Science Productivity Steering Committee Meeting,
June 16, 2016

Committee members present: Richard Ibberson, Stephen Nagler, Alan Tennant, Don Abercrombie, Ken Herwig, Dean Myles.

Others present: Paul Langan, Mark Lumsden, Bryan Chakoumakos, Jaime Fernandez-Baca, Chris Tulk, Andrew Payzant, Tim Charlton, Greg Smith (for V. Urban), Garrett Granroth (for T. Proffen)

The Science Productivity Steering Committee met June 16, 2016, to set Directorate priorities for major instrument projects for FY 2017. Each of the Science Divisions presented their highest priority projects, which included a number of new proposals and updated FY 2016 B/C-list projects. Projects were reviewed and ranked in terms of impact on the Directorate's scientific productivity, and sorted into one of four categories described in Table I below:

Table I Sorting categories for major instrument projects

Category	
A	High impact projects that are ready to go for FY 2017. These projects need to develop a project plan (scope, cost, resources, and schedule) over next two months.
B	Important projects that are not time critical. No action will commence ion these projects until the Steering Committee moves the from category B to A.
C	Projects with questions to resolve. These projects have specific actions to address this year.
D	Out of consideration for this year.

Final committee recommendations on Directorate priorities and project classifications are shown in Table II. The A-list projects considered to have highest impact on Directorate science productivity are shown in Table III. Instrument teams for approved A-list projects will work with the Technical Director to develop a detailed project plan with refined estimates of scope, cost, resources, and schedule. The committee will review these detailed project plans in September 2016, and recommend project starts, dependent upon available funding and resources.

The committee also reviewed progress on several projects that were ranked in the B-list and C-list categories in the FY 2016 prioritization process. Several of these projects were deemed ready to proceed, and moved into the A-list category for FY 2017. For the remaining C-list projects, status updates, remaining outstanding questions, and/or recommended actions that must be addressed are given in Table IV.

Several projects were deemed to be outside the intended scope of the science productivity process, either in terms of project cost or complexity, and are recommended for development within the mid-range instrumentation program and/or using existing division resources. These are listed in category C/D.

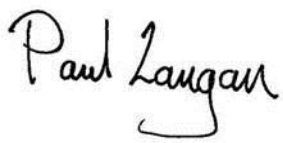
The committee noted that several C-list projects that involve longer-term development of new beamlines or other major facility improvements, such as the HFIR cold guide rebuild, may benefit from or require additional engagement and support of the community in order to advance. The committee

agreed that the new external Beam line Review Panels would provide a suitable, initial forum for such discussion.

Finally, we discussed Directorate needs for specialized sample preparation and characterization facilities/equipment that will enhance beamline productivity and scientific impact, and recommend that such investments be assessed and balanced within the science productivity process.

We submit the results and recommendations of the 2017 prioritization meeting for your approval. Upon approval, we will begin to develop refined project plans and initiate other planning activities for FY 2017.

Approval:



June 29, 2016

Paul Langan, Associate Laboratory Director
Neutron Science Directorate

Date

Table II – Prioritization of FY 2017 major projects, sorted as described above. Projects listed in no particular order

A: High-impact, ready to go; develop plan in next 2 months	B: Important, not time critical (no action until moved to "A")	C: Specific actions to address	D: Not considered
SNAP detector rebuild	TOPAZ detector expansion	SNAP Guide & background reduction	TOF suite – Top Loader
HB3 velocity selector	SEQUOIA collimator	BL-4A Toploader / Halbach Magnet	
VULCAN detector build-out	BioSANS collimator	Lab PPMS	
CORELLI Thimble	NOMAD detector expansion	HFIR cold guide optimization	
NRSF-2 Upgrade	HB1 Heusler analyzer	RAPID	
HB-1A backend	USANS spare crystals	MANTA	
HB-3A Anger Cameras		Spin echo at HFIR	
CNCS collimator			
HYSPEC elevator			
POWGEN: phase II detectors			

Table III - Description of A-list project and their science productivity impact. Projects are listed in no particular order

Major Project	Expected Impacts
SNAP detector rebuild	Replacement of ageing first-generation Anger camera technology will provide all experiments with significant gains in signal-to-noise through efficiency gains and vastly superior γ discrimination. Make SNAP a world-class beamline for high-pressure single-crystal studies.
HB3 velocity selector	The addition of a pre-monochromator velocity selector on HB-3 will produce improved signal to noise, increased instrument flexibility and lower neutron and radiological background in the HFIR beam room.
VULCAN detector build-out	Completion of detector array enables single-frame measurements for most engineering applications. Replacement of WSF with He3 detectors offers resolution/area gains of x17 with factor x2 gain in efficiency. High-angle detectors will expand application of the instrument enable probing dislocation density evolution with high resolution under extreme conditions.
CORELLI Thimble	Installation of the previously obtained thimble on CORELLI will facilitate fast equipment transitions reducing time between experiments, will result in stabilized detector electronics and allow for proper sample centering.
NRSF-2 Upgrade	Installation of a modern 2-D detector and radial collimation will enable NRSF2 to effectively function as the cornerstone of an industrial engineering applications program and truly complement VULCAN.
HB-1A backend	A redesigned backend for HB-1A allows for increased shielding and more effective use of the full beam. This will yield a reduced instrument background and increased flux for certain sample geometries enabling a wider range of challenging experiments (i.e. small samples, thin films, etc.)
HB-3A Anger Cameras	The addition of 2 Anger camera modules will result in increased throughput, enhanced ability to search for unknown magnetic propagation vectors, and access to out-of-plane scattering to enable polarized diffraction.
CNCS collimator	Procurement of a new oscillating collimator for CNCS will facilitate low background measurements with complex sample environment equipment, specifically high field magnets.
HYSPEC elevator	Designing an elevator and oscillator for the HYSPEC polarizing supermirror array will allow easy transition between polarized and unpolarized configurations, a feature commonly requested by users. It will yield a more uniform beam transmission and will allow for angular adjustments of the array resulting in improved performance for polarized inelastic measurements.
POWGEN: phase II detectors	Installation of 'right-side' infrastructure is the first step to completing the 80-detector instrument and will continue to increase the publication rate of POWGEN especially via its mail-in program. It will also enable timely installation of up to 13 inherited WSF modules following VULCAN's build out.

Table IV – description of C-list projects and specific actions.

Project	Specific actions to address
SNAP Guide & background reduction	Develop an integrated plan that determines the characteristics of the guide needed to deliver the expected performance
BL-4A Toploader / Halbach Magnet	Define development project and team to design/optimize Halbach magnet array. Seek funding from Division and/or from SEED money proposal for development project.
Lab ppms	Develop an integrated plan for laboratory infrastructure and support that meets the scientific needs of the facility and maximizes the impact and productivity of the Directorate.
HFIR cold guide optimization	Identify an optimal suite of instruments at HFIR cold guide hall. Develop an integrated plan that determines the characteristics of guide needed to deliver expected performance. In Progress/initiated June 2016.
RAPID	Identify lead scientist and engineer, develop science case and performance requirements; establish international advisory team and engage the user community.
MANTA	Identify lead scientist and engineer, develop science case and performance requirements; establish international advisory team and engage the user community.
Spin echo at HFIR	Identify lead scientist and engineer, develop science case and performance requirements; establish international advisory team and engage the user community.