

## HPS DOE Review, July 11, 2013

HPS Review at DOE, July 11 2013

Title	Speaker
HPS Overview <a href="#">.ppt</a>	J.Jaros (SLAC)
Beamline <a href="#">.pdf</a>	S.Stepanyan (JLAB)
SVT <a href="#">.pdf</a> , <a href="#">.ppt</a> , <a href="#">.key</a>	T.Nelson (SLAC)
SVT DAQ <a href="#">.ppt</a>	R.Herbst (SLAC)
ECAL and Trigger <a href="#">.pdf</a>	R.Dupre (Orsay)
Trigger/DAQ <a href="#">.ppt</a> , <a href="#">.pdf</a>	S.Boyarinov (JLAB)
Software, Monitoring and data Management <a href="#">.pdf</a> <a href="#">.key</a>	M.Holtrop (U.NH)
Readiness for Electron Running <a href="#">.pdf</a>	T.Maruyama (SLAC)
Physics Reach and Run Plans <a href="#">.pdf</a>	M.Graham (SLAC)
Budget, Schedule, Management <a href="#">.ppt</a>	M.Oriunno (SLAC)
<a href="#">Closeout Report</a>	
<a href="#">HPS Response to the Closeout Report</a>	
<a href="#">Final DOE Report Jan. 2014</a>	

Table with outstanding comments to be addressed			
S u b Systems invloved		Comments	Answers

Project Management, All	1	Commissioning plans are not detailed enough, especially given the apparent short timeline for installation, commissioning and running. Doing this all on nights and weekends will require a very tight run plan with close cooperation and communication with JLAB and Hall B managers (daily contact).	We recognize the unusual setting for running the experiment and we are working on detailed plans for commissioning each detector component. We already have a draft document for the beam line commissioning, the highlights from which were presented in the beamline talk at the review. We will continue to improve the document and procedures as we learn more about CEBAF accelerator performance during the commissioning of the upgraded machine in Q2-Q3 of FY14. We believe that the time allocated for beam commissioning (off work hours and weekends during mid-October to end of December, 2014) is adequate for beam line commissioning. We are also working on the commissioning plans for SVT and ECal. Simulations are in progress to study options for SVT alignment including the possible use of additional targets. We are also studying ECal calibration (e.g. use of neutral pions for ECal). We plan to produce commissioning documents for these detectors within a few months. It must be noted that the installation and hot checkout for many subsystems (e.g., pump down vacuum, exercising HV/LV and the cooling systems, checking signals from readout channels without beam) can be done concurrently with CLAS12 installation, and consequently are not confined to nights and weekends. Also, to put some scale on the required activities, note that during the test run, installation and hot checkout was completed during just two shifts.
Project Management, All	2	Create (or maintain) a resource loaded schedule which includes the non-costed scientific time.	We will do so. Although scientific time was not fully accounted in the schedule originally submitted with the proposal, we have since been acquiring the needed information from each of the subsystems, and are already close to incorporating all this data into our project schedule.
Beamline	3	Add "off-project" interface milestones related to Jlab's 12 GeV schedule to the HPS schedule.	We are already aware of these "off project" milestones although we did not describe them in the proposal or the presentations at the review. They include: (a) PCAL and FTOF are installed on Forward Carriage (FC); FC ready to be moved upstream to allow access to alcove; (c) Torus assembly fixtures ready to be installed and FC moves downstream to allow installation of assembly fixtures; (d) Torus hub is installed, ready for installation of 3" vacuum beam pipe through it; (e) RF separators are commissioned.

Project Management	4	Schedule slack is not specifically identified within task lines, which makes it difficult to assess overall schedule contingency.	We will revisit the schedules of each of the HPS subsystems, and will identify schedule float more explicitly.
Project Management	5	It may be informative to make a copy of the schedule and perform a “what if” analysis, removing float from tasks and determining the earliest possible finish date.	We agree, and plan to conduct this exercise.
Project Management	6	A critical path analysis was not presented. It would be very helpful for reviewing and managing the project.	In fact, much of the critical path has been identified, although it was not called out explicitly in the presentations at the review. We will review and update the critical path analysis.
Beamline	7	A detailed staging schedule was not shown for either upstream or downstream option.	We agree a detailed staging schedule should be developed, and will do so. The details of the plan will depend on how the CLAS12 installation is proceeding, and what detailed schedule is developed as installation approaches, so will be most sensibly developed closer to the actual installation time.
Project Management	8	No ES&H milestones or reviews were mentioned.	Construction of detector components is proceeding at different laboratories (SLAC, JLAB, Orsay and INFN). Each sub-group will follow ES&H guidance of their respective institutions. Jefferson Lab has established procedures (now being updated) for an experiment readiness review that will include safety assessment of the detector installation and beam running. Experiments provide information based on which experimental safety assessment and radiation safety document will be written, reviewed and eventually approved. HPS will work closely with JLAB Physics division Safety office to conduct experiment readiness reviews, and prepare and approve HPS operating procedures.
Beamline	9	Additional integration planning with JLab 12 GeV personnel relating to Hall B progress (regardless of the upstream /downstream decision) is crucial to HPS success. The HPS project team should clearly identify a technical coordinator to address these issues.	Stepan Stepanyan from the HPS project management team will be the liaison (technical coordinator) between HPS and the Hall-B 12 GeV project, as agreed to with JLAB management. He will hold regular meetings with Hall-B lead engineer Robert Miller and the lead engineer of the CLAS12 Torus project Dave Kashy. Stepan will report 12 GeV progress to the HPS Executive board and to the HPS project management team on a regular basis.
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SVT DAQ and TDAQ	11	The DAQ was only tested at 10% of final expected rate. HPS should consider high-rate tests of the full system before the full run.	Our schedule allows for thorough testing of the SVT DAQ at SLAC and full integration with the SVT. We have already planned high rate tests of the full system and intend to verify that it can handle rates of nearly 50khz.
Beamline, SVT	12	Consider techniques, like using extra targets and off-axis beam, to assist with aligning the SVT which will be crucial for needed vertex resolution	We agree that SVT alignment is very important, and are presently completing new track fitting algorithms, and correcting track reconstruction bugs, that have impeded our attempts to use general alignment routines. We will certainly consider taking non-standard data (e.g. field off, extra targets, off-axis beam) to help provide robust alignment procedures.