Fermilab

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Organization and Management Plan PIP-II Wrap-up

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DOE Independent Project Review of PIP-II

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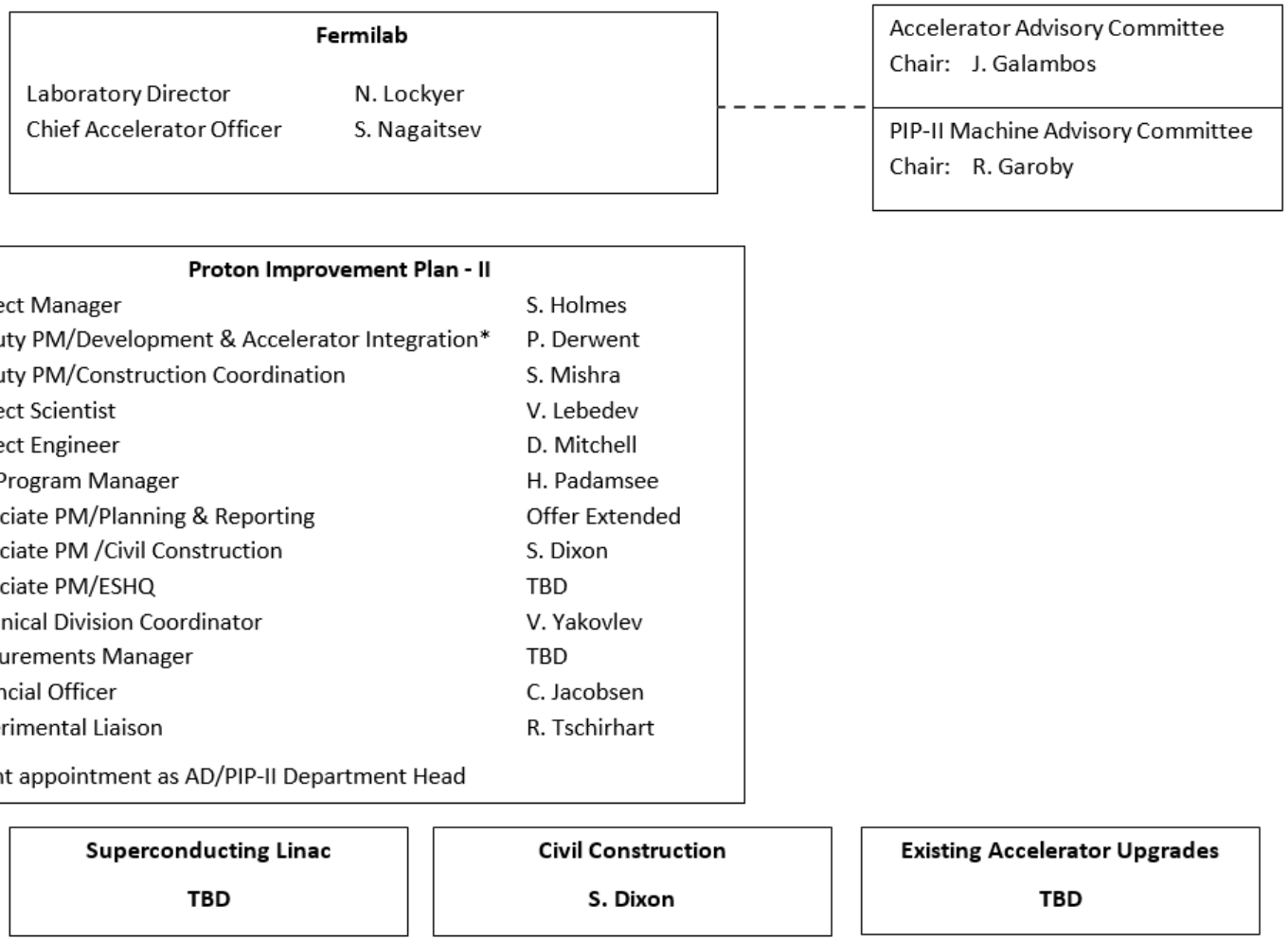
Outline

- Project Organization
- Management Team
- R2A2s
- Project Office Evolution
- Project Strategy
- Wrap-up

Project Organization

- We have established an organizational structure that is appropriate for a DOE413.3b project
- This organization has been leading the R&D phase, and is ready to manage the transition to formal project status
  - The organization is currently ~90% populated through level 3; open positions will be filled as conditions warrant
- This organization is fully capable of successfully constructing and commissioning an accelerator that will perform as specified

Project Organization/Management Team



Project Organization/Advisory Committees

- Accelerator Advisory Committee reports to the Fermilab Director
  - Generally charged to provide advice on the strategic approach and effectiveness of the accelerator program at Fermilab
    - Operations and Improvements
    - Projects
    - Advanced Accelerator R&D
  - Chair: John Galambos/Accelerator Physics, Beam Instrumentation, and Ion Source Group Leader/SNS
- PIP-II Machine Advisory Committee reports to the Accelerator Division Head
  - Generally charged to provide advice on the technical approach to PIP-II and the corresponding development program
  - Formally convened as a subcommittee to the AAC
  - Chair: Roland Garoby/Technical Director/European Spallation Source

Management Team

- The PIP-II management team has extensive experience in DOE construction projects and commissioning/operations of accelerators
  - S. Holmes: Main Injector Project Manager, Accelerator Division Head, Associate Laboratory Director for Accelerators
  - P. Derwent: NOvA Associate Project Manager (Accelerator Upgrades), PIP-II Department Head, Recycler Department Head, Antiproton Source Department Deputy Head
  - S. Mishra: Main Injector Commissioning Coordinator, Main Injector Department Head, ILC/Fermilab Deputy Director, India Collaboration Development
  - V. Lebedev: CEBAF Commissioning Team, Tevatron Run II accelerator physics
  - D. Mitchell: Design/Drafting Department Head, U.S. LHC Accelerator Project
  - H. Padamsee: SRF expert (wrote the book!), Technical Division Head
  - S. Dixon: NOvA construction manager, Muon Campus GPP manager

R2A2s

Roles, responsibilities, authorities, and accountabilities exist in draft form for all members of the Project Management Team

- The Management Team is currently operating according to these descriptions

Example: PIP-II Associate Project Manager for Planning and Reporting

Authority and responsibility for organization and management of all planning and reporting activities on PIP-II. Specific responsibilities include:

- Organize and coordinate the Project Controls effort on PIP-II through all phase of the project;
- Organize and coordinate the implementation and operations of the PIP-II EVMS, in conformance with FRA policies and requirements;
- Organize and coordinate preparation of PIP-II cost estimates, budgets and schedules;
- Oversee budget planning exercises, including identification of resource assignments requested from the laboratory;
- Assure that the Resource Loaded Schedule is aligned with PIP-II technical, cost and schedule goals, in collaboration with the Deputy Project Manager for Construction Coordination;
- Organize and coordinate preparation of the PIP-II risk management program;
- Organize and coordinate preparation of the PIP-II procurement strategy;
- Oversee and monitor PIP-II procurements;
- Oversee and monitor PIP-II human resources activities;
- Coordinate the development and publication of all required PIP-II documentation and reports

Accountable to: Fermilab PIP-II Project Manager

Plan to Populate the Project Office

- At CD-0 we expect to have in place the people listed on slide 4, plus a Project Controls Manager.
- Outstanding positions that will be filled by the time of CD-1 include:
  - Associate Project Manager for ESH&Q
  - Procurements Manager
  - In addition we will appoint a level 2 manager to lead the SC Linac effort and the Boo/RR/MI manager
- Eventually the Office staff will include a few more support staff, including additional project controls specialists
- The cost estimate assumes 21 FTE in the Project Office at the time of CD-2

Project Strategy

- Goal is 1 MW in 2024
- Construction phase is 5 years: 2019-23

$\Rightarrow$ CD-3 in FY19/20

  - CD-2/3a in FY18
  - CD-1 in FY16/17
  - CD-0 in FY15
- CD-0:CD-1 (1 year)
  - CDR
  - Cost Estimate/RLS
  - Independent design reviews
  - Initiate NEPA
  - Keep R&D on track
  - Management Additions: APM-P&R (offer out), PCM, L2Ms

Project Strategy

- CD-1:CD-2 (1.5 years)
  - Engineering Design: More engineers, designers, drafters
  - EVMS: More project controls specialists
  - Complete NEPA documentation
  - Keep R&D on track, national and international
  - Independent design reviews (following Fermilab process)
  - Joint (Fermilab-India) technical reviews
  - Management Additions: APM-ESHQ, Procurement Manager, CAMs
- CD-2:CD-3 (1 year)
  - Final Design
  - Finalize international deliverables
  - Independent design reviews
  - Joint (Fermilab-India) technical reviews
  - EVMS operational
  - Complete R&D
  - Long-lead procurements: Nb, cryoplant, civil construction initial site activities
- CD-3:CD-4 (5 years)
  - Build it

Wrap-up

- PIP-II design concept is responsive to the performance goals established by P5.
  - Design concept described in the Reference Design Report
  - Reviewed by P2MAC
- Potential international in-kind contributions have been identified and are significant, representing ~30% of PIP-II cost.
  - The India collaboration is formalized
  - A potential European collaboration is in the discussion stage.
- A cost range has been established starting with a point estimate for all technical systems, civil construction, R&D, and project management, and incorporating international contributions.
- The cost range is constructed from the point estimate based on DOE costing guidance for a concept of this maturity.
- The proposed cost range is $465-695M

Summary

- The PIP-II development and construction schedule is matched to the requirement of providing >1 MW of beam power by 2024, and is consistent with the schedule for the Fermilab contribution to LCLS-II.
- R&D activities are aligned with the technical and cost risks associated with the concept described in the RDR.
  - PXIE is retiring risks associated with the front end
  - The SRF program is retiring risks associated with the superconducting accelerating modules
  - The R&D program is run jointly with our Indian collaborators
  - The R&D program should be completed in 2019
- Staffing requirements are understood for both the R&D and construction phases, and mesh with the LCLS-II plan.
- An experienced management team is in place that can be expected to successfully execute the PIP-II project.