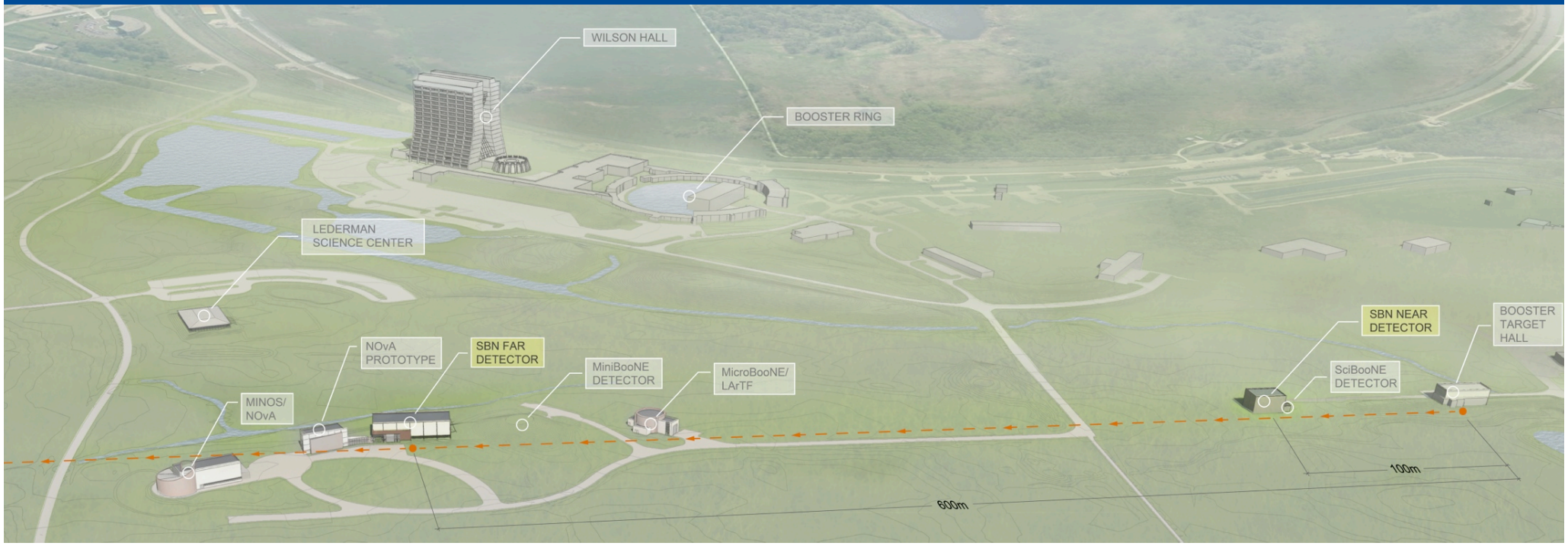


SBN Program Status

Peter Wilson – SBN Program Coordinator

Oversight Board

11 Sept 2020

Outline

- COVID 19 reopening status
- SBND technical progress
- Preparing for Oct 2020 Director's Mini-Review of SBND

COVID 19: Fermilab re-opening

- Planning process
  - Coordinated plan across Fermilab organizations
    - Synched with State of Illinois rules
    - Synched with Argonne National Lab
    - Approved by DOE
  - Peter Wilson is Neutrino Division representative to planning process
- Re-opening plan:
  - Added personnel to Essential Personnel list approximately every 2 weeks since late May
  - Currently an average of about 800 people come on-site every day (about 50% of employees) - Mix of full time (>3 days/week) and part-time

Short Baseline Neutrino

COVID 19 Safety

- COVID 19 Safety
  - Must maintain social distancing of >6 ft (2m)
  - Must wear a mask when indoors (except alone in an office)
  - If can't maintain >6ft, additional PPE and Hazard Analysis are required
  - Increased cleaning protocols
  - Bathrooms all single occupancy
  - Occupancy rules on elevators, conference rooms
- Screening process for entry onsite including questions and temperature scan

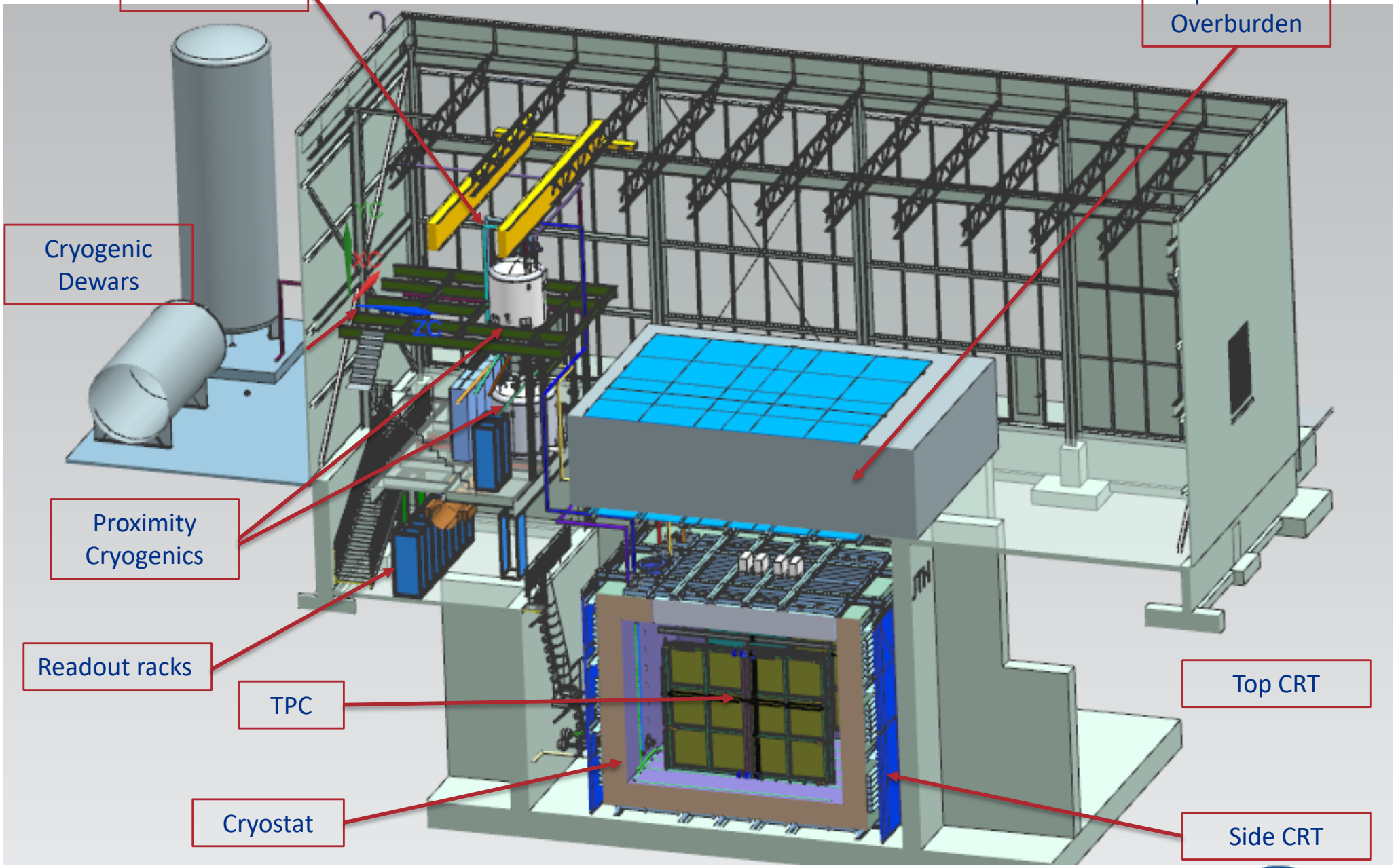
COVID 19: coordination of work

- Work must be carefully planned to ensure additional safety rules are followed
  - Avoid conflicts of too many jobs at one time
  - Each facility has point of contact with responsibility for the daily/weekly plan in the facility
    - Authority to say work can proceed based on safety plans, scheduling etc
    - SBN FD (ICARUS): Carrie McGivern
    - SBN ND (SBND): Roberto Acciarri (Anne Schukraft)
    - Dzero (SBND Assembly): Pete Simon (Joseph Zennamo)
    - PAB (R&D): Flor de María Blaszczyk
  - Weekly planning meetings set priorities for the upcoming week at each facility

Users on site

- Users have been working on-site as essential personnel since March
- We have added Users to the essential personnel list throughout the reopening process to facilitate work on ICARUS and SBND
- On-site Housing remains open with some restrictions particularly on people coming to/returning to site
  - Control introduction into shared living spaces
- Preparing to bring a few key Italian collaborators to Fermilab to complete ICARUS detector commissioning in October/November
  - Direct involvement of Steve Brice and Nigel to get through the
  - Need approval by INFN management
  - Need approval from DOE at level of Under Secretary
  - Pilot the process for activities in the next six months:
    - UK collaborators (e.g. Nicola McConkey) to work on SBND assembly
    - Italian collaborators for ICARUS CRT installation and commissioning
    - CERN personnel for SBND top cap assembly
    - CERN/subcontractor personnel for SBND membrane cryostat installation
  - Parallel activity underway for Italian collaborators to work on Mu2e in October

Near Detector - SBND



Short Baseline Neutrino

SBND TPC Assembly @ DAB

- With Users now on the essential list, we have restarted work on the detector
  - Re-alignment of the two APA frames is on-going
  - Cutting of clean tent plastic sheets
- Finishing work on the atf
  - Scaffold and pump jack installation
  - Upper brace has been prepared for hinge weldment
  - Parts for the atf hinge are being machined at the MAB shop
- Progress on fabrication of support components
  - APA support beams were completed in the village shop
  - CPA beam expected from vendor next week
  - The APA hanger design complete, preparing for fabrication
- Upcoming:
  - Test installation of mock APA frame
  - Installation of clean tent materials
  - Start of APA installation

West pump jack and scaffold installation

APA support beams

First support beam mounted in atf

Short Baseline Neutrino

Installation @ Near Detector Building

- Work resumed in July
- Leak check of the cryostat support structure
  - Complete for flat and 90deg angled welds
  - Plan to complete leak check next week (shallow angle welds)
- Fabrication of cryostat access stairs and decking completed
  - Thanks for help from PPD designer and technicians
  - Expect to start installation in September
- Work on the cryostat top cap resumed at CERN in August
  - Ramping up over the coming weeks
  - Delivery of flanges expected shortly
  - Expect delivery to Fermilab in December/January
- Membrane cryostat materials fabrication on schedu for delivery by January 2021
  - Installation contract out for bid at CERN
- Cryostat installation planned for early CY 2021
  - International travel will be critical to avoid further delays

Weld leak checking

Stair and decking structure ready to install

Short Baseline Neutrino

Cryogenics

- Primary cryogenic focus continues to be the LAr and LN2 dewar systems
  - Design work of the 3D LAr and LN2 dewar systems nearing completion
  - Component ordering nearing completion
  - Planning for installation start in late September
- Cryostat relief valve design completed
  - Procurement started – 7 month lead time
- Preliminary design of cryogenics controls near completion
  - Final design and procurement to start in October/November
- Preparing design/build procurement of internal cryogenics
  - Internal Cryogenics are being procured through CERN under a design build contact with assistance from David Montanari (LBNF)

SBND Milestones to S-1 SBND ready to move

Intermediate Milestone	Owner	Baseline Date	Forecast Date (Schedule)		Actual Date
First set of APAs shipped to Fermilab	K. Mavrokoridis	24-Sept 2018		✓	4-Mar-2019
PO for COTS ADCs placed	H. Chen	10-Oct-2018		✓	30-Oct-2018
All TPC Components at Fermilab	K. Mavrokoridis	1-Mar-2019		✓	27-Mar-2019
Complete atf assembly at DAB	J. Zennamo	1-May-2019		✓	27-Nov-2019
50% of motherboards delivered to Fermilab	H. Chen	15-May-2019		✓	22-May-19
APAs and CPAs installed in atf	N. McConkey/ J. Zennamo	25-Nov-2020	25-Jan-2021		
Field cage assembly complete	N. McConkey/ J. Zennamo	23-Dec-2020	26-Feb-2021		
Cold electronics installed and tested	H. Chen	12-Feb-2021	22-Apr-2021		
S1: TPC ready to move to SBN ND	**A. Schukraft**	**19-Feb-2021**	**4-Jun-2021**		

The delay in S1 is mostly attributed to fixes in the logic around S1 as part of CR33, and partially attributed to COVID-19 related increase in task durations.

SBND Milestones to S-2 Ready to Fill

Intermediate Milestone	Owner	Baseline Date	Forecast Date		Actual Date
GTT Design Study Begins	M. Nessi	1-Feb-2019		✓	26-Apr-2019
Delivery of warm box steel	M. Nessi	15-Jun-2019		✓	16-Sep-2019
Warm vessel installation complete	M. Nessi	15-Jul-2019		✓	15-Nov-2019
LN2 and LAr Dewar Systems Complete	M. Zuckerbrot	23-Dec-2020	25-Nov-2020		
TPC Transport to ND building complete	J. Zennamo	15-Jul-2021	23-Sep-2021		
Cryostat material arrives at Fermilab	M. Nessi	15-Jan-2021	15-Jan-2021		
Cryostat top plug is ready to attach to atf	M. Nessi	25-Nov-2020	8-Feb-2021		
Protego valve installed	M. Zuckerbrot/ D. Montanari	30-Apr-2021	16-Mar-2021		
Membrane Cryostat Completed	R. Acciarri	28-May-2021	13-Apr-2021		
External cryogenics install #3 (Common) complete	M. Zuckerbrot	27-Aug-2021	15-Jun-2021		
Plug welded to cryostat	R. Acciarri/ J. Zennamo	29-Oct-2021	21-Jan-2021		
Cryogenic operation approved	M. Zuckerbrot	18-Nov-2021	21-Jan-2021		
S2: SBND detector is ready to fill with liquid Argon	**A. Schukraft**	**25-Nov-2021**	**14-Feb-2022**		

Minimum 3 month delay from COVID

No delays in cryostat or cryogenics schedule in CR33 or 34. Delay of S2 originates from detector assembly delays on the S1-path + beyond.

Upcoming Events

- Director's mini-review of SBND schedule – October 26-27
  - Draft charge to Nigel
  - Review Committee set
  - Agenda in preparation
  - Pre-review briefing Oct 14 or 15

Backup