

April 24, 2023 DUNE 2x2 Installation Meeting

- Attendees:

Linda, Steve H, Jonny, Tom Murphy, Kevin W, Elise H, Matt M, Gary, Howard, Mike Z, Trevor, Jen, Sai, Alan H, Louise, Carlos P, Dave P, Dan D, MinJeong, Cindy and Ting

- Status and progress reports – all

- See next page for detail

- Cryocooler condenser transfer lines – Mike/Gary

- Layout of conder boil-off and liquid drain met no objection. Go ahead with material order and fabrication

- 6 flex hoses to coolers are very easy to move around → will try to rout then to west side of the condenser

- fabrication drawing, material procurement

- to complete ordering this week then Nick can start bench-top fabrication work next week

- fabrication, tests, and installation

- prefer to wait to install after TPC insertion

Current DUNE 2x2 Installation Tasks

(April-24-2023 update)

- 2x2-Minerva commissioning progress: detector checkout with NuMI data, DAQ/nearline status
 - Howard: no update this week
 - Geoff: Minerva: data handling - still not working. Hoping that ports will be opened soon
 - Geoff: Minerva: daq crashes - no insights, just testing.
- AC electrical T&M: Leyden contract → ISD & Leyden schedule the work
- ODH fans and ducting: ISD code and comment review → procurement approval → contract bidding
- Internal piping and pump installation: electrical connection → cleanup (early May)
 - Still wait for grounding wire delivery. Hope to finish installation this week week
 - Linda suggested: remove clamp between electrical conduit and cryo pipe; use different junction box
- Finishing cryostat access platform stair steps and gates before TPC insertion – MinJeong
 - Thinking of remove one set of the handrail on the west catwalk
- LAr filter vessel installation– filter regeneration in LArTF – still ongoing
 - Next step: filter vessel placement underground, connection to cryostat and fill manifold
 - Filter vessel on wheel – no need for dedicated cart
- Gas analyzer: re-assemble valve panel, install new analyzer, and add new pipelines to Ar gas collection points
 - Nick and Mike got recycled component from PC4 out of LAPD and 35ton cryogenics last week
 - Kourosch backs from vacation → Mike to discuss with him on getting the panel assembly work
 - new analyzer is due to arrive April 14, but not yet received → still need to check with buyer.
- Cryostat venting and safety relief piping: final layout → procurement and fabrication →
 - 4 flex hose out is out: 10–15-day lead time
 - Others are off shelf component → to finish ordering them soon
- Condenser support stand: material procurement order placed through local company late last week – Sai
 - Dave Butler’s group to assemble
- Condenser boil-off and liquid drain lines: drawing → fabrication → leak and pressure tests → installation in June
 - Long lead component: flex hose delivery delayed but expected in 2-3 weeks
 - Ordering off shelf component now; Nick to start to work on the pipe fabrication
- Cryo and ODH controls:
 - commissioning stage needs to use same set PLCs for both cryo control and ODH control. Separate them out after new PLC delivery
 - PO went to GSS (not Beckhoff) with deliver time April 12, 2024 (12 months lead time vs 9 months from Beckhoff)
- Purity monitor installation after TPC insertion – late May?
 - A smaller Faraday Cage enclosure to be fabricated using PAB (SBND) design, estimated completion time to be in June
 - Flash lamp noise level measurement using spectrum analyzer – Linda/Alan

- Placement of flashlamp TBC: may want to get away from TPC electronics
- Cryostat TPC insertion procedure and service feedthrough safety review
 - Rigger team for transfer and insertion; ND/PPD cryo techs for indium seal, feedthrough connection and pressure testing
- Cable tray and support options –baseline plan, still need detailing.
 - East-west cable tray from VGA to power rack. Short cable tray between power rack and ADC rack → **MPOD cable routing**
 - Network cables run south-north with cable tray under west catwalk and west-east (corrugated tubing) under access platform.
 - Purity monitor uses corrugated Panduit tubing with open slit.
- Network installation: **Working with networking group on detailing for fibers and connections as specified in docDB 25558**
 - **Fibers and connectors are to be ordered through FNAL stockroom: 1 month or so lead time**
 - **cable length detail in link: <https://docs.dunescience.org/cgi-bin/sso/RetrieveFile?docid=25558&filename=ac2x2-network-cables.xlsx&version=3>**
 - **network switches already received: in the hand of networking group**
- DAQ server rack: **Getting two racks from DAB – Geoff/Pete Simon**
 - **Geoff to clean up the racks at DAB, then arrange techs to transfer to MINOS**
- DAQ servers: **PO goes to KOI, June 23 delivery –Thanks Geoff!**
- Racks and electrical infrastructure for underground operation
 - HV cable support with Panduit conduit tubing – burn test with tubing in vertical.
 - **UPS for cryo control rack and network rack – Linda/Trevor/Matt to look uBooNE spares or to procurement**
 - **Power specification seems match between uBooNE UPS and the two 2x2 racks**
 - GIZMON impedance monitor location.
 - PLC rack and ODH control panel
 - ACPS control – docDB 21958 of 35ton experience
- Topics for next a few meetings
 - MPOD DCPS cable routing – Matt
 - 4-module lifting plan and cryostat insertion procedure and signoff – MinJeong
 - VGA and ADC cable routing support – Linda
 - Water cooling system design for cryocoolers – Mike Z
 - Cryocooler control, gas analyzer, final cryo control implementation – Trevor