LBNE 35T Cryostat Phase 2 Status

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FNAL (for the LBNE Collaboration/Project)
35-ton Prototype-@FNAL PC Beamline

(Liquid Argon Purity Demonstrator)
PHASE 1 RUN (Dec 2013-Feb 2014)

- Phase 1 was to demonstrate the feasibility of using a Membrane Cryostat for LAr Detectors
- AEM talk given last May by Terry Tope
35-Ton Phase 2 Goals

• Build a complete functional reduced-scale sized TPC with Photon Detectors inside the 35-ton cryostat.
  – TPC components will closely resemble the LBNE Conceptual Design Far Detector full size counterparts
  – Anode Plane Assemblies (APA) will incorporate functional photon detectors

• Goals of this prototype TPC
  – Validate the design of nearly all Detector components (at a small scale).
  – Study the performance of the wire wrapping readout scheme, and the impact of the gaps between APA modules.
  – Study the contribution to the electronics noise from potential mechanical and electrical sources.
LBNE Style TPC in 35T Cryostat

- Cosmic Ray Counters (CRCs)
- 20 cm short drift region
- Photon Detectors (8 total) in 4 APAs
- Cathode Plane
- Field Cage not shown

J. Fowler

All Experimenters’ Meeting 11/3/14
Detector Trial Assembly @ UW Physical Sciences Lab (Aug/Sept 2014)

- PVC Structure represents the constraints inside 35T Cryostat.
- Assembly was done within these constraints
  - Careful notes on the assembly and any fixes were made at this time
- After assembly, Detector was disassembled, crated, and shipped to FNAL
Recent Work in the 35T Cryostat
Schedule

• Parts are arriving now at FNAL
  – Detector Stand with Short Drift volume Cathode Plane Assembly has been assembled in 35T Cryostat (10/28-10/31)
    • More or less went as expected
  – APAs arriving today
    • Place in Lab 3 for initial checkout with Cold Electronics Cards

• DAQ testing at DAB
  – Vertical Slice test using APA planned for 11/17

• All four APAs to go through verification test using DAQ at DAB (12/14)

• APA installation into Cryostat ~ 1/2015
  – DAQ will also be moved to PC4 to enable checkout of the installed APAs
  – Once APAs check out, then remainder of Detector will be assembled in Cryostat.

• Gas Purge-Cooldown-Filling expected mid-> end of Feb. 2015

• Commissioning-Run 3/1/2015 for 3-4 months.