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**C-A OPERATIONS PROCEDURES MANUAL**

13.6.2 Configuration Management

Text Pages 2 through 6

Attachments

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved: \_\_\_\_\_ *Signature on File* \_\_\_\_\_  
 Collider-Accelerator Department Chairman                      Date

D. Passarello

## 13.6.2 Configuration Management

### 1. Purpose

This document defines a process for the review of technical changes to C-A drawings and specifications. This process supplements the BNL's Standard Based Management System (SBMS) [Engineering Design](#) Subject Area.

For changes to technical specifications, the processes outlined in this document shall be followed except the author may opt to reissue the specification with an updated cover page continuing current approval signatures instead of preparing an ECN.

In addition, in order to ensure that personnel working in the C-A facilities properly label new disconnects or label disconnects after modifying the existing circuits, all changes to power distribution system shall start with an Engineering Change Notice (ECN). From the ECN, a circuit drawing would be created and a breaker or disconnect label would be printed with the work order.

### 2. Responsibilities

C-A scientific and technical staff shall implement this configuration management program.

### 3. Prerequisites

None

### 4. Precautions

None

### 5. Procedure

#### 5.1 Reviews and Approval of Changes

5.1.1 Any individual recognizing the need for a drawing change may prepare an Engineering Change Notice (ECN), [C-A-OPM-ATT 13.6.2.a, "Engineering Change Notice Form"](#). The individual requesting the ECN is responsible for all required data, and for the submission of the ECN to the cognizant engineer. Data entry on the ECN may be typed or hand written.

5.1.2 The cognizant engineer (CE) will evaluate the ECN for the following:

- Impact on form, fit, and function
- Impact on tooling schedules, material, and costs
- Impact on cost, schedule, and/or technical performance (i.e. performance, reliability, maintainability, availability, durability, interchangeability, systems interface, health, or safety)

- Technical adequacy
- Impact on drawing numbers and revisions
- Impact on design review criteria. The Design Process section of [C-A OPM 13.6.1](#) outlines when to convene a formal design review.
- Impact on OPM's (for changes affecting A1 systems, items only).
- Impact on items already items already produced/procured, as well as items that are in the process of being produced or procured.

5.1.3 The CE shall forward the ECN and affected documents, to the appropriate individual(s) for review/approval. Distribution shall be based on the organizational responsibility and Quality classification specified on the affected drawing(s)/specification(s). Required signatures are as follows.

- |               |  |
|---------------|--|
| A3 (Minor)    | Cognizant Physicist (required for Primary Area Enclosure changes) and Group Leader, or designee  |
| A2 (Major)    | Chief Mechanical, and/or Electrical Engineer, or designee, and Division/Deputy Division Head, or designee (Requires A3 signatures)                                   |
| A1 (Critical) | Quality Assurance, Radiation Safety Committee Chairman, or designee, and Department Chairman/Deputy Department Chairman, or designee (Requires A3 and A2 signatures) |

In some cases, as determined by the CE, additional approval signatures may be required on the ECN. These signatures shall be recorded on the Engineering Change Notice - Additional Signature Sheet in [C-A-ATT-OPM 13.6.2.a](#).

## 5.2 ECN Impact on Drawing/Specification Revisions

5.2.1 It is the responsibility of the CE, when reviewing an ECN, to evaluate the impact of a drawing modification on all subsequent higher and/or lower assemblies/parts.

5.2.2 A new drawing/specification will be created when a part/item is changed in such a manner that one or more of the following conditions occur.

5.2.2.1 Performance or durability is affected to such an extent that superseded items must be discarded or modified for reasons of safety or malfunction.

5.2.2.2 Parts, subassemblies, or complete articles, are changed to such an extent that the superseded (old article), and superseding (new article) items, are not interchangeable.

5.2.2.3 When superseded parts (old parts) are limited to use in specific articles or models, and the new parts are not so limited to use.

5.2.2.4 When a replaceable part, or subassembly within an assembly, is changed so that it is no longer interchangeable with its previous version, a new drawing number shall be assigned to the assembly which contains the new part/subassembly, if the new assembly is not interchangeable with previous revisions. All subsequent higher order assembly part numbers will also be changed, up to and including the level at which interchangeability is re-established.

5.2.2.5 An item has been altered, selected, or is a source control item.

5.2.3 Based on the information supplied by the CE, the Design Group shall increment the drawing(s) revision by one letter if an item is changed in such a manner that none of the conditions in paragraph 5.2.2 (1 through 5) occur.

5.2.4 The ECN shall specify when a drawing becomes obsolete. It is recommended that the design room annotate each superseded drawing with the statement "This Drawing has been superseded by Drawing No. \_\_\_\_". The revision level of the superseded drawing shall not be incremented due to the addition of this statement in the field of the drawing.

### 5.3 Incorporation/Distribution of Approved Engineering Change Notices (ECN)

5.3.1 The C-A Documentation Control Group shall assign a number to the approved ECN, annotate the drawing(s)/specifications(s) with the ECN number and maintain an ECN Log. Recorded in the log will be the date, the drawing number, and the name of the individual who requested the ECN.

5.3.2 For technical specifications, approval, incorporation, and distribution of changes, are the responsibility of the project engineer or physicists.

5.3.3 For drawings, the Design Group will incorporate the change into the drawing, reference the ECN number in the revision section of the drawing and, as a minimum, have the person who verified that the plotted drawing incorporates the changes as stated on the approved ECN, initial the revision history box.

5.3.4 If the changes specified on an ECN have not been incorporated into the original drawing, and hard copies of the drawing are requested, the Design Room will:

- List all outstanding ECN's on the drawing. When feasible, use the "Outstanding ECN" section of the title box.

- Distributed the annotated drawing and ECN together to those needing change information prior to the availability of the drawing revision.

**Note 1:**

The revision level of the drawing shall not be incremented due to the listing of ECN information in the title box or the addition of the referenced statement in the field of the drawing.

**Note 2:**

No more than two outstanding ECN's may accrue against any drawing without a revision being made to the document incorporating the changes.

5.3.5 To facilitate implementation of the ECN, the CE should consider the following:

- Contacting groups or individuals responsible for carrying out actions/dispositions required by the ECN.
- Submitting a "need to know" distribution list to the C-A Documentation Control Group. The C-A Documentation Control Group would inform, via email, the individuals on the distribution list that an ECN was written against a specific drawing/document.

5.3.6 The recipient of the revised/new drawing shall ensure that all drawings, obsolete or superseded by the revision, are removed from current files and/or workplaces, or are marked "Superseded", and are not utilized in processing material beyond the date the ECN was signed by the Chief ME/EE, or designee.

5.4 Special tracing requirements for ECN's related to A1 drawings/specifications

5.4.1 Documentation Control Group shall forward a copy of the initial ECN request to the C-A QA Office for inclusion in the C-A ATS.

5.4.2 Tracking shall be as follows:

- Initial action item shall be assigned to QA. Action description shall be to ensure required approvals are obtained by due date. Due date shall be two (2) weeks from the date the ECN is entered into C-A ATS.
- Upon receipt from the C-A Department Chair, QA will forward approved ECN to Documentation Control Group and close action item.

- Second action item shall be assigned to the Documentation Control Group. Action description shall be to ensure ECN is incorporated into appropriate drawing(s) and/or specification(s) by due date. Due date shall be four (4) weeks from the date approved ECN is received from QA.
- If the ECN impacts a procedure(s) within the C-A OPM, an Action Item shall be assigned to the Access Controls Group Leader. Action description shall be to: “Review and revise as necessary the OPM(s) impacted by ECN \_\_\_\_\_, specifically \_\_\_\_\_.” Upon completion, sign original ECN documentation located in the Document Control Office.” Due date shall be four (4) weeks from date approved ECN is received from QA.

## **6 Documentation**

A complete Engineering Change Notice is required before issuing revised drawings or specifications.

## **7. References**

7.1 [C-A-OPM 13.6.1, "Preparation & Issuance of Engineering Drawings/Specifications".](#)

7.2 [SBMS, Engineering Design](#)

## **8. Attachments**

8.1 [C-A-OPM 13.6.2.a, "Engineering Change Notice Form".](#)