

High Hazard Research Policy

Stanford University

Environmental Health & Safety

Research Safety

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Overview and Applicability

High hazard in this policy refers to research activities in settings where the most immediately serious risks arise from hazards that can quickly cause significant bodily harm or death if not adequately controlled. This includes certain work with electricity, work from heights, confined space entry, and other specialized activities. High hazards affecting the physical safety of researchers carry the potential to cause serious injury or fatality (SIF).

The High Hazard Research Policy is intended to:

- Lower the likelihood and severity of SIF and SIF-potential incidents
- Ensure that high hazard work takes place within an effective safety management system, including registration of high hazard research activities
 - Strengthen the effectiveness of hazard controls and injury prevention efforts, through robust risk assessment, work planning and control, and oversight
 - Improve regulatory compliance with requirements for physical safety in research settings
- Formalize routine assessments of effectiveness, conducted as part of a continuous improvement process

Research activities, both routine and non-routine, involving a high level of physical hazard shall be identified, assessed, and registered through a safety management system process described below.

Responsibilities

Principal investigators (PIs) shall:

- Initiate registration of their high hazard research activities which meet threshold criteria (see below).
- Approve high hazard registration materials upon submittal to EH&S, and thereby authorize registered high hazard research activities conducted by the researchers in their groups.

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- Ensure that hazard controls are fully and properly implemented.
- Participate in the initial and periodic reviews of high hazard registrations.

PIs may delegate development of specific aspects of registrations to research group members, safety designees, and others. However, PIs must themselves direct the completion of registration items and maintain first-hand knowledge of risk assessments and the design and implementation of effective hazard controls.

School / department leadership shall:

- Endorse and promote the high hazard policy and registration process.
- Hold PIs accountable to participate.
- Resolve requests from EH&S regarding registration requirements applicability for specific research groups.

EH&S shall:

- Administer the high hazard registration process, including management of process workflows, review of registration documents, and communications with PIs on the status of registration.
- Provide user-friendly tools and templates to facilitate registration, and minimize administrative burden.
- Coordinate with stakeholders and subject matter experts to review registration submittals and assist PIs with completion.
- Communicate with research leadership about challenges and situations in which PIs and research groups may struggle to meet minimum expectations.
- Continuously improve the process through user feedback and adjustment.

University Safety Partners shall:

- Identify which PIs in their School conduct activities that may require registration

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- Assist the PIs in their School with completing registrations and implementing hazard controls
- Provide feedback to EH&S on registration process efficiency and effectiveness

High Hazard Threshold Criteria

EH&S shall determine the thresholds at which research activities are deemed “high hazard” for the purposes of this policy. Generally, high hazard research activities include:

- Higher hazard electrical work (refer to the Electrical Safety Management Plan for Research for specific details)
- Troubleshooting, servicing or maintenance of equipment and systems that may create the potential for unexpected release of hazardous energy (i.e., activities requiring lock-out/tag-out (LOTO for hazard control)
- Work at heights exceeding 6 feet
- Permit-required confined space entry
- Welding or other significant hot work in a research space (i.e., not in an area dedicated to welding and associated tasks)

In conjunction with subject matter experts, stakeholders, and registration participants, EH&S shall review the threshold criteria periodically (usually annually), and adjust as needed. The Associate Vice Provost of EH&S shall approve adjustments to the threshold criteria. EH&S shall communicate changes to the threshold criteria to registration participants, prospective participants, School deans, department chairs, the VP/DoR, affected University Safety Partners, and others as necessary. Adjusted thresholds have a lead time of approximately three months prior to becoming fully in effect.

Additional criteria may be applied to determine whether a research activity requires registration. EH&S shall consider particular activities on a case-by-case basis as needed.

High Hazard Registration Process

Each registration shall include:

- Complete risk assessment and work planning documentation and associated documents uploaded to a registration tracking system, whereby stakeholders external to the authorized researcher group may access and review documents
- PI name and affiliation
- Review date and registration period (e.g., two years)

To prepare a high hazard registration, each PI responsible for research involving high physical hazards shall:

- Complete the Stanford research risk assessment template, supplemented to match the level of inherent risk as appropriate by other useful hazard assessment approaches
- Evaluate risks and select appropriate hazard controls, following the hierarchy of controls to guide selection choices
- Create or revise work planning documents including standard operating procedures and a description of task-specific training required for authorized researchers
- Submit the registration for review.

EH&S shall review each registration and may request consultation with the PI and researchers to clarify questions and verify information provided. EH&S may also visit research areas to confirm the suitability of hazard controls and work planning documents. If needed, an improvement plan may be prepared by the PI to document plans for hazard control upgrades. In some cases, EH&S may require an improvement plan if substantial upgrades to building systems, engineering controls, or other hazard controls are needed to mitigate risks to an acceptable level.

Throughout the duration of the registration period, PIs are responsible for ensuring that research activities are conducted in conjunction and alignment with risk assessments and all specified hazard controls. PIs are responsible for ensuring the proper use and functioning of

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engineering controls; full implementation of administrative controls (including training); and the consistent use of personal protective equipment (PPE). Should a change in research activities prompt significant changes to risk assessments, work planning, and/or hazard controls, PIs shall amend registration documents accordingly and re-submit to EH&S to update the registration, or to terminate the registration if the activities originally authorized by the PI for registration are no longer conducted.

At the conclusion of each registration period, EH&S shall prompt PIs to update or terminate registrations. EH&S shall review requests for updates to registrations, and renew the registration accordingly. Updates and renewals may entail consultation with PIs and researchers, and visits to research areas.