

Minutes of March 1 2021 10am ArgonCube2x2 installation meeting

- Attendees: Gary, Jim, Tom, Angela, Alan, Howard, Min Jeong, Steve and Ting
- News:
 - DOE VIP tour of MINOS is being scheduled for March 12 - a Friday. Tom and crew to clean up the hall ahead of time.
 - A section of handrail needs to be installed ASAP to be fill the gap on east catwalk for safety.
 - Tom is also make signs and rope-off access from the downstream bridge to the east catwalk
 - The underground water leak seems getting worse. There are few wet spots on the floor. Tom also notice a bad lead just upstream of the storage rack
 - We need to cover up the MINERvA modules on the storage rack. Angela prefers to use fire-retarded material. Tom's crew will do this ASAP.
 - Steve is working with education office on recycling some MINOS panels. They need about 10 panels. Details soon.
- New detector layout
 - Gary produced a new set of screenshot pictures showing 2x2 and MINERvA module layout. They are included in the file posted to the meeting indico.
 - Changes include moving the whole configuration about 1.5m upstream to better match rail section patterns of the MINOS catwalks, raising both MINERvA and 2x2 cryostat about 18" to meet beamline center, and addition of a rally rack for light readout system.
 - We need one more 18" tall concrete block to support the 2x2 cryostat. Angela commented we need an engineering note and peer review on the stability of the setup. MinJeong is taking note on this.
 - Gary mentioned the need to remove cryostat legs during the process of insetting the vessel through the floor covering of the access platform. We will contact Bern group about the legs
 - Howard commented that we need anchor points for safety harness on the access platform during MINERvA module electronics work.
 - Ting and Howard commented that the leaders we have now in the CAD seem too tall to work with MINERvA electronics installation/repair. We will look again to see suitable ones.
 - Angela mentioned that we likely need to follow building code for access platform design. MinJeong had discussion with Angela and FESS on conceptual design of access platform. Ting encourage them to run through with FESS again about our layout and egress consideration.
 - Jim commented that the vent pipe shown in the CAD (yellow colored pipe on the east side) should be higher. MinJeong answered this will be redesigned.
 - Howard commented that it is difficult to reach the middle section of the downstream MINERvA module sets for electronics repair work. FEB boards are often the culprit for problems during operation and we need to replace them sometime
 - A few suggestions were discussed on how to reach them: a fixed ladder on the floor level of west side between MINERvA modules and catwalk, a floor extension from the west catwalk to the modules This issue need to be looked further.
 - Howard is to look more of the module electronics scheme -- posters on the 12th floor hallway show locations of FEBs and cables and Ting will try to find similar pictures from visual office's archive site.
 - Gary is to give Howard more screenshot pictures of spaces under the west catwalk.
 - We will also need to have a concept design of cable runs from MINERvA modules to the readout racks.
 - We will come back to this issue after done those homework
- Engineering need to MINERvA module re-installation
 - From Gary's screenshot (page 7 of the file) showing the strongback on module modules. We have about 8" clearance from strongback bottom beam to floor.

- There is no need to shorten the strongback for module re-installation. We need to keep wheels for off though. The wheels are only needed when we rotate module to place it on the floor.
 - The module rail support for 2x2 configuration is not as tall as in the old MINERvA configuration. This makes the structure steadier.
 - Jim will still need to generate the engineering note and get peer review before we start module re-installation. We have about 3 months for this work.
- Sequences of 2x2 component installation
 - Cryostat and TPC module delivery delays caused us to rethink the installation order of detector component in MINOS hall
 - The ideal order of installation is: 8 downstream MINERvA module sets ->TPC access platform->2x2 cryostat and TPC modules -> 3 downstream module sets.
 - An alternative order was discussed: 8 downstream MINERvA module sets ->TPC access platform->3 downstream module sets -> 2x2 cryostat and TPC modules
 - For the alternative order, we need the access platform to be designed and procured before end of summer like August. Min Jeong commented that this is doable.
 - Howard commented that he prefers to have the possibility to use lifter to reach the electronic from upstream end. He wants to use NuMI data to check out the 8 module sets after installation.
 - We also need to make sure the cryostat vessel can be transferred over the top of the 3 MINERvA module sets upstream. Gary's layout on page 7 clearly indicate this is the case. But we need to remove the handrails both from the east MINOS catwalk and new TPC access platform to have enough crane hook room to do that.
 - From looking pictures of Bern's setup, the pick-point of the vessel are screw-on hooks on the vessel top flange. Jim and Gary to define scheme of lifting the vessel in MINOS either using a spreader bar or simple crane hoist rope. We will then re-run the transfer process in CAD.
 - Other issue is how to transfer the vessel through tunnel. We need a big cart similar to the steel cart to push through the tunnel. Jim is to see whether we can find something in Fermilab.
 - Min Jeong suggested the Bern group designs the vessel shipping cart with wheels attached. We will talk to Bern group.
 - There is a request of adding a 35'x10' clean room on the east side of the upstream end of the MINOS hall. We are talking to Pat Luekns to understand the need.
 - The cleanroom is about 14' tall and will run from the door of the emergence tunnel to about the spot we have stairway to catwalk on the west.
 - The bottleneck is the need for pushing through the steel cart when we need to remove MINERvA modules.
 - The steel cart is about 9'10-1/2" wide, 16'2-3/16" tall and 273" long -- Thanks Gary to digging this out after the meeting
 - Tom and Steve are to find out the space limit by placing the steel cart with MINOS strongback in the hall
- AOB:
 - Howard suggested we move to 11am starting time for meeting.
 - Ting will send calendar invite to see potential conflict.