

Photon Sciences

Subject: Photon Sciences Significant Environmental Aspects Matrix

Revision 1 **Effective:** 3/7/12 **Page** 1 **of** 2 **Approved:** Andrew Ackerman

Approval Signature on file with master copy.

ACTIVITY DESCRIPTION	Environmental Aspects																Comments
	Regulated Industrial Waste	Hazardous Waste	Radioactive Waste	Mixed Waste	Regulated Medical Waste	Work with Engineered Nanomaterials	Atmospheric Discharges	Liquid Discharges	Chemical (C) Storage/Use or Radioactive Material (R)	Water Consumption	Power Consumption	Engineered Nanomaterials	Historical Monuments / Cultural Resources	Sensitive/Endangered Species and Sensitive Habitats	Env. Noise	Historical Contamination	

Title	Number																	
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NLSL - Current Experimental Program																		
R&D Program B725	SAFs	a	a	a			a	b*	b	f	x	x	x	a				B725 *HEPA used for nano particulate work
R&D Program B729	SAD							x	x	f		x	x					B729 R&D Activities occur under the operational boundaries in the SAD
Machine shop operations	PAF 462	a	a				a*,b**	b	f			x	x					B725, 726/27, 801, 832, 703 *Can Puncturer is on TV permit. **Filters on grinders are engineering controls.
Photographic dark room	PAF 463	a	a				x	b	f			x	x					B725
Vacuum system maintenance	PAF 470	a	a						f				x					B725 & B535
Electrical/Mechanical equipment maintenance	PAF 466	a	a					x	b	f		x	x					B725 & B729
Cooling Water System	PAF 469	a						x	b	a*, f		x	x					B725 & B729 *Water treatment tanks registered 'exempt' under Art 12. Will be expanded to include similar operations in B740.
Silicon Crystal Etching & Cutting	PS-ESR-2-190D, PS-ESR-Crystal, PS-ESR-535-C12, PAF 591 & 606	a	a					x		f		x	x					B725, B535, B703
90-Day Haz Store Shed, B725								x		f	f		x					B725 Outside West Roll Up Doors
General facility operation										b**,f		x	x			a*		B725, 726 - 729 *Soil activation calculated in SAD; does not exceed Action Levels as per SBMS Accelerator Safety Subject Area. **System backflow devices tested and maintained as part of F&O's O&M System

NLSL-II R&D Support Program:																	
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Vibrating Wire R&D	PS-PSRF-Vib Wire		a							x			x	x				Bld 902 annex, LEEF for discharge of algicide
Girder R&D	PSRF-Girder R&D project	a	a										x					Bld 902 annex and 905
Corrector Magnet	PS-PSRF-CorrMag												x					Bld 902 high bay and annex
Vertical Test Facility (VTF)	PS-PSRF-VTF												x					B832
Diagnostics & Instrumentation	PS-PSRF-Diag&Inst						x						x					Bld 820, 902, 905
Power Supplies R&D	PS-PSRF-Power Sup								x			x	x					Bld 902, LEEF for discharge of algicide
Interlocks	PS-PSRF-INTERLOCK												x					Bld 902
Controls	PS-Controls Group												x					Bld 902B - room 24
Storage Ring Magnet Inspection	PS-PSRF-MagnetInsp												x					Bldg 902 & 905
Transport Magnet Inspection	PS-PSRF-TransportMagInsp												x					Bldg 902 & 905
Vacuum R&D	PS-905-Vacuum	a	a				a						x	x				Bld 905: Title V identified air emissions associated with the beam chamber ozone cleaning operation.
Vacuum Assembly/Ultrasonic Cleaning	PS-945-UltrasonicCleaning, PAF #607	a	a				x	b	a, f			x	x					Bld 945
Petra-7 (Booster Ring)	PS-PSRF-Petra-7									x			x					Bld 832 lab 2
Pulsed Magnet (bldg 832)	PS-PULSED MAG												x					Bld 832 high bay
Magnetic Measuring Lab	PS-MagMeas	a	a										x					Bld 832
NLSL-II Linac Front End Test Stand	PS-PSRF-FrontEnd	a											x					B832, 902, 905
Prototype Cooling Skid	PS-PSRF-Cooling Skid	a											x					Bld 820
Nanopositioning	PS-PSRF-NANOPOS												x					Bld 703 - room E1
Thin Film Metrology	PS-PSRF-Thin-Film, PAF #593	a	a					b	b	x			x					Bld 703 lab E2/E4
90-Day Haz Store Cabinet, B703	PS-Metrology									f			x					Bld 703 lab E5
								x		f			x					Bld 703 - east wing service corridor
B740 NLSLII Building																		
Ring Assembly	Pent 1 - 4												x	x				
90-Day Haz Store Shed, B740								x		f			x					B740, P4 R-111 Chemical Storage Bay
General facility operation								x		b**,f		x	x			a*		*B740: Soil activation calc. in SAD doesn't anticipate levels to exceed Action Levels as per SBMS Accelerator Safety Subject Area. Soil samples in place at the LINAC for periodic monitoring and checking. **System backflow devices tested and maintained as part of F&O's O&M System.

ACTIVITY DESCRIPTION		Criteria														Comments			
		Regulated Industrial Waste	Hazardous Waste	Radioactive Waste	Mixed Waste	Regulated Medical Waste	Work with Engineered Nanomaterials	Atmospheric Discharges	Liquid Discharges	Chemical (C) Storage/Use or Radioactive Material (R)	Water Consumption	Power Consumption	Engineered Nanomaterials	Historical Monuments / Cultural Resources	Sensitive/Endangered Species and Sensitive Habitats		Env. Noise	Historical Contamination	Soil Activation
NLSII Construction Project Administration	Env. Evaluation Report All	a					x	b	f	x	x			a,d					*Stormwater discharges to HS & HW.
										x	x								

[Revision Log](#)

Notes:

1. A blank cell indicates that the aspect is not present.
2. An x in a cell indicates that the aspect is present, but is not significant.
3. A letter other than x indicates that the aspect is significant.
 (The letter refers to the specific criteria for the aspect which has been met.)
 See Key:

Review Guidance

[Definitions are taken directly from the "Environmental Aspects and Impacts" Subject Area](#)

Any generation of the below waste streams will be coded with an "a":
 Industrial Waste, Hazardous, Radioactive, Mixed, Medical Waste, Transuranic

Work with Engineered Nanomaterials:
 a) Any work with engineered nanomaterials. Refer to the interim procedure Approach to Nanomaterial ESH in the Interim Procedures Subject Area.

Engineered Nanomaterials:
 a) Any air, liquid, or solid waste discharge of engineered nanomaterials.

Atmospheric Discharge
 a) Any process that requires a point source air permit or inclusion in the Title V permit as an emissions unit, or contributes to a regulated emission point.
 b) Operations or activities that use engineering controls to reduce hazardous air pollutant or radionuclide emissions.
 c) Radioactive emissions that require monitoring (continuous or confirmatory) by 40 CFR 61 Subpart H of the National Emission Standards for Hazardous Air Pollutants (NESHAPS).

Liquid Discharge
 a) Radionuclides that are detectable at the point of discharge from the facility.
 b) Discharges of any of the chemicals listed on the BNL State Pollutant Discharge Elimination System (SPDES) Permit Chemicals exhibit.
 c) Operations or activities that use engineering controls to reduce the quantity or concentration of pollutant.
 d) Existence of underground injection control devices under the responsibility of the owner organization as specified in the Underground Injection Control subject area.

Power Consumption
 a) Total Organizational Power Consumption Greater than 58 M KWh/yr.

Chemical Storage/Use or Radioactive Material

- a) Storage or use of chemicals or radioactive materials requiring engineering controls specified in the Storage and Transfer of Hazardous & Nonhazardous Materials subject area.
- b) System configuration requires back-flow prevention.
- c) Transportation of chemicals or dispersible radioactive materials.
- d) Storage or use of PCBs as specified in the PCB Management subject area.
- e) Any underground pipes or ducts that contain chemical and/or radioactive material/contamination.
- f) Storage or use in quantities capable of resulting in a spill, as defined in the Spill Response Subject Area.

Water Consumption

- a) Total organizational water consumption greater than 650,000 gal/day.
- b) Continuous (24/hrs/day), permanent (to continue for the foreseeable future) once-through water use greater than 4 gpm that discharges to the sanitary sewer system.
- c) Daily (8 hrs/day), permanent, once-through water use greater than 10 gpm that discharges to the sanitary sewer system.
- d) Continuous use greater than 10 gpm, or daily use greater than 15 gpm for a period greater than 60 days that discharge to the Sanitary Sewer System.

Facility-specific Aspects:

- Historical/Cultural Resources
- Sensitive/Endangered Species And Sensitive Habitats
- Environmental Noise
- Historical Contamination (groundwater/soil)
- Soil Activation
- Other