

# NATIONAL SYNCHROTRON LIGHT SOURCE SAD RISK ASSESSMENT

## APPENDIX 4

**SYSTEM:** Building 725 activities

**SUBSYSTEM:** Accelerator system

**HAZARD:** Ionizing radiation

**HAZARD IMPACT:**

Potential for excessive radiation dose and possible injury or death

**RISK ASSESSMENT PRIOR TO MITIGATION:**

|                      |                                                  |                                                 |                                  |                                     |
|----------------------|--------------------------------------------------|-------------------------------------------------|----------------------------------|-------------------------------------|
| <b>Consequence</b>   | <input type="checkbox"/> I High                  | <input checked="" type="checkbox"/> II Moderate | <input type="checkbox"/> III Low | <input type="checkbox"/> IV Routine |
| <b>Probability</b>   | <input type="checkbox"/> A Frequent              | <input type="checkbox"/> D Remote               |                                  |                                     |
|                      | <input type="checkbox"/> B Probable              | <input type="checkbox"/> E Extremely Remote     |                                  |                                     |
|                      | <input checked="" type="checkbox"/> C Occasional | <input type="checkbox"/> F Impossible           |                                  |                                     |
| <b>Risk Category</b> | <input type="checkbox"/> I High                  | <input checked="" type="checkbox"/> II Moderate | <input type="checkbox"/> III Low | <input type="checkbox"/> IV Routine |

**MITIGATING FACTORS**

- \*\*The NSLS has a radiological Protection program incorporating the requirements of Part 835 and the BNL Radiological Control Manual
- Radiological safety training, e.g. GERT, Radiation Worker I, other
- Facility Specific Safety Orientation and ESH Orientations
- Control Room Machine Operator training
- Shielding, e.g. lead, concrete, polyethylene
- Safety System Work Authorizations
- LS-ESH-PRM-1.3.6 NSLS Work Planning and Control Procedure
- LS-ESH-PRM-2.3.1 Administrative Control Levels
- LS-ESH-PRM-3.2.0 Collective Dose Goals
- HP-SOP-28 Radiation Generating Devices
- ALARA designs and Committee reviews
- Radiation monitoring, e.g. personal TLD dosimetry, Area TLD dosimeters, chipmunks, hand-held surveys
- Interlock systems, e.g. beam dumps if interlock broken, sweep procedures, emergency stop buttons, audible/visual alarms, and postings
- Low activation levels

**RISK ASSESSMENT FOLLOWING MITIGATION:**

|                      |                                       |                                                 |                                             |                                     |
|----------------------|---------------------------------------|-------------------------------------------------|---------------------------------------------|-------------------------------------|
| <b>Consequence</b>   | <input type="checkbox"/> I High       | <input checked="" type="checkbox"/> II Moderate | <input type="checkbox"/> III Low            | <input type="checkbox"/> IV Routine |
| <b>Probability</b>   | <input type="checkbox"/> A Frequent   | <input checked="" type="checkbox"/> D Remote    |                                             |                                     |
|                      | <input type="checkbox"/> B Probable   | <input type="checkbox"/> E Extremely Remote     |                                             |                                     |
|                      | <input type="checkbox"/> C Occasional | <input type="checkbox"/> F Impossible           |                                             |                                     |
| <b>Risk Category</b> | <input type="checkbox"/> I High       | <input type="checkbox"/> II Moderate            | <input checked="" type="checkbox"/> III Low | <input type="checkbox"/> IV Routine |