

Beneficial Occupancy Readiness Evaluation Plan for the NSLS-II Conventional Facilities



BNL National Synchrotron Light Source II **Basic Energy Sciences**

BROOKHAVEN NATIONAL LABORATORY BROOKHAVEN SCIENCE ASSOCIATES

November 2010

Beneficial Occupancy Readiness Evaluation Plan for the National Synchrotron Light Source II

Submitted by:

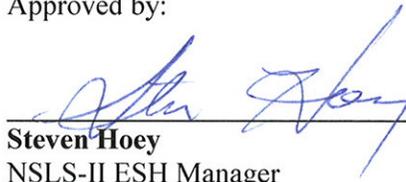


Brian Heneveld
NSLS-II Project Leader

11/16/10

Date

Approved by:



Steven Hoey
NSLS-II ESH Manager

11/16/10

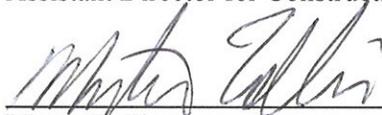
Date



Stephen Sawch
NSLS-II Conventional Facilities
Assistant Director for Construction Management

11/16/10

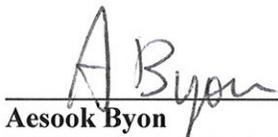
Date



Marty Fallier
NSLS-II Director of Conventional Construction

11/19/10

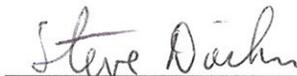
Date



Aesook Byon
NSLS-II Deputy Project Director

11/29/10

Date



Steve Dierker
NSLS-II Project Director

12/3/10

Date



Rich Travis
SHSD Review Coordinator

11/16/10

Date

Beneficial Occupancy Readiness Evaluation Plan for the National Synchrotron Light Source II

VERSION CONTROL SHEET

VERSION	DESCRIPTION	DATE	AUTHOR	APPROVED BY
1	First Issue	01July2010	Hoey	See cover page.
2	Added NSLS-II Project Team Coordinator and updated and revised schedule	15 November 2010	Heneveld	See cover page.

TABLE OF CONTENTS

TABLE OF CONTENTS.....		iv
1.0 Purpose.....		1
2.0 Scope		1
3.0 Responsibilities.....		2
3.1 NSLS-II BORE Project Leader.....		2
3.2 NSLS-II Project Team Coordinator		3
3.3 SHSD Review Coordinator		3
3.4 NSLS-II Project Team		3
3.5 Laboratory BORE Committee		3
3.6 Commissioning Contractor.....		3
3.7 Brookhaven Site Office		4
4.0 BORE Documentation Deliverables.....		4
5.0 Training and Qualification Requirements		4
5.1 NSLS-II Support Staff		4
5.2 Facilities and Operations Support Staff.....		5
5.3 Vendors/Equipment Installers.....		5
6.0 BORE Project Schedule		5
7.0 BORE Completion Documentation.....		6

Table 1 - BORE Project Schedule

1.0 PURPOSE

Beneficial Occupancy Readiness Evaluation (BORE) is the phase of the project cycle when BNL accepts all or a portion of the facility from the contractor as construction substantially complete to begin beneficial use of that portion of the facility. The purpose of the BORE is to assure that all necessary building safety systems are in place and functional prior to incremental start-up (ORE process) of the scientific facilities and equipment. There will be up to fifteen distinct BOREs to facilitate a phased startup of the facility, according to the construction phasing plan.

2.0 SCOPE

The NSLS-II Project will follow the requirements of the Readiness Evaluations subject area in the BNL Subject Based Management System (SBMS). The most important elements of the BORE to be evaluated include life safety systems such as fire detection and protection, data and communication, emergency lighting, emergency egress and emergency vehicle access. Non-life safety systems including many utilities are also part of the evaluation process but may be acceptable in a partially complete status for the Phase I BORE.

To achieve beneficial occupancy for the NSLS-II Conventional Facilities, all essential prime contractor deliverables as outlined below must be substantially completed for each phase, except for minor punch list items and final contract closeout. Conditional occupancy will be required for the Phase I BORE, due the construction phasing and the availability of permanent power. A robust evaluation process will still be performed.

As each of the NSLS-II project phases nears completion, the BORE Committee will perform the formal BORE walk-throughs. Deficiencies (findings) will be identified and documented in the BORE Report. The appropriate BORE Committee Subject Matter Expert will determine if a finding is pre-occupancy or post-occupancy. All pre-occupancy findings will be resolved prior to the Committee granting beneficial occupancy. Post-occupancy findings will be tracked to closure by the BORE Project Leader. Informal walk-throughs at the discretion of the BORE Committee preceding the formal walk-throughs will be conducted as needed to facilitate the process.

The prime contractor deliverables will be verified during the commissioning process and closeout process by the NSLS-II Project, Facilities & Operations and/or the Commissioning Contractor. The role of the BORE Committee is not to repeat this commissioning process but rather to confirm that the process has been adequately completed.

Deliverables

The following deliverables must be substantially completed for each phase of the BORE evaluation (except for temporary systems in Phase I that are noted below and minor items identified in the punch list):

1. The building structures are substantially complete including all walls, floors, ceilings, roofs, windows, and structural members.
2. Life safety systems including the fire sprinkler system, detection systems, exit lights, emergency

- lights, and building alarms, have been accepted and placed in service (Phase I fire alarms fed by temporary power and emergency lighting battery packs supplied by normal power).
3. All building egress systems (exit doors, and stairs) have been accepted, are in service and egress paths are not obstructed or compromised by on-going construction activity (Phase I will not have card readers installed).
 4. All facility communication systems necessary for life safety are completed accepted, and placed in service (Phase I will have temporary telephone and alarm front end connection be functional but not installed with permanent fiber optics).
 5. All conventional building services and utilities are accepted and placed in service, including electric power, general area lighting, water, sewer, HVAC, compressed air, chilled water, steam & condensate. **Note:** Testing of HVAC cooling capacity may have deferred functional testing, to assure optimum ambient conditions and sewage lift pumps for Phase will be supplied by temporary power.
 6. All surface treatments such as paint, carpet, floor tile, ceiling tile, etc. have been substantially completed in the common and support areas of the building and those labs identified for initial occupancy.
 7. BNL F&O/Fire/Rescue and Security staff has received necessary training for the building life safety systems determined to be necessary for beneficial occupancy in accordance with the BVH Integrated Services Commissioning Plan.
 8. All approved Operation and Maintenance Manuals; all approved as-built drawings, all training and miscellaneous close-out deliverables.

The NSLS-II Project will coordinate delivery schedules for technical equipment with the prime contractor's construction schedule to minimize double handling and storage of technical equipment. This will require a phased Beneficial Occupancy, whereby individual facilities or sections of facilities are accepted prior to acceptance of the entire building, to facilitate equipment staging. The NSLS-II Project Team, in concert with the Laboratory BORE Committee, will review the criteria applicable to each phased acceptance of a space for Beneficial Occupancy and determine the applicable requirements. In all cases this acceptance will include the appropriate life safety requirements and the environmental and security requirements necessary to assure the equipment is maintained in a clean, dry, secure area with restricted access control.

3.0 RESPONSIBILITIES

3.1 NSLS-II BORE Project Leader (BORE Coordinator)

The NSLS-II BORE Project Leader has the responsibility to coordinate all BORE activities on behalf of the NSLS-II Project with the SHSD Review Coordinator. This includes the development and updates necessary to the BORE Plan, assembly and delivery of all identified BORE deliverable documentation

to the Laboratory BORE Committee, scheduling of site visits for the Laboratory BORE Committee, follow-up and tracking on pre- and post-occupancy items, and completion of necessary BORE completion documentation.

3.2 NSLS-II Project Team Coordinator

The NSLS-II Project Team Coordinator has the responsibility to coordinate all construction activities that impact BORE activities with the NSLS-II BORE Project Leader. These activities include keeping the NSLS-II BORE Project Leader apprised of construction schedule updates, coordination of the commissioning contractor activities/schedules, deviations from schedule and availability of facilities for the BORE Committee walk downs.

3.3 SHSD Review Coordinator

The Safety and Health Services Review Coordinator Chairs the Laboratory BORE Committee and has the responsibility to coordinate with the NSLS-II BORE Project Leader to assure all requirements of the Readiness Evaluation Subject Area are met for the NSLS-II Conventional Facilities.

3.4 NSLS-II Project Team

As each phase of the NSLS-II Conventional Facilities nears completion, the Project Team will perform regular walk-throughs of the building to review completion status and develop punch lists. The NSLS-II Project Team will periodically attend commissioning activities and witness testing at their discretion. They will also verify document submittal status and training status for operating staff. All outstanding requirements needed to achieve Beneficial Occupancy will be documented on a punch list and be reviewed at regular coordination meetings until they are completed.

3.5 Laboratory BORE Committee

The Laboratory BORE Committee is responsible to conduct the NSLS-II BORE per the Readiness Evaluations subject area Section 1, "Beneficial Occupancy Readiness Evaluation."

The BORE Committee will be invited to regular facility walk-throughs approximately 2 to 3 months prior to the scheduled BORE. The NSLS-II BORE Project Leader, in consultation with the laboratory SHSD Review Coordinator, will determine the frequency and scope of these pre-BORE walk-throughs.

The appropriate Laboratory BORE Committee subject matter expert (SME) will determine the category of the BORE finding. For example, the BNL Fire Protection Engineer (as the Authority Having Jurisdiction) will categorize any BORE life safety findings as Pre or Post Occupancy.

3.6 Commissioning Contractor

The Commissioning Contractor, BVH Integrated Services, is responsible to implement the NSLS-II

Project Team approved commissioning plan by verifying that all equipment identified in the plan is functional, meets contract specifications, and that documentation of such is provided to the NSLS-II Project Team.

3.7 Brookhaven Site Office

A representative from the Brookhaven Site Office will be invited to participate in all aspects of the NSLS-II Conventional Facilities BOREs including pre-BORE facility walk-throughs.

4.0 BORE DOCUMENTATION DELIVERABLES

The following deliverables will be made available to the Laboratory BORE Committee prior to the scheduled BORE walk down date as per the BORE project schedule:

- Commissioning Safety Assessment Document (when applicable to the phase of the BORE)
- Fire Hazard Analysis
- Training and Qualification Requirements/Records
- Interim operating procedures, as needed
- Building Emergency Plan
- Fire Department Run Card
- Completed Fire Department Orientation (all shifts)
- Completed Security Orientation (all shifts)
- Commissioning Plan (BVH Integrated Services)
- Commissioning documents/checklists for safety systems
- BORE Appointment Memo

5.0 TRAINING AND QUALIFICATION REQUIREMENTS

5.1 NSLS-II Support Staff

The Photon Science Directorate Training Coordinator will identify critical training requirements required for facility startup for NSLS-II staff and laboratory support staff. Staff will be required to have completed specified training prior to BORE approval.

5.2 Facilities and Operations Support Staff

Relevant Facilities and Operations Support Staff will be covered by a work permit as per the Laboratory Work Planning and Control Subject Area. This work permit will identify necessary training for the areas of the facility where the work will be performed.

5.3 Vendors/Equipment Installers

Installation of equipment will be covered by work permits as per the Work Planning and Control Subject Area. Work Permits will document work planning and identify necessary training for contractor (vendor) representatives, NSLS-II staff Laboratory staff and Facilities and Operations staff.

6.0 BORE Project Schedule

Table 1 provided below represents the current schedule of BORE dates. Starting in November, 2010, pre-BORE walk downs will be performed. Pre-BORE participants will be sent an Outlook Calendar meeting invitation two weeks prior to the walk down. Any schedule revisions that may be required will be provided at the time of meeting invitation.

7.0 BORE COMPLETION DOCUMENTATION

The completed documentation package for the NSLS-II Conventional Facilities shall consist of the following;

- BORE Report for each phase
- Readiness Evaluation Approval Documentation for each phase
- Documentation related to the closure of pre-occupancy items
- Final BORE Report for entire Facility

A copy of the Readiness Evaluation Approval Document will be transmitted by the NSLS-II BORE Project Leader to the BNL Deputy Director for Operations and the SHSD Readiness Review Coordinator.

Table 1 - BORE Project Schedule

PHASE	DESCRIPTION	BORE DATE
1	Ring Building Pentant 1, Vehicle Tunnel, Utility Tunnel	2/1/11
2	RF Building, Cooling Tower	3/23/11
3	Injection Building	5/18/11
4	Ring Building Pentant 2	6/2/11
5	Ring Building Pentant 3	9/27/11
6	Ring Building Pentant 4	11/28/11
7	Ring Building Pentant 5	2/9/12
8	LOB 2 Shell & related site work (Base Bid)	5/1/12*
9	LOB 1 Fully Fitted Out & related site work (Base Bid)	6/1/12*
10	LOB 3 Fully Fitted Out and related site work (Base Bid)	6/29/12*
11	LOB 4 Shell and Related Site work (Option 1)	TBD*
12	Full Interior Fit-out of LOB 2 (Option 4)	TBD*
13	LOB 5 Shell and Related Site work (Option 2)	TBD*
14	Full Interior Fit-out of LOB 4 (Option 3)	TBD*
15	Full Interior Fit-out of LOB 5 (Option 5)	TBD*

*To Be Determined - Dates are dependent on the LOB contractor schedule and on the options funded.