Weekly Report for 02/17/2014

MCR Operations

ITS Operations

• Noticed different ITS PEMS have same description and contact Soliday to update it. (Yin-e Sun)

• Attended PiP meeting, discussed PCGun conditioning readiness, and presented laser status. Vacuum trip level on the rf is 1e-8 T. Not getting pressure low enough in the ITS beamline to open gate valve. (Jeff Dooling)

• Met separately with J. Gagliano and others to discuss ITS bake-out and vacuum. Gagliano pointed out that based on constraints with beamline components that couldn?t safely be heating as well as the location and age of the present ion pumps (end of beamlines), he doubted we could reach low 10-9 T range. (Jeff Dooling)

• Gagliano said another pump was needed. In the ITS, Y. Sun said that the first quad of the beam line could be removed (not in her ASTRA simulations). The group consensus was to remove the first quad and the 8? spool piece underneath and replace these with a vacuum port and short spool piece. (Jeff Dooling)

Training

• Trained extensively with Robert Frazier on ACIS, LOTO and alarm handlers (Randy Flood)

MCR Operations administrative/misc.

• Filled out a training questionnaire for the upcoming WAO. (Randy Flood)

• Approved operators' time cards (Randy Flood)

• Approved vacation requests, set up coverage and updated the online schedule (Randy Flood)

• Approve CTLs, IT and Other work requests (Randy Flood)

• Review and clean the asdops mail account at least twice (Randy Flood)

• Check the status of open RMD's (Randy Flood)

APS Machine Studies

Storage Ring Studies

• Made a fault testing plan with M. Smith and B. Deriy. Didn't perform the planed study due to other issues (ioc) need to be fixed. (Aimin Xiao)

Linac Studies

• Participated in RG1 studies for beam focusing & transportation down the linac. It was noticed that there is vertical trajectory jitter for the beam generated by RG1. Further studies are required to find out what is the cause. Bunch charge did not get fully transported from the end of L2 though the chicane. Beam focusing needs to be improved. (Yin-e Sun)

ITS Studies

• developed a PC gun RF conditioning schedule with key personal testing the conditioning procedure on day 1, conditioning crew training on day 2. (Yin-e Sun)

APS Machine Research and Development

Storage Ring Research and Development

• Provided scraper simulation data from MARS using coarse voxel size for J. Liu to run thermal analysis with ANSYS. Met to discuss scraper design modifications; review dry-run on Monday 2/24. (Jeff Dooling)

• A. Zholents requested that I write a tech note describing scraper material selection. (Jeff Dooling)

ITS Research and Development

• Noticed that bullhorn gate valve on the gun waveguide was opened when the two sides has above three orders of magnitude vacuum pressure difference (the bullhorn side was vented to allow the installation of a hot cathode ion gauge, while the gun side was kept under 10-9 Torr or less vacuum pressure). Discussed the issue with vacuum group and agreed that this should not have happened. (Yin-e Sun)

• Called a meeting between the relevant the vacuum group, RF group and AOG members and developed a plan to bake out the ITS beamline in order to get acceptable vacuum levels to start PC gun RF conditioning. (Yin-e Sun)

• To allow the installation of an extra ion pump and cold cathode ion gauge immediately following the gun gate valve, I suggested to take out quadrupole Q1 in the ITS beamline. This is OK for the PC gun beam, as the beam can be focused with the solenoid. (Yin-e Sun)

• The effect of losing one quadrupole upstream of the dipole magnet is studied. Two quadrupoles allowed a focused beam on both horizontal and vertical planes on the spectrometer screen. With only one quadrupole, beam in the bend plane (horizontal plane) can still be focused while keeping the vertical spread within the 12-mm diameter screen. (Yin-e Sun)

• Two more quadrupoles are available downstream of the spectrometer screen if needed. (Yin-e Sun)

• Found the laser was not triggering properly with linac bunch spacing, in LINAC triggering mode. Also, Test Stand RF triggering (6 Hz) was not working at all. Reported this to S. Shoaf (AES-CTL). Calibrated the ITS alignment camera on the alignment screen after adjustment of the camera?s position. (Jeff Dooling)

• Worked with M. Hahne on the design of an enclosure for the ITS injection and virtual cathode optics. Found uv optics (dielectric-coated mirror flats) for ITS virtual cathode. (Jeff Dooling)

APS Machine Software

AOP Applications Software

• Reviewed mpsDumpReview script, found a bug. Will add features based on new FPGA bpm analysis. (Aimin Xiao)

Injectors

• modified AcquireITSWaveforms to use getTek5000BScopeData for collecting ITS current waveforms, and changed the current plots to plot ICT with either bendline or straighline FC depending on which one is being used. (Hairong Shang)

• continue testing booster current ramp correction, improved the ramp correction through fitting the whole range of data, however it still did not work well for BM, worked well for others. However, the booster injection controllaw no longer took effect because the new current ramp correction did not take care of the zero offsets. -- will implement this later. (Hairong Shang)

General

• studied tektronics TDS5000B scope documentation, discussed with CY and searched over internet, finally developed getTek5000BScopeData for reading tektronics TDS5000B scope waveform data through ethernet. (Hairong Shang)

• wrote script for Jeff Dooling to convert his MARS sdds output file into ANSYS input file format. (Hairong Shang)

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

• Administer the EPICS CVS repository to ensure current versions are installed and conflicts are tracked down and eliminated. (Randy Flood)

Publications, papers and report

• Updated the The Photo-Cathode Gun Commissioning Plan on ICMS ro reflect the changes we made on the starting RF pulse length, rf rep rate steps etc. (Yin-e Sun)

• https://icmsdocs.aps.anl.gov/docs/groups/aps/@apsshare/@acceleratoroperationsphysics/documents/plan/aps_1442231.pdf (Yin-e Sun)

• Read APSU physics review report, Michael's tech note on the new lattice, draft of JSR paper. (Aimin Xiao)

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

• participated in the dielectric wakefield FEL meeting at AWA/ANL. Discussed about drive-beam and witness beam focusing quadrupoles -- as the drive-beam loses energy it requires stronger focusing, while the opposite happens to the witness beam. (Yin-e Sun)

• Attended webinar on a potential electronic log replacement. (Randy Flood)

Miscellaneous

• Took 1 day sick leave on Monday (Aimin Xiao)

• Took 2 days vacation leave on Wednesday and Thursday (Aimin Xiao)