

SUMMARY OF CONTINGENCY/MANAGEMENT RESERVE INFORMATION FROM VARIOUS SOURCES

General observations by E McCluskey (to launch future discussions):

- ANSI uses only the term “management reserve” and does not use the term “contingency.” Management reserve appears to be used similarly to how Fermilab uses contingency. The term “undistributed budget” refers to a practice that is not currently used at Fermilab, but integral to the concept of management reserve for ANSI.
- The DOE 413.3 Order and Manual treat contingency as belonging to DOE for scope adjustments, and management reserve as belonging to the contractor (FRA in our case) for unforeseen circumstances. Contingency is developed through risk analysis.
- DOE EVMS documents have same basic concepts as the order and manual above, but emphasize that management reserve should not be used to increase work scope, which should come out of DOE-held contingency. The management reserve is developed by preparing an aggressive estimate of the project, with the management reserve being the mitigation of risks related to this aggressive approach.
- BNL treats contingency as that budget held by DOE for uncertainties, and management reserve as that budget held by the contractor for uncertainties.
- JLab distinctions between the two are less clear in their EVMS Description, but allude to DOE (the customer) holding contingency and the contractor holding management reserve.
- LBNL believes OECM does not recognize contingency, but only management reserve. Their documents use the term management reserve/contingency to refer to one and the same budget for risk mitigation.
- PNNL has the same approach as BNL above.
- SLAC/LCLS uses contingency for management control purposes on TEC work and management reserve for management control purposes for OPC work. They also specifically mention that OECM refers to management reserve instead of contingency.

From ANSI EIA-748, Section 3.5 Budget Allocation and Resource Planning

Note that this document contains no specific reference to contingency as a separate concept.

3.5.4 Management Reserve

An organization may establish a schedule and/or cost reserve to be used for management control purposes in accordance with organizational policy. Management reserve is held for unexpected growth within the currently authorized work scope, rate changes, risk handling, and other program unknowns. Generally, reserve is held for current and future needs and is not used to offset accumulated overruns or under runs. Reserve may be held at the total program level or distributed and controlled at lower management levels. In any case, an organization should be able to account for all of its management reserve. Management reserve is not a contingency that can be eliminated from prices during subsequent negotiations or used to absorb the cost of program changes. The budget being held in reserve must not be viewed by a customer as a source of funding for added work scope.

From ANSI EIA-748 Intent Guide:

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| i) Identify management reserves and undistributed budget. |
|---|

Management Value

Project managers must realize the performance measurement baseline planning process contains risk and identify a management reserve contingency for unplanned activity within the project scope. This facilitates the maintaining of budgets for work accomplished and provides effective performance measurement data for management. In order to assure that budget for newly authorized efforts remains tied to the associated scope during the initial planning process, undistributed budget (UB) has been designated as the short term holding account. Once the responsible organization(s) has been identified, the budget will transfer from undistributed budget to the appropriate control account(s). This ensures budget and scope will not be transferred independently.

Intent Guideline 14

Identify and control management reserve (MR) and undistributed budget. Management reserve is budget for work scope that will arise during the course of the project, but cannot be identified in advance. Because management reserve is budget that is not as yet tied to work, it does not form part of the performance measurement baseline. The management reserve budget should be commensurate with the level of risks identified by the project and/or withheld for management control purposes.

Undistributed budget is budget that is applicable to specific project effort but has not yet been distributed to control accounts. It is a transient amount; because once it is distributed it ceases to be undistributed budget and instead is incorporated in its relevant control account. Because undistributed budget is budget that is tied to work, it does form part of the performance measurement baseline. Undistributed budget accounts are to be cleared in a reasonably timely manner. Undistributed budget accounts are to be assigned to the performance measurement baseline when the work is established in the performance measurement baseline, normally within 90 days and prior to work starting. It is recognized that some circumstances, such as delays in contract direction will impact the timely assignment of undistributed budget to work packages.

Typical Attributes:

- Program control logs including:
 - Management reserve (showing month end values; monthly sources and uses to the control account; and current value).
 - Undistributed budget (showing month end values; monthly sources and uses to the control account; current value).
 - Performance measurement baseline (showing month end values; monthly changes from/to management reserve and undistributed budget; current value).
 - Contract budget base (showing month end values; monthly changes identifying contract modifications; current value).
- Monthly performance reports to verify starting and ending values are consistent with various logs.

Objective evidence may be found in these typical outputs:

- Project control logs (management reserve, undistributed budget, performance measurement baseline, and contract budget base).
- Contract performance reports (CPRs), if applicable.

From DOE O413.3a PROGRAM AND PROJECT MANAGEMENT FOR THE ACQUISITION OF CAPITAL ASSETS:

From Attachment 3, Definitions:

Contingency. Contingency is the portion of the project budget that is available for risk uncertainty within the project scope, but outside the scope of the contract. Contingency is budget that is not placed on the contract, and is included in the Total Project Cost.

Performance Measurement Baseline. The Performance Measurement Baseline is the baseline that encompasses all project work packages and planning packages. The Performance Measurement Baseline provides a view from the bottom-up where work packages are summed within the Work Breakdown Structure. Management Reserve, contingency, profit, fee and similar cost items separately identified in the contract are not part of the Performance Measurement Baseline because no work is associated with those budgets.

Performance Baseline. The collective key performance, scope, cost, and schedule parameters, which are defined for all projects. Performance Baseline includes the entire project budget (total cost of the project including contingency) and represents DOE's commitment to Congress.

Management Reserve. An amount of the total contract budget withheld for management control purposes by the contractor. Management Reserve is not part of the Performance Measurement Baseline.

From DOE M413.3-1 Project Management for the Acquisition of Capital Assets:

3-8

DOE M 413.3-1
3-28-03

Table 3-1. Federal Project Director and Contractor Project Manager Roles and Responsibilities

FEDERAL PROJECT DIRECTOR AND CONTRACTOR PROJECT MANAGERS *	
Project Director	Contractor Project Manager
<ul style="list-style-type: none"> Federal official responsible and accountable for overall success of the project 	<ul style="list-style-type: none"> Contractor official responsible and accountable for successful execution of contractor's project scope of work
<ul style="list-style-type: none"> Charters and leads the Integrated Project Team 	<ul style="list-style-type: none"> Key member of the Integrated Project Team Chairs the contractor's Integrated Project Team
<ul style="list-style-type: none"> Tailors DOE project management requirements to the project 	<ul style="list-style-type: none"> Supports Federal Project Director in implementing DOE project management process
<ul style="list-style-type: none"> Ensures timely completion and quality of required project documentation 	<ul style="list-style-type: none"> Provides input on project documents and develops and maintains contractor project documentation
<ul style="list-style-type: none"> Assesses contractor project performance versus contract requirements 	<ul style="list-style-type: none"> Defines the contractor project organization Manages the day-to-day project execution activities Implements contractor performance measurement system
<ul style="list-style-type: none"> Ensures quality and timely completion of project documentation and other deliverables 	<ul style="list-style-type: none"> Delivers project deliverables as defined in the contract on time and within budget
<ul style="list-style-type: none"> Proactively identifies and ensures timely resolution of critical issues within Federal control that impact project performance - strives to remove any barriers to project success Integrates and manages the timely delivery of Government reviews, approvals, property, services, and information 	<ul style="list-style-type: none"> Proactively identifies and ensures timely resolution of critical issues within contractor's control which impact project performance - strives to remove any barriers to project success
<ul style="list-style-type: none"> Assesses and reports project performance to DOE management 	<ul style="list-style-type: none"> Communicates accurate and reliable project status and performance issues to DOE management
<ul style="list-style-type: none"> Monitors contractor's risk management efforts 	<ul style="list-style-type: none"> Identifies and manages project risks
<ul style="list-style-type: none"> Manages DOE project contingency funds 	<ul style="list-style-type: none"> Manages contractor's management reserve funds
<p>* The table is not intended to be a comprehensive listing of all roles and responsibilities nor is it meant to impart a contractual obligation on DOE contractors.</p>	

From Section 8.3 Constructing a Defensible Budget:

Contingency

Prudent managers will include “risk dollars” as part of the cost estimate for each Work Breakdown Structure element as appropriate. These risk dollars are the project funds reserved to deal with contingencies when things do not go as planned. The method used should be adapted to the specific needs of each project. *Contingency* is the portion of the project budget that the government holds in reserve to accommodate unknowns regarding requirements and uncertainty that is outside the scope of the contract, but is within the scope of the project. Contingency may be used for additional scope and work that is necessary to meet current requirements.

Contingency is not used for new requirements. The contractor uses *management reserve*. Management reserve is not allocated to work packages or planning packages, but is held in reserve by management to provide flexibility to manage within the contractor Performance Measurement Baseline. Management reserve is used to control the workflow and adjust work packages for rate changes and other unknowns, but is never used for additional scope outside of the authorized work scope.

The method used by the programs to develop their contingency budget may vary depending on the type of project being executed. For some projects where complexity is low and the construction is straightforward, the contingency requirements may be fairly low and may be developed by using an added factor to the budget. In other cases where the uncertainty is greater because of technological, environmental, or other issues, the contingency requirements may be much higher. Contingency is developed through the risk analysis process that weighs the risk likelihood and impact and results in a plan to mitigate the risk. Projects may use probabilistic simulation and analysis to assist in deciding how much contingency would be appropriate for a project. However, DOE does not advocate, nor has it established a standard for probability simulation-based confidence levels. In general, projects should not be undertaken unless the program has high confidence that it can be completed within the established Performance Baseline. Projects where the confidence is low must only be undertaken when the need is great, no other alternatives are feasible and the senior leadership of the Department fully understands the risk.

From Section 12.8 Performance Measurement Baseline:

Note that the Performance Measurement Baseline shown in Figure 12-1 is not the overall Performance Baseline that is established for the project. The Performance Measurement Baseline is the baseline that encompasses all the work packages and planning packages. Management Reserve and Profit or Fee are not part of the Performance Measurement Baseline because no work is associated with those budgets. Contrasted with the Performance Baseline, which includes the entire project budget (total cost of the project), the Performance Measurement Baseline is a view from the bottom up where work packages are summed within the Work Breakdown Structure. The Performance Baseline is a top-down view and sees only the Total Project Cost and the Total Estimated Cost and Other Project Cost.

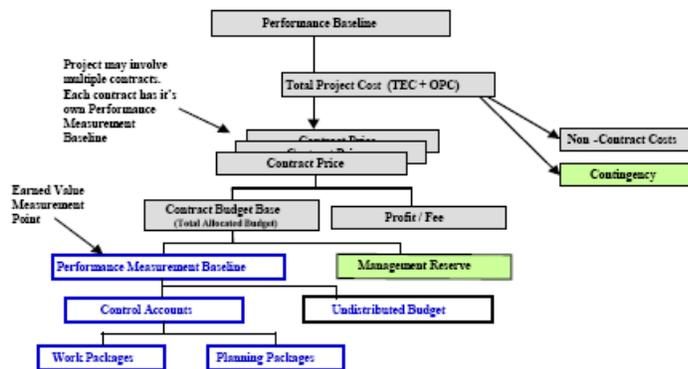


Figure 12-1. Performance Measurement Baseline.

From Appendix A Glossary:

Contingency. Contingency is the portion of project budget that is available for uncertainty within the project scope but outside the scope of the contract. That is, contingency is budget that is not placed on contract.

Budget at Completion (BAC). The total authorized budget for accomplishing the scope of work. It is equal to the sum of all allocated budgets plus any undistributed budget. (Management Reserve is not included.) The Budget at Completion will form the Performance Baseline.

Management Reserve An amount of the total allocated budget withheld for management control purposes by the contractor. Management Reserve is not part of the Performance Measurement Baseline.

From DOE EVM Application Guide:

Composition of the Performance Measurement Baseline.

The PMB can only contain budget that is identified to a work package, planning package, or undistributed budget. Work packages and planning packages only contain work that directly affects the product or outcome. Work packages and planning packages cannot contain budget or resources that are not required to execute a specific WBS element. Project costs not included in the total cost that are not associated with specific work accomplishment, such as profit, fee, payment-in-lieu of taxes, management reserve, contingency and other similar items, do not belong in the PMB. The PMB must be valid for the progress and performance measures to be valid. When the PMB is summed to arrive at a Budget At Completion (BAC) and the BAC equals the total project cost (TPC) the validity of the PMB is suspect and should be analyzed to identify and correct the problem. The most common error affecting the validity of the PMB is the inclusion of budget that contains no work in the PMB. Management Reserve and Contingency cannot be in the PMB because there is no defined work associated with them. When a work package or planning package requires additional resources, the additional budget may be assigned from Management Reserve or Contingency. In that event, that assigned portion of the budget would no longer be Management Reserve or Contingency. In Figure 2 you can see the relationships between the various elements.

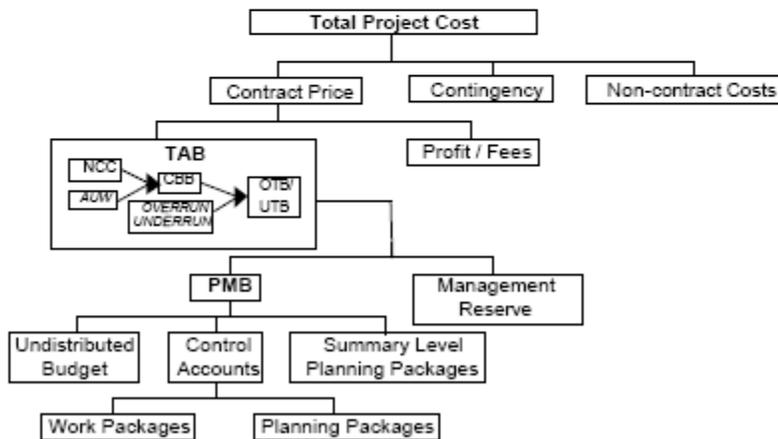


FIGURE 2, PERFORMANCE MEASUREMENT BASELINE RELATIONSHIPS

	Total Project Cost	Sum of all costs for a given project
	Contract Price	Total price for a specific contract
	Contingency	Budget withheld by the government for management control
	Non-contract costs	Project costs outside the scope of the contract
	Profit/Fees	Self explanatory
TAB	Total Allocated Budget	Sum of all contract budgets (includes MR)
NCC	Negotiated Contract Cost	Contract price minus profit/fee
AUW	Authorized Unpriced Work	Work contractually approved but not yet definitized
CBB	Contract Budget Base	Sum of NCC and AUW
	Overrun/Underrun	Sum of recognized budgets <-> the CBB
OTB	Over Target Baseline	Sum of recognized overrun and CBB
UTB	Under Target Baseline	Sum of recognized underrun and CBB
MR	Management Reserve	Budget withheld by contractor for uncertainty
CA	Control Account	Lowest CWBS element assigned to single manager for planning and control
WP	Work Package	Near-term, detail-planned activities within a CA
PP	Planning Package	Far-term CA activities not yet defined into detail work packages
SLP	Summary Level Planning Package	Sum of planning packages
PMB	Performance Measurement Baseline	Contract time-phased, budgeted work plan (excludes MR)

TABLE 1, TERMINOLOGY USED IN FIGURE 2

Management Reserve (MR).

In most projects, particularly developmental activities, there may be considerable uncertainty in the schedule, cost estimate, technical scope or other aspects of the project or program. The use of management reserve provides the contractor project manager with the flexibility to adjust for these uncertainties. Identification and control of management reserve is necessary as it would be with all assigned budget. Management reserve budget and its use should always be accounted for at the total project level. Normally, it is retained and controlled at this level. In some more complex projects, contractor manager may choose to allocate management reserve to specific subsystem managers to increase their flexibility. Regardless of the chosen method, management reserve is maintained separately from undistributed budget. There is no recognition, employment or understanding of the term "negative management reserve."

- Management reserve is not contingency funds.
- It is not used to absorb the cost of contract changes.
- The contractor must not be required to use existing management reserve to provide budget for authorized, but undefinitized, work or other modifications.
- Management reserve is not an element of expense in a cost estimate and is not estimated as if it were a sub-system, component, or specific scope.
- Management reserve is derived by establishing cost targets for control accounts that are lower than the original estimate. That is, management reserve is normally arrived at by establishing realistic goals to accomplish work under cost.

Under Target Baselines

A requirement in many contracts is for the contractor to establish stretch goals for completing the work. These stretch goals are often heavily incentivized and attempt to focus the contractor on completing work ahead of schedule or perhaps with greater capability than originally planned. The contractor's response to these goals and incentives should be to develop a PMB that less than the negotiated contract cost to ensure that the goals can be met and the incentives for meeting the goals are earned. When a PMB is developed that represents a reasonable (though aggressive) plan, this PMB becomes the basis for performance measurement and variance analysis. When the contractor's performance against their plan indicates problems in either the plan or the performance, those problems do not disappear or become negated merely because the PMB is under the target cost. Consequently, variance analysis should always be conducted against the PMB that the contractor is managing to.

The difference between the target cost and the BAC may be considered management reserve if held by the contractor, or contingency if held by the government. In either case, variances in the actual PMB must be analyzed and not ignored. When reporting against an under target baseline, variance analysis should focus on the variance within the PMB. Because there is no validated PMB for the target cost, there is no purpose or point to analyzing variances for the target cost. That does not mean the contractor or the government ignores the target. Rather they must not mistakenly measure performance against a point that is not relevant for work being conducted. See Variance Analysis later in the guide for further information.

CONTROL ACCOUNT REPLANNING

Replanning of work packages within control accounts is sometimes necessary to compensate for internal conditions that affect the planning and scheduling of remaining work. Such replanning should be accomplished within the constraints of the previously established control account schedule and budget. When more extensive replanning of future work is necessary and the total control account budget must be changed, management reserve may be used to increase or decrease the control account budgets. If replanning requires that work and associated budget be transferred between control accounts, this transfer must also be controlled. Work that has already taken place cannot be replanned. This is true regardless of whether the work package remains open or is closed. Only future work can be replanned.

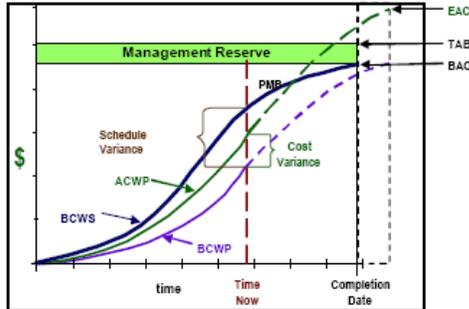
Replanning actions designed to reduce costs, improve or reflect improved efficiency of operations, or otherwise enhance the completion of the project, are encouraged. Internal replanning may involve changes to work-in-process. The replanning of open work packages or Level of Effort should be accomplished in such a way to maintain valid performance measurement information while minimizing the administrative burden. Except for correction of errors and accounting adjustments, no retroactive changes will be made to budgets for completed work even when the work package remains open because work still remains to be accomplished.

From Appendix E:

There are several references to Management Reserve in the text of this appendix relating to the Contract Performance Report Description. In addition, it shows in the follow graphic:



**Department of Energy
Earned Value Management
Gold Card***



VARIANCES

Favorable is Positive, Unfavorable is Negative

Cost Variance $CV = BCWP - ACWP$ $CV \% = (CV / BCWP) * 100$
 Schedule Variance $SV = BCWP - BCWS$ $SV \% = (SV / BCWS) * 100$
 Variance at Completion $VAC = BAC - EAC$

PERFORMANCE INDICES

Favorable is > 1.0, Unfavorable is < 1.0

Cost Efficiency $CPI = BCWP / ACWP$
 Schedule Efficiency $SPI = BCWP / BCWS$

OVERALL STATUS

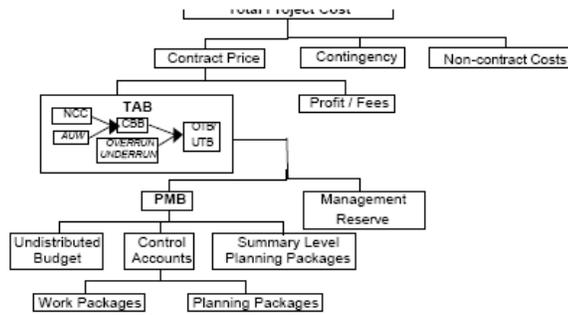
% Schedule $= (BCWS_{CUM} / BAC) * 100$
 % Complete $= (BCWP_{CUM} / BAC) * 100$
 % Spent $= (ACWP_{CUM} / BAC) * 100$

ESTIMATE AT COMPLETION

$EAC = Actuals\ to\ Date + [(Remaining\ Work) / (Efficiency\ Factor)]$
 $EAC_{CPI} = ACWP_{CUM} + [(BAC - BCWP_{CUM}) / CPI_{CUM}] = BAC / CPI_{CUM}$
 $EAC_{Composite} = ACWP_{CUM} + [(BAC - BCWP_{CUM}) / (CPI_{CUM} * SPI_{CUM})]$

TO COMPLETE PERFORMANCE INDEX (TCPI)

$TCPI_{EAC} = Work\ Remaining / Cost\ Remaining = (BAC - BCWP_{CUM}) / (EAC - ACWP_{CUM})$



TERMINOLOGY

TPC	Total Project Cost	Total budget authorized for the project: the sum of all budgets
CcC	Contingency	Amount withheld by the government for management control purposes
NCC	Negotiated Contract Cost	Contract price less profit / fee(s)
AUW	Authorized Unpriced Work	Work contractually approved, but not yet negotiated / defined
CBB	Contract Budget Base	Sum of NCC and AUW
OTB/UTB	Over Target Baseline	Sum of CBB and recognized overrun/underrun
TAB	Total Allocated Budget	Sum of all budgets for work on contract = NCC, CBB, or OTB
BAC	Budget At Completion	Total budget for total contract thru any given level
PMB	Performance Measurement Baseline	Contract time-phased budget plan
MR	Management Reserve	Budget withheld by KIR PM for unknowns / risk management
UB	Undistributed Budget	Broadly defined activities not yet distributed to CAs
CA	Control Account	Lowest CWBS element assigned to a single focal point to plan & control scope / schedule/ budget
WP	Work Package	Near-term, detail-planned activities within a CA
PP	Planning Package	Far-term CA activities not yet defined into WPs
SLPP	Summary Level Planning Package	Far-term activities not yet defined into CAs
BCWS	Budgeted Cost for Work Scheduled	Value of work planned to be accomplished = PLANNED VALUE
BCWP	Budgeted Cost for Work Performed	Value of work accomplished = EARNED VALUE
ACWP	Actual Cost of Work Performed	Cost of work accomplished = ACTUAL COST
EAC	Estimate At Completion	Estimate of total cost for total contract thru any given level; may be generated by KIR, MO, et al. = EAC_{CPI} / SPI_{CUM}
LRE	Latest Revised Estimate	KIR's EAC or EAC_{CPI}
TCPI	To Complete Performance Index	Efficiency needed from time now to achieve an EAC

PERFORMANCE REPORTING OF CONTRACTOR EVM INFORMATION

- Format 1 - Work Breakdown Structure normally at Level 3 of the Contract Work Breakdown Structure (CWBS)
 - Format 2 - Organization Breakdown Structure at the Control Account level reflecting contractor's internal organization established to execute contract.
 - Format 3 - Baseline changes from project inception
 - Format 4 - Staffing forecast
 - Format 5 - Analysis of variances
- (Format 1, 2, 5 are the formats routinely used for most projects)

*This chart is a adaptation of the original Defense Acquisition University's Gold Card. This adaptation includes relationships to the Performance Baseline and deletes reference to DoD guidelines. Credit for the Gold Card and all its forms should be given to DAU not to DOE.

From DOE G 413.3-10 Earned Value Management Systems Guide:

From Section V Lessons Learned:

c. **Management Reserve (MR).** Contractors should be encouraged to establish a challenging PMB. However, it must be understood that the greater extent to which this is done, the more likely there will be risk events within the contractor's defined scope of work. A proper balance of challenge versus risks and managing them can be the key to project success. Many of these risk events will happen and the contractor should be allowed to have a budget reserve that he can then use to better plan future work. This type of budget reserve is usually developed from a Monte Carlo type simulation of the potential variability of these risks. For cost risks, this simulation typically addresses the variability in construction units (e.g., cubic yards of concrete), variability in unit man-hour estimates for both construction and other significant labor cost elements, and in general the potential variability of all significant cost elements. Management reserve should not be used to budget newly directed work scope and if done so will in most (if not all) cases represent a violation of ANSI/EIA Standard 748-A. The PMB, plus the contractor management reserve, is often referred to as the contractor base budget, or for incentive contracts may be referred to as the target cost.

d. **DOE Contingency.** In establishing a total project cost, DOE also needs to account for the fact that achieving the required program mission may necessitate a change in project scope. Examples are increasing the design throughput of a production or processing facility or safety or security requirements from those that existed at the time of contract award. Such changes would most often arise from a DOE-directed change or could sometimes result from a contractor-initiated baseline change proposal. Significant changes could arise in the funding profile from which the contractor was directed established the baseline. For projects in which there are significant hotel loads (i.e., significant efforts are required to keep a project infrastructure in place), changes to funding profile are likely to result in increases in these costs due to a stretch-out of the schedule. In order to promote a win/win culture between DOE and the contractor, it is important to account for these technical and programmatic risks by establishing a DOE contingency, which would then be used for providing additional budget for these types of events.

From BNL's EVM System Description:

From Introduction:

At BNL, DOE maintains oversight and control of the “*contingency*” budgeted for project risks and uncertainties. Contingency can be released by DOE to the BNL project manager to meet project risks, requirements and scope changes via the baseline change proposal process. Contingency is the result of a formal risk-assessment process used to account for and plan for project uncertainties that are in scope and unbudgeted.

From Section 1.3.8:

1.3.8 Contingency, Management Reserve and Undistributed Budget [Guide14 {2.2i}]

The contingency is an amount of money within the approved Total Project Cost (TPC) that is set aside at the start of the project. The contingency is established to provide budget coverage for future uncertainties (risks) that are within the scope of the project but are not funded in the control account budgets. The contingency is not assigned to specific segments of work.

The PM baseline change control procedure provides the process for control of contingency. The project manager establishes the contingency based on a risk analysis of the project work scope. The factors affecting the amount of contingency established are: technical risk, schedule issues, and/or possible shortages in a critical resource area (i.e., labor, material, timely appropriations, or support services), direct and indirect rate changes, etc. Contingency is normally developed “bottoms-up” from a risk assessment of individual work elements within the project WBS. This contingency is then extracted from the individual WBS elements and summed into a project contingency account. As the level of risk is reassessed on the project, the budget for contingency can change.

The DOE on DOE projects (or as described in the Project Execution Plan for non-DOE projects), has the responsibility for controlling project contingency. Contingency is released to provide a budget for risk mitigation within the project work scope. The Performance Measurement Baseline (PMB) change control procedure (described in the Project Execution Plan (PEP)) provides the process for control and release of contingency. Contingency transactions are documented in the project baseline change control log. These transactions are addressed in the EVMS report monthly progress reports to the customer.

Management reserve is the portion of project contingency specifically assigned to BNL for the management of changes within BNL's approval authority.

The Federal Project Director on DOE funded projects, or the customer on non-DOE projects, may chose to periodically allocate a portion of the contingency budget to BNL as management reserve. Use of management reserve is controlled and documented like contingency, per the Baseline Change Control process. Management Reserve shall not be used to fund additional scope outside of the authorized baseline technical scope.

The Performance Measurement Baseline (PMB) change control procedure (described in the Project Execution Plan [PEP]) provides the process for control and use of Management Reserve. Management Reserve transactions are documented in the project baseline change control log. These transactions are addressed in the EVMS monthly progress reports to the customer.

At the present time, BNL does not employ undistributed budget as described in the NDIA Intent Guide.

From Glossary:

Management Reserve. An amount of the total allocated project budget held for management control purposes by the contractor.

Contingency. The portion of a project budget that is available for unknowns and uncertainty within the project scope, but outside the scope of the contract (e.g., performance measurement baseline). Contingency is typically held by DOE on large projects. Contingency becomes part of project scope (performance

measurement baseline) when released by DOE upon approval of a baseline change proposal/request, justifying its use.

From BNL Procedure PM-1.7 Cost Estimating:

4.3 Contingency and Management Reserve

The Project Cost Estimate (budget) shows the amount of funds set aside for in-scope, unbudgeted work, known as contingency. Contingency funds allocated by the Federal Project Director to the BNL Project Manager are called "management reserve". Because contingency/management reserve cover potential events only, it cannot be time-phased and cannot become part of the Performance Measurement Baseline. A contingency/management reserve budget is required and should be established as the result of a risk analysis. The Project Manager, CAMs, and other Stakeholders shall work together to determine a risk-based level of contingency/management reserve.

From BNL Procedure PM-1.9 Change Control:

4.1.3.5 Contingency/Management Reserve Requirement

The Project Manager, with support from Project Controls, shall indicate if the impact of the change will result in a request for expenditure of project contingency/management reserve. If contingency is requested, the Project Manager shall prepare the BCP for approval. Rules/thresholds for the use of contingency/management reserve are defined in the Project Execution Plan (PEP). The Budget is transferred from the contingency/management reserve account in the event of an in-scope, unbudgeted change.

From Jlab Project Control System Manual (same as EVM System Description plus Procedures):

302.2 Funding Guidance

At the start of project cost planning, the Project Customer may provide funding guidance to the Project Manager that may include a fiscal year breakout. The Project Manager can use the funding guidance to establish a project funding profile across the WBS Level 2. Target budgets are developed and distributed to the Associate Project Managers and Cost Account Managers. This represents the Project Manager's guidance to Associate Project Managers and Cost Account Managers when they develop the details of the cost estimate for their portion of the project. The Project Customer may elect to hold in reserve some funding from the total project cost as contingency funds. As with the Project Customer, the Project Manager may withhold management reserve funds at the project level to account for any risk uncertainty that may arise during the execution of the project plan.

701.4 Contingency

For certain JLab projects, part of the Total Project Cost is carried as contingency to cover any unanticipated project costs.

$$\text{TPC} = \text{BAC} + \text{Contingency}$$

The contingency percentage (on a cost-to-go basis) for a project is calculated by dividing the contingency dollars by the Obligation Estimate To Complete dollars:

$$\text{Contingency Percentage (\%)} = \text{Contingency (\$)} / \text{ETC}_{\text{ob}} (\$)$$

where Contingency = Funds remaining – ETC_{ob}

and Funds remaining = $\text{TPC} - \text{ACWP} - \text{Obligations}$

and $\text{ETC}_{\text{ob}} = \text{BAC} - \text{BCWP}_{\text{cum}} - \text{Obligations}$

800 Change Control

A. The Change Control process delineated in this section is to be used for requesting, reviewing, and documenting changes to the approved Project Baseline for projects conducted at the Jefferson Laboratory. Baseline changes may occur as a result of contractual modifications, application of undistributed budget, use of contingency/management reserve funds, replanning, or formal reprogramming. Managing changes to the Project Baseline is crucial to ensure the project's work scope, schedule, and cost do not spiral out of control. Changes to baseline documents should be minimized and are normally approved only in the interest of work scope changes, design adequacy, reliability, performance, cost reduction, or safety/environmental considerations.

From Glossary:

Contingency

Reserve project funding held for possible changes in project work scope and to cover potential cost overruns. Contingency is not associated with project work scope and is not part of the Performance Measurement Baseline. Contingency may be held by the project customer

Management Reserve (MR)

An amount of the total project budget set aside for project management control purposes rather than being allocated for the accomplishment of specific activities. MR is not associated with project work scope and is not part of the Performance Measurement Baseline.

From LBNL EVM System Description:

From the Introduction:

Worth noting here is LBNL's use of the term *management reserve/contingency* throughout this document. OECM's lexicon calls this *management reserve*.

From Section 1.3.8:

1.3.8 Management Reserve/Contingency and Undistributed Budget [Guide14 {2.2i}]

The management reserve/contingency is an amount of the approved Project Budget Base that the project director/manager sets aside at the start of the project. The management reserve/contingency is established to provide budget coverage for future uncertainties (risks) that are within the scope of the project but are not funded in the control account budgets. The management reserve/contingency is not assigned to specific segments of work.

The PMO change control procedure provides the process for control of management reserve/contingency. The project director/manager establishes the management reserve/contingency based on a risk analysis of the project work scope. The factors affecting the amount of management reserve/contingency established are: technical risk, schedule issues, and/or possible shortages in a critical resource area (i.e., labor, material, timely appropriations, or support services), direct and indirect rate changes, etc. As the level of risk is reassessed on the project, the budget for management reserve/contingency can change.

Management reserve/contingency is released to provide a budget for risk mitigation within the project work scope. Conversely, budget from the control accounts is returned to the management reserve/contingency whenever the work scope, and therefore the allocated budget, is decreased. Management reserve/contingency transactions are documented in the project baseline change control log. These transactions are addressed in the EVMS report to the customer.

At the present time, LBNL does not employ undistributed budget as described in the NDIA Intent Guide.

From Section 5.1.2:

5.1.2 Change Documentation [Guide 28, 29, 31, 32 {2.5a, b, d, e}]

The project budget base and the performance measurement baseline are two important budget entities for which full control and accountability must be maintained. A detailed change log is maintained to record all changes to authorized work and to reconcile original budgets and schedules and all changes for the WBS elements.

All changes to the performance measurement baseline made as a result of contractual changes, formal reprogramming, internal replanning, or the use of the management reserve/contingency are documented and reported to the customer, as required. Changes that impact the performance measurement baseline are formally controlled, and are documented through the formal change-control process.

From the Glossary:

Contingency (OECM names this “Management Reserve”). An amount of the total allocated budget withheld by the contractor for management control purposes. Contingency is not part of the Performance Measurement Baseline. The usage of the term *contingency* throughout this document is **not** the contingency held by DOE.

Management Reserve/Contingency. An amount of the total allocated budget held for management control purposes by the contractor. Management reserve/contingency is not part of the Performance Measurement Baseline. The usage of the term *management reserve/contingency* throughout this document is **not** the same as contingency held by DOE.

From PNNL EVM System Description:

3.6 Contingency / Management Reserve

Contingency is included within the Total Project Cost (TPC) and is intended to cover the costs that may result from unforeseen and unpredictable conditions and uncertainties within the defined project scope over which PNNL has no control (i.e., requirements changes, estimating uncertainty, etc). During the activity-based planning process, risks and uncertainties are identified. To the extent possible, mitigation strategies are incorporated into the baseline budget and schedule to minimize project impacts.

Contingency estimates are identified outside the performance measurement baseline budget and schedule and are based on likelihood and severity of the risk and uncertainty. Contingency is derived against individual work elements (product and activities) regardless of funding type using appropriate contingency development techniques. It is the responsibility of the Project Manager and CAMs to identify and document risk and contingency estimates as part of the baseline planning process.

Contingency allocation is structured, formally documented, and formally controlled as described in the Baseline Change Control process. Contingency usage is routinely reviewed and analyzed, and monthly reports are prepared. The Federal Project Director on DOE Line Item projects, or the customer on non-DOE projects, has the final responsibility for controlling project contingency. Guidelines for implementing these requirements in the development, allocation, and control of contingency are presented in the following chapters.

PNNL defines Management Reserve as that portion of the project contingency, specifically assigned by the customer, for the management of changes within PNNL's approval authority. Contingency and management reserve are both budget related components of the project Total Project Cost (TPC). Contingency is budget controlled by the customer to cover costs which, based on past experiences, are known to be regularly encountered but difficult or impossible to estimate at the time the estimate is prepared. Management reserve is budget controlled by PNNL for scope of work uncertainty. Use of either contingency or management reserve is documented and controlled consistent with the Baseline Change Control process.

3.6.1 Contingency Development

The PNNL Project Manager is responsible for the development, coordination, and maintenance of the project cost estimate, including contingency even though the customer has responsibility for controlling contingency. Architect/Engineer's who have responsibility for facility design prepare conventional facility capital cost estimates for the project, and then assist in the development of contingency estimates, based on using a comprehensive risk assessment. PNNL prepares the non-capital estimate of Other Project Costs (OPC), including contingency. Contingency for both the capital and non-capital portions of the project cost estimate is developed from a risk assessment of individual work elements within the project WBS. This contingency is then extracted from individual WBS elements and summarized into an overall project contingency account, outside the project WBS to ensure that only authorized project work scope is collected within the project WBS.

3.6.2 Contingency Allocation

Contingency is only used as a last resort. Value engineering and cost avoidance may be used to initiate budget reductions in some areas that may help offset the need for using project contingency. The planned allocation of contingency is established during the annual planning and budgeting cycle. Funding is typically allocated to the project by fiscal year, with projections provided for future years. Likewise, for control purposes, the planned allocation of contingency for a particular fiscal year is based on that particular fiscal year's approved work scope. Contingency requirements are developed and time phased consistent with the life cycle baseline scope, schedule, and budget for future years.

For DOE Line Item projects, the Federal Project Director determines and documents in the PEP the amount of contingency budget to be allocated each year to PNNL as management reserve budget to manage project uncertainties within PNNL's approval authority. For DOE funded activities, a DOE work authorization is used to allocate fiscal year budget (potentially including contingency) to PNNL. The project contingency amount is the difference between the project PMB and the project TPC. Funding authorization equivalent to the project budget and contingency amounts is transmitted through Obligation Notices issued by PNSO and cost ceilings established in the DOE Authorized Funding Program. For anticipated current year work activities and after PNSO approval, PNNL is initially allocated a percentage of the project contingency to cover changes that may result from unforeseen and unpredictable conditions and uncertainties within the defined project scope of work each year. The portion of the project contingency allocated to PNNL is defined as Management Reserve. The remaining contingency is controlled by the Federal Project Director. Contingency is evaluated throughout the project life cycle and specifically discussed during project quarterly reviews.

During the course of a project lifecycle it is possible that all contingency may be allocated to address scope changes such that no contingency budget remains, yet project actual cost could be less than budgeted such that a favorable cost variance exists. If additional scope changes are necessary, the PNNL Project Manager may request from the customer, through the change control process, for the Total Project Cost to be increased by the amount of available funding such that necessary scope changes can be appropriately budgeted. The customer must ultimately approve any increase to the project TPC, or to have unused funding returned.

3.6.3 Contingency Control

Management control of contingency is achieved through a structured process that includes formal authorization, ongoing monitoring and analysis, and routine status accounting and reporting.

- **Authorization.** Authorization for the use of contingency related to baseline changes is dependent upon the classification of the change requiring contingency. PNNL may authorize management reserve for changes within the limits of their thresholds, in accordance with the change control process. A change outside the PNNL thresholds requires DOE or customer approval. Changes requiring additional funding authorization also require a revised work authorization document.
- **Analysis.** Routine evaluation and assessment of contingency use are necessary for management control purposes. Monthly analyses are performed by PNNL on actual contingency used versus remaining project contingency for the current year and by fiscal year for the life of the project. Evaluations are also made of contingency use by WBS and by type of funding source and significant trends are documented. Change requests are analyzed to assure that the use of contingency is justified and minimized by considering value engineering or cost avoidance options.

- **Reporting.** PNNL provides overall project contingency utilization on a monthly basis and documents overall project contingency status. The contingency reporting process includes usage logs and contingency requirements for the current fiscal year and for the project life cycle.

3.6.4 Management Reserve

That percentage of the project contingency specifically assigned to PNNL for the management of changes within PNNL's approval authority is referred to as Management Reserve. This naming convention differentiates that portion of the project contingency that is assigned by the customer to PNNL for baseline management and control. Management reserve is held in reserve by the PNNL project manager at the project level to provide flexibility to manage baseline changes to Work Packages or Planning Packages within the project Performance Measurement Baseline. Management reserve, just like contingency, is a budget related component of the project TPC. Use of management reserve is documented and controlled consistent with the Baseline Change Control process. Management Reserve is used by PNNL to control the execution of the project baseline, for control account planning, and to manage risks and other project unknowns and uncertainties, but is never used for additional scope outside of the authorized technical portion of the baseline.

From SLAC/LCLS EVM System Description:

From the Introduction:

Worth noting here is LCLS's use of the term *management reserve/contingency* throughout this document. The Office of Engineering and Construction Management's (OECM) lexicon calls this *management reserve*. SLAC uses the term *contingency* to describe the management reserve for total estimated cost (TEC) and the term *management reserve* to describe the management reserve for other project costs (OPC).

From Section 1.3.8:

1.3.8 Management Reserve/Contingency and Undistributed Budget [Guide14 {2.2i}]

The management reserve/contingency is an amount of the approved Project Budget Base that the project director/deputy project director sets aside at the start of the project. This allocation is referred to as "Contingency" for the portion allocated to the Total Estimated Costs (TEC) and as "Management Reserve" for the portion allocated to the Other Project Costs (OPC). The management reserve/contingency is established to provide budget coverage for future uncertainties (risks) that are within the scope of the project but are not funded in the control account budgets. The management reserve/contingency is not assigned to specific segments of work.

The project change control procedure provides the process for control of management reserve/contingency. The project director/deputy project director establishes the management reserve/contingency based on a risk analysis of the project work scope. The factors affecting the amount of management reserve/contingency established are: technical risk, schedule issues, and/or possible shortages in a critical resource area (i.e., labor, material, timely appropriations, or support services), direct and indirect rate changes, etc. As the level of risk is reassessed on the project, the budget for management reserve/contingency can change.

Management reserve/contingency is released to provide a budget for risk mitigation within the project work scope. Conversely, budget from the control accounts is returned to the management reserve/contingency whenever the work scope, and therefore the allocated budget, is decreased. Management reserve/contingency transactions are documented in the project baseline change control log. These transactions are identified in the EVMS reports to DOE.

At the present time, the project does not employ undistributed budget as described in the NDIA Intent Guide.

From the Glossary:

Contingency (OECM names this "Management Reserve"). An amount of the total allocated budget withheld by the project for management control purposes. Contingency is not part of the Performance

Measurement Baseline. The usage of the term *contingency* throughout this document is **not** the contingency held by DOE. The Project defines Contingency as the amount allocated for the Total Estimated Costs (TEC) and Management Reserve as the amount allocated for Other Project Costs (OPC).

Management Reserve/Contingency. An amount of the total allocated budget held for management control purposes by the project. Management reserve/contingency is not part of the Performance Measurement Baseline. The usage of the term *management reserve/contingency* throughout this document is **not** the same as contingency held by DOE. The project defines Contingency as the amount allocated for the Total Estimated Costs (TEC) and Management Reserve as the amount allocated for Other Project Costs (OPC).