Summary of Terry Geld's Comments (My Spin)

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Level 2 $\rightarrow$ Level 3

What have we Learned?
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Outline

1) General Observations

2) Suggestions

3) Summary

<u>Genaral Observations</u>

- L2 Verification partially worked.

Caught some bugs before going online, but missed others.

Some bugs slipped into the simulator.

- Need complete verification in place <u>before</u> start of run.

Each trigger level verified.

Good communications between trigger groups.

- More experts and personnel are needed.

Detector experts for each detector.

Trigger experts.

People analyzing data.

- Large and varied sets of Data and Monte Carlo.

Good data may not have enough stats in all phase space.

Large TOP MC and QCD samples were useful.

Up to date data samples (*e.g. samus bug missed because of lack of post-shutdown muon data).*

Dedicated disk area or reliable robot system for data would speed up process.

• Communications with trigger/simulator novices.

Trigger/simulator using different stable libraries than analysis enhances likelihood of bugs.

• Baseline comparison method is good

Differences between versions need to be understood.

Problems amy manifest as small changes in parameters examined.

Releasing code and STP changes at same time is not a good idea.

Bugs can be mistaken for STP changes.

Dramatic changes in code invalidates baseline method.

Pass rates are useless unless it is understood what the rates should be and why.

Need a complimentary method to handle big changes, but what method?

• Final Run I verification model was good.

Complete verification by authors of new code.

Complete verification by relevant subdetector/subgroup.

Final verification by Level 1/2/3 group.

Any bugs found at any stage are to be fixed by the authors.

• L2 experts spent too much time debugging other people's code.

Suggestions

- Online and simulator bugs can be different.

Find bugs which manifest online.

Find bugs which manifest simulator only.

Find bugs which manifest online and simulator.

- Most online bugs found later by physics groups from data.

Generate a time lapse in general.

Perhaps a offline verification on monitor stream data? Up-to-date but not constant so baseline method hard to interpret.

- Improving types and numbers of quantities looked at might help.

Summary

- Verification model was good, needs improvement.

Baseline worked ok, needs complimentary support.

Authors verify code fix bugs.

Groups responsible for code passed on by members.

- Needs to be in place before start of the run.
- All levels need verifying.
- More experts/personnel required.
- Large data sets needed.
- Improve quantities looked at.