

**Part A: Source Hazard Assessment Record**

I. Source Identification			
<b>Department:</b> <b>NLS</b>	<b>Building:</b> <b>725</b>	<b>Room or Area (location of source):</b> <b>VUV Ring – U4IR</b>	
<b>Identifier/ Name of Source:</b>  <b>Oxford SM4000 Spectromag superconducting magnet – 10 Tesla at core; 140 kg</b>  <b>Owned by CCNY</b>			
<b>Status of Source Usage (check all that apply):</b> <input checked="" type="checkbox"/> In use on frequent basis <input type="checkbox"/> Planned use in the near future <input type="checkbox"/> Possible future use <input type="checkbox"/> No planned use <input type="checkbox"/> Intermittent use <input type="checkbox"/> One-time use <input type="checkbox"/> Other:			
<b>Check or Describe Use or Process:</b>			
<input type="checkbox"/> Accelerator magnets	<input type="checkbox"/> Nuclear Magnetic Resonance	<input type="checkbox"/> Ion pumps	
<input type="checkbox"/> Beam transport magnet	<input type="checkbox"/> Magnetic Resonance Imaging	<input type="checkbox"/> Permanent magnet	
<input type="checkbox"/> Detector magnets	<input type="checkbox"/> Medical device	<input type="checkbox"/> Electromagnet lifting device	
<input checked="" type="checkbox"/> Super-conducting coils	<input type="checkbox"/> Electron microscope	<input type="checkbox"/> Tool Chuck/clamp	
<input type="checkbox"/> Other (specify):	<input type="checkbox"/> Magnetometers		
II. Exposure Summary [Complete Part B: Field Strength Measurement Record or attach documentation from manufacturer]			
<b>Target Body Area</b>	<b>BNL Exposure Limits**</b>		
	TWA-8		Ceiling
	(mT)	(G)	(mT)      (G)
Cardiac Pacemaker & Ferromagnetic Objects*			0.5      5
Whole Body (Torso or Head)	60	600	2,000 (2 T)      20,000
Extremities (Limbs)	600	6,000	5,000 (5 T)      50,000
*Ferromagnetic Objects (Ceiling), including medical implants and prostheses, may be affected by fields. Additional evaluation is required.			
** TWA-8 = (B <sub>1</sub> t <sub>1</sub> + B <sub>2</sub> t <sub>2</sub> + ..... + B <sub>n</sub> t <sub>n</sub> ) / 480 minutes      (See Exhibit BNL Static Magnetic Field Exposure Limits for details.) B = Flux Density [mT] t = time of exposure [minutes]			
<b>Maximum Exposure Potential surveyed applicable to worker exposure (mT):</b>			
III. Exposure Hazard Evaluation: Indicate worker exposure potential on the OMC Job Assessment Form or OMC Static Magnetic Field Questionnaire form.			
Flux Density			
1a. <input type="checkbox"/> Flux Density ≥ 0.5 mT (5 Gauss). No potential for individuals with medical electronic devices or ferromagnetic implants/prostheses* to be exposed above 0.5 mT (5 Gauss).			
1b. <input checked="" type="checkbox"/> Flux Density ≥ 0.5 mT (5 Gauss). Access to > 5G for individuals with medical electronic devices or ferromagnetic implants/prostheses* is not permitted.			
2a. <input type="checkbox"/> Flux Density ≥ 60 mT (600 Gauss) - Whole Body. No potential to exceed the 8 hours TWA.			
2b. <input type="checkbox"/> Flux Density ≥ 60 mT (600 Gauss) - Whole body. Potential to exceed the 8 hours TWA. Controls must be used.			
3a. <input type="checkbox"/> Flux Density ≥ 600 mT (6000 Gauss) - Limbs. No potential to exceed the 8 hours TWA.			
3b. <input type="checkbox"/> Flux Density ≥ 600 mT (6000 Gauss) - Limbs. Potential to exceed the 8 hours TWA. Controls must be used.			
4a. <input type="checkbox"/> Flux Density ≥ 2T (ceiling) - Whole Body. No potential to exceed the BNL ceiling.			
4b. <input type="checkbox"/> Flux Density ≥ 2T (ceiling) - Whole Body. Potential to exceed the BNL ceiling. Controls must be used.			
5a. <input type="checkbox"/> Flux Density ≥ 5T (ceiling) - Limbs. No potential to exceed the BNL ceiling.			
5b. <input type="checkbox"/> Flux Density ≥ 5T (ceiling) - Limbs. Potential to exceed the BNL ceiling. Controls must be used.			
* Medical electronic devices include cardiac pacemakers, electronic inner ear prostheses, and insulin pumps. Ferromagnetic implants/ prostheses include aneurysm clips, replacement hips.			

**4. Describe job/task and potential for employee exposures** (e.g., type of work performed around source, method of control, time spent in fields [hours/day] and method of determining exposure):

*The magnet is located on the U4IR platform and is surrounded by a Lexan box that encloses fields > 60 mT in the horizontal direction so that researchers on top of the platform are exposed to fields less than 60 mT.*

*A clear passageway is maintained around the Lexan box to allow unimpeded access/egress. Before any operations, the area shall be cleared of any loose ferromagnetic objects within the 6 mT line.*

*The 0.5 mT line is marked horizontally on the platform floor and is posted vertically under the platform.*

**5. Frequency of exposure** (e.g., # days per year or month, # tests per year, in continuous use, etc.):

*A few weeks every quarter*

**IV. Precautions / Engineering & Administrative Controls**

**Precautions During Use** (check all that apply):

<input checked="" type="checkbox"/> Signs	<input type="checkbox"/> Lights	<input type="checkbox"/> Other:
<input checked="" type="checkbox"/> Barriers	<input type="checkbox"/> Restricted access	
<input type="checkbox"/> Rotation of workers	<input type="checkbox"/> Working when de-energized	
<input type="checkbox"/> Use of nonferromagnetic tools		
<input checked="" type="checkbox"/> Physical indicator of fringe fields (e.g., use of string with paper clips or equivalent)		

**Written Documentation:**

Experimental Review ([Work Planning and Control for Experiments and Operations](#) Subject Area)

Work Planning and Control ([Work Planning and Control for Experiments and Operations](#) Subject Area)

Written SOP (describe):

Other kinds of workers who may require information/written documentation/training to enter this area:

**Checklist:**

Employee training:  Static Magnetic Fields Web Course  Dept/Division-Specific Training

Supervisors training:  Static Magnetic Fields Web Course  Dept/Division-Specific Training

Training required to be linked to Job Training Analysis for affected workers:  yes  no

Worker evaluation required by OMC (all workers exposed to ≥ 5G)  yes  no

yes  no

**V. Initial Assessment**

<b>Completed by:</b> L. Stiegler & G.L. Carr	<b>Date:</b> 10/16/08
<b>Reviewed by ES&amp;H Coordinator:</b> L. Stiegler	<b>Date:</b> 10/16/08

*Forward the original form to the Static Magnetic Fields Subject Matter Expert, copies to your ES&H Coordinator and Safety & Health Representative. Retain a copy in your files. Update and resubmit the assessment when changes occur.*