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Brookhaven National Laboratory Chemistry	DATE: 10/30/14 Rev 7	Approved By: D. Cabelli, Operations Coordinator
SUBJECT: Operational Work	Prepared By: J. Anselmini; Reviewed by: D. Cabelli	

Operational Work Planning in Chemistry

This document defines implementation requirements for all work carried by Chemistry Department personnel under SBMS subject area Work Planning and Control for Experiments and Operations.

Incorporated in this process are the five core functions of Integrated Safety Management; Define Scope of Work, Identify Hazards, Develop Control, Work within Controls and Provide Feedback for Continuous Improvement.

The key concepts are worker planned work, a graded approach and work permits. A vast majority of the work carried out by our technical staff falls under the classification of worker planned work. Such work is exempt from formalized work permit generation. Several factors define whether or not a particular task performed by one or more of our technical staff falls into this category.

All work falling outside the bounds defined in tasks 1 through 14 must involve generation of a work permit. The Chemistry Department uses the BNL work permit form for all intra facility work.

Task analysis:

Job complexity and potential risk factors are considered before characterizing any task as routine thereby exempting it from the requirement of a formal work permit.

Personnel assigned to task:

Consideration is given to educational/training background, experience, and demonstrated capabilities of the personnel being assigned to a particular task. In addition, all personnel are required to take HazCom or Lab Standard training as well as any additional training required for that specific task.

Technical Work

The scope of worker planned work based upon task analysis encompasses the following description and specific training needs:

1. Fabrication, modification, and repair/rebuilding of parts and equipment involving any non-hazardous material and accomplished using tools that the assigned personnel are qualified to operate safely (Machine shop safe work practices training or specific training as required by Central Shops).
2. Soldering and brazing any non-hazardous materials using an oxy-propane or oxy-acetylene torch and standard soft solder (may or may not contain lead) or Cadmium free silver brazing rod (Compressed Gas Safety OSH-026; RCRA training HP-RCRIGEN3).
3. Spot welding of non-hazardous materials using a welder with a maximum stored energy capability of 300 Watt/seconds (Compressed Gas Safety OSH-026).

4. Abrasive cleaning and polishing using non-toxic compounds for which special confinement techniques are not required to control airborne dust and vapors.
5. Handling cryogenics, specifically liquid Helium and Nitrogen, for the purpose of filling vacuum traps and maintaining cryogen levels in solid state detectors and superconducting magnets (Cryogen safety training HP- OSH-025).
6. Installation and changing of compressed gas cylinders (Compressed Gas Safety OSH-026).
7. Equipment relocation - manual movement of small laboratory and office equipment weighing <200 # or <5,000 # using material handling equipment and lifting <6" off floor.
8. Vacuum pump service, repair, and rebuilding including disposal of waste pump oils (RCRA training HP- RCRIGEN3).
9. Wood and Material working, including cutting, scraping, assembly and finishing using non-leaded paints and non-toxic preservatives and finishes.
10. Work with various adhesives, epoxies and other bonding materials that are non-toxic in nature.
11. Work on electrical systems that are de-energized or energized at <50 volts (Electrical Safety for Benchtop Workers-TQ-Elect-Benchtop).
12. High vacuum vapor deposition of thin films using resistive heated filaments and electron beam gun methods.
13. Vacuum mass spectrometer leak checking and repair of components & systems.
14. Surface preparations and cleaning using commercial compounds, common acids & bases (e.g. HNO₃, H₂SO₄, HCl, NaOH, etc.), and organic solvents (HazCom, RCRA training HP-RCRIGEN3).
15. Testing circuit breakers with ground fault protection. To verify operation test monthly by:
 1. Taking required training Electrical Circuit Breaker/Switch Operation Safety (TQ-ELECT-BSOP)
 2. Acquiring and donning proper PPE as defined in Electrical Circuit Breaker/Switch Operation Safety training.
 3. Insuring that panel is energized.
 4. Insuring protector is in ON position.
 5. Pressing "TEST" button: handle must trip to center position. If not call the electricians to repair.
 6. Resetting Protector by moving handle to "OFF" then "ON"
 7. The department's support staff will maintain a monthly log of the tests.
 8. Task #15 can be performed by non-matrixed chemistry personnel that have the required training and are wearing proper PPE. If other CO personnel carry out the above test, they must notify the CO matrixed personnel in order to have the test logged

All work listed above falls within the bounds of worker planned work, does not require a work permit and is based upon the job training analysis of the personnel involved (see table below).

EXCEPTION - All work carried out in a space covered by a RWP requires the generation of a work permit regardless of the complexity or risk level of the job. All work carried out in a space where nanoscale work is currently carried out requires review and personnel must take TQ-NC-HS1 - Nanotechnology for Support Personnel.

Personnel Job Training Analysis

Based upon the criteria set forth above (see 'Personnel assigned to task') a listing of personnel who are qualified to be assigned worker planned work without the generation of a work permit has been compiled and is listed below. This list is held by the Work Control Coordinator and reviewed on an annual basis.

Changes are made when personnel or their JTA are changed.

The following personnel can be assigned to perform Worker Planned Work tasks as noted without the generation of a work permit.

NAME	LIFE #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Jim Anselmini	22176	X	X	X	X	X	X	X		X	X	X	X	X	X	X
Lee Walcott	14587				X	X	X		X	X	X	X				
Jeff Hoogsteden	24805	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Bobby Layne	24872	X			X	X	X				X	X		X		