

APS/Users Monthly Operations Meeting

Brian Stephenson

April 16, 2014

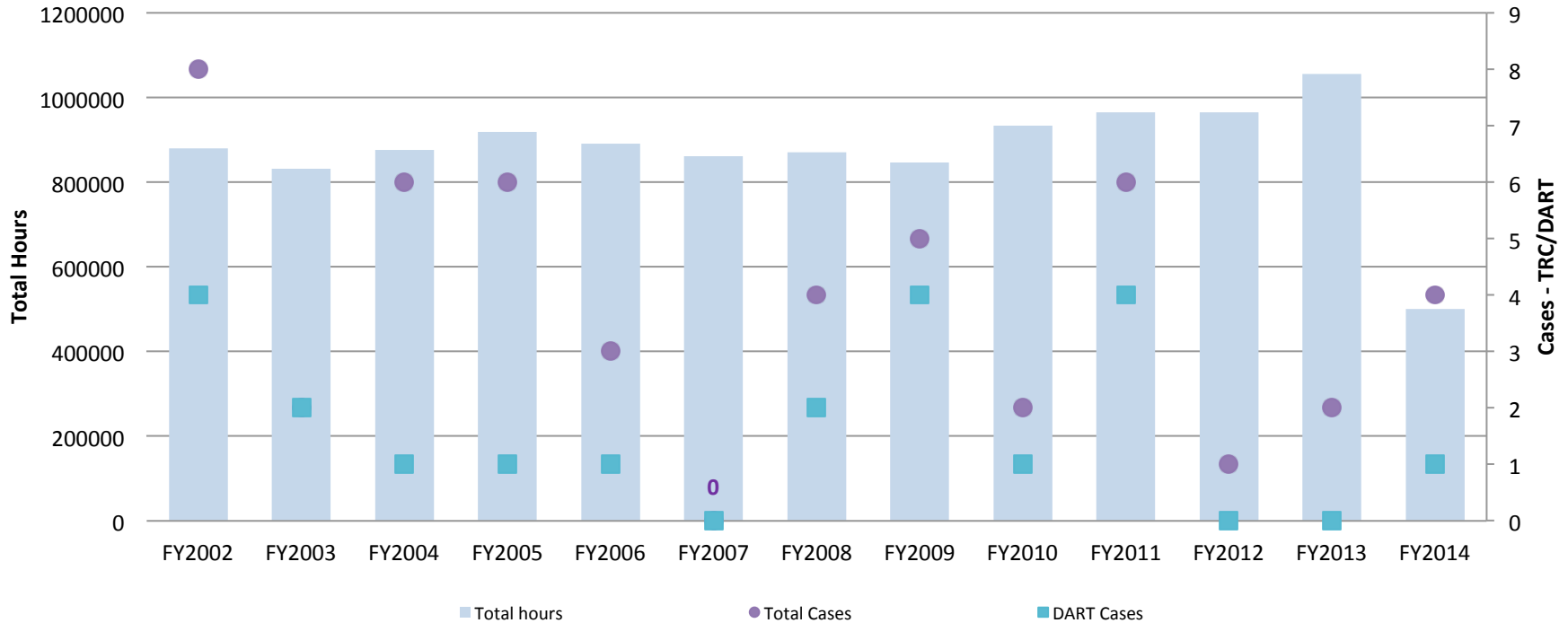
Agenda

- APS Update – Brian Stephenson
- APS Upgrade Update – George Srajer
- Summary of Optics Workshop – Denny Mills



Slips, Trips, Falls: 4 Cases So Far in FY14

Total Hours and TRC/DART Cases FY2002-14



Recent Argonne Safety Incidents

- Three recent Argonne incidents remind us of the importance of planning work, following procedures, and maintaining awareness of work and schedule demands.
 - A milling machine was being moved within a building and fell, striking a wall. Contributing causes included the machine being top heavy, the floor being uneven, and the travel path not being walked before the move.
 - A class IIIa alignment laser was being used to align tables prior to installation of a more powerful laser. The alignment was conducted without proper authorization, the laser was left on overnight in an accessible area, and the researcher was trying to complete the laser installation to meet schedule demands.
 - Workers were potentially exposed to radon gas when preparing a radium source for movement to another building. A contributing cause was that the decay product buildup of radon gas was not fully understood during work planning and controls development.



Great Machine Performance So Far in FY14

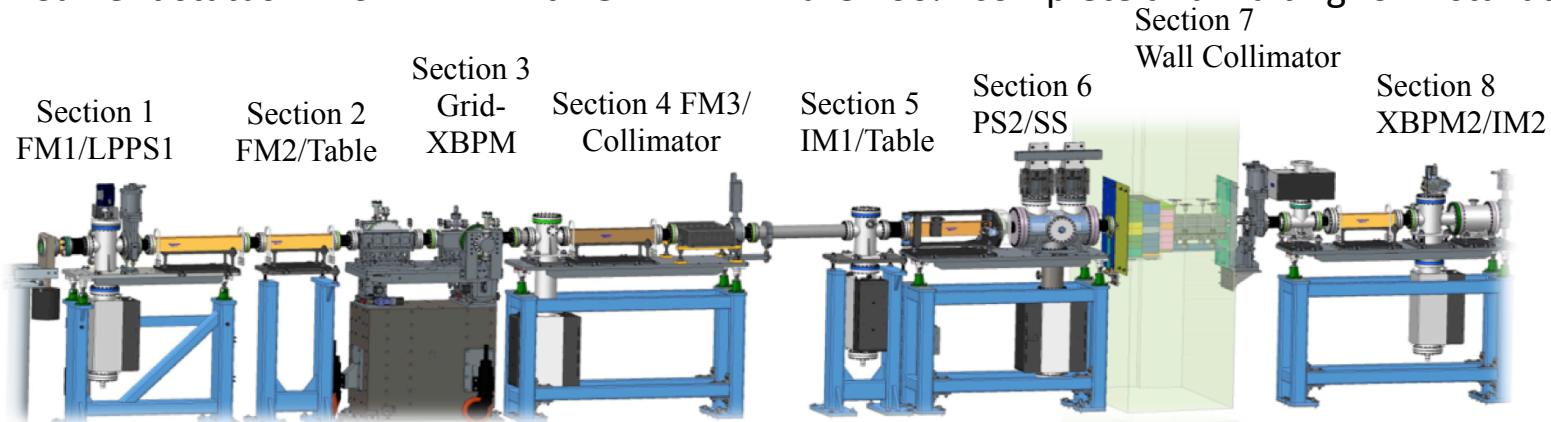
- 26 faults so far in FY14, second-best rate out of 17 years

Year	Faults (Number)	Faults (Rank)	MTBF (hours)	MTBF (Rank)	Availability (%)	Availability (Rank)
FY2010	49	tied 3	101	4	98.5	3
FY2011	56	8	88	8	98.1	6
FY2012	25	1	199	1	99.4	1
FY2013	49	tied 3	100	5	97.9	7
FY2014 (15Apr)	26	2	119	2	98.2	5



Scope of Work for April/May 2014 Maintenance Period

- Install the new High Heat Load Front End (HHLFE) with the GRID XBPM in 2 locations
 - 27-ID for APS Upgrade Project
 - 35-ID for DCS Project
- The new HHLFE has the new Grazing Incidence for Insertion Device (GRID) X-ray Beam Position Monitors (XBPM), a new XBPM2 and 2 Intensity Monitors for diagnostics
- Current status: Two HHLFE with GRID XBPM are 100% complete and waiting for installation



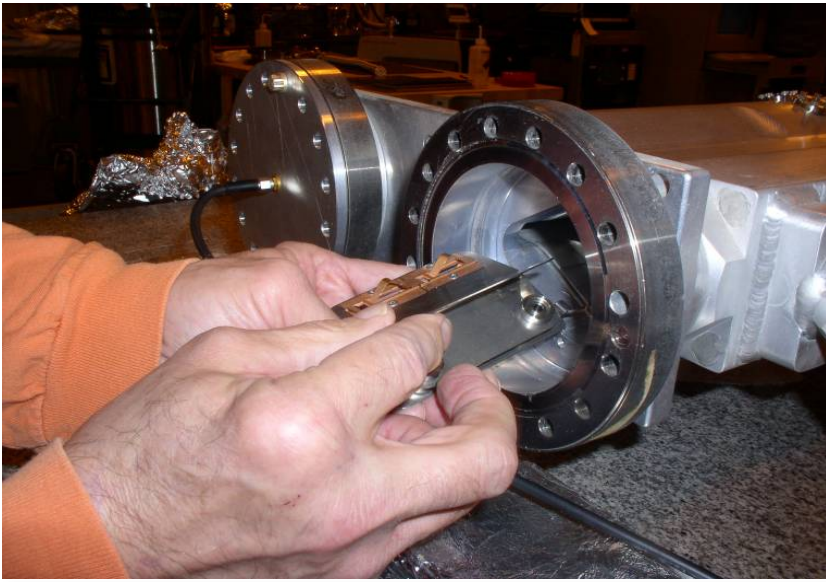
Sector 27ID High Heat Load Front End Upgrade general layout _U15202-120000



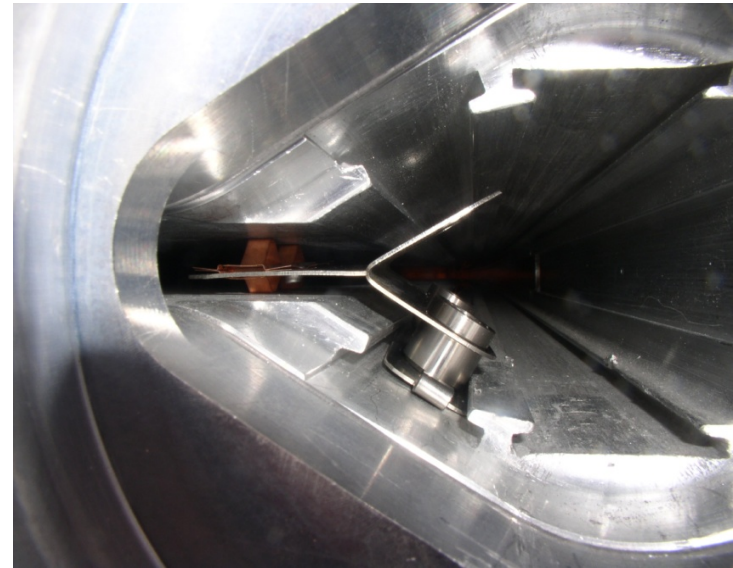
Sector 35ID High Heat Load Front End Upgrade general layout _U15202-110000

April/May Maintenance Period Snubber Installation

- Solution of a problem impacting vertical beam position monitor readbacks is underway. A set of beam-excited microwave modes trapped inside the storage ring vacuum chamber is being eliminated by use of radio frequency shorts (snubbers) placed inside the chamber. After snubber installation the spurious resonances are suppressed.
- Snubbers will be installed in sectors 19 and 20 during this shutdown.



Snubber Installation



End view of snubber

Liquid Nitrogen System Improvements

Planning meeting March 27

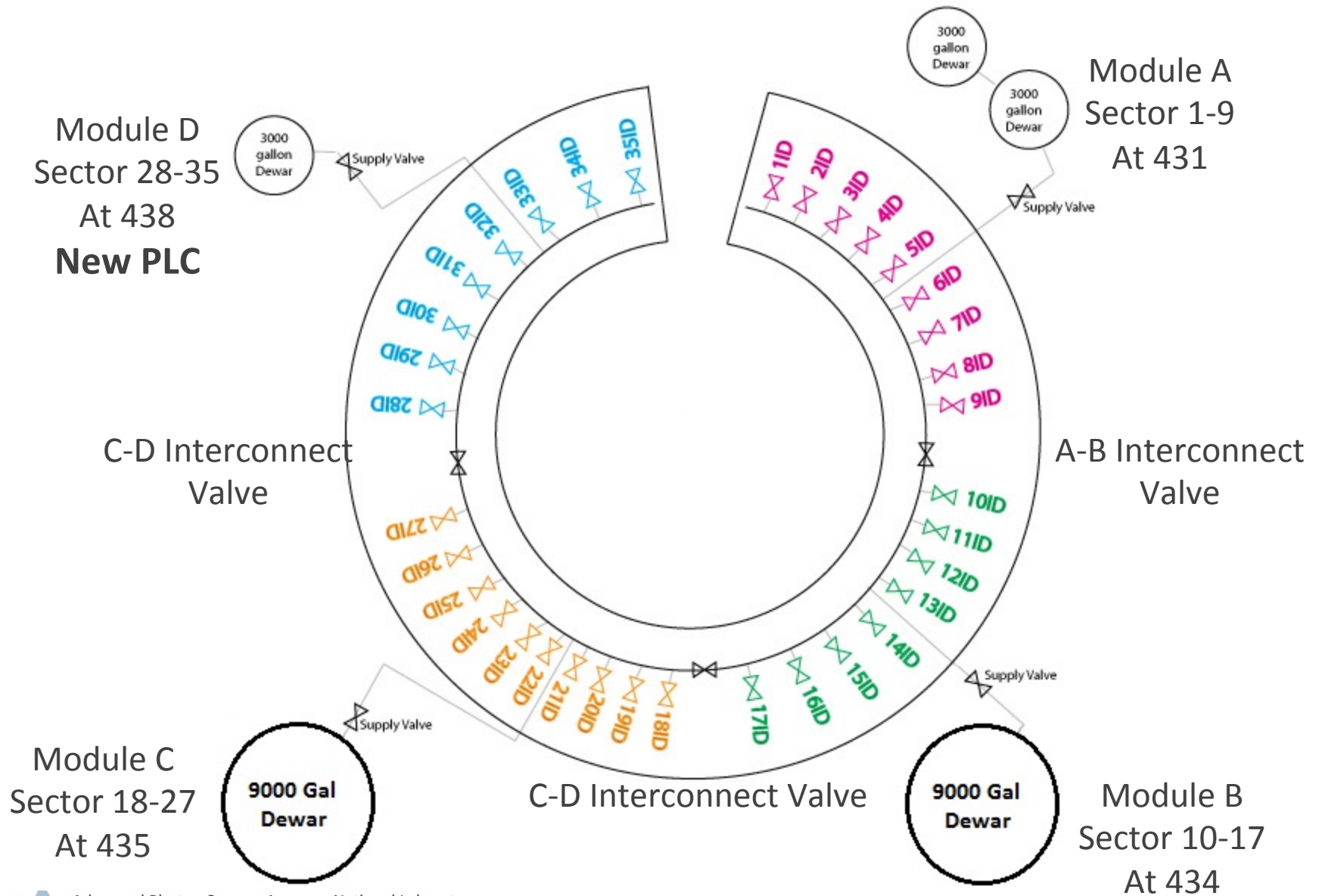


Typical 3000 Gallon
tank at APS



9000 Gallon tank
at 222/ESB

System Layout with New Tanks



LN₂ Distribution System Improvements

Work to be Done during April/May Shutdown:

- Replace the 3,000 gallon tanks serving
 - Module B (Sectors 10-17) and
 - Module C (Sectors 18-27)with new 9,000 gallon tanks.
- Install a new Pressure Stabilization Unit (PSU) with each new tank to maintain better pressure stability (Sectors 10-27).
- Install a new fill line with each new tank to reduce the introduction of contaminants into the system (Sectors 10-27).
- Replace Module D LNDS Control PLC (Sectors 28-35)



9000 Gallon tank at 222/ESB

Schedule

(Subject to changes due to weather, problems, etc.)

- April 22nd: Shutdown and drain tanks.
- April 25th: Tanks have been removed, and pad restoration has begun.
- May 8th: Airgas begins installation of new tanks, PSUs, fill piping, etc.
- May 14th: Airgas completes installation, begins filling tanks.
- May 16th AT LATEST: System is back in full normal operation ready for the next run.
- May 21st: Beam Studies begin.
- May 28th: Run begins.

Questions:

- Andy Stevens, Liquid Nitrogen Distribution System Manager
- AES – Site Operations (SO)
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2014 Users Meeting

User Science: discoveries for tomorrow

Advanced Photon Source | Center for Nanoscale Materials | Electron Microscopy Center

- May 12-14, 2014
(plus CNM short courses May 15)
- https://www.regonline.com/2014APS_CNEMCUM
- **Deadline for early registration rate: April 25**
- Facility plenary sessions, 11 workshops, poster session, 54 exhibitors

Meeting Highlights

- Opening Session Keynote: Katherine Kantardjieff (Dean, College of Science and Mathematics, California State University, San Marcos)
Truffles and M&Ms: How the New Digital Age is Reshaping the Future of Science
- Many prominent speakers throughout —just a few highlights here: Ada Yonath (Weizmann Institute of Science), Federico Capasso (Harvard University), Bruno Scrosati (University of Rome, Italy), Josh Thomas (Uppsala University, Sweden)—and many more!
- **2014 APSUO Rosalind Franklin Young Investigator Award Presentation**
Julian Moosmann (Karlsruhe Institute of Technology)
Challenges in X-ray Phase-contrast *in vivo* Microtomography
- Banquet at the Two Brothers Roundhouse (on the National Register of Historic Places) featuring live music, BBQ buffet, and beer tastings hosted by a brew master from Two Brothers Brewing (voted best microbrewery 2013 by readers of *West Suburban Living*).

