

September 2, 2015

NIST BMM Beamline Final Design Review Meeting

Room 156, Building 745, NSLS II, Brookhaven National Laboratory

Welcome by Dan Fischer from NIST.

Attendance List generated

09:00 Beamline Overview

- a) Relocate Pink Beam Stop onto upstream port of the diagnostic module DM2 for reasons of configuration control of safety-critical elements during maintenance activities.
- b) Engrave line on vessel/filter flanges to ensure it can be removed/replaced in the same position – do this at time of final factory integration

10:15 Project Plan

- c) Goal to get BMM M1 installed during the early part of the September 2016 shutdown, otherwise it will have to wait until December shutdown. Need to monitor the progress of the Zeiss optic

10:30 Mirror Optics

- d) Mirror M1 will be fitted with internal hard stops to restrict the pitch motion to stop excessive beam misteer. Mirror will be aligned then hardstops adjusted to $\pm 3\text{mm}$ and externally-mounted limits adjusted to $\pm 2\text{mm}$
- e) How to run the cables to the M1 mirror system from the rack to the equipment?
- f) Discussion about where to locate the bulkhead connections for the water fittings – does it make sense to relocate it on the downstream side rather than the inboard?
- g) Discussion about the DCM motorized lateral translation stage

12:00 Lunch

13:00 Diagnostics

- h) NanoBPM shown located on the NIST endstation to accommodate the large vertical movements of the beam. Can we relocate NanoBPM to immediately downstream of M3?

- i) Plan A is to remove DBPM and to fit 2 foils to Fluorescent Screen actuator for feedback to the 2nd crystal piezo. Ag and Ti transmission foils are proposed with biased collection plate to prevent recombination. PBS/Slits/FS-foils+F-460/BS Stop
- j) Plan B is to leave DBPM and consider the use of different/multiple foils. Feedback on DCM comes from position and intensity out of the DBPM(s) and feedback on the mirror comes from position at the NanoBPM. Agree on position of elements.

13:15 Vacuum System

- k) General comments, vacuum travellers to be filled during installation by NIST personnel, careful FIP binder, second position indicators to be added by BNL people after install
- l) Alternatives to VAT Series 54 RA valves which can leak following bakeout
- m) Action to define length of pump and gauge cables to determine how to buy the cable through NSLS II or backfill the NSLS II cable stock...
- n) Fit burst discs to M1 and DCM
- o) Label front of controllers:- IPC:1, VGC:1, etc

13:30 Control Interfaces

- p) Johnny to review the Functional Specification and discuss further with Doug Smith

13:45 EPS

- q) No issues

14:00 Utilities

- r) Add nominal and minimal flow to each circuit on the controls FS

14:15 Radiation Safety

- s) Review to be held of mono beam transport tube design
- t) Ray tracing for front end has been received. Beamline radiation has yet to be started

15:00 FAT and installation

- u) Reduce the length of the M3 external frame to maximize room for duckunders at both ends of the M3 system
- v) Standard tests for mirror systems, screens, slits

- w) Optics to be accepted based upon vendor reports
- x) Acceptance on radiation elements via inspection
- y) Rigging is as per top level drawings and generally acceptable
- z) Survey is as previously agreed
- aa) Can consider an intermediate installation to minimize effort of final installation - goal to get BMM M1 installed during the early part of the September 2016 shutdown, otherwise it will have to wait until December shutdown

16:30 Action Item List

Reference	Action	Actionee
SST-3/ BMM-1	Add labels to vacuum controllers	AF
SST-4/ BMM-2	Advise alternative RA valves	AJB
BMM-3	Produce Raytracing drawing	AF
SST-7/ BMM-4	Provide approval for build of components, including radiation components	DF
SST-8/ BMM-5	Update water circuit table for nominal and trip limits	AF
SST-9/ BMM-6	Define actual burst discs to be used	AF
SST-11/ BMM-7	Test all cooling circuits at 150psi x 1.5 = 225psi for 10 minutes	AF
BMM-8	2 crystal sets and motorized lateral translation for High Energy DCM. Need to verify that suitable room is available along the beamline, specifically in the length of the bellows to accommodate the lateral translation	SM
BMM-9	Decide location of the NanoBPM	DF
BMM-10	Provide manufacturers data on Kapton wire	AF
BMM-11	Provide manufacturers data on viewports	AF
BMM-12	Add 4 fiducial mounts on the flange (can be countersunk), for the BS stop	AF
BMM-13	Add hardware stops on pitch motion of M1	AF
BMM-14	Add scribed lines on filter flanges to prevent re-assembly errors	AF
BMM-15	Swap order of PBS and bellows downstream of the DCM	AF

BMM-16	Review of beam transport shielding to take place after detailed submission	AF
BMM-17	Model up M1 with adjacent FE components and determine best location of cooling water interfaces	DF
BMM-18	Provide solutions on diagnostics for feedback	SM