

Before using a copy of this form, verify that it is an acceptable version by checking with your Experiment Review Coordinator. Double-click to change the state of a checkbox, or type "X" over the box, or paste this

EXPERIMENT SAFETY REVIEW FORM

REVIEW NUMBER (supplied by ERC):

PRINCIPAL INVESTIGATOR:

DATE:

GROUP:

EXT:

E-MAIL:

LIFE NUMBER:

Project Title:
Location(s):
Proposed Start Date and Duration:

SIGNATURES:

Principal Investigator:	Date:
Experiment Review Coordinator:	Date:
ESRC Chairman:	Date:
	Date:
	Date:
	Date:
Approval Department Chairperson:	Date:
Review/Approval Comments:	
Walkthrough Signature:	Date:
Expiration Date (max 1 yr.):	
FUA Change Required? <input type="checkbox"/> Y <input type="checkbox"/> N	Fire Rescue Run Card Changes Required? <input type="checkbox"/> Y <input type="checkbox"/> N
Has a NEPA Review been Performed for this Project? <input type="checkbox"/> Y <input type="checkbox"/> N	
Project Termination Acceptance Signature:	Date:
Comments:	

I. DEFINE THE SCOPE OF WORK

A. Description

Describe the experiment purpose/scope. Identify all apparatus that will be used, and associated requirements. List special equipment (X-ray generators, lasers etc.) that will be used during the project. Identify measurement and test equipment, apparatus operating conditions, and required maintenance procedures as appropriate. Include calibration frequency for formal [calibration requirements](#). Attach supporting documents such as engineering calculations, drawings and specifications.

Indicate if modification of facility is required. Include the setup and decommissioning phases of the experiment. The Work Permit Process/Form may better address the hazards & controls of the set-up and/or tear down phases. Indicate if a Work Permit will be used.

Enter text here...

B. Materials Used /Waste Generated

List materials to be used and wastes generated. Refer to the [BNL Chemical Management System](#) for a complete listing of the chemicals in your locations. Include samples, chemicals, controlled substances, gases, cryogenes, radioactive materials, and biological material. You may use generic chemical class descriptions for commonly used materials (e.g., organic solvents, acids). List disposal methods. **Denote disposal method using the codes below.**

Materials Used & Wastes Generated	Disposal Method Type (Code below)	Estimated Quantity (provide units)		Estimated Annual Waste Generation
		Per Use	Total/Yr	

Note: Identify [Age Sensitive materials or special handling requirements](#).

Disposal Method Codes:

Air Emissions	Liquid Effluents	Wastes
P = Point Source	S = Sanitary	H = Hazardous
F = Fugitive	ST = Storm water	I = Industrial (Non-hazardous waste e.g., oils)
	O = Other	R = Radioactive
		M = Mixed (Radioactive + Hazardous)
		RM = Radioactive Medical
		MW = Medical
		T = Trash

C. Waste Minimization/Pollution Prevention

Describe how you plan to minimize generation of the wastes described above, and identify pollution prevention opportunities. Consider Ordering/using the smallest amount, using recycled material substituting non-hazardous materials. The [Pollution Prevention and Waste Minimization Subject Area](#) describes how to plan, conduct, and closeout work activities to eliminate or minimize the impact of their activities on the environment.

A plan is **required** here...

II. IDENTIFY AND ANALYZE HAZARDS ASSOCIATED WITH THE WORK

In this section indicate the hazards in each class. Include the setup and decommissioning phases of the experiment.

Physical Hazards (check all that apply)		<input type="checkbox"/> None	
<input type="checkbox"/> Cryogenics	<input type="checkbox"/> Oxygen deficient atmosphere	<input type="checkbox"/> Noise > 85 dBA	
<input type="checkbox"/> Fall hazards (e.g., ladders, elevated platforms, towers)			
<input type="checkbox"/> Material handling equipment (e.g., cranes, hoists, forklifts)			
<input type="checkbox"/> Machine shop or nonportable powered tools use			
<input type="checkbox"/> Electrical hazards (exposed conductors, large batteries, capacitors, etc)			
<input type="checkbox"/> Confined space		<input type="checkbox"/> Trenching/soil excavation	
<input type="checkbox"/> Extreme temperatures in workplace		<input type="checkbox"/> Remote location	
<input type="checkbox"/> Compressed gases (lecture bottles, cylinders, gas lines)			
<input type="checkbox"/> Pressurized vessels or systems			
<input type="checkbox"/> Vacuum chambers or systems with >1000 J stored energy			
<input type="checkbox"/> Autoclaves or high temperature ovens			
<input type="checkbox"/> Open flames		<input type="checkbox"/> Welding, brazing, silver soldering	
<input type="checkbox"/> Flammable gases/liquids/solids		<input type="checkbox"/> Other spark producing activity	
<input type="checkbox"/> Other (specify):			
Chemical Hazards (check all that apply)		<input type="checkbox"/> None	
<input type="checkbox"/> Carcinogens	<input type="checkbox"/> Highly acute toxins	<input type="checkbox"/> Reproductive toxins	<input type="checkbox"/> Corrosives
<input type="checkbox"/> Flammable liquids	<input type="checkbox"/> Flammable solids	<input type="checkbox"/> Strong oxidizers	<input type="checkbox"/> Oils
<input type="checkbox"/> Explosives	<input type="checkbox"/> Peroxidizables	<input type="checkbox"/> Pyrophoric materials	<input type="checkbox"/> PCBs
<input type="checkbox"/> Asbestos	<input type="checkbox"/> Pesticides/herbicides	<input type="checkbox"/> Controlled substances	
<input type="checkbox"/> Highly reactive materials		<input type="checkbox"/> Perchlorates	
<input type="checkbox"/> Storage or use of Beryllium or Beryllium articles. Attach Beryllium Use Review Form if checked.			
<input type="checkbox"/> Toxic metals (e.g., As, Ba, Be, Cd, Cr, Hg, Pb, Se, Ag)			
<input type="checkbox"/> Other (specify):			
Radiation Hazards (check all that apply)		<input type="checkbox"/> None	
<input type="checkbox"/> Sealed radioactive sources		<input type="checkbox"/> Windowless radioactive sources	
<input type="checkbox"/> Dispersible radioactive materials		<input type="checkbox"/> Neutron-emitting radioactive sources	

<input type="checkbox"/> Non-fissionable radioactive materials	<input type="checkbox"/> Fissionable radionuclides	
<input type="checkbox"/> Ionizing radiation-generating devices (x-ray sources, accelerators)		
<input type="checkbox"/> Class II, IIIa, or IIIb (visible <15mW) lasers	<input type="checkbox"/> Class IIIb (nonvisible >15mW) or IV lasers	
<input type="checkbox"/> Dynamic magnetic fields >1G at 60 Hz or dynamic electric fields > 1kV/m at 60 Hz		
<input type="checkbox"/> Static magnetic fields < 5 G. No Exposure Form is required		
<input type="checkbox"/> Static magnetic fields > 5 G and < 600 G	<input type="checkbox"/> Static magnetic fields exposure. Attach Static Magnetic Fields Exposure Form when required.	
<input type="checkbox"/> Static magnetic fields ≥ 600 G		
<input type="checkbox"/> Radio frequency (RF) or Microwave sources exceeding 10 mW radiated output		
<input type="checkbox"/> Infrared sources > 10 W	<input type="checkbox"/> Ultraviolet sources > 1 W	
<input type="checkbox"/> Extremely low frequency (ELF) radio sources		
<input type="checkbox"/> Other (specify):		
Biological Hazards (check all that apply) <input type="checkbox"/> None		
<input type="checkbox"/> Regulated etiological agent	<input type="checkbox"/> Recombinant DNA	<input type="checkbox"/> Animals
<input type="checkbox"/> Human blood/components, human tissue/body fluids		<input type="checkbox"/> Human subjects
<input type="checkbox"/> Other (specify):		
Offsite Work (check appropriate box) <input type="checkbox"/> None		
<input type="checkbox"/> Reviewed or controlled by ES&H programs at the offsite location	<input type="checkbox"/> Requires additional controls (include in the next section)	
<u>Security Issues Checklist</u> (check all that apply) <input type="checkbox"/> None		
<input type="checkbox"/> Access controls	<input type="checkbox"/> Cyber security	
<input type="checkbox"/> Classified materials or information	<input type="checkbox"/> Counter-intelligence work	
<input type="checkbox"/> Import or export controls	<input type="checkbox"/> Personnel security	
<input type="checkbox"/> Nuclear material control and accountability	<input type="checkbox"/> Valuable materials	
<input type="checkbox"/> Other (specify):		

See [Identification of Significant Environmental Aspects and Impacts Subject Area](#) or your ECR if you need assistance completing the following table.

Significant Environmental Aspects (check all that apply) <input type="checkbox"/> None
<input type="checkbox"/> Any amount of hazardous waste generation
<input type="checkbox"/> Any amount of radioactive waste generation
<input type="checkbox"/> Any amount of mixed waste generation (radioactive hazardous waste)

<input type="checkbox"/> Any amount of transuranic waste generation
<input type="checkbox"/> Any amount of industrial waste generation (e.g., oils, vacuum pump oil)
<input type="checkbox"/> Any amount of Regulated Medical Waste
<input type="checkbox"/> Any atmospheric discharges that require engineering controls to reduce hazardous air pollutants or radioactive emissions, or are identified as a Title V emission unit, or require monitoring under NESHAP
<input type="checkbox"/> Any liquid discharges that require engineering controls to limit the quantity or concentration of the pollutant, or include radionuclides detectable at the point of discharge from the facility, or contain any of the chemicals listed on BNL's SPDES permit
<input type="checkbox"/> Storage or use of any chemicals or radioactive materials that require engineering controls – see Storage and Transfer of Hazardous and Nonhazardous Materials Subject Area
<input type="checkbox"/> On-site or off-site transportation of chemicals or dispersible radioactive materials
<input type="checkbox"/> Any use of once-through cooling water with a flow of 4 gpm – 24 hrs/day (10 gpm – 8 hrs/day, daily use of >15 gpm for >60 days) and discharging to the sanitary sewer
<input type="checkbox"/> Soil contamination or activation
<input type="checkbox"/> Any underground pipes/ductwork that contains chemical or radioactive material/contamination
<input type="checkbox"/> Other environmental aspects related to your work (specify):
<input type="checkbox"/> Process Assessment Form required (determined by ECR or other qualified person)

III. DEVELOP AND IMPLEMENT HAZARD CONTROLS

For each hazard identified in the previous section, describe how that hazard is controlled. Identify the **Engineering Controls** (e.g., interlocks, shielding), **Administrative Controls** (e.g., procedures, RWPs) or **Personal Protective Equipment** (e.g., respirators, gloves; see the [Personal Protective Equipment Subject Area](#)) that will be employed to reduce hazards to acceptable levels.

The Experiment Review Coordinator, along with the **Principal Investigator (PI)** and Building Manager, as appropriate, will evaluate this experiment for impacts that will require an update to the Facility Use Agreement (FUA), and or Fire/Rescue Run Cards.

The **PI** develops and implements hazard controls in consultation with, and using feedback from, the personnel who will be performing the work.

A. Physical Hazards/Controls

Hazard	Controls (Administrative, Engineered, Protective Equipment)

Note: Include maintenance, inspection and testing, and formal calibration, including frequency as appropriate.

B. Chemical Hazards/Controls

Hazard	Controls (Administrative, Engineered, Protective Equipment)

Note: Refer to the [Working with Chemicals Subject Area](#) for requirements regarding particularly hazardous chemicals such as carcinogens, reproductive toxins, and highly acute toxins, including postings, decontamination plan, and address above.

C. Environmental Hazards/Controls

Hazard	Controls (Administrative, Engineered, Protective Equipment)

Note: Identify the requirements from applicable waste management subject area ([hazardous](#), [radioactive](#), [mixed](#), [regulated medical](#)). List all applicable environmental permits (Suffolk County Art. XII, Title V Emission Source, etc.) and the relevant controls required by those permits.

D. Radiation Hazards/Controls

Hazard	Controls (Administrative, Engineered, Protective Equipment)

Note: List sources/materials. Attach or refer to Radiation Work Permits.

E. Biological Hazards/Controls

Hazard	Controls (Administrative, Engineered, Protective Equipment)

Note: List additional approvals/permits/reviews required (e.g., BNL Biosafety Committee approval).

F. Offsite Work Hazards/Controls

Hazard	Controls (Administrative, Engineered, Protective Equipment)

Note: List the location of all off-site work and identify any off-site organization whose ESH requirements will be followed (e.g., other DOE Labs). Indicate additional controls (not specified above) that are needed.

G. Security Issues/Controls

Issue	Controls (Administrative, Engineered, Protective Equipment)

Note: See the [Security Checklist](#), and, if necessary, consult the security office at 4691 or 4496 for more information or guidance.

IV. PERFORM WORK WITHIN CONTROLS

All work shall be performed within the controls identified within this document. It is the PI's responsibility to ensure that this document is kept up to date. The PI should consult with the ERC as appropriate to determine if changes to this document are significant enough to require a new review/document.

If a hazard assessment may be required for this experiment, the PI should contact the ES&H Coordinator and/or the ERC for assistance. The PI should document any hazard assessments performed for this experiment in Section VI.

A. Training

List all project personnel, indicating they are authorized and competent to perform the work described. List the training required for each individual. Identify any certifications or experiment-specific training

required. Indicate if any project personnel are minors (under 18 yrs. of age). Contact your Training Coordinator and ES&H Coordinator as appropriate for assistance.

It is the responsibility of the PI to maintain a complete up-to-date list of personnel and their full training requirements, and to ensure that training and qualifications are maintained. A [sample ESR signature form](#) is available.

Name	Life/Guest #	Required Training (Course or JTA code)

Note: The [BNL Training and Qualifications Web Site](#) contains course offerings and descriptions, required training checklist, as well as employee training records.

B. OSHA/DOE Required Medical Surveillance

Indicate if potential exposure is in excess of trigger levels listed. Exposure evaluation and/or medical surveillance may be required. Additional [training](#) may be required for any indicated agent. See the [SBMS](#) for additional information and controls on the hazards listed.

Regulated Hazard	Hazard Specific Training Trigger	Medical Surveillance Exposure Trigger
<input type="checkbox"/> None		
<input type="checkbox"/> Inorganic Arsenic	Any day above the OSHA action level (without regard to respirator use)	30 days/year above the action level (without regard to respirator use)
<input type="checkbox"/> Biohazards (CDC/NIH/WHO listed Agent)	None	See Subject Area for guidance
<input type="checkbox"/> Cadmium	Any day above the OSHA action level	30 or more days/year at or above the action level
<input type="checkbox"/> Lasers	Use Class IIIb or Class IV Lasers	Use Class IIIb or Class IV Lasers
<input type="checkbox"/> Lead	Any day above the OSHA action level	30 or more days/year at or above the action level
<input type="checkbox"/> Methylene Chloride	Any day above the OSHA action level	<ul style="list-style-type: none"> - 30 days/year at or above the action level - 10 days/year above the 8-hour TWA PEL or the STEL - Any time above the 8-hour TWA PEL or STEL for any period of time where an employee at risk from cardiac disease or other serious MC-related health condition and employee requests inclusion in the program

Regulated Hazard	Hazard Specific Training Trigger	Medical Surveillance Exposure Trigger
<input type="checkbox"/> Noise	Any day above the ACGIH TLV	Any time equal or greater then 85 dBA TWA 8-hour dose
<input type="checkbox"/> OSHA Regulated Chemicals <i>Acrylonitrile Benzene</i> <i>Benzidine 1,3 Butadiene</i> <i>4-Dimethyl aminoazobenzene</i> <i>Ethylene oxide Ethyleneimine</i> <i>Formaldehyde Vinyl Chloride</i>	Any day above the OSHA PEL	- Routinely above the action level (or in the absence of an action level, the PEL) - Event such as a spill, leak or explosion results in the likelihood of a hazardous exposure
<input type="checkbox"/> Static Magnetic Fields	Worker who routinely works in magnetic field	- Any time at ≥ 0.5 mT (5 G) for Medical Electronic Device wearer - Any day at ≥ 60 mT (600 G) to whole body [8 hour average] - Any day at ≥ 600 mT (6000 G) to limbs [8 hour average] - Any Time at ≥ 2 T (20,000 G) to whole body [ceiling] - Any time at ≥ 5 T (50,000 G) to limbs [ceiling]

C. Emergency Procedures

Identify any emergency actions, procedures, or equipment that must be in place to insure personnel safety and environmental protection. Include the location of emergency shutoffs, and spill control materials.

Enter text here...

D. Transportation

Identify materials, hazards and controls for any on-site and off-site transportation of hazardous and/or radioactive materials. See relevant SBMS Subject Areas.

Enter text here...

E. Notifications

The PI or designee should notify building occupants of any activities that might impact them or their work, and document this here. List external personnel/organizations that require notification related to experimental activities and/or to be notified of changes (e.g., a BNL Committee for review/approval, Occupational Medicine Clinic, Fire/Rescue).

Enter text here...

F. Termination/Decontamination

Describe any decommissioning plan, including decontamination of the area at termination of the experiment. Identify any hazards and controls, special precautions or procedures. Include chemical and waste reconciliation. Indicate if a walk-down or an ERE will be scheduled to ensure the area is suitable for future projects. Indicate if Work Permit Form/Procedure will be used.

A plan is required here...

G. Community Involvement Issues

Identify issues that may require community involvement (see the [Community Involvement in Laboratory Decision-making Subject Area](#)) and describe the plan that addresses these issues. Attach the Community Involvement Checklist.

Enter text here...

V. PROVIDE FEEDBACK ON ADEQUACY OF CONTROLS AND CONTINUE TO IMPROVE SAFETY MANAGEMENT

Provide comments on the review process, including this form and communication. Identify any lessons learned or worker feedback contributing to modifications/improvements to the controls or process.

Enter text here...

VI. ATTACHMENTS

Use this section to include any supporting documents, hazard assessments, figures, tables, etc. that were not entered into the previous sections of the form.