OAK RIDGE National Laboratory

Robert J. McQueeney
PO Box 2008
Oak Ridge, TN 37831-6477
(865) 576-5668 | mcqueeneyrj@ornl.gov

Date: July 17, 2015

To: P. A. Langan

From: R. J. McQueeney

c:
D. H. Abercrombie
A. J. Evans
K. W. Herwig
L. J. Hickey
R. M. Ibberson
K. W. Jones
S. E. Nagler
T. P. Powers
T. E. Proffen
D. A. Tennant
V. S. Urban

Subject: Action Recommendation – Prioritization Meeting, June 26 and 29, 2015

Steering Committee members present: Don Abercrombie, Richard Ibberson, Rob McQueeney, Thomas Proffen, Alan Tennant, Volker Urban

Others present: Steve Hartman (for Thomas Proffen on 6/26), Ashfia Huq (for Richard Ibberson on 6/26), Paul Langan, Mark Lumsden (for Steve Nagler on 6/26 and 6/29), Greg Smith (for Volker Urban on 6/29), Mike Fitzsimmons (BL4A), William Heller (EQSANS)

The Science Productivity Steering Committee met over the span of two days to set the Directorate priorities for major instrumentation projects for FY 2016. Each of the science divisions presented their highest priority projects. These were discussed and priorities were set based on the expected impact of the project on the Directorate's scientific productivity. We also discussed the building of new instruments and the HFIR cold guide rebuild. The Committee sorted these projects into one of the four categories described in Table I below:

Table I - Description of sorting categories for major instrument projects.

Category	Description
A	High impact projects that are ready-to-go for FY 2016. 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 on these projects until Steering Committee moves them 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.

The Committee performed the sorting of all projects and the results are shown in Table II. Several A-list projects selected by the Committee were deemed to have the highest impact on science productivity and are shown in Table III. The instrument teams for A-list projects will

work with the Technical Director over the next two months to identify a science lead for the project and develop a detailed project plan that includes refined estimates of project cost, resources and schedule. The Steering Committee will then review these project plans in the mid-September time frame and will recommend project starts, subject to the available funding and resources.

Finally, the Steering Committee identified several projects, many of them long-term new instrument builds, where sufficient questions were outstanding. These projects were placed in category C and must address the recommended actions described in Table IV.

We submit the results of this prioritization meeting for your approval. Upon your approval, we can begin to put together project plans and initiate other planning activities for FY 2016.

Approval: Paul Langan Date: 7/21/15

Paul A. Langan, Associate Laboratory Director
Neutron Sciences Directorate

Table II - Prioritization of FY 2016 major projects, as sorted into categories described above. Projects within each category are listed in no particular order.

A	B	C	D
SEQUOIA vacuum upgrade	CNCS detector expansion	HFIR cold guide rebuild	IMAGINE DNP table
15 T uncompensated VF magnet	HB1 Heusler analyzer	RAPID conceptual design	
BL-4A sample-detector table replacement	bioSANS collimator box	MANTA conceptual design	
EQ-SANS detector cone replacement	NOMAD detector expansion	Spin Echo@HFIR conceptual design	
NSE magnetism development	SNAP detector rebuild	WAND Phase II upgrade (with PCS detector)	
POWGEN rebuild	VULCAN detector expansion	HB2A incident beam polarizer	
NOMAD collimation and background reduction	USANS spare crystals	HB3 velocity selector	
NOMAD automated sample changer			
GPSANS collimator box			

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

Major project	Expected impacts
SEQUOIA vacuum upgrade	Redundancy on the sample vessel pumping system will eliminate a major vulnerability of instrument operations and protect the in-vacuum detector modules.
15 T uncompensated VF magnet	Delivers a world-class capability to study structure and excitations at high magnetic fields.
BL-4A sample-detector table replacement	Improves data quality with reproducible and facile configuration control, instrument reliability and more efficient utilization of the neutron beam. Provides better capability for GiSANS applications.
EQ-SANS detector cone replacement	Expands the application of the instrument to perform high impact science by providing the capability to mount a wider range of sample environments.
NSE magnetism development	Expands the application of the instrument to study slow fluctuations in magnetic systems. Funded by Julich.
POWGEN rebuild	Makes Powgen a reliable workhorse powder diffractometer with higher publication rate and new capabilities from an expanded Q-range.
NOMAD collimation and background reduction	Diagnose background sources and determine suitable collimation or other mitigation to improve data quality and increase the publication rate. Makes NOMAD a world-class beamline for the study of small samples and in situ sample environments.
NOMAD automated sample changer	In combination with the mail-in program, this will increase the throughput and publication rate of NOMAD.
GPSANS collimator box	Ensures reliable operations and efficient configuration changes and provides versatility in optics configuration.

Table IV - Description of C-list projects and specific actions.

Project	Action
HFIR cold guide rebuild	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 at each instrument.
RAPID conceptual design	Identify lead scientist and engineer, develop science case and performance requirements, establish international advisory team.
MANTA conceptual design	Identify lead scientist and engineer, develop science case and performance requirements, establish international advisory team.
Spin Echo@HFIR conceptual design	Identify lead scientist and engineer, develop science case and performance requirements, establish international advisory team.
WAND Phase II upgrade (with PCS detector)	Identify lead scientist and engineer, transfer PCS detector from LANL to ORNL, study detector/goniometer configuration and placement.
HB2A incident beam polarizer	Report on the performance of new supermirror polarizer. Make decision about whether existing polarizer is sufficient, or whether an optimized polarized needs to be purchased.
HB3 velocity selector	Determine scope of project to place velocity selector upstream of monochromator. Consider possible improvements to HB3A. Estimate effects of radiation on operation of velocity selector.