Welcome

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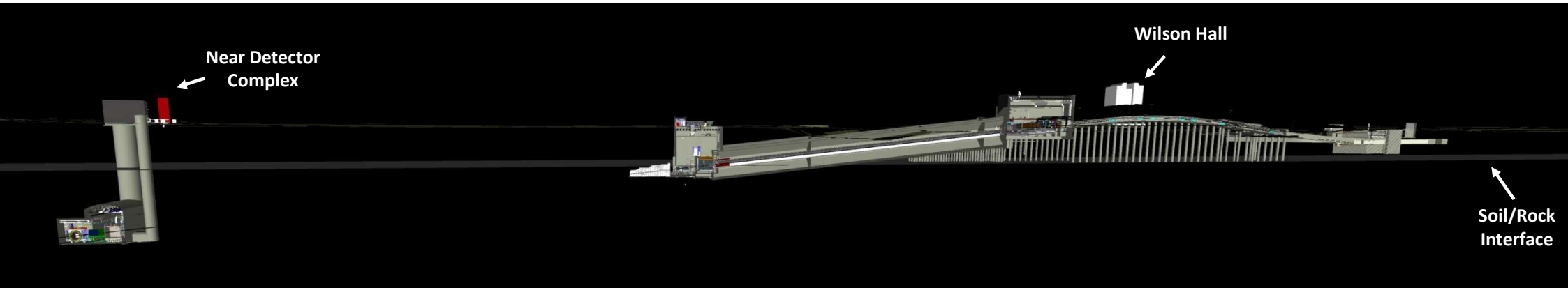
Near Site Integration Workshop

16 March 2021

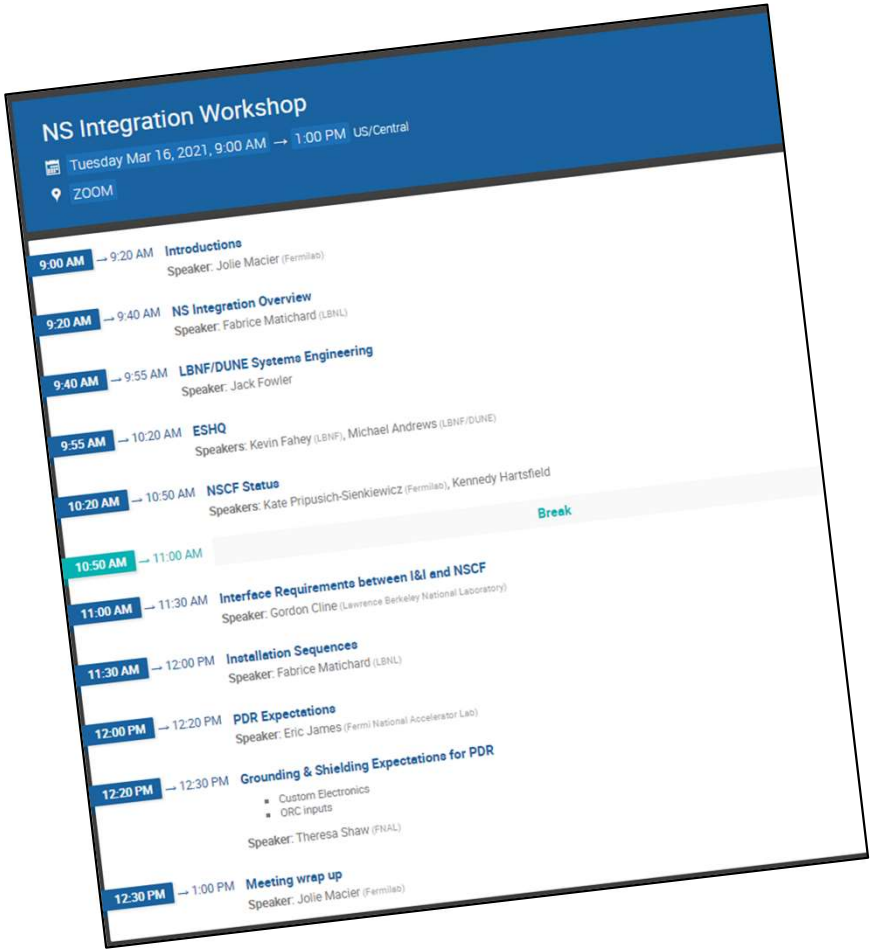
Introductions – who's here?

- Near Detector
- Near Site Conventional Facilities
- Near Site Cryogenics
- Technical Coordination
- Integration
- Joint Project Office



Today's Agenda

- Motivation
- Project Management Updates
- Expectations
- Next Actions

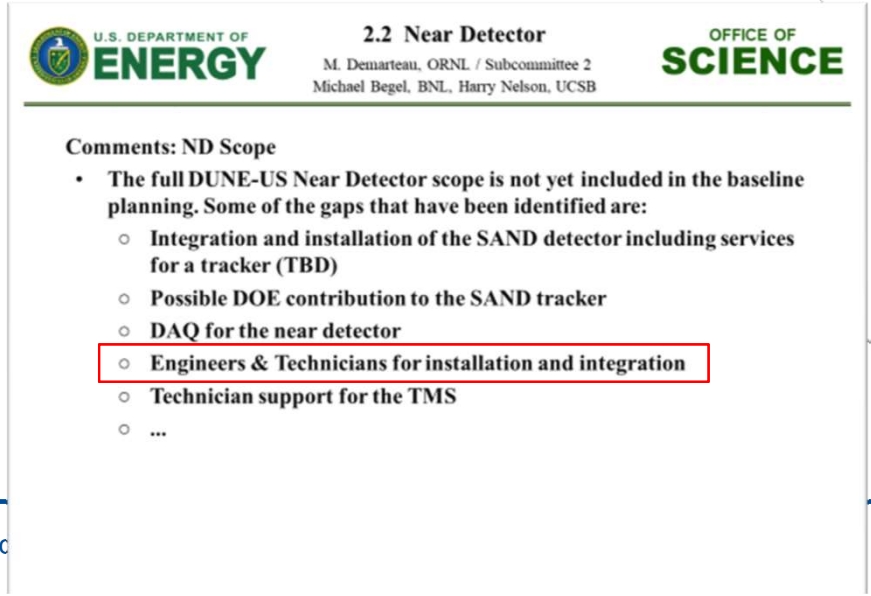


Rules of engagement

- Focus on Day One Near Detector
- Raise hand during presentations & discussions
- We're tracking action items
- We'll use a "parking lot" list for particularly sticky issues

Why are we here?

- Progress installation planning effort
- Prepare for upcoming PDRs
- Address IPR feedback
- Clarify interfaces
- A successful mechanism for inter-project discussions

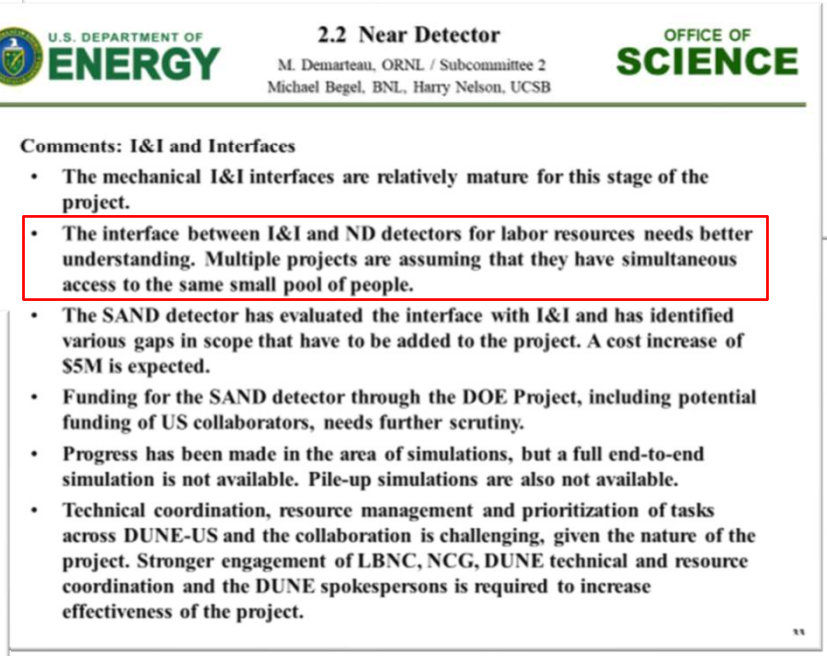


U.S. DEPARTMENT OF ENERGY — 2.2 Near Detector — OFFICE OF SCIENCE

M. Demarteau, ORNL / Subcommittee 2
Michael Begel, BNL, Harry Nelson, UCSB

Comments: ND Scope

- The full DUNE-US Near Detector scope is not yet included in the baseline planning. Some of the gaps that have been identified are:
  - Integration and installation of the SAND detector including services for a tracker (TBD)
  - Possible DOE contribution to the SAND tracker
  - DAQ for the near detector
  - Engineers & Technicians for installation and integration
  - Technician support for the TMS
  - ...



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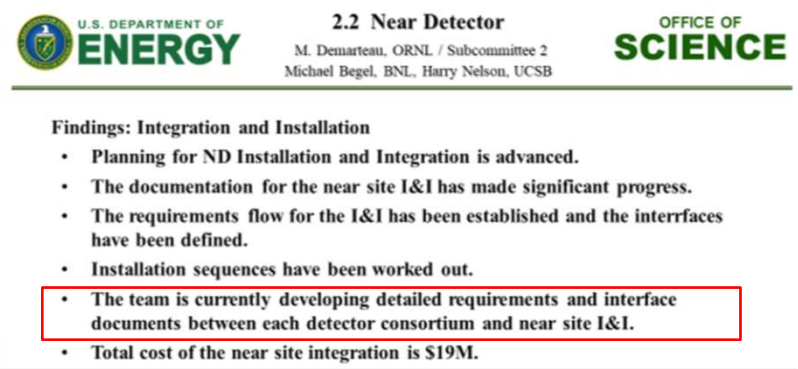
Comments: I&I and Interfaces

- The mechanical I&I interfaces are relatively mature for this stage of the project.
- The interface between I&I and ND detectors for labor resources needs better understanding. Multiple projects are assuming that they have simultaneous access to the same small pool of people.
- The SAND detector has evaluated the interface with I&I and has identified various gaps in scope that have to be added to the project. A cost increase of $5M is expected.
- Funding for the SAND detector through the DOE Project, including potential funding of US collaborators, needs further scrutiny.
- Progress has been made in the area of simulations, but a full end-to-end simulation is not available. Pile-up simulations are also not available.
- Technical coordination, resource management and prioritization of tasks across DUNE-US and the collaboration is challenging, given the nature of the project. Stronger engagement of LBNC, NCG, DUNE technical and resource coordination and the DUNE spokespersons is required to increase effectiveness of the project.



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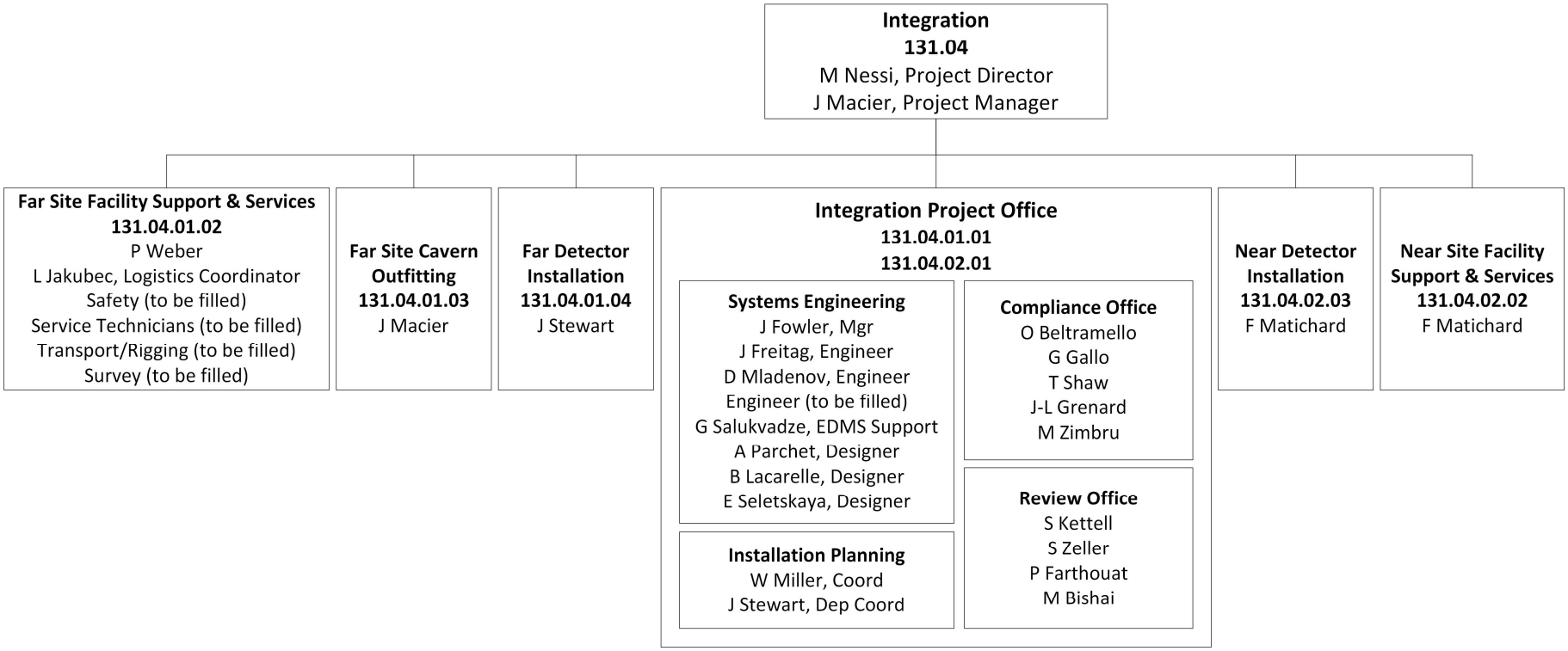
Findings: Integration and Installation

- Planning for ND Installation and Integration is advanced.
- The documentation for the near site I&I has made significant progress.
- The requirements flow for the I&I has been established and the interrfaces have been defined.
- Installation sequences have been worked out.
- The team is currently developing detailed requirements and interface documents between each detector consortium and near site I&I.
- Total cost of the near site integration is $19M.

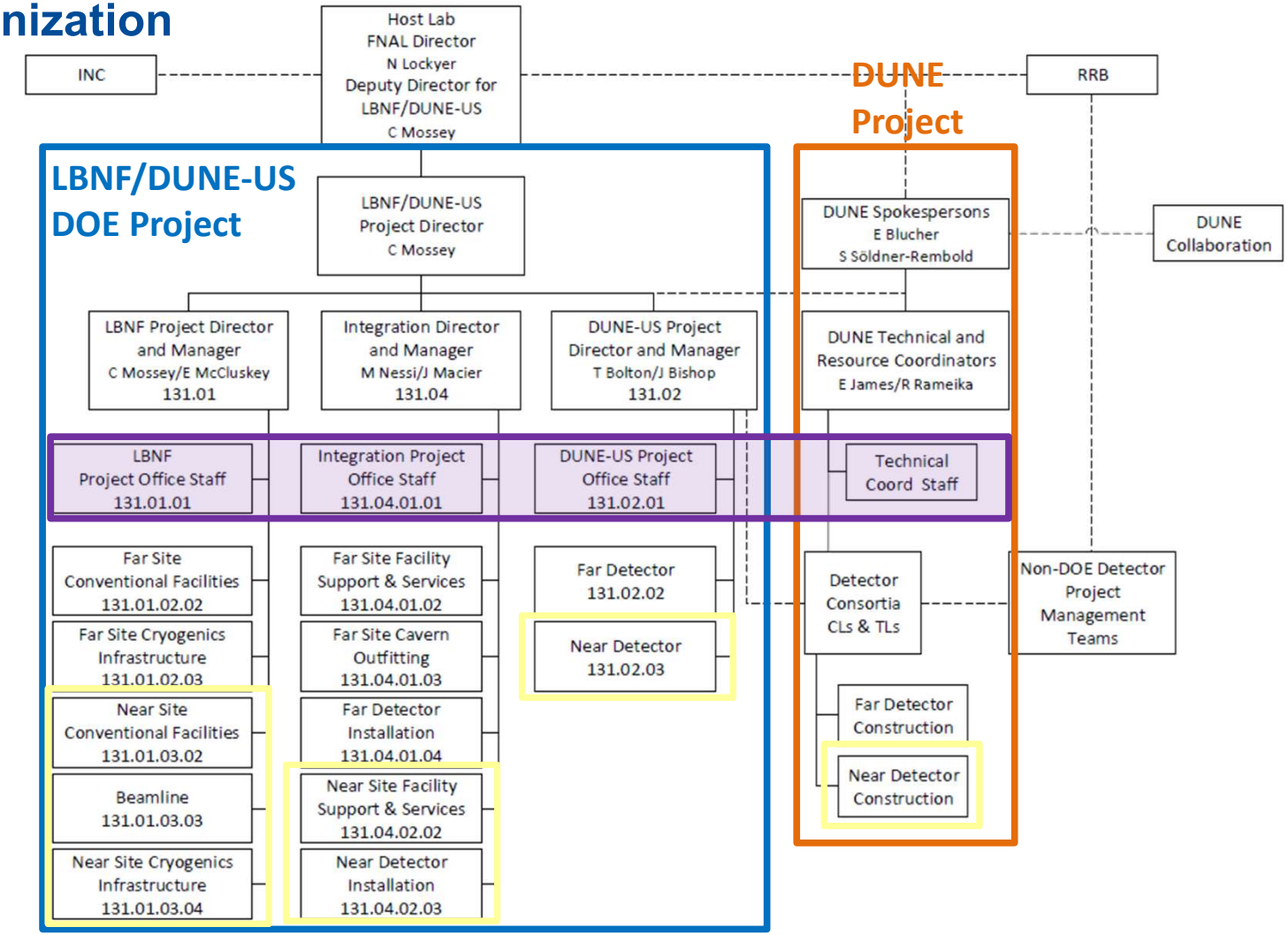
LBNF/DUNE Integration Team



Overall LBNF/DUNE Organization

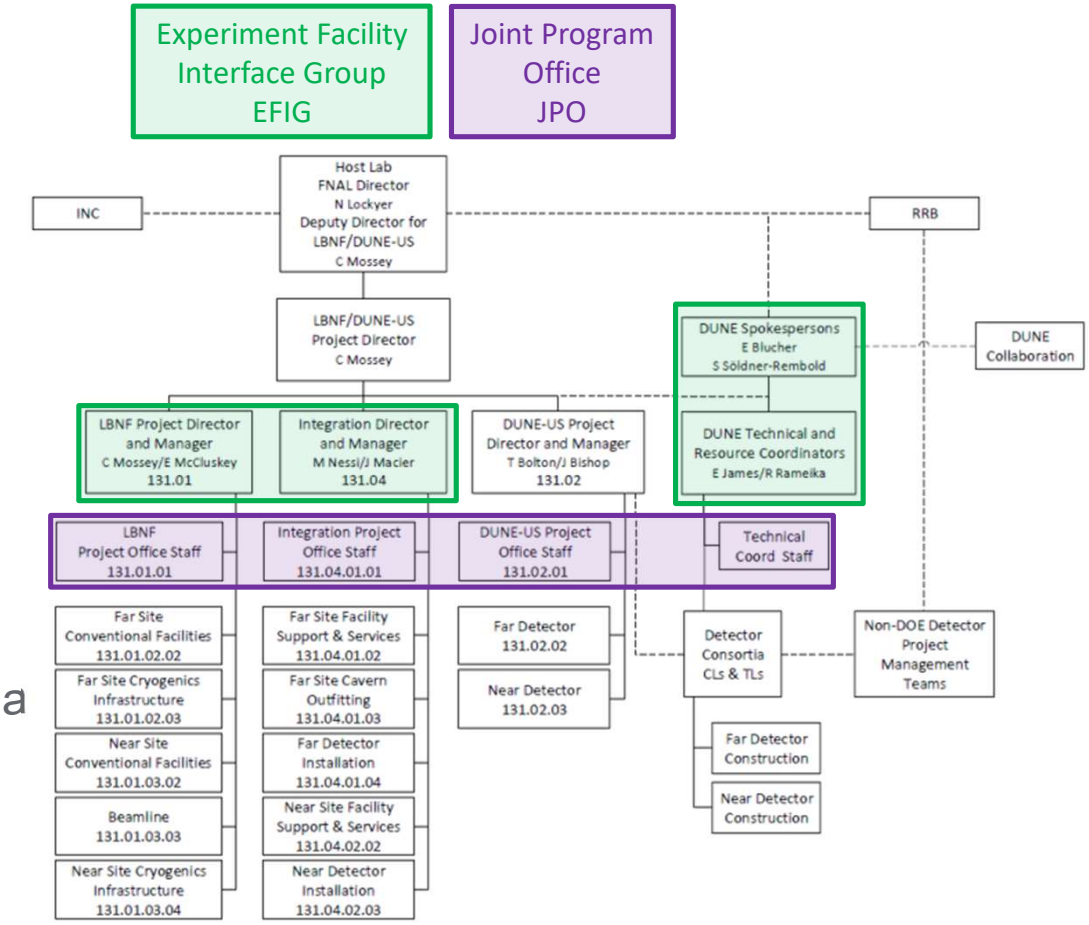
Joint Project Office
JPO

NS Scope

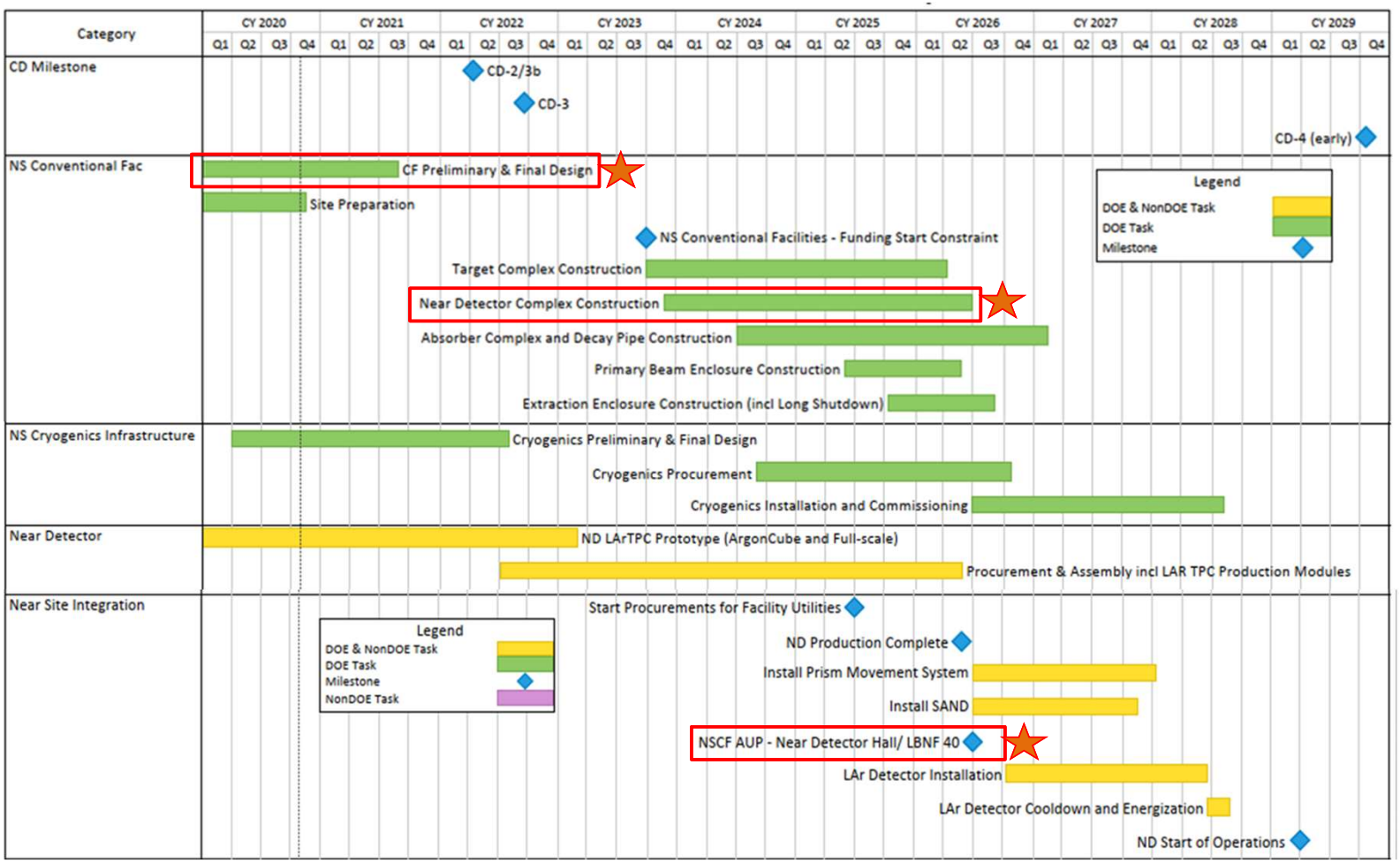


LBNF/DUNE inter-project interactions

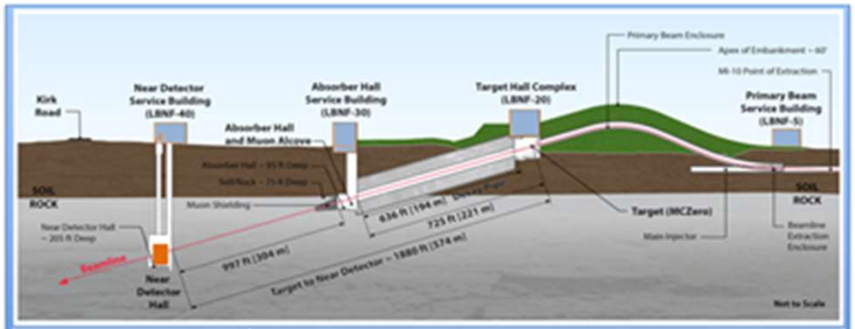
- Joint Project Office
- EFIG (Experiment Facility Interface Group)
- Shared Management Boards
  - Risk Management
  - Change Control
- Integration/Installation planning with Integration, DUNE Technical Coordination & DUNE Consortia
- Key interfaces & sequences with LBNF NSCF & NS Cryogenics
- Review Office
- Compliance Office
- Memorandum of Agreement defines FNAL support of LBNF/DUNE



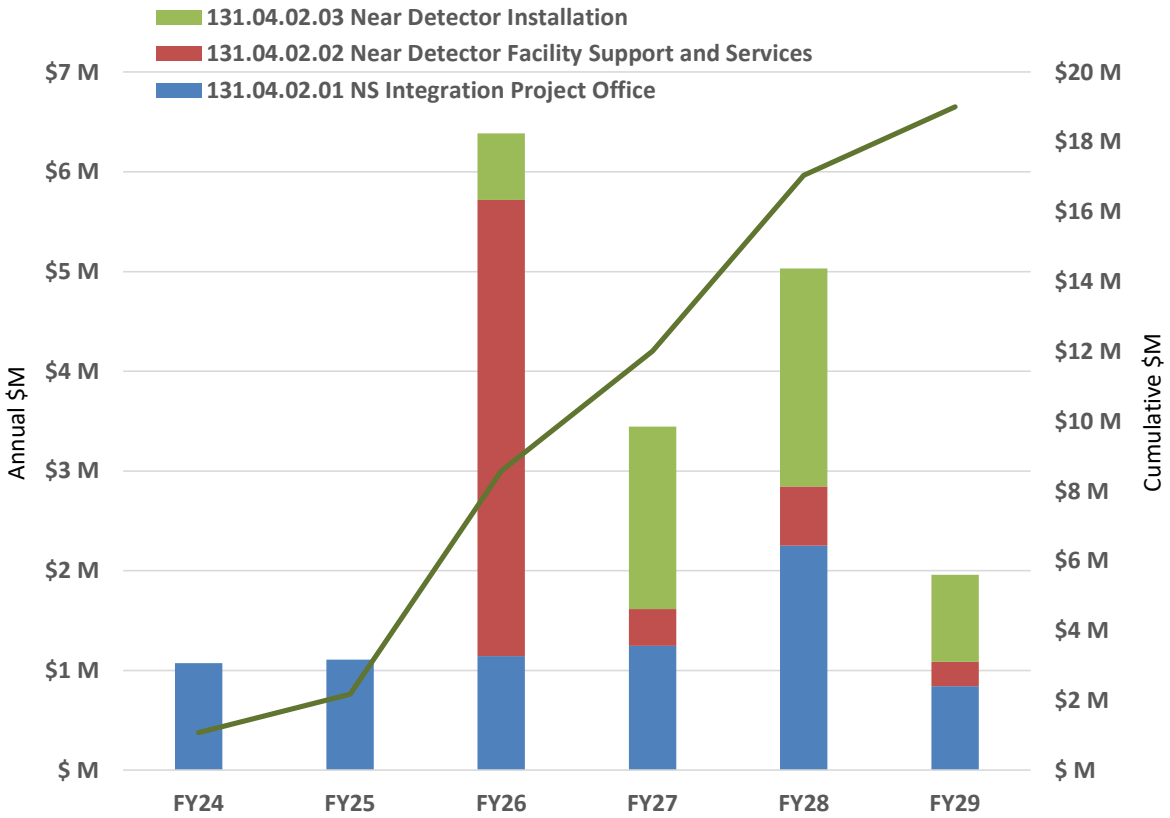
NS Integration Schedule – *at time of January 2021 IPR*



Near Site Integration



Component	Scope
131.01.03 - LBNF NS Facilities	
131.01.03.02 NS Conventional Facilities	Project management, preliminary and final design, and construction to support 1.2MW upgradable Beamline and Near Detector complex
131.01.03.03 Beamline	1.2MW beam power, designed to be upgradeable to 2.4MW (with future changes to targets, horns, cooling and shielding)
131.01.03.04 NS Cryogenic Infrastructure	LAr and LHe systems for day-one Near Detector
131.02.03 - Near Detector	DUNE-US contributions to day-one Near Detector Components
131.04.02 – Integration	Infrastructure & personnel to support ND installation



WBS Definition: Near Detector Integration and installation coordination at Fermilab, which includes labor resources to plan and direct installation activities and provides M&S to allow for the ND installation (e.g., tooling, power distribution system, etc.). This subproject also includes effort for installation planning.

some links require FNAL Services account (SSO)

Getting work done at Fermilab

- Subcontracts/purchases require adequate planning
  - Procurement activities should be part of your P6 plan
  - Sole source justification required > $10k for FNAL procurements
  - E-marketplace & procard are additional tools
- Site access & training
  - ID badges - https://get-connected.fnal.gov/contractor-id-badge/
  - Safety training – Mike Andrews will address
- House “services”
  - Basic shipping/receiving activities – Material Move request
  - On-site storage – *requires advance coordination & planning (quantity, time frames, sizes)*
- Available for a price $
  - Off-hour / overtime shipping/receiving support
  - Supplemental technician labor – requires scheduling
  - Alignment/survey - https://ppd.fnal.gov/align/align.html
  - Onsite storeroom for incidental materials - https://fermi.servicenowservices.com/stock_catalog

Collaborative Tools

- EDMS used for project technical documentation
- DUNE DocDB – docs.dunescience.org (SSO recommended)
- LBNF/DUNE listservs
  - Apply for a new list serv at https://listserv.fnal.gov/
    - You must have a person with a FNAL email address or use your FNAL email address for the request. This person should be the first owner. You are required to have 2nd owner, this does not have to a person with an FNAL email address.
- DUNE tools may be found at https://atwork.dunescience.org/tools/
- LBNF@Work compiles DOE Project information
- For an FNAL computer account, all needed information is at https://get-connected.fnal.gov/users/

What's Next?

- Keep focused on planning & prototyping activities
  - I&I installs Day 1 Near Detector
  - Revisit interface documents, advance design work & host integration meetings to ensure boundaries for concurrent underground activities & work spaces
  - Prepare for detector installation preliminary design reviews spring/summer 2021
  - Refresh cost estimates & BOEs
  - Identify and address logistics challenges directly
  - Incorporate QA and ESH into all planning & prototyping
  - Maximize efficiencies for effective coordination & work execution
- Keep the conversation going