

Weekly Report for 12/29/2014

Highlights

- Week of December 8: Began commissioning of the new photocathode gun with Yine Sun. Observed first photo-electrons from the pc gun on Friday Dec. 12. (Jeff Dooling)
- This is a four-week report. (Kathy Harkay)
- Presented talk at SCU1 Installation Readiness Review. (Kathy Harkay)
- Completed numerous operations-related tasks for SCU1, including organizing data logging and autosaved plots. (Kathy Harkay)
- Calculated multiparticle tracking and loss positions for the new abort kicker waveform. (Kathy Harkay)

APS Renewal and Upgrade

- Completed machine protection section for the APS upgrade CDR and discussed it with G. Decker, B. Stillwell, and others. (Kathy Harkay)
- Incorporated CEPA editor comments in the machine protection section of the CDR. (Kathy Harkay)
- Made suggested edits to the Impedance and Collective Effects section of the CDR. (Ryan Lindberg)

MCR Operations

Storage Ring Operations

- Sent Sereno plots showing slightly elevated motion in S30 at different current level. Motion showed a repeated 12 hour pattern and we removed a bpm suspected of being susceptible to rogue microwaves. (Karen Schroeder)
- Updated power supply at zero values for use in "gentle shutdown" for power supplies and RF before extended shutdown. Sent the procedures for RF and power supply shutdown to operators on shift. Found QS4 which were installed last shutdown were missing from the SCR (were added at beginning of run). Passed information on to Emery. (Karen Schroeder)
- Participated in SCU1 Installation Readiness Review (IRR). Presented talk on Responses to Physics Review and Commissioning Plan. (Kathy Harkay)
- Reviewed a list of PVs for SCU1 with M. Smith and requested R. Soliday to add them to the data logger. Data logging started Dec 17. (Kathy Harkay)
- Clarified details for the fast fiber-optic BLM installation at 1-ID with J. Grimmer, per discussion with J. Dooling. (Kathy Harkay)
- Prepared SCU1 PV groupings for the Autosaved sdds plots and asked R. Soliday to update the page. New plots online Jan 6. (Kathy Harkay)
- Started to plan Operator training for SCU1 and SCU0, but this was postponed due to the SCU1 vacuum leak and removal. (Kathy Harkay)

Procedures

- Reviewed and approved three RF-related procedures. (Karen Schroeder)

MCR Operations administrative/misc.

- Reviewed and approved non-RSS component SR work requests. (Karen Schroeder)

- Sent information to Trento regarding RF group statistics. (Karen Schroeder)
- Modified long-range schedule including Run 2015-2 html file to show correct holidays, made pdf file and sent all files to webmaster to post on the web. (Karen Schroeder)

APS Machine Studies

Storage Ring Studies

- Prepared machine studies schedule. (Karen Schroeder)
- Week of December 15: Post processed 324-bunch injection loss data from the ID1 fast BLM. (Jeff Dooling)
- Canceled powered studies of SCU0 at lower LHe level at Y. Ivanyushenov's suggestion that no-beam unpowered cryocooler capacity test is more relevant. The data showed very little 4-K cooling overhead, as the LHe pressure only dropped 8 Torr in 15 hrs with no heat load (starting at 786 Torr). (Kathy Harkay)
- Presented Run 2014-3 studies summary at weekly machine studies meeting (1/8). (Kathy Harkay)

Linac Studies

- Week of December 8: Began commissioning of the new photocathode gun with Yine Sun. Observed first photo-electrons from the pc gun on Friday Dec. 12. Beam is directed to the bend line. (Jeff Dooling)
- Week of December 8: Worked on alignment of pcgun drive laser to the photocathode; cleaned optics. (Jeff Dooling)
- Week of December 15: Continued with commissioning of the new photocathode gun with Yine Sun. (Jeff Dooling)
- Week of December 15: Drafted memo to A. Zholents for purchasing replacement Newport/New Focus 8732 Picomotor Multi-Axis Driver. Sent draft to W. Berg for review. (Jeff Dooling)

APS Machine Research and Development

Storage Ring Research and Development

- Looked inside SCU1 chamber to determine whether or not there's a step, and to participate in measuring how large it is. (Kathy Harkay)
- Discussed IK5 removal this shutdown with J. Wang, and got approval from V. Sajaev and L. Emery. (Kathy Harkay)
- Discussed thermocouples in 1-ID transitions when SCU1 is installed with J. Zientek, who followed up with AES/controls to get the required hardware. (Kathy Harkay)
- Typed up checklist notes for storage ring manager's meeting for the new ID4 vacuum chamber installation. (Kathy Harkay)
- Calculated power and peak power density on apparent step in SCU1 vacuum chamber at US end, SS-AI interface. Presented this at the SCU1 IRR. (Kathy Harkay)
- Calculated bunch loss trajectories for a new abort kicker waveform designed by Ju Wang that is based on modifying a spare injection kicker. Beam loss positions are similar to the previous design

(modified IK5). Sent him and others the results. (Kathy Harkay)

- Calculated multiparticle tracking and loss positions for the new abort kicker waveform. After consulting with M. Borland, collimator at B:Q2 was modeled as an extended aperture, like the extrusion. Compared four cases: 100% and 80% of design peak kick and with and without the collimator. (Kathy Harkay)
- Participated in a meeting to discuss beam loss monitors, organized by N. Sereno (with B-X Yang and J. Dooling). (Kathy Harkay)
- Continued simulations of single bunch current stability as a function of chromaticity in the hopes of understanding them quantitatively using linear Vlasov theory. (Ryan Lindberg)

Linac Research and Development

- Week of December 15: Analyzing uv beam profiles obtained prior to and during commissioning. (Jeff Dooling)

Publications, papers and report

- Incorporated comments from R. Dejus into SCU0 paper, which included updating a figure. Y. Ivanyushenkov submitted the paper to PRSTAB. (Kathy Harkay)
- Produced figures (multiparticle tracking and kicker waveforms) and an outline for a TN on the abort kicker. (Kathy Harkay)
- Accepted invitation to give a Colloquium at IIT in Feb. (Kathy Harkay)

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

- Attended OPS Directorate meeting every other week and provided downtime details and other operational-related information. (Karen Schroeder)
- Attended shutdown planning meeting. (Karen Schroeder)
- Reviewed updated version of S35 Revolver installation readiness review. (Karen Schroeder)
- Attended weekly AOP machine studies meetings. (Karen Schroeder)
- Reviewed a paper on x-ray scattering for PRSTAB. (Kathy Harkay)
- Completed 2nd round review of a paper for JINST. (Ryan Lindberg)

Education, Mentoring and outreach

- Volunteered to be the ASD representative for the 2015 Lee Teng Undergrad Summer Internship program. Attended a briefing by Argonne program coordinator L. Spentzouris and sent a solicitation asking for mentor volunteers. Forwarded mentor applications to committee. (Kathy Harkay)

LCLS

- Met with Tim Maxwell (visiting from LCLS) and discussed how to simulate the x-ray FEL oscillator at higher harmonics using the code GINGER. (Ryan Lindberg)

Safety and Required Training

- Successfully completed Building/Facilities Safety Orientation - Building 401, ESH223 Cyber Security Education and Awareness, ESH108400 Building/Facilities Safety Orientation - Building 400 and ESH

114PR lockout tagout practical. (Karen Schroeder)

- Week of December 15: Scanned and placed RadiaBeam/ITS radiation measurement document in ICMS, APS_1668227. (Jeff Dooling)
- Took/passed the following: (Ryan Lindberg)
- ESH108400 Building/facilities safety orientation (Ryan Lindberg)
- ESH223 Cyber security education and awareness (Ryan Lindberg)
- SEC101 Counterintelligence, classification, export control and security refresher (Ryan Lindberg)
- HR720 Statement of conduct (Ryan Lindberg)
- HR498 Ethics training (Ryan Lindberg)
- ESH114PR Lockout/tagout annual review (Ryan Lindberg)

Miscellaneous

- Discussed what was needed to remove the teslameter probes from the storage ring with survey, power supply, hp, etc. Initiated a support ticket for S&A. Sent additional information regarding the number of probes and multiplexer to the company who will be repairing the teslameters and received RMA. (Karen Schroeder)
- Discussed early tunnel closures to accommodate the SCU1 installation and sent out clarifying information to affected groups. (Karen Schroeder)
- Discussed changes to tunnel closure dates with various group and members of our own group to determine new dates after it was decided the SCU1 would be removed from the SR and installed at a later time. (Karen Schroeder)
- Annual Leave December 22-23, 2014 (Jeff Dooling)
- Had a nice holiday break with family. (Ryan Lindberg)