Weekly Report for 12/09/2013

APS Renewal and Upgrade

• Negotiating with 401-procurement to find the best way to meet their unreasonable demand that a most-likely-unqualified vendor be incorporated into the RIXS pole procurement without delaying us even longer. We agreed on something that will hopefully only cost two weeks beyond plan. monthly variance report, monthly DOE report input, upgrade WG meetings, (Marion White)

MCR Operations

Linac Operations

• Assisted with a Controlled Access to the linac tunnel for repair of a water leak on L1:AS1 accelerating structure. (Stan Pasky)

• Over see an Injector Studies Schedule. This schedule can be found on APS Accelerator System Division - Operation & Analysis Group home page under Schedules & Logbooks. (Stan Pasky)

• Met with G. Markovich (AES-SI) and K. Belcher (AES-SI) to discuss the bypass key in the Annual LACIS validation procedure (APS_1196662). Key will remain under the control of the MCR. (Jeff Dooling)

• A modified procedure, removing the need for the linac tunnel to be in open access, was submitted to workflow for approval. (Jeff Dooling)

ITS Operations

• Over seeing all Injector Test Stand, (ITS) activities of a Photocathode Gun. (Stan Pasky)

• This photocathode RF gun (PC gun) and its magnets identical to the LCLS gun system are being installed in the ITS for conditioning and beam operation checks. The RF gun is a 1.6 cell S-band RF gun with dual RF feeds with a solenoid, focusing magnets and diagnostics to generate a high-brightness electron beams. The ultimate goal is to install the photoinjector in the APS linac tunnel for beam physics studies. (Stan Pasky)

APS Machine Studies

Linac Studies

• Forgot to mention in last week?s report that I conducted a linac study with L. Erwin on Thursday (Dec. 5) to look at signal and noise on the RG2 pulse at both L2:P1 and L2:P4 locations. (Jeff Dooling)

• Using a fast scope to determine what part of the pulse is signal and what part noise. (Jeff Dooling)

• Took data while varying the RG2 chopper voltage. (Jeff Dooling)

• Participated in Injector studies in performingthe 3-screen emittance measurement of the electron beams after chicane. At L1:CM2=1.5nC, the measured normalized emittance at 150MeV is around 15 um. (Yin-e Sun)

• Run the linac with the OAGapps including Linac PEMs, learned to shut down/turn on different sectors of the linac, tune the linac phase and power into the linac to control beam energy. Exercised in turning off/on the rf gun and related current stabilization control laws. (Yin-e Sun)

APS Machine Research and Development

Storage Ring Research and Development

• Ran scraper cases in MARS with elegant input separated by Pass number for 24-bunch case. (Jeff

Dooling)

Linac Research and Development

• Discussed with A. Grelick the original pc gun (first of the NRL/BNC guns) and how it was destroyed. Grelick said that though it was identical in design to the later NRL/BNL pcgun, the former had tolerance issues. (Jeff Dooling)

• Grelick believes that running with ratios of reflected to forward rf power up to 100 percent allowed for continuous arc-ing. Working with Grelick and D. Horan to install arc detector on the PC gun. (Jeff Dooling)

• Contacted J. Lewellen (LANL) who worked on this gun as said an arc detector was worth a try. (Jeff Dooling)

• participated the high energy (450 MeV) and high rep rate (up to 28 Hz) operations of the linac for the APS Upgrade. (Yin-e Sun)

LDRD-Related

Ultra-Low Emittance Injector

• worked with others to ensure the PC gun installation meets the requirements as outlined in the PC commissioning plan. Noticed that the PC gun RGA/ion gauge were not installed at planned port and pointed to the RF group leader, and the RGA is then moved closer to cathode. (Yin-e Sun)

• Discussed parameters to be logged during the PC gun conditioning, worked with Stan on a list of parameters to be logged during the RF conditioning. Determined a list of waveforms that needed to be collected during gun conditioning and worked with Hairong to set it up. (Yin-e Sun)

• Worked on beam dynamics simulations using the best estimated UV laser pulse length from the IR laser parameter recently measured by Dooling. Results are close to previous simulations though slightly larger emittance, as the laser is much shorted now. (Yin-e Sun)

Other Research and Development

• Installed/compiled an alpha-magnet element in GPT and worked with Radia beam's GPT files for their THz experiment at the ITS. (Yin-e Sun)

APS Machine Software

AOP Applications Software

• Updated the DataLoggerViewer by adding the missing SR Fast Logger. (Robert Soliday)

Storage Ring

• added "restore single cogging" and "restore 24singlets cogging" button to restore FPGA bpms to single bunch or 24 singlets to collectFPGAdata (collect FPGA bpm data for MIA application). (Hairong Shang)

• added checking the condition number of inverse matrix befor starting orbit correction to SROrbitControllaw, and added an alert box will show up with error messsage if the condition number is greater than 1.0e4. And added contact message for condition number checking to SRIDSteering, SRCUSteering and SRBMSteering. (Hairong Shang)

• Looked into problem conditioning the S13C:V1 corrector but no changes were made. (Robert Soliday)

• Added new SCR preferred choice descriptions for the SR. (Robert Soliday)

Injectors

• modifed PARRF12TunerFeedforward to read the PARchange limit from test file instead of hard-coded. (Hairong Shang)

• modified fixramplv to fixrampcurrent which uses the current waveform reference to compute the current error, Modified boosterRamp.tcl and BRampControl to use fixrampcurrent for correcting booster ramps. Tested with CY, SD ramp correction worked OK, SF did not work yet. (Hairong Shang)

• Completed "Linac Arc Trip Monitor Function and Description" training document. ICMS APS_1221724. This document describes how the Linac Arc Trip Monitor functions as well as some background information related to rf power conditioning of components such as windows, waveguide and S-band switches. (Stan Pasky)

• Looked into a problem bringing the Booster dipole out of DC standby and into full power. A safety check of the current waveform at 0 gain resulted in a value that was outside the allowed limit. This limit was adjusted with consent of C.Y. (Robert Soliday)

General

• debugged problem of new HP9000 scope that ScopeSaveRestore script could not restore configs remotely with user booster, user sr could do it. Found that /home/helios/BOOSTER/bin has private restoreHP9000State script for restoring the HP9000 scope config. Removed booster's private restoreHP9000 file at bin directory, it could restore configs except two corrupted ones, deleted these two bad configs. (Hairong Shang)

• Modified sddspseudoinverse on OSX to use the Accelerate framework from Apple. (Robert Soliday)

IOC/EPICS/Controls/Linux/Solaris/Linux Clusters/Data Loggers/Simulation software

• Helped Borland fix an environment variable problem on Blues that was causing problems with sddsbrightness. (Robert Soliday)

• Added PVs to the processWater data logger per Lester Erwin's request. (Robert Soliday)

• Added Geoff Waldschmidt to the apex job queue for his GdfidL jobs. (Robert Soliday)

• Built SDDS code on blacklab to ensure it will build on orthros after the upgrade. (Robert Soliday)

• Built new RPMs for our software on Ubuntu 13.10 for Gregor Hurtig (Hamburg Univ). (Robert Soliday)

• Talked to Midlock about retrieving a data logger file from backup for Harkay. (Robert Soliday)

• Updated the 7ID data logger input file per Donald Walko's request. (Robert Soliday)

• Added PVs to Linac data loggers per Pasky's requests. (Robert Soliday)

• Fixed problem with FE-EPS glitchlogger notification system that had a few incorrect fault descriptions. (Robert Soliday)

Meetings, workshops, conferences, committees, LMS related, and reviews

• reviewed a paper for PRSTAB. (Yin-e Sun)

LCLS

- listened to the plenary and breakout sessions of the Director's Review. populated the Argonne-LCLS-II website with the talks that were presented. hosted the weekly coordination meeting. (Marion White)

Safety and Required Training

- Booster console test provided to Owen Obasohan. Successfully Completed. (Stan Pasky)

Miscellaneous

- Sent Jayakar Thangaraj (FNAL) with Python/SDDS on Windows. (Robert Soliday)

- Helped Christopher Tennant (JLAB) with running coreEmittance on Windows inside cygwin. (Robert Soliday)

- Helped Dooling with script question related to sddsprocess. (Robert Soliday)

- Met with L. Emery and received performance appraisal. (Jeff Dooling)