LCLS Project Management Document # 1.1-020	Project Management	Revision 0.0
Earned Value Management System Project Schedule Procedure		

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Change History Log

Rev Number	Revision Date	Sections Affected	Description of Change
0.0	03/23/2006	All	Initial version released.

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LIST OF FIGURES

Project Schedule Procedure

1.0 PURPOSE

This document describes the process used to develop and maintain the integrated project schedule for the LCLS project following all 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. It is used at the beginning of the project to establish the schedule and cost performance measurement baseline and whenever approved baseline changes require the baseline to be updated.

3.0 REFERENCES

LCLS Project Execution Plan, Sections 5, Resource Requirements; Section 6, Project Baselines; Section 7, Project Management, Control, and Reporting

LCLS Project Management Plan, Section 4, Work Plan

LCLS 1.1-015 Earned Value Management System Description, Section 1, Project Organization and Preliminary Planning

LCLS 1.1-018 Control Account and Work Package Planning Procedure

LCLS 1.1-019 Change Control Procedure

LCLS 1.1-021 Cost Estimating Procedure

LCLS 1.1-022 Monthly Status and Reporting Procedure

Work Authorization Document (template)

4.0 DESCRIPTION

The basic project scheduling methodology used on the LCLS project is described in Section 1.2 of the LCLS Earned Value Management System Description. The LCLS Project Execution Plan and Project Management Plan provide specifics on what is required to fully develop the integrated project schedule for the project.

In summary, the integrated project schedule for the LCLS project is a logically networked schedule that reflects the entire work scope of the project. It incorporates control milestones that identify the timing of the sequence of key events that are used as guide posts for the project. It is also resource loaded; this provides the basis for developing the time phased cost plan. Resource loading the schedule ensures that the schedule and cost plans are in agreement.

The LCLS scheduling system consists of baseline, current, and supplemental schedules.

The baseline schedule is the official plan against which schedule performance is measured and reported to the DOE, SLAC management, and LCLS management.

The current schedule is used to manage all project activities. It is used to enter the current status of schedule performance. This current schedule provides the road map for all future activities on the project. When compared to the baseline schedule, it provides a measure of how well the project is progressing against the original plan. At the beginning of the project (or baseline reset action), the baseline and current schedules are the same. Once the monthly status process begins, the current schedule reflects the current conditions on the project.

Supplemental schedules are used as needed to help the project team plan for contingencies, perform what-if analysis, or for operational planning and management purposes. They are not part of the baseline or current schedule.

This procedure assumes that the baseline schedule must be developed and approved.

The project schedule 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

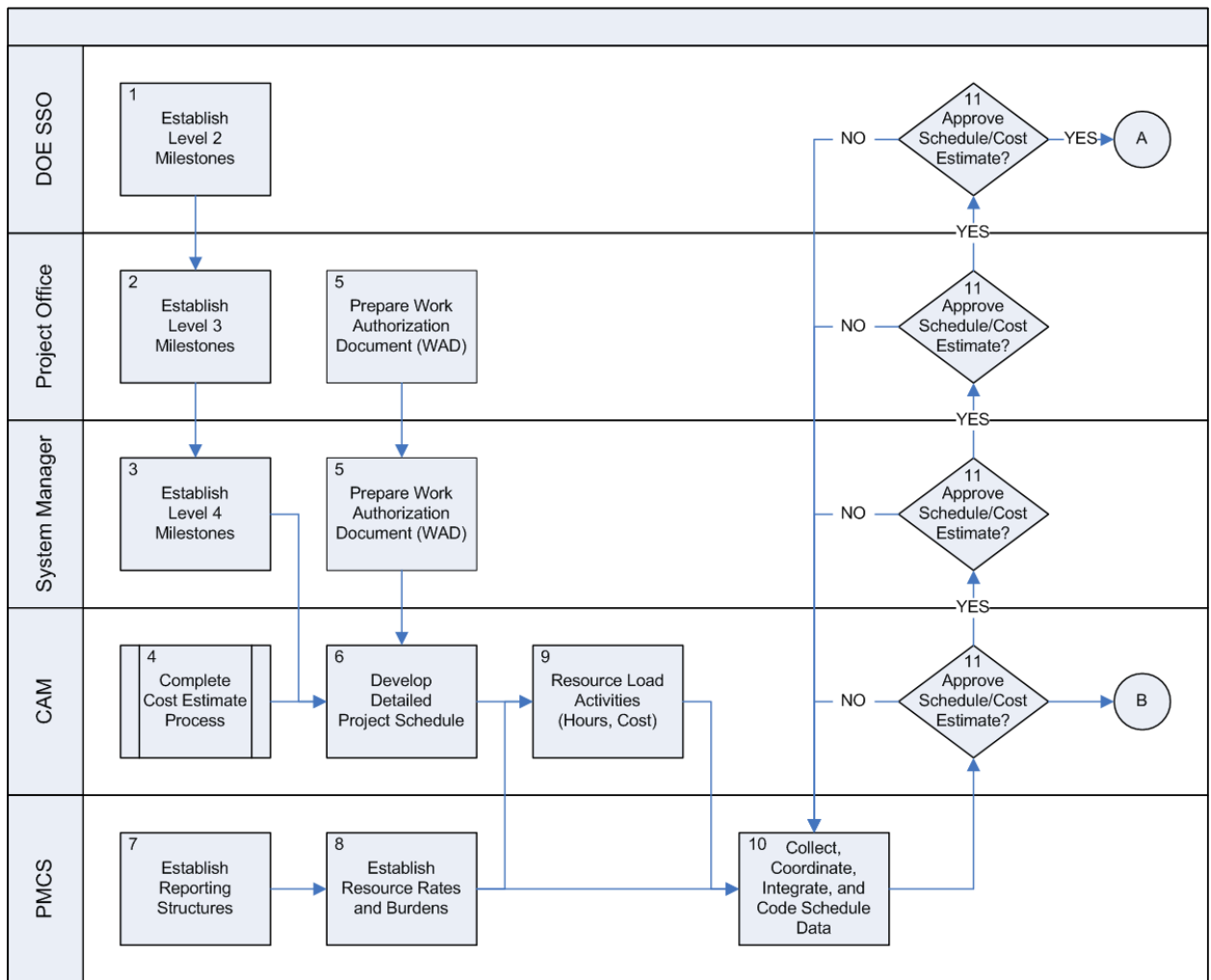## 5.1 Develop the Schedule Baseline

Figure 1. Develop the Schedule Baseline

Step 1   Establish Level 2 Milestones

Responsibility: DOE Stanford Site Office

The DOE Stanford Site Office (SSO) is responsible for developing and controlling the level 2 milestones for the LCLS Project. The SSO negotiates with the LCLS Project Office to create the level 2 milestones and to assign the required dates for those milestones.

Step 2   Establish Level 3 Milestones

Responsibility: Project Office

The LCLS Project Office is responsible for developing and controlling the level 3 milestones for the LCLS Project. The LCLS Project Office creates the level 3 milestones

and negotiates the required dates with the system managers. All level 3 milestones support a level 2 milestone; there is a direct relationship to a single level 2 milestone.

Step 3   Establish Level 4 Milestones

Responsibility: System Manager

The system managers are responsible for developing and controlling the level 4 milestones for the LCLS Project. The system managers create the level 4 milestones and negotiate the required dates with the control account managers. All level 4 milestones support a level 3 milestone; there is a direct relationship to a single level 3 milestone.

Step 4   Complete Cost Estimate Process

Responsibility: Control Account Manager

The control account managers follow the Costing Estimating Procedure to develop an initial cost estimate.

Step 5   Prepare Work Authorization Document (WAD)

Responsibility: Project Office, System Manager

As part of the process of identifying the control accounts for the project, the Project Office and the system managers are responsible for preparing the work authorization documents. These documents allocate a budget cost value to the control accounts based on the control account scope of work. The work authorization documents are formal documents that track the distribution of money to individual control accounts. The work authorization flows from the Project Office to the system managers, then from the system managers to the control account managers. The control account managers must have these signed work authorization documents before they can begin developing the detailed project schedule.

Step 6   Develop Detailed Project Schedule

Responsibility: Control Account Manager

The control account managers are responsible for creating a fully integrated and resource loaded schedule from the cost estimate and that supports all level 1, 2, 3, and 4 milestones. This schedule must represent all activities and costs required to accomplish the work as authorized by the Project Office and the system managers (the budget assigned to the control account scope of work in the formal work authorization documents).

Step 7   Establish Reporting Structures

Responsibility: Project Control Team

The project control team develops the basic structures that will be used to plan and organize the work as well as for reporting purposes. These reporting structures include but are not limited to:

- All necessary breakdown and coding structures needed to link the scheduling system to the cost system as well as to sort, select, summarize data.

- The resource breakdown structure (RBS) which contains a comprehensive list of the resources that are used to load the schedule activities (hours and dollars).

Step 8   Establish Resource Rates and Burdens

Responsibility: Project Control Team

The project control team is responsible for developing the appropriate rate tables, including burdens and escalation, based on the agreed to rate structure from the collaborating laboratories.

Step 9   Resource Load Activities

Responsibility: Control Account Manager

Using the reporting structure, coding requirements, and other guidelines provided by the project control team, the control account managers are responsible for resource loading the schedule activities.

Step 10   Collect, Coordinate, Integrate, and Code Schedule Data

Responsibility: Project Control Team

The project control team is responsible for collecting, entering, and integrating the data that was received from the control account manager into the schedule and cost systems. The team then produces a draft schedule and cost estimate for review.

Step 11   Approve Schedule/Cost Estimate?

Responsibility: Control Account Manager, System Manager, Project Office, DOE Stanford Site Office

This is a successive review and approval of the schedule and cost estimate. It begins with the control account manager and ends with the DOE Stanford Site Office.

At this stage in the process, the named party can do one of two things:

1. Reject the schedule and cost estimate. When this occurs, the process returns to Step 10.

2. Approve the schedule and cost estimate. When this occurs, the approval process moves up the approval chain. When the DOE Stanford Site Office approves the estimate, the process moves to the next step in process. This is described in Section 5.2.
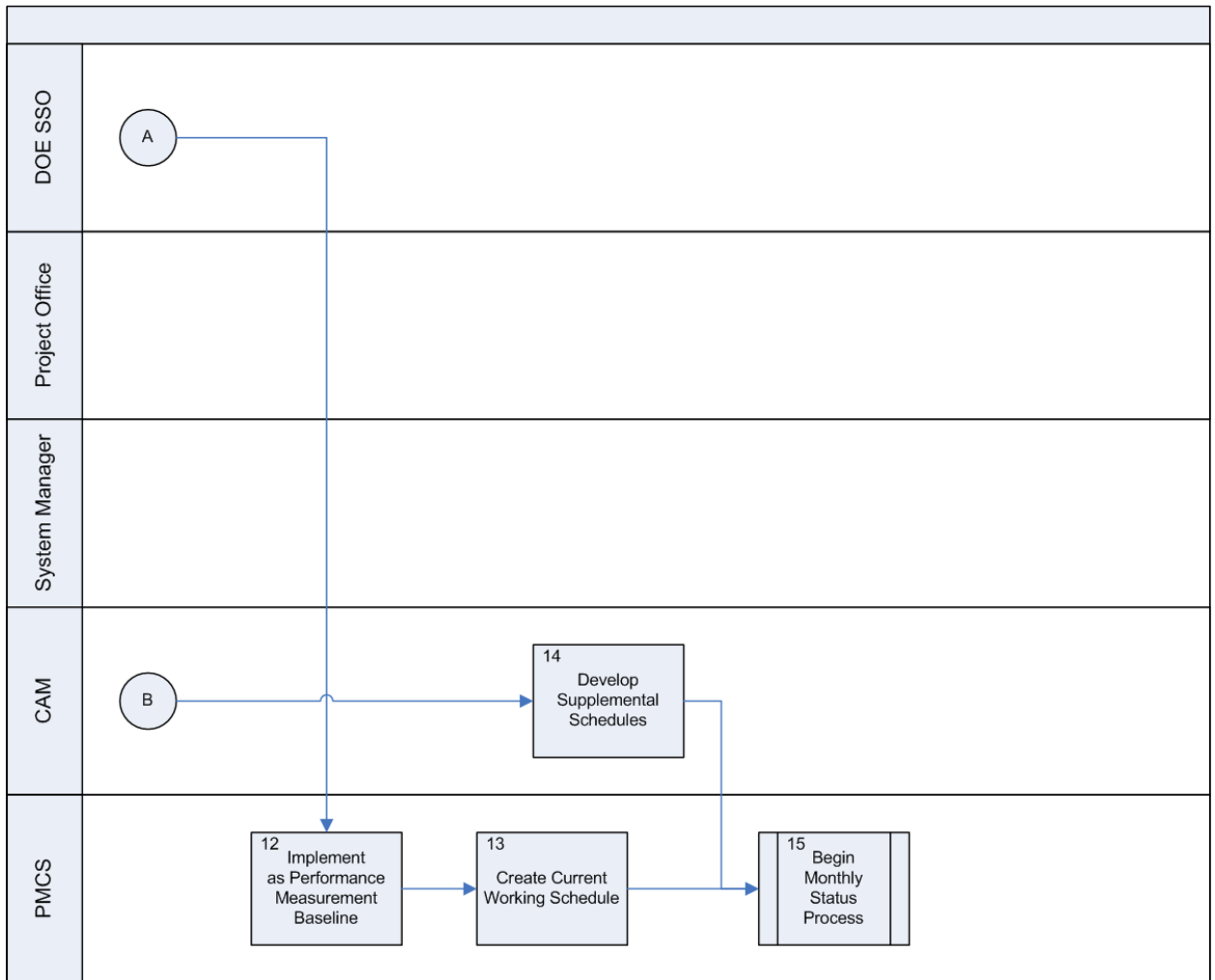
5.2   Establish the Schedule Baseline

Figure 2. Establish the Schedule Baseline

Step 12   Implement as Performance Measurement Baseline

Responsibility: Project Control Team

Once the draft cost estimate and schedule are approved, the database becomes the performance measurement baseline.

Step 13   Create Current Working Schedule

Responsibility: Project Control Team

Once the performance measurement baseline is set, the project control team produces a copy of the database that will be used as the current schedule database. Project status is input into this database and compared to the performance measurement baseline on a monthly basis (the Monthly Status and Reporting Procedure).

Step 14   Develop Supplemental Schedules

Responsibility: Control Account Manager

As needed, control account managers may develop supplemental schedules on the project that are separate from the baseline and current schedule. Examples of these types of schedules include, but are not limited to:

- Detailed hourly construction or installation schedules;

- Detailed subcontractor schedules for subcontractors that are fixed price.

These supplemental schedules should always be directly traceable to summary tasks in the performance measurement baseline and be in agreement with the baseline schedule; they provide additional detail useful for management purposes. The supplemental schedules are not part of the baseline and are therefore not under configuration control.

Step 15   Begin Monthly Status Process

Responsibility: Project Control Team

Once the schedule and performance measurement baseline is established, the monthly status and reporting process begins (the Monthly Status and Reporting Procedure).