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Distribution

Distinguished Members,

I would like to thank Pete for presenting the EVMS Surveillance Focus Area in the Summer Meeting in my absence and for your subsequent comments. Based on that meeting a deliverable was requested which required the development of a supplement to the NDIA Surveillance Guide combining the Process and expert approach. A second action item was to incorporate indicators for monthly project reviews presented by LANL. The latter came from comments made by Mike Strevell of LANL. I have since been in contact with Mike who provided insight into the thoughts and comments made at the meeting.

Essentially what we discussed is that while my presentation presented an "SNL perspective" of an EVMS Surveillance it was difficult to apply as a useful tool due to the use of SNL specific criteria and acronyms. Trying to decipher the code would be difficult at best and ultimately render the "tool" unusable. We decided that the SNL Sample Question Set would have greater benefit if it linked to the ANSI/EIA-748-A Standard and NDIA Surveillance Intent Guides. The benefit would be a greater understanding of the underlying reasoning for the specific questions that would enable the development of a new or comparison of an existing surveillance system. In the following tables a cross-walk comparison of the SNL Sample Question Set, ANSI/EIA-748-A EVMS Standard, and the NDIA Intent Guide is provided to demonstrate how the question set was developed to begin validation of the EVM system. In reviewing this analysis you will see that several questions cover several guidelines and some guidelines are not sampled with a question. The goal of this question set was to get a general feel for the overall project EVMS health. More depth for each guideline would be covered in the full surveillance.

It should be noted that the thirty-one question set provided is not intended to be a "short-cut" to the surveillance process. That is, if the question set was answered satisfactorily then the need for a full response to the approximate 100 + questions previously provided as a sample surveillance was unnecessary. Within the SNL system the thirty-one sample questions is the basis for a [Go-No Go] approach to surveillance. Surveillance is resource and time intensive. If the sample questions have been answered satisfactorily there is a sound basis for proceeding with the surveillance as planned. If the question set cannot be answered then it is determined the EVM System is not working and a review of the plan and training may be necessary before additional resources are expended.

"EVMS surveillance planning is frequently done annually, with an overall goal of reviewing the 32 ANSI/EIA-748 EVMS guidelines over the course of a year. Due to the large scope, all EVMS guidelines may not be reviewed annually on all contracts, but the selection process must insure that the full range of EVMS guidelines and processes are reviewed annually over at least several contracts."¹ There are no criteria for a sample question set, nor is there a criterion for a minimum number of questions to determine the health of a system. The Intent Guide is specific in offering suggestions on the typical attributes that would meet the standard. The goal of the surveillance is to validate the use and adequacy of the EVMS which ultimately led to certification. I have offered Sandia's approach. Others may opt for differing approaches keeping in mind a defensible position must be demonstrated to either obtain or maintain certification.

Finally, LANL has offered a checklist tool in their approach to EVMS Surveillance using the monthly summary sheet. Similar to SNL's sample questionnaire, the sheet provides early indicators as to the apparent health of the EVMS for each project although using this checklist early indicators become apparent monthly on a project by project basis.

Respectfully,

Gerry Lipka, Manager Corporate Projects, SNL/NM

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¹ NDIA PMSC Surveillance Guideline, Section 3.2, 3.3

Crosswalk Of SNL SAMPLE Questionnaire To ANSI/EIA 748-A EVMS Standard And NDIA Surveillance Guide Intent

ORGANIZATION

ANSI/EIA 748-A Guideline 1: Define the authorized work elements for the program. A Work Breakdown Structure (WBS), tailored for effective internal management control, is commonly used in this process.

NDIA Intent Guideline 1: A WBS is a direct representation of the work scope in the project, documenting the hierarchy and description of the tasks to be performed and their relationship to the product deliverables. The WBS breaks down all authorized work scope into appropriate elements for planning, budgeting, scheduling, cost accounting, work authorization, measuring progress, and management control. The WBS must be extended to the level necessary for management action and control based on the complexity of the work. Each item in the WBS is assigned a unique identifier. These identifiers should provide a structure for a hierarchical summation of costs and resources. A WBS dictionary defines the work scope for each element in the WBS.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 1

- *Does your project have a work breakdown structure that is mapped to the Project Execution Plan (PEP) and or a Project Plan?*

Sample Question 2

- *Does your project utilize a WBS dictionary?*

ANSI/EIA 748-A Guideline 2: Identify the program organizational structure including the major subcontractors responsible for accomplishing the authorized work, and define the organizational elements in which work will be planned and controlled.

NDIA Intent Guideline 2: Assign organizational responsibility for the project work. An OBS is used to facilitate the assignment of responsibility, accountability, and authority for all WBS tasks to be performed. An OBS is a direct representation of the hierarchy and description of the organizations established to provide resources as well as to plan and perform the work tasks. The OBS identifies the organization responsible for each segment of work, including subcontracted and intra-organizational effort. The assignment of lower-level work segments to responsible managers should provide key control points for management purposes. Each control point is called a control account (CA). When effort is subcontracted, the applicable subcontractor is identified and related to the appropriate WBS element(s) and/or organization charged with acquiring the subcontracted item.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 4

- *Is the project reporting consistent with the WBS and the Organizational Breakdown Structure (OBS)?*

Sample Question 5

- *Does the project manager demonstrate knowledge of the location of applicable procedures?*

ANSI/EIA 748-A Guideline 3: Provide for the integration of the company's planning, scheduling, budgeting, work authorization and cost accumulation processes with each other, and as appropriate, the program work breakdown structure and the program organizational structure.

NDIA Intent Guideline 3: Integrate the technical, schedule, and cost elements of the project through detailed, intermediate and summary project plans that include schedules, budgets, authorization of work, and accumulation of costs, all consistent with the budget plan. The work tasks are assigned to a WBS and OBS and are traceable to the scheduling system and the cost collection system. Establishment of control accounts at the various intersections of the WBS and OBS facilitates the linkage between the planning, scheduling, budgeting, work authorization, cost accumulation, and performance measurement processes. The control accounts should be determined by the scope of the management tasks.

Applicable SNL EVM Project Surveillance Sample Questionnaire:

Sample Question 3

- *Does your project have assigned Control Account Managers (CAMs) with performance responsibility for each work package? The CAM may not own all WP's but has total responsibility for control accounts.*

ANSI/EIA 748-A Guideline 4: Identify the company organization or function responsible for controlling overhead (indirect costs).

NDIA Intent Guideline 4: Clearly identify managers who are assigned responsibility and authority for controlling indirect costs including overhead, burden, and general administrative (G&A) costs, and who have the authority to approve expenditure of resources. Document the process for management and control of indirect costs.

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

ANSI/EIA 748-A Guideline 5: Provide for integration of the program work breakdown structure and the program organizational structure in a manner that permits cost and schedule performance measurement by elements of either or both structures, as needed.

NDIA Intent Guideline 5: Integrate the WBS and OBS to facilitate schedule and cost performance measurement. The control account is the point where the WBS tasks and OBS responsibility intersect. It is defined as the point where a single functional organization or integrated product team has responsibility for work defined to a single WBS element. It is also the initiation point for work authorization, work performance management, and work performance measurement. The control account identifies the plan for work task accomplishment, defines the effort required, identifies elements of cost (labor, material, etc.) and estimates the resources required to do the work. Each control account is assigned a control account manager. The control account manager is responsible for ensuring the accomplishment of work in his or her control account and is the focal point for management control.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 4

- *Is the project reporting consistent with the WBS and the Organizational Breakdown Structure (OBS)?*

PLANNING & BUDGETING

ANSI/EIA 748-A Guideline 6: Schedule the authorized work in a manner, which describes the sequence of work and identifies significant task interdependencies required to meet the requirements of the program.

NDIA Intent Guideline 6: The scheduling process documents and the resulting project schedule provide a logical sequence of work leading to a milestone, event, and/or decision point, needed to ensure that the schedule supports the project objectives. There is a clear definition of what constitutes commencement and completion of each control account (or lower level task/activity). The schedule describes the sequence of discrete authorized work and the significant task interdependencies. Government development programs or significant development efforts typically schedule the discrete authorized work through the use of a network schedule. Production programs typically schedule using a Manufacturing Resource Planning (MRP) or Enterprise Resource Planning (ERP) tool employing a line of balance schedule that supports the project objectives.

The master schedule must agree with the project objectives, include all key events, and reflect a logical sequence of events. Ensuring that all team members are working to the same project schedule is essential for monitoring progress, analyzing variances, and tracking corrective actions. Schedules add a timeline to the project plan to accomplish the technical scope, allow managers to evaluate actual progress against the established baseline, and to forecast completion dates for remaining work. No specific scheduling software is required, but there must be horizontal and vertical integration through the frameworks of the WBS and OBS.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 6

Does your project have a schedule baseline and a budget baseline which can be traced to the Project Execution Plan, incorporating any customer directed contract revisions?

- *Do the start / completion dates in the schedule match the dates in the budget spreads?*
- *Do the detail schedules show task dependencies?*
- *Are schedule metrics used, i.e. float, critical path method (CPM)?*

ANSI/EIA 748-A Guideline 7: Identify physical products, milestones, technical performance goals, or other indicators that will be used to measure progress.

NDIA Intent Guideline 7: Identify objective interim performance measures within control accounts (or lower level tasks/activities) to enable accurate performance assessment each month. The master schedule includes key program and contractual requirements. It enables the team to predict when milestones, events, and program decision points can be expected to occur. Lower tier schedules, when utilized, must contain specific control account (or lower level task/activity) start and finish dates that are based on physical accomplishment and are clearly consistent with program time constraints.

These control accounts (or lower level tasks/activities) will align with the objective interim performance measures to enable accurate performance assessment. A sufficient number of interim measures will be defined after the detailed schedule is established to ensure performance is measured as accurately as possible. Interim measures will be based on the completion criteria developed for each increment of work and should provide a basis for objectivity, limiting the subjectivity of the measurement of work accomplished.

Accurate schedule status depends on the selection of objective measures of progress to indicate work completion. These measures are necessary to substantiate technical achievement against the schedule plan and justify progression to the next control account (or lower level task/activity). A key feature of an interdependent schedule is that it establishes and maintains

the relationship between technical achievement and progress status

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Sample Question 6

Does your project have a schedule baseline and a budget baseline which can be traced to the Project Execution Plan, incorporating any customer directed contract revisions?

- *Do the start / completion dates in the schedule match the dates in the budget spreads?*
- *Do the detail schedules show task dependencies?*
- *Are schedule metrics used, i.e. float, critical path method (CPM)?*

ANSI/EIA 748-A Guideline 8: Establish and maintain a time-phased budget baseline, at the control account level, against which program performance can be measured. Budget for far-term efforts may be held in higher-level accounts until an appropriate time for allocation at the control account level. Initial budgets established for performance measurement will be based on either internal management goals or the external customer negotiated target cost including estimates for authorized but undefined work. On government contracts, if an over target baseline is used for performance measurement reporting purposes; prior notification must be provided to the customer.

NDIA Intent Guideline 8: The assignment of budgets to scheduled segments of work produces a plan against which actual performance can be compared. This is called the performance measurement baseline (PMB). The establishment, maintenance, and use of the PMB are indispensable to effective performance measurement. The PMB should be in place as early as possible after project award or authorization to proceed (ATP).

The relationship of individual work tasks to the time-phased resources necessary to accomplish them is established at the control account level. Control accounts should be planned, at least at a summary planning level, to the end of the contract. The PMB represents the time-phased scope, schedule, and associated budget through the end of the contract.

Typically this is accomplished through the establishment of time-phased resources within control accounts. For future effort that cannot practically be identified to a control account, it is admissible to establish temporary summary planning above the control account level that identifies scope, schedule, and associated budget to the end of the contract.

The PMB is a vehicle for comparing work accomplished to work scheduled, and comparing actual costs to the value of work performed. The PMB includes direct hours/dollars, direct material dollars, other direct charges, and indirect costs for all authorized work. The PMB represents the formal plan of each control account manager to accomplish all the work assigned in the amount of time allotted and within the amount of budget authorized.

When it is clearly impractical to plan authorized work in control accounts, budget and work will be identified to higher WBS or organizational levels for subdivision into control accounts at the earliest opportunity. The budget for this effort must be identified specifically to the work for which it is intended, be time-phased, its value periodically assessed, and controls established to ensure this budget is not used in performance of other work. The maintenance of realistic budgets, directly tied to an established scope of work, is essential for each organization responsible for performing project effort. Eventually, all the work will be planned by specific organizational elements to the control account level.

Planning horizons can be used to establish reasonable control account level assignments of work and budget. Summary level planning packages may be utilized but only until the information needed for detail planning becomes available. When that information is available, the detail work packages are planned as far in advance as practicable and planning packages are established for the remaining work. Work should not commence until an initial detail plan is put in place. For authorized, unpriced work, the contractor will plan and budget near-term effort in control accounts, with the remaining effort and budget planned in summary level planning packages or maintained in undistributed budget (UB). Until defined, the contractor will

continually plan the near term work. After definition, any budget remaining in undistributed budget will be planned and budgeted within control accounts as soon as practical.

During the life of a project, situations may arise whereby available budgets for the remaining work are insufficient to ensure valid performance measurement. Under these circumstances, a requirement may exist for the total budget allocated to work to exceed the recognized contract budget base (CBB). The resulting value is referred to as an over-target baseline (OTB). Establishment of an over-target baseline may entail re-planning future work, re-planning in-process work, and/or adjusting variances (cost, schedule or both). This allows the project to increase the amount of budget for the remaining work to a more realistic amount to provide for reasonable budget objectives, work control, and performance measurement.

A thorough analysis of contract status is necessary before the implementation of an over-target baseline. The contractor must perform a detailed estimate of all costs necessary to complete the remaining effort. If the difference between the estimated cost to complete and the remaining budget is significant, the contractor will give advance notification to the appropriate parties of the need to increase the remaining budgets. It is important to ensure that both internal management and the customer have a common understanding of the over-target baseline's impact on the performance metrics.

When the contractor and customer project managers are satisfied that the new baseline represents a reasonable plan for completing the contract, the new baseline becomes the basis for future performance measurement.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 7

- *Does the target cost for authorized and negotiated work plus the estimated cost for authorized but not negotiated work reconcile to the sum of the budgets allocated to control accounts and summary planning packages plus contingency?*
- *Are control accounts and summary planning package budgets time phased for the duration of the contract?*

ANSI/EIA 748-A Guideline 9: Establish budgets for authorized work with identification of significant cost elements (labor, material, etc.) as needed for internal management and for control of subcontractors.

NDIA Intent Guideline 9: Through a work authorization process, establish budgets for all authorized work and identify the work to be done by the responsible organizational elements. No work should begin before the effort is authorized by an initial work authorization. As budgets and schedules are established and approved for all the authorized work at the control account level, the work authorization is updated as required. The control accounts identify the appropriate cost elements (labor, subcontract, material, and other direct costs). It is important to include all resources required to accomplish the work scope. Since control account budgets and schedules also establish the constraints required for baseline control, care must be exercised in the establishment of control account budgets to ensure a viable scope/effort correlation and to prevent inadvertent front-loading of the baseline. When establishing control accounts, factors to consider include the:

1. Natural flow of work at this management control point;
2. Significant contractual events that will be supported by completion of the effort within the control account;
3. Need to enhance objective measurement of progress by establishing shorter assessment periods;
4. Rate structures related to the control account resources.
5. Each control account should contain resources necessary to complete the assigned effort and budgets reflecting these resources. Budgets established at the control account level must be planned by element of cost. In addition:
 - a. Budgets may be stated either in dollars, hours, or other measurable units.

- b. It is necessary to use proper rates that will provide a valid performance measurement baseline.
6. In general, the budget process provides for the following:
 - a. Direct budgets allocated to organizations performing the planned work;
 - b. Indirect budgets allocated to specific organizations having responsibility for
 - c. controlling indirect costs;
 - d. Identification of any management reserves or undistributed budget.
 7. Material and subcontractor aspects must also be considered including:
 - a. Time phasing of material budget should be consistent with when the material is expected to be received, consumed, or paid.
 - b. Budgets for subcontractors are time-phased to support program schedule requirements.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 7

- *Does the target cost for authorized and negotiated work plus the estimated cost for authorized but not negotiated work reconcile to the sum of the budgets allocated to control accounts and summary planning packages plus contingency?*
- *Are control accounts and summary planning package budgets time phased for the duration of the contract?*

ANSI/EIA 748-A Guideline 10: To the extent it is practical to identify the authorized work in discrete work packages, establish budgets for this work in terms of dollars, hours, or other measurable units. Where the entire control account is not subdivided into work packages, identify the far term effort in larger planning packages for budget and scheduling purposes.

NDIA Intent Guideline 10: Effort contained within a control account is distributed into either work packages or planning packages. Work packages are single tasks assigned to a performing organization for completion, and should be natural subdivisions of control account effort resulting in a definable end product or event. Work package descriptions must clearly distinguish one work package effort from another. When work packages are relatively short, little or no assessment of work-in-progress is required. As work package length increases, work-in-process measurement becomes more subjective, unless objective techniques, such as discrete milestones with pre-assigned budget values or completion percentages, subdivide them. A key feature, from the standpoint of evaluating accomplishment, is the desirability of having work packages that incorporate frequent, objective indicators of progress.

Each work package will have the following characteristics:

- It represents units of work at the level where work is performed.
- It is clearly distinguishable from all other work packages.
- It is assigned to a single organizational element, or in an integrated product team environment, there could be a single integrated product team responsible with multiple functional disciplines performing the scope of work.

- It has scheduled start and completion dates and, as applicable, interim milestones, all of which are representative of physical accomplishment.
- It has a budget or assigned value expressed in terms of dollars, labor hours, or measurable units that is substantiated by supporting project plans.
- Its duration is limited to a relatively short span of time. A longer task needs objective intermediate measures to enable accurate performance assessments, or the work package may be level of effort (LOE).
- It is consistent with detailed engineering, manufacturing, or other schedules.
- It has material costs segregated from other elements of cost.
- It has subcontract effort consistent with subcontractor program plans.
- Subcontractor and contractor plans are directly reconcilable.

Work for a given control account that cannot be planned in detail at the outset, will be divided into larger segments and placed into planning packages within the control account. Planning packages are aggregates of future tasks and budgets, beyond those planned in detail that will be divided into work packages at the earliest practical time. Time-phased budgets assigned to planning packages must be supported by a specified scope of work and this relationship must be maintained when detailed planning of the effort occurs.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 7

- *Does the target cost for authorized and negotiated work plus the estimated cost for authorized but not negotiated work reconcile to the sum of the budgets allocated to control accounts and summary planning packages plus contingency?*
- *Are control accounts and summary planning package budgets time phased for the duration of the contract?*

Sample Question 12

- *Are accounting mechanisms in place to ensure budget is established prior to opening work packages?*

ANSI/EIA 748-A Guideline 11: Provide that the sum of all work package budgets plus planning package budgets within a control account equals the control account budget.

NDIA Intent Guideline 11: All control accounts must contain a budget, schedule, and scope of work and should realistically represent the work assigned and budgeted to the organizational units. In all cases, the value of the budget assigned to individual work packages and planning packages within the control account must sum to the total value authorized for the control account. At no time should a control account manager have a budget with no assigned scope of work (except for LOE). Conversely, at no time should a control account manager have scope defined without a corresponding budget.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 7

- *Does the target cost for authorized and negotiated work plus the estimated cost for authorized but not negotiated work reconcile to the sum of the budgets allocated to control accounts and summary planning packages plus*

contingency?

- *Are control accounts and summary planning package budgets time phased for the duration of the contract?*

ANSI/EIA 748-A Guideline 12: Identify and control level of effort activity by time-phased budgets established for this purpose. Only that effort which is un-measurable or for which measurement is impractical may be classified as level of effort.

NDIA Intent Guideline 12: Each task on the project needs to be assessed using the best method to budget and measure its progress toward completion. Level of effort is defined as having no measurable output or product at the work package level. Level of effort must be limited to those activities that are unable to be measured discretely to avoid distorting project performance data. Level of effort work packages should be separately identified from discrete effort work packages and apportioned effort work packages. Budgets for level of effort activity must have a sound basis of estimate and be time-phased to properly reflect when work will be accomplished.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 9a, b

Are control accounts with both measurable and level of effort (LOE) work packages limited to xx% or less LOE in budget value? The threshold for % of LOE should be determined based upon local procedures or program work content.

What is the mix of measurable vs. LOE content at the project level? In dollars?

ANSI/EIA 748-A Guideline 13: Establish overhead budgets for each significant organizational component of the company for expenses, which will become indirect costs. Reflect in the program budgets, at the appropriate level, the amounts in overhead pools that are planned to be allocated to the program as indirect costs.

NDIA Intent Guideline 13: Establish indirect (overhead, burden, and G&A expense) budgets at the appropriate organizational level for each pool and cost sub-element. It is important to have an indirect budgeting and forecasting process, because indirect costs can account for a major portion of the cost of any project. As such, the budgetary control and management of this category of cost cannot be overlooked or minimized. Indirect budgets on the project are established and planned with the established direct budgets consistent with the contractor's accounting procedures.

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

ANSI/EIA 748-A Guideline 14: Identify management reserves and undistributed budget.

NDIA Intent Guideline 14: Identify and control management reserve and undistributed budget. Management reserve is budget to cover unexpected work that is deemed in scope to the contract, 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. As new in-scope work is identified, management reserve (if approved) may be used to plan the new task. Management reserve, therefore, may not be applied to completed work packages, except for the effect of routine accounting rate adjustments.

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 the

control account to which it has been distributed. 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.

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

ANSI/EIA 748-A Guideline 15: Provide that the program target cost goal is reconciled with the sum of all internal program budgets and management reserves.

NDIA Intent Guideline 15: Reconcile the project value (target cost plus authorized, un-priced work) with the sum of all control account budgets, indirect budgets, management reserves, and undistributed budgets.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 7

Does the target cost for authorized and negotiated work plus the estimated cost for authorized but not negotiated work reconcile to the sum of the budgets allocated to control accounts and summary planning packages plus contingency?

- *Are control accounts and summary planning package budgets time phased for the duration of the contract?*

ACCOUNTING CONSIDERATIONS

ANSI/EIA 748-A Guideline 16: Record direct costs in a manner consistent with the budgets in a formal system controlled by the general books of account.

NDIA Intent Guideline 16: Accumulate direct costs in the formal accounting system in a manner consistent with the way the related work is planned and budgeted. Actual costs reported in the performance reports agrees with the costs recorded in the general books of account (accounting system) or can be explained as timing differences.

Timing differences that may occur between the accounting system and project performance reports must be reconcilable. Of particular interest is the accounting for material (i.e., at consumption, receipt, inventory acceptance, or inventory release). The basic requirement is to account for materials in a manner consistent with the way in which materials are budgeted.

Subcontracts also require special consideration. Subcontract costs must be accrued in a timely manner consistent with the schedule status. This may require the use of estimated costs and/or the equivalent import from the subcontractor's books of record or report.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 11

- *Does your project reconcile reported contract actuals to the ledger on a monthly basis?*

Sample Question 13

- *Are estimated actuals used (i.e. materials or subcontracts?)*

ANSI/EIA 748-A Guideline 17: *(When a work breakdown structure is used)* Summarize direct costs from control accounts into the work breakdown structure without allocation of a single control account to two or more work breakdown structure elements.

NDIA Intent Guideline 17: A work order/job order/task code charge number structure must exist that uniquely identifies costs down to the control account level allowing for accumulation and summarization of costs to higher levels. Allowable costs collected within the control account by element of expense “roll-up” from the control account level through the WBS to the top level without being divided at any level among two or more higher-level elements. Cost collection accounts map to the WBS, and the WBS roll-up structure contains no division/allocation of lower-level cost to multiple higher-level WBS elements. When common costs are collected in separate control accounts for like items or services they are allocated to appropriate control accounts in each project.

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

Guideline 18: Summarize direct costs from the control accounts into the contractor’s organizational elements without allocation of a single control account to two or more organizational elements.

NDIA Intent Guideline 18: Allowable costs collected within the control account by element of expense “roll-up”, from the control account level through the OBS, to the top level without being divided at any level among two or more higher-level elements. This guideline and the one before it are identical, with the exception that this one deals with OBS data summarization while the previous one dealt with WBS data summarization. In either case the intent is the same: actual cost collected at the control account level may not be rolled up (i.e., summarized) to multiple higher-level elements. When common costs are collected in separate control accounts for like items or services they are allocated to appropriate control accounts in each project.

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

ANSI/EIA 748-A Guideline 19: Record all indirect costs, which will be allocated to the contract.

NDIA Intent Guideline 19: Record all indirect costs for the project in the accounting system. Allocate them to the recorded direct costs per the documented procedure to assure that all projects benefiting from the indirect costs will receive their fair share.

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

ANSI/EIA 748-A Guideline 20: Identify unit costs, equivalent units costs, or lot costs when needed.

NDIA Intent Guideline 20: Identify unit costs, equivalent unit costs, or lot costs when needed. Where the work is budgeted by unit, equivalent units, or lot costs, as appropriate for the work being planned, ensure that the accounting system produces

actual unit, equivalent unit, or lot costs for purposes of measuring cost performance to plan. When units are taken off the line in more or less a random order according to the delivery agreements of the different customer's projects, it is sufficient to establish "equivalent unit cost" (i.e., all things being equal, on a "mature" production run, each unit's cost is approximately equivalent to every other unit's cost).

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

ANSI/EIA 748-A Guideline 21: For EVMS, the material accounting system will provide for:

- Accurate cost accumulation and assignment of costs to control accounts in a manner consistent with the budgets using recognized, acceptable, costing techniques.
- Cost performance measurement at the point in time most suitable for the category of material involved, but no earlier than the time of progress payments or actual receipt of material.
- Full accountability of all material purchased for the program including the residual inventory.

NDIA Intent Guideline 21: Material accounting systems must adhere to these three characteristics:

- The material accounting system provides full accountability and effective performance measurement of all material (including residual inventory) purchased for the project.
- Material costs must be accurately charged to control accounts using recognized, acceptable costing techniques (e.g. recorded at receipt of material for high dollar material, or when other material will be used within the same accounting period, material is used, or released to work in process, consistent with the planned budget in the same accounting period that performance is claimed).
- When necessary, the use of estimated actual costs, to ensure accurate performance measurement, is required.

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

ANALYSIS & MANAGEMENT

ANSI/EIA 748-A Guideline 22: At least on a monthly basis, generate the following information at the control account and other levels as necessary for management control using actual cost data from, or reconcilable with, the accounting system:

- (1) Comparison of the amount of planned budget and the amount of budget earned for work accomplished. This comparison provides the schedule variance.
- (2) Comparison of the amount of the budget earned the actual (applied where appropriate) direct costs for the same work. This comparison provides the cost variance.

NDIA Intent Guideline 22: On at least a monthly basis, generate schedule variance and cost variance data that provide visibility into root causes, and take actions to achieve better project completion. Accurate and reliable EVMS data supports management control needs by allowing the project manager to focus on those areas in need of attention. The first intent of this criterion is to recognize that analysis must be accomplished on a regular, periodic basis. The second intent is to foster analyses and identification of root causes of the variances and their resulting impacts at the control account level. Since the control

account is normally the lowest level at which management and control responsibility exists for specific WBS increments of work, it is the logical point for not only the planning, scheduling, budgeting, and accounting efforts but also for the analysis effort as well. All data analyzed must be from, or be reconcilable with, the accounting system.

In order for control account managers to have full management control responsibility, they must be able to analyze the work performance and associated costs against the performance measurement baseline. Since the control account is the level at which performance measurement is performed, the project manager must, as a minimum, ensure traceability of project performance down to the control account. However, analysis should also be performed at the most meaningful level of the WBS, which may be determined by risk, critical path, technical performance metrics, or utilization of thresholds.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 14

- *Has your project communicated EVMS implementation and variance analysis thresholds to all CAMS and updated Project Control Instructions describing deviations in your EVMS process?*

Sample Question 15

- *Does your project claim Earned Value and assess ETC for all open work package activities?*

Sample Question 17

- *Does your project make a monthly assessment of the Estimate to Complete (ETC) for all future work packages which takes into consideration the performance-to-date or near term work?*

ANSI/EIA 748-A Guideline 23: Identify, at least monthly, the significant differences between both planned and actual schedule performance and planned and actual cost performance, and provide the reasons for the variances in the detail needed by program management.

NDIA Intent Guideline 23: The purpose of this guideline is to ensure both a time-based schedule analysis of significant scheduling differences, and a budget based cost analysis of significant performance management baseline variances are done.

Comparing the budget value of work completed to the budget value of work scheduled during a given period of time provides a valuable indication of schedule status in terms of dollars-worth-of-work accomplished. This schedule variance (SV) may not, however, clearly indicate whether or not scheduled milestones are being met, since some work may have been performed out of sequence or ahead of schedule while other work has been delayed. Schedule variance does not indicate whether a completed activity is a critical event, or if (or by how much) delays in an activity's completion will affect the completion date of the project.

A formal time-phased, time-based scheduling system, therefore, must provide the means of more clearly determining the status of specific control accounts (or lower level tasks/activities), milestones, and critical events. Schedule analysis must address the time impact to the schedule plan when a significant variance exists. By addressing the time impact for each significant variance, a true and representative impact to the schedule plan is quantified. A key concept required to support schedule analysis is to ensure that work is planned in discrete elements that reflect actual accomplishment. This helps to ensure that time-based schedule variances are ultimately reported. The analysis should identify potential schedule accomplishment and milestone problems with respect to the integrated network schedule, and thus help to ensure routine evaluation of the critical path, as applicable.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 14

- *Has your project communicated EVMS implementation and variance analysis thresholds to all CAMS and updated Project Control Instructions describing deviations in your EVMS process?*

Sample Question 16

- *Is the Earned value claimed directly related to the assessment of schedule status toward achievement of deliverable and intermediate milestones? How is Earned value (BCWP) calculated?*

Sample Question 22

- *Does your project perform variance analysis monthly? Do the variance analysis reports (VARs) address cost variance; schedule variance; variance at completion should be program driven.*

Sample Question 23

- *Does the Project Manager have an ongoing review process whereby IPT's & CAM's review VAR's, EAC's, and EVM metrics?*

Sample Question 24

- *Do Project Managers, Finance Managers, WP Managers, IPT leads, and CAM's have access to EVMS data? Is it timely?*

ANSI/EIA 748-A Guideline 24: Identify budgeted and applied (or actual) Indirect costs at the level and frequency needed by management for effective control, along with the reasons for any significant variances.

NDIA Intent Guideline 24: Indirect rate forecast and control is crucial to meeting project cost objectives. This guideline requires a monthly indirect cost analysis, by those assigned responsibility, comparing indirect budgets to indirect actual costs with the requirement that the cause of resultant variance(s) be explained. The importance of analyzing indirect cost performance requires the exercise of maximum discipline in following the established indirect cost control procedures.

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

ANSI/EIA 748-A Guideline 25: Summarize the data elements and associated variances through the program organization and/or work breakdown structure to support management needs and any customer reporting specified in the contract.

NDIA Intent Guideline 25: Use the same data for internal management needs and for reporting to the customer. Since the WBS and the OBS exist as a formal and disciplined framework for a comprehensive roll-up of all data elements, they become the ideal framework for summarizing data from the control account level to the management reporting level.

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

ANSI/EIA 748-A Guideline 26: Implement managerial actions taken as the result of earned value information.

NDIA Intent Guideline 26: Assess management actions and modify them as required to achieve project objectives. Earned value data must be utilized by all levels of management for effective project execution. Because of this, the data produced by the earned value management system must be available to managers on a timely basis and must be of sufficient quality to ensure that effective management decisions can be made as a result of its analysis. The project's internal reports and the reports forwarded to their customer must indicate the overall cost and schedule impacts of such problems on the project.

For effective management control, the corrective actions should be identified at the appropriate level and then tracked to resolution and closure. A manager's assigned action should have sufficient authority and control over the resources to effectively implement the corrective action requirements.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 25

- *Does your project identify risks and establish risk mitigation plans monthly including maintaining a risk register quantifying all risks?*

ANSI/EIA 748-A Guideline 27: Develop revised estimates of cost at completion based on performance to date, commitment values for material, and estimates of future conditions. Compare this information with the performance measurement baseline to identify variances at completion important to company management and any applicable customer reporting requirements including statements of funding requirements.

NDIA Intent Guideline 27: On a monthly basis, the control account manager should review the status of the expended effort and the achievability of the forecast and significant changes briefed to program management. A comprehensive EAC is accomplished on a periodic basis using all available information to arrive at the best possible estimate at completion. This is done by:

- Evaluating performance to date efficiency achieved by performing organizations
- for completed work and comparing it to remaining budgets;
- Assessing commitment values for material to complete the remaining work;
- Estimating future conditions to derive the most accurate estimate at completion.

Comparisons of this estimate to budgets for the associated effort must be made frequently enough for management to ensure project performance and resource availability will not be adversely impacted. Prudent maintenance of the control account level EAC by the control account manager ensures that the EAC reflects a valid projection of project costs.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 15

- *Does your project claim Earned Value and assess ETC for all open work package activities?*

Sample Question 17

- *Does your project make a monthly assessment of the Estimate to Complete (ETC) for all future work packages*

which takes into consideration the performance-to-date or near term work?

Sample Question 18

- *Has your project performed a comprehensive, bottom's up performance EAC within the last 12 months?*

Sample Question 19

- *Are different EAC's maintained other than the one reported to the customer?*

Sample Question 20

- *Are the EAC's evaluated using CPI, SPI, and TCPI?*

Sample Question 25

- *Does your project identify risks and establish risk mitigation plans monthly including maintaining a risk register quantifying all risks?*

REVISIONS & DATA MANAGEMENT

ANSI/EIA 748-A Guideline 28: Incorporate authorized changes in a timely manner, recording the effects of such changes in budgets and schedules. In the directed effort prior to negotiation of a change, base such revisions on the amount estimated and budgeted to the program organizations.

NDIA Intent Guideline 28: Incorporate the work scope for authorized changes into the performance measurement baseline in a documented, disciplined, and timely manner. Adherence to this guideline helps to ensure that budget, schedule, and work remain coupled. For unpriced change orders, the contractor will develop its best estimate for planning and budgeting purposes for incorporation into the performance measurement baseline. Incorporating changes must not arbitrarily eliminate existing cost and schedule variances. Rate changes and economic price adjustments may be made as appropriate.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 27

- *Are changes at the Control Account and Work Package level adequately documented; traceable to configuration control documents (contract MODS, Engineering Change Proposals); incorporated into the Project Baseline, Budget baseline Log and the EAC?*

Sample Question 28

- *Evaluate whether contingency is being properly managed. Consider the following: Are records maintained to show how contingency was used; is contingency limited to authorized work which cannot be planned to specific control accounts as of the reporting period being surveilled?*

Sample Question 29

- *Is there a documented process that defines the level of approval for changes to contingency?*

Sample Question 31

- *Are all adjustments to the performance measurement data authorized and tracked?*

ANSI/EIA 748-A Guideline 29: Reconcile current budgets to prior budgets in terms of changes to the authorized work and internal re-planning in the detail needed by management for effective control.

NDIA Intent Guideline 29: Budget changes are controlled and understood in terms of scope, resources, and schedule. Budget reflects current levels of authorized work. Budget revisions are traceable to authorized contractual targets and control account budgets. Management reserve may be used for future work when additional in-scope work has been identified.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 27

- *Are changes at the Control Account and Work Package level adequately documented; traceable to configuration control documents (contract MODS, Engineering Change Proposals); incorporated into the Project Baseline, Budget baseline Log and the EAC?*

ANSI/EIA 748-A Guideline 30: Control retroactive changes to records pertaining to work performed that would change previously reported amounts for actual costs, earned value, or budgets. Adjustments should be made only for correction of errors, routine accounting adjustments, effects of customer or management directed changes, or to improve the baseline integrity and accuracy of performance measurement data.

NDIA Intent Guideline 30: Control retroactive adjustments (including those in the current period), making only routine accounting adjustments, definitization of contract actions, rate changes, and economic price adjustments, customer-approved changes, or data entry corrections. Adjustments resulting from definitization of contract actions should be limited to affected work scope budgets. This is necessary to ensure baseline integrity and accuracy of performance measurement data. Retroactive budget and/or performance adjustments may delay visibility of overall project variance from plan, thus reducing the alternatives available to managers for project redirection or termination.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 31

- *Are all adjustments to the performance measurement data authorized and tracked?*

ANSI/EIA 748-A Guideline 31: Prevent revisions to the program budget except for authorized changes.

NDIA Intent Guideline 31: Prevent unauthorized revisions to the performance measurement baseline. Any changes to the project must be approved and implemented following the baseline management control process. This control precludes the inadvertent implementation of a budget baseline greater than the project budget. When the performance budget or schedule objectives exceed the project plan and are recognized in the performance measurement baseline, it is identified as an over-target baseline.

Applicable SNL EVM Project Surveillance Sample Question:

- No specific question

ANSI/EIA 748-A Guideline 32: Document changes to the performance measurement baseline.

NDIA Intent Guideline 32: The performance measurement baseline should always reflect the most current plan for accomplishing the effort. Authorized changes must be promptly recorded in the system and incorporated into all relevant

planning. Planning and authorization documents must be updated accordingly, prior to the commencement of new work.

Applicable SNL EVM Project Surveillance Sample Question:

Sample Question 27

- *Are changes at the Control Account and Work Package level adequately documented; traceable to configuration control documents (contract MODS, Engineering Change Proposals); incorporated into the Project Baseline, Budget baseline Log and the EAC?*

Sample Question 30

- *Are all affected process documents (WA's, Schedule documents, etc.) amended to properly reflect authorized changes?*

LANL EVMS Surveillance Indicators for Monthly Project Reviews

- Budget at Completion (BAC) and Budgeted Cost for Work Scheduled (BCWS) Milestones should include all project phases, not just those that are funded.
- BAC/BCWS should not include contingency.
- $BAC = \text{cum BCWS}$
- $TPC = BAC + \text{contingency}$
- Cost Performance Indicators (CPI) that vary from 1.00 should cause variances at completion unless there is a documented corrective action.
- Schedule Performance Indicators that vary from 1.00 should cause milestone completion variances unless there is a documented corrective action.
- Variance analysis should include the problem, impact, and correction action.
- Baseline Change Proposals (BCP) should not be processed to eliminate variances (overruns, delays), unless the variances result from scope changes. Funding-only changes should not cause changes to the baseline.
- In general, BAC should not equal Estimate at Completion (EAC), and BCWP should not equal Actual Cost for Work Planned.
- The last month of BCWS should correspond with the baselined month of the last milestone.
- The last month of ETC should correspond with the forecast month of the last milestone.
- The milestone table should include all required LANL [company] standard milestones.
- Look for evidence that the project has a WBS, a resource loaded schedule, work packages, and a critical path.