

BNL Static Magnetic Fields Exposure Form

Part A: Source Hazard Assessment Record

USE THIS FORM TO DOCUMENT MAGNETIC FIELD SOURCES THAT ARE AT OR EXCEED 0.5mT (5 GAUSS)

Line Managers or Principal Investigators, and ES&H Coordinators complete a separate form for each Static Magnetic Field source. This assessment applies to occupational exposures only. This assessment does not apply to unmodified consumer products (phones, computer terminals, magnetic stirring devices, refrigerator magnets, etc.) that are used as intended.

I. Source Identification		
Department: Center for Functional Nanomaterials	Building: 735	Room or Area (location of source): 1L32
Identifier/ Name of Source: Scanning Electron Microscope		
Status of Source Usage (check all that apply): <input 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:		
Check or Describe Use or Process: <input type="checkbox"/> permanent magnet <input type="checkbox"/> medical device <input type="checkbox"/> Magnetic Resonance Imaging equipment <input type="checkbox"/> Nuclear Magnetic Resonance equipment <input type="checkbox"/> super-conducting coils <input type="checkbox"/> magnetometers <input type="checkbox"/> accelerator magnets <input type="checkbox"/> detector magnets <input checked="" type="checkbox"/> ion pumps <input checked="" type="checkbox"/> electron microscope <input type="checkbox"/> beam transport magnet <input type="checkbox"/> electromagnet lifting device <input type="checkbox"/> other (specify):		
II. Exposure Summary [Complete Part B: Field Strength Measurement Record or attach documentation from manufacturer]		
Target Body Area	BNL Exposure Limits	
	(mT)	(G)
Cardiac Pacemaker (Ceiling)	0.5	5
Ferromagnetic Objects (Ceiling)*	60	600
Torso or Head (Whole Body) (8-hour TWA)	60	600
Extremities (Limbs) (8-hour TWA)	600	6,000
Whole Body (Ceiling)	2,000 (2 T)	20,000
Extremities (Limbs) (Ceiling)	5,000 (5 T)	50,000
*Ferromagnetic Objects (Ceiling), including medical implants and prostheses, may be affected by fields. Additional evaluation is required.		
Maximum Exposure Potential surveyed applicable to worker exposure:		
III. Exposure Hazard Evaluation [Check all that apply]		
1. <input checked="" type="checkbox"/> Field Strength does not exceed 0.5mT (5 Gauss). Go to section V. Also see line 4.		
2a. <input type="checkbox"/> Field strength is at or exceeds 0.5 mT (5 Gauss). No potential for individuals with medical electronic devices to be exposed above exposure limits. Explain in line 4.		
2b. <input type="checkbox"/> Field strength is at or exceeds 0.5 mT (5 Gauss). Individuals with medical electronic devices* may be affected. List users of cardiac pacemakers and other medical electronic devices in Part C: Employee Exposure Record.		
3a. <input type="checkbox"/> Field strength is at or exceeds 60 mT (600 Gauss) but for less than 8 hours TWA. No individuals with medical electronic devices* or ferromagnetic implants/prostheses** present.		
3b. <input type="checkbox"/> Field strength is at or exceeds 60 mT (600 Gauss) but for less than 8 hours TWA. Individuals with medical electronic devices* or ferromagnetic implants/prostheses** may be affected. List users of medical electronic devices or ferromagnetic implants/prostheses in Part C: Employee Exposure Record.		
3c. <input type="checkbox"/> Field strength is at or exceeds BNL Exposure Limit (8-hr. TWA or ceiling limit). No potential for individuals to be exposed above BNL Exposure Limit. Explain in line 4.		
3d. <input type="checkbox"/> Field strength is at or exceeds BNL Exposure Limit (8-hr. TWA or ceiling limit). Potential for individuals to be exposed above BNL Exposure Limit. List the names of individuals in Part C: Employee Exposure Record.		
* Medical electronic devices includes cardiac pacemakers, electronic inner ear prostheses, insulin pumps.		
** Ferromagnetic implants/ prostheses includes aneurysm clips, replacement hips.		

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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): *Static magnetic field strength does not exceed 5G except within protective cover surrounding the ion pump.*

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

IV. Precautions / Engineering & Administrative Controls

Precautions During Use (check all that apply):

- | | |
|---|--|
| <input checked="" type="checkbox"/> Signs | <input type="checkbox"/> Lights |
| <input 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 type="checkbox"/> Physical indicator of fringe fields (e.g., use of string with paper clips or equivalent) | |

Other:

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

Checklist:

- Employee training required: Static Magnetic Fields Web Course Dept/Division-Specific Training
Supervisors training required: Static Magnetic Fields Web Course Dept/Division-Specific Training
Training required to be linked in Job Training Analysis for affected work groups / job classifications: yes no
Medical approval required for individuals with medical electronic devices yes no
Medical review required for individuals above 8-hour TWA or ceiling yes no

V. Initial Assessment

Completed by: Wai-Lin Litzke

Date: 6-14-07

Reviewed by ES&H Coordinator:

Date:

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

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Part B: Field Strength Measurement Record

Field Strength Measurement Record	
DATE: 6-14-07	SURVEYOR: Wai-Lin Litzke, SHSD

I. AREA INFORMATION		
DEPT.: CFN	BLDG.: 735	ROOM: 1L32
SOURCE: Scanning Electron Microscope		
CONTROLS: ___ BARRIERS <u> X </u> SIGNS ___ USE NON-FERROMAGNETIC TOOLS ___ OTHER:		

II. SURVEY INSTRUMENT INFORMATION		
INSTRUMENT: Metrolab	MODEL: THM 7025	SERIAL#: TH-BO 331
FACTORY CALIBRATION DATE: 9/29/06	FUNCTIONAL CHECK Bump check/ No source available (Test of meter response to known magnetic source) DATE:	

III. SAMPLING INFORMATION & RESULTS	
HAZARD: STATIC MAGNETIC FIELDS	UNITS: ___ mGauss ___ Gauss <u> X </u> mTesla ___ Tesla ___ Amp/meter

INDICATE WHERE READINGS WERE TAKEN IN THE TABLE BELOW AND ON THE SKETCH (GRID) ON NEXT PAGE. EQUIVALENT METHODS OF DOCUMENTATION MAY BE ATTACHED (E.G., PICTURE, PLAN VIEW WITH EXPOSURE LEVELS INDICATED)			
DISTANCE FROM SOURCE	LOCATION	READING	COMMENTS
3-4 "	Ion pump, outside of protective cover	< 0.5 mT	
1-2 "	Ion pump, inside protective cover	0.56 mT	Peak value

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Part B: Field Strength Measurement Record

Sketch of Survey Area. (Indicate positions on map where measurements were made.)



Caution:
Magnetic fields $\geq 5G$
inside protective cover
of ion pump

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FILE CODE: IH95SR.

FORM IH-SMF (v1.0)

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Part C: Employee Exposure Record

Employee Exposure Record	N/A
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DATE:	COMPLETED BY:
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I. AREA INFORMATION

DEPT.:	BLDG.:	ROOM:
SOURCE:		

NOTE: MEASUREMENTS OR CALCULATIONS IDENTIFY THE INDIVIDUALS BELOW TO HAVE THE POTENTIAL FOR EXCEEDING REGULATORY EXPOSURES LEVELS.

II. EMPLOYEE INFORMATION

FIRST NAME:	LAST NAME:	BNL #:
DEPT:	BLDG:	JOB TITLE:
EXPOSURE DURATION (Hrs):	EXPOSURE (Times per Day):	EXPOSURE (Days per Yr):
JOB/TASKS PERFORMED:		
Check all that apply: <input type="checkbox"/> MEDICAL ELECTRONIC DEVICE USER or <input type="checkbox"/> FERROMAGNETIC PROSTHESIS & <input type="checkbox"/> Exposure above BNL Exposure Limit <input type="checkbox"/> Exposure above 5 Gauss		

FIRST NAME:	LAST NAME:	BNL #:
DEPT:	BLDG:	JOB TITLE:
EXPOSURE DURATION (Hrs):	EXPOSURE (Times per Day):	EXPOSURE (Days per Yr):
JOB/TASKS PERFORMED:		
Check all that apply: <input type="checkbox"/> MEDICAL ELECTRONIC DEVICE USER or <input type="checkbox"/> FERROMAGNETIC PROSTHESIS & <input type="checkbox"/> Exposure above BNL Exposure Limit <input type="checkbox"/> Exposure above 5 Gauss		

FIRST NAME:	LAST NAME:	BNL #:
DEPT:	BLDG:	JOB TITLE:
EXPOSURE DURATION (Hrs):	EXPOSURE (Times per Day):	EXPOSURE (Days per Yr):
JOB/TASKS PERFORMED:		
Check all that apply: <input type="checkbox"/> MEDICAL ELECTRONIC DEVICE USER or <input type="checkbox"/> FERROMAGNETIC PROSTHESIS & <input type="checkbox"/> Exposure above BNL Exposure Limit <input type="checkbox"/> Exposure above 5 Gauss		

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