.

Status of Charge Questions

- 3) Is the proposed cost and schedule range, including contingency, realistic and reasonable?
 - The work scope is complete, well organized with clear assignment of responsibilities.
 - Estimates based upon a standardized and disciplined process
 - A well detailed resource loaded schedule exists and provides the basis for all cost and schedules
 - A well detailed risk registry has been developed and implemented
 - The contingency methodology incorporates estimate uncertainty as well as risk and provides a credible CD-1 cost range.
 - Both the unconstrained and constrained case's staffing needs are well identified and achievable.
 - The project has been responsive in addressing both programmatic mission goals (base case) as well as anticipated funding guidance (constrained case).
 - The project is poised to initiate and effectively manage the preliminary design phase of the project.

- 4) Given the current stage of the project, is the project's management structure and team appropriate, and are the plans to support the next phase of the project sufficient?
 - As part of performing the conceptual design, we have brought on additional talent that will be needed for the next phase of the project.
 - The project organization brings together individuals with proven project leadership coupled with experienced technical experts in the fields of analysis, design, magnets, power systems, NB systems, I&C, construction.
 - Staffing plans, both near term and long ranges, are understood and currently being met.
 - Dialog and communications with DOE is open and routine (i.e. IPT, weekly mtgs)
 - PU provides a constructive oversight role (i.e. external CDR, readiness reviews)

Status of Charge Questions

- 5) Has the project satisfied the documentation requirements for CD-1 as required by DOE Order 413.3 A?
 - Conceptual Design Review Successful
 - Detailed basis of estimate for a project cost range
 - Conceptual design report
 - Acquisition Strategy
 - Preliminary PEP
 - Federal Project Director appointed
 - Long Lead procurement identified
 - Integrated Safety Management (ISM) in place
 - ES&H Documents in place
 - QA/QC System in place

- 6) Are Environmental, Safety and Health aspects being properly addressed given the project's current stage of development?
 - Preliminary Hazard Analysis is based on current plans using the hazard analysis summary in the NSTX Safety Assessment Document.
 - Compliance with occupational radiation exposure regulation (10CFR835) and DOE-approved PPPL Radiation Protection Program will be assured with PPPL Health Physics Division support.
 - Nonradiological hazards (e.g., electrical, fire, magnetic fields, RF, lithium, etc.) are expected to be comparable to present NSTX operations.