

## APS Users Organization/Partner User Council Joint Meeting

July 29, 2013

Advanced Photon Source

Building 401, Room A5000/B5100

Robert Leheny, Chair, APSUO

Mark Rivers, Chair, PUC

Presentations:

[http://www.aps.anl.gov/About/Committees/APS\\_Users\\_Organization/Meetings/2013/20130729\\_presentations.htm](http://www.aps.anl.gov/About/Committees/APS_Users_Organization/Meetings/2013/20130729_presentations.htm)

### **APS Update** – *Brian Stephenson*

Stephenson presented an overview of current APS statistics relates to facility usage, beamlines, and safety. He also gave an update on recent and upcoming work planning and control topics (see slides for details).

Follow-up on Radioactive Material Samples at APS: Online guidance wording has been improved to more clearly distinguish between “background.” A *de minimus* definition/rule would be difficult to establish at APS. When a hypothetical one-picocurie *de minimus* rule was tested, less than 2% of samples were “excluded.” It could not be confirmed that the regulations at the APS are any more stringent than at other labs (e.g., SSRL). Stephenson urged everyone to continue to communicate issues that are encountered. Rivers noted that all natural earth materials are radioactive; thus, a natural sample with a given level of strontium wouldn’t be flagged, but a sample with the same radioactivity level from uranium would be flagged as radioactive. This inconsistency is at the core of the complaints.

Liquid Nitrogen Low Level Tank Incident: In June, a truck breakdown caused a missed delivery. Valves were opened to successfully get supply from an alternate tank. When the refill finally took place, the system had some problems that resulted in a beamline getting shut down (see details in the slide). The communication issue related to situations like this needs to be addressed so that people possibly impacted will be notified in time. A task force has been formed to look into how to better mitigate a situation like this in the future. One possible idea is to get bigger tanks. It was also noted that individual system hardware out on the floor should be looked at.

The Advanced Protein Crystallization Facility building is starting to look very impressive! Construction is expected to be complete in the fall. The Dynamic Compression Sector (sector 35)

is also making much progress on the experiment hall floor. LOM438F construction is also moving along and should be done by fall; additionally, the interior build out of LOM 437 is underway. A new parking lot in the 437 CNM area is currently under construction (ready October 1). People are urged to be very careful wherever they park; with many meetings coming up, there could be much car and foot traffic.

SAC beamline review schedule update: next one is 11/5/13 (BioCARS, Bio-CAT, NE-CAT) and then again in 3/11/14 (SER-CAT, SBC-CAT, DND-CAT). Contact Susan Strasser with any concerns/questions.

BESAC Review, Feb. 27, 2013: Stephenson reviewed the purpose of the BES facility reviews, noting that the APS received a rating of “absolutely central,” and highlighting the Upgrade’s beneficial scientific impact on the facility.

APS Budget: The funding scenario was presented—the largest portion is BES-SUF operations. See slide 23 from Stephenson presentation for full details. CAT/PUP funding comes from a wide variety of sources. It was noted that adding beamlines and partner user support is a very efficient means of increasing scientific impact. Future budget projections were also reviewed with the caveat that it's a moving target. The spending rate is going down due to concern over how the budget will be resolved until Congress is settled.

BESAC Future Light Sources Review, July 2013: Stephenson reviewed the BESAC light sources charge (Brinkman) and gave his summary of the presentations that were made, including competitive the global outlook 2015-16 *vis a vis* upgrades and new projects (e.g., MAX-IV), future US scientific initiatives for rings, diffraction-limited and ultra-bright rings, and multi-bend achromats. The findings of the review included: recommendation of the development of high-rep-rate superconducting-linac-driven FELs, evaluation of diffraction-limited storage rings (DLSR) and storage ring upgrades in the US. Present plans leave the US behind the international community; the US needs to evaluate carefully to avoid loss of status. A major opportunity exists to create a DLSR at APS. APS plans to work with whole science community to evaluate potential benefits and costs of this.

#### **Updates on NUFO and the User Office** – *Susan White-DePace*

White-DePace opened her talk with a summary slide of the current User Office management and related areas of responsibility.

User Agreements: The IG recently visited Oak Ridge National Laboratory to see how implementation of new user agreements was going. This was just a visit (not an audit). Discussion centered on a statement “Upon completion or termination of the project, USER agrees to deliver to DOE and CONTRACTOR a nonproprietary report describing the work performed under this Agreement.” Oakridge changed the statement to say “upon request.” The wording indicates it needs to be done at the end of every experiment. Can we and/or should we do this? Will other facilities do this? Could APS use ESAFs and EEFs to comply? This could be a major burden—especially for proprietary users. The administrative burden for this would also be significant. APS has a report that lists titles of all the experiments done by institution—this could possibly meet the need, but no written guidance is currently available

Foreign Visits and Assignments (FVA): Tara Videtic has replaced Sharon Fisher, who recently retired. White-DePace believes that the job of FVA work is shared between Lab and the host and the user. Have had very good successes and 1 big failure. Reviewed the details of the T4 that was denied last week. A chart was shown distinguishing the processes between BNL and ANL. Minors: no comprehensive policy exists. Trying to develop a cohesive approach for tours, ESRP, visits, etc. as relates to minors.

WorkDay at ANL: WorkDay is software to manage human capital and financial matters. If Argonne goes forward with this product, White-DePace believes it is critical to make sure that user needs are considered in the process from the beginning. Fermilab is implementing Work Day.

User Office planning for the future: Flowcharting of User Office processes continues along with streamlining and automating efforts, cutting costs (going paperless), and sharing resources.

NUFO Overview, Structure, and Purpose: NUFO is currently working to determine how many congressional districts it represents. This is tied in to tracking the four-digit extensions on zip codes for users’ home addresses. White-DePace highlighted recent events and activities including the 2013 NUFO Annual Meeting and the User Science Exhibition in Washington DC. Plans for 2014 include the AAAS meeting, the science and engineering festival in DC, a visit to each user facility, and investigating incorporation for NUFO.

### **NLS-II Transition – Denny Mills**

Mills provided background information and reaffirmed ANL’s desire to invest funding to support users who are likely to come back to APS. He reviewed an abbreviated version of NLS-II plans

for ramp up of operations (see presentation slides) and a table that showed the APS' increase in capacity related to funding by beamline. Erik Johnson (BNL) developed tables that mapped potential capacity increases onto existing programs at NSLS (for spectroscopy, scattering/diffraction, and imaging). Life science work is there, but there is not a funding mechanism in place yet for it. AI: Mills will send Rivers Erik's Excel spreadsheet if it's OK with Erik.

The APS is pushing the process through with Exxon (9-BM and 12-BM) and a "mini-CAT" with COMPRES for high-pressure studies on 6-BM (also for the energy dispersive diffraction community on 6-BM). BES has indicated additional funds will be available to work on this. A plan will be developed based on funding, discussions with NSLS and the CATs, and we are also looking at programs that might remain even after NSLS-II is on line. The protein crystallography community is still a bit undefined in terms of how much additional capacity is possible (and how much additional staff would be needed to accommodate).

Q&A: What will be the process for getting information from the user community regarding the investigation of the diffraction-limited storage ring scenario? APS will definitely need to talk to all beamlines and then put together a white paper and arrange a workshop (October 2013) to address issues. This is a high-level issue that needs to be addressed quickly and thoroughly. There is much excitement about this project. Michael Borland could do an APS colloquium to address the issues and give a chance for Q&A from the users. Prior effort on this has been at the LDRD level; now that it's been green lighted, it is moving forward with much more momentum.

#### **Upgrade Update – George Srajer**

Current Upgrade work plan, cost, funding profile, project scope, and schedule were reviewed (see slides). The Upgrade will be a transformational change for the facility. Srajer emphasized the intention that this will be done with minimal detrimental impact on beamlines and total hours of operation. The current status of the roadmap as of spring 2013 was reviewed, comparing the previous plan to the new plan and the reasons for the modifications.

Srajer reviewed specifics related to various aspects of this project, including SPX. Uncertain funding scenarios resulted in a July 22 meeting with BES. Specific details of the proposed funding levels were presented in the slides. The top-level priority for the Upgrade is to deliver the project scope within the baseline cost of \$393 M TPC and on schedule (CD-4 is Sept. 2020). The shifting funding scenarios do not alter the primary goals, but they are influencing the ordering of priorities. Srajer showed three distinct funding scenarios, each based on the \$393 M

total funding and reviewed the possible major impacts of a reduced funding scenario for FY 2014, which include reduction of staffing, delays in procurement, etc. Srajer compared the Upgrade schedule as it relates to the beamlines and the front-end installation schedules for each of the three funding scenarios, showing the gaps that would happen in each.

Successful tests have taken place in a variety of areas, including horizontal test stand—horizontal cavity test at ANL/Atlas, SCU prototype cryostat structure, and revolver undulators.

Diffraction-limited source: Need to go through scenarios regarding how SPX relates to this. Funding makes this path forward unclear. Technical aspects of this were discussed. How would the DLR impact BM sources? Can put “more bend” in one of the magnets—but a precise answer isn’t known at this time. No one has ever built one of these before, so much development and calculation needs to take place. Re: contingency funding—should a new call for potential contingency spending go out (the original call took place in May 2011)? There is a plan to look at some of these proposals at the Nov. SAC meeting. Now that this new plan has been introduced, the SAC can help determine which projects should be moved forward, develop a sound scientific evaluation of priorities to present to DOE.

#### **APSUO Steering Committee Breakout Session, Room B5100**

APSUO Routine Business: Approval of minutes from January 22, 2013, APSUO Steering Committee Meeting—minutes approved, no dissent. Les Butler participating via teleconference.

#### *NUFO Annual Meeting Report – Eric Landahl*

There were two main focus topics at the 2013 NUFO Annual Meeting held in June in Berkeley, CA. Outreach and Communication: Should encourage users via User News to follow Twitter for NUFO, APS, and Argonne. Scientists should “tweet” and “export” their science via social media to get their work out there and stimulate conversations.

Big Data: ESnet and Dropbox for scientists (also add to User News) “Network security is not an excuse!” ([www.globus.org](http://www.globus.org), [www.fasterdata.es.net](http://www.fasterdata.es.net)). Regarding the new federal mandates on data sharing—are there any “citizen science” initiatives involving APS data that we can use for both outreach and data sharing? Fold-it (protein folding) and astronomy are two examples of citizen science.

#### *NUFO Incorporation – Susan Strasser*

As a member of both the exploratory group for incorporation and the steering committee, Strasser noted that it is important to make sure that a single voice (NUFO) is speaking to the various facilities to advocate for all users—NUFO does not advocate directly for the facilities. This is a fine line when it comes to the kinds of outreach that took place in Washington DC for specific congressional districts. NUFO in a sense has an administrative side (common user-related issues) and an advocacy side. Should these be two distinct parts under the NUFO umbrella? If the user piece became incorporated, it would be perceived as more independent and could receive funds from users (e.g., a \$5 or \$10 or \$15 annual membership fee). What is the opinion of the members here? Also AIP and Amer. Phys. Soc. could also provide funding support. Incorporation will cost money for filing and maintenance (and likely a paid staff). Can enough funding be raised to cover this? Or should NUFO continue to be focused on outreach/providing information only? Current funding (both restricted and unrestricted) is coming from the laboratories. Restricted funding cannot be used for lobbying or for food and drink. There is always effort put in to making enough funding to cover these events. Since NUFO name has recognition, we don't want to change name.

Concerns raised: How do you fund staff? What if you don't have enough money? Are users willing to do this? One suggestion (Goldman) is to tie the user *science* at facilities to the facilities themselves. Users from far-flung communities need to make the connection between users/their science and the facilities. Mentioned the zip codes for reaching out to Congress. Landahl asked about a scientific meeting and possibly having exhibitors at a NUFO scientific meeting. A scientific meeting would give students/postdocs incentive to pay for membership—it would provide a venue in which to present their work. Could NUFO organize schools? Could NUFO offer institutional memberships? University memberships? Industry membership? Could user organizations become members? What benefit could be offered to a university that would be an incentive? NUFO could be a clearinghouse for information about schools and courses and could offer access to a scientific meeting.

Minors on the experiment hall floor – *Pamela Focia*

Primary requirements include parental permission and proof of health insurance. For Focia, her home institution handles pursuing this information. The APS needs a set of procedures/requirements to format the guidelines for access for minors on the experiment hall floor.

2014 UM:

Election of vice chair: Robert Leheny described the role. Eric Landahl was nominated by Pam Focia and approved by full committee.

(Meeting Keynote): to be discussed at the next meeting

APS Plenary Session chairs: Lahsen Assoufid, Michael Pierce

Student Poster session chairs Karen Mulfort and Eric Landahl

APS-specific workshop selection: the entire committee

Rosalind Franklin Award chairs: Pamela Focia, Bob Leheny, and Alan Goldman

X-facility workshop chair: Eric Landahl

Nominating committee for new APSUO members: Michael Pierce

Beamline Scientist award: The first-ever beamline scientist award was given at the 2013 Users Meeting. Should the award be presented annually or biannually? Decision: biannual. Include a profile of the 2013 winner and announcement of call in User News for the 2015 award. AI: Add “column” to User News from the APSUO chair.

### **Partner User Council Breakout Session, Room A5000**

Liquid nitrogen: Module C feeds sectors 18-26 with liquid nitrogen. Liquid nitrogen is delivered once a day. Problem occurred when the delivery truck failed to show up, module went down to 15%, and the supply switched over to module D. Four sectors had problems when module C went down. Module C has never been maintained. The problem occurs when ice is sucked out of the dewars. Gas burst when moving from module C and D. Ice build up and storage capacity, not a matter of capacity in hutch—issue arises beamlines are configured differently—lines have to be cleaned out routinely. Entire line had to be warmed up – took 24 hours. Temporary dewars were used to cool down. Data gathering is necessary. Problems at other facilities are not known at this time. Maintenance issues also exist—water in the line (frozen lines are mitigated if larger dewar doesn't go too low and therefore ice issue is minimized). A task force has been formed to study the issue with a report due in December. Work should commence in September. Concerns about having to pour a new floor for larger or duplicate dewar were raised. This issue is high on the operations directorate level. Communications/notifications about event were slow and should be addressed long before December. Gas traps are not on drawings more than likely. Beamline probably have installed these over the years. Configurations are different for each beamline.

CATS feel that APS isn't always giving credit to CATS that is deserved. IMCA provided Rivers with some documentation. The CAT name and the beamline were not mentioned in a press release. Looked at a summary of highlights that Rick Fenner puts out for Science Highlights.

Referenced in longer versions but not in summary documents. CATS are always mentioned at the bottom. You don't lose by crediting everyone.

**Closeout:** Gerig, Landahl, Mills, Rivers, Stephenson, Strasser, Vanni, White-DePace

Rivers: APS needs a quantitatively based guidelines for radioactive samples. Supposedly the guidance has been clarified—need to check the actual policy and see what it says. Users are happy that a task force has been set up to address the liquid nitrogen matter. It's known the C module has a capacity issue—ice from the bottom of tank was getting sucked into the system. The task force report is currently due in December—maybe this needs to be expedited to make absolutely sure that this doesn't happen again? Have these units ever been cleaned out (perhaps do the cleaning in a shutdown period)? Possibly consider doubling the storage capacity in area C. Multi-band achromat—the sooner the info is shared with the community, the better. Potential impacts need to be shared with the users as soon as possible. Given that this directive has been given to APS, the time frame for a first report could be on the order of a few weeks (can't wait to create a fully developed report). Need answers to questions like “can timing mode experiments be done?” Need to go through each type of experiment and evaluate the potential impact. A symposium would get the initial discussion going. This will be a new task for the people working on the Upgrade—APS will move forward expeditiously. Written report from BESAC now in hand—Stephenson read from the report. BES is saying that APS is the big ring and that's where these experiments need to be do-able within the US facility complex. Lastly, CAT credit issue—example of industrial brochure. Need to ensure to give CATs credit.

White-DePace will take point on the issue of minors on the experiment hall floor. Questions include permitted tour age vs. work age for students: 16? 18?

Overview of agenda for APSUO breakout, including the NUFO discussion about user “membership” in the organization. Regarding preliminary Users Meeting organization—Eric Landahl has been elected vice chair. Next year is the International Year of Crystallography – a good theme. It's also the 25<sup>th</sup> year of the founding of the APSUO.

**Action Items:**

AI: Mills will send Rivers Erik's Excel spreadsheet if it's OK with Erik.

AI: Add “column” to UN from the APSUO chair.