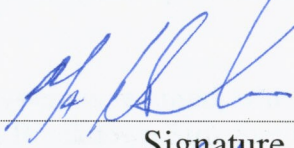
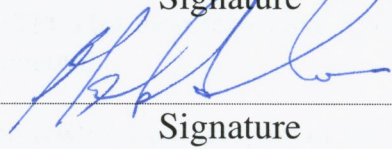
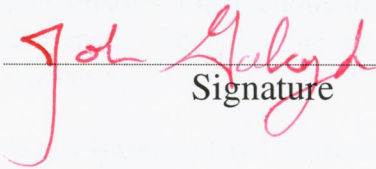


LCLS Engineering Specifications Document	1.1 - 100	Project Management	Revision 0
<u>LCLS Basis of Estimate Methodology</u>			
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Brief Summary: This specification describes the methodology used to establish the Basis of Estimate (BOE) for the LCLS Project.

Keywords: Basis of Estimate, category methodology, BOE, cost estimating, cost estimate

Key WBS#'s: 1.1

The guidelines for categorizing, compiling and documenting the Basis of Estimate (BOE) for the LCLS are as follows;

1. The BOE is a stand-alone binder that contains all vendor quotes, engineering estimates, parametric analyses, and other supporting documentation for the LCLS cost estimate. Given the large amount of faxed and copied documentation, an electronic version of the BOE is not required.
2. A separate BOE for each LCLS System is required, which shall be categorized and divided according to the LCLS Work Breakdown Structure (WBS). Each System BOE shall include the Total Project Cost (TPC) for their respective System. The owner of the System BOE is the LCLS System Manager.
3. Each BOE should contain an overview (1-2 paragraphs) of the cost estimating process used, and a brief CV of each of the estimators documenting their past physics, engineering and/or project cost experiences. The CV is an important step since a large fraction of the LCLS cost estimate is based upon engineering estimates.
4. The BOE shall agree with the LCLS Baseline Cost Estimate “budgeted quantity” value at the lowest activity level. The “budgeted quantity” value is the unburdened cost or hours that the estimator provided during the baseline cost estimating process.
5. A category type (see table) for the BOE shall be estimated for the LCLS Project at the lowest WBS. In areas of high cost, high risk or critical path, the estimators may wish to go to the lowest activity level. The category type (number 0 through 6) assists in understanding the overall maturity of the LCLS cost estimate, and will be documented in the LCLS Primavera P3 database.
6. Each System BOE serves as the basis and supporting documentation for the LCLS cost estimate. The LCLS Project Office will retain a copy of each system’s BOE as an official copy of the LCLS Baseline Cost Estimate.

LCLS Basis of Estimate (BOE) Methodology		
Category	Type of Estimate	Description
0	Existing Lien	This category will be used when a contract has already been awarded, or the item will be provided to the project at no/low cost. Any agreement to provide equipment or support to LCLS at no/low cost shall be provided in writing.
1	Catalog Listing or Industrial/Construction Databases	This category will be used when most of the costs in an estimate can be documented from current vendor catalogs or from published or proprietary industrial or construction databases (e.g. RS Means)
2	Documented Vendor Estimate Based on Drawings/Sketches and Specifications	The category describes estimates primarily based on vendor quotes/information or from procured or fabricated prototypes for the specific item/activity. To the extent possible, these estimates will be written rather than oral. Any oral agreements shall be documented. Such quotes by a vendor indicate that a design is sufficiently mature that its cost can be independently estimated (i.e., significant detail in drawings and specifications have been prepared), although the quotes will not be taken as a firm fixed sales price.
3	Engineering Estimate Based on Drawings/Sketches and Specifications	This category describes estimates that have the same level of detail available in (2) above, but the estimates are done by an expert estimator or a subcontractor who is not likely to be a vendor. The System BOE should qualify the estimator's background with brief curriculum vitae.
4	Engineering Estimate Based on Parametric or Previous Analysis	This category describes estimates based on items or activities that have previously been procured or undertaken which can be scaled. The basis for scaling up or down, or "factoring" (known cost sensitivities) should be documented in the System BOE. Given the variable degree of similarity between components of the current project and of previous systems, judgment must be used in selecting between this and (5).
5	Engineering Estimate Based on non-Parametric or no Previous Analysis	This category describes estimates for items or procedures different from previous experience, and while sketches and specifications may exist, the level of detail is not sufficient to qualify for (3) above. Some labor costs, such as assembly of an item not previously built, may fall into this category.
6	Expert Opinion	This category describes items or procedures having little documented basis for the estimate. Its use should be minimized in the final BOE, but can be used as the estimate preparation develops. Given time constraints on the estimation process, this category may also be used for items or activities that have low dollar value.