Restoring PØD Operations

- Thanks to Dan, Carl, and Tomasz' efforts, the noise problem identified in late June has been solved.
  - Due to humidity (low dry air flow, low temperature)

- Next problem: two RMMs spontaneously rebooting (see Dan's presentation)
  - We've been concerned for a while that the RMMs might not be coupled to the heat sinks after the earthquake
  - Only did short runs in electronics tests due to concerns about RMM overheating
  - Working hypothesis:
    Two RMMs no longer have good thermal contact to cooling

- Need to open the magnet to access the RMMs to make further progress

  - Start planning for work with the magnet open
Fix RMM cooling
  -> Redo coupling of RMM to heat sink  
    (Vittorio: will order “Berquist gap filler” recommended by UK group)
  -> Possible upgrade?  
    Dave Warner looking into making a new water-cooled heat sink;  
    This approach is used by the UK ECAL.

Verify that fixing the RMM cooling fixes the RMM problem  
  If not, continue to investigate the problem  
  Need support from UK electronics group in this case!

Mechanical (Warner)
  -> Visual inspection of SuperPØDule ladder supports and SuperPØDules themselves for any movement  
  -> Inspect all the other PØD infrastructure inside the magnet

Alignment (Erez)
  -> Laser alignment studies; compare with Fall 2010  
  Can do these with the drip pans off this time
Work to be done

Water Target
- Checks/inspections/measurements needed to plan for Bag 28 replacement in Summer 2011
- Installation of new ‘smart’ drip pan drain developed by Walter and Thomas Campbell
- Water target system functionality and leak checks (details on later slide, copied from Walter’s presentation 6/20/11)

Light Injection
- LI system tests in preparation for Run III (Tomasz)
- Requires working electronics!

Monitoring Improvements
- RMM temperature readout
  - Nominally possible through RMM board, but firmware not in place
  - Add our own temperature sensor?
- Humidity monitoring
  - Noise problem due to humidity
  - Add sensor to directly measure humidity around electronics
Work to be done

Details of water targets tests
(from Walter’s presentation 6/20/11)

11) water target system functionality and leak checks: (4 hours + overnight + 4 to 6 hours next day. 1 expert, 2 helpers)
   a) slowly open main valves between tank and pump rack and check for leaks in heavy-gauge pipes (10 min)
   b) dry run of all pumps to check pump survival (5 min)
   c) prime buffer tanks with ~5L of water (30 min)
   d) turn on and check operation of pressure and L sensors in p0d and main tank (1 hr)
   e) fill all bags until L=14cm sensor trips OR P sensors indicate 15 cm depth (2 hr)
      ***steps (a)–(e) are detailed in existing procedure documents.
   f) leave water in place at least overnight, check for leaks and try to localize. (~1 hr)
   g) if no evidence of water loss (P sensors constant), OR if clear evidence of a leak (significant change in one or more layers other than #28), drain all bags next day (~2 hr).
      ***all steps up to here must be done WITH DRIP PAN IN PLACE, in case of large leaks.
   h) if results are ambiguous (small changes in P sensors), leave water in bags, and REMOVE drip pan to do visual check for small leaks, and identify locations. (2 hr)
   i) run pumps to drain all bags after visual inspection. (~2 hr)
Questions/Comments

-> When when the magnet be opened? For how long? When will these decisions be made?

-> Identify manpower
   • Bruce, Dave Warner, Dan Ruterbories, Erez, Tomasz, Vittorio, Istvan? UW water target
   • UK electronics support

-> Not all these jobs are equal priority. Depending on the schedule we may not be able to do them all.

-> Other questions/comments? Input welcome.