

If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match. The on-screen version of the Collider-Accelerator Department Procedure is the Official Version. Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.

C-A OPERATIONS PROCEDURES MANUAL

9.3.1 Procedure for Reviewing Conventional Safety Aspects of a C-A System

Text Pages 2 through 8

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Approved: _____
Signature on File
 Collider-Accelerator Department Chairman _____ Date _____

J. W. Glenn

9.3.1 Procedure for Reviewing Conventional Safety Aspects of a C-A System

1. Purpose

- 1.1 The C-A Accelerator Systems Safety Review Committee's (ASSRC) job is to review conventional safety aspects and hazard control of new and modified C-A systems. This procedure provides instructions for C-A Group Leaders to evaluate which new and modified C-A systems require a review by the ASSRC. This procedure also provides instructions for ASSRC members, Line Managers, and designated Project Engineers and Project Physicists for reviewing new and modified C-A systems. Feedback on review items is provided through "Action Items."
- 1.2 Definitions
 - 1.2.1 C-A Group Leaders are Line Managers of projects (e.g.: Head Electrical Systems, Group Leader Preinjectors, etc.).
 - 1.2.2 Project is any proposed new or modified equipment or system that fits the profile established in Section 3.1 of this procedure.
 - 1.2.3 The Chair of the C-A Accelerator Systems Safety Review Committee is equivalent to the term Experiment Review Coordinator as used in the [Work Planning and Control for Experiments and Operations](#) Subject Area.
 - 1.2.4 C-A Project Leader is the Engineer or Physicist who is the lead person who interfaces with the ASSRC; for example, in preparing documents for ASSRC review, obtaining hazard analyses or in closing out Action Items. The C-A Project Leader is the C-A Department equivalent to a combination of the Experiment Review Coordinator and Lead Experimenter as used in the [Work Planning and Control for Experiments and Operations](#).
 - 1.2.5 Action Items provide assurance to the ASSRC Chair and the C-A Associate Chair for ESHQ that feedback and "lessons learned" from review process are acted on to completion. Completion of items is not required for start-up of a specific project. They relate to long-term improvements to the accelerator and its processes as required in the [Work Planning and Control for Experiments and Operations](#) Subject Area. (See also [C-A OPM 9.3.2](#)).
 - 1.2.6 Committee Concerns represent, in the formal sense, the Committee's concurrence of issues that must be resolved.
 - 1.2.7 Committee Comments are statements by individual members based upon their technical competence, and which are intended to serve as guidance to the designated project engineer or physicist.

2. Responsibilities

- 2.1 The C-A Group Leaders (e.g.: Head Electrical Systems, Group Leader Preinjectors, etc.) shall:
 - 2.1.1 Ensure that projects whose design specification include equipment or systems fitting the profile for ESH reviews as stated in Section 3.1 are referred to the ASSRC for review by notifying the ASSRC Committee Chair.
 - 2.1.2 Assign the C-A Project Leader and ensure that he or she reads and understands [C-A OPM 9.3.1](#) and [C-A OPM 9.3.2](#) plus their Attachments.

Note:

If requested, Chief Engineers shall certify a device as per requirements in [C-A-OPM 9.2.3](#), Procedure for Chief Engineers to Certify Conformance of Devices.

- 2.2 The C-A Project Leader shall:
 - 2.2.1 Analyze the hazards associated with the project as outlined in this procedure.
 - 2.2.2 Initially present the project to the ASSRC Chair and the ESHQ Division Head with a written description of the project, a completed [C-A Hazard Identification Tool](#)
 - 2.2.3 If a review is required, he/she shall collect appropriate documentation for a review and present the project to the ASSRC.
 - 2.2.3 Act as the Line Manager's designated representative on matters related to the project and its conformance to ESH requirements.
 - 2.2.4 Assist the Committee on the resolution of Committee concerns and comments and ensure compliance with all BNL requirements in the [Standards Based Management System](#).
 - 2.2.5 Authorize and supervise commissioning and apply and remove "Authorized Operator" tags used for operation of the system during commissioning. See [C-A-OPM 2.13](#).
 - 2.2.5 Ensure sign-off of all items that must be closed out before start of operations, or sub-systems operation on the ASSRC Check-Off List. See [C-A-OPM 9.3.2](#).
- 2.3 The ASSRC Chair shall
 - 2.3.1 See that the documentation is distributed to the committee.
 - 2.3.2 Schedule a reviews and walkthroughs when required
 - 2.3.3 Ensure that subject matter expert(s); that is, those familiar with the particular safety issues presented by the system under review, are present at the system design review meeting and walkthrough. The ASSRC Chair

- may deputize an outside expert to be a member for a specific meeting if the corresponding committee expert is not present.
- 2.3.4 Write, or delegate the writing of, the minutes of Committee meetings and walk-throughs, including details of comments and concerns.
 - 2.3.5 Write or delegate the writing of, the minutes of Committee walk-throughs, list those items that must be included in the ASSRC Check-off List.
- 2.4 The C-A Department Chairman, or his designee shall approve start of routine operations of new or modified systems or sub-systems.
- 2.5 The C-A ESHQ Division Head, or ESH Coordinator, shall:
- 2.5.1 Review completed C-A Hazard Identification Tool Documentation. Recommendations, of the type of ASSRC reviews required for the project, shall be submitted to the ASSRC.
 - 2.5.2 The C-A ESHQ Division Head shall review, and when appropriate, complete the [Checklist for Identifying Issues/Decisions that May Require Community Involvement](#). The checklist shall be submitted to the Community Involvement Office.
- 2.6 The C-A ASSRC shall perform three types of reviews:
- 2.6.1 A full Committee review of projects and/or systems when they near the procurement phase
 - 2.6.2 A Sub Committee review of small, limited hazard projects at the procurement stage or specific hazard controls within a system.
 - 2.6.3 Perform an “as installed” walk-through before initial startup to assure the hazards are controlled, or will be, after the Check-Off List in [C-A-OPM 9.3.2](#) is completed.

3. Prerequisites

- 3.1 C-A Systems that are Subject to Committee Review:
- 3.1.1 C-A buildings, systems, projects or equipment with an A1 (critical) or A2 (major) Quality Classification shall be reviewed. If no classification currently exists, then the appropriate Chief Engineer and Department QA Representative shall assign a classification code to the system.
 - 3.1.2 New equipment, which if it fails, could cause more than \$100,000 in damage, or more than three weeks of C-A program loss.
 - 3.1.3 C-A systems that have the potential for "High Hazard", or "Moderate Hazard", as defined in [Examples of Low, Moderate and High Tasks](#) from the [Work Planning and Control for Experiments and Operations](#) Subject Area, or by the C-A Hazard Identification Tool.
 - 3.1.4 Conventional aspects of experiments referred to the Committee for review by the Chair of the Experimental Safety Review Committee.

- 3.1.5 Modifications to existing C-A buildings, systems or equipment, which are classified as A1 or A2, or which will introduce a previously absent hazard as listed the C-A Hazard Identification Tool.
 - 3.1.6 Any system, project or equipment referred for review by the C-A Associate Chair for ESHQ, the C-A ESHQ Division Head, or any ASSRC Member.
- 3.2 Training:
- 3.2.1 Members of the C-A ASSRC shall read and understand the duties required of them in this procedure. In addition, be knowledgeable as to the nature and hazards typically found in C-A systems as outlined in the [C-A Hazard Identification Tool](#)
 - 3.2.2 C-A Group Leaders shall read and understand the duties required of them in Sections 2.1 and 3.1 of this procedure.
 - 3.2.3 C-A Project Leader shall read and understand the duties required of them in this procedure, and use of the [C-A Hazard Identification Tool](#).
 - 3.2.4 The C-A ESHQ Division Head, and ESH Coordinator, shall read and understand the duties required of them in this procedure, and use of the [C-A Hazard Identification Tool](#)
- 3.3 A C-A ASSRC formal meeting shall be considered to be in session when four or more of the current members attend and the necessary safety issues experts are present.
- 3.4 A subcommittee of three or more members may perform a small system review or walk-through with the required experts designated by the Committee Chair.

4. Precautions

- 4.1 New or modified C-A systems shall not become operational or change parameters outside of their approved envelope until satisfactory review by the Committee, and the designated C-A Project Leader fulfills or resolves all Committee concerns.
- 4.2 Formal release to operations of a new or modified system by the Division Chair or designee is required.
- 4.3 Where applicable, the designated Project Engineer or Physicist, in consultation with the Associate Chair for ESHQ, shall also ensure all necessary NEPA and DOE Accelerator Safety Order 420.2 requirements are met prior to the design of a new facility or structure, including
 - 4.3.1 Safety Assessment Document and Accelerator Safety Envelope or modification to existing.
 - 4.3.2 National Environmental Policy Act (NEPA) Assessment or Environmental Impact Statement, or a request for Categorical Exclusion.

- 4.4 The C-A Project Leader shall ensure that all BNL requirements in the [Standards Based Management System](#) are met prior to occupancy or operation of a new facility or structure.
 - 4.4.2 This may include an Accelerator Readiness Review, Operational Readiness Evaluation (ORE), and/or a Beneficial Occupancy Readiness Evaluation (BORE).
 - 4.4.3 Modifications to building structures or cranes and their supports require Plant Engineering evaluation and also ESHQ Division Head or ESH Coordinator shall be informed before implementation.
 - 4.4.1 The C-A Associate Chair for ESHQ, or designee, will assist the designated C-A Project Leader in order to determine if these additional requirements apply.

5. **Procedure**

- 5.1 The designated C-A Project Leader must analyze the hazards using the [C-A Hazard Identification Tool](#) and good practices given in [C-A OPM ATT 9.3.1.a](#).
- 5.2 The designated C-A Project Leader must provide written descriptions of the system and safety issues. This material must be given to the C-A ESHQ Division Head, or ESH Coordinator and the C-A ASSRC Chair for distribution to the Committee. It shall include:
 - 5.2.1 a short description of the system and its function,
 - 5.2.2 a completed analysis from the [C-A Hazard Identification Tool](#), as to what type of subject matter experts may be needed at the review meeting.
- 5.3 The C-A ESHQ Division Head, or ESH Coordinator, shall determine if a review is required, and so inform the Project Head and the Chair ASSRC. If a review is not required, he shall inform the local Tier I inspection leader to include it in their next inspection.
- 5.4 If a review is required, the Project Engineer shall provide the ASSRC Chair with the following additional information for distribution to the Committee before the review:
 - 5.4.1 Appropriate diagrams.
 - 5.4.2 Descriptions of protective systems.
 - 5.4.3 If available, appropriate documentation from other reviews, eg. Plant Engineering, Laser Officer, C-A Environmental Compliance Representative or others.
 - 5.4.4 Description of what equipment will have 'Yellow Tags' ([C-A OPM 2.13](#)) to control who operates the equipment during commissioning.
- 5.5 The Chair ASSRC shall determine whether a full review or a sub committee review is required. He shall schedule a meeting date of the ASSRC within 3

weeks of receipt of the information and distribute to the Committee copies of any materials provided by the designated C-A Project Leader and meeting notices.

- 5.6 The ASSRC meeting shall consist of:
 - 5.6.1 A presentation by the C-A Project Leader
 - 5.6.2 Discussion where hazards and mitigation are reviewed and Committee Concerns and Comments are developed.
 - 5.6.3 A wrap-up where Concerns and Comments are summarized.
- 5.7 The Chair will prepare and distribute meeting minutes as a BNL Memorandum to Committee Members with copies to all those who were in attendance at a review, the appropriate Division Head, and the C-A QA Manager. Minutes will include:
 - 5.7.1 A list of those present
 - 5.7.2 A brief description of the system
 - 5.7.3 Points of discussion
 - 5.7.4 Committee Concerns and Comments
 - 5.7.5 If appropriate, an annotated copy of the analysis from the C-A Hazard Identification Tool
 - 5.7.6 What other C-A committees will be asked to review an aspect of the project.
 - 5.7.7 Action Items (see [C-A-OPM-ATT 9.3.2.a](#)) that the committee wants launched.
- 5.8 On completion of the project, the C-A Project Leader shall confer with the Chair and they shall schedule a date for a walk-through by a Sub-Committee of the ASSRC.
 - 5.8.1 The Chair shall distribute meeting notices and copies of previous minutes and any materials provided by the C-A Project Leader. He shall appoint an ASSRC Sub-committee to do the walkthrough.
 - 5.8.2 The C-A ASSRC Sub-committee shall review the earlier concerns of the Committee as listed in the minutes and inspect the installation for other possible hazards.
 - 5.8.3 Resolution of Committee “Concerns” shall be presented at the walk-through and documented in the minutes. Limits on operation during initial startup will be reviewed here. Unresolved or new concerns will be the basis of the ASSRC Check-Off List items. For feedback and improvement, Action Items shall be launched (see [C-A-OPM-ATT 9.3.2.b](#)).
- 5.9 Systems shall not be made operational, that is, under control of local operators, until all ASSRC Check-off List items are closed out and the appropriate Division Head signs the form.

- 5.10 To provide a last opportunity for feedback, the C-A Project Leader or Physicist, together with the ASSRC Chair, may generate an Action Item on completion of the 'Check-Off List'.
- 5.11 The Committee Chair will supply a copy of all reports and minutes to the ASSRC Secretary for archival storage.

6. Documentation

- 6.1 Committee minutes, attachments, and all reports, are to be kept with the C-A ESHQ Division for archival storage.
- 6.2 Committee Reports.
- 6.3 The appropriate Chief Engineer will keep materials used during the presentation on file until completion of the project.

7. References

- 7.1 [C-A Hazard Identification Tool](#)
- 7.2 [C-A-OPM 2.13, Use of "Do Not Operate", and "Caution" Tags for Equipment and Systems"](#)
- 7.3 [C-A-OPM 9.3.2, "Procedure for Preparing ASSRC Check-Off List and Assuring that ASSRC Recommendations are Completed](#)
- 7.4 [C-A-OPM-ATT 9.3.2.a, "ASSRC Check-Off List"](#)
- 7.5 [C-A-OPM-ATT 9.3.2.b, "ASSRC Action Item Form"](#)
- 7.6 SBMS Subject Area - [Checklist for Identifying Issues/Decisions that May Require Community Involvement.](#)
- 7.7 SBMS Subject Area - [Work Planning and Control for Experiments and Operations.](#)

8. Attachments

- 8.1 [C-A-OPM 9.3.1.a "Considerations When Designing an Accelerator for Safety".](#)