Guidelines for Defining Baseline Change Request Categories

What These guidelines serve as reference information for properly selecting Baseline Change Request (BCR) Categories.

Why Using these guidelines will improve the consistency and quality of the BCR characterization and reporting.

1 Glossary of Terms and Acronyms

ACWP – Actual Cost of Work Performed
BCR – Baseline Change Request
BCWP – Budgeted Cost of Work Performed
BCWS – Budgeted Cost of Work Scheduled
CA – Control Account
CAM – Control Account Manager
DOE – U.S. Department of Energy
DTI – Desk Top Instruction
EAC – Estimate At Completion
ETC - Estimate To Completion
EVMS - Earned Value Management System
KPP – Key Performance Parameters
MR – Management Reserve
PM – Project Manager
PMB – Performance Measurement Baseline
PEP – Project Execution Plan
PMT – Performance Measurement Technique
WBS – Work Breakdown Structure
WP – Work Package

Control Account (CA) - A key management control point located at the natural intersection point of the Work Breakdown Structure (WBS) and the Organization Breakdown Structure (OBS), where functional responsibility for work is assigned. It represents the point at which budgets (resource plans) and actual costs are accumulated and compared to earned value for management control purposes.

Control Account Manager (CAM) – The member of the project team responsible for the performance defined in a Control Account and for managing the resources authorized to accomplish the tasks.

Work Breakdown Structure (WBS) - A product-oriented grouping of project elements that organizes and defines the total scope of the project. The WBS is a multilevel framework that organizes and graphically displays elements representing work to be accomplished in logical relationships. Each descending level represents an increasingly detailed definition of a project component. Project components may be products or services. It is the structure and code that integrates and relates all project work (technical, schedule, and cost) and is used throughout the life cycle of a project to identify and track specific work scopes.

Work Package (WP) –Commonly defined as “a task or set of tasks performed within a control account”. However, this term is often confusing due to its use in various tools. For example, in Cobra, a WP, and its ID refers to a P6 Task and its “Activity ID”. This usage is acceptable in Cobra because in EVMS terms a WP is any level of activity below the Control Account. However, in P6, a WP is sometimes referred to as an element of the WBS. Throughout this document, WP, Task, and Activity are interchangeable, synonymous terms and do not refer to a particular level of the WBS.

2 Intent of Desk Top Instruction (DTI)

The intent of this DTI is to provide further clarification of intent and direction found in Fermi Research Alliance Earned Value Management System (EVMS) procedures. It is expected that all Project personnel are first familiar and compliant with the EVMS procedures, and then seek clarification from the DTI. Compliance with the procedures is expected; therefore, if there are conflicts between procedures and the DTI, the EVMS procedures are to be followed. Some Baseline Change considerations may not be identified or clarified in the DTI because they are adequately addressed in the procedures.

3 BCR Categories:

The following change control categories are used to help projects understand, interpret, and group changes. Projects should ensure all changes follow appropriate BCR process and approvals regardless of the category which is used. All changes to the baseline, regardless of category, are documented in a BCR, follow change control processes, including approval thresholds and policies as defined in EVMS procedures.

3.1 Directed Change

The project may receive directed changes from sources outside the project. These imposed changes may include:

- Funding changes from customers, e.g., DOE or NSF which may affect:
  - Schedule logic or timeline
  - Resource availability
  - Ability to procure needed material or services
  - Total Project Cost
- Policy changes
- Rate changes
- Scope changes
- Authorized unpriced work

3.2 Scope Change

Scope change is a change in requirements, key milestones, deliverables, end products, Key Performance Parameter (KPP), documents and reports that are expected to be provided by the project. Since the scope is a contractual element of the project, scope changes need to be understood and accepted by all stakeholders, at appropriate levels. Scope changes include performing additional work, i.e., scope outside of currently negotiated and documented parameters. Scope changes also include reduction or elimination of negotiated and documented work parameters.

Project scope, budget, and funding are tightly associated. Changes in scope should also reflect changes in the budget because the budget is tied to the scope. When adding, removing, or shifting scope from on-project to off-project, or off-project to on-project, or from one funding agency to another, the budget to perform the scope should also be added, removed, or shifted with the associated scope. For example, a reduction in scope will result in a reduction in Budgeted Cost of Work Scheduled (BCWS). Moving scope from NSF to DOE will lower the NSF BCWS and increase the DOE BCWS.

Since the scope of work to be performed by the project is documented, changes in scope will result in changes to fundamental documentation such as Work Breakdown Structure (WBS) Dictionaries, or Project Execution Plan (PEP). For example, moving work scope to provide a new cryogenic plant from on-project to off-project would be reflected in the WBS dictionary by the removal of the requirement to provide this deliverable. Projects should be careful when developing the WBS dictionary so that it is clear when the scope is changed. These scoping documents should specify requirements, key milestones, deliverables, end products, and KPPs. Although plans specifying how to achieve the project scope may be part of these documents, the plan should not be confused with the fundamental scope. If a change does not alter the fundamental or contractual scope, then the change is within project scope, and use of the scope change category is not appropriate.

Example: Scoping documents such as PEP and WBS Dictionary state that a KPP for the project is delivery of 100 sensors that meet specified criteria. During planning the project assumes that there would be a 5% rejection rate, so the project would need to produce 105 sensors to meet the KPP. However, the project scope does not change if the project experiences higher or lower rejection rate as the scope is bound by the KPP (100 sensors) not production efficiency (105 sensors). Therefore, the use of the scope change category is not appropriate if the project realizes a higher or lower rejection rate. On the other hand, a scope change is appropriate if the requirements change and the KPP must increase or decrease from 100 sensors.

3.3 Historical Change

Historical changes are defined as changes, other than directed changes, which affect activities or work packages with baseline start or finish dates before the current period. A characteristic of a historical change is a change in current or cumulative variances. Historical changes need to be understood and accepted by all stakeholders, at appropriate levels. Current period changes are excluded from the historical change category since the current period has not incurred variance analysis or reporting. Historical changes can be divided into two subcategories, i.e., re-baseline and re-plan. However, each subcategory must still adhere to all the standards set forth for historical changes including appropriate approvals. Under no circumstances is a historical change initiated to mask variances that can be corrected by management action and attention.

- **Re-baseline** – A re-baseline change is a significant overhaul of the project baseline that affects history. Re-baseline is a drastic change made necessary to reestablish control of a project. Re-baselining of the project may be required when both project management and the customer recognize that the existing baseline is not useful for managing the project.

  The mechanics of implementing a re-baseline action depend on the desired outcome. The three potential methods for implementing a re-baseline action include:

  1. Elimination of schedule variance:
     This method would be selected if the budgetary element of the baseline is still valid, but the schedule element is deemed unrealistic or unachievable. In this method, for affected Control Account (CA), the time-phased Budgeted Cost of Work Scheduled (BCWS) is set equal to the Budgeted Cost of Work Performed (BCWP) to date. The remaining BCWS is then spread over the forecasted completion dates.

  2. Elimination of cost variance:
     This method might be selected if the reason for the re-baseline is that the existing baseline budget is deemed inadequate, but the timeline or schedule is still useful, to manage the project. In this method, the affected CA BCWP is set equal to the CAs Actual Cost of Work Performed (ACWP). The schedule variance is maintained by adjusting the BCWS to reflect the pre-change difference between the BCWP and the BCWS. The future portion of the Performance Measurement Baseline (PMB) would be established based on a thorough re-estimate of the anticipated costs to complete the project, i.e., Estimate To Complete (ETC).

  3. Elimination of both schedule and cost variances:
     This method would be selected where both the remaining budget and schedule parameters no longer serve as a meaningful baseline against which to measure and report performance. In this method, both BCWS and BCWP are set equal to actual cost (ACWP). After a thorough re-estimation of both cost and schedule, the remaining work is planned to establish a new Estimate At Completion. The new approved EAC is spread using a realistic schedule for all remaining work to develop a new PMB.

- **Re-plan** – A re-plan change is a limited strategic correction of a project's plan that affects history and variances. A re-plan is a targeted change which focuses on a small subset of activities in a project, or

CA, where the plan has changed or proven ineffective. This limited correction may reduce or eliminate some variances but does not seek wholesale variance elimination or an overhaul of the affected WBS. Correction of historical errors is an acceptable re-plan change.

- **Error Correction** - correction of something that was missed or incorrectly done in the past.

3.4 Administrative Change

Administrative change does not result in a technical, budget, or schedule (time-phased budget) change. Examples of Administrative changes include:

- Code fields that are under configuration control. For example, WBS, and Activity Codes such as Control Account, Control Account Manager, Cobra PMT, and Funding Type, are under configuration control.
- Changes to Project Organization or personnel including Project Management and Control Account Manager (CAM)s.
- Corrections to typographical errors

The Project Controls Lead may approve an Administrative BCR, with acknowledgment of the affected Control Account Manager (CAM) and Project Manager (PM).

3.5 MR

Transfers of contingency and Management Reserve (MR) do not affect the project BCWS or schedule, but they do require strict approval and oversite. Since our customer owns the contingency, these transfers must be approved by the customer and should be characterized separately from Administrative changes.

3.6 Plan Refinement

The objective of plan refinement is to reflect a more accurate and realistic plan of future project in-scope work. Plan refinement actions may be appropriate to adjust future work due to budget, schedule, and technical problems that:

- Have caused the original plan to become unrealistic
- Require a reorganization of work or personnel to increase efficiency or as required to accomplish the effort
- Require different engineering or construction approaches

Plan refinement is a reasonable project management process made necessary as the project evolves, technical approaches change, or resource availability or requirements change. Plan refinement may result in changes to the schedule or budget. Plan refinement changes may affect a single CA or multiple CAs. Typical plan refinement changes may include, but not limited to:

- Transfers of project scope with accompanying budget between CAs
- Changes resulting from make vs. buy decisions
- Changes to the work approach
- Adjusting subcontract budget values to reflect negotiated values
- Adjusting material budgets to reflect modifications to material lists after design phases
- Converting planning packages to work packages
- Evolution of the design
- The following applies to any plan refinement:
- Retroactive changes to the previously reported BCWS, BCWP, and ACWP are prohibited, which means historical records cannot change.
- Current period changes must adhere to EVMS procedures and are otherwise prohibited.
- Accounting adjustments must be made in the current period, which ensures adherence to financial accounting procedures.
- Only work that has not yet started can be changed.

- Minor modifications to work packages are discouraged and, in most cases, should not be implemented.
- A budget transfer from one CA to another is allowed only with the transference of its associated work scope.
- Changes and plans are reviewed to ensure that plan refinement will result in properly distributed budgets.
- The project contingency use should be reviewed to ensure that the application of contingency intended for future work is not being applied to a near-term effort.

Plan refinement changes can be divided into subcategories. However, each subcategory must still adhere to all the standards set forth for plan refinement changes including appropriate approvals. Examples of subcategories may include:

3.6.1 Schedule
Changes are driven by the schedule being adjusted, and no resources or other cost drivers. However, schedule adjustments may incur minor cost impacts due to escalation caused by the schedule shifts.

3.6.2 Cost
Changes in resources, or other cost driven function, but may have minor schedule impact due to funding or other cash flow restrictions.

3.6.3 Error or Omission
Changes that correct something that was missed or incorrectly planned.

3.6.4 Requirements Change
Change to project requirements that are deemed in-scope.

3.6.5 Design Progression
Change due to the evolution of the design that impacts cost or schedule, but is deemed in-scope.

3.6.6 Field Condition
Changed or unanticipated site conditions discovered during construction that causes a change to cost, or schedule.

3.6.7 Claims
Request for change initiated by a contractor.

4 Document Revision History

Date	Version	Author	Description
7/3/2018	0.0	Rich Marcum	Developed DTI