DZero Mechanical Operations – Shutdown 2007 Work list

1. Dry expansion engine maintenance for the helium refrigerator.
   Notes: One shift by AD personnel. Then put on-line and do the other as an off-line spare expander.

2. Top off the liquid argon levels in the calorimeters.
   Notes: We have been slowly losing liquid level in the south calorimeter. It takes about 8 hours to top up. This may be a controversial job and needs approval from calorimeter group. My recollection from Oct. 27,2006 when I brought it up was that the calorimeter saw differences in the calorimeters and resisted changing any variables until it was understood. George Ginther had some insight on the topic.

3. Replace the Oxygen catalyst bed in the MDT purifier, room 510.
   Notes: Will only take a few hours at which time gas flow through the MDT system will be at different flow conditions than normal data taking condition. We have a replacement bed. One bed was replaced in Feb 2007. The other bed will last until the shut down at which time it needs to be changed.

4. Pump on liquid argon calorimeter valve boxes and u-tubes at the north and south end, top of the detector. We will need to extend and use the seldom-used working platform that is attached to the upper surface of the end calorimeters to access the pump outs. Will take about 5-10 days to casually pump everything. Detector configuration note: The end calorimeters must be closed and the EF irons need to be open.

5. Thaw and re-insulate the liquid nitrogen tracer line in the cryo corner.
   Notes: Currently have a rather large ice ball in the cryo corner. Pressure stability of the south and north end calorimeter may be affected during this one 8-hour shift job.

6. Install final design (magnetically attached) foam pieces to block air flow that can get around quad magnets affecting their temperature. Current "temporary" foam is working fine.

7. Re-route the improperly installed cables through the detector on an "as needed" basis.
   Notes: Many of the worst offending wires are "after the fact" diagnostic cables or blue Internet cables and are not connected to anything at one end. We would consult detector groups before disconnecting and re-routing other wires that are found connected.

8. Regenerate the helium gas purifier in the cryo tank farm. Warm nitrogen gas is flowed through the charcoal adsorption beds and then vacuum pumping takes place. We do this several times. The helium refrigerator stays up and running during the process. May take 5 days.

9. Pump on all accessible cryo vacuum jacketed lines inside the collision hall.

10. Open and Close the detector as requested. Both EC's will have to be opened to allow for disconnection of LUMI detectors and horse shoe SMT work.
Move shielding block in pit away from the wall for second egress path.

R. Rucinski, March 9, 2007
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11. Inspect and replace worn hydraulic fittings at hydraulic cart, pumpers and connection panels. The ones used for opening and closing the detector are showing signs of wear.

12. Install a stow able work table or support at the hydraulic pump cart to hold the Laptop/IFIX display used during detector openings and closings.

13. Build scaffolding as necessary to check/torque the toroid bus connections on the CF and EF magnets. We will work with Tim Martin on this.

14. Remove 2 PDT wires as directed by Muon group. May involve installing scaffolding or other access issues.

15. Replace charcoal in the filters of the WAMUS clean and dirty gas systems in room 510. Job would involve 2 days or so in one pass mode for each gas system. Charcoal is purchased and being regenerated now.

16. Replace CV-14 valve electrical actuator with a pneumatic actuator.

17. "Annual" UPS maintenance work. Last done in November 30, 2005. Three UPS's, 1) cryo controls UPS on the sidewalk, 2.) HVAC UPS, and 3.) UPS on the platform, east alcove. A plan/procedure that was developed for the 11/30/05 maintenance can be followed. Will require advance coordination with an outside service technician.

18. Replace tall FEB stand-offs with the shorter variety to increase clearance between the FEB's and calorimeter pre-amp boxes. At one time all the cathedral ceiling FEB's had the correct size, but now there are several FEB's over the CC (east side?) that are tall again from spare swaps.

19. Find and fix a ground short, or replace the signal cable from FC1 (cathedral fan coil) flow switch (fan status) to PLC's remote base. Currently this fan status input is disabled.

20. Add a flow transmitter to MDT gas return from chambers. Connect it to PLC, put in IFIX page and in historical collection. Swap FTC-39 (MDT flow control to chambers) with a recently re-calibrated spare.

21. Replace leaky aftercooler on silicon dry purge system. Silicon detector must be powered down during this procedure, the silicon cooling system will temporarily go to emergency warm-up with trailer air used for purge.

22. Move a hydraulic lift cart or other rolling cart into collision hall east side for BLS storage under the stairs.

23. Fill in collision hall track depressions at NE and SW sides with plywood to bring them to same elevation suitable for rolling carts over.

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24. Shorten the height of the hoisting trolley system for BLS power supplies at the east cable bridge.

25. Rebuild stairs at north alcove, west end to allow a short working platform over the LCW lines.

26. Provide technician support to FPD group for removal of FPD detector and racks.

27. Build scaffolding to the ceiling in the SW pit to provide muon group (Al Ito) access to the top C-layer PDT end. Detector configuration: Requires the CF west to be closed.

28. Open south B-pixel layer and build scaffolding to allow repairs to dead pixels. Detector configuration: Requires the south end calorimeter and south EF to be closed.

29. Assist Al Ito with the rollout of the bottom, west A-layer PDT's. Configure working surfaces as necessary. Detector configuration: Requires the CF west to be open.

30. We need to remount CV-3. This is located in 5th floor mechanical room. There are alignment issues with the mounting brackets. This work should be done with the LCW off. Pete Simon will lead this effort.

31. Install Leibert unit on 2nd floor computer room. No disruption to CHW (valves and fittings exist), but will need to cut the electrical power to 2nd floor for about an hour.

32. Open the plastic curtains and gently remove the foam panels at the top of the C4 and D1 Q4 quads for surveyors, prior to 8/9. Surveyor job #5495, D0 quad as founds is scheduled 8/9 to 8/14. Helium levels in the hall will go up. Close after survey job is confirmed. Russ Rucinski should be involved with Foam removal and installation due to sensitive AD HLS and tiltmeter instruments on the quad.

R. Rucinski, March 9, 2007
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