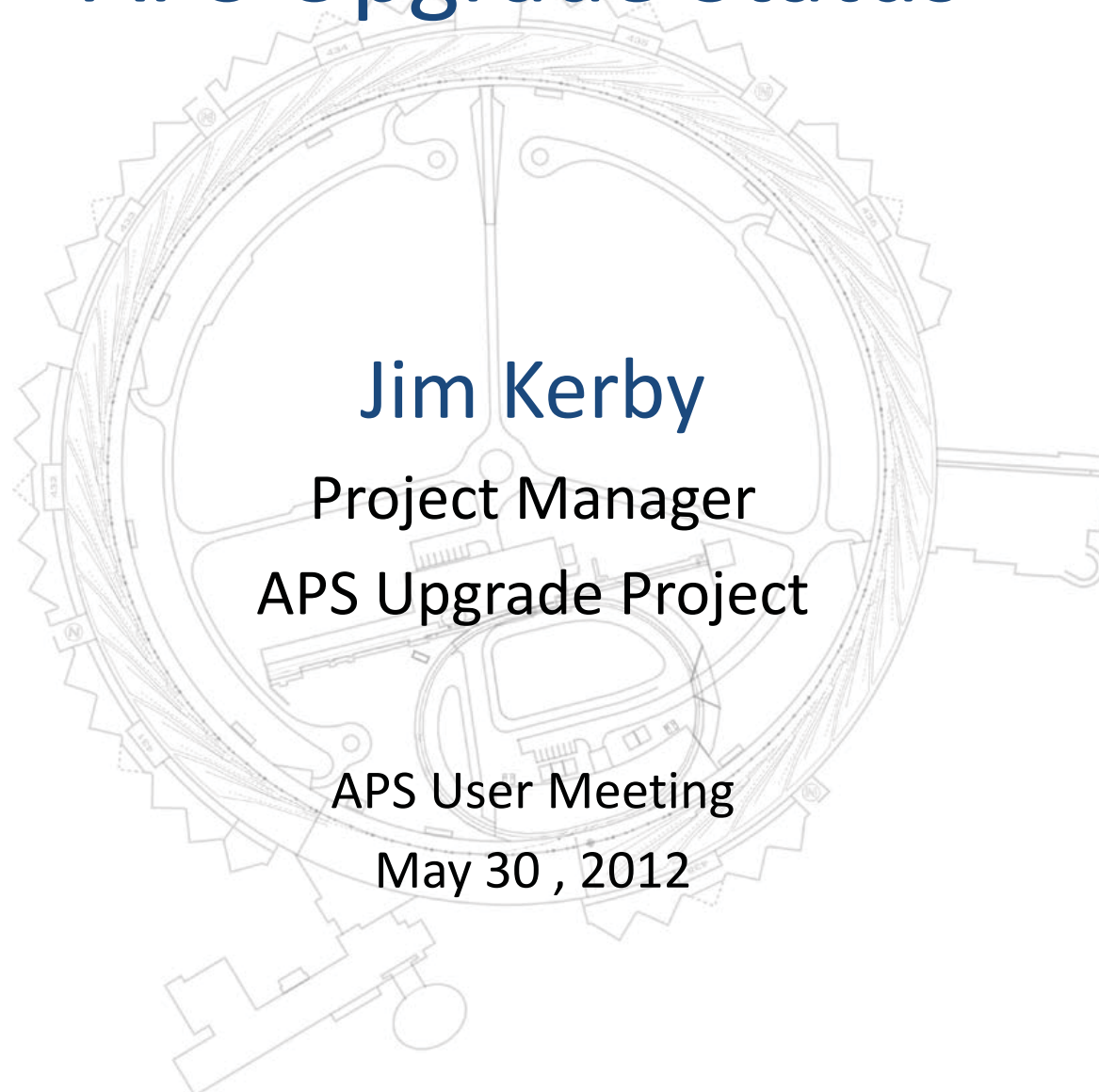


APS Upgrade Status



Jim Kerby

Project Manager
APS Upgrade Project

APS User Meeting
May 30 , 2012



Outline

1. APS Upgrade Status

- Staffing and Upcoming Reviews

2. R&D Activities

- Superconducting RF Cavity Prototype (SPX0)
- Superconducting Undulator Prototype (SCU0)

3. Roadmap Status

Upcoming Reviews

- Status Review by Lehman: June 13, 2012
- Director's review: September 11-13, 2012
- CD-2 Lehman review: December 4-6, 2012

Upcoming Reviews

DOE Status Review 13 June
Director's Review 11-13 September
CD-2 Review 4-6 December

EVMS Schedule:

- Prep CAM Books
18 June
- Set Internal Project Baseline
1 July
- Pilot EVMS Data
1 August
- Reset Internal PB
15 September

Technical Reviews	Target Date
Combined Spectroscopy Review	22-Jun-12
Combined Diffraction Review	29-Jun-12
Combined Imaging Review	20-Jul-12
Standard Beamline Components	24-Jul-12
Front End Preliminary Design Review	24-Jul-12
Site Services Preliminary Design Review	1-Aug-12
Combined Ultrafast Review	10-Aug-12
SPX0	15-Aug-12
SRF	2-Oct-12
HPRF	9-Oct-12
SSI	16-Oct-12
Short Pulse X-ray System	13-Nov-12
Canting Magnets	Complete
Planar Undulator	Complete
Long Straight Sections	TBD
Beam Stability	TBD
ID Vacuum Chambers	TBD

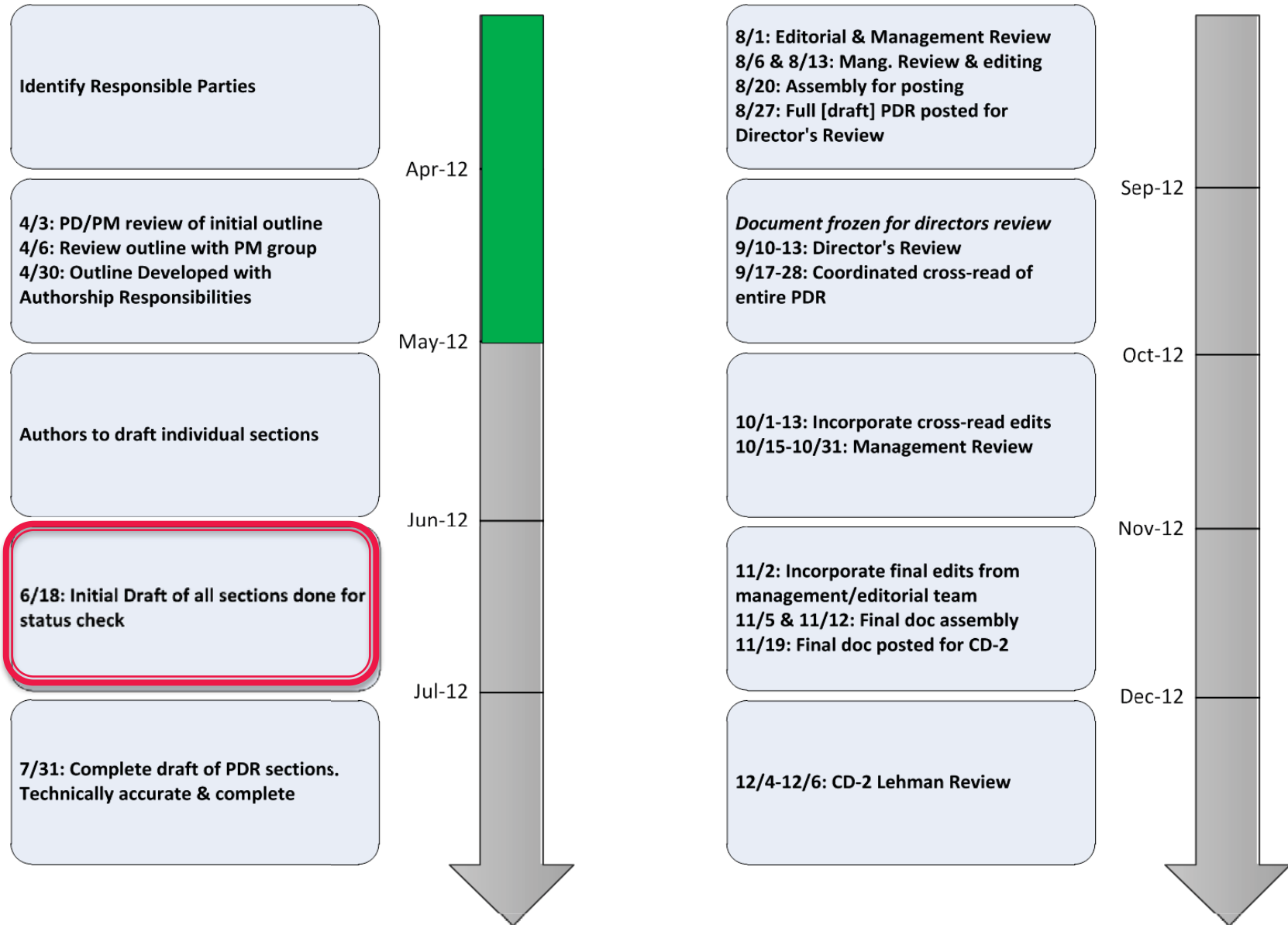
Required Documents for CD-2 Project Baseline

- Project Execution Plan – Draft complete, w/ FPD
- Preliminary Design Report – Outline w/ writing assignments
- Quality Assurance Plan – Draft complete, in APS –U Review
- Risk Management Plan – Draft complete, in APS – U Review
- Project Implementation Plan – Outline only, w/ APS – U
- Integrated Safety Management Plan –update from CD-1
- Value Management Plan -- Initial Draft
- Hazard Analysis Report – Draft, completion target in August
- Requirements Management Plan – Draft complete, in APS – U Review
- Configuration Management Plan – Draft complete, in APS – U Review

- OMB 300 Documentation – August due date
- Security and Vulnerability Assessment Report -- Done
- NEPA Documentation – Done
- Acquisition Strategy -- Done

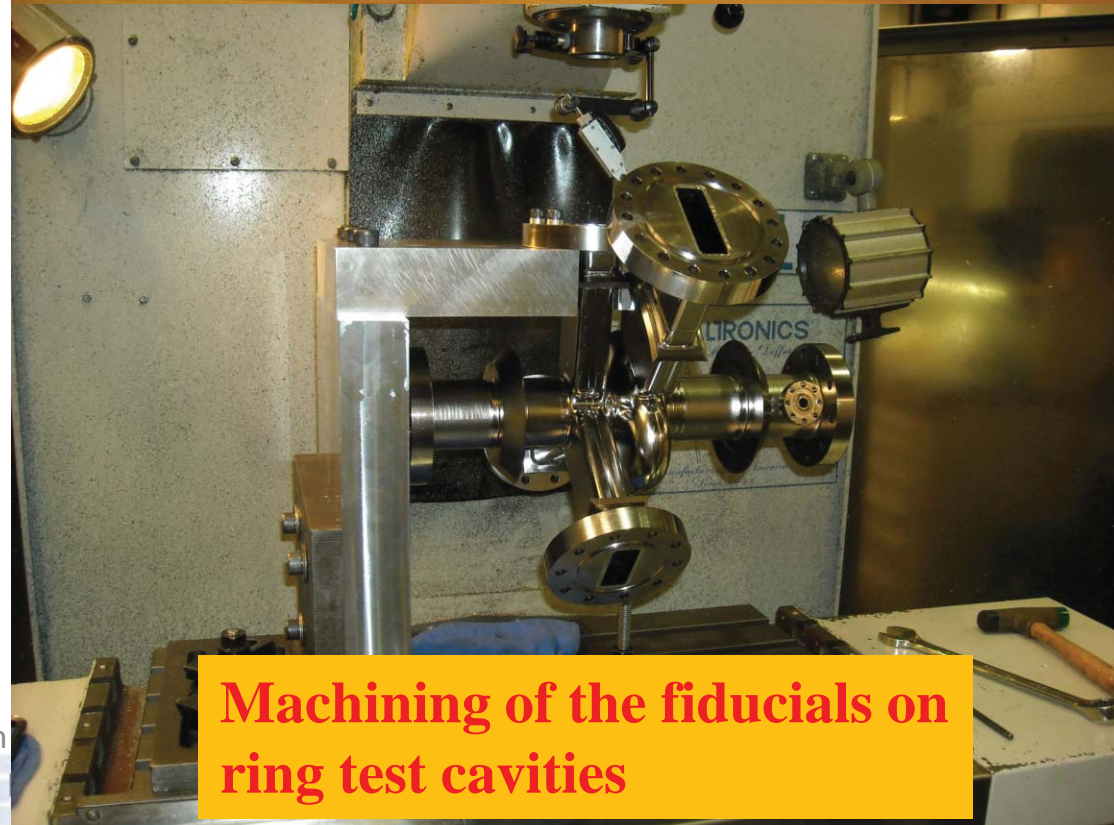
APS Upgrade: Preliminary Design Report Schedule

APS-U Preliminary Design Report Development



SPX R&D – Cavity Fabrication - JLab

- 3 SPX0 cavities have been fully fabricated
- All cavities are currently undergoing machining for alignment fiducials and facing flanges
- All RF testing hardware under fabrication
- Flange aluminum vacuum seals are being procured
- Development of RF shielding gaskets underway

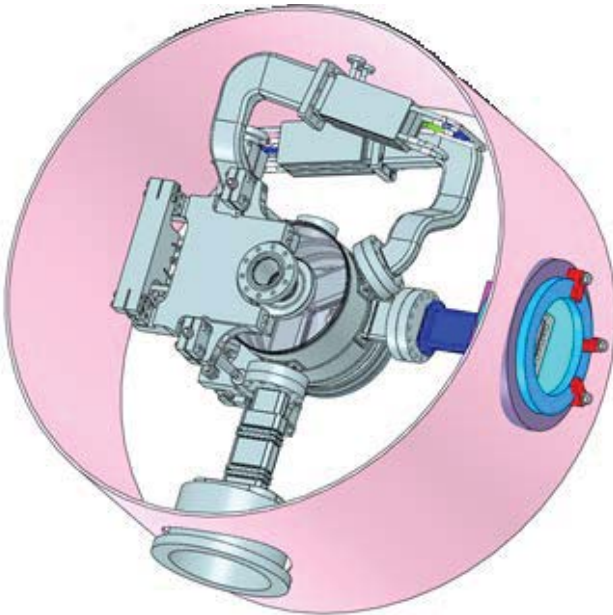


SPX R&D - Cryomodule

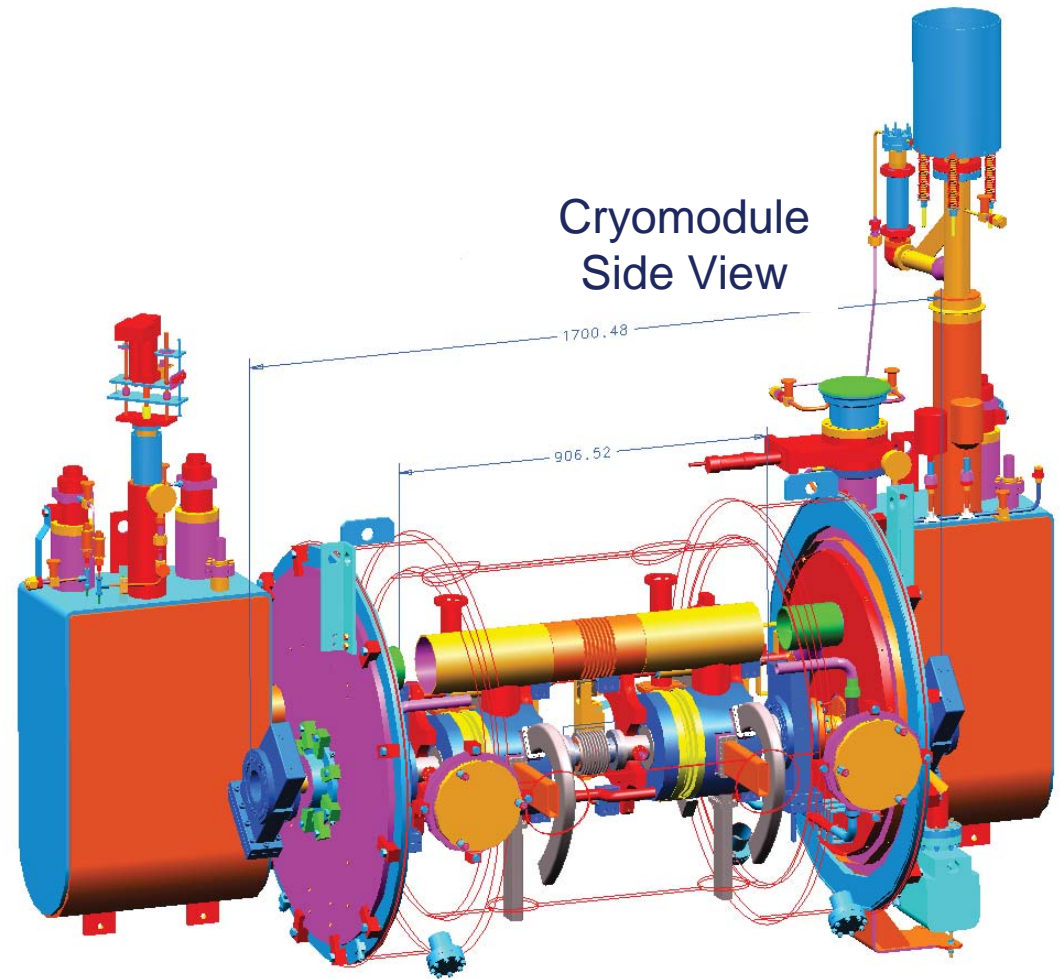
Cryomodule
Top View



Cryomodule
Cross
Section View



Cryomodule
Side View

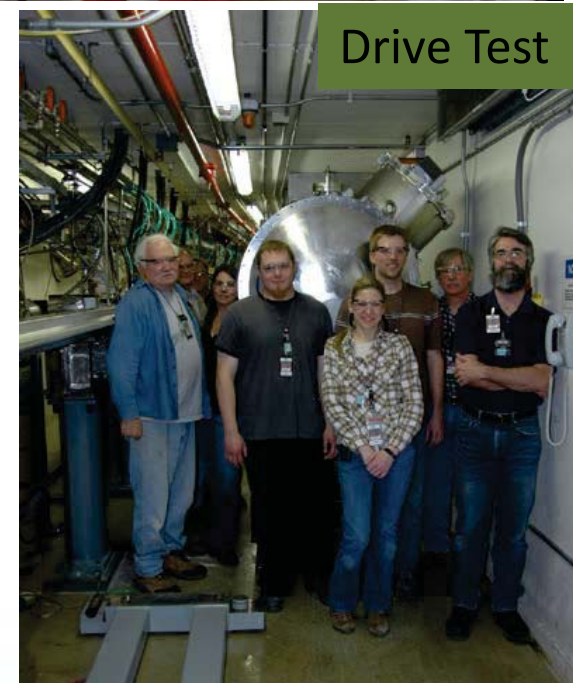
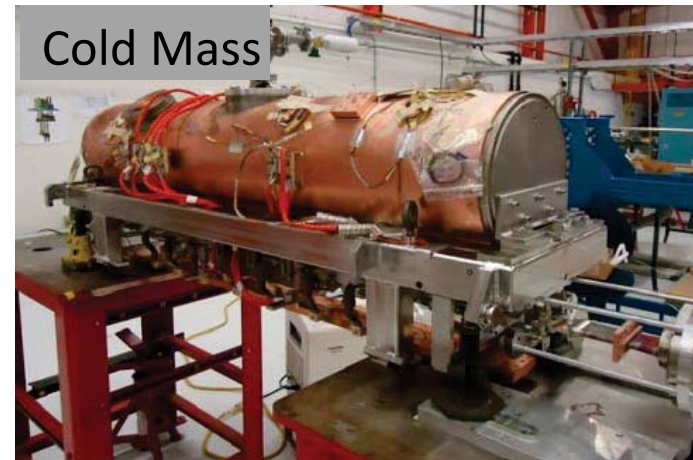
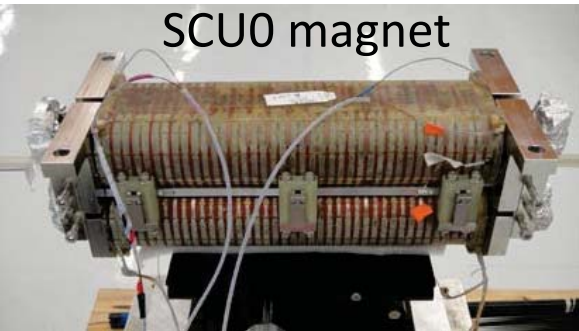


Courtesy J. Henry, JLab



Superconducting Undulator Prototype

SCU0 is a programmatically-funded 42-pole, 16-mm-period SCU prototype. It will be installed in the APS Ring in the September 2012 shutdown.



Creating a Roadmap

- Roadmap scenarios development is part of the strategic plan for future APS:
 - Incorporates beamlines within APS Upgrade (APS-U)
 - Provides options for beamlines developments beyond APS-U
 - Follows recommendations of the APS SAC
 - ◆ Top priority for “Very Strongly Recommended” beamlines
- Roadmap scenarios give locations for planned beamlines



Follow Up Meetings and Feedback

- Feedback → <http://www.aps.anl.gov/Upgrade/Forum>
- Meeting with SBC-CAT and BIO-CAT Directors: March 15
 - Both favor leaving BIO in sector 18 and SBC in sector 19
- Laboratory Management: March 19
- SAC Meeting: March 20-21
- Mark Schlossman and Kent Blaise (LSS): April 9
- Microscopy Group: April 11
- Steve Wang (TXM): April 19
- Jonathan Lang and Doug Robinson (MD): April 19
- Barry Lai and Stefan Vogt (ISN, XSD mFluor): April 19
- Stakeholders Committee: April 23
- Alan Goldman: April 27

Baseline Roadmap

Program	BASE	Option 1	Option 2
	J'	O	J
DCS	35-ID	35-ID	35-ID
ISN	32-ID-2	9-ID-2	9-ID-2
MS-S	2-ID-2	2-ID-2	2-ID-2
RIXS	27-ID	27-ID	27-ID
S3DD micro	34-ID-2	34-ID-2	34-ID-2
S3DD nano	34-ID-1s	34-ID-1s	34-ID-1s
WFI	20-ID	20-ID	20-ID
XIS	28-ID	28-ID	28-ID
ASD-D	30-ID-s	30-ID-s	30-ID-s
ASL	25-ID	25-ID	25-ID
BCDI	9-ID-2	9-ID-1	32-ID-2
BIO	18-ID	18-ID	18-ID
MD	2-ID-1	32-ID-2	2-ID-1
SBC	19-ID	19-ID	19-ID
XSD LSS	28-ID*	28-ID*	28-ID*
XSD mDiff	34-ID-1s	34-ID-1s	34-ID-1s
XSD mFluor	9-ID-1	2-ID-1	9-ID-1

DCS—Dynamic Compression Sector

ISN—In-Situ Nanoprobe

MS-S—Magnetic Spectroscopy (Soft)

RIXS—Resonant Inelastic X-ray Scattering

S3DD—Sub-micron 3D Diffraction

WFI—Wide Field Imaging

XIS—X-ray Interface Science

ASD-D—ASD Diagnostics

ASL—Advanced Spectroscopy/LERIX

BCDI—Bragg Coherent Diffractive Imaging

BIO—BIO-CAT

MD—Magnetic Diffraction

SBC—SBC-CAT

XSD LSS—Liquid Surface Scattering (9-ID)

XSD mDiff—micro-Diffraction (2-ID)

XSD mFluor—micro-Fluorescence (2-ID-D/E)

April 30, 2012

[www.aps.anl.gov/
Upgrade/Forum/](http://www.aps.anl.gov/Upgrade/Forum/)

Summary

- APS-U Project Team staffed
- Busily preparing for upcoming reviews
 - Director's Dry Run yesterday
- Roadmap scenarios
 - Converged on base scenario and two options
 - Feedback welcome (email: apsroadmap@aps.anl.gov)
 - Large step to assembling APS-U Baseline