Chapter 1: General Policy and Responsibilities

ESH Threshold Review Form

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URL: https://www-group.slac.stanford.edu/esh/eshmanual/references/eshFormThresholdReview.pdf | .docx

This form is used to document whether a proposed activity can be categorized as a “work activity” or a “project activity” that needs to be reviewed through one or both of the experimental and conventional project review processes. The form is to be completed by the responsible person for the activity, with assistance from his or her ESH coordinator; approved by the building/area manager and requester’s department head; and maintained by the responsible person. (See General Policy and Responsibilities: ESH Project Review Procedure [SLAC-I-720-0A24C-001].)

Note this form is to be completed **only** if the activity exceeds one or more of the lower limit thresholds below.

1 Lower Limit Thresholds

1. Researcher/requester has experience with the activity and is comfortable with the perceived risk
   - Recognized hazard(s) and existing mitigations
   - Limited scope
   - Applicable standard operating procedures (SOPs): activity within the scope of existing SOPs
   - No deviation from the standard model
2. Not facility related: not attached to the building, et cetera
3. No new and/or unusual equipment involved
4. Does not involve change/modification of or impact to a shared utility or shared area
5. Supervisor concurs that the proposed activity is within the standard model for the individual

2 Project Information

Project / experiment name		Location / bldg	
Requester		Phone	
Responsible person		Phone	
Requester's department head		Phone	
ESH coordinator		Phone	

3 Statement of Work

The statement of work (SOW) must provide a general description of the project in sufficient detail to include all of the major elements and systems of the experiment/project. This SOW should also include any significant hazards associated with the experiment/project (examples are radiation, laser, pressure, cryogenic, and hazardous materials). Provide supporting documentation as applicable/available, including drawings and specifications, equipment layout, cut-sheets, etc. Please include projected starting and ending dates for the each phase of the project/experiment.

4 Threshold Review

If, based on review, the determination is yes on one or more of the broad thresholds below then the experiment/project must be referred to one or both of the external review processes (conventional and experimental).

Broad Thresholds	Determination	Comments / Clarification / Qualifiers
1. Some or all of the activity's characteristics having possible safety consequences are new to the responsible organization.	☐ Yes ☐ No	
2. The proposed activity represents a significant change of scope of the existing operation.	☐ Yes ☐ No	
3. The proposed activity introduces hazards not previously analyzed and for which there are no institutional protocols and procedures to mitigate them (e.g. hazards not addressed in the ESH Manual).	☐ Yes ☐ No	
4. The proposed activity represents a significant change in the hazard of operation.	☐ Yes ☐ No	
5. The proposed activity is sufficiently complex that a review would be prudent.	☐ Yes ☐ No	
6. The proposed activity triggers Building Inspection Office (BIO) requirements* or is required by DOE directive or Stanford institutional review boards. *BIO Review triggers are listed at the end of this form.	☐ Yes ☐ No	

5 Hazard Characterization and Mitigation Approach

Item	Experiment / Project Aspect	Hazard Description	Mitigation Approach
Example	Liquid nitrogen directly plumbed to instrument from adjacent supply line.	*Potential direct exposure to liquid nitrogen due to line failure or incorrect install → Contact of liquid nitrogen by skin or clothes may result in severe burns and permanent tissue damage* *Oxygen displacement due to leaking Nitrogen gas → asphyxiation*	*Adjacent instrument has liquid nitrogen plumbed to it with ventilation, SOP, training, PPE, etc.* *New install will implement all specifications from adjacent instrument including area ventilation and oxygen monitoring.* *Personnel will adopt SOP and PPE protocols and be trained to the same.*
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6 Applicability Determination

	Determination	Comments / Clarification / Qualifiers
Experiment/project can be designated a work activity? (Note: if no then please indicate below which (or both) review process applies)	☐ Yes ☐ No	
Conventional construction project review process applicable?	☐ Yes ☐ No	
Experimental review process applicable?	☐ Yes ☐ No	

Preparers

Responsible person		Signature		Date	
ESH coordinator		Signature		Date	

Approvers

Building or area manager		Signature		Date	
Requester's department head		Signature		Date	

7 Building Inspection Office Review Triggers

The triggers below are intended for quick reference. Modifications to science or experimental equipment, devices, or systems do not require Building Inspection Office (BIO) review and authorization, except that attachment/support and interface of the equipment and devices to building structures and building systems. For additional guidance, see the *BIO Project Review and Authorization Manual* (SLAC-I-730-2A24Z-001) and/or contact BIO (ext. 4113).

General Exemptions (excerpted from the *BIO Project Review and Authorization Manual)*

Emergency repairs. Where equipment replacements and repairs must be performed in an emergency situation, BIO shall be notified by the next working day, and a PRS submittal shall be provided at the earliest reasonable opportunity.

Repairs. Application or notice to BIO is not required for ordinary repairs to equipment, replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

However, this exemption shall not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include addition to, alteration of, replacement or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work. Any work which adds, redistributes, alters, induces, increases or combines any loads or forces to a building, structure, appurtenance, equipment, floor, roof, ceiling, wall, slope or embankment shall require BIO review.

General Aspects of a Project That Trigger BIO Review

1. Construction, enlargement, alteration, moving, or demolishing a building or structure
2. Any element under review that has a known code violation (as an existing condition)
3. A change of character, use or occupancy of a space, building, parking lot, road, or structure
4. Tents, temporary structures, and membrane structures, including construction trailers and fences
5. Excavations, grading, and fill, or other earth moving activities
6. Partitions greater than 5’9”
7. Installations or modifications of science and experimental equipment as follows: BIO review and authorization required for the attachment/support/interface of the equipment and devices to building structures and building systems
8. Installation or alteration of a chemical or biological laboratory
9. Installation, alteration, repair, or replacement of pressure vessel, cryogenic, vacuum, or compressed gas systems
10. Initial installation or modification of piping or tubing used to deliver highly toxic or reactive (for example, unstable, pyrophoric, water reactive) fluids (gaseous or liquid) from a source container to the process/research equipment

    Depending on the specific hazards, ESH may request that a formal process hazard analysis be conducted on the design of the system, before acquisition and installation of the hardware. During the initial installation, a procedure must be developed with BIO input for further modification and testing (for example, pressure testing, leak checking). Subsequent modifications falling within the scope of this procedure may be carried out and documented by the line organization without further review by ESH.
11. Installation, alteration, repair, relocation, or replacement of a hazardous materials storage, delivery, or use system
12. Work in or adjacent to a vehicular way

Structural Aspects of a Project That Trigger BIO Review

13. Installation, alteration, repair, or replacement of a structural element; any change that would affect loading or seismic resistance of a structure
14. Equipment/objects weighing 400 lbs or more will require engineered seismic restraints and consequent BIO review
15. Equipment/objects less than 400 lbs attached to the walls, ceilings, or floors may require seismic restraints and therefore BIO review. Please contact BIO for determination.

Electrical Aspects of a Project That Trigger BIO Review

16. Installation, alteration, relocation, or replacement of conventional facilities electrical distribution or utilization equipment (except cord-and-plug connected equipment)
17. Any change that would affect the electrical loading of the conventional facilities power distribution system

Applicability: applies to conventional facilities electrical distribution systems (premises wiring), both permanent and temporary, or standalone electrical distribution systems powered by a generator, UPS, photovoltaics, or similar (includes construction temporary power)

Exception: installation or relocation of 120/208 VAC receptacle outlets and replacement of like-for-like utilization devices such as light fixtures and receptacles does not require BIO review.

Control of Hazardous Energy in Out of Service Equipment: Separate BIO authorization is required for out of service equipment left in a disconnected state or a mitigation of hazardous energy state. This applies to all hazardous energy systems, including electrical, pressure, compressed air, process water, gas cylinder, cryogenic, etc.

Mechanical (Piping, Plumbing, HVAC) Aspects of a Project That Trigger BIO Review

18. Installation, alteration, repair, relocation, or replacement of a mechanical element; any change that would affect loads on a system
19. Any facilities equipment change affecting quantities of air flow or a reduction in outside air
20. Repair or alteration of facilities piping, (e.g. steam, air, water, sewer, storm, process piping, process effluent, etc.) exceeding a materials value of $500

Exception: equipment maintenance or replacement of like-for-like does not require BIO review.

Fire Aspects of a Project That Trigger BIO Review

21. Installation, alteration, repair, relocation, or replacement of
    - Fire-resisting building elements (fire barrier walls)
    - Egress system components (aisle ways, corridors, exit doors, exit signs, emergency lighting, etc.)
    - Fire suppression, alarm, detection or reporting systems
22. Increases in fire loading beyond that typical for the existing building, structure, or area in question
23. Changes to fire department access (examples include narrowing of roads; alteration of trestles; installation of bollards; placement of anything that may block fixed fire response equipment such as fire hydrants, sprinkler risers or fire department connections)

Exception: equipment maintenance or replacement of like-for-like does not require BIO review

Americans with Disabilities Act Aspects That Trigger BIO Review

24. New, Additions additions to, or alteration of any accessible element, including paths of travel, ramps, walkways, doors, restroom facilities, exit paths, parking lots, sidewalks, stairs, required signage, elevators, break rooms, kitchenettes, or new elements (contact for BIO for specifics on who pays for the work)

Environmental Aspects of a Project That Trigger BIO Review

25. Generation of significant and large quantities of hazardous waste that will have an immediate effect on fees/taxes imposed by the state and county and/or impact Waste Management labor and resources (such as waste drums and bins), or requires special disposal/treatment
26. Installation of equipment/containers that hold 55 gallons or more of oil
27. Removal of asbestos-containing material, and/or working where asbestos-containing material is, or may become, friable
28. Use of hazardous materials on a project during construction or operation
29. Proposed operations/experiments that may result in airborne emissions and/or liquid effluents
30. Operation of portable equipment powered by fossil fuel (for example, a standby generator)

Radiation Protection Aspects of a Project That trigger BIO Review (contact Radiation Protection for other radiation triggers)

31. Use of nuclear gauges for compaction testing
32. Work in or around cryogenic modules
33. Work in or around controlled areas (radiologically controlled, radiological, or radiation, high radiation, or contaminated radiation)

34. Work on or with radioactive materials, including radiation sources or naturally occurring radiation materials such as thorium welding rods or sand blasting media.

Site Security Aspects of a Project That Trigger BIO Review (contact SLAC Site Security for other triggers)

35. Road closures or work within roadway
36. Access routes both in and out of SLAC
37. Locks, card key systems, security cameras