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Sent Friday, April 16, 2010 9:55 am  
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Cc [Philippe Laurens <Laurens@pa.msu.edu>](mailto:Laurens@pa.msu.edu)  
Subject Summer 2010 Shutdown work on TFW and L1 Cal Trig

Hello,

This note is the list of the work that I would like to do during the summer 2010 shutdown.

Trigger Framework

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1. Replace both air blowers in rack M122. Both blowers in that rack are still the original ones. Replace the one remaining original blower in M123. The other blower in M123 was replaced early in January of this year.

By the time of this summer's shutdown I will have 3 rebuilt blowers on hand so both the M122 and M123 work can be done in one session (if that fits best in your schedule). Replacing the blowers in M122 and M123 will require at least 6 hours of work. During that time lots of parts will be removed from the TFW racks and the MCH-1 aisles will be blocked.

At this time I do not think that it is necessary to do any blower work in either M124 or M101. Please let me know if you want the details behind this reasoning.

2. Check the water hoses, and radiators in the racks for any signs of leaks. Check the TFW VME Communications crate fans. Check the SCL Hub-End Status Concentrator (back of the backplane) fans. About 1 hour of work.
3. Check the internal fans on the 10 operating TFW power supply chassis. Each TFW power supply chassis has 2 external fans (that I check regularly) and 6 internal fans. Normally it is not possible to see the internal fans. I plan to stall out, for perhaps 30 seconds, each of the "impedance protected" external fans to insert a light on a G10 rod so that I can see the internal fans and check whether or not they are operating.

Although we have not had many failures of these TFW power supplies the issue about the operation of the internal fans came up after the failure of the TFW supply that runs the Routing Master crate. That failure occurred during the 2009 shutdown. That failed power supply had multiple non-operating internal fans. About 2 hours to check the 60 internal fans.

4. Replace the Rack Monitor (address 26) above M122 that monitors TFW voltages. The rack monitor currently in this location

reliably reads low by about 100 mV on one of its channels. Once this box is replaced the "Low" alarm threshold in the SES system for this one channel needs to be set back to its normal value. The readback values of all channels need to be checked. About 1 hour of work. I will need a little help from Geoff or some one to set the Low SES threshold back to its normal value.

5. Swap the currently running "new" L1 and L2 TCC computers with the "new spare" L1 and L2 TCCs. The "new spare" TCCs are identical hardware and software with the currently running machines but neither "new spare" has ever been tested in the real system. The plan is to swap in the "new spare" machines, they will work fine, we will leave them running in the real system, the currently running "new" L1 and L2 TCCs will be put on the shelf as known good spares.
6. Apply some "deoxit" oil to the SCL Hub-End connector pins for the SCL flat cable from GS 0x65. This is the cable connector that was flooded by a water leak in April 2009 and caused many hours of down time because of a bad connection that caused the TFW to incorrectly think that GS 0x62 was L2\_Busy. I should have put deoxit oil on these connector pins during last summer's shutdown. About 1 minute of work.
7. Inform Steve Chappa when the DAQ system will be down so that he can check things over in M100 Master Clock if he wants to.
8. At this time I do not plan on doing any work on the about once per month VME cycle hang in the monitor data readout of the Foreign per Bunch Scalers, i.e. Luminosity information. This problem has been stable for sometime and is hidden because the L1 TCC automatically takes care of it and TCC + Philippe monitor what is going on. Please let me know if you want the details behind this choice.

Note: Only items 1, 2, and 3 require significant down time and require the TFW to be turned off.

#### L1 Calorimeter Trigger

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The only work that I would like to do in the L1 Cal Trig itself during the shutdown is to:

- Swap the current spare ADF Crate power supply into the running system and put the supply that is pulled out on the shelf as the new spare. I have the fully history of which supply has been in which ADF Crate so I know which ones I want to swap.
- Make a careful check through the L1 Cal Trig racks looking for any problems, e.g. water, radiator, connectors about to fall

out, ...

- Total of about 2 hours of work which can be done at any time because just the L1 Cal Trig will be down.

A significant amount of L1 Cal Trig work needs to be done BEFORE the shutdown starts:

- Verify the list of currently Excluded trigger towers. I thought that we now had 3 TTs Excluded.

[http://d0server1.fnal.gov/users/selcuk/www/L1CAL\\_Excluded TT Inventory.pdf](http://d0server1.fnal.gov/users/selcuk/www/L1CAL_Excluded_TT_Inventory.pdf)

- Do we have meaningful single tower "noise runs" for whatever trigger towers are currently excluded ?
- Do we have meaningful scope pictures of the noise in the trigger towers that are currently excluded ? If not then a local L1 Cal Trig expert should be checking these TTs with a scope a couple of times a day until the BLS noise is captured in a scope picture (or until no noise is ever seen and thus we should try running with that TT included again).

Without single tower noise runs and/or scope pictures of the noise it is very hard for Dean to work on any of these BLS signal noise problems.

- We should be making L1 Cal Trig pulser runs. The last time that I know of when a L1 Cal Trig pulser run was made a problem was discovered that we were able to fix. We certainly should make a run or two before the shutdown starts.

Spare L1 Cal Trig TCC. I think that this is back in the MSU court now. Philippe and I will check into what is going on. We should get the application software installed on this machine now and then test this machine with the real system during the summer 2010 shutdown.

Please speak up if there is something that I have forgotten about or if there is something else that you would like me to help with during the shutdown.

Thanks, Dan