NSLS Stabilization

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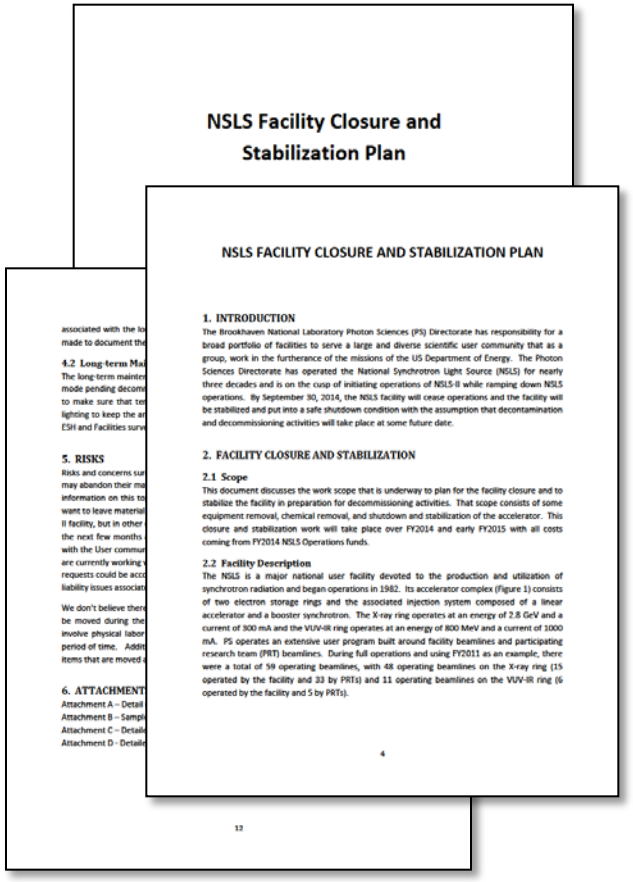
Photon Sciences Directorate Chief Operating Officer
Photon Sciences Town Meeting - October 28, 2014

Background/Overview

- NSLS removed from service on September 30, 2014 at 4:00 p.m.
- Formal plan has been established for stabilizing and removing equipment and chemicals from the facility

Last Light Ceremony – 9/30/2014



NSLS Facility Closure and Stabilization Plan

NSLS FACILITY CLOSURE AND STABILIZATION PLAN

1. INTRODUCTION

The Brookhaven National Laboratory Photon Sciences (PS) Directorate has responsibility for a broad portfolio of facilities to serve a large and diverse scientific user community that as a group, work in the furtherance of the missions of the US Department of Energy. The Photon Sciences Directorate has operated the National Synchrotron Light Source (NSLS) for nearly three decades and is on the cusp of initiating operations of NSLS-II while ramping down NSLS operations. By September 30, 2014, the NSLS facility will cease operations and the facility will be stabilized and put into a safe shutdown condition with the assumption that decontamination and decommissioning activities will take place at some future date.

2. FACILITY CLOSURE AND STABILIZATION

2.1 Scope

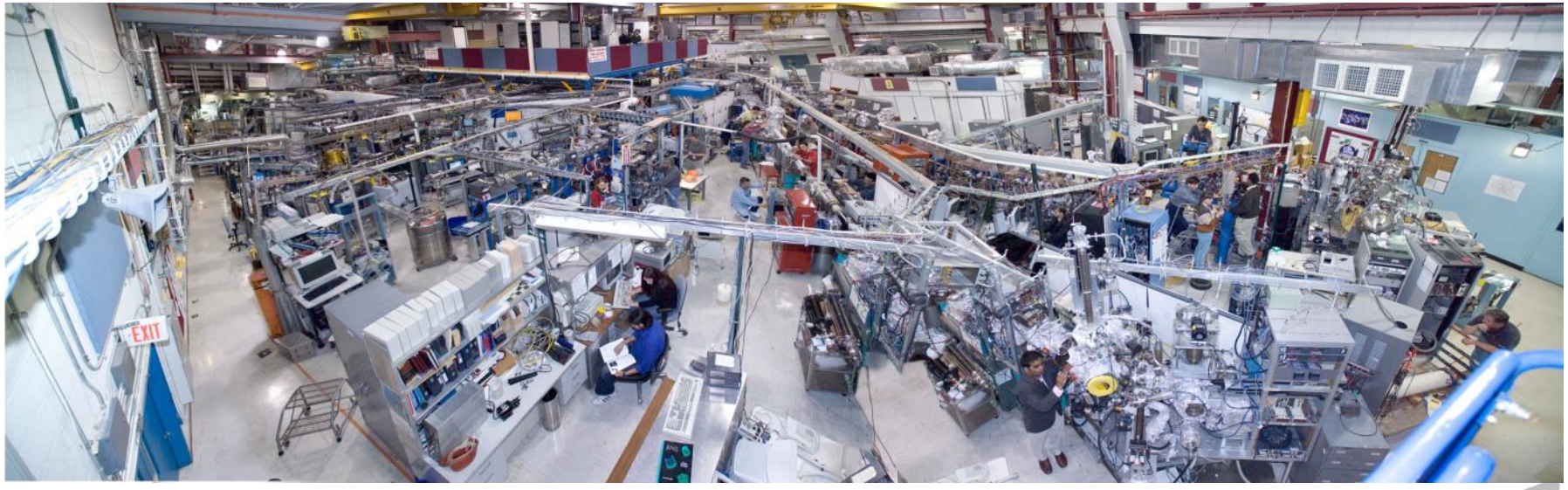
This document discusses the work scope that is underway to plan for the facility closure and to stabilize the facility in preparation for decommissioning activities. That scope consists of some equipment removal, chemical removal, and shutdown and stabilization of the accelerator. This closure and stabilization work will take place over FY2014 and early FY2015 with all costs coming from FY2014 NSLS Operations funds.

2.2 Facility Description

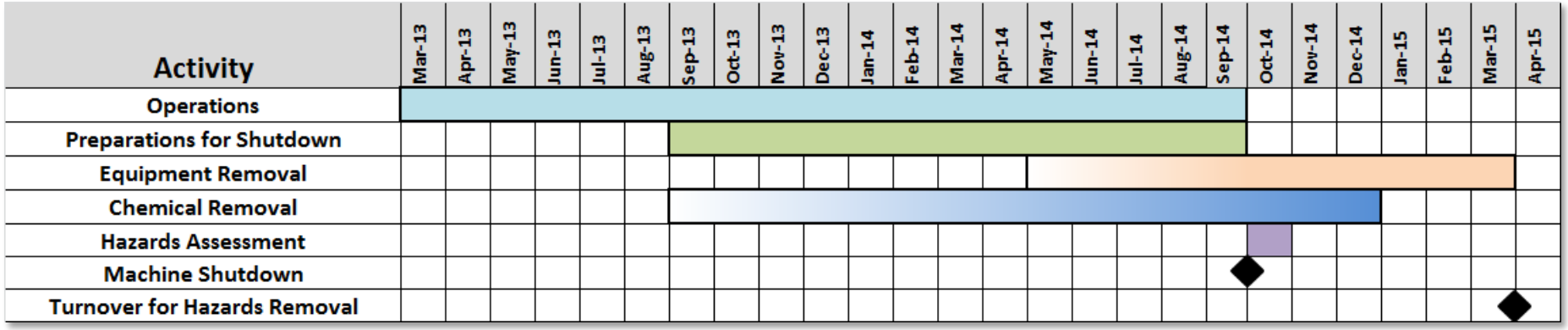
The NSLS is a major national user facility devoted to the production and utilization of synchrotron radiation and began operations in 1982. Its accelerator complex (Figure 1) consists of two electron storage rings and the associated injection system composed of a linear accelerator and a booster synchrotron. The X-ray ring operates at an energy of 2.8 GeV and a current of 300 mA and the VUV-IR ring operates at an energy of 800 MeV and a current of 1000 mA. PS operates an extensive user program built around facility beamlines and participating research team (PRT) beamlines. During full operations and using FY2011 as an example, there were a total of 59 operating beamlines, with 48 operating beamlines on the X-ray ring (15 operated by the facility and 33 by PRTs) and 11 operating beamlines on the VUV-IR ring (6 operated by the facility and 5 by PRTs).

Stabilization Scope

- Equipment Removal
  - All BNL bar-coded items
  - All equipment that will be re-used
- Chemical, Cylinder, Sample Removal
- Shutdown and stabilization of the accelerator



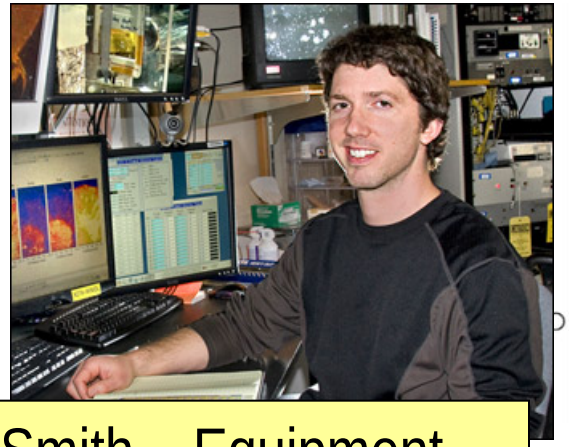
NSLS Timeline to Close-out



- Operations through September 30, 2014
- Equipment removal - October 2014 to December 2014
  - Contingency… included through March 2015
- Chemical removal - October 2014 to December 2014

Preparations for Stabilization

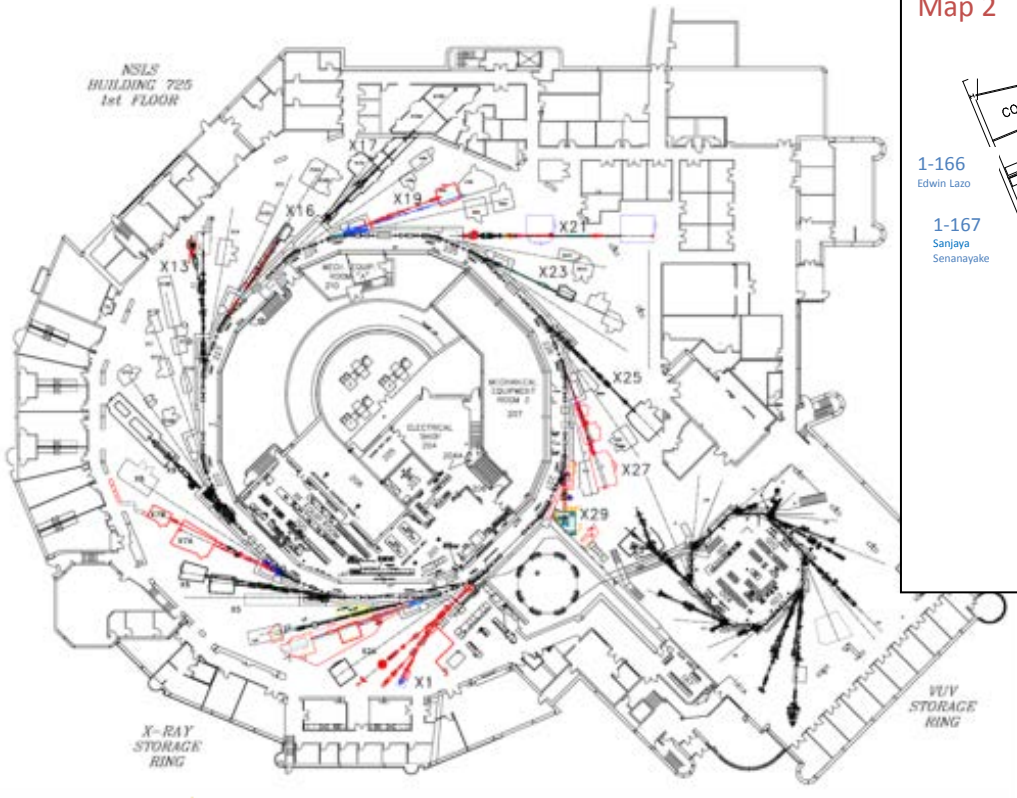
- Beamline Inventory – Randy Smith, Lead
  - Inventory group has been gathering beamline inventory information
    - Randy Smith, Bin Dong, Gary Nintzel, Steve LaMarra, Qing-Yi Dong, Edwin Lazo
  - Disposition categories identified include:
    - To be moved to NSLS-II (NxtGen or other)
    - To be saved (issues here….)
    - To be returned to home institutions
    - BNL tagged property
    - Remain in place for decommissioning
    - Scrap
  - > 4000 items identified

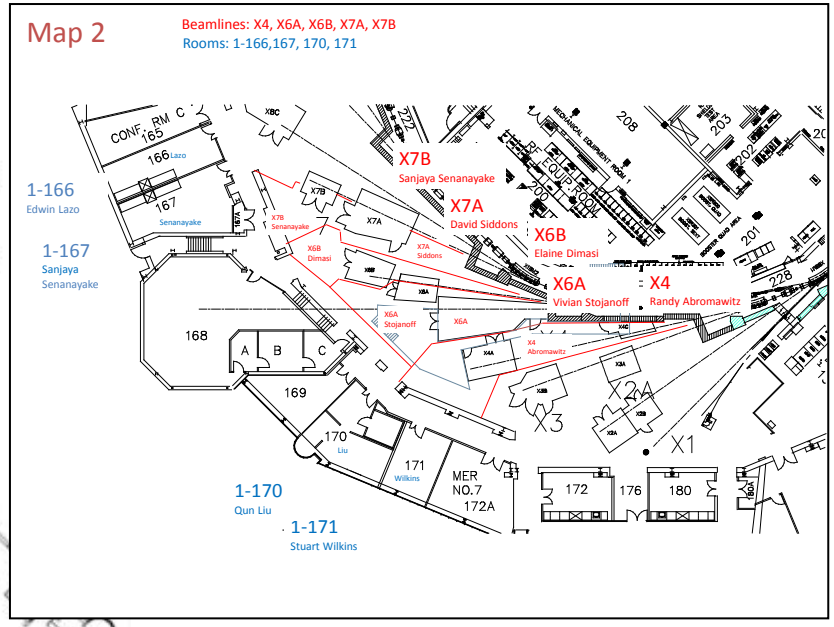


Randy Smith – Equipment Database Lead

Preparations for Shutdown

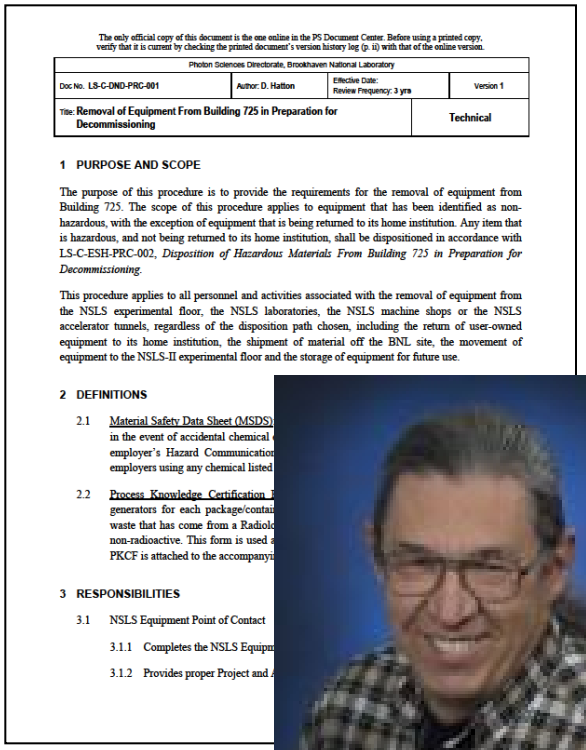
- Identified Equipment Points of Contact
  - For inventory data collection and entry
  - To help ensure safe and efficient equipment removal





Equipment Removal – Work Planning

- All items moving to NSLS-II must be approved by the receiving Project Manager
- All work is planned
- All equipment dismantling and moves must be based on
  - Procedure #LS-C-DND-PRC-001 – Removal of Equipment from Building 725 in Preparation for Transition
  - If this procedure is not appropriate, an individual BNL Work Permit is required
- All equipment moves have to be scheduled and approved through the Building 725 Research Space Manager, Bob Kiss



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Photon Sciences Directorate, Brookhaven National Laboratory

Doc No. LS-C-DND-PRC-001	Author: D. Hatton	Effective Date: Review Frequency: 3 yrs	Version 1
Title: Removal of Equipment From Building 725 in Preparation for Decommissioning			Technical

1 PURPOSE AND SCOPE

The purpose of this procedure is to provide the requirements for the removal of equipment from Building 725. The scope of this procedure applies to equipment that has been identified as non-hazardous, with the exception of equipment that is being returned to its home institution. Any item that is hazardous, and not being returned to its home institution, shall be dispositioned in accordance with LS-C-ESH-PRC-002, *Disposition of Hazardous Materials From Building 725 in Preparation for Decommissioning*.

This procedure applies to all personnel and activities associated with the removal of equipment from the NSLS experimental floor, the NSLS laboratories, the NSLS machine shops or the NSLS accelerator tunnels, regardless of the disposition path chosen, including the return of user-owned equipment to its home institution, the shipment of material off the BNL site, the movement of equipment to the NSLS-II experimental floor and the storage of equipment for future use.

2 DEFINITIONS

2.1 Material Safety Data Sheet (MSDS)
in the event of accidental chemical
employer's Hazard Communicatio
employers using any chemical listed

2.2 Process Knowledge Certification
generators for each package/contai
waste that has come from a Radiol
non-radioactive. This form is used
PKCF is attached to the accompanyi

3 RESPONSIBILITIES

3.1 NSLS Equipment Point of Contact

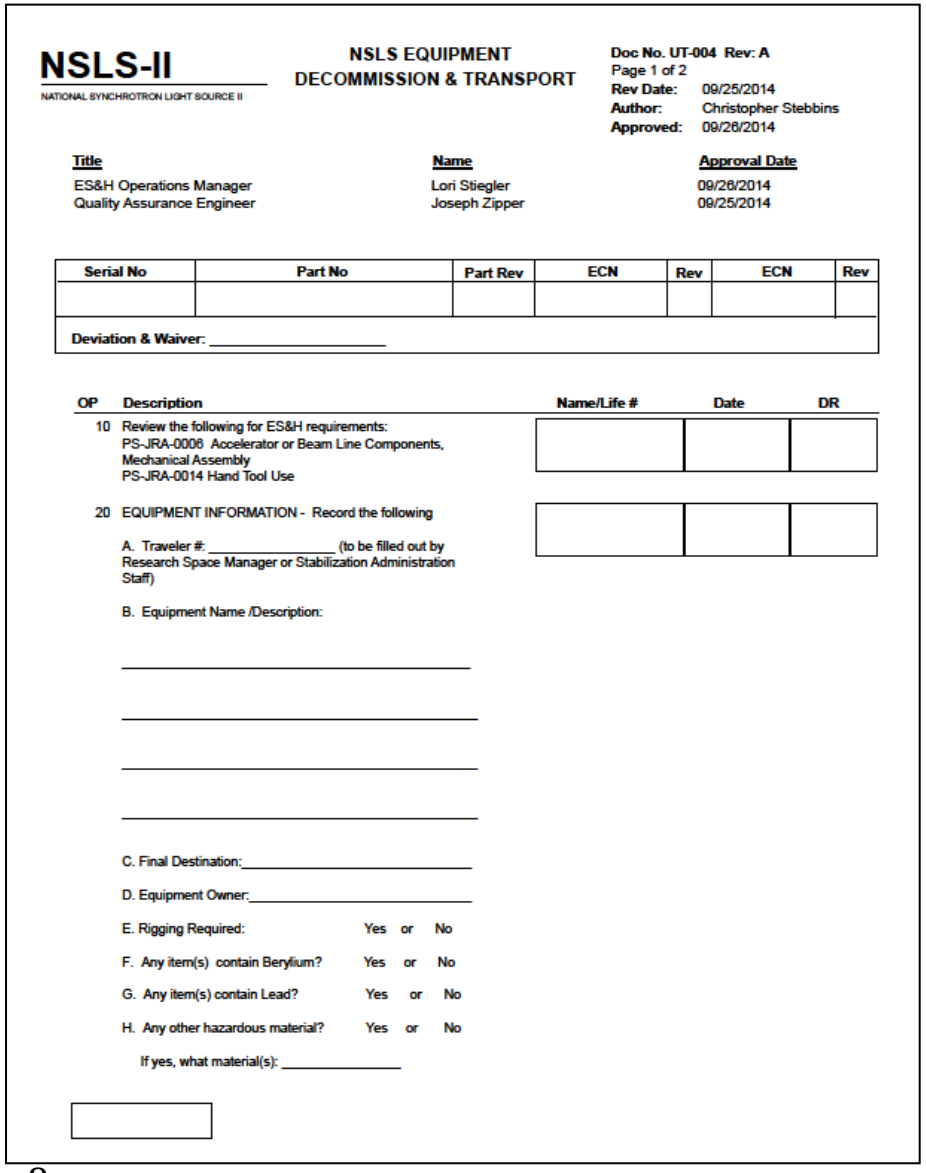
3.1.1 Completes the NSLS Equipm

3.1.2 Provides proper Project and

Bob Kiss – Building 725 Research Space Manager

Equipment Removal – Work Planning

- All items to be moved will be required to have a Traveler attached. Travelers shall remain with the NSLS equipment until the equipment reaches its final destination.
  - If stored, traveler should remain intact while in storage
  - If shipping offsite, traveler shall be removed and returned to the 725 RSM when the item is loaded for shipment



NSLS-II
NATIONAL SYNCHROTRON LIGHT SOURCE II

NSLS EQUIPMENT DECOMMISSION & TRANSPORT

Doc No. UT-004 Rev: A
Page 1 of 2
Rev Date: 09/25/2014
Author: Christopher Stebbins
Approved: 09/26/2014

Title	Name	Approval Date
ES&H Operations Manager	Lori Stiegler	09/26/2014
Quality Assurance Engineer	Joseph Zipper	09/25/2014

Serial No	Part No	Part Rev	ECN	Rev	ECN	Rev

Deviation & Waiver: _____

OP	Description	Name/Life #	Date	DR
10	Review the following for ES&H requirements: PS-JRA-0006 Accelerator or Beam Line Components, Mechanical Assembly PS-JRA-0014 Hand Tool Use			
20	EQUIPMENT INFORMATION - Record the following A. Traveler #: _____ (to be filled out by Research Space Manager or Stabilization Administration Staff)			

B. Equipment Name /Description:

_____

_____

_____

_____

C. Final Destination: _____

D. Equipment Owner: _____

E. Rigging Required: Yes or No

F. Any item(s) contain Berylium? Yes or No

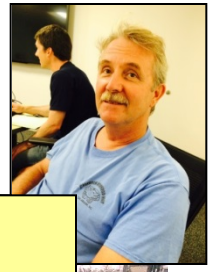
G. Any item(s) contain Lead? Yes or No

H. Any other hazardous material? Yes or No

If yes, what material(s): _____

Equipment Removal

- Rigging team has been assigned to this effort
- Storage space has been identified in Laboratory Office Building (LOB) 2.
- Technicians available to assist beamline staff
- Government-owned property being properly dispositioned
  - Transferred
  - Cannibalized
  - Excessed
- Property Representative co-located at 725



Gary Nintzel, PS Lead Technician for Dismantling

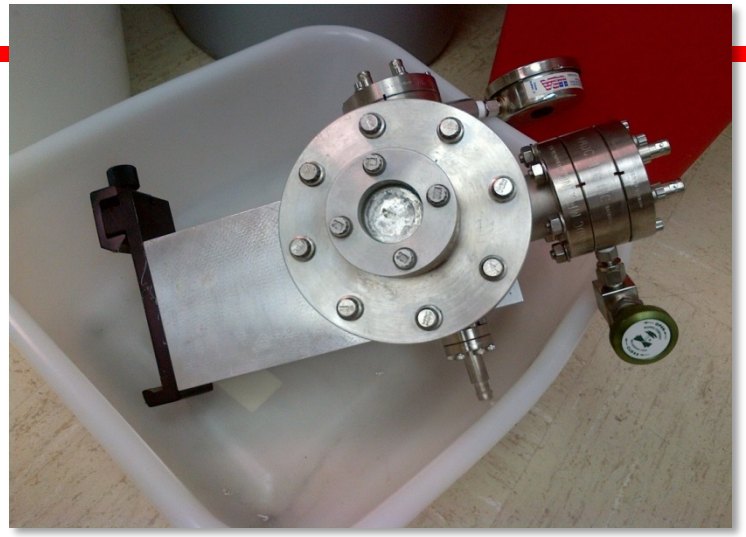
Asma Saeed, PS Property Representative

Environment Safety and Health

- All equipment is being evaluated by ESH staff to determine if it is hazardous prior to movement. Any hazardous item must be dispositioned in accordance with
  - LS-C-ESH-PRC-002 – Disposition of Chemicals, Samples and Compressed Gas Cylinders from Building 725 in Preparation for Transition
- Guidance and assistance with handling lead is available from ESH

Lori Stiegler, ESH Engineer and Point of Contact for Stabilization

ESH Challenges



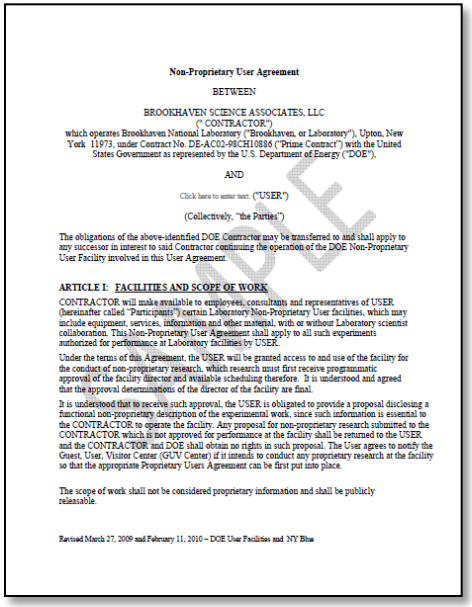
- Early beryllium lessons learned
  - User cleaning out cabinet at their beamline
  - Found component they did not recognize and didn't need (it was abandoned by previous user)
    - Did not realize that it had a beryllium window
    - Deposited in metals dumpster
    - Beamline technician identified it, suspected beryllium, removed it, and brought it to ESH for review
    - Item properly disposed of
    - PS Investigation of event

ESH Challenges

- Root Cause
  - Historical information on beryllium inventory is unreliable and incomplete
  - Beryllium is not easily identifiable
- Corrective Actions
  - Info sheet being developed and will be distributed
  - Creation of an inspection area
    - Disposal to be approved by Research Space Manager and ESH
  - Inventory List being updated; tags being applied

Legal Issues

- Lab attorneys, NSLS User Administration, BNL Guest/User/Visitor (GUV) Center representative working together on legal aspects associated with PRT/user equipment
- Standard User Agreement states:
  - "USER may be permitted by Contractor to furnish equipment…Such items shall remain the property of the USER. Unless the Parties otherwise agree, all such property…will be removed by USER within sixty (60) days of termination or expiration of the Agreement…at User's expense. Any equipment that becomes integrated into the facility shall be the property of the Government."
- Working with individual institutions as necessary to disposition equipment



Non-Proprietary User Agreement

BETWEEN

BROOKHAVEN SCIENCE ASSOCIATES, LLC
(" CONTRACTOR")
which operates Brookhaven National Laboratory ("Brookhaven, or Laboratory"), Upton, New York 11973, under Contract No. DE-AC02-98CH10886 ("Prime Contract") with the United States Government as represented by the U.S. Department of Energy ("DOE"),

AND

Click here to enter text. ("USER")

(Collectively, "the Parties")

The obligations of the above-identified DOE Contractor may be transferred to and shall apply to any successor in interest to said Contractor continuing the operation of the DOE Non-Proprietary User Facility involved in this User Agreement.

ARTICLE I: FACILITIES AND SCOPE OF WORK

CONTRACTOR will make available to employees, consultants and representatives of USER (hereinafter called "Participant") certain Laboratory Non-Proprietary User facilities, which may include equipment, services, information and other material, with or without Laboratory scientist collaboration. This Non-Proprietary User Agreement shall apply to all such experiments authorized for performance at Laboratory facilities by USER.

Under the terms of this Agreement, the USER will be granted access to and use of the facility for the conduct of non-proprietary research, which research must first receive programmatic approval of the facility director and available scheduling therefore. It is understood and agreed that the approval determinations of the director of the facility are final.

It is understood that to receive such approval, the USER is obligated to provide a proposal disclosing a functional non-proprietary description of the experimental work, since such information is essential to the CONTRACTOR to operate the facility. Any proposal for non-proprietary research submitted to the CONTRACTOR which is not approved for performance at the facility shall be returned to the USER, and the CONTRACTOR and DOE shall obtain no rights in such proposal. The User agrees to notify the Guest, User, Visitor Center (GUV Center) if it intends to conduct any proprietary research at the facility so that the appropriate Proprietary Users Agreement can be first put into place.

The scope of work shall not be considered proprietary information and shall be publicly releasable.

Revised March 27, 2009 and February 11, 2010 – DOE User Facilities and NY Blue

NSLS Stabilization End State

- Accelerator shut down
- All government-owned equipment officially transferred and removed, cannabilized, or excessed following BNL Property Management processes
- All other major items of equipment dispositioned
  - Transferred to new location
  - Returned to home institution
  - Excessed
  - Scrapped in place
- All chemicals removed

NSLS Stabilization Current Status

- NSLS ceased operations on 9/30/2014 at 4:00 p.m.
- Accelerator de-energized
- ~75 staff and users trained on equipment and chemical disposition procedures
- Plan of the Day meetings held every day at 9 a.m.
- NSLS Techs plus additional BNL techs on MOU dismantling beamlines
- 2,074 items identified for removal
  - 442 to home institutions
  - 1,632 to NSLS-II
- As of 10/24/2014 - 6.5% removed

Summary

- Schedule
  - Chemicals removal by December 31, 2014
  - Equipment removal by December 31, 2014
  - Turnover to BNL ESH for next phase by March 31, 2015