



DEEP UNDERGROUND  
NEUTRINO EXPERIMENT

UMID  
DULUTH

# DAQ Installation Plans(ish)

Preliminary thoughts on how  
we'll put this thing together

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Installation Meeting  
Monday, May 14, 2018



# Relevant Schedule Dates



- BO of ITF: Q3 2021
  - DAQ involvement: install a test-stand to facilitate APA integration testing
- BO of CUC: Q2 2022
  - Install/test/clean server room infrastructure, 3.2 months
  - Minimal install of DAQ: 6.6 months (leaves 2.6 months float before next item...)
    - Includes testing/burn in as racks are installed
- BO of Cryostat #1: Q1 2023
  - DAQ involvement: have enough DAQ ready in CUC to support APA installation testing
  - Route fiber from cryostat top WIBs to CUC
    - Assuming we can't get to the top before BO

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- Will need a rack and a desk for the test stand
    - Test stand development all happens at vertical slice tests prior to ITF BO
  - Shipping of CUC infrastructure (racks, fibers, should not need ITF)
    - 50 racks, switches, fibers, cooling and power infrastructure to head straight underground
    - Not yet decided if the actual rack install is to be done by contractors or collaborators
    - All four modules worth of stuff installed right away

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- Baseline plan is for actual DAQ bits to go straight underground, not be unpacked at ITF
    - Lets us get racks wired/plumbed/cleaned first
    - Servers/crates/boards will arrive already tested and burned in
    - Shipping packaging is safest/cleanest way to get these items underground, now the drift
    - Will need some underground staging area next to/on top of CUC control room to unbox items
      - Don't want dirty packaging entering server room
      - Possible to use “control/lunch room” space for this?

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- How much DAQ stuff shows up per SP module?
    - 11 ATCA crates
    - 150 RCE cards + 75 FELIX cards
    - 32 BE servers + 38 FELIX hosts + 40 PDS servers
  - Probably a ~truckload in total
    - But spread out, not coming all in one truck

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- The DAQ group strongly feels that the general purpose lab network should not be in our consortium's scope. The hardware is very different:
    - DAQ network is high-bandwidth, half-duplex, maybe not even IP protocol data from WIBs→CUC→Surface, full of low-level data
    - Lab network is normal Gbps, IP, full-duplex, plus wifi hubs, full of user traffic
  - Longterm support, the expertise is very different:
    - IT professionals are needed to maintain something used by users
    - DAQ experts need to maintain our very special system