



<b>LCLS Project Management Document #</b>	<b>1.1-019</b>	<b>Project Management</b>	<b>Revision 0.0</b>
<b>Earned Value Management System Change Control Procedure</b>			
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### Change History Log

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# Change Control Procedure

## 1.0 PURPOSE

This document describes the process used to initiate, approve, track, and implement changes to the LCLS project schedule and cost baselines following all change control guidelines in the LCLS Project Execution Plan, Project Management Plan, and Earned Value Management System Description.

## 2.0 SCOPE

This procedure applies for the entire life cycle of the LCLS project. This procedure must be followed for any baseline change that triggers the change control thresholds defined in the LCLS Project Execution Plan.

## 3.0 REFERENCES

LCLS Project Execution Plan, Section 7, Project Management, Control, and Reporting

LCLS Project Management Plan, Section 7, Configuration Management

LCLS 1.1-015 Earned Value Management System Description, Section 5, Change Control

LCLS 1.1-018 Control Account and Work Package Planning Procedure

LCLS 1.1-020 Project Schedule Procedure

LCLS 1.1-021 Cost Estimating Procedure

LCLS 1.1-022 Monthly Status and Reporting Procedure

Change Control Board Presentation Outline (template)

Change Control Log (database)

Baseline Change Request Form (template)

## 4.0 DESCRIPTION

Change control rules and restrictions are described in Section 5 of the LCLS Earned Value Management System Description. In summary, a Baseline Change Request (BCR) is required whenever there is a change in the:

- Scope of work. This can include changing the scope of existing tasks (a description change) or adding/deleting work scope (the work breakdown structure).

- Responsibility. This includes instances where tasks, scope, and budget are moved from one WBS element to another or from one organization to another and thus impacts control account assignments.
- Schedule. This includes instances where replanning work tasks impacts key customer or management milestones or impacts other control accounts. Existing tasks with assigned chargeable accounts may need to be deleted; new tasks may need to be added. Changes to the schedule also impact the related budget costs.
- Budget. This includes instances where contingency funds must be used to accomplish a given objective.
- Funding. This can impact the work as planned and thus the related schedule and cost baselines.

Baseline Change Requests are not required for:

- Internal replanning or routine maintenance internal to a control account where there is no impact to the control account work scope, schedule, or budget. This includes rolling wave planning and changes to the work approach within the parameters of the control account.
- Maintaining the current schedule and estimate to complete costs to reflect current conditions on the project. This includes work task duration and date changes, resource assignment cost changes, logic changes, and adding new tasks.

The LCLS project uses a Change Control Board (CCB) to review, approve, and manage all Baseline Change Requests. The roles and responsibilities of the Change Control Board as well as the review and approval cycle are described in the LCLS Project Management Plan.

Who has final approval or signature authority for any baseline change depends on the scope of the change. The approval thresholds are described in the LCLS Project Execution Plan. The approval levels used on the LCLS project are:

- Level 0, Secretarial Acquisition Executive.
- Level 1, Acquisition Executive.
- Level 2, DOE Federal Project Director.
- Level 3, LCLS Project Director.
- Level 4, LCLS System Manager.

This procedure addresses all changes that must be approved at levels 2, 3, and 4.

The change control process is illustrated and described in Section 5. Note that the acronym PMCS is used to identify the LCLS project management control team in the process flow charts.

## 5.0 PROCEDURE DETAILS

### 5.1 Initiate Change Request

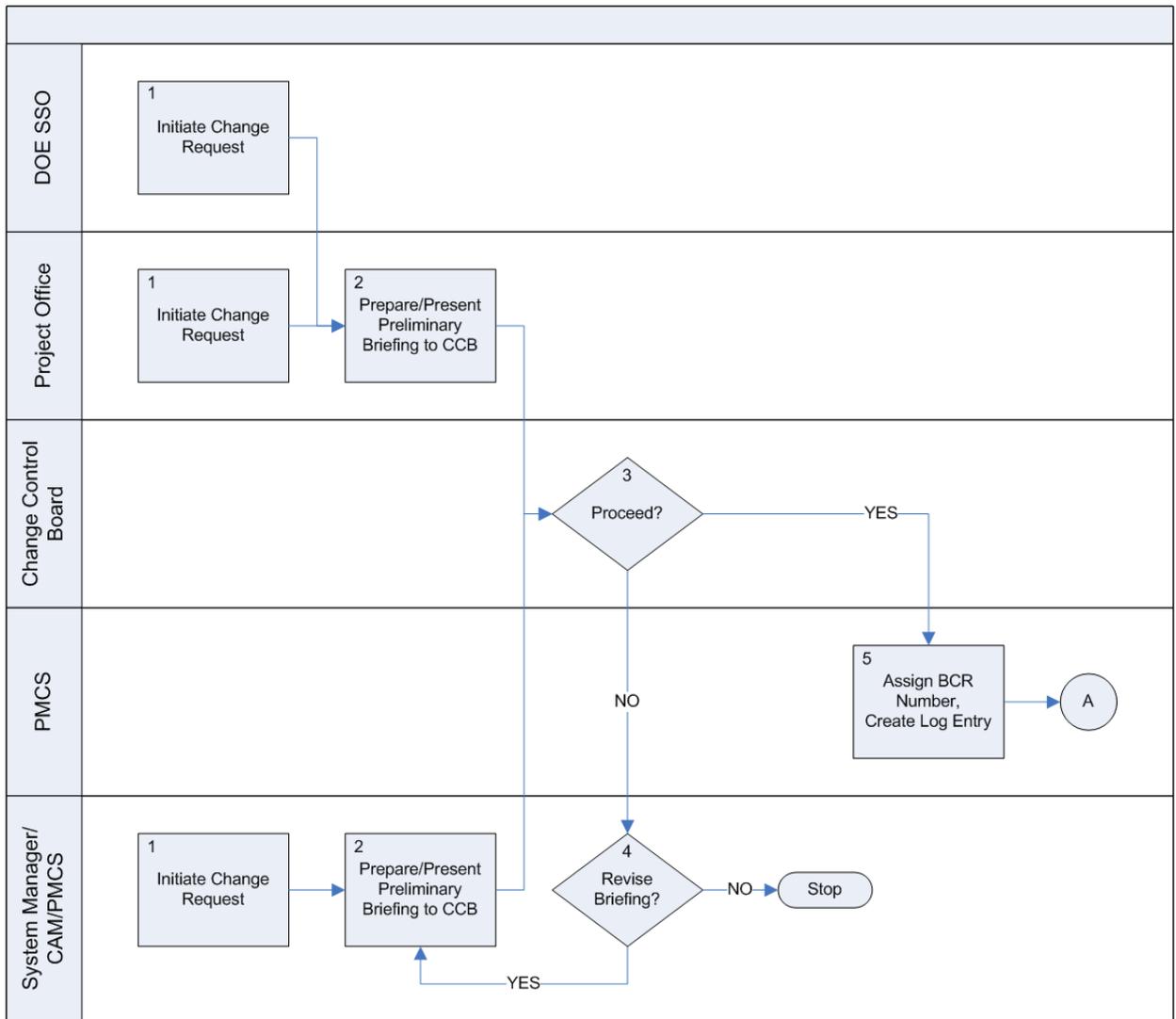


Figure 1. Initiate Change Request

#### Step 1 Initiate Change Request

*Responsibility:* DOE Stanford Site Office, LCLS Project Office, System Manager, Control Account Manager, or Project Control Team

Who initiates the change request depends on the source and the nature of the change. Changes that impact a greater portion of the project such as a change in the scope of work or any major schedule delays are likely to be initiated at the higher levels of management. Bottoms up changes are likely to be initiated at the system manager, control account manager, or project control team level.

## **Step 2 Prepare/Present Preliminary Briefing to CCB**

*Responsibility:* Project Office, System Manager, Control Account Manager, Project Control Team

The Project Office is responsible for preparing a draft Baseline Change Request Form and presenting the preliminary briefing to the Change Control Board when initiating a change request from the DOE Stanford Site Office.

When a system manager or control account manager initiates a change request, they are responsible for preparing a draft Baseline Change Request Form and presenting a preliminary briefing on the proposed change to the Change Control Board.

As needed, the project control team will provide support to the project office, system manager, or control account manager to help them develop the content for the change request form and the Change Control Board preliminary briefing.

The Baseline Change Request Form should be used to develop the initial content for the proposed change. This form provides the basis for the Change Control Board briefing content. It provides an initial quantification of the change and the impact to the schedule, cost, and technical aspects of the project.

The content of the preliminary briefing presented to the Change Control Board should follow the outline in the LCLS CCB presentation template. The briefing should address these topics:

- Summary of what change is being requested in the draft Baseline Change Request Form;
- Background information;
- Describe what's the problem;
- Describe the proposed solution to the problem;
- What other solutions were considered and why the proposed solution is the best option;
- What's the impact of the change (technical, schedule, key milestones, cost, resources, funding, other systems);
- What's the impact of not approving the proposed change request;
- Any other details pertinent to the proposed change request – what else may be involved or impacted that will help the Change Control Board in their decision making process.

## **Step 3 Proceed?**

*Responsibility:* Change Control Board

Based on the draft Baseline Change Request Form and preliminary briefing presented to the Change Control Board, the board makes a decision on whether or not to proceed. This preliminary review step is useful to eliminate unnecessary changes or to identify

change requests that need more information before the Change Control Board can make a decision. Once a change request passes this initial review, it becomes an official change request and is entered into the Change Control Log database.

At this stage in the process, the Change Control Board can do one of two things:

1. Decline the proposed change request. The Baseline Change Request Form moves to Step 4 in the process.
2. Approve the proposed change. The Baseline Change Request Form moves to Step 5 in the process.

#### **Step 4 Revise Briefing?**

*Responsibility:* System Manager, Control Account Manager, or Project Control Team

When the Change Control Board declines the proposed change request, they can do one of two things:

1. Reject the proposed change request. When this occurs, the change control process stops. There is no change request to process.
2. Request the draft Baseline Change Request Form and proposed change briefing content be revised based on specific instructions from the Change Control Board (identify what needs to be updated). When this occurs, the process returns to step 2. The responsible person for the Baseline Change Request and briefing content revises the content and presents the proposed change again to the Change Control Board.

#### **Step 5 Assign BCR Number, Create Log Entry**

*Responsibility:* Project Control Team

Once the draft Baseline Change Request has been approved by the Change Control Board, the request is assigned a unique Baseline Change Request number and is entered into the Change Control Log database. This initial database entry includes the:

- Change request number;
- Major system reference;
- Associated work breakdown structure element;
- Level of change request (the approval level required);
- Color of money;
- Estimated cost;
- Date of the request;
- Date the request was presented to the Change Control Board;
- A short description of the change request;

- Name of the person who originated the request.

## 5.2 Review and Approve Change Request

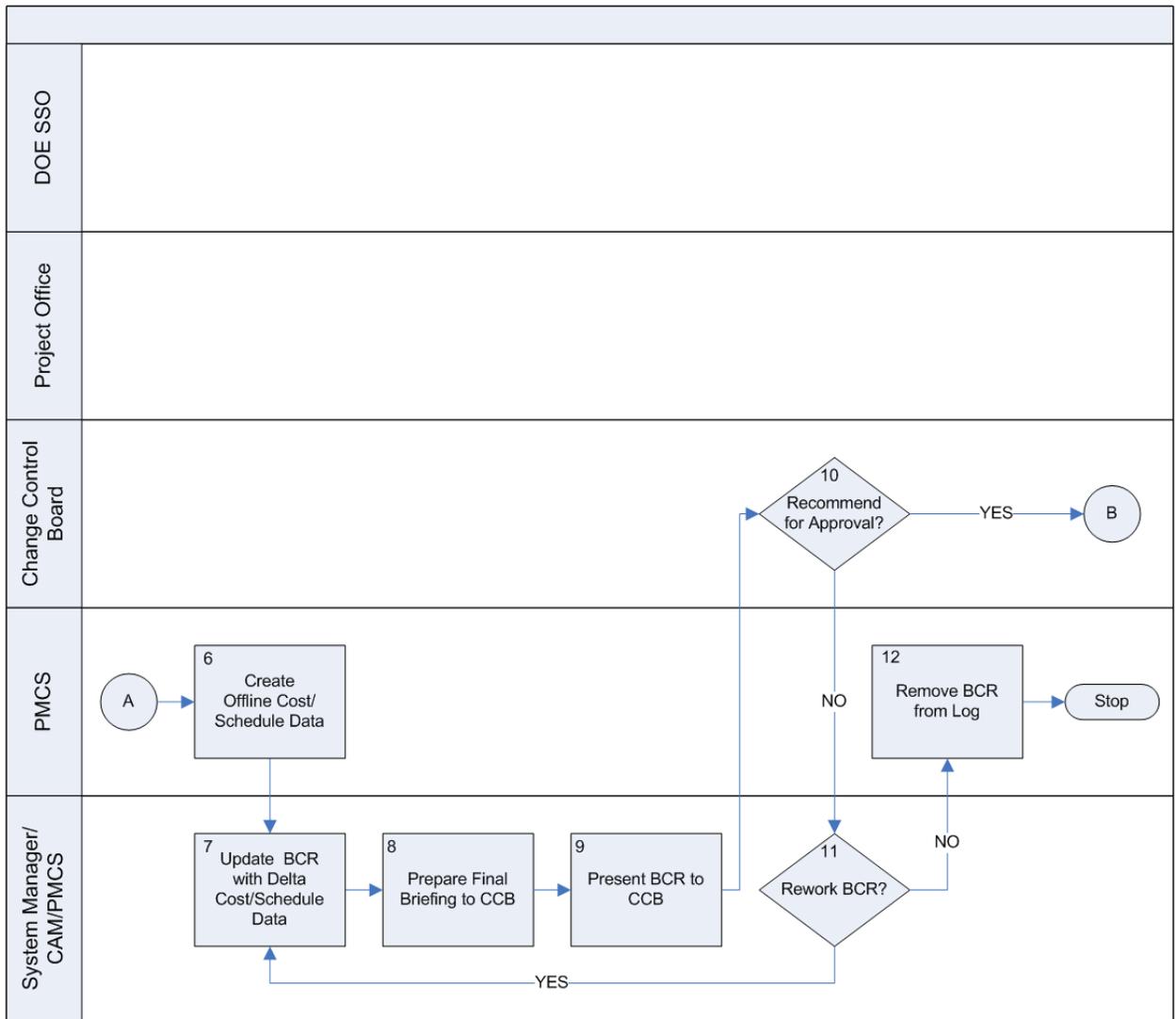


Figure 2. Review and Approve Change Request

### Step 6 Create Offline Cost/Schedule Data

*Responsibility:* Project Control Team

Based on the initial Baseline Change Request Form contents, the project control team assesses the impact of the change to the schedule and cost baselines. This what-if analysis is performed in a separate, offline cost/schedule database. This what-if analysis provides a more accurate assessment of what is required to be changed in the baseline cost/schedule database, to quantify those changes, and to ascertain if there are any unforeseen impacts on the project. As needed, the proposed changes may be modified to minimize the impact to the project. The results of the what-if analysis and recommended best course of action are provided to the originator of the change request.

**Step 7 Update BCR with Delta Cost/Schedule Data**

*Responsibility:* System Manager, Control Account Manager, or Project Control Team

The originator of the Baseline Change Request updates the request form with the more accurate assessment of the impact of the change request from the project control team (schedule, cost, and technical). The request form is completed in more detail in preparation for the final presentation of the change request to the Change Control Board.

**Step 8 Prepare Final Briefing to CCB**

*Responsibility:* System Manager, Control Account Manager, or Project Control Team

The originator of the request is responsible for preparing the content of the final presentation of the change request to the Change Control Board. This final briefing follows the same outline used for the preliminary briefing (Step 2) and is based on the revised, more accurate content in the updated Baseline Change Request Form.

**Step 9 Present BCR to CCB**

*Responsibility:* System Manager, Control Account Manager, or Project Control Team

The originator of the request is responsible for presenting the content of the change request form to the Change Control Board. This briefing should follow the Change Control Board Presentation Outline (Step 2). The presenter should be prepared to answer more in depth questions on the proposed change and why the proposed solution was selected over other options (details from the what-if analysis performed as part of Step 6). The presenter should also be prepared to answer questions on how the proposed change will impact other systems on the project.

**Step 10 Recommend for Approval?**

*Responsibility:* Change Control Board

Based on the updated Baseline Change Request Form and final briefing presented to the Change Control Board, the board makes a decision on whether or not to recommend the change request for approval. They can do one of two things:

1. Decline the proposed change request. The Baseline Change Request Form moves to Step 11 in the process.
2. Approve the proposed change. The Baseline Change Request Form moves to Step 13 in the process.

**Step 11 Rework BCR?**

*Responsibility:* System Manager, Control Account Manager, or Project Control Team

When the Change Control Board declines the proposed change request, they can do one of two things:

1. Reject the proposed change request. When this occurs, the change control process moves to Step 12.
2. Request the Baseline Change Request Form and proposed change briefing content be revised based on specific instructions from the Change Control Board (identify what needs to be updated). When this occurs, the process returns to Step 7. The responsible person for the Baseline Change Request and briefing content revises the content and presents the proposed change again to the Change Control Board. As needed, the project control team may provide support to the originator to help reassess the what-if analysis and other details in the change request form.

### **Step 12 Remove BCR from Log**

*Responsibility:* Project Control Team

When a change control request is rejected, the Change Control Log database must be updated. The Baseline Change Request is deleted from the Change Control Log database and the process stops.

### 5.3 Implement Change Request

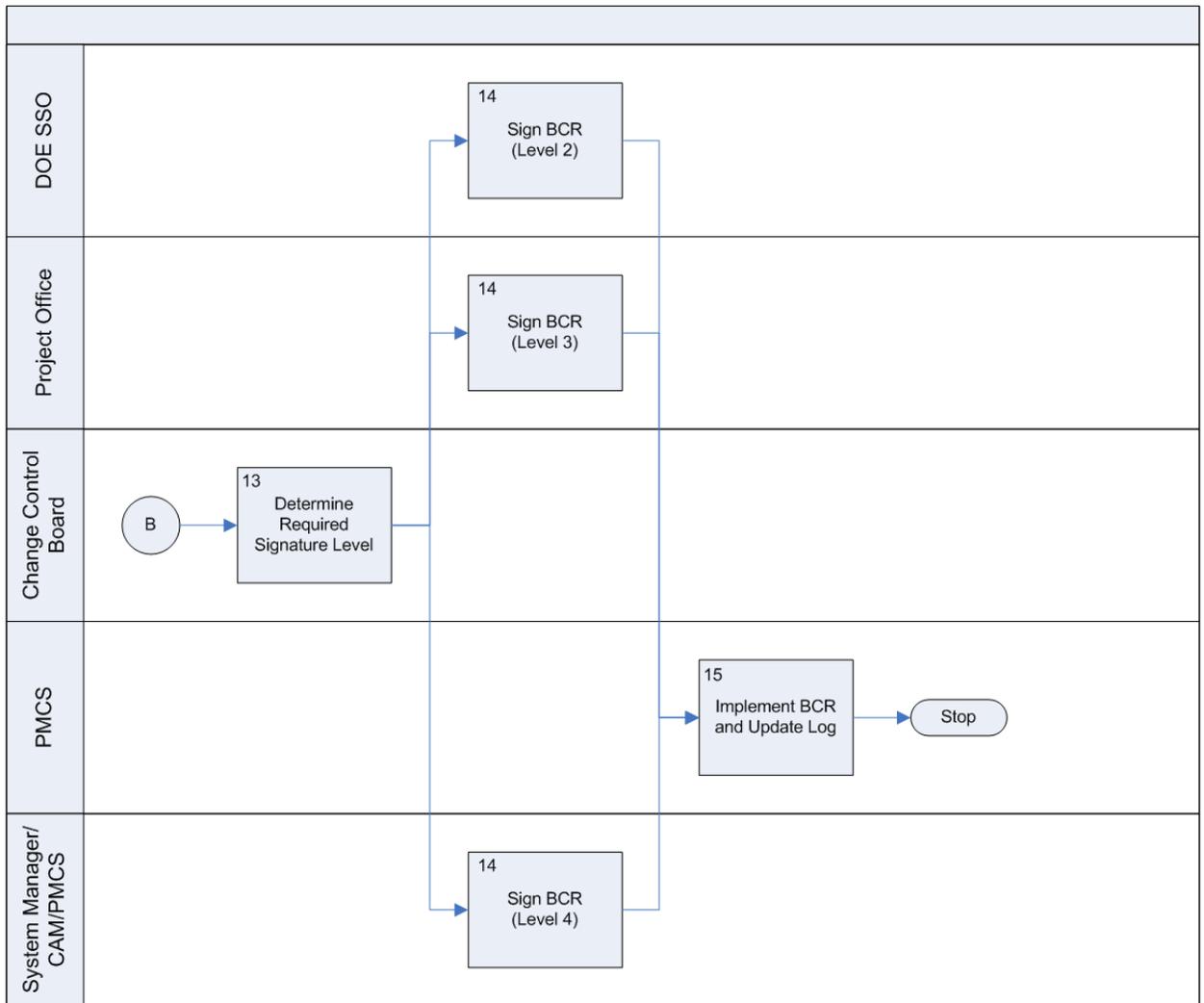


Figure 3. Implement Change Request

#### Step 13 Determine Required Signature Level

*Responsibility:* Change Control Board

Once the Baseline Change Request has been approved by the Change Control Board, the board assesses who is authorized to approve the changes. This approval is based on who originated the request and the scope of the request. The Baseline Change Request must be signed and approved at the appropriate level (see Section 4.0 for a list of the approval levels) before the baseline changes can be implemented.

#### Step 14 Sign BCR

*Responsibility:* DOE Stanford Site Office, LCLS Project Office, System Manager

The appropriate approving party or parties sign the Baseline Change Request Form and return it to the Change Control Board.

### **Step 15 Implement BCR and Update Log**

*Responsibility:* Project Control Team

Once the Baseline Change Request Form is signed, the Change Control Log database is updated to note the date the form was signed and when the changes were implemented in the schedule and cost baselines.

The Change Control Log database notes any summary level changes to the project (total costs, management reserve/contingency) as a result of the change request. The changes are then incorporated into the schedule and cost baselines.