

APS Beamline Experiment Safety Reviews

Approvals and Revisions

APS Policy and Procedure Number: 3.1.25

Revision: 2

Supersedes revision: Rev 1 (1 Sep 2006)

Approvals & Revision History: in APS Document Management System

Effective Date: 1 October 2007

Review period: 1 year

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Policy

Scope

This Policy and Procedure applies only to beamline-related user research activities at the APS.

Summary

Using the APS web-based system, researchers are required to define the scope of all of their beamline-related experimental activities at the APS and to prepare an Experiment Safety Assessment Form (ESAF) and submit an Experiment Hazard Control Plan (EHCP).

The APS and the beamline management will authorize an experiment to be conducted only after the activities associated with the experiment have been defined, hazards have been identified, and adequate hazard controls have been implemented. For the purposes of this Policy and Procedure, the organization responsible for the day-to-day operations of a beamline is referred to as the *beamline management*.

No experimental activities may be started at the APS without: 1) approval of the EHCP by the beamline management, 2) approval of the EHCP by the APS, and 3) the verification of safeguards/training as specified in the EHCP and on the Experiment Authorization (EA) form. The approval of the EHCP is good for up to one year after the notification of the joint approval, resubmission is required if the experiment is to be conducted after this time limit has elapsed. At the beginning of the experiment an EA form must be posted at the beamline end cabinet and an EHCP must be posted at the experiment station. The EA and EHCP are generated automatically from the ESAF system.

The beamline management and the APS will be working together as partners in the review process to ensure that a safe working environment is maintained at the APS.

Responsibilities

Researchers wishing to conduct experiments at the APS are responsible for:

- Preparing an EHCP by completing an electronic ESAF on the APS web pages that:
 - Defines the scope of the experiment, disclosing all materials (samples, reagents, equipment, etc.), facilities, and processes that will be used at the APS
 - Identifies hazards associated with their activities
 - Defines the safeguards consistent with ANL/APS standards [\[1\]](#)
 - Lists the experimenters that will be working at the APS
- Providing the EHCP to the APS far enough in advance of the experiment so that the APS can verify that the proposed controls are adequate and consistent with applicable requirements
- Identifying a member of the experiment team as an on-site spokesperson (OS) who will sign the Experiment Authorization form upon confirming the accuracy and completeness of the EHCP and that all safeguards are in place
- Working within the scope of and in conformance with the EHCP
- Sharing opportunities for improvement on the experiment safety process with the APS and beamline personnel

Beamline Management is responsible for:

- Assisting experimenters in identification of safeguards consistent with the safe operation of beamline facilities
- Reviewing EHCPs in a timely manner
- Identifying to the APS plans that are beyond the beamline management's expertise to evaluate and for which APS/ANL support is sought
- Approving EHCPs only after determining that they appear to:
 - Identify all significant risks to personnel and the environment
 - Define a hazard control strategy capable of reducing risks to acceptable levels
 - Include adequate hazard control verification requirements
- Designating individuals who can approve EHCPs
- Verifying safeguards and training in place and endorsing the EA

APS/AES is responsible for:

- Administrating the APS beamline experiment safety review program; the APS Engineering Support Division (AES) Division Director has line responsibility for the program
- Maintaining web-based systems for entering ESAFs, experiment safety reviews and for the preparation of EHCPs
- Assisting experimenters in identification of safeguards and training required by ANL or APS policy
- Appointing an APS Beamline Experiment Safety Review Board (ESRB) whose members, or designees, review and approve EHCPs (appointments are made by the AES Division Director)
- Approving EHCPs only after determining that they appear to:

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- Adequately describe the experiment
 - Identify all significant risks to personnel and the environment
 - Define a hazard control strategy satisfying ANL requirements and capable of reducing risks to acceptable levels
 - Reviewing EHCPs in a timely manner
 - Including adequate hazard control verification requirements
 - Verifying and documenting the implementation of hazard controls where required
 - Posting authorization forms and EHCPs

Procedure

1. Using the APS web-based Experiment Safety review system, a spokesperson for the research group submits information to the Beamline and the APS characterizing the experiment by completing an ESAF. Submission of this information must meet the lead-time requirements defined on the APS Experiment Safety web page. Experiments that present minimal hazards common to all beamlines should be submitted at least 7 days prior to the scheduled start of the experiment. Additional time is required for higher levels of risk and for safety protocols new to the APS. If circumstances do not allow for the full 7 days for review, the APS will consider the request for expedited review on a case-by-case basis.

[Steps 2 and 3 can take place in any order, but both steps must be completed before an experiment is authorized.]

2. The beamline management (for the beamline where the experiment is to be performed) reviews the submitted EHCP for consistency with anticipated hazards associated with the experiment and consistency with beamline facilities safeguards. If acceptable, the designated representative of the beamline management approves the plan using the APS web-based experiment safety review system. Typically the beamline management will screen the plan before the APS review.
3. The APS Experiment Safety Review Board reviews the EHCP for consistency with expectations and ANL/APS standards. If acceptable, a member of the board, or designee, approves the plan using the APS web-based experiment safety review system.
4. The APS advises the submitter:
 - That the EHCP has been approved by both the Beamline and the APS, and that the experiment may run after specified hazard controls have been verified to be in place, or
 - What safety concerns need to be addressed and that the plan needs to be revised and resubmitted, or
 - If the proposed experiment falls outside the scope of activity the APS can safely accommodate.

[Note: the approval is good for up to one year. An experiment that is to be conducted more than one year after the notice of approval must be resubmitted for review and approval.]

5. The experiment OS and other personnel designated in the EHCP:
 - Verify that the EHCP accurately identify materials, equipment, activities and users that are part of the experiment and
 - Endorses the EA form

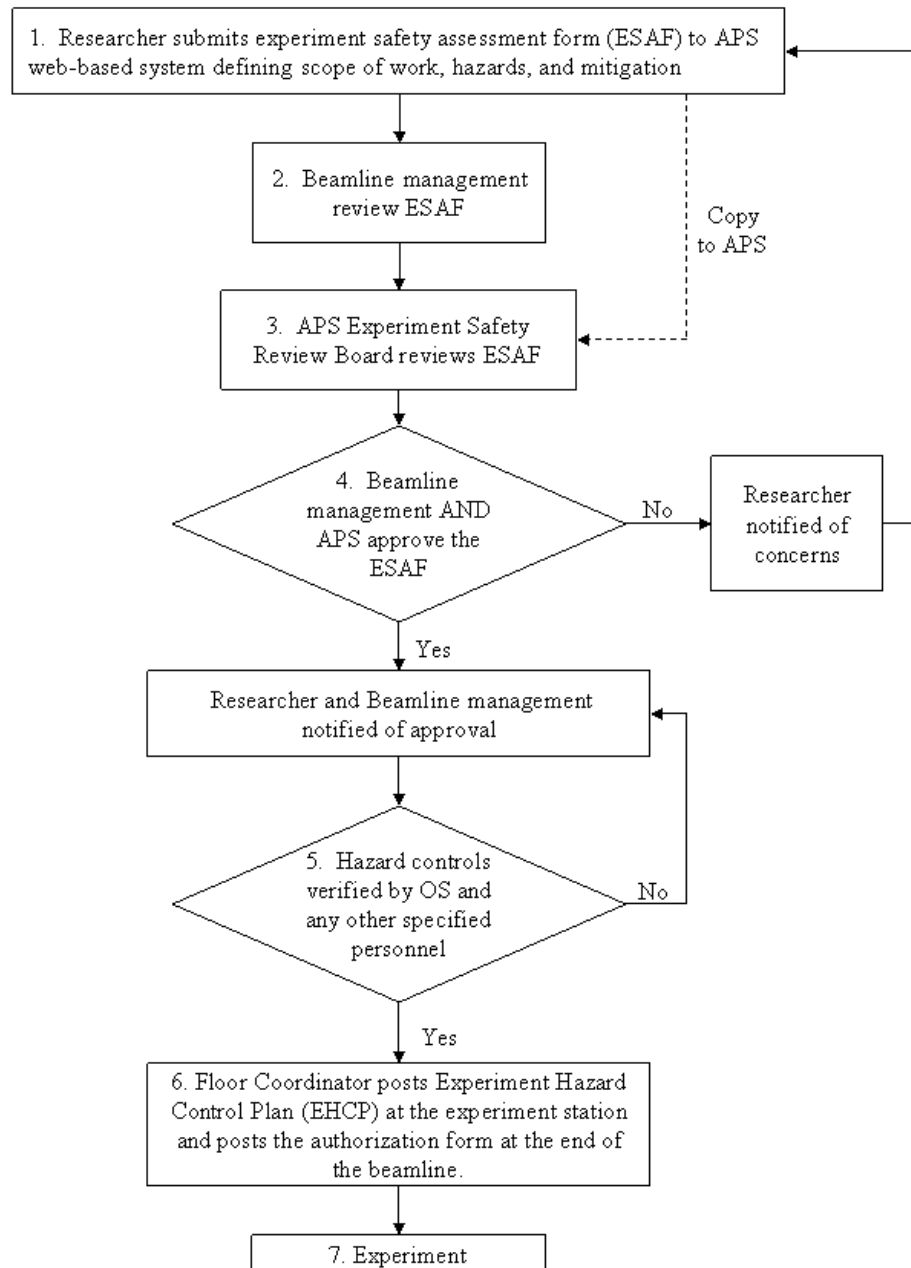
The beamline management and other personnel designated in the EHCP:

- Verify that the EHCP has been reviewed and approved,
- Verify that the specified controls, training, and safeguards are in place, and
- Endorses the EA form

The verification and endorsement are required before the activity that triggered the requirement can begin. If a non-hazardous sample that is consistent with the originally defined scope of the ESAF is added to the experiment, no additional approval by the APS is needed. Addition of hazardous materials or equipment beyond the original scope of the ESAF will require approval by the APS before the experiment may begin.

6. An APS Floor Coordinator posts the endorsed experiment authorization form in the display cabinet on the main aisle at the end of the beamline and a copy of the EHCP at the experiment station or laboratory.
7. The experimenters conduct the experiment.

APS Beamline Experiment Safety Review Process



[1] ANL-E Environment, Safety and Health Manual and APS User Policies and Procedures