

# Status & Plans

Eric James

FD Technical Board Meeting

February 20, 2020

# Calendar

- Far Site I & I Review at FNAL (February 27)
- LBNF/DUNE Risk Workshop at FNAL (March 2-4)
- LBNC Meeting at FNAL (March 4-6)
- Cold Electronics Systems Review at BNL (March 10-11)
- RRB Meeting at FNAL (April 2-3)
- LBNF/DUNE Director's Review at FNAL (April 28 – May 1)
- Calibration/CI Workshop at CERN (May 7-9)
- DSS Review at CERN (May 11-12)
- HV System Review at CERN (May 13-14)
- Collaboration Meeting at SURF (May 18-22)
- PD System Review at FNAL (May 27-28)
- APA Shipping Box Review (May/June)
- APA Final Design Review (June/July)
- DOE IPR at FNAL (July 14-17)
- LBNC Meeting at FNAL (July 15-17)

# Interface Documents

- Kyle & Terri made some good progress at collaboration meeting on updates to consortia-consortia interface documents
- As a next step, they have created a schedule for finalizing updated documents over the next nine weeks (see following slide)
- Just to remind everyone, we are targeting having updated interface documents/drawings in EDMS prior to April 17 (and signed interface documents/drawings in EDMS by July 3<sup>rd</sup>)

# Schedule

## SCHEDULE TO COMPLETE CONSORTIUM TO CONSORTIUM INTERFACE CONTROL DOCUMENTS

Monday February 17 to Friday February 21				
Target Completion:				
<a href="#">2145150 COM and HV</a>				
Monday February 24 to Friday February 28				
Target Completion:				
<a href="#">2088713 TPC CE and DAQ/SC</a>				
<a href="#">2145159 COM and CAL/CI</a>				
<a href="#">2145145 APA and COM</a>				
Monday March 2 to Friday March 6				
Target Completion:				
<a href="#">2145146 PDS and COM</a>				
<a href="#">2145158 APA and DAQ/SC</a>				
<a href="#">2145142 HV and CAL/CI</a>				
Monday March 9 to Friday March 13				
Target Completion:	TPC CE Systems Review			
<a href="#">2088741 CAL/CI and DAQ/SC</a>				
<a href="#">2088738 APA and HV</a>				
<a href="#">2088735 PDS and APA</a>				
Monday March 16 to Friday March 20				
Target Completion:				
<a href="#">2088736 APA and TPC CE</a>				
<a href="#">2088720 PDS and TPC CE</a>				
<a href="#">2088706 TPC CE and HV</a>				
Monday March 23 to Friday March 27				
Target Completion:				
<a href="#">2145147 TPC CE and COM</a>				
<a href="#">2088726 PDS and DAQ/SC</a>				
Monday March 30 to Friday April 3				
Target Completion:				
<a href="#">2088721 PDS and HV</a>				
<a href="#">2145138 TPC CE and CAL/CI</a>				
<a href="#">2145151 COM and DAQ/SC</a>				
Monday April 6 to Friday April 10				
Target Completion:				
<a href="#">2145136 APA and CAL/CI</a>				
<a href="#">2145137 PDS and CAL/CI</a>				
<a href="#">2145154 HV and DAQ/SC</a>				
Monday April 13 to Friday April 17				

# Other Interface Documents

- In addition to the consortia-consortia interface documents, we believe these others are also necessary
  - DSS – Consortia Interface Documents (signed by Dimitar/Marzio)
  - Facilities – Consortia Interface Documents (signed by Filippo/Marzio)
  - Installation – Consortia Interface Documents (signed by Jim/Marzio)
- Jack Fowler is taking the lead on drafting a generic DSS interface document covering all consortia (we will decide later if this needs to be split up into separate documents)
- Updates to facilities-consortia and installation-consortia interface documents will get underway after the upcoming FS Installation and Integration Review on February 27<sup>th</sup>

# Structural Analysis Notes

- Current focus is on producing and reviewing notes covering the APA Shipping Box and HV system
- Next highest priority is initiating work on DSS note
- Need to understand if any sort of notes are required for Photon Detectors or Cold Electronics
- As a reminder, notes need to be finalized 4-6 weeks in advance of planned subsystem reviews to allow time for feedback from compliance office review of note
- Notes produced in support of Ash River work will also need to be reviewed in advance of actual activities
- Giuseppe serves as the consortia point-of-contact for all matters related to structural analysis notes

# Schedule Development

- Ash River/ProtoDUNE-II schedule entered into P6 (see next slide)
- Need to incorporate correct links with consortia activities
- Working with DAQ consortia to implement a high-level schedule for their activities in P6 this week
- The schedule to be used for upcoming Director's review will be frozen at end of next week
- Will continue to work longer-term on incorporating information from consortia cost estimates into P6 activities as a mechanism for extracting annual cost and labor profiles for NCG

# ProtoDUNE-II / Ash River Schedule

Activity ID	Activity Name	Planned Duration	Start	Finish
131.02.01-2.04	ProtoDUNE II and Ash River Prototyping	795d	1-Apr-20	31-May-23
13121.A1000	AR ProtoDUNE-II Installation Tests - Phase I (APA up)	44d	01-Apr-20*	2-Jun-20
13121.A1002	AR Procure FD Test Installation Infrastructure	44d	01-Apr-20*	2-Jun-20
13121.A1014	PD-II Empty and Purge Cryostat	130d	15-Apr-20*	16-Oct-20
13121.A1004	AR Construct FD Test Installation Infrastructure	22d	3-Jun-20	2-Jul-20
13121.A1006	AR ProtoDUNE-II Installation Tests - Phase II (APA Dow	22d	6-Jul-20	4-Aug-20
13121.A1008	AR Far Detector Installation Tests - Phase I (Row 1)	87d	5-Aug-20	8-Dec-20
13121.A1016	PD-II Prepare for TCO Opening	44d	19-Oct-20	21-Dec-20
13121.A1010	AR Holiday Shutdown 2020	22d	9-Dec-20	13-Jan-21
13121.A1018	PD-II CERN Holiday Shutdown 2020	22d	22-Dec-20	27-Jan-21
13121.A1012	AR Far Detector Installation Tests - Phase II (Row 25)	87d	14-Jan-21	17-May-21
13121.A1020	PD-II Open Cryostat TCO	44d	28-Jan-21	30-Mar-21
13121.A1022	PD-II Disassemble ProtoDUNE-I	65d	31-Mar-21	30-Jun-21
13121.A1024	PD-II Modify Cryostat Infrastrucutre	22d	1-Jul-21	2-Aug-21
13121.A1026	PD-II Setup Cleanroom	22d	1-Jul-21	2-Aug-21
13121.A1028	PD-II Clean Cryostat/Cleanroom	22d	3-Aug-21	1-Sep-21
13121.A1030	PD-II Modify & Install CPAs	22d	2-Sep-21	4-Oct-21
13121.A1032	PD-II Integrate, test, & Install APA 1-2	22d	5-Oct-21	3-Nov-21
13121.A1034	PD-II integrate, test, & Install APA 3-4	22d	4-Nov-21	7-Dec-21
13121.A1036	PD-II Install EW, Close TPC	22d	8-Dec-21	12-Jan-22
13121.A1038	PD-II Install Calibration/Monitoring Instrumentation	22d	8-Dec-21	12-Jan-22
13121.A1040	PD-II CERN Holiday Shutdown 2021	22d	13-Jan-22	14-Feb-22
13121.A1042	PD-II Close TCO	22d	15-Feb-22	16-Mar-22
13121.A1044	PD-II Purge, Cool, & Fill Cryostat	44d	17-Mar-22	17-May-22
13121.A1046	PD-II Commission & Operate Detector	260d	18-May-22	31-May-23



# Key Integration Activities

- ProtoDUNE-I SP – Operations through April 2020
  - Xenon-doping tests
  - Pulsed neutron source tests
  - Exploring above-nominal HV settings
- ProtoDUNE-I DP – Operations through 2020
  - Continuing studies to understand detector performance
- ICEBERG / EHN1 Cold Box
  - System testing of ASIC options
  - First baseline data collected in ICEBERG this week
- Ash River Prototyping
  - ProtoDUNE-II installation tests (phase I) – April to June
  - ProtoDUNE-II installation tests (phase II) – July to August

# Key Integration Activities (cont.)

- Finalize designs for placement of temperature sensors on APAs over next few weeks
  - Requires input from APA, PD, and CE consortia
- Cold testing of temperature sensors (and PD infrastructure) on APA frames – currently targeting mid-March at PSL
- Creation of full CAD model for ProtoDUNE-II
  - Development of scheme/tooling for hanging APAs upside-down
  - Development of CAD model for ProtoDUNE-II TPC (connected to ProtoDUNE DSS) – Requires input from APA and HV consortia
  - Development of global CAD model for ProtoDUNE-II detector within EHN1 cryostat – Requires input from all consortia
- Calibration and Cryogenic Instrumentation workshop at CERN from May 7-9

# LBNC Meeting

- Next LBNC meeting is March 4-6 at FNAL
- First day is plenary with overview talks on SP, DP technology and SP, DP ProtoDUNE data analysis
- Some breakout sessions on the morning of March 5<sup>th</sup> in the morning currently being advertised as DP, SP Electronics, and SP Installation
- I do not believe that in-person attendance is critical except for those giving presentations (the consortia leadership teams are welcome to attend)
- Zoom connections should be available (for the breakout sessions in particular)