COMPANION DOCUMENT - EARNED VALUE MANAGEMENT SYSTEMS INTERPRETATION HANDBOOK EVMSIH (2.0)

TEST PROTOCOLS

U.S. DEPARTMENT OF ENERGY
OFFICE OF PROJECT MANAGEMENT
OVERSIGHT AND ASSESSMENTS (PM)
WASHINGTON, D.C.

AUGUST 2016

The Mission of the Energy Department is to Ensure America's Security and Prosperity by Addressing Its Energy, Environmental and Nuclear Challenges through Transformative Science and Technology Solutions

Comparison of EVMSIH Current V2.0 versus February/March V1.1 Working Document. Please note that substantial changes were made to EVMSIH V1.0 which are reflected in V1.1 below.

Blue means LOI number changed. Many LOIs were deleted or merged.

EVMSIH QE LOI V2.0 - IS	EVMSIH QE LOI V1.1 - WAS
1-A-1	1-A-1
1-A-2	1-A-2
2-A-1	2-A-1
3-A-1	3-A-1
3-A-2	3-A-2
5-A-1	5-A-1
5-A-2	5-A-2
5-A-3	5-A-4
5-A-4	5-A-5
5-A-5	5-A-6
6-A-1	6-A-1
6-A-2	6-A-2
6-A-3	6-A-10
6-A-4	6-A-11
6-A-5	6-A-13
6-B-1	6-B-1
6-B-2	6-B-2
6-B-3	6-B-3
6-B-4	6-B-8
6-B-5	6-B-10
6-B-6	6-B-14
6-C-1	6-C-3
6-C-2	6-C-5
6-C-3	6-D-1
6-C-4	6-D-6
6-C-5	6-D-7
6-C-6 new	
7-A-1	7-A-3
8-A-1	8-A-1
8-A-2	8-A-4
8-A-3	8-A-5
8-A-4	8-A-9
8-A-5	8-A-10
8-B-1	8-B-1
9-A-1	9-A-1
9-A-2	9-A-4
9-A-3	9-A-5
9-B-1	9-B-1
9-C-1	9-C-2

EVMSIH QE LOI V2.0 - IS	EVMSIH QE LOI V1.1 - WAS
10-A-1	10-A-1
10-A-2	10-A-2
10-A-3	10-A-3
10-A-4	10-A-4
10-A-5	10-A-5
10-A-6	10-A-6
10-A-7	10-A-7
10-A-8	10-A-8
10-A-9	10-A-11
10-A-10	10-A-14
10-A-11	10-A-15
10-A-12	10-A-16
10-B-1	10-B-1
10-B-2	10-B-2
11-A-1	11-A-1
12-A-1	12-A-1
12-A-2	12-A-5
14-A-1	14-A-1
14-A-2	14-A-3
14-A-3	14-A-5
14-B-1	14-B-1
14-B-2	14-B-2
15-A-1	15-A-1
15-A-2	15-A-2
16-A-1	16-A-1
16-A-2	16-A-2
16-A-3	16-A-3
16-A-4	16-A-4
16-A-5	16-A-5
16-A-6	16-A-7
16-A-7	16-A-8
16-B-1	16-B-1
16-B-2	16-B-3
16-B-3	16-B-4
16-B-4	16-B-6
17-A-1	17-A-1
17-A-2	17-A-2
18-A-1	18-A-1
18-A-2	18-A-2

EVMSIH QE LOI V2.0 - IS	EVMSIH QE LOI V1.1 - WAS
20-A-1	20-A-1
20-A-2	20-A-2
21-A-1	21-A-1
21-A-2	21-A-4
21-A-3	21-A-5
21-A-4	21-A-9
21-A-5	21-A-10
22-A-1	22-A-1
22-A-2	22-A-2
22-A-3	22-A-3
22-A-4	22-A-4
22-A-5	22-A-5
22-A-6	22-A-7
22-A-7	22-A-8
22-A-8	22-A-9
23-A-1	23-A-1
23-A-2	23-A-2
25-A-1	25-A-1
26-A-1	26-A-1
26-A-2	26-A-2
26-A-3	26-A-3
26-A-4	26-A-6
26-A-5	26-A-7
27-A-1	27-A-2
27-A-2	27-A-4
27-A-3	27-A-6
27-A-4	27-A-7
27-B-1	27-B-4
27-C-1	27-D-1
28-A-1	28-A-1
28-A-2	28-A-2
28-A-3	28-A-3
28-B-1	28-B-1

EVMSIH QE LOI V2.0 - IS	EVMSIH QE LOI V1.1 - WAS
29-A-1	29-A-1
29-A-2	29-A-2
29-A-3	29-A-3
29-B-1	29-B-1
29-B-2	29-B-2
29-B-3	29-B-3
29-B-4	29-B-4
29-C-1	29-C-1
29-C-2	29-C-2
29-D-1	29-D-1
30-A-1	30-A-1
30-A-2	30-A-5
31-A-1	31-A-1
32-A-1	32-A-1
4-A-1	4-A-2
4-A-2	4-A-3
4-A-3	4-A-6
13-A-1	13-A-1
13-A-2	13-A-6
19-A-1	19-A-4
19-A-2	19-A-5
24-A-1	24-A-1
24-A-2	24-A-3

	Guideline 1 - Define the authorized work elements for the project. A work breakdown structure (WBS), tailored for effective internal management control, is commonly used in this process.				
	A Work Breakdown Structure (WBS) is the structure and code that integrates and relates all project work (scope, schedule and cost). It is the cornerstone of effective project planning, execution, control, status, and reporting. All the work contained within the WBS is to be identified, estimated, scheduled, and budgeted. The WBS contains the scope baseline necessary to achieve the technical objectives of the work described. It is generally a multi-level framework that organizes and graphically displays elements representing the work to be accomplished in logical relationships. Relationships among WBS elements and detailed descriptions of each element are presented in the WBS dictionary accompanying the hierarchical diagram.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
1.A.1	**Is a single product-oriented WBS used for a given project extended to the control account level as a minimum?**				
	The key aspect of this QE LOI is a single, product/deliverable-oriented WBS extended to the CA level at a minimum to integrate, plan, and manage the project work scope, schedule and budget requirements. IMPACT OF NONCOMPLIANCE Without a single WBS that contains all authorized project work, the project cannot be properly planned, managed, and executed.	**Manual Tests:**			
		1. Review the WBS and verify only one WBS structure is used for the project.	a. Compare the WBS Index to the WBS structure in the RAM, WADs, IMS, EVM Cost Tool, Control Account Plan (CAP), and the IPMR/CPR Format 1 and verify the WBS structure is consistent through the system.	Document all discrepancies as compliance concerns	Project WBS Index, WBS Dictionary, RAM, WADs, IMS, EVM Cost Tool, CAP, IPMR/CPR (CDRL)
			b. Using the previous trace artifacts, verify the WBS is extended to the control account level at a minimum.		Project WBS Index, WBS Dictionary, RAM, WADs, IMS, EVM Cost Tool, CAP
			c. Verify the WBS is a product oriented WBS consistent with the DOE PM WBS Handbook. Compare the WBS Dictionary structure with the DOE PM WBS Handbook guidance. Trace all levels of the current WBS.		Project WBS Index, WBS Dictionary, DOE PM WBS Handbook.
			d. Identify any WBS elements that are not part of the project scope. If present, these WBS elements should not be considered for purposes of this LOI.		Project WBS Index, WBS Dictionary, SOW, Performance Work Statement
		2. Verify the WBS is a product oriented WBS consistent with the DOE PM Work Breakdown Structure (WBS) Handbook.	a. Compare the WBS Dictionary structure with the DOE PM WBS Handbook guidance.	Document all discrepancies as compliance concerns	WBS Dictionary, DOE PM WBS Handbook
			b. Trace all levels of the current WBS.		
			c. Identify any WBS elements that are not part of the project scope. If present, these WBS elements should be clearly identified but not considered for purposes of this LOI.		

#	Interpretive Discussion	Test Steps	Test Metric	Metric Threshold	Artifacts
1.A.2	**Does the WBS include all authorized project work including the identification of work scope to be performed by subcontractors and any revisions resulting from authorized changes and modifications?**				
	The complete and proper identification of all contractually authorized work following a WBS hierarchy provides the project a framework that represents all contract work scope at any point in time, and facilitates correlation between the contract scope (e.g., Statement of Work, Design Build Specifications, etc.) and technical/performance criteria. IMPACT OF NONCOMPLIANCE Failure to link scope with the WBS may result in required work being omitted or unauthorized work being performed.	**Manual Tests:**			
		1. Verify the WBS Dictionary (or equivalent) includes the complete scope of work.	a. Trace all WBS elements to ensure that every current DOE requirement is represented in the WBS Dictionary.	Document all discrepancies as compliance concerns	WBS Dictionary (or equivalent), PEP/SOW
		2. Verify all WBS elements are covered and the WBS Dictionary defines the scope to the control account level, at a minimum.	a. Compare the current WBS Dictionary WBS to the CAPs or place where WP/planning package (PP) scope is defined.		WBS Dictionary, CAPs, WP/PP scope planning (WADs)
			b. Note: if scope in the WBS Dictionary is the WP and planning package level, this trace can be accomplished with only the WBS Dictionary. c. Trace all elements to ensure all WBS elements are appropriately covered and that scope is defined to the WP/PP level.		
		3. Verify all significant subcontracted elements are identified in the WBS.	a. Obtain the contractor list of major subcontractors and compare the list to the WBS elements to ensure all are identified in the WBS.		WBS Dictionary, Major subcontractor list,
			b. Trace the subcontract SOW to the WBS Dictionary and verify consistency. c.Trace all major subcontractors.		WBS Dictionary, Subcontractor SOW
		4. Verify CA scope is consistent with the WBS Dictionary. Select 5 discrete CAs and 2 LOE CAs.	a. Trace the CA scope with the WBS Dictionary element it is associated with. 1. If the WBS Dictionary is at the WP level this check would be at a summary WBS Dictionary level. 2. If the WBS Dictionary is at the CA level then this check is one for one. Select 5 discrete CAs and 2 LOE CAs.		WBS Dictionary, WADs
		5. Verify the WBS Dictionary paragraphs include all of the current work scope	a. Compare the WBS Dictionary to the project SOW paragraphs for completeness.		WBS Dictionary (or equivalent), PEP/SOW

#	Interpretive Discussion	Test Steps	Test Metric	Metric Threshold	Artifacts
			b. Compare the WBS Dictionary and Subcontractor scope paragraphs for completeness.		WBS Dictionary, Subcontractor SOW
		6. Verify the most recent Work Authorization Documents (WADs) scope of work is consistent with the WBS Dictionary and project SOW.	a. Using the current WBS Dictionary and project SOW, compare the most recent WAD scope statement to verify it is consistent. The WAD and/or WBS Dictionary should reference the project SOW paragraph number, if applicable.		WBS Dictionary/SOW, current WADs, IMS
			b. Sample the significant CAs (high dollar, on the critical path) current (most recent) WADs. A sample size of 10% of the total PMB is recommended.		
		IH On Site Interview Questions:			
		1. (CAM) – Please demonstrate how the WBS you use is consistent with the WBS Dictionary?			

	Guideline 2 - Identify the project 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.				
	Once the scope of work has been adequately defined via the WBS, it is important to assign responsibility for getting the work accomplished as defined. This Guideline requirement serves to ensure that the contractor reviews his manpower availability and the availability of his managerial personnel to ascertain to what extent these personnel have the time and the capability to assume responsibility for additional contract work. The task of composing an organizational chart (or Organization Breakdown Structure – OBS) to identify which managers in the corporate structure will have responsibility for work accomplishment will usually suffice as a review to ensure that full management and technical capability exists. Where management, labor, technical capacity is not sufficient, the contractor must choose between the options of subcontracting for this additional capability or hire additional personnel as a means of increasing capacity. Such a make-or-buy decision is often a hard choice to make because of the far-reaching effects it may have on the growth potential of the company, the company's overhead posture, and the competitive environment in which the company operates, the necessity to identify organizational responsibility cannot be minimized. Done improperly or insufficiently at the onset of a contract, it almost always results in lack of management control, lack of scheduled accomplishments and cost overruns.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
2.A.1	**Does a single OBS exist that contains all of the responsible organizational elements necessary to execute the project to include major subcontracted and inter-organizational work?**				
	The OBS identifies those managers in the contractor's organizational structure that are responsible for executing a specific scope of work consistent with their internal organizational structure of departments, units, teams, and/or subcontractors. IMPACT OF NONCOMPLIANCE Failure to define the responsible organization hinders the effectiveness of project execution.	**Manual Tests:**			
		1. Verify the defined and documented OBS structure that is responsible for project execution.	X = OBS structure not defined and documented	Document all discrepancies as compliance concerns	OBS, Organizational Charts, documented roles and responsibilities
		2. Confim the OBS structure is in the RAM or other document?	X = OBS structure not documented in the RAM or other document.		OBS, Organizational Charts, RAM
		3. Obtain a list of responsible major subcontractors or inter-organizational units (if applicable) and verify subcontract management responsibilities are identified in the OBS.	X = # of major subcontractors or inter-organizational units (if applicable) management responsibilities not identified in the OBS.		Major subcontractor list, Inter-organizational units list, OBS, documentated roles and responsibilities
		4. Review the OBS and compare with any change documentation that would change the OBS structure (CAMs, functional managers, etc.).	a. Verify the OBS and RAM are current and consistent with each other.		OBS, Change Documentation, RAM
			b. If current, compare the OBS with the EVM Cost Tool data and the CPR/ IPMR Format 2 (if contractually required) to determine if they are consistent and there is a single OBS used on the project. X = # of mismatches between the OBS, the EVM Cost Tool data, and the IPMR/CPR Format 2.		OBS, EVM Cost Tool, IPMR/CPR Format 2.

	Guideline 3 - Provide for the integration of the planning, scheduling, budgeting, work authorization and cost accumulation processes with each other, and as appropriate, the project work breakdown structure and the project organizational structure.				
	Ensure the contractor establishes an interconnection among the contractor's enterprise management systems (e.g., accounting, scheduling, estimating, procurement, Manufacturing/Enterprise Resource Planning (M/ERP) System, time card management systems, etc.) into an integrated framework required for effective program management.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
3.A.1	**Are the planning, scheduling, budgeting, work authorization and cost accumulation systems integrated with each other via a common coding structure and as appropriate with the Work Breakdown Structure (WBS) and the Organizational Breakdown Structure (OBS) at Control Account (at a minimum) through the total project level?**				
	The integration of documented EVMS processes and operating procedures will enable consistent and relatable performance data across the enterprise management. This integration is obtained through the development and consistent use of a unique coding structure (work order/job order/task code charge number structure) that facilitates the linkage among and between the EVMS planning, scheduling, budgeting, work authorization, cost accumulation, performance measurement and change control processes. IMPACT OF NONCOMPLIANCE Failure to integrate data reported in subsystems invalidates the usefulness of reported earned value information. Inconsistent reports require independent verification of all of the information.	**Automated Tests:**			
		1. Determine the total number of remaining WPs in IMS where "physical % complete" does not match "EVM Cost Tool % complete".	X = Total # of remaining WPs in IMS where "physical % complete" does not match "EVM Cost Tool % complete"	X / Total # of remaining WPs in the IMS Pass: X = 0% Flag: X > 0% Note: 0% is not a Flagure as the contractor could put status directly in the cost tool. The match is if the schedule says 20% and the cost tool is claiming 42 %. Tolerance for noise level = +/-.5%	IMS, EVM Cost Tool
		2. Determine total number of remaining WPs in IMS where baseline and forecast dates do not match EVM Cost Tool dates.	X = Total # of remaining WPs in IMS where "IMS baseline and forecast start and stop are not consistent with the baseline and forecast start and stop in the EVM Cost Tool."	X / Total # of remaining WPs in the IMS Pass: X = 0% Flag : X > 0% Tolerance for noise level = +/-.0%	IMS, EVM Cost Tool
		3. Determine the total # of remaining CAs with IMS WBS not aligned to the EVM Cost Tool WBS.	X = Total # of remaining CAs with IMS WBS not aligned to EVM Cost Tool WBS	X / Total # of remaining CAs in the IMS. Pass: X = 0 Flag: X > 0 Tolerance for noise level = +/-0%	IMS, EVM Cost Tool
		4. Verify **forecast date alignment** between the IMS and the EVM Cost Tool for WP, PP and CA	a. Compare start dates for WPs and PPs: X = differences between IMS **forecast** early start/actual start date in open or future WPs or PPs shared by both systems (IMS vs Cost)	X / Total # of open or future WPs or PPs. . Date differences that are within the same accounting period are OK. Pass: X = 0 Flag: X > 0 Tolerance for noise level = +/-0%	IMS, EVM Cost Tool
			b. Compare finish dates for WPs and PPs: X = differences between IMS **forecast** early finish date in open or future WPs or PPs shared by both systems (IMS vs Cost)	X / Total # of open or future WPs or PPs. . Date differences that are within the same accounting period are OK. Pass: X = 0 Flag: X > 0 Tolerance for noise level = +/-0%	IMS, EVM Cost Tool

		c. Compare start dates for CAs: X = differences between IMS **forecast** early start/actual start date in open or future CAs shared by both systems	X / Total # of open or future WPs or PPs. Date differences that are within the same accounting period are OK. Pass: X = 0 Flag: X > 0 Tolerance for noise level = +/- 0%	IMS, EVM Cost Tool
		d. Compare finish dates for CAs: X = differences between IMS **forecast** early finish date in open or future CAs shared by both systems.	X / Total # of open or future WPs or PPs. . Date differences that are within the same accounting period are OK. Pass: X = 0 Flag: X > 0 Tolerance for noise level = +/- 0%	IMS, EVM Cost Tool
		5. Verify **baseline date alignment** between the IMS and the EVM Cost Tool for WP, PP and CA.	Perform same automated tests above for the **Baseline** Date Alignment between the IMS and the EVM Cost Tool for WP, PP and CA.	Perform same automated tests above for the **Baseline** Date Alignment between the IMS and the EVM Cost Tool for WP, PP and CA.	IMS, EVM Cost Tool

Manual Tests:			
1. Verify the contractor has a unique coding structure that integrates the subsystems using the WBS/OBS.	a. Compare the WBS Dictionary WBS code to the WAD WBS assignment.	Document all discrepancies as compliance concerns	WBS Dictionary, WADs, Unique coding structure defined
	b. Compare the RAM OBS code to the WAD OBS assignment		RAM, WAD, unique coding structure defined
2. Compare the Charge Number (CN) Listing for all open or closed CNs to the WBS Dictionary.	a. Are the CNs mapped to the work package or control account level?		CN Listing, WBS Dictionary, charge number mapping
3. Using the same information, review CAPs and performance reports and schedules for consistency.	X = # of mismatches among artifacts??		CAPs, IMS, IPMR/CPR, code structure mapping
4. Compare BCR changes to IMS and cost tool updates. Select at least 10 BCRs or BCRs for the last 3 months whichever is less.	X = # of BCR changes not updated in the IMS and Cost Tool		BCRs, IMS, EVM Cost Tool
5. Determine the number of remaining CAs where the BAC from the WAD does not match the BAC from the EVM Cost Tool.	X = (EVM Cost Tool BAC – WAD BAC) for remaining CAs where the BAC from the WAD does not match the BAC from the EVM Cost Tool	X / remaining CAs in EVM Cost Tool Tolerance = 0.	WAD, EVM Cost Tool
6. Determine the total # of remaining CAs or WPs with IMS OBS not aligned to EVM Cost Tool OBS.	X = Total # of remaining CAs or WPs with IMS OBS not aligned to EVM Cost Tool OBS	Document all discrepancies as compliance concerns	IMS, EVM Cost Tool
7. Determine schedule cost integration for the baseline	a. Compare baseline start and stop dates in the IMS to resource start and stop dates in the cost tool X = # of baseline start and stop dates in the IMS not aligned to resource start and stop dates in the cost tool All dates should be within the same accounting month.		IMS, EVM Cost Tool
8. Determine schedule cost integration for the forecast	a. Compare forecast start and stop dates in the IMS to resource start and stop dates in the cost tool X = # of forecast start and stop dates in the IMS not aligned to resource start and stop dates in the cost tool All dates should be within the same accounting month.		IMS, EVM Cost Tool

		9. Verify budgets are consistent in the WADs, the dollarized RAM and IPMR/CPR.	a. Review the WADs and compare budgets authorized with the CA budgets shown on the dollarized RAM to determine if they are consistent. X = # of WAD CA budgets not consistent with RAM budgets		WADs, RAM
			b. Compare total budgets authorized in WADs and the dollarized RAM with budgets (BAC) reported in the IPMR/CPR by WBS (Format 1). X = Total budgets for WADs and RAM not consistent with BACs by WBS in IPMR/CPR Format 1.		WADs, RAM, IPMR/CPR Format 1
			c. Compare total budgets authorized in WADs and the dollarized RAM with budgets (BAC) reported in the IPMR/CPR by OBS (Format 2), if Format 2 is contractually required. X = Total budgets for WADs and RAM not consistent with BACs by OBS in IPMR/CPR Format 2 (if contractually required).		WADs, RAM, IPMR/CPR Format 2
		10. Trace the CA WAD PoP, and budget to the CAP and the PoP to the IMS baseline start/finish.	X = Total # of remaining CAs (at a minimum) where the baseline start/finish dates do not trace		WAD, CAP, IMS
		11. For the remaining CAs in the EVM Cost Tool, compare the Forecast schedule start and finish dates to the ETC start and finish in the EVM Cost Tool.	X = WPs with IMS to EVM cost tool forecast/ETC inconsistencies.		EVM Cost Tool

3.A.2	**Where EVMS flow down is required, is subcontractor EVMS data reconcilable with the prime contractor EVMS data, with any differences explained in the IPMR/CPR Format 5?**				
	The prime contractor must ensure that the performance data incorporated from the subcontractor EVMS is consistent with the actual performance to date. IMPACT OF NONCOMPLIANCE Inaccurate and inconsistent subcontractor reporting is equivalent to lack of credibility in reporting to DOE the status of the project.	**Manual Tests:**			
		1. Verify the EVM performance metrics are the same in the subcontractor's IPMR/CPR and the Prime's EVM Cost Tool.	a. Review the dollar value of the open subcontractor CAs where the performance (BCWP, BCWS, ACWP, EAC, BAC) from the subcontractor's IPMR/CPR does not match the performance metric from the Prime's EVM Cost Tool. The exception is where the prime CAM has justified a departure because of their assessment. This affects primarily BCWP and EAC. See guideline 2. X = the $ value of the open subcontractor CAs where the performance metric (BCWP) from the subcontractor's IPMR/CPR does not match the performance metric in the EVM Cost Tool	X / total $ value of the corresponding metric in the EVM Cost Tool. Document all discrepancies as compliance concerns.	Subcontractor IPMR/CPR, Prime EVM Cost Tool
		2. Verify the subcontractor and prime's IMS baseline start and finish dates are the same for the subcontractor's scope of work.	a. Review the remaining subcontractor IMS events and determine the total # of remaining baseline start and finish date inconsistencies between the subcontractor IMS and the prime IMS. The exception is where the prime CAM has justified a departure because of their assessment. This affects primarily schedule completions. See guideline 2. X = Total # of remaining baseline start and finish date inconsistencies between the subcontractor and Prime IMS.	Document all discrepancies as compliance concerns	IMS (Prime and subcontractor's)

		3. Verify the subcontractor and prime's IMS forecast start and finish dates are the same.	a. Review the total number of remaining subcontractor IMS events to determine the number of remaining forecast start and finish inconsistencies between the subcontractor and prime IMS. The exception is where the prime level CAM has justified a departure because of their assessment. This affects primarily schedule completions. X = Total # of remaining forecast start and finish inconsistencies between the subcontractor and prime IMS.		IMS (Prime and subcontractor's)
		4. Verify the integration of the subcontractor critical path to the prime critical path.	a. Review the prime critical path. Are any of the tasks identified to the subcontractor(s)? b. Review the subcontractor critical path. Is the status consistent with the prime critical path forecast dates? X = # of mismatches between the prime and subcontractor critical path status		IMS (Prime and subcontractor's)
		5. Review the integration of the prime IMP or Key Events to the subcontractor plan as applicable.	a. Obtain the prime IMS or key milestone dates in the prime IMS. b. Does the subcontractor schedule support and is consistent with the prime IMP/Key miletones? X = # of mismatches between the prime and subcontractor key milestones		IMS (Prime and subcontractor's)

	Guideline 5 - Provide for integration of the project work breakdown structure and the project organizational structure in a manner that permits cost and schedule performance measurement by elements of either or both structures as needed.				
	This guideline exists to determine responsibility for a specific scope of work and facilitate schedule and cost performance measurement in an Earned Value Management System (EVMS). The intersection of the Work Breakdown Structure (WBS) and Organizational Breakdown Structure (OBS) establishes the control accounts which are the focal point for work authorization, management, and performance measurement.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
5.A.1	**Is each control account assigned to an organizational element directly responsible for the work and identifiable to a single element of the WBS?**				
	The intersection of the WBS and the OBS represents where the CA is established. That intersection is necessary to understand the assigned responsibility for managing, controlling, and facilitating the allocation of resources to the work scope and permits cost accumulation and performance measurement. IMPACT OF NONCOMPLIANCE Failure to define CAs properly can create ineffective management or increased cost.	**Automated Tests:**			
		1. Verify in EVM Cost Tool each CA is assigned to only one organizational element (OBS).	X = # of CAs in EVM Cost Tool with more than one OBS element or no assignment	X / Total # of CAs Pass: X = 0% Flag: > 0% c. Tolerance for noise level = +/- 0.0%	OBS, EVM Cost Tool
		2. Verify in EVM Cost Tool each CA has only one WBS element identified.	X = # of CAs with more than one WBS element or no assignment	X/ Total # of CAs in EVM Cost Tool Pass: X = 0 Flag: X > 0 c. Tolerance for noise level = +/- 0.0%	WBS, EVM Cost Tool
		Manual Tests:			
		1. Review the RAM to:	a. Verify that at least one CA is designated for each identified WBS and OBS element intersection	Document all discrepancies as compliance concerns	RAM
			b. Verify that CAs are not allocated to more than one OBS or to more than one WBS		WBS, OBS, RAM
			c. Verify that where CAs are not designated, the contractor has established SLPPs.		WBS, OBS, RAM
		2. **From LOI 2.A.1 test 3 in IH.** Obtain a copy of contractor's organizational chart and verify all organizations responsible to complete the work are identified. Obtain the RAM.	a. Compare the PM/CAM in the RAM to the OBS and organizational charts.		Org chart, OBS, RAM
			b. Compare the documented indirect and accounting authorities to the organizational chart. Also note where the PM reports in the organizational charts.		Org chart, OBS
			c. Are major subcontractors identified in the RAM?		List of major subs, RAM
			d. Are there major components of responsibility for the project not defined as responsible to the CAMs identified?		WBS Dictionary, OBS, Org chart, RAM

		3. **From LOI 2.A.1 test 6 in IH.** Compare the WBS Dictionary to the RAM or OBS.	Based on the results of QE LOI test 1.A.4.2 which was a review of the WBS Dictionary and scope compare the WBS Dictionary scope to the WBS assignment in the OBS. Is the work assigned consistent with the organization assigned? Negative examples include electric work assigned to mechanical organizations.	Document any inconsistences for discussion in CAM interviews	WBS Dictionary, OBS, RAM

5.A.2	**Is there only one CAM assigned to each control account?**				
	For the CAM to have sole responsibility, only one CAM can be identified to a CA. This establishes responsibility and authority for the accomplishment of the work scope defined in the CA. IMPACT OF NONCOMPLIANCE More than one CAM per CA indicates lack of authority over the CA.	**Automated Tests:**			
		1. Automated: Review the total CAs in the EVM Cost Tool data to determine if any CAs have no CAM identified or different CAMs identified as compared to the IMS.	X = # of CAs in EVM Cost Tool that do not have 1 CAM assigned.	X /Total # of CAs Pass: X = 0 Flag: X > 0 c. Tolerance for noise level = +/- 0.0%	EVM Cost Tool
		Manual Tests:			
		1. Compare the CAM assignments in the RAM to the CAM assignments in the Work Authorization Documents (WADs) to verify they are the same.	a. This trace is to be performed for the most current period in the data call. X = # of CAM assignments in RAM not consistent with CAM assignments in the Work Authorization Documents (WADs)	Document all discrepancies as compliance concerns	RAM, WADs
		2. Review change documentation to see if there have been any changes to the assignments of CAMs and compare to the RAM, WADs, and OBS/Org Charts to verify the CAM assignments are consistent and current in all documentation.	a. This trace is to be performed for the most current period in the data call. X = # of mismatches among artifacts	Document all discrepancies as compliance concerns	Change documentation, RAM, WADs, OBS/Org Charts
5.A.3	**Does the CAM have responsibility, authority, and accountability for the work scope and performance of the control account?**				
	The CAM needs to be in a position recognized for having the responsibility, authority, and accountability for the performance of the CA IMPACT OF NONCOMPLIANCE Failure to establish the responsibility, authority and accountability of the CAM indicates an ineffective EVM implementation.	**Manual Tests:**			
		1. Select a sample of CAMs from the RAM and compare back to the Organization Chart for the Project to determine CAM authority over CA resources. f. This trace is to be performed for 3 consecutive periods, with the last being the most current period in the data call.	a. Look for direct line of authority from PM to CAM to CA team X = # of CAMs without authority from PM and over CA team	Document all discrepancies as compliance concerns	Org Chart, RAM, CA team authorization
			b. Look for Intermediate Manager (IPT, Functional Mgr.) authority over CAMs c. Review any agreements between the CAMs and Functional Managers to determine if there is any delegated authority from Functional Managers to the CAM over CA resources. X = # of CAMs without functional authority delegated		RAM, Functional Mgr/CAM agreements

				d. Review WADs to determine if CAM signed and dated them and if they are signed by the PM. X = # of WADs without CAM and PM signature and dates.		WADs
				e. If CAM is getting resources from external organizations, determine whether work authorizations with the external organizations are in writing (CAM authority). Ask to see the documentation. X = # of CAMs without written authority (work authorizations) over external resources		RAM, written documentation from external organizations

IH On Site Interview Questions:
1. Do you have operational authority over the CA resources? a. Are you their supervisor? Show me the organization chart. If a supervisor, show me the documentation.
2. Have you been delegated authority over your CA resources? a. If so, do you have an agreement between you and the functional managers? If so, please show me the agreement.
3. Do you have the right to appeal staff reassignment to a higher level of functional management?
4. Can you explain the technical content of any schedule task and the justification for the predecessors and successors?
5. Select 3 CAMs to demonstrate knowledge of detail plan. Select 3 CA/WPs and select remaining discrete activities. Ask the CAM to explain technically what the content of the activities and WPs are as compared with their scope.
6. Can you explain and justify: a. The overall ETC profile? b. The current BCWP assessment? c. The last two baseline changes?
7. Review the following with the CAMs a. Review labor runs with CAMs to determine CAM review and input. Were corrections made as a result of CAM review? b. Review detail CA schedules for CAM inputs, status and approval. c. Understanding of CAP and CA planning. d. Review baseline change documentation for CAM's input, approval and dates. e. Review Variance Analysis Reports (VARs) for CAM's input, approval and dates. f. Review EAC documentation for CAM's input, approval and dates. g. Review Corrective Action Logs to determine CAM's actions. h. This trace is to be performed for 3 consecutive periods, with the last being the most current period in the data call. i. The CAM must demonstrate they understand the CA and manage the scope, schedule, budget aspects. j. Document all discrepancies as compliance concerns.
8. Have any changes in subcontractor reported information been made in the current reporting period?
9. What is the subcontract review process you follow to verify data monthly?
10. When do you receive reports and how much time do you have to reconcile?
11. Are you allowed to change subcontract BCWP and EAC?

5.A.4	**Has the prime contractor CAM reviewed and approved the subcontractor's cost and schedule status and is it accurately reflected in the Prime's**				
	The prime contractor has responsibility for the entire project work scope, including the subcontracted effort. IMPACT OF NONCOMPLIANCE If the prime has not reviewed and approved a subcontractor's schedule status, the management of the subcontractor is suspect. This lack of management oversight may have adverse impacts on the successful performance of the project.	**Manual Tests:**			
		1. Verify the transfer accuracy of subcontractor performance data into the prime schedule and EVM Cost Tool.	a. Compare the subcontractor critical path to the prime critical path X = # of mismatches between the Prime and sub's critical path	Any discrepancies are discussed with the prime CAM to understand if justified and documented.	Prime and sub's IMS, Sub IPMR/CPR, EVM Cost Tool
			b. Compare the subcontractor status schedule to prime IMS at the work package/activity level X = # of mismatches between the Prime and sub's critical path		Subcontractor IPMR/CPR, IMS
			c. Compare the subcontractor status date to the prime IMS status date. Is it within 30 days? X = sub to prime status date not within 30 days		Prime and sub's IMS, Sub IPMR/CPR,
			d. Budgets X = # of budget elements that do not match		Sub IPMR/CPR, IMS, EVM Cost Tool
			e. EAC X = # of EACs that do not match		Sub's IPMR/CPR, EVM Cost Tool
			f. BCWP X = # of BCWP elements that do not match		Sub's IPMR/CPR, EVM Cost Tool
			g. Change control X = # of change control documents that do not reconcile		Sub's change documentation, Prime change documentation

5.A.5	**Are control accounts established at appropriate levels based on the complexity of the work and the control and analysis needed to manage the work effectively?**				
	The CAM must be able to demonstrate effective control of the CA(s). IMPACT OF NONCOMPLIANCE CAs established at inappropriate levels impede the CAMs ability to effectively manage the CA.	**Manual Tests:**			
		1. Determine the different technical disciplines each CAM is responsible for.	a. Review the RAM to determine which functional area the CAM is representing. b. If a CAM represents more than one technical area, review the performance of the CAs. X = # of CAMs responsible for more than one technical area	Document all discrepancies as compliance concerns	RAM,
			c. Review CPI, SPI, EAC, TCPI, and VARs of the applicable CAs for performance issues IMS X = # of CAM with CAs with significant performance issues		CAPs, IMS, VARs, internal performance reports, IPMR/CPR
		2. Determine the quantity of open CAs each CAM is responsible for.	a. Review the RAM to count the number of CAs assigned to each CAM b. Consider the top five CAMs for reviewing their effective management of their CAs. X = # of open CAs each CAM is responsible for		RAM, EVM Cost Tool, CAPs
		3. Verify how the subcontract is statused in the baseline and forecast schedules	a. Examine the IMS Data Dictionary or contact project controls to find out how subcontracted activity is coded in the IMS. b. Filter for the subcontracted work. c. Verify the matching subcontractor schedule is statused to the same date as the prime schedule. X = # of mismatches of subcontractor schedule statused dates with Prime's		IMS, IMS Data Dictionary, subcontractor schedule

				d. Do the data dates in the IMS and the subcontractor schedule align? 1. If not, are there processes in place to reconcile the differences sufficient to maintain the integrity of the IMS forecast dates and critical and driving paths? X = # of data dates in Prime IMS that do not align with subcontractor schedule.	IMS, IMS Data Dictionary, subcontractor schedule
				e. Verify the subcontractor schedule is represented and statused. 1. Full integration of the subcontractor schedule into the IMS? a. Do the dates (actual and forecast), durations and progress from the subcontractor schedule match the dates and progress represented in the IMS? X = # of dates (actual and forecast), durations and progress from the subcontractor schedule that do not match the dates and progress represented in the IMS?	IMS, IMS Data Dictionary, subcontractor schedule
				b. Do the dates (actual and forecast), durations and progress from the subcontractor schedule match the dates and progress represented in the IMS? X = # of dates (actual and forecast), durations and progress from the subcontractor schedule that do not match the dates and progress represented in the IMS	IMS, IMS Data Dictionary, subcontractor schedule

				2. Summarized subcontractor schedule represented in the IMS? a. Are the summarized dates (actual and forecast), durations and progress in the subcontractor schedule with those activities in the IMS? X = # of summarized dates (actual and forecast), durations and progress in the subcontractor schedule that do not align with those activities in the IMS		IMS, IMS Data Dictionary, subcontractor schedule
				3. Milestone Representation of key delivery points and other events from the subcontractor schedule in the IMS? a. Are the milestone dates (actual and forecast) and status consistent with the subcontractor milestones in the IMS? X = # of milestone dates (actual and forecast) and status not consistent with the subcontractor milestones in the IMS		IMS, IMS Data Dictionary, subcontractor schedule
			IH On Site Interview Questions:			
			1. CAM – Select 3 random CAs. Please explain the technical scope of the CA and the current status?			
			2. What is the percentage of your time dedicated to the scope, schedule, and budget responsibilities for your CA(s)?			
			3. CAM: For subcontracted effort, how is the subcontractor's schedule status approved (both the baseline and forecast)?			
			Note: Part of this QE LOI is verified in the other guidelines as the CAM explains the schedule, budget, variance analysis, and revisions. If the CAM does not understand any significant aspect of CAM responsibilities as related to the scope, schedule and budget they are responsible for this QE LOI may not be met.			

	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.				
	The purpose of this Guideline is to provide program management with a fully integrated, networked, and time-phased plan that provides visibility into the detailed progress and accomplishment of the milestones and tasks required for execution of the authorized scope of work. The Integrated Master Schedule (IMS) is an integrated, networked schedule containing all the detailed discrete work packages and planning packages (or lower level tasks or activities) necessary to support the events, accomplishments and criteria of the IMP (when the IMP is contractually required).				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
6.A.1	**Does the IMS reflect all authorized, time-phased discrete work to be accomplished, including details for any significant subcontracted effort and High Dollar Value (HDV)/ critical materials that could affect the critical path (CP) of the IMS?**				
	The IMS is the project plan for accomplishment of all project goals and deliverables. All of the discretely measureable work scope found in project documentation, including subcontracted effort must be planned in the IMS. The work breakdown and coding structures enable a project to be divided by level into discrete groups of activities, resources, costs, and materials for planning and controls purposes. IMPACT OF NONCOMPLIANCE Without having all the authorized scope included in the IMS, work scope may not get completed and the critical path may be inaccurate and not useful as a management tool.	**Automated Tests:**			
		1. The purpose of this automated test is to search for missing elements in the IMS. This is accomplished by comparing the count of discrete WPs and PPs in both the baseline IMS and the EVM Cost Tool.	X = # of incomplete discrete WPs, and PPs in the EVM Cost Tool that are not represented in the baseline IMS. Y = # of all incomplete discrete WPs, and PPs in the EVM Cost Tool	X / Y Pass: X/Y = 0% Flag: X/Y > 0	IMS, EVM Cost Tool
		2. Check for WBS assignments to activities	a. Fuse: X = number of activities in the *baseline* schedule missing WBS assignments (exclude SVTs, SM activities) Y = Total number of activities (exclude SVTs, SM activities)	X / Y Pass: X / Y= 0% Flag: X / Y > 0%	IMS, WBS
			b. Fuse: X = number of activities in the *forecast* schedule missing WBS assignments / (exclude SVTs, SM activities) Y = Total number of activities (exclude SVTs, SM activities)	X / Y Pass: X / Y= 0% Flag: X / Y > 0%	IMS, WBS
		3. Check for OBS assignments to activities	a. Fuse X = number of activities in the *baseline* schedule missing OBS assignments (exclude SVTs, SM activities)	X / Y Pass: X / Y= 0% Flag: X / Y > 0%	IMS, OBS
			b. Fuse: X = number of activities in the *forecast* schedule missing OBS assignments (exclude SVTs, SM activities) Y = Total number of activities (exclude SVTs, SM activities)	X / Y Pass: X / Y= 0% Flag: X / Y > 0%	IMS, OBS
		4. Verify clarity of scope by checking for duplicates	a. X = # of incomplete activities that have duplicative names Y = Total number of incomplete activities	X /Y Pass: X / Y = 0% Flag: X / Y > 0%	IMS
			b. X = # of work packages that have duplicative names Y = Total number of incomplete work packages	X / Y. Pass: X / Y = 0% Flag: X / Y > 0%	EVM Cost Tool

Manual Tests			
1. Review the scope in the WBS Dictionary at the WP and CA levels and verify that the IMS activities are consistent with the Statement of Work, the PEP or the Performance Work Statement.	a. Using the resource loaded IMS or EVM Cost Tool data, select 10 CAs based on the significant Budgeted Cost for Work Remaining (BCWR). b. By referencing the IMS Data Dictionary, determine what fields are coded to designate the CA, WPs, as well as SOW reference as available. c. Verify alignment of the scope of the activities in the 10 selected CAs with the WBS Dictionary.	Document all discrepancies as compliance concerns	WBS Dictionary, IMS, EVMS Cost Tool, SOW
2. Review the PEP, SOW, PWS BCP or other work statement and verify all DOE requirements are contained and appropriately linked in the IMS.	a. When reviewing the PEP or other documents, check for project and subproject descriptions, integration and specifics of CD submittal, Key Performance Parameters (KPP) and technical (scope) requirements, and reporting requirements to check for in the IMS as milestones and detailed activities.	Document all discrepancies as compliance concerns	PEP, SOW, PWS, BCP or other work statement, IMS, KPPs
3. Verify the project listing of HDV/CP (make global - critical procurements) material is included in the baseline IMS.	a. Obtain a list of HDV material. If none, then all material is considered discrete (Guideline 21) - If not the test is Flagged. b. For the detail planning period, verify for each HDV item, the IMS contains the request, the purchase order, the receipt, and requirement link to where used within the project).. Terms may be different within the intent.	X = 0 Pass X > 0 Flag Document all discrepancies as compliance concerns	HDV/CP material list, IMS
	c. Using the IMS Data Dictionary, determine how HDV material is coded in the IMS. d. Filter for material in the IMS to ensure the HDV is reflected with logical links to the end use. X = # of HDV/CP material items in the IMS not reflected with logical links to the end use		IMS Data Dictionary, IMS, HDV/CP material list

		4. Verify IMS activity names are action driven and descriptive of the scope.	a. Conduct a manual check of incomplete activities that do not contain a verb and are not action driven X = # of incomplete activities that are not action driven Y = all IMS incomplete activity names	X / Y Pass: X / Y = 0% Flag: X / Y > 0%	IMS
			X = # of incomplete milestones that do not describe the start or completion of effort in the IMS Y = all IMS incomplete milestones	X / Y Pass: X / Y = 0% Flag: X / Y > 0%	
		IH On Site Interview Questions:			
		1. CAM/PC – If “Field Level Schedules - Plan of the Day/week" - or other supplemental or auxiliary schedules exist, determine if they are integrated with the IMS and contain the characteristics above. Document any discrepancies as compliance concerns.			

6.A.2	**Does the IMS contain project milestones, project events, key project decision points and external dependencies that are logically linked within the network schedule/IMS to support critical path analysis?**				
	The traceability between the various levels of project schedule are designed to ensure that milestones and activities that represent the completion of either all or part of a work package are time integrated at the ascending schedule levels and terminate at a corresponding higher level schedule milestone. The result is a fully networked, “bottom-up” schedule supports critical path analysis. Driving paths may use different project events, deliverables, or the project end item (such as CD-3) depending on the reason for calculating and identifying the path(s) with the least amount of float. The Critical Path for the project is defined as the longest path of related incomplete tasks in the logic network from ‘time-now’ whose total duration determines the earliest project completion. It is always calculated through the end milestone of the project, typically CD-4. Significant project events, external dependencies, and decision points must be reflected in the IMS to facilitate the planning and execution of work scope. IMPACT OF NONCOMPLIANCE Failure to link the schedule to all required milestones and external dependencies means the IMS will not provide accurate dates needed to develop a useable critical path for managerial analysis and decisions.	**Automated Tests:**			
		1. Review all milestones in the IMS for logical ties	a. Fuse. X = all incomplete Start milestones in the *baseline* schedule without a successor plus any Finish milestones without a predecessor Y = all incomplete Start and Finish milestones	X /Y Pass: X = 0% Flag: X > 0%	IMS
			b. Fuse: .X = all incomplete Start milestones in the *forecast* schedule without a successor or Finish plus any Finish milestones without a successor. Y = all incomplete Start milestones and finish milestones.	X /Y Pass: X / Y = 0% Flag: X / Y > 0%	
		Manual Tests:			
		1. If the IMP is contractually required or maintained, verify the IMP events, accomplishments and criteria are duplicated in the IMS.	a. Verify the IMS contains project milestones, contractual events, IMP (if contractually required) program decision points and external dependencies that are logically linked within the IMS to support critical path analysis X = # of mismatches between artifacts	Document all discrepancies as compliance concerns	IMP, IMS
			b. Verify it is a fully networked “bottom-up” schedule that supports the critical path. Verify activities and milestones that are identified to an IMP or CD milestone do not have finish dates later than the finish dates of IMP or CD milestone they support.		IMS
		2 Verify alignment of IMS project end date with the latest project documents	a. In automated tests 6.A.2.1a and b, is the end date consistent with project requirements? X = # of IMS end dates not consistent with project requirements.	Document all discrepancies as compliance concerns where X > 0	IMS,

				b. If an OTS has been implemented, then is the OTS consistent with the OTS authorization? X = # of mismatches between artifacts.		IMP, IMS
		IH On Site Interview Questions:				
		1. CAM: Is any of your work tracked outside of the IMS? How is this effort reflected in the IMS?				
		2. Project Manager/FPD: How are external interface milestones identified, effectively analyzed and controlled				

6.A.3	**Is schedule margin (if any) identified, and logically planned in the baseline and forecast IMS?**				
	Schedule margin is an optional technique used to act as a buffer for unforeseen events that could cause a schedule delay. If schedule margin is used in the IMS, whether modeled using a SVT activity, milestones, or float value, it must be clearly identified in the IMS. To ensure clarity, the activity name contains the text “Schedule Margin.” It should also be assigned to a code field to support filtering requirements of schedule analysis IMPACT OF NONCOMPLIANCE A baseline without SM has a low probability of success. Without schedule margin in both the baseline and forecast schedule, management does not have the tools necessary to address and mitigate risks to the schedule.	Manual Tests:			
		1. Review the forecast and baseline for schedule margin.	a. Is the schedule margin identified uniquely? The expectation is the title includes schedule margin and is coded in the schedule dictionary.	Document all discrepancies as compliance concerns	IMS, IMS Data Dictionary
			b. Does the schedule margin have a baseline greater in duration than the forecast?		IMS
			c. Is the schedule margin placed immediately before a project critical CD gate or external delivery?		
			d. Is schedule margin outside the PMB period?		IMS, PMB, EVM Cost Tool, CAP
			e. Is the schedule margin activity without resources?		IMS
		IH On Site Interview Questions:			
		1. PM – If forecast SM duration is greater than the baseline duration what is the justification?			
		2. Project Controls/PM: What is the basis for the duration established for SM?			
		3. Project Controls/PM: Was a schedule risk assessment used to determine the SM duration (recommended) or a rule of thumb?			
6.A.4	**Are significant and probable risk mitigation steps included in the Prime's schedule and do these steps align with defined mitigation activities in the risk registry?**				
	It is essential that project managers take the appropriate steps to identify, examine, and assess potential risks and opportunities in schedule IMPACT OF NONCOMPLIANCE Risk mitigation activities in the IMS that are not in alignment with the Risk Register means the risk has not been integrated.	**Manual Tests:**			
		1. Confirm significant and probable risk and opportunity mitigation actions in the Risk Registry match baseline and/or forecast dates and/or duration of coded activities in the schedule.	a. Verify risk and opportunity register mitigation items for risks identified as high and moderate are reflected and coded in the IMS	Tolerance < = 5%	Risk Registry, IMS
			b. Confirm the risk mitigation activities in the IMS have baseline and/or forecast start and finish dates corresponding to the dates in the risk register (or durations)	Tolerance < = 5%	

6.A.5	Does the contractor maintain an IMS Data Dictionary?				
	The IMS Data Dictionary contains user defined fields that are custom fields created to track information specific to certain project areas, such as subcontractor activities, government furnished equipment, resources, issues, risks, etc. IMPACT OF NONCOMPLIANCE Failure to define and maintain an IMS dictionary inhibits the both the contractor and customer from understanding the IMS content, emerging project issues and invalidates the schedule heath checks	**Manual Tests:**			
		1. Confirm IMS Data Dictionary contains codes that identifies as applicable: Subcontractor activities, EVT (including LOE), risk mitigation activities, CLINs, SVTs justification of constraints, leads, lags, and other text/code information that is unique to the Project	X = IMS Data Dictionary items that do not contain codes that identifies as applicable: Subcontractor activities, EVT (including LOE), risk mitigation activities, CLINs, SVTs, justification of constraints, leads, lags, and other text/code information that is unique to the Project	Document all discrepancies as compliance concerns for X > 0.	IMS Data Dictionary, IMS, HDV/CP material list
		IH On Site Interview Questions:			
		1. Project Controls - How are changes to the Activity Coding dictionary transmitted to the CAMs and to the customer?			

6.B.1	**Does the network schedule/IMS describe the sequence of work (horizontal integration) and clearly identify significant interdependencies that are indicative of the actual way the work is planned and accomplished at the level of detail to support project critical path development?**				
	The networked schedule establishes a logical sequence of work that leads through key milestones, events, and/or decision points to completion of project objectives. IMPACT OF NONCOMPLIANCE Incorrect, excessive, or missing logic links and lags may invalidate the usefulness of the critical path. This would cause artificial variances and the EVMS reporting would be suspect.	Automated Tests:			
		1. Fuse: Schedule Analysis Tool (e.g., Fuse): IMS Baseline Schedule Verification – Perform against the baseline schedule to confirm the integrity of the structure of the schedule plan	a. X = # of incomplete discrete activities without Predecessors and/or Successors Y = Total # of incomplete activities and milestones	X / Y Pass: X/Y <= 5% Flag: X/Y > 5%	IMS
			b. X = # of start-finish (S-F) relationships on incomplete activities and milestones in the IMS schedule Y = number of predecessors assigned to incomplete activities and milestones	X / Y Pass: X/Y = 0% Flag: X/Y > 0%	
			c. X = # of (SS) and (FF) relationships on incomplete activities and milestones in the IMS schedule Y = # of total relationships on incomplete activities and milestones	X / Y Pass: X/Y <= 10% Flag: X/Y > =10%	
		2. IMS Forecast Schedule Verification – Perform against the current forecast schedule to confirm the integrity of the structure of the latest plan	a Fuse: . X = # of incomplete discrete activities without Predecessors and or Successors Y = Total # of incomplete activities and milestones	X / Y Pass: X/Y <= 5% Flag: X/Y > 5%	IMS
			b. Fuse: X = # of start-finish (S-F) relationships on incomplete activities and milestones in the IMS schedule Y = number of predecessors assigned to incomplete activities and milestones	X / Y Pass: X/Y = 0% Flag: X/Y > 0%	
			c. Fuse: X = # of (SS) and (FF) relationships on incomplete activities and milestones in the IMS schedule Y = # of total relationships on incomplete activities and milestones	X / Y Pass: X/Y <= 10% Flag: X/Y > 10%	
			d. X = in the forecast file, count of incomplete discrete WPs and PPs in the EVM Cost Tool that are not represented in the IMS Y = in the forecast file, count of incomplete discrete WPs and PPs in in the IMS	X / Y Pass: X = 0 Flag: X > 0	EVM Cost Tool and IMS

3. Fuse: For non-PMB activities, confirm the appropriate use of SVTs.	a. X = Count of SVTs improperly identified, and not labeled with “SVT” in the description.	Pass: X = 0 Flag: X > 0	IMS
	b. X = Count of unbaselined SVTs	Pass: X = 0 Flag: X > 0	IMS
	c. X = Count of SVTs with resources assigned.	Pass: X = 0 Flag: X > 0	IMS
	d. X = Count of SVTs missing predecessors / successors.	Pass: X = 0 Flag: X > 0	IMS
4. Verify alignment between the baseline and forecast IMS	a. X = Count of activities and milestones in the baseline IMS but not represented in the forecast IMS	Pass: X = 0 Flag: X > 0	IMS
	b. X = Count of incomplete activities and milestones in the forecast IMS but not represented in the baseline IMS.	Pass: X = 0 Flag: X > 0	IMS
Manual Tests			
1. For non-PMB activities, confirm the appropriate use of SVTs.	a. Is there a code identified in the schedule dictionary that allows SVTs to be filtered out of schedule health metrics?	Document all discrepancies as compliance concerns	IMS Data Dictionary
	b. Confirm documentation exists in the IMS Supplemental Guidance or other documentation, to explain any PoP conflicts between the IMS because of the use of SVTs in the baseline.		IMS Data Dictionary
2. Compare CA, WP and PP descriptions in the IMS to the same in the EVMS Cost Tool. The scope should be the same between like-coded elements	X = # of CA, WP and PP descriptions in the IMS that are not the same in the EVMS Cost Tool.	Document all discrepancies as compliance concerns for X > 0	IMS, EVMS Cost Tool
3. Verify the forecast schedule tool produces a critical path that represents the longest total Duration with the least amount of float (“Total Float”) with the Push Test.	a. The CP begins at “time now” and proceeds to project completion, based on project deliverables, with activities and milestones tied together with sound network logic. b. The path contains no LOE EVT. c. There are no unexplained gaps in time between activities, such as inappropriate lags representing non-PMB effort.	Document all discrepancies as compliance concerns	IMS

			d. Complete a push test to determine the activities that are on the predecessor path to the end milestone (A push test is copying the file and adding 500 days to a discrete near term task. This should slip the end date between 450-500 days if the network is logical, creating large amounts of negative float).			
			d1. Move to the forecast IMS, apply a hard constraint to the end milestone if not already constrained. Do not use the P6 Mandatory Finish constraint as it will break logic to maintain the assigned date. Use Finish On or before instead. d2. Select a near term incomplete discrete activity and add 500 days to the remaining duration. The selected activity does not have to be on the critical path. d3. Select Tools/Schedule then Schedule to recalculate the schedule. d4. Activities on the predecessor path will now have extreme negative float while other activity float values may not change. The expectation is that newly-identified critical work will have up to 500 days negative float (actual value depends on the working calendar) and will run through the schedule to the completion milestone.			

			e. Repeat the push test for other near-term incomplete discrete predecessor Activities to the end milestone f. Save the schedule log to review settings and any errors g. Compare the activities on the IMS identified critical path to the critical path calculated using push test results h. The expectations are that the end task that is constrained now has between 450 and 500 days negative float. Any significant difference is investigated for logic inconsistencies.		
		4. Verify the forecast schedule tool produces a critical path that represents the longest total duration with the least amount of “Total Float” with the Pull Test.	a. The CP begins at “time now” and proceeds to project completion, based on project deliverables, with activities and milestones that are tied together with sound network logic. b. The path contains no LOE EVT. c. There are no unexplained gaps in time between activities, such as inappropriate lags representing non-PMB effort. d. Complete a pull test to determine the activities that are on the predecessor path to the end milestone (A pull test is copying the file and adding 500 days earlier to the hard constraint on the end milestone, "Pulling" back in time to the left).	Document all discrepancies as compliance concerns	IMS

				d1. Move to the forecast IMS, apply a hard constraint to the end milestone if not already constrained. d2. Select a constraint date 500 days earlier than the planned finish date. d3. Select Tools/Schedule then Schedule to recalculate the schedule. d4. Activities on the predecessor path will now have extreme negative float while other activity float values will not change. The expectation is that critical work will have up to 500 days negative float (actual value depends on the working calendar). e. Save the schedule log to review settings and any errors f. Compare the activities on IMS identified critical path and critical path calculated using push test results g. The expectation is that the early discrete tasks near time now have between 450 and 500 days negative float. Discrete activities that did not experience any change in Total Float may not be connected to any path that leads to the completion milestone and should be investigated for proper logic ties. Any significant difference is investigated for logic inconsistencies h. Repeat the pull test for other incomplete discrete predecessor Activities to the end milestone by applying earlier date constraints of up to 500 days to the earlier discrete activities or milestones and analyzing the results. For example, the CD3 milestones or construction complete instead of the CD4 milestone.		

		5. Verify the baseline schedule tool produces a critical path that represents the longest total duration with the least amount of float (“Total Float”) with the Push Test	a. The CP begins at “time now” and proceeds to project completion, based on project deliverables, with activities and milestones tied together with sound network logic. b. The path contains no LOE EVT. c. There are no unexplained gaps in time between activities, such as inappropriate lags representing non-PMB effort. d. Complete a push test to determine the activities that are on the predecessor path to the end milestone (A push test is copying the file and adding 500 days to a discrete near term task, "pushing" the schedule into the hard constrained end milestone.)	Document all discrepancies as compliance concerns	IMS
			d1. Move to the baseline IMS, apply a hard constraint to the end milestone if not already constrained. d2. Select a near term incomplete discrete activity and add 500 days to the remaining duration. The selected activity does not have to be on the critical path. d3. Select Tools/Schedule then Schedule to recalculate the schedule. d4. Activities on the predecessor path will now have extreme negative float while other activity float values will not change. The expectation is that newly-identified critical work will have up to 500 days negative float (actual value depends on the working calendar)		

			e. Repeat the push test for other incomplete baseline discrete predecessor activities to the end milestone. f. Save the schedule log to review settings and any errors. g. Compare the activities on IMS identified critical path and critical path calculated using push test results. h. The expectation is that the early discrete tasks near time now have between 450 and 500 days negative float and that negative float path will continue to the end milestone. Any significant difference is investigated for logic inconsistencies.		

		6. Verify the baseline schedule tool produces a critical path that represents the longest total duration with the least amount of float (“Total Float”) with the Pull Test.	a. The CP begins at “time now” and proceeds to project completion, based on project deliverables, with activities and milestones are tied together with sound network logic. b. The path contains no EVM EVT level-of-effort (LOE). c. There are no unexplained gaps in time between activities, such as lags representing non-PMB effort. d. Complete a pull test to determine the activities that are on the predecessor path to the end milestone (A pull test is copying the file and adding 3 years earlier to the hard constraint on the end milestone, "pulling" the end milestone back in time).	Document all discrepancies as compliance concerns	IMS
			d1. Move to the baseline IMS, apply a hard constraint to the end milestone if not already constrained. Do not use the P6 Mandatory Finish constraint as it will break logic to maintain the assigned date. Use “Finish On or Before” as a better alternative. Select a constraint date 3 years earlier than the planned finish date. d2. Tools/Schedule then Schedule to recalculate the schedule.		
			d3. Activities on the predecessor path will now have extreme negative float while other activity float values may not change. The expectation is that critical work will have up to 800 days negative float (actual value depends on the working calendar, but the effect should be proportional to the new pull date).		

			e. Save the schedule log to review settings and any errors f. Compare the activities on IMS identified critical path and critical path calculated using push test results g. The expectation is that the early discrete tasks near time now have between 750 and 800 days negative float. Discrete activities that did not experience any change in Total Float may not be connected to any path that leads to the completion milestone and should be investigated for proper logic ties. Any significant difference is investigated for logic inconsistencies. h. Repeat the pull test for other incomplete discrete predecessor Activities to the end milestone by applying earlier date constraints of up to 3 years to the discrete activities or milestones and analyzing the results. For example, the CD3 milestone or construction complete instead of the CD4 milestone.		
		7. Verify the schedule tool produces a driving path to the next interim milestone that represents the longest total duration with the least amount of float (“Total Float”).	a. This driving path begins at “time now” and proceeds to the next interim milestone, based on project deliverables, with activities and milestones tied together with sound network logic. If the contractor does not have a constraint the review must omit the test or if a logical one can be found then manually add a hard type constraint before recalculating the network. b. The path contains no EVM EVT for level-of-effort (LOE). c. There are no unexplained gaps in time between activities, such as lags representing non-PMB effort.	Document all discrepancies as compliance concerns	IMS

	d. Complete a push test to determine the activities that are on the predecessor path to the next interim milestone d1. In the forecast IMS, apply a hard constraint such as Finish On or Before to the next interim milestone d2. Select an incomplete discrete activity near the time now line and extend the remaining duration by 300 days. d3. Tools/Schedule then Schedule to recalculate the schedule. d4. Activities on the predecessor path will now have extreme negative float while other activity float values may not change.		
	e. Repeat the push test for other near term incomplete discrete activities to the next interim milestone f. Save the schedule log to review settings and any errors g. Identify any gaps in the driving path. h. The expectations are that the early discrete task near time now has approx.300 days of negative float. Any significant difference is investigated for logic inconsistencies.		
8. In the IMS, find the CD-4 milestone or the latest CD gate. The intent is the last contractor responsibility task. Normally this is the successor to the schedule margin task. This does not include project closeout activities which could be physical or financial closeout. The CD-4 milestone should be constrained in both the baseline and forecast file	Is the milestone constrained with a hard constraint?	Tolerance is 1.	IMS
9. Obtain a list of GFE/GFI/GFM deliveries and identify these deliveries are accounted for in the IMS and logically linked.	X = Deliveries not accounted for in the IMS	Pass: X = 0 Flag: X > 0 Document results	IMS, Contract, SOW
IH On Site Interview Questions:			
1. Project Controls/CAMs – (If SF, SS, or FF relationships used) please provide justification for these relationships.			

		2. CAMs with HDV material or equipment deliveries – discuss how the deliveries are represented and linked in the IMS.
		3. CAM/Scheduler: If SVTs are not used to represent non-PMB activities that could impact the logic driven network, how are activities with external scope modeled in the IMS?
		4. Project Controls: If no Critical Path process is outlined in the IMS Supplemental Guidance or process documentation, ask how consistency of the Critical Path process is maintained?
		5. Project Controls: How are changes to the Critical Path reported to the customer? How often?
		6. Project Manager: What is the review and approval process for the IMS? Is it demonstrable?

6.B.2	**Is there vertical schedule integration, (i.e., consistency of data between various levels of schedules (including subcontractor and field level schedules) and do all levels of schedules support the project schedule requirements?**				
	The traceability between the various levels of schedules is designed to ensure that milestones and activities occurring at the work package level, which represent the completion of either all or part of a work package, are time integrated at ascending schedule levels and terminate at a corresponding next higher level schedule milestone. IMPACT OF NONCOMPLIANCE If lower level schedules do not support the WPs, PPs and project goals and deliverables in the IMS, the project team is working to different schedules, defeating the usefulness of the IMS as a management tool.	**Manual Tests**			
		1. Verify that baseline dates reconcile between schedule levels. This test is within the WBSs and also between summary or subsidiary schedules.	X = # of IMS activities and or milestones with baseline start/finish dates outside the higher level project elements baseline start/baseline finish dates depicted at the top level schedule (master)	Pass: X = 0 Flag: X > 0	IMS
		2. Verify that forecast dates reconcile between schedule levels. This test is within the WBSs and also between summary or subsidiary schedules.	X = # of IMS activities and or milestones with forecast start/finish dates outside the higher level project elements forecast start/finish dates depicted at the top level schedule (master)	Pass: X = 0 Flag: X > 0	
		3. Verify the method of subcontract integration. Are the following elements present or not?	a. Is the subcontract not integrated as a single line in the IMS?	Document all discrepancies as compliance concerns	IMS
			b. Is the subcontract integrated consistent with a level of the subcontract schedule? (Subcontracts with EVMS requirements)		IMS, Subcontracts with EVMS requirements
			c. Are subcontractor integration points and deliveries planned in the IMS?		IMS
			d. Is the subcontract integrated at the work performance level? This would be compliant with the expectations in 6.B with short activities and work packages		

		IH On Site Interview Questions:			
		1. CAM: For WPs in CAxx, do the WP descriptions accurately and wholly reflect the scope of work, are activity relationships defined?			
		2. Project Controls: If subcontract, field, or M/ERP schedule alignment processes have not been identified or handoffs coded in the IMS, how are subcontractor, M/ERP and field level schedules integrated with the IMS?			
		3. CAM: Are there detail schedules below the IMS? What is the daily schedule you are working to? If so, can you demonstrate vertical traceability to the forecast schedule? How is the work in the lower level detailed schedules addressed in the IMS? At what WP? Are the lower-level detailed schedules used as Quantifiable Backup Data for claiming performance in the IMS? If so, how are the values for performance established and claimed?			
		4. Project Controls Demonstrate the baseline schedule has been created, named as a baseline (target), and assigned to the forecast schedule.			
		5. CAM – Please demonstrate for subcontracts without EVM flow down, as applicable, which CAs they are integrated with at the performance level similar to other discrete work.			
		6. CAMs with subcontractor responsibilities – discuss the method of integrating the subcontractor effort in the IMS and how the linkages are represented for those interfaces			
6.B.3	**Are leads and lags minimized and justified if excessive?**				
	Relationships with excessive lead or lag time should be avoided in the IMS. IMPACT OF NONCOMPLIANCE Excessive LAGs or use of Leads impact the creditability of the meaning of the critical path.	**Automated Tests:**			
		1. Fuse: Evaluate use of Leads and lags between activities. (Baseline and forecast schedules)	a. X = # of lags on incomplete activities and milestones in the schedule Y = Total incomplete activities and milestones	X / Y Pass: X/Y <= 5% Flag: X/Y > 5%	IMS
			b. X = # of lags greater than 22 working days on incomplete activities and milestones	Pass: X = 0 Flag: X > 0	
			c. X = # of incomplete activities and milestones with leads in the IMS schedule	Pass: X = 0 Flag: X > 0	
		Manual Tests			
		1. For LAGs over 22 days, is there adequate justification?	X = # of LAGs over 22 days without adequate justification?	Document all discrepancies as compliance concerns	IMS
		IH On Site Interview Questions:			
		1. CAM: (Select a task with a lag) - What is the reason for the lag? What scope does the lag represent? How do you know when to status the lag?			

6.B.4	**Does the IMS minimize the use of constraints?**				
	Date constraints are anything that limits or restricts a task or activity, or group of tasks or activities from happening until a preceding event takes place. Hard constraints prevent logic in the network from driving the schedule. An activity may slip, but the impact of the slip will not be accurately reflected if a hard constraint is restricting the movement of other related activities in the schedule network. The project end date requires a hard constraint to calculate float values and run a critical path. IMPACT OF NONCOMPLIANCE Hard constraints do not allow the schedule network to drive the schedule and accurately represent the impacts of schedule slips.	**Automated Tests:**			
		1. Fuse:	X = # of incomplete forecast activities and milestones with "hard" constraints (impacts both the early and late dates) applied as Primary Constraints	Pass: X = 1 Flag: X > 1	IMS
		2. Fuse:	X = # of incomplete baseline activities and milestones with "hard" constraints (impacts both the early and late dates or impacts the late dates) applied as Primary Constraints	Pass: X = 1 Flag: X > 1	
		3. Fuse:	X = # of incomplete forecast activities and milestones with "hard" constraints applied as Secondary Constraints	Pass: X = 0 Flag: X > 0	
		4. Fuse:	X = Incomplete activities and milestones in the baseline with soft constraints that prevent the early start of a task Y=total incomplete activities and milestones in the baseline	X / Y Tolerance < = 15%	
		5. Fuse:	X = Incomplete activities and milestones in the forecast with soft constraints that prevent the early start of a task Y=total incomplete activities and milestones	X / Y Tolerance < = 15%	
		Manual Tests			
		1. Verify justifications on hard and soft constraints used in the IMS	a. Review IMS supplemental guidance on the use of hard and soft constraints	Document all discrepancies as compliance concerns	IMS, IMS supplemental guidance
			b. See the results above in either the baseline or forecast schedule (or both) 1. Review justifications on each activity regarding the use of the constraint. 2. Was the proper constraint used? Are the circumstances for its use still in place?		IMS
			c. Perform checks to verify constraints are not used in both the primary and secondary date constraints to create a hard constraint.		

		IH On Site Interview Questions:			
		1. CAM: Investigate why CAM used a hard constraint.			
6.B.5	**Is the schedule broken into short baselined discrete activities in the detailed planning period?**				
	The natural subdivisions of the control account furnish both the Project Manager and Control Account Manager a blueprint according to the way the work will actually be accomplished. The control account is broken down into short-term discrete units of work called work packages as much as possible. Work packages are the basic building blocks developed and used by the Control Account Manager for detailed planning and control of contract performance. IMPACT OF NONCOMPLIANCE The lack of near term detail planning creates a baseline schedule that will not produce an accurate critical path leading to erroneous priorities.	**Automated Tests:**			
		1. Fuse: Verify sufficient level of detail in the IMS baseline schedule.	1. X = Remaining baseline discrete activities with duration > 44 working days Y = Total # of discrete activities (excludes EVM EVT LOE , Milestones, Externals, PP, SLPP, and SVTs)	X / Y Tolerance < = 5%	IMS
		2. Fuse: Verify sufficient level of detail in the IMS forecast schedule.	2. X = Total # of discrete activities (excludes EVM EVT LOE , Milestones, Externals, PP, SLPP, and SVT) with remaining duration > 44 working days Y = Total number of discrete activities	X / Y Tolerance < = 10% Results – See narrative for interpretation.	

6.B.6	Has a “Rolling Wave” or "Block Planning" methodology been implemented within the prior 12 Months or to the next major project technical milestone or critical decision gate?				
	A rolling wave or block planning approach to planning is defined as cycles of detail planning. These cycles are typically 6 months; although it is recommended that instead of time-based, the cycles should rather be based on project technical milestones within CD phases that are between 6-12 months apart. Within the rolling wave/block planning window, detailed work packages and their associated activities are planned with greater fidelity to allow for execution level detail. Beyond the rolling wave and block plan spans there are typically planning packages and/or SLPPs. LOE work packages are not required to follow the rolling wave cycles. To avoid needless work efforts and costs, the DOE FPD and other feds should be cautious to promote or require detail planning beyond the near term rolling wave/block planning period. It is very expensive to detail plan for periods beyond that, and typically, detail plans beyond one year are obsolete before they start. IMPACT OF NONCOMPLIANCE Either lack of a detail plan to monitor performance or excess cost of too much detail.	**Manual Tests**			
		1. Find out from the project the current cycle for rolling wave/block planning.	a. Verify there are only work packages/activities within the current cycle.	Document all discrepancies as compliance concerns	IMS, EVM Cost Tool
			b. Verify planning packages and/or SLPPs are planned beyond the current rolling wave/block plan period.		
			c. Are the planning packages logically linked?		
		2. Verify Planning Packages are unstated	a. X = # of PPs with ACWPcum	Pass: X = 0 Flag: X > 0	IMS, EVM Cost Tool
			b. X = # of PPs with BCWPcum	Pass: X = 0 Flag: X > 0	IMS, EVM Cost Tool
		IH On Site Interview Questions:			
		1. PC – What is the basis for rolling wave/block planning?			
		2. CAM – Can the CAM demonstrate knowledge, technical QBDs and schedule fidelity for schedules activities at the end of the current rolling wave?			

6.C.1	**If LOE activities are included in the IMS, does the contractor assure they do not drive, or are driven by the discrete work?**				
	The project manager must ensure that the LOE relationships are appropriate and not tied to discrete activities. IMPACT OF NONCOMPLIANCE Activities assigned the LOE EVT on the critical path mask project performance.	**Automated Tests:**			
		Fuse: 1. Verify no LOE impact on the IMS discrete effort to the Critical or Driving Paths.	a. X = # of LOE activities on the critical path (longest path in P6) in either the baseline or forecast schedules.	Pass: X = 0 Flag: X > 0	IMS
			b. X = Activities with LOE EVT with TF <= 0 days in either the baseline or forecast schedules.	Pass: X = 0 Flag: X > 0	IMS
		Manual Tests			
		1. Look for LOE activities linked to discrete effort in the baseline and forecast schedule	a. Open the Schedule forecast file with the baseline assigned. b. Filter for activities assigned and EVT of LOE c. Open the relationship tab in the bar chart view d. Examine successor activities for discrete activities – there should be no driving links from LOE to discrete activities. LOE should also never be on the critical path.		IMS

6.C.2	Is the IMS total float reasonable for the approved scope of work?				
	The reason for this requirement is that float management is the number one tool to managing priorities. If the float is reasonable, then an early warning indicator is degradation of schedule float. It is important to identify and substantiate the sequences and relationships among tasks or activities necessary to complete the critical and near-critical (or low float) paths. Excessive total float (typically greater than 44 working days in the baseline schedule, 66 days in the forecast) in a schedule is an indication of inappropriate or missing relationships between activities. Negative float in a schedule indicates that activities and milestones cannot meet their required finish dates based on logic, duration, status and other impacts on the project. The more negative the float value, the larger the issue is for the elements of the schedule that must be recovered to meet their finish date requirements. Negative float in the baseline schedule indicates an unachievable plan and should be addressed whenever present. Negative float in the forecast schedule is more common and represents a call for action. As such, a recovery plan should be developed and implemented to address the condition. Persistent, unaddressed large negative float (greater than -10 days for 3 months or more) in the forecast schedule is an early indication of a potential missed delivery or event milestone achievement . IMPACT OF NONCOMPLIANCE High or excessive float may be an indication of a schedule network that is not adequately defined or does not have accurate relationships between activities. This produces a work flow that may not be feasible and an inaccurate critical path.	**Automated Tests:**			
		1. Fuse: Evaluate baseline IMS for excessive number of activities with high float values	X= Incomplete baseline discrete activities in the baseline schedule with Total Float > 44 working days Y= Total # of incomplete discrete activities in baseline schedule	X / Y Pass: X/Y < = 10% Flag: X/Y > 10%	IMS
		2. Fuse: Evaluate baseline IMS for excessive number of activities with high float values	X= Incomplete discrete activities in the forecast schedule with Total Float > 66 days. Y= Total # of incomplete discrete activities in forecast schedule	X / Y Pass: X/Y < = 10% Flag: X/Y > 10%	IMS
		3. Fuse: Review the IMS for any baseline plan activities that have negative Total Float.	X = Count of Baseline plan activities and milestones with negative Total Float	Pass: X = 0 Fail: X > 0	IMS
		4. Fuse Forensics: Review the IMS for any forecast plan activities that have negative Total Float.	X = Count of Forecast plan activities and milestones with negative Total Float less than -10 days over three months	Pass: X = 0 Flag: X > 0	IMS
		Manual Tests			
		IH On Site Interview Questions:			
		1. CAM: (Select two discrete activities with high float – preferably greater than 100 days). Why this task required to be planned on that date? Why can it not slip X days (where X is the excessive float value)?			

6.C.3	Does the current schedule provide actual status including start and completion dates consistent with the month end status (data) date for all discrete authorized work?				
	Project managers need to ensure that the information reported is accurate and consistent with the status period. IMPACT OF NONCOMPLIANCE If the status date is not consistent with the status period, the schedule is not reporting accurate information.	**Automated Tests:**			
		1. Fuse:	X = # of activities with % Physical Percent Complete = 100 % with no actual finish dates	Pass: X = 0 Flag: X > 0	IMS
		2. Fuse: Out of Sequence activities (OOS).	Check the list of statused out-of-sequence activities in the P6 scheduling log or an Acumen Fuse report.	The threshold for OOS is zero. All OOS relationships should be addressed before the results of a scheduling analysis can be accepted for use.	IMS
		3. Fuse:	X = Activities with missing actual start dates which are showing progress	Pass X = 0 Flag X >0	IMS
		IH On Site Interview Questions:			
		1. CAM: Have you had to reverse a previously reported status of a scheduled activity?			
		2. Planning and Scheduling: What are the processes for addressing schedule errors? Are schedule errors addressed before closing out the monthly delivery file			

6.C.4	**Are the workaround plans reflected in the forecast schedule, planned in such a manner to support a realistic critical path with the forecast logically reviewed, with concurrence by CAMs, other affected organizations and PMs?**				
	Workaround plans must be incorporated into the project forecast IMS and support the applicable WP and CA schedules (meaning associated with the effort causing the workaround). IMPACT OF NONCOMPLIANCE If workaround planning is not in the forecast schedule, the critical path is not realistic.	**Automated Tests:**			
		1. Fuse Forensics Verify change in relationships from prior month forecast schedule to current month forecast schedule	X = # of relationship changes (relationship types, lags, additions, subtractions) from prior month to current month Y = # of relationships in current month	X / Y Pass: X/Y < = 5% Flag: X/Y > 5% The purpose of the check is to see the magnitude of the changes. Ask the CAM and PM how they approved any changes.	IMS
		Manual Tests			
		1. Review the schedule change logs.	Taking the results from automatic check 1 are any of the noted differences because of authorized changes?	Document all discrepancies as compliance concerns	IMS
		IH On Site Interview Questions:			
		1. Project Manager: When technical workaround plans are implemented, how are changes to the critical and near critical paths documented and evaluated?			
		2. CAM: How do you identify and plan workaround plans in the IMS?			
		3. CAM: What role do you play when significant logic changes are required to the IMS? Do you provide input and concur with these changes?			
		4. Project Controls: What controls are in place to analyze and address significant changes in logic from month to month?			
		5. PM: How are you advised on significant logic changes in the IMS? Do you approve these changes?			
6.C.5	**Are baseline changes tracked and traceability demonstrated?**				
	In a dynamic environment with constantly shifting circumstances, it is crucial to control changes or revisions that impact the baseline. IMPACT OF NONCOMPLIANCE A schedule without traceability to the original may no longer be consistent with the approved scope of the project.	**Automated Tests:**			
		1. Compare prior period baseline IMS start and finish to current period IMS start and finish and note any baseline changes.		Document all discrepancies as compliance concerns	IMS
		Manual Tests:			
		1. Taking the results of data analysis 1 above with the baseline changes for the current month, verify all changes were approved via change control.		Document all discrepancies as compliance concerns	IMS, Change Documentation

6.C.6	**Are resource availability and constraints used in the development of durations for activities, WPs, PP/SLPPs?**				
	Resources are how work is accomplished. For the IMS to be achievable, resources must drive WP, PP, and activity level durations.. IMPACT OF NONCOMPLIANCE An IMS that is not based on resource availability is not executable or realistic.	**Manual Tests:**			
		1. In P6, examine the overall baseline resources histogram. Are the resources in macro realistic in hours and other EOCs?	Realistic is defined by monthly variation in the detail period of 10% or more, and future periods of 20% or more per quarter.	Document all discrepancies as compliance concerns	P6
		2. In P6, examine the resource histograms planned by the contractor.	Are they reasonable for the type of trade, if applicable? For example you would not expect welders during the excavation stage.		
		IH On Site Interview Questions:			
		1. CAM – How are resources considered the development of activity durations?			

	Guideline 7 - Identify physical products, milestones, technical performance goals, or other indicators that will be used to measure progress.				
	Identification of milestones within the schedule will make it possible to place an objective value on the amount of work required to meet that milestone goal, and, as work can be proven to have been accomplished, the contractor can proceed on to the next task in the scheduled sequence.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
7.A.1	**Are milestones, technical performance goals, or other indicators used as indicators of progress?**				
	Milestones that could influence the IMS calculations have the appropriate predecessors and successor links established in the baseline and in the forecast schedule to provide management with the correct dates and paths. IMPACT OF NONCOMPLIANCE Missing technical performance goals in the IMS leaves management without visibility into the progress towards achieving project goals and completing on time.	**Manual Tests**			
		1. Identify all major events and milestones and verify they exist in both the baseline and forecast IMS.	a. Are they appropriately labeled in the activity name?	Document all discrepancies as compliance concerns	IMS
			b. Do they have both predecessors and successors?		
			c. Are they correctly coded?		
		2. Verify in-process and future activities/work packages (lowest level of resource planning) have resources	2.a All in progress or future activities, WP, PP have resources		
		3. Verify the baseline and forecast IMS titles.	3a) All baseline activates have unique names. 3b) All forecast activity names are action oriented	X = <3%	
		4) Verify appropriate usage of QBDs or Rules of Credit consistent with long durations in the WP or activates.	4a) Work packages greater than 44 days are supported by QBDs unless support by activates less than 44 days? 4B) Are the QBDs quantified, objective, and complete? 4c) Are the QBDs replacing tasks in the IMS?	Document all discrepancies as compliance concerns	
		IH On Site Interview Questions:			
		1. CAM: Please explain the process for establishing and providing status for your measurement QBDs.			
		2. Project Controls: Please explain any interfaces with other systems that provide technical performance measurement through the IMS to the EVM Cost Tool.			

	Guideline 8 - Establish and maintain a time-phased budget baseline, at the control account level, against which program performance can be measured. 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 undefinitized work. Budget for far-term efforts may be held in higher level accounts until an appropriate time for allocation at the control account level. If an over-target baseline is used for performance measurement reporting purposes, prior notification must be provided to the customer.				
	The purpose of GL 8 is to create a time-phased, resourced plan against which the accomplishment of authorized work is measured. This plan must ensure resources for accomplishing the work are time-phased consistent with the planned work scope for all authorized work. This plan must ensure resources for accomplishing the work are time-phased consistent with the planned work scope for all authorized work. This time-phased relationship between authorized work, time, and resources is referred to as the Performance Measurement Baseline (PMB).				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
8.A.1	**Are all of the elements of the PMB (Scope, Schedule, and Budget) aligned?**				
	The PMB is the time-phased budget plan against which actual performance is assessed. The Contract Budget Base (CBB) value used to establish the PMB is tied to the current value of the contract, including any Authorized, Unpriced Work (AUW). IMPACT OF NONCOMPLIANCE An inaccurate PMB invalidates cost and schedule analysis.	**Manual Tests**			
		1. Confirm the baseline start/finish dates of the CAs in the EVM Cost Tool are consistent with the authorized and scheduled baseline start/finish dates of the IMS and WADs. This check is related to Guideline 3 and focused on the PMB consistency. This trace is to be performed for 3 consecutive periods, with the last being the most current period in the data call.	a. Verify the accounting calendar is reflected in the EVM Cost Tool. 1. Request the accounting calendar and any related procedural documentation. 2. Confirm the accounting calendar dates are consistent with those in the EVM Cost Tool.	Document all discrepancies as compliance concerns. The baseline start and baseline finish dates in the IMS should be in the same accounting month as the budget.	Accounting calendar, EVM Cost Tool
			b. Use the CAPs or the equivalent that shows baseline start and finish by WP from the EVM Cost Tool and compare the baseline start and finish dates of the CA to the baseline start and finish dates within the IMS. All comparisons of the IMS to the EVM Cost Tool should consider the difference in measurement between the IMS and EVM Cost Tool. The IMS plans in days and the EVM Cost Tool typically in accounting months or periods. This check and all other comparisons verify that the dates of the schedule start in the IMS and EVM Cost Tool are within the same accounting month if the EVM Cost Tool does not track exact dates for spreading.		
			1. Example: The contractor's accounting calendar for July ends on July 25. The baseline IMS date for an activity starts on July 26; therefore, this would be reflected in the EVM Cost Tool in the accounting month for August.		EVM Cost Tool, CAPs, IMS
			c. Repeat the same comparisons of baseline start and baseline finish fields in the CAP or equivalent to confirm that these dates fall within the WP earliest start date and the latest finish date for the baseline IMS.		EVM Cost Tool, CAPs, IMS

		d. Compare the CAP to the CA WAD to ensure that the baseline dates fall within the start and finish dates on the WAD.		CAP, WAD
	2. Verify LOE effort is time phased within the fiscal periods corresponding to the project PoP or other discrete work. Repeat for the baseline and forecast. This trace is to be performed for 3 consecutive periods, with the last being the most current period in the data call.	a. Using the EVM Cost Tool data, confirm the budget spreads for discrete and LOE efforts are designated by fiscal periods. While the budget should be spread based on timing of the work effort, there should be continuous budget based on the underlying work scope unless justification exists for any gap.	Document all discrepancies as compliance concerns	EVM Cost Tool, CAPs
		b. In correlation with guideline 12, if the time phased budgets for LOE are level loaded for the PoP, follow up with an interview question on how this work is planned and budget spreads are justified.		EVM Cost Tool
		c. Confirm the first and last fiscal period corresponds to the start and end date of the PoP for the project.		EVM Cost Tool, IMS, Contract and MODs

8.A.2	**Does the PMB plus MR equal the Contract Budget Base? (If an Over Target Baseline is in place does the new PMB plus MR equal the Total Allocated Budget)?**				
	The formula for the Total Allocated Budget (TAB) is TAB = CBB + OTB where OTB represents the value of the forecast overrun. The revised PMB would consist of the value of the original PMB plus the over target budget allocated to each CA. That value plus the MR should equal the new TAB. IMPACT OF NONCOMPLIANCE Failure to properly implement an approved OTB will result in a poorly integrated plan and increased risk of failure in project execution.	**Manual Tests**			
		1. Per IPMR/CPR Format 1, confirm the sum of PMB (including over target budget) + MR equals the TAB.	a. Examine the CBB log. Confirm the PMB value plus MR equals CBB or TAB if an OTB has been approved. If an OTB has been approved and implemented, the amount of the over target budget should be clearly identified and tracked.	Document all discrepancies as compliance concerns	CBB Log
			b. In the Format 1 of the IPMR/CPR if an OTB has been implemented, the amount of the over target budget will be reflected by reporting level element in Block 8.a.13. c. Compare the total for the over target budget in Block 8.g.13 to the amount entered for the over target budget in the CBB log.		IPMR/CPR Format 1, CBB Log
			d. If there is an approved OTB, cost and schedule variances may have been adjusted. These will be reflected by reporting element in Blocks 8.a.12a and 8.a.12b, and summed in Blocks 9.a. and 9.b. (reprogramming adjustments entered in Blocks 9.a and 9.b will reconcile to the increase in budget in the CBB). Compare the CBB in Block 6.c (2) to the TAB in Block 8.g.14. The difference in these numbers should be equal to the amount of the over target budget in Block 8.g.13.		IPMR/CPR Format 1, CBB Log

8.A.3	**Does the CBB reconcile with the Total Project Cost (TPC) as applicable?**				
	The CBB + Fee or Profit + DOE held Contingency + any other ODC = the Total Project Cost (TPC). The summary of these elements should be in balance at all times. IMPACT OF NONCOMPLIANCE Project would not be aligned with the authorized total project cost.	**Manual Tests**			
		1. Verify all budgets (CA, SLPP, MR, UB, and Fee) + DOE held Contingency + any other DOE ODC sum to Target Project Cost (TPC) as applicable.	a. Review the CBB log and values for PMB, Fee, MR/UB, DOE Contingency (if any), and DOE ODC (if any), sum to Target Project Cost. b. Refer to the DOE Gold Card for guidance on the Total Project Cost components.	Document all discrepancies as compliance concerns	CBB Log
			c. Compare the CBB log with IPMR/CPR Format 1 and separately the PARSIIE Project Summary Report. The values should reconcile for the latest baseline change documentation (BCP, BCR, etc.).		CBB Log, IPMR/CPR Format 1, PARSIIE Project Summary Report
8.A.4	**Are Control Accounts and WPs opened and closed in a timely manner consistent with the actual start and completion as statused in the IMS?**				
	As CAs and WPs are scheduled to begin, the CAs are authorized by the PoP as documented in the work authorization and WP start dates. Similarly, a WP completion date supports the completion date of the CA. IMPACT OF NONCOMPLIANCE Resources are not aligned with project deliverables placing timely completion of project goals at risk.	**Automated Tests**			
		1. Find # of CA Actual Starts and Finish Dates in IMS <> Accounting Period Open/Close Dates in EVM Cost Tool.	X = Number of CA Actual Start and Actual Finish dates in IMS that do not match the accounting period open and/or close dates in the EVM Cost Tool data	X / Total # of CAs In-Progress or CAs Complete. Pass: X/Y = 0 Flag: X/Y > 0	IMS, EVM Cost Tool
		2. Find # of WP Actual Starts and Finish Dates in IMS <> Accounting Period Open/Close Dates in EVM Cost Tool.	X = Number of WP Actual Start and Actual Finish dates in IMS that do not match the accounting period open and close dates in the EVM Cost Tool data	X / Total # of WP in-progress or completed. Pass: X/Y = 0 Flag: X/Y > 0	IMS, EVM Cost Tool
		Manual Tests			
		1. Confirm WP IMS start and actual completion with charge number open and close dates. Using the charge number reports, compare open and closed charge numbers with the associated WP in the IMS. This trace is to be performed for 3 consecutive accounting periods, with the last being the most current closed accounting period in the data call.	a. Check the IMS Data Dictionary for a charge number field, if available. b. In the forecast IMS, filter for WP using the WBS or WP field, or the charge number field as available. c. Using the Start field, filter for WP having an actual start (appended with an A as in 11-Jun-14 A). d. Compare these WP start dates with the charge number report open start date. e. From this filtered view compare any WP actual finish dates (appended with an A) with the charge report corresponding close date. f. Check process documentation for open and close of charge numbers, and note any documented process that would cause discrepancies in posted date integration between the cost and schedule data.	Document all discrepancies as compliance concerns	IMS Data Dictionary, IMS, charge number reports

8.A.5	**If an OTB/OTS has been approved and implemented, have the work authorization documents been modified to reflect the OTB/OTS values?**				
	When an OTB/OTS has been approved and implemented, the work authorization documentation for the affected CAs must be changed and approved to reflect the amount of the over target budget. IMPACT OF NONCOMPLIANCE Failure to properly amend and approve the work authorization documentation will result in a poorly planned OTB/OTS and subsequent baseline.	**Manual Tests**			
		1. Verify any BCP DOE modifications, OTB/OTS notification/request for approval, and WADs reconcile to the latest TAB. This trace is to be performed for 3 consecutive reporting periods, with the last being the most current reporting period in the data call.	a. Verify the RAM has been updated for the OTB	Document all discrepancies as compliance concerns	RAM, BCP DOE Mods, OTB/OTS notification/request for approval, WADs
			b. Review WADs for 10 CAs affected by the changes, and make sure they have been updated to reflect the current values in the RAM.		WADs, RAM

8.B.1	If any, do all SLPPs have scope, schedule, and budget defined?				
	SLPPs are for future efforts that have not been identified to a CA. They are higher level planning accounts above the CA level that identify scope, schedule and associated budget (resources) through the end of the project. IMPACT OF NONCOMPLIANCE Lack of scope, schedule, and budget integration invalidates the PMB.	**Automated Tests**			
		1	X = # of SLPPs without integrated time phased schedule and budget	X / Total # of SLPPs Pass: X = 0 Flag: X > 0	IMS, EVM Cost Tool
		Manual Tests			
		1. If used, verify all SLPPs are documented and time phased for future use. This trace is to be performed for 3 consecutive periods, with the last being the most current period in the data call.	a. Using the SOW, WBS Dictionary and RAM, search for any confirmed SLPPs and evaluate the scope of the SLPPs.	Document all discrepancies as compliance concerns	SOW, WBS Dictionary, RAM
			b. Using the EV Cost Tool data, filter for SLPPs to determine the budget of any SLPPs.		EVM Cost Tool
			c. Using the IMS Data Dictionary, determine how SLPPs are defined in the schedule.		IMS Data Dictionary, IMS
			d. Using the baselined IMS, filter for SLPP based in the information in the IMS Data Dictionary, and check for schedule timing and duration of the package.		IMS Data Dictionary, IMS

	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.				
	Ensure resources, by element of cost, are identified and budgeted for all authorized work.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
9.A.1	**Do Work Authorization documents identify scope of work, budget by element of cost, and period of performance?**				
	The EVMS must demonstrate the tie between the negotiated contract dollar value and the various work authorization documents to ensure contract target costs are properly translated into the PMB. A budget is established for work scope that is then further planned by the elements of cost (EOCs) for labor, material, subcontractor, and other direct charges required to accomplish it. IMPACT OF NONCOMPLIANCE Inadequate work authorization increases the risk of unauthorized work and cost overrun.	**Manual Tests**			
		1. Confirm the WAD identifies the scope of work. (could be WBS Dictionary) This trace is to be performed for 3 consecutive periods, with the last being the most current period in the data call.	a. Select a sample of of 10 CAs.(all if less than 10) b. For each selected CA, using the WAD, the SOW or WBS Dictionary, as needed; determine if the scope of work is fully identified on the WAD. c. For the same WBS the scope should be identical or expanded in the WAD as compared to the SOW/WBS Dictionary.	Document all discrepancies as compliance concerns	WAD, WBS Dictionary, SOW,
		2. Confirm the WAD identifies the budget by Element of Cost (EOC). This trace is to be performed for 3 consecutive periods, with the last being the most current period in the data call.	a. Using the WAD, confirm budget is broken down and authorized by EOC.		WAD
		3. Confirm the WAD identifies the baseline PoP. This trace is to be performed for 3 consecutive periods, with the last being the most current period in the data call.	a. Using the WAD, confirm the PoP is identified		WAD, IMS, Contract, MODs
		4. Verify the CA WAD baseline dates correspond to CA baseline dates in the IMS. This trace is to be performed for the most current period in the data	a. For 10 discrete CAs, using the WAD and the IMS, compare the PoP dates on the WAD with the baseline start and finish dates in the IMS.		WAD, IMS
		IH On Site Interview Questions:			
		1. CAM: Please describe the work you are responsible for in this CA and where it is documented. (Compare with 1.b above).			
		2. CAM: How do you measure scope changes to the CA, if any?			

9.A.2	**Are Work Authorization documents consistent with the OBS levels of responsibility?**				
	Work authorizations must be integrated and flow through the OBS. IMPACT OF NONCOMPLIANCE Lack of integration between work authorization and the OBS means the work may not be assigned to the responsible manager and at the correct level for project performance.	**Manual Tests**			
		1. Confirm the CA WAD includes the level of authority for the OBS assigned to the CA.	a. Review the RAM for the OBS levels, if any. Does the OBS have intermediate levels between the PM and CAM? If so proceed to step b> b. Does WA exist at the intermediate level.	Document all discrepancies as compliance concerns	RAM, OBS, WAD
9.A.3	**Does the contractor require that work scope, schedule, and budget are authorized before the work is allowed to begin and actual costs are incurred?**				
	Approved Work Authorization Documents (WADs) must precede the baseline start and actual start of work. No work shall begin before work scope, schedule, and budget are formally authorized by WADs. This process is a control function to ensure that costs are controlled in a systematic manner. IMPACT OF NONCOMPLIANCE Unauthorized expenditures prior to formal work authorization may result in cost overruns and work being performed out of sequence to the baselined schedule.	**Manual Tests**			
		1. Verify authorization date is not after the budgeted baseline start.	X = $ # of incomplete CAs where the budget baseline start is before the start date on the WAD.	Tolerance = 0	WA Directive, WAD, IMS
		2. Verify the WAD date is prior to the occurrence of actuals.	X = $ value of actual cost occurring prior to the accounting period authorization date for incomplete CAs This test may also be done by comparing the Work Authorization and the electronic CAP. Filter the CAP by CA and then verify the first ACWP was after the approval date of the WAD.	Tolerance = 0	WA Directive, WAD, IMS, EVM Cost Tool
9.B.1	**Within control accounts, are budgets segregated and planned by element of cost (e.g., labor, material, subcontract, and other direct costs)?**				
	Budgets for direct costs are those chargeable to a specific work package and include labor, materials, equipment, and any other resources defined by the project. IMPACT OF NONCOMPLIANCE Lack of planning by EOC results in poor resource plans and potential future resource conflicts.	**Automated Tests**			
		1. The intent of this test is that EOCs are identified within work packages. There may be one or more EOCs within the work package as long as identified	X = # of incomplete WPs with budgets not segregated by EOC	X / Total # of incomplete WPs. Pass: X = 0 Flag: X > 0	WADs, EVM Cost Tool - CAPs
9.C.1	**Are budgets at the WP level in dollars? If not, are they converted to dollars for rollup and reporting purposes?**				
	Budgets are typically planned in hours for labor elements, dollars for other direct costs, and quantities for material elements. IMPACT OF NONCOMPLIANCE Failure to be able to rollup costs by dollars will prohibit reconciliation with the PMB or compliance with other QE LOIs requiring WBS and OBS rollup.	**Automated Tests**			
		1. Verify each in-process WPs have an assigned budget value.	X = value of WP ACWPcum where BAC is <= 0	X / Total value of ACWPcum. Pass: X = 0 Flag: X > 0	EVM Cost Tool - CAPs

	Guideline 10 - To the extent it is practicable to identify the authorized work in discrete WPs, establish budgets for this work in terms of dollars, hours, or other measurable units. Where the entire control account is not subdivided into WPs, identify the far-term effort in larger planning packages for budget and scheduling purposes.				
	The purpose of this GL is to ensure control account work scope is partitioned into executable and measurable segments of work that are accomplished within the authorized control account period of performance (POP).				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
10.A.1	**Do discrete WPs have durations limited to a relatively short span of time that is practical and appropriate for the work scope? If not, are these WPs supported by objective interim measures such as points of technical achievement to enable accurate performance assessment?**				
	The objective of a WP is to plan, execute, and complete a distinct portion of the scheduled scope, moving on to the next logically driven sequence of scope/WP. The expectation is that WPs in the detail planning period should be 44 working days or less in duration to support quantitative earned value assessment and to have executable detail for the current periods. The 44 working days represents two accounting months according to most accounting calendars. Discrete WPs may be longer than 44 working days (up to six months) when supported by quantifiable backup data (QBDs) with technical progress points. There is no intent to artificially break up a work package. IMPACT OF NONCOMPLIANCE The ability to measure progress objectively is diminished which increases the potential for significant variances. Additionally, long duration WPs (greater than 44 working days) impact the CAM's flexibility in planning once the effort has started.	**Automated Tests:**			
		1.	X = # of incomplete WPs, excluding LOE, with baseline duration greater than 44 working days	X / Total # of incomplete WPs. Pass: X/Y <= 5% Flag: X/Y > 5% [Note – Flagure of this metric is not a finding. Continue to the next artifact traces to see if there is an issue.]	IMS
		2.	X = # of incomplete WP work packages, excluding LOE, with baseline duration greater than 120 working days	X / Total # of incomplete WP. Pass: X/Y <= 0% Flag: X/Y > 0% [Note – Flagure of this metric is a CAM discussion item.]	IMS
		Manual Tests:			
		1. Take the results from the automated test #1 for this QE LOI.	X = # of incomplete work packages with "at completion" durations in excess of 44 working days without QBD	X / Total # of incomplete WPs with "at completion" durations in excess of 44 working days. Pass: X/Y <= 0% Flag: X/Y > 0%	IMS, QBDs
		IH On Site Interview Questions:			
		1. CAMs: For WP activity(s) WPxx, show how interim performance is taken. (Follow up to Artifact Traces between Documents with activities identified for review in an interview).			
		2. CAMS: For work packages greater than 120 days how do you demonstrate the WP is at the work execution level.			

10.A.2	**Are WPs defined at the level where the work is performed and is each WP assigned to a single organization?**				
	WPs are single activities that may be supported by multiple activities assigned to a performing organization or work team for completion and are natural subdivisions of the control account work scope having a definable end product or event. IMPACT OF NONCOMPLIANCE Failure to identify WPs at the performance level can result in an ineffective baseline for performance measurement.	**Manual Tests:**			
		IH shows tests deleted with only a CAM interview. Bob's spreadsheet used during meeting with EFCOG does NOT have the tests deleted.			
		IH On Site Interview Questions:			
		1. CAM: Can you demonstrate that the WP is assigned to a single organization.			

10.A.3	**Does the summation of a control account's WPs and planning packages represent the total scope of the control account?**				
	Effort contained within a Control Account (CA) is distributed to WPs and PPs and segregated by Elements of Cost (EOC). IMPACT OF NONCOMPLIANCE WP and PP scope, budgets and resource requirements will be inaccurate. Planning will not reflect the correct work scope and may adversely impact the CAMs' ability to complete the effort.	**Automated Tests:**			
		1. Determine in the EVM Cost Tool, whether the sum of the budgets for the WPs and PPs equal the BAC for the CA.	a. X = ABS(Sum of WP and PP budgets minus BAC CA)	X / Sum of WPs and PPs. Pass: X = 0 Flag: X ≠ 0	EVM Cost Tool
			b. # of WPs and PPs with BAC < 0	/ Y=Total number of WPs and PPs. Pass: X = 0 Flag: X ≠ 0	EVM Cost Tool
		Manual Tests:			
		1. Select a sample of 4 significant discrete CAs.	a. Verify in the EVM Cost Tool and CAPs that the total budget for the WPs plus PPs equals the budget for the CA.	Document all discrepancies as compliance concerns	EVM Cost Tool
		2. For those same WPs, PPs and CAs, verify that the WBS dictionary and WAD scope narratives are consistent.		Document all discrepancies as compliance concerns	WBS Dictionary, WAD
		3. Using the same CAs, review the exit criteria for the WPs. Verify that the WP and PP exit criteria are consistent with the WAD scope for the CA.		Document all discrepancies as compliance concerns	IMS, WAD
10.A.4	**Are Budgets or Values Assigned To Work Packages and Planning Packages in Terms of Dollars, Hours, or Other Measurable units that are consistent with project requirements?**				
	Budgets established at the WP level identify specific resource requirements in dollars, hours, or other measurable units for detail "near term" planning. PPs are aggregates of future activities and resources beyond the detail plan or "near term" that must be divided into WPs at the earliest point in time when detail work content is known. IMPACT OF NONCOMPLIANCE Failure to maintain the link between the work scope and budget results in a PMB that is not integrated or able to be properly executed.	**Manual Tests:**			
		1. Select 3 discrete CAs and perform a manual check to verify the EVM Cost Tool data and CAPs are consistent in budget denominations assigned to WPs and PPs in support of project plans.	a. Confirm for dollars, hours or other measureable units	Document all discrepancies as compliance concerns	EVM Cost Tool, CAPs
			b. Confirm that units used internally are consistent with external reporting on the IPMR/CPR Format 1	Document all discrepancies as compliance concerns	EVM Cost Tool, CAPs
		IH On Site Interview Questions:			
		1. CAM: How are the WPs planned? If not dollars, how do you verify they are consistent with project requirements?			

10.A.5	**Are WP and Planning Package budgets traceable to the basis of estimate (cost estimate), as modified by project definitization, project changes, or ~~and~~ approved baseline changes?**				
	The underlying purpose of budgeting is to provide the foundation on which project requirements are expressed in terms of dollars and hours, including reasonableness of manpower loading, material purchases, subcontract expenses, and other direct costs. The Basis of Estimate (BOE) details the premise, or basis, from which critical aspects of a project cost estimate were developed including cost and labor estimates, material availability, any assumptions or deviations, any studies or analysis used as a reference and any other details which impacted the cost estimates. The initial BOE developed in support of the proposal must reconcile to the current budget allocated to WP/PPs. This reconciliation will include changes caused by the project definitization (adjusted in negotiations) and approved baseline changes such as use of MR. IMPACT OF NONCOMPLIANCE Failure to base WP and planning budgets on the initial BOE may result in inconsistent planning and exclusion of authorized work scope.	**Manual Tests:**			
		1. Select 3 discrete CAs.	a. Compare the WP and planning package budgets in the EVM Cost Tool and CAPs with the current BOE to verify they can be reconciled.	Document all discrepancies as compliance concerns	EVM Cost Tool, CAPs, BOE
			b. Trace the authorized scope of work in the WAD, WBS Dictionary and BOE to verify it is consistent with the BOE scope, as amended by subsequent negotiations.		WAD, WBS Dictionary, BOE, Contract/.Project MODs

10.A.6	**Are WPs assigned EVTs in accordance with the System Description and consistent with the nature of the planned work?**				
	The selection of an appropriate WP Earned Value Technique (EVT) allows for accurate and objective performance measurement. The selection of EVT that best reflect the activity being performed can provide accurate status and situational awareness for proactive resolution of issues impacting cost, schedule, and technical achievement of project objectives. IMPACT OF NONCOMPLIANCE Inaccurate reporting of BCWP causes artificial CVs and SVs, which in turn results in inaccurate EVMS reporting to project management and the DOE.	**Automated Tests:**			
		1. Pull a report from the EVM Cost Tool that shows if EVTs are assigned to the remaining WPs to verify all remaining WPs have an assigned EVT.	a. X = # of incomplete WP activities without an assigned EVT	X / Total # of incomplete WPs. Pass: X = 0 Flag: X > 0	EVM Cost Tool Report
		Manual Tests:			
		1. From an EVM Cost Tool report showing EVTs in progress WPs, review the WPs with % complete EVTs. a. Verify a sample of the in-progress WPs have QBDs that justify the % complete EVT.	X = # of % complete EVT in-progress WPs >44 days duration sampled with no QBD defined	Tolerance = 0	EVM Cost Tool Report, QBDs
		2. From that same EVM Cost Tool report identify WPs with apportioned EVTs. a. Verify that activities/WPs with apportioned EVTs have a direct and proportional relationship to a base discrete WP. b. Where there is not a one-to-one proportional relationship between the base WP and the apportioned WP, the defined relationship must address how the percent complete of the base discrete work is consistent with the percent complete status of the apportioned effort (i.e. how does the apportioned status mirror that of the discrete work).In other words, how it will mirror a one to one relationship.	X = # of incomplete WP activities with apportioned EVTs without an identified proportional relationship to a discrete base WP/activity.	Tolerance = 0	EVM Cost Tool Report
		3. Verify that subcontractor SOV to be used as a earned value management performance measurement indicator it must consist of two required elements:	X = # of incomplete WP activities for subcontractor SOV to be used as a earned value management performance measurement indicator: a. Is 50% or less of the weight in the first 50% of the period of performance? b. Is 20% or more of the weight associated with the final deliver or after?	Tolerance = 0. Failure of any test means the Schedule of Values cannot be used for performance measurement purposes because it overstates percent completion.	EVM Cost Tool Report

10.A.7	**Are WP exit or completion criteria defined?**				
	It is important that BCWP is calculated in a manner consistent with the way work is planned. The requirement for identifying appropriate, objective completion criteria that will align how technical performance will be accomplished is essential for accurate measurement of progress (BCWP). The completion criteria must answer the question: 'what does done look like, rather than what work has been done'. IMPACT OF NONCOMPLIANCE WP planning would not align with the intended project goals. Not knowing when the effort is complete leads to cost overruns and schedule delays as well as inaccurate assessment of progress to an unclear end product.	**Manual Tests:**			
		1. Review the IMS detail schedules for the remaining WPs to verify each has completion criteria defined.	a. X = # of incomplete WP activities without SOW/WBS coding in the baseline/forecast IMS	Tolerance = 0	IMS
10.A.8	**Are WPs clearly distinguishable from all other WPs including the titles being unique and consistent with the scope of the WP?**				
	Work packages should reflect the actual way the work is to be done and should be a clearly distinguishable subdivision of a CA. IMPACT OF NONCOMPLIANCE Confusion in identifying specific WPs leads to inaccurate planning, inefficient expenditure of resources and inaccurate performance measurement. This may also result in invalid EACs reported to the DOE.	**Automated Tests:**			
		1. Review WPs in the Cost Tool to verify the WP names and coding are unique and not duplicated.	X= # of WP with duplicate names/coding in the Cost Tool	X / Total# of WP's Pass: X = 0 Flag: X > 0	EVM Cost Tool
		Manual Tests:			
		1. Pull a report from the EVM Cost Tool and select a sample of the significant remaining CAs with WPs identified.	a. Review and compare the WBS Dictionary and WAD scope statements with the titles of the WPs in the IMS or EVM Cost Tool to ensure the WP titles and related scope are consistent and not duplicated.	Document all discrepancies as compliance concerns	EVM Cost Tool
10.A.9	**Are the EVTs for material consistent with the manner in which material is planned?**				
	The selection of EVT that best reflect the activity being performed can provide accurate status and situational awareness for proactive resolution of issues impacting cost, schedule, and technical achievement of project objectives. IMPACT OF NONCOMPLIANCE The material EVTS would not provide accurate status and situational awareness for proactive resolution of issues impacting cost, schedule, and technical achievement of project objectives.	**Manual Tests:**			
		1. Review the Contractor's EVM SD and procedures (if applicable) to determine how material is identified, classified, and planned. Also determine how EVTs are assigned for material.	a. Review the IMS, EVM Cost Tool and electronic CAPs and identify the EVTs assigned to remaining material WPs.	Document all discrepancies as compliance concerns	IMS, EVM Cost Tool, CAPs
			b. Verify the EVTs are consistent with the type of material planned.		IMS, EVM Cost Tool, CAPs
			c. Verify the EVTs are consistent with the way the material is planned.		IMS, EVM Cost Tool, CAPs
			d. Verify that material has not been planned earlier than point of receipt.		IMS, EVM Cost Tool, CAPs
		2. Pull a report from the EVM Cost Tool and select a sample of remaining significant CAs that have material.	a. Review the WADs for those CAs to verify that Material is identified and segregated in separate WPs from other elements of cost.	Document all discrepancies as compliance concerns.	WADs, EVM Cost Tool Report

			b. Review the IMS (if resource loaded) and CAPs to verify that material is time phased by dollar amount		IMS, EVM Cost Tool, CAPs
			c. Ask for a report from the Material Purchasing System that shows need dates and compare to the material planned in the IMS, EVM Cost Tool and CAPs to verify material is planned and time phased in support of those need dates.		Material Purchasing System Report, IMS, EVM Cost Tool, CAPs

10.A.10	**Do SLPPs and planning packages have scope, schedule, and budget defined by EOC?**				
	PPs represent the portion of a control account that has not yet been detail planned. They must have a specific scope, schedule and associated budget but do not have established methods of earning performance. SLPPs are efforts at a higher level not assigned to control accounts but still have scope, schedule and budget by element of cost. IMPACT OF NONCOMPLIANCE Project work scope would not be accomplished in a well-planned manner, placing the project at risk for not meeting goals and deliverables.	**Automated Tests:**			
		1	1. X = value of PPs and SLPPs where BAC is <= 0	X / Total # of PPs and SLPPs. Pass: X = 0 Flag: X > 0	
		2	2. X = # of PPs and SLPPs with duration <1	X / Total # of PPs and SLPPs. Pass: X = 0 Flag: X > 0	
		3	3. X = # of PPs and SLPPs without baseline start or baseline finish in both the IMS and EVM Cost Tool	X / Total # of PPs and SLPPs. Pass: X = 0 Flag: X > 0	
		4	4. X = # of PPs and SLPPs where # of assigned OBS is < 1	X / Total # of PPs and SLPPs. Pass: X = 0 Flag: X > 0	
		5	5. X = # PPs and SLPPs where #of assigned OBS is <<>1	X / Total # of PPs and SLPPs. Pass: X = 0 Flag: X > 0	
		Manual Tests:			
		1. Pull a report from the EVM Cost Tool and select a sample of remaining significant CAs that have PPs. Also verify a sample of SLPPs if any. a. Trace the scope, schedule and budget resources for the PPs as follows:	1. Review the WBS Dictionary and WADs to verify PP scope	Document all discrepancies as compliance concerns	EVM Cost Tool, WBS Dictionary, WADs
			2. Review and compare WADs, IMS detailed schedules, EVM Cost Tool data and CAPs to verify PP schedule		EVM Cost Tool, WBS Dictionary, WADs, IMS, CAPs
			3. Review and compare WADs, IMS detailed schedules, EVM Cost Tool data and CAPs to verify PP time phased budgeted resources		EVM Cost Tool, WBS Dictionary, WADs, IMS, CAPs
			4. Is the planning package budget planned by EOC?		EVM Cost Tool, WBS Dictionary, WADs, IMS,
		IH On Site Interview Questions:			
		1. CAM – How did you plan the duration and value of the planning package(s) and SLPPs?			

10.A.11	**Do Work Package EVTs result in the ability to claim progress in all months in which resources are scheduled at the time the Work Package is baselined and based on objective indicators as appropriate?**				
	The selection of an appropriate WP Earned Value Technique (EVT) allows for accurate and objective performance measurement. IMPACT OF NONCOMPLIANCE Inability to accurately convert technical progress into a measure of performance (i.e., BCWP) invalidates the EVM reporting of the project.	**Automated Tests:**			
		1 ***Note:*** Tests 2 and 3 depend on if the 50/50 and 0/100 EVTs are defined in the SD and then if calculated at the work package or activity level. Typically if earned value is calculated at the activity level in the work package it is integrated with percent complete. The word “activity” below may be interpreted as the work package or activity level depending on where BCWP is calculated via discrete EVTs.	1. X = # of incomplete discrete activities without EVTs in the baseline IMS, excluding PP and SLPP	X / # of in-complete discrete activities excluding PP and SLPPs. Pass: X = 0% Flag: X > 0%	IMS
		2	2. Verify that baseline activities assigned a 0/100 EVT are limited to one accounting period. X = # of occurrences where an 0/100 EVT has a PoP that exceeds one accounting period (i.e. 21 days duration)	X / # of in-complete discrete activities excluding PP and SLPPs. Pass: X = 0% Flag: X > 0%	IMS
		3	3. Verify that activities assigned a 50/50 EVT are limited to two accounting months. X = # of occurrences where a 50/50 EVT has a PoP that exceeds two accounting periods (i.e. 42 days). Change tests for new narrative	X / # of incomplete activities assigned a 50/50 EVT	IMS
		4	4. Find illogical status where the work remaining is greater than the work originally planned (BAC) and has positive percent complete. X = # of incomplete activities (original duration – remaining duration <= -10 days when BCWP/%C > 0	X / # of incomplete activities. Pass: X = 0% Flag: X > 0%	IMS

		Manual Tests:			
		1. Verify that WPs using milestone, milestone weights with % complete, and % complete are supported by objective technical measures and have enough measures to take performance at least once a month. There should not be planned periods of time where budgets are planned and actual costs can be accrued without the possibility to earn performance against the budget.	1. For Miletone EVTS there should be a miletone or way to earn BCWP for every month resources are planned 2. For percent complete supported by QBDs there must be performance credits earnable for every period there are resources.	Document all discrepancies as compliance concerns	IMS, EVM Cost Tool
		2. Verify resources are assigned in the IMS (if resource loaded) and in the EVM Cost Tool.	2. X = # of in-progress and future activities without resource assignments in the EVM Cost Tool and the IMS, if the schedule is resource loaded, for each period in the PoP (exclude SVTs and Schedule Margin activities).	Pass: X = 0 Flag: X > 0	IMS, EVM Cost Tool

10.A.12	**Is discrete performance determined in the IMS identical to that represented in the EVM Cost Tool?**				
	The IMS is the source for dates and progress of discrete effort to the EVM Cost Tool. The technical basis of progress is reported to the EVM Cost Tool, summarized if necessary and produces BCWP for analytical use to support managerial decisions. The pathway from schedule baseline to schedule forecast, to status, to BCWP must be documented, consistent and accurate. IMPACT OF NONCOMPLIANCE If the IMS and the EVM Cost Tool are out of alignment with reporting progress, management and customer are deprived of sufficient reliable information to make competent management decisions.	**Manual Tests:**			
		1. Review the contractor EVM SD and IMS Supplemental Guidance.	a. Verify how progress is transferred from the IMS to the EVM Cost Tool. It must not be based on any activity duration percent complete (including activity % complete, duration % complete, schedule % complete, or any other % completes that are not based on CAM input assessment of technical accomplishment).	Document all discrepancies as compliance concerns	EVM SD, IMS Supplemental Guidance, IMS, EVM Cost Tool
		2. Compare the technical accomplishment in the schedule to the percent complete in the Cost Tool for percent complete EVTs. All numbers should match.			IMS, EVM Cost Tool
10.B.1	**Is the percent complete earned value technique (EVT) applied at the level at which performance is assessed, supported by quantifiable backup documentation (QBD) if longer than 44 working days?**				
	The earned value or BCWP claimed during the statusing process must be objectively measured. Interim measurements of progress should be documented with QBDs for WPs greater than 44 working days. Generally, QBDs are developed to support an easy compilation of tracking status by smaller increments to the reported percent complete value. IMPACT OF NONCOMPLIANCE Inaccurate measurement of BCWP causes both CVs and SVs to be inaccurate and impacts the validity of the variance analyses and the EAC reported to DOE.	**Manual Tests:**			
		1. Review if QBDs exist for work packages greater than 44 days	a. Review % complete EVTs at the work package level. Note if activity level rules of credit exists, this test is in the schedule. b. Are % complete EVTs greater than 44 days supported by technically based QBDs?	Document all discrepancies as compliance concerns	IMS
10.B.2	**Is any work classified as apportioned effort EVT properly classified and directly proportional to other discrete task(s)?**				
	Apportioned effort is effort that by itself is not readily measured or divisible into discrete WPs. Apportioned work must have an identifiable and proportional relationship to a separate but related discrete task. IMPACT OF NONCOMPLIANCE Inaccurate EVMS reporting impacts the CAMs ability to effectively manage the control account.	**Manual Tests:**			
		1. Review the Contractor's EVM SD and procedures to determine how apportioned effort is classified and documented.	a. For those WPs that have apportioned EVTs review the WAD scope statement to verify the WP is accurately classified	c. Threshold: The cumulative % BCWS of the base is within 10% of the cumulative BCWS of the apportioned task for each period. Ask for documentation as to the other discrete work for which it is based and verify it is planned directly proportional each month (can be offset as long as still directly proportional month by month)	d. Document all discrepancies as compliance concerns
			b. Verify the base statement of work and EVT to ensure a discrete performance		
			c. Verify the proportionality of apportioned effort to the base. This verification is typically done during the CAM interview.		
		IH On Site Interview Questions:			
		1. Non CAM: If the apportioned effort is used for an EVT, where is the base effort and relationship to the apportioned effort documented? Please show me.			

	Guideline 11 - Provide that the sum of all WP budgets plus planning package budgets within a control account equals the control account budget.				
	The purpose of this GL is to maintain the integrity of the Performance Measurement Baseline (PMB), the budgets of the work packages and planning packages shall sum to the associated control account's authorized Budget at Completion (BAC).				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
11.A.1	**Do the sum of all WP budgets plus planning package budgets within a control account equal the budgets authorized for those control accounts?**				
	All CAs contain the budget that represents the work scope assigned to the responsible organization for that specific effort. This includes WPs and PPs. The value of the budget assigned to individual WPs and PPs within the control account must sum to the total budget authorized for that control account. IMPACT OF NONCOMPLIANCE Lack of integration of WP to CA invalidates the usefulness of EVM reporting.	**Automated Tests**			
		1	1. X = Sum of BAC rollup <> Next Higher Level BAC	X / Sum of BAC at lower level. Pass: X = 0 Flag: X > 0	EVM Cost Tool
		2	2. X = Sum of BCWScum and BCWScur rollup <> Next Higher Level BAC	X / Sum of BCWScum and BCWScur at lower level. Pass: X/Y = 0 Flag: X/Y > 0	
		Manual Tests			
		1. Verify all WP/PP BACs summarize to the CA BAC	X = Sum of WP/PP BACs not summarize to the CA BAC	X / Sum of all CA BACs Pass: X/Y = 0 Flag: X/Y > 0	EVM Cost Tool

	Guideline 12 - Identify and control LOE activity by time-phased budgets established for this purpose. Only that effort which is not measurable or for which measurement is impracticable may be classified as LOE.				
	Ensure Level of effort (LOE) is limited only to those activities that should not or cannot be discretely planned. Classification of work scope as LOE is limited to activities that have no practicable, measurable output or product associated with technical effort that can be discretely planned and objectively measured at the work package level.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
12.A.1	**Is the LOE EV technique only used for effort where measurement is impractical or work that does not produce a definable end product?**				
	LOE WPs/activities must not contain schedule logic ties to discrete work activities, as that would potentially distort the calculation of the critical path. IMPACT OF NONCOMPLIANCE Inappropriately coding measurable work using the LOE EVT limits the ability to measure the performance of that work and tends to mask the performance of other measurable work in the WP, CA and the project.	**Automated test:**			
		1	1. X = # of in-progress and completed LOE WP where (BCWP Cum - BCWS Cum) does not = 0	X / Total # of In-Progress and completed LOE WPs. Pass: X = 0 Flag: X > 0	EVM Cost Tool
		Manual Tests			
		1. Pull a report from the EVM Cost Tool that shows WPs coded with and EVT of LOE.	a. For those WPs coded with an EVT of LOE, review the WBS Dictionary with the WAD scope for the WPs to verify the effort does not produce a measureable end product.	Document all discrepancies as compliance concerns	EVM Cost Tool, WBS Dictionary, WAD
		2. Evaluate if measurable scope is included in incomplete Level of Effort (LOE) WPs (WP) in the IMS (if applicable).	a. Check the IMS Supplemental Guidance to see if LOE is included in the IMS. b. If so, refer to the IMS Data Dictionary to see how LOE is coded in the IMS. c. Based on the IMS Data Dictionary, filter for LOE effort with no actual finish date. d. Review LOE activities to assess whether they contain measurable scope. e. For LOE task appearing to have measurable scope, follow up on the CAM interview to verify whether the activities should be discrete.	Document all discrepancies as compliance concerns	IMS Supplemental Guidance, IMS Data Dictionary, IMS
		IH On Site Interview Questions:			
		1. CAM: For WPxx, can this effort slip for a significant amount of time without a technical impact?			
12.A.2	**Is the co-mingling of LOE and discrete effort within a control account minimized to ensure visibility of the performance measurement of the discrete effort?**				
	The focus of this QE LOI is within the CA. Generally a limit of 10% is the rule of thumb for LOE in a discrete CA and if exceeded, a separate CA for the LOE should be considered. IMPACT OF NONCOMPLIANCE The schedule performance (BCWP) of the CA may be masked by the co-mingled LOE and discrete effort. This could result in an inaccurate overall progress assessment for the project.	**Automated test:**			
		1	1. X = Where LOE BAC for incomplete CA with both LOE and Discrete WPs are > 15% and less than 100%	X / LOE BAC for incomplete CAs. Pass: X/Y <= 0% Flag: X/Y > 0%	EVM Cost Tool
		2	2. X = # of incomplete WPs with both LOE and Discrete Activities	X / Total # of incomplete WPs. Pass: X/Y <= 0% Flag: X/Y > 0%	EVM Cost Tool

	Guideline 14 - Identify management reserves and undistributed budget.				
	The purpose of GL 14 is to ensure the budgets established for Management Reserve (MR) and Undistributed Budget (UB) are separately identified and controlled.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
14.A.1	**Does MR budget have no scope defined and is it held outside the PMB and controlled by the contractor?**				
	MR provides project management with a budget for unplanned activities within the current project scope. Because MR is budget that is not yet associated to work scope, it is not part of the PMB. **IMPACT OF NONCOMPLIANCE** Failure to segregate MR from PMB overstates PMB and adds risk to project completion.	**Manual Tests**			
		1. Verify MR is excluded from PMB.	a. Using the IPMR/CPR Format 1, verify the following trace. X = value of MR - (CBB - PMB)	X = 0, pass X > 0, Flag	IPMR/CPR Format 1
		2. Confirm unallocated MR has no defined scope.	a. Using the CBB log, conduct a manual check to ensure there is no scope associated with MR	Tolerance = 0	CBB Log,
		3. Validate the process for MR usage is established and controlled.	a. Conduct a check of EVM SD regarding explanations on the use and control of MR. b. Examples of such restrictions are prohibiting the use of MR to cover cost overruns; “harvesting” MR from closed WPs and CAs that have under run; using MR for authorized, unpriced work; and using MR for possible new work that has not been authorized by the customer.	Document all discrepancies as compliance concerns	EVM SD, EVM Cost Tool, VARs, Change Documentation, WADs
		4. **From 14.A.2** Confirm the level of MR on the project. Verify all budget for MR is identified and held at the project level.	a. Using the PEP, baseline control log, EVM Cost Tool and IPMR/CPR Format 1, confirm all MR is held at the project level, not at any sub levels or divisions. b. X= $ value of MR held at other than the project level	Tolerance = 0	PEP, CBB log, EVM Cost Tool, IPMR/CPR Format 1
		IH On Site Interview Questions:			
		1. Project Controls: Are there any known encumbrances to the existing MR balance (risks or liens)?			
		2. Project Controls: Who has final authority over usage of MR?			
14.A.2	**Are contingency budgets, if any, held outside the CBB?**				
	DOE Contingency budgets are budgets that are available for risk associated with technical uncertainty or programmatic risks owned by the Government. It is not part of the CBB. IMPACT OF NONCOMPLIANCE The CBB would be artificially increased creating the potential for the planning to be in excess of the contractually authorized amount.	**Manual Tests**			
		1. Confirm the DOE Contingency/risk budget is held outside the CBB (if tracked in the CBB log)	a. Review the project PEP, and CBB log and verify that DOE Contingency is budget that is not placed on the project and is included in the TPC. Contingency is controlled by Federal personnel as delineated in the PEP.	Document all discrepancies as compliance concerns	PEP, CBB Log
			b. Review the CBB log. Verify if there is DOE contingency or DOE ODC included, it is not in the CBB totals.		CBB Log

14.A.3	**Is MR correctly defined in the System Description and are allowable applications of MR listed/defined?**				
	The contractor must include a clear definition of MR in the EVM SD, including allowable applications.. IMPACT OF NONCOMPLIANCE Failure to properly define and list the conditions for MR will result in misinterpretation and inconsistent use of MR, limiting the project manager's ability to manage MR.	**Manual Tests**			
		1	1. Review the EVM SD to verify that it contains a clear definition of MR, as well as a description of the allowable conditions for its use.	Document all discrepancies as compliance concerns	Contractor's EVM SD
14.B.1	**Does UB have defined scope that is separately identified by change authorization, traceable to contractual actions and is it part of the PMB?**				
	UB is part of the PMB and has budget associated with contractually authorized work scope that has not yet been distributed to an organizational element at or below the WBS reporting level. IMPACT OF NONCOMPLIANCE Unreconciled UB is equivalent to an unreconciled PMB.	**Manual Tests**			
		1. Verify UB value in IPMR/CPR Format 1 block 8d14 is included in the PMB.	a. Using the IPMR/CPR Format 1 totals in Block 8 to confirm the following trace X= value of UB - (PMB – sum of CA budgets (blocks 8d1 thru 13))	X = 0, pass X <> 0, Flag Tolerance = 0	IPMR/CPR Format 1
		2. Confirm UB has defined scope.	a. Using the contract, project logs, the EVM Cost Tool data and the IPMR/CPR, verify UB transactions show documented scope traceability from the contract through the project logs to internal and external (DOE) data. X= # of UB transactions without defined scope	Tolerance = 0	Contract, Logs, EVM Cost Tool, IPMR/CPR
14.B.2	**As a minimum, is at least the near-term portion of authorized unpriced work (AUW) detailed planned in control accounts with the remainder contained in UB?**				
	AUW represents a contract scope change that has been directed by the government contracting officer but has not yet been fully negotiated or defined. AUW includes a value, excluding fee or profit, typically associated with the authorized, unpriced change order. The budget initially distributed to the CA(s) may only represent the near term effort to get started and the remainder of the budget may stay in UB until the total value of the change is defined. IMPACT OF NONCOMPLIANCE Without distribution from UB to the CA, near term effort cannot be planned in WPs and resources cannot begin work on it which results in a schedule slip. Without the remainder of the budget reflected in UB, reporting to project management and the DOE will be inaccurate.	**Manual Tests**			
		1. Review the authorizing documentation for the AUW and trace it to the CBB logs. Continue the trace from the log to the CAs for the near term effort.	a. Review the authorizing document from contracts and the WADs to understand the scope of work that has been authorized.	Document all discrepancies as compliance concerns	Contract authorization document, WADs
			b. Review change control documents and the CBB log to determine what AUW budget and scope has been allocated to CAs and what has been placed in UB. .		Change control documents, CBB Log
			c. Review the IMS at the detailed level to verify the near term effort has been scheduled.		IMS
			d. Review the appropriate CAPs to verify the near term effort has been planned in the control accounts for the near term effort with the balance remaining in UB.		EVM Cost Tool, CAPs
			e. Review the IPMR/CPR Format 1, blocks 8d1-14 to verify the AUW data is accurately accounted for in CAs and UB and reported to DOE.		IPMR/CPR Format 1

	Guideline 15 - Provide that the program target cost goal is reconciled with the sum of all internal program budgets and management reserves.				
	The project's Negotiated Contract Cost (NCC) plus Authorized Unpriced Work (AUW) must reconcile with the Contract Budget Base (CBB)/Total Allocated Budget (TAB).				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
15.A.1	**Does the TPC = CBB + OTB + Fee + ODC + DOE Contingency as applicable?**				
	The TPC has to cover both authorization and funding. The CBB, OTB, fee, ODC, and DOE contingency reflect the total Government cost authorized for the project. IMPACT OF NONCOMPLIANCE Non-reconcilable TPC means the project cannot account for all budget authorized for the project.	**Manual Tests**			
		1. Confirm both the equations discussed in the narrative.	a. Using the EVM Cost Tool and the CBB or Project Logs, verify this calculation. X = Total $ value of DOE Contingency plus PMB + MR + OTB plus profit or fee plus ODC	X / Total $ value of TPC Document all discrepancies as compliance concerns	CBB Log, TPC
		2. Confirm the funding equations discussed in the narrative	b. X = Total $ value of DOE Contingency Remaining + Contractor most likely EAC (including MR and OTB if any) + DOE ODC remaining + Fee remaining is <= TPC.	X / Total $ value of TPC Document all discrepancies as compliance concerns	
15.A.2	**Is there a reconciliation of the TAB to the CBB?**				
	Reconciling the sum of all internal project budgets (CA budgets, Summary Level PPs (SLPPs), and Undistributed Budget (UB)) and MR to the contractually authorized cost establishes a valid comparison to the contract target cost. IMPACT OF NONCOMPLIANCE Inability to reconcile the TAB causes performance reporting to be unreliable, subject to challenge and suspect for use in making sound decisions.	**Manual Tests**			
		1. Confirm the Total Allocated Budget (TAB) reconciles to CBB + OTB (if applicable	a. Using Project Logs, IPMR/CPR Format 1, and EVM Cost Tool, verify the following calculation 1. X = CA budgets + SLPP budgets + UB + MR = Total $ value TAB	Document all discrepancies as compliance concerns	Logs, IPMR,CPR Format 1, EVM Cost Tool

	Guideline 16 - Record direct costs in a manner consistent with the budgets in a formal system controlled by the general books of account.				
	The Accounting Considerations guidelines require that the direct costs recorded in a formal and accepted accounting system are reconcilable to the Actual Cost of Work Performed (ACWP) reported in the EVM Cost Tool. Direct costs are accumulated and charged to CAs consistent with planned budgets and acceptable costing techniques .				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
16.A.1	**Is the actual cost of work performed (ACWP) in the EVM Cost Tool formally reconciled each month with the actual costs in the accounting system?**				
	The accounting system is the books of record for ACWP and is updated from other source records. Actuals from the accounting system and the ACWP reported in required EVM reports must be reconciled at the end of each accounting period and the results of the reconciliation should be documented. IMPACT OF NONCOMPLIANCE Failure to reconcile actuals between the accounting and cost systems invalidates the cost variance and prevents accurate and effective performance management.	**Manual Tests:**			
		1. Review the contractor's accounting process for labor cost accumulation and controls, including time cards.	a. Compare accounting labor hours to ACWP hours. The current period and cumulative values should match between the systems, unless estimated actuals are used in the Cost Tool. If so, add the estimated actual labor hours to the accounting labor hours to verify that the totals match.	Document all discrepancies as compliance concerns	Accounting Procedures, Accounting System, EVM Cost Tool
			b. Compare accounting labor costs to ACWP costs. The amounts should reconcile, unless estimated actuals are used in the Cost Tool. If they are, add the total labor estimated actuals to the accounting labor costs to verify that the totals match.		
		2. Compare the timing of the timecard posting to the accounting system and the recording of the project's labor costs.	Is there a significant delay? Is there a significant difference in the reporting of month-end labor hour reporting and the close of the accounting period?		
		3. Verify that the accounting actuals at the WBS level 1 plus estimated actuals, if any, reconcile with ACWP in the EVM Cost Tool. This trace is performed for 3 consecutive periods with the latest one being the month reported through.	a. Perform a check for estimated actuals: 1. X = Sum of absolute values of (Accounting system cumulative actual cost - EVM Cost Tool cumulative actual cost)	If the result of this test = 0, there are no estimated actuals to consider. Otherwise, continue with the remaining steps. ***Note:*** this trace can also be accomplished via a reconciliation provided by the contractor that is verifiable.	Accounting System Report, EVM Cost Tool

			b. Verify the accounting actuals plus estimated actuals equals the reported ACWP. 1. Obtain a report at WBS level 1 from the EVM Cost Tool. 2. Obtain an accounting report at WBS level 1 for the project. 3. Obtain estimated actuals if any for the current month only from the EVM Cost Tool. 4. Verify the sum of the accounting report plus estimated actual dollars equals the reported ACWP in the EVM Cost Tool.	There should be less than $1,000 variance irreconcilable each month.	

16.A.2	**Is the manner in which the contractor classifies its direct cost (direct labor, material, other direct costs) and credits consistent with their approved Disclosure Statement?**				
	The accounting system seeks to maintain overall consistency with the disclosure statement. EOC such as labor, material and ODC defined in the Disclosure Statement must be consistent with the accounting system tracking of EOCs for direct cost elements. Note this is the accounting system EOCs and not the EVM Cost Tool EOCs. IMPACT OF NONCOMPLIANCE Inconsistency of direct costs to the disclosure statement means the contractor is not compliant with contract requirements approved by DOE CFO.	**Manual Tests:**			
		1. Verify approvals and direct cost classifications between the disclosure statement and accounting system. This trace is performed for the total disclosure statement defined EOCs.	a. Obtain the latest approved disclosure statement. Verify the Disclosure Statement has been DCAA approved or independent third party verified approval within the last 3 years. Verify disclosure statement includes Accounting System approval reference. b. Note all EOCs that are defined in the disclosure statement.	Document all discrepancies as compliance concerns	Disclosure Statement, Accounting System Report
			c. Obtain a report from the accounting system with all of the elements of cost. d. Compare the lists. All of the disclosure statement EOCs must be in the accounting system; however the accounting system may have additional elements beyond the disclosure statement.		
		2. Verify the accounting EOCs to the Project EOCS in the EVM Cost Tool.	a. Taking the accounting EOCs from test 1, compare them with the EOCs in the EVM Cost Tool. Typically there are less EOCs in the cost tool however there should be a logical map between the accounting EOCs and the EVM Cost Tool EOCs.		Accounting System Report, EVM Cost Tool

16.A.3	**Is ACWP recorded in the same month that BCWP is claimed (for all elements of cost)?**				
	This QE LOI addresses the requirements for estimated actuals. . IMPACT OF NONCOMPLIANCE Failure to collect and record actual costs (ACWP) in the same period the work is accomplished (BCWP) negates the validity of the cost variance and prevents accurate and effective performance management.	**Automated Tests:**			
		1. Verify ACWP is recorded in same month that BCWP is claimed (non-material). Material is tested in GL 21.	1. X = Non-material ACWPcum where ACWPcum > 0 and BCWPcum = 0	X / Non-material ACWPcum Pass: X/Y = 0 Flag: X/Y > 0	EVM Cost Tool, Accounting System Records
			2. X = Non-material BCWPcum where BCWPcum > 0 and ACWPcum = 0	Y = Non-material BCWPcum Pass: X/Y = 0 Flag: X/Y > 0	
			3. X = Non-material BCWPcur where BCWPcur > 0 and ACWPcur = 0	Y = Non-material BCWPcur Pass: X/Y = 0 Flag: X/Y > 0	
			4. X =Non-material ACWPcur where ACWPcur > 0 and BCWPcur = 0	Y = BCWPcur (Exclude Material) Pass: X/Y = 0 Flag: X/Y > 0	
			5. X = ACWPcur for non-material CA/WP (only LOE) with ACWPcur with BCWPcum = BAC and BCWPcur = 0	Y = Non-material ACWPcur (only LOE) Pass: X/Y = 0 Flag: X/Y > 0	
		Manual Tests:			
		1. Verify that estimated actuals have been applied where needed. Look for the last 3 months including the latest month provided.	a. Are the estimated actuals justified and not double counted?	Document all discrepancies as compliance concerns	EVM Cost Tool, Accounting System Records

16.A.4	**Are direct costs recorded in the control account on the same basis as budgets were established and, at a minimum, by element of cost (EOC)?**				
	The intent of this QE LOI is to determine if actuals are recorded consistent with corresponding budget and performance. This means literally that the effort should be charged to where it is budgeted. IMPACT OF NONCOMPLIANCE Failure to accrue cost by EOC in the same WP/activity as budget would invalidate variance analysis and inhibit the EAC generation.	**Automated Tests:**			
		1. Confirm Actual Costs are identified in the EVM Cost Tool by Element of Cost.	a. X = $ values of the CA/WP where actuals have been incurred without an EOC identifier	X / $ value of ACWPcum Pass: X = 0 Flag: X > 0	EVM Cost Tool
		Manual Tests:			
		1. Verify consistency of the EOCs approved in the disclosure statement and accounting system. Also, see QE LOI 16.A.2. This trace is performed for the total disclosure statement defined EOCs.	a. Obtain the latest disclosure statement and verify the approval. Note all EOC that are defined in the disclosure statement. b. Obtain a report from the accounting system with all of the EOCs. c. Compare the lists. All of the disclosure statement EOCs must be in the accounting system; however the accounting system may have additional elements beyond the disclosure statement.	Document all discrepancies as compliance concerns	Disclosure Statement, Accounting System Report
		2. Verify the consistency of EOCs used in the accounting system and the EVM Cost Tool	a. Obtain from the contractor a mapping of the EOCs from the accounting system to the EVM Cost Tool (consistent with the Disclosure statement). This would include the unique charge number coding to ensure all costs are collected and recorded at least at the CA level. b. Obtain a report from the EVM Cost Tool with all of the EOCs. c. Verify that the EOCs used in the EVM Cost Tool are consistent with the accounting system list obtained in artifact trace 1. All actual costs must be recorded in the EVM Cost Tool in the same EOCs where the budget and performance were recorded.	Document all discrepancies as compliance concerns	Contractor mapping of EOCs from Accounting System to EVM Cost Tool, EVM Cost Tool, Disclosure Statement, Charge Code Structure

16.A.5	**Are ACWP values in the EVM Cost Tool reconcilable to the IPMR/CPR as applicable?**				
	The EVM Cost Tool is reconciled with the IPMR/CPR and must contain the same ACWP values for the current month and cumulative to date. IMPACT OF NONCOMPLIANCE Irreconcilable performance data adversely impacts the credibility of performance being reported to the customer.	**Manual Tests:**			
		1. Compare current and cumulative ACWP in the EVM Cost Tool, to PARS II and to the IPMR/CPR Format 1 for the last 3 consecutive months.	X = ACWP cur and cum in EVM Cost Tool not equal to ACWP in IPMR/CPR Format 1	Document all discrepancies as compliance concerns	EVM Cost Tool, IPMR/CPR Format 1
16.A.6	**Are negative ACWP values (if any) infrequent, justified, approved, and are significant adjustments to ACWP addressed in Format 5 of the IPMR/CPR?**				
	The accounting adjustments for accounting errors, cost transfers, etc. are authorized and processed in a timely and consistent manner. Negative ACWP in the prime system should be unusual, consistent with the disclosure statement, and discussed with DOE. Negative adjustments in this context are adjustments to prior period data. IMPACT OF NONCOMPLIANCE Excess negative actual cost adjustments indicate a lack of process controls and EVMS integrity.	**Manual Tests:**			
		1. Verify negative ACWP is unusual and, if any, are justified and reported in the IPMR/CPR Format 5 narrative if significant. Perform the following trace for the previous 6 months reporting.	a. Obtain a report from the EVM Cost Tool and review ACWP for any significant current period and/or cumulative negative ACWP adjustments.	c. Document all discrepancies as compliance concerns	EVM Cost Tool Report, IPMR/CPR Format 1 and 5
			b. Compare the report with IPMR/CPR Format 1 and 5 to determine the number of negative ACWP adjustments and verify whether they are unusual or not and if they are being reported in the current period and justified in Format 5 to the DOE customer if significant.		
		2. Review the contractor's' processes and procedures for processing accounting system journal vouchers (JVs) or cost corrections to ensure they are authorized, processed and reconciled in a timely manner.	a. Obtain a report from the accounting system showing journal voucher or cost correction adjustments for errors, cost transfers, etc., and trace them to the actual journal vouchers or corrections. Verify the JVs or cost corrections were authorized, processed and reconciled before accounting month-end.		Accounting System Report, JVs/Cost Corrections, EVM Cost Tool
			b. Using the same accounting system report referenced above with JVs or cost corrections, verify if there were any delays in processing. If so, obtain a report from the EVM Cost Tool showing estimated actuals and verify if estimated actuals were used to ensure actuals were reported in the same month effort was performed (BCWP claimed).		

16.A.7	**Are estimated actual costs (accruals) reversed to avoid double counting?**				
	The intent of this QE LOI is to ensure estimated costs (estimated actuals) will be reversed in the EVMS to avoid double counting. IMPACT OF NONCOMPLIANCE Failure to reverse estimated actuals when corresponding actual costs are recorded results in erroneous cost reporting, false variances, and incorrect EACs.	**Manual Tests:**			
		1. Verify estimated actuals are reversed once direct costs are posted to the EVMS.	a. Per the SD or process documentation, review the procedure for recording, coding, identifying corresponding direct costs, and reversing estimated actuals. Once the process is confirmed, perform the following trace for the previous 6 months reporting: 1. Obtain a report from the EVM Cost Tool and locate estimated actuals in a previous period. 2. In the subsequent periods, check to make sure estimated actuals are reversed in the EVM Cost Tool once direct costs are recorded in the accounting system.	Document all discrepancies as compliance concerns	EVM SD, Accounting Procedures, EVM Cost Tool, Accounting System
16.B.1.	**For material procurements, does the system provide commitment, receipts and, if applicable, usage?**				
	At all times, the source records must be traceable and reconcile with the accounting commitment, obligations, actual values, and the EVM Cost Tool earned value (BCWP) assessments, and ACWP values (with estimated actuals if required). IMPACT OF NONCOMPLIANCE Failure to reconcile the purchasing system, the accounting system and the EVM Cost Tool could understate the EAC reported to DOE and impact contractor funding requirements.	**Manual Tests:**			
		1. Review the contractor's EVM SD and procedures and the Accounting Manual and procedures to understand the contractor's processes for ensuring the purchasing system and the accounting system data reconcile.	a. Obtain an internal management report that reconciles the data from the Purchasing system (shows need dates, dates purchased, quantity and dollar amount for material purchased, received, inspected and accepted as well as material issued to inventory (if applicable) and then issued to the Project) with the data from the accounting system (show dates, dollar values for relative commitments and expenditures). b. Pull the report for the last three months and verify the accounting system information and the purchasing system data reconcile.	Document all discrepancies as compliance concerns	EVM SD, Accounting Procedures, Purchasing System Internal Mgt Report
		2. Obtain a report from the EVM Cost Tool and compare material BCWS, BCWP and ACWP with the purchasing and accounting data for 5 CAs with material for the last three months.	a. Verify the EVM material data (BCWP and ACWP) reconciles with the purchasing and accounting data (dates and dollar values) – may also include estimated actuals in the EVM Cost Tool.		EVM Cost Tool, Purchasing and Accounting material Report

16.B.2	**Does the contractor accrue actual costs for the subcontractor in a manner that reflects the actual work performance?**				
	Subcontractor costs are normally based on progress payments, invoices, milestone, or subcontractor schedule of values. In some cases, the actuals in the accounting system may not represent 100% of the cost associated with the work completed by the subcontractor for a specified period of time. This period may be because of lagging invoices or payment timing, or contractual withholds. The source record for subcontract estimated cost is typically the subcontractor ACWP reported in their earned value reports. Generally, there is up to a one month lag that must be accrued as an estimated actual. IMPACT OF NONCOMPLIANCE Failure to ensure subcontractor actual costs (direct or estimated actuals) are consistent with work performed results in inaccurate cost variances and EACs.	**Manual Tests:**			
		1. Review the contractor's EVM SD and accounting system manual to determine how Subcontractors direct actual costs are accrued.	f. Reconcile the subcontractor reported BCWS, BCWP and ACWP with the prime's EVM Cost Tool to include estimated actuals (if any) and accounting system (ACWP).	Document all discrepancies as compliance concerns.	EVM SD, Accounting System Manual, list of major subcontractors, EVM Reports, EVM Cost Tool, accounting system reports,
		a. Obtain a list of the major Subcontractors from the prime.			
		b. Obtain the Subcontractor earned value reports that show BCWS, BCWP and ACWP.			
		c. Obtain a report from the EVM Cost Tool that shows BCWS, BCWP and ACWP for Subcontractor CAs (if any).			
		d. Obtain a report from the accounting system that shows Subcontractor payments (actual costs).			
		e. Trace the timing of recorded subcontractor BCWP and ACWP to their underlying rationale and source documents.			

16.B.3	Are accounts payable reconcilable or used as a source for estimated actuals?				
	Accounts payable may not have been accrued in the accounting system until payment. Account payables are obligations that are not yet paid. However, BCWP must be based on the period when work is completed. Therefore accounts payable, if any, where significant, must be reviewed to see if lagging actuals (ACWP) are present and should be recorded as estimated actuals. Accounts payable must be reconciled with the source documents for earned value claimed (BCWP, such as material receiving reports) and accounting system direct actual costs to determine if actual costs have been booked or not. IMPACT OF NONCOMPLIANCE Lack of reconciliation between accounts payable and ACWP may significantly understate the reported ACWP and result in inaccurate cost variances, EACs, and EVM performance reporting.	**Manual Tests:**			
		1. Obtain a report from the accounting system and the EVM Cost Tool and trace the monthly direct costs inputs from the accounting system to the EVM Cost Tool.	a. Trace monthly direct cost data feeds (contract labor, direct material, estimated actuals, subcontractor estimated actuals, and other data feeds) to the EVM Cost Tool ACWP. b. If estimated actuals are utilized, confirm the instances are documented. 1. X = Estimated Actuals that are not properly documented	X = 0, pass, X > 0, Flag, Tolerance = 0	EVM Cost Tool, Accounting System
			c. Trace the reported ACWP, at the CA at a minimum, in the EVM Cost Tool to the contractor's monthly reconciliation of accounting system direct costs, other data feeds and estimated actuals. d. Verify any differences between booked and estimated actuals and confirm a documented explanation exists.	Document all discrepancies as compliance concerns.	
			e. Trace estimated actuals, if any, to the contractor's substantiating records in accounts payable. Verify accounts payable are reconcilable with the estimated actuals.		

16.B.4	**Are anomalies in actual cost (incorrect charges, transfers, etc.) that are identified by the CAM, corrected in a timely manner?**				
	Anomalies in actuals identified by the CAM must be corrected before the reporting month-end so corrections are processed before performance reports are run. IMPACT OF NONCOMPLIANCE Failure to correct anomalies in actual costs in a timely manner (before performance reports are released) results in inaccurate cost performance measurement, cost variances and may result in an inaccurate EAC reported to the DOE.	**Manual Tests:**			
		1. Review the EVM SD and procedures as well as the accounting manual and procedures to determine the contractor's process for identifying and correcting anomalies in actual costs before monthly performance reports are run.	a. Obtain the accounting actual costs reports for labor, material and ODC that the CAMs review (and provides corrections to) to ensure correct actual cost charges are being charged to his/her CA/WP.	Document all discrepancies as compliance concerns	Accounting actual cost report
			b. Obtain a report from accounting system showing journal voucher or cost correction adjustments to actual costs identified and the date of correction. These adjustments must be entered in the system before monthly performance reports are generated.		Accounting JV/cost corrections adjustments report
		IH On Site Interview Questions:			
		1. CAM: What reports do you review to verify actual costs charged to your CAs/WPs are correct? How often do you review these reports?			
		2. CAM and Business Management: Are corrections made in the accounting system in a timely manner (before performance reports are run)?			

	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.				
	Ensure the direct costs reported and analyzed at higher levels of the Work Breakdown Structure (WBS) only reflect the costs associated with accomplishing the scope of work.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
17.A.1	**Can direct costs be summarized by element of cost, from the WP/charge number level through the WBS hierarchy?**				
	This QE LOI verifies that actual direct costs are summarized through the WBS to the total project level while preserving the EOC integrity. IMPACT OF NONCOMPLIANCE Failure to summarize direct costs by WBS prevents the system from ensuring the direct costs reflect the costs associated with accomplishing the scope of work and would result in inaccurate reporting at various WBS levels. If direct costs are not required to be allocated to only one WBS element, the costs in a WBS element would not be directly related to the work performed and performance assessments would be distorted.	**Automated test:**			
		1. Using the project cost charging structure, examine the project structure, the cost accounting hierarchy and the EVM Cost Tool to verify they preclude the possibility of allocating direct costs from the CA/WP level to more than one higher level WBS element. Using the highest WBS level where ACWP is taken, conduct the following test:	a. X = Compare the sum# of ACWPcur at various occurrences where CA WBS levels to insure consistency. This test compares the levels to insure (ACWPcur at the CA WBS level n) – (Sum of ACWPcur) is rolled up correctly.	The Y value for this test is the number of months being reviewed and the numerator is expressed as one or more levels at WP+PP level n-1) does not being consistent. equal 0 / Y = # of CA WBS Elements on IPMR/CPR format 1 Pass: X = 0 Flag: X > 0 Tolerance = $1K	Project cost charging structure, EVM Cost Tool
		Manual Tests			
		1. Obtain the contractor's accounting system cost collection account structure to determine the charge number hierarchy	a. Obtain the WBS structure (roll-up scheme) showing the hierarchy of the WBS elements, CAs (CAs) and WPs (WPs)	e. Document all discrepancies as compliance concerns	WBS Structure, Charge number structure
			b. Obtain the contractor's WBS/cost collection mapping showing the relationship between the charge numbers and CAs and/or WPs		WBS/Cost Collection Mapping
			c. Obtain a report from the EVM Cost Tool for five CAs to verify that the direct costs roll up from the accounting system by EOC to the CA/WP/charge number level up through the WBS.		EVM Cost Tool Report, Charge Number mapping

			d. Compare the direct costs in the EVM Cost Tool to the direct costs in the accounting system to ensure they reconcile and are reported accurately. The only difference in direct costs between the accounting system and the EVM Cost Tool would be attributed to “estimated actuals” used for timing differences between effort performed (i.e., material received) and the collection of direct costs (actual costs) in that same period as effort was performed.		EVM Cost Tool Report, Charge Number mapping, Accounting System Reports
		IH On Site Interview Questions:				
		1. Ask the Accounting Representative to input a “dummy” charge number into the accounting system and allocate it to two WBS elements. Observe whether the contractor’s system accepts such an allocation.				

17.A.2	Does the contractor document the relationships, if any, between schedule activities, charge number (accounts), WPs and control accounts?				
	The Accounting system contains the charge numbers used to collect actual costs and should include the WBS/cost collection mapping showing the relationship between charge numbers and CAs and/or WPs. IMPACT OF NONCOMPLIANCE Lack of documentation regarding relationships between activities and charge numbers with WPs/CAs leads to errors in reporting which can impact data validity, analyses, EACs, funding requests and availability.	**Manual Tests**			
		1. Review the contractor's EVM SD and its accounting system manual to determine guidance as to the relationships between activities, charge numbers, WPs and CAs.	a. Obtain the contractor's accounting system cost collection account structure to determine the charge number hierarchy	Document all discrepancies as compliance concerns	EVM SD, Accounting System Manual, Cost Collection Account Structure
			b. Obtain the WBS structure (roll-up scheme) showing the hierarchy of the WBS elements, CAs (CAs) and WPs (WPs)		WBS Structure
			c. Obtain the contractor's WBS/cost collection mapping showing the relationship between the accounting system charge numbers and EVM Cost Tool CAs and/or WPs		WBS/Cost Collection mapping
			d. Obtain a report from the EVM Cost Tool for five CAs to verify that the direct costs roll up from the accounting system through the WP/CA level to the top WBS level.		EVM Cost Tool Report, Accounting System Report
			e. Compare those direct costs in the EVM Cost Tool to the direct costs in the accounting system to ensure they reconcile and are reported accurately. The only difference in direct costs between the accounting system and the EVM Cost Tool would be attributed to "estimated actuals" used for timing differences between effort performed (i.e., material received) and the collection of direct costs (actual costs) in that same period as effort was performed.		EVM Cost Tool Report, Accounting System Report

	Guideline 18 - Summarize direct costs from the control accounts into the organizational elements without allocation of a single control account to two or more organizational elements.				
	Ensure the direct costs reported and analyzed at higher levels of the Organizational Breakdown Structure (OBS) only reflect the costs associated with the authorized resources to accomplish work.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
18.A.1	**Can direct costs be summarized by element of cost, from the charge number level through the OBS hierarchy?**				
	The contractor's charge number structure uniquely relates direct costs to CAs/WPs and facilitates the summarization by the OBS from the accounting system, to the EVM Cost Tool/CAPs, through the IMS, to the WAD, the RAM and OBS. This practice assures direct costs are summarized and reported only within a single OBS element from CA to the Project level. IMPACT OF NONCOMPLIANCE The direct costs reported and analyzed does not reflect the costs associated with the authorized resources identified to accomplish the work and invalidates management's forecasting of future resource requirements and their costs.	**Automated test:**			
		1. Examine the project structure, the cost accounting hierarchy and obtain a report from the EVM Cost Tool for five CAs to verify that the direct costs roll up from the accounting system by EOC to the CA/WP/charge number level up through the OBS. Using the highest OBS level where ACWP is taken, conduct the following test: Compare the sum of ACWPcur at various OBS levels to insure consistency. This test compares the levels to insure ACWPcur is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X= # of occurrences where CA OBS levels (ACWPcur at the CA OBS level n) – (Sum of ACWPcur at WP + PP OBS level n-1) does not equal 0	X / # of CA OBS elements on the IPMR/CPR Format 2. Pass: X = 0 Flag: X > 0 Tolerance = $1K	WBS and Charge number structure, EVM Cost Tool, OBS
		Manual Test:			
		1. Verify the existence of the following:	a. Organization charts showing the contractor's organizational hierarchal structure	Document all discrepancies as compliance concerns	Org Charts, OBS
			b. Responsibility Assignment Matrix (RAM) showing each of the intersections of the OBS organizations and the WBS elements (i.e., each CA)		RAM
			c. OBS structure (roll-up scheme) showing the relationship of the charge numbers to the OBS		OBS

			d. The project established cost charging structure (mapping of the OBS, WBS, general ledger and project cost ledger), which will help ensure that actual costs are collected by EOC by OBS so that direct comparison with associated budgets can be made at the appropriate organizational level(s).		Cost charging structure, Mapping of WBS, OBS, general ledger and project cost ledger
18.A.2	**Does the contractor's system prohibit allocation of direct costs to two or more higher level OBS elements?**				
	The contractor's charge number structure must uniquely relate the direct costs to CAs/WPs and facilitate the summarization of those costs by the OBS. This practice assures direct costs are summarized and reported only within a single OBS element from the CA/WP to the Project level. IMPACT OF NONCOMPLIANCE The costs being reported and analyzed does not reflect the costs associated with the authorized resources to accomplish the work and does not support management's ability to make programmatic decisions and properly forecast future resource requirements.	**Manual Test:**			
		1. Using the information gained in LOI 18.A.1, verify the existence of the following: **Note: tests a - d were exact duplicate tests from LOI 8.A.1. Did not include them here.**	e. Examine the project structure, the cost accounting hierarchy and the EVM Cost Tool used to produce the IPMR/CPR Format 2 to determine if they preclude the possibility of allocating direct costs from a CA to more than one higher level OBS elements.	Document all discrepancies as compliance concerns	Project Structure, EVM Cost Tool, Cost Accounting hierarchy, IPMR/CPR Format 2
			f. Trace five CAs from the accounting system charge numbers through the internal contractor OBS levels to the IPMR/CPR Format 2 to ensure the costs are not improperly allocated to more than one OBS element.		Charge number structure, OBS, WBS, IPMR/CPR Format 2
		IH On Site Interview Questions:			
		Accounting representative: Please confirm a charge number can only be assigned to a single OBS.			

	Guideline 20 - Identify unit costs, equivalent unit costs, or lot costs when needed.				
	Ensure contractor accounting systems are capable of determining the unit or lot costs of items developed or produced. This is done for cost reporting purposes and to provide visibility into the factors driving program cost growth.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
20.A.1	**Does the contractor's system have the capability to provide unit costs, equivalent unit or lot costs in terms of labor, material, other direct, and indirect costs as required by the project?**				
	In a production or manufacturing environment, the contractor's accounting system must have the capability to produce unit, equivalent unit, or lot costs for cost reporting purposes. This QE LOI may not be applicable in a pure construction, engineering design or similar type of project. It is normally required when (a) there are multiple customers funding individual units or lots or (b) there are future procurements of the same items pending and the information will be used to estimate the costs of those units or lots. IMPACT OF NONCOMPLIANCE The inability of the contractor's accounting system to be able to identify unit costs, equivalent unit or lot costs by EOC (in terms of labor, material, other direct, and indirect costs (as required by the contract)) limits DOE's ability to ensure there is sufficient funding for contracted units and predict the cost of future procurements.	**Manual Tests:** 1. Obtain the contractor's charge number structure by WBS/OBS and MRP cost collection structure and determine how they map to support the identification of unit costs, equivalent unit costs, or lot costs when needed by EOC, including differentiation of work in process.	a. Obtain a report from the accounting system to verify the system is capable of accurately providing product unit costs, equivalent unit, or lot costs from the accumulated actual costs in the accounting system. At a minimum, the system must identify these contract costs in terms of labor, material, other direct charges and indirect costs (overhead).	Document all discrepancies as compliance concerns	Charge number structure, MRP cost collection structure
20.A.2	**Can recurring or nonrecurring costs be identified as necessary or when required by the contract?**				
	The contractor's accounting system must be able to distinguish between recurring and nonrecurring costs as required by internal/external reporting requirements. IMPACT OF NONCOMPLIANCE The inability of the contractor's accounting system to distinguish between recurring and non-recurring costs limits the ability to estimate the cost of future acquisitions for both the contractor and the DOE.	**Manual Tests:** 1. Obtain a report from the contractor's material/accounting system to verify the system is capable of the identification of unit costs, equivalent unit costs, or lot costs when needed, including differentiation of work in process.	a. Review the Material Requirements Planning (MRP) project cost collection structure and examine the MRP or Enterprise Resource Planning (ERP) system to determine if it supports the identification of product unit costs, equivalent unit, or lot costs when needed, including differentiation of work in progress.	Document all discrepancies as compliance concerns	MRP/ERP System Report - project cost collection structure
			b. Verify how recurring and non-recurring costs are identified as necessary or as required by contract for internal/external reporting requirements.		
		IH On Site Interview Questions: 1. Accounting/Material Representatives: How does the system identify recurring and non-recurring costs when required?			

	Guideline 21 - For EVMS, the material accounting system will provide for: **1. Accurate cost accumulation and assignment of costs to control accounts in a manner consistent with the budgets using recognized, acceptable, costing techniques.** **2. Cost recorded for accomplishing work performed in the same period that earned value is measured and at the point in time most suitable for the category of material involved, but no earlier than the time of actual receipt of material.** **3. Full accountability of all material purchased for the program including the residual inventory.**				
	Ensure material costs are accurately collected from the accounting system and transferred to the Earned Value Management System (EVMS) in order to compare those costs with corresponding budgets and completed work. Ensure reliable performance measurement suitable to the material category. Ensure all material items purchased for the contract are accounted for through contract completion and final disposition.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
21.A.1	**Are material actual costs recorded on the same basis in which budgets were planned at the CA level?**				
	The intent of this QE LOI is that actuals are recorded on the same basis as budget and performance are recorded. IMPACT OF NONCOMPLIANCE The direct costs for material items are not assigned to a CA/WP consistent with the corresponding budgets for that material and do not provide a valid basis for realistic evaluation of cost variances and realistic Estimates at Completion (EAC) projections to DOE.	**Manual Test:**			
		1. Review the contractor's Material Management Accounting System (MMAS) manual to determine how materials are ordered, inventoried, and distributed for use.	a. Review the contractor's Disclosure Statement and Accounting Manual to determine how material budgets are planned and how material actual costs are allocated.	Document all discrepancies as compliance concerns	Contractor's Disclosure Statement, Accounting Manual
			b. Review the contractor's charge number code mapping and verify the mapping helps ensure material costs are accurately charged to CAs using the recognized, acceptable costing techniques. Irrespective of the costing method used, the same method must be utilized for both budgeting and the application of actual costs for materials. Some examples include: 1. On a LIFO basis (Last In, First Out) in which the most recently received units in inventory of each type of material are issued first.		Charge number code mapping, Disclosure Statement
			2. On a FIFO basis (First In, First Out), in which the first units received of each type of material in inventory are also the first units issued for use.		
			3. On an AUC basis (Average Unit Cost), the units being issued for use are taken from the warehouse in an arbitrary order with no special regard to their time of receipt.		

			4. The use of Government Furnished Materials (GFM) may result in use of material inventory at no charge, so no corresponding actual costs may be applied			
		2. Pull a report from the EVM Cost Tool showing material BCWS, BCWP and ACWP for current and cumulative periods. Select 5 CAs with discrete high dollar value (HDV) material and determine those CAs/WPs with material received/issued in the current period. Trace back to the source data for the material planning, scheduling, budgeting and costing: • Purchase Orders - POs should include all required EVM data (including price quotes and delivery schedules) so that the commitment and final payment can be identified to the proper CA/WP. • Receiving reports • Payment records	a. Verify via the PO the type and dollar value of the material, the planned need date, the planned receipt date.	Document all discrepancies as compliance concerns	EVM Cost Tool, MRP/ERP System,, Accounting Records, POs, Receiving/Inspection reports, accounts payable records, Invoices
			b. Verify via the delivery verification records, the inspection/acceptance or rejection reports and the material receipts the date, quantity and dollar value of material received		
			c. Verify via the material vendor invoices the date of the Invoice and the final actual cost for the quantity of material received.		
			d. Verify via the charge number mapping that the actual costs (ACWP) were collected/recorded in the same CA as the budgets for the planned material (BCWS) and the material received (BCWP).		

21.A.2	**Is HDV material performance (BCWP) recorded in one of the following ways: 1) upon receipt of material but not earlier, 2) issue from inventory, or 3) consumption of the material?**				
	Performance for HDV/critical material items may be planned (BCWS) and claimed (BCWP) based upon receipt, inspection, and acceptance, provided the material items are placed into use within a reasonable time or are specifically identified to a serially numbered end item. This point of performance must be established no earlier than the actual receipt of the material items. This prevents the early assessment of progress for material that may ultimately be cancelled and for which earned value would have to be reduced. IMPACT OF NONCOMPLIANCE Failure to track HDV material may cause overall project delays.	**Manual Test:**			
		1. Review the contractor's EVM SD for the discussion as to how High Dollar Value (HDV) material is planned, scheduled and budgeted. Determine the type of EV techniques allowed.	a. Verify the SD requires that HDV material is tracked discretely no earlier than receipt.	Document all discrepancies as compliance concerns	EVM SD, IMS
			b. Obtain the IMS and determine if HDV material is identified and tracked in the schedule and EV techniques are also identified. If so, verify HDV material is tracked with discrete EV techniques to occur no earlier than inspection and receipt of the material. Perform trace by exception to see if there are any LOE EV techniques applied to the HDV material items. There should be no LOE EV techniques applied to the HDV material items. Confirm with the following test:		
			1. If SD defines HDV material, X = $ value of HDV material (per SD) with LOE or PERT EVT / Y = total $ value of material BAC		EVM SD, IMS
		2. Obtain a report in the EVM Cost Tool and verify HDV material EV techniques are discrete techniques.	a. Perform trace by exception to see if there are any LOE EV techniques applied to the HDV material items. There should be no LOE EV techniques applied to the HDV material items.	Document all discrepancies as compliance concerns	EVM Cost Tool, IMS
			b. Verify the BCWP reported for HDV CAs. c. Is there a schedule variance? Does the schedule variance reconcile with the material receipts and delays?		

21.A.3.	**Does the material or other system provide for the accountability for material purchased for the project?**				
	All material purchased or furnished as GFM/GFE must be fully accounted for on a particular project. IMPACT OF NONCOMPLIANCE Without full material accountability, requirements may increase material cost.	**Manual Test:**			
		1. Pull an internal report from the Material Management and Accounting System (MMAS) to verify the system has the ability to account for all material purchased (e.g., material issue to CAs, return of unused material, scrap quantity and disposition and residual inventory).	a. Manual check to see if the MMAS has been approved.	Document all discrepancies as compliance concerns	Materail Management and Accounting System (MMAS) Report
21.A.4	**Does the material system address the various methods of charging material costs from inventory, in accordance with the contractor's procedures?**				
	Material costs must be accurately accumulated within charge numbers using recognized, acceptable costing techniques identified in the contractor's CAS Disclosure Statement. These methods may vary based upon the way the material is brought into the CAs. IMPACT OF NONCOMPLIANCE The actual material costs for material issued from inventory is not accurately accumulated and assigned to the appropriate CAs and the cost variances and EACs are invalid.	**Manual Test:**			
		1. Review the contractor's CAS Disclosure Statement and determine the methods of charging material costs from inventory.	a. Obtain an internal report from the material accounting system to verify the assignment and allocation of the material to the project CAs is aligned with how materials are budgeted in the CAs.	Document all discrepancies as compliance concerns	MMAS
			b. Using the same internal report, verify the actual material costs are accurately accumulated and assigned to the appropriate CA using the recognized and accepted methods for charging material costs from inventory.		
			c. Obtain a report from the EVM Cost Tool and compare data between this report and the material accounting system report to verify the planned, performed and actual costs are applied the same. May need to include estimated actuals in the EVM Cost Tool if applicable.		MMAS, EVM Cost Tool
21.A.5.	**Does the CAM address price/usage analysis with required variance analysis on HDV material?**				
	Analyzing and determining current and projected UVs can provide important, continuing internal measurement. IMPACT OF NONCOMPLIANCE Without material price and usage variance analysis the EAC projections are invalid where applicable.	**Manual Test:**			
		1. Review the CAMs' VARs to determine if they address the price/usage variances for HDV material as required?	X = number of VARs that do not address the price/usage variances for HDV material when required.	X / total # of monthly VARs that address HDV material. Document all discrepancies as compliance concerns	Monthly VARs.

	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 and the actual (applied where appropriate) direct costs for the same work. This comparison provides the cost variance.**				
	The emphasis of this Guideline depends on accurate cost and schedule performance data generated on a routine basis. In order for project management to assess both progress and variances as compared to the baseline, reliable and auditable data must be generated in a timely manner, on a monthly basis at a minimum in alignment with the contractor's accounting reporting periods.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
22.A.1	**Is information generated on a monthly basis at a control account level (at a minimum), and does it include schedule variance, cost variance, and variance at completion?**				
	Schedule and cost variances are calculated using performance data generated from the EVM Cost Tool and are used to assess deviations from the Performance Measurement Baseline (PMB). Differences between the Budget at Complete (BAC) and Estimate At Completion (EAC) projections (see Guideline 27) result in the Variance at Completion (VAC). The VAC is calculated at the control account, at a minimum, and Summary Level Planning Package (SLPP) level. IMPACT OF NONCOMPLIANCE Unless variances are calculated and analyzed routinely using EVM data, project management is unable to accurately assess the impact of deviations from the Performance Measurement Baseline (PMB).	**Manual Tests:**			
		1. Confirm that a monthly (or more frequently if mandated) EVM report is generated from the EVM Cost Tool.	a. Verify the reporting frequency as noted in the System Description and the Project documentation. b. Review the current IPMR/CPR report to ensure current and cumulative cost and schedule variances, as well as variance at completion are calculated for all in progress and completed CAs.	All variances must be calculated for this monthly (or more frequently if mandated) report	EVM Cost Tool Variance Report, IPMR/CPR
22.A.2	**Are the formulas to calculate SV, CV, and VAC consistent with the CPR/IPMR instructions?**				
	The standard formulas for calculating SV, CV, and VAC are followed and are consistent with the CPR/IPMR instructions. IMPACT OF NONCOMPLIANCE Use of analysis based on variances generated by non-standard formulas will result in a lack of standardized reporting, resulting in management being compromised in their ability to accurately identify and report areas in need of attention.	**Manual Tests:**			
		1. Verify the formulas used to calculate SV, CV, and VAC.	a. Download the DOE EVMS Gold Card. b. Use the EVM Cost Tool Data (CA level) or the monthly IPMR/CPR (CA or WBS Level) to confirm correct calculations for Schedule Variance (current period and cumulative), Cost Variance (current period and cumulative) and Variance at Completion. Also confirm the calculations for CV % and SV %.	Document all discrepancies as compliance concerns	DOE EVMS Gold Card, EVM Cost Tool, IPMR/CPR, VARs

				1. If using the EVM Cost Tool, select 10 CAs for use to verify the calculations. 2. If using the IPMR/CPR, select 10 WBS for use to verify the calculations. c. The following formulas are the correct formulas from the DOE Gold Card: 1. Cost Variance = BCWP - ACWP 2. Schedule Variance = BCWP - BCWS 3. CV% = (CV/BCWP)*100 4. SV% = (SV/BCWS)*100 5. Variance at Completion = BAC - EAC	

22.A.3	**Is the measurement of cost and schedule performance consistently applied throughout the project?**				
	It is important that the fundamentals of EVM are applied consistently across all CAs, and through the various levels of the WBS and OBS. IMPACT OF NONCOMPLIANCE When the fundamentals of EVM are not standardized across the project, management is unable to make effective project management decisions based on the information provided or use the predictive capability of the EVM data to identify project risks and opportunities.	**Automated Tests:**			
		None - CAM interview only			
		Manual Tests:			
		None - CAM interview only			
		IH On Site Interview Questions:			
		1. CAM: Describe the selection process for establishing the EVM method while planning your CAs, and then how you use that method to claim performance.			
		2. Project Controls: How do you check to make sure the performance claimed in the IMS is reflected in the EVM Cost Tool?			
22.A.4	**Does the Contractor perform analysis at the lowest level where BCWS is planned, BCWP is earned, and ACWP is collected?**				
	The contractor's SD or procedures describe the process for calculating CVs, SVs, and VACs. In order to determine the variances, three variables (BCWS, BCWP and ACWP) must be available and be aligned with the exact same scope of work. The contractor must determine the level that provides sufficient visibility to determine the root causes of the variances (whether it is at the control account level or below). IMPACT OF NONCOMPLIANCE Without analysis at the lowest levels, trends are not managed to minimize the impacts at the higher levels.	**Manual Tests:**			
		1. Confirm the System Description or related documentation outlines the procedure for calculating variances: .	a. Conduct a manual check to confirm these procedures outline cost and schedule variance calculation at the lowest level where BCWS, BCWP and ACWP are collected.	Document all discrepancies as compliance concerns	EVM SD and procedures for variances
			b. Cost variance calculation is based on BCWP-ACWP and the level is most often dictated by the charge number level where ACWP is collected. While it is recommended ACWP be collected at the WP level, it is not required.		
			c. Schedule variance is based on BCWP-BCWS, and should be calculated down to the lowest level possible, where BCWS and BCWP are determined to pinpoint the root cause of a variance.		
		IH On Site Interview Questions:			
		1. CAM: Describe how you analyze cost and schedule variances by element of cost, e.g., labor, material, etc.			

22.A.5	**Are BCWP calculations consistent with the manner in which the work is planned?**				
	To ensure cost and schedule variances are accurate, the EVT used to derive BCWP must be consistent with the method used to plan and resource the associated work (See Guidelines 10 and 12.). In simple terms, that means that the CAM must use the same method when claiming performance. IMPACT OF NONCOMPLIANCE Without an independent assessment of subcontractor status, the overall project performance may be overstated or understated.	**Automated Tests:**			
		1.	X = # of in-progress and completed WP with 0-100 EVT that do not have 0% or 100% performance	X / Total # of in-progress and completed WP with 0-100 EVT. Pass: X/Y = 0 Flag: X/Y > 0	IMS, EVM Cost Tool
		2.	X = # of in-progress and completed WP with 50-50 EVT WPs that do not have 50% or 100% performance	X / Total # of in-progress and completed WP with 50-50 EVT. Pass: X/Y = 0 Flag: X/Y > 0	
		Manual Tests:			
		1. In the IMS, confirm that the performance of WPs with EVTs of Physical % Complete correlate to the Quantifiable Backup Data (QBD), if available.	a. Choose 10 WPs and verify the Physical % Complete values for the period correlate to the performance measurement noted in the QBD. b. QBDs can be accomplished in any order as long as it is a logical order	Document all discrepancies as compliance concerns	IMS
		IH On Site Interview Questions:			
		1. CAM: How do you know which EVM measurement technique is best when planning your CAs?			
		2. CAM: Demonstrate how you claim performance on a WP that uses percent complete. Have you changed the underlying QBD once work started?			
		3. CAM: For subcontractors with flow down EV requirements, how do you review and integrate the subcontractor's published BCWS, BCWP and ACWP data into your company's EVM data? Have you made any adjustments, and if so, how did you document these adjustments? **From 22.A.6 - IH says merged with 22.A.5.**			
		4. CAM: How is the subcontract fee, if any, represented in the prime contractor EVMS, and how is performance claimed? Please show me. **From 22.A.6 - IH says merged with 22.A.5.**			

22.A.6	**For subcontractors without an EVM flow down requirement, does the prime contractor assess subcontractor performance based on a plan containing objective indicators for measuring subcontractor performance?**				
	The prime subcontractor has planned the subcontractor effort with objective indicators to facilitate performance assessment. IMPACT OF NONCOMPLIANCE When the prime contractor fails to plan the subcontractor effort with objective indicators, a part of the project has inadequate information to make quality decisions about performance.	**Manual Tests:**			
		1. Confirm subcontract performance correlates to subcontract documentation	a. If available, conduct a manual trace of the subcontract statement of values to determine if the technical milestones and/or periodic deliveries have exit criteria.	Document all discrepancies as compliance concerns	List of subcontractors, RAM, subcontractor statused IMS, subcontractor delivery reports
			b. Verify subcontract performance had documented objective indicators and quantifiable back up data.		
			c. If the milestones and deliveries are noted without accompanying documentation, check with the prime to determine how status updates are completed.		
			d. All claimed performance should be documented and communicated to the prime.		
		IH On Site Interview Questions:			
		1. CAM: For subcontractors without flow down EV requirements, how do you review and integrate the subcontractor's published BCWS, BCWP and ACWP, and EAC in your EVMS data?			
		2. CAM: How is a subcontract fee, if any, represented in the prime IMS, and how is performance claimed?			

22.A.7	**Are variance thresholds identified and documented in the EVM procedures?**				
	The contractor must establish and document internal variance thresholds in their EVM SD and/or procedures, the Project Execution Plan (PEP) and other documents that support external reporting thresholds. IMPACT OF NONCOMPLIANCE Failure to establish and document variance thresholds for reporting purposes results in the inability to perform effective variance analysis for internal and DOE reporting.	**Manual Tests:**			
		1. Review the EVM SD.	a. Does it contain any guidance on internal variance thresholds, or are they contained in supporting processes?	Document all discrepancies as compliance concerns	EVM SD
			b. Does the contractor establish specific variance thresholds in project specific directives?		EVM SD and Procedures
			c. Do all internal variance thresholds support contractually specified variance thresholds, i.e., at the same level or less? For example, if the contractual direction specified +/-15%, are the internal thresholds at that level or tighter, e.g., +/- 10%?		EVM DID/CDRL
22.A.8	**Do CAMs develop the Variance Analysis and obtain the appropriate management approvals?**				
	Control account managers (CAMs) have the sole responsibility to plan and manage their assigned CAs, including the requirement to analyze performance and document the variance analysis in the VAR. IMPACT OF NONCOMPLIANCE Allowing personnel other than the CAM to develop the VAR may result in poor analysis and failure to identify the root causes and develop effective corrective actions. Failure to approve the VAR by the appropriate individuals may result in poor quality VARs and management not being properly informed of ongoing issues.	**Manual Tests:**			
		1. Review the EVM SD.	a. Does it contain the requirement that the CAM is responsible for developing and documenting the VAR? Note: it is acceptable for others, such as the project control analyst, to be designated to assist with this process, but the CAM must be held responsible.	Document all discrepancies as compliance concerns	EVM SD
			b. Does the contractor establish specific approval authorities for the VAR, including (but not limited to) the CAM, functional manager, and project manager?		EVM SD and Procedures
		IH On Site Interview Questions:			
		1. CAM: Do you have others assist you with your VAR? How do they assist you?			
		2. CAM: Does your functional manager review and approve your VAR? Do you discuss the VAR and corrective actions with your manager each month (if applicable)?			

	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.				
	The ability to analyze deviations from the established plan permits management at all levels to rapidly and effectively implement corrective actions in an effort to regain project/contract objectives. Without this visibility into and the understanding of plan deviations, the success of the project can be jeopardized. Additionally, insight into future cost and schedule performance, based on the analysis of variances, will be facilitated. The purpose of this guideline is to ensure both significant SVs and CVs are analyzed, at least monthly, at a level of detail required to manage the effort; i.e., to enable management decision-making and corrective action.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
23.A.1	**Monthly, are all significant cost, schedule, and technical impacts to the control account with regard to the contractor's internal thresholds discussed nd documented? Are Variances addressed in the detail needed by program management?**				
	Analysis of cost and schedule variances and variances at completion are conducted at the control account level on a monthly basis. IMPACT OF NONCOMPLIANCE Without monthly/routine data and variance analysis, management is unable to use the EVM information to make timely decisions or to properly assess project performance.	**Manual Test:**			
		1. Verify that variance analysis is conducted every month	a. Review the SD and project documentation to verify the reporting frequency required.	Document all discrepancies as compliance concerns	EVM SD
			b. If the requirement is monthly, use the company's report to confirm that the CAs that have exceeded thresholds for a given month are correctly identified.		VARs
		2. Do the VARs address the minimum content as applicable?	a. Cost Variance - Root cause and element of cost that causes the variance	Document all discrepancies as compliance concerns	VARs, Data Call
			b. Schedule variance - Root cause and impact address IMS performance including float and critical path.		
			c. Impact to the control account and project as applicable.		
			d. Corrective action as defined in guideline 26		
			e. Labor rate and volume and material price and usage as required.		
			f. Mitigation of the variance as applicable		
			g. ETC/EAC and VAC		
			h. At control account and by EOC		
			i. Schedule margin and critical dates		
		IH On Site Interview Questions:			
		1. CAM: How are you notified that your CAs have exceeded variance thresholds? How often does this occur?			

23.A.2	**For subcontracts with an EVMS flow down, is the prime's variance analysis for major subcontractors consistent with its documented EVMS practice?**				
	Variance analysis of the subcontractor's EVM performance must be conducted regardless of whether the EVMS requirement was flowed down to the subcontractor. IMPACT OF NONCOMPLIANCE Without the establishment of an appropriate variance analysis process from the prime and the subcontractor, the lack of a standardized performance assessment may result in undetected deviations from the plan.	**Manual Test:**			
		1. Determine if the contractor is conducting variance analysis with its subcontractors.	a. Review the process that addresses how subcontractors are managed (this should include both subcontractors with and without EVMS flow down)	Document all discrepancies as compliance concerns	EVM SD and procedures
			b. Review the RAM to determine which CAs contain subcontracted effort and which CAs have a mix of prime resources and subcontracted effort. c. Review PEP, Work statement or applicable documents to determine if there are any subcontracts having an EVMS flow down d. Review the contractor's SD and EVM processes to ensure that a process has been established and documented for variance analysis of subcontractors		RAM, PEP, Work Statement, EVM SD and procedures/processes
			e. For subcontractors with an EVMS flow down: 1. Determine if any CAs for the subcontracted effort have breached variance thresholds. 2. Review the sub's IPMR/CPRs to determine if the appropriate variances have been addressed. 3. Review the prime's IPMR/CPRs to review how the sub's VARs were incorporated.		Subs' IPMR/CPR, VARs
			f. For subcontractors without a flow down: 1. Determine if any subcontractors have breached variance thresholds. 2. Review the applicable VARs for the last three months to determine if the appropriate variances have been addressed by the responsible prime CAM.		VARs
		IH On Site Interview Questions:			
		1. CAM: How do you determine if your subcontractor has any cost or schedule variances and it they are outside the thresholds?			
		2. CAM: How do you review your subcontractor's progress or VARs and incorporate them into your own analysis?			

	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 project.				
	Ensure that program performance status can be accurately summarized from the control account (at a minimum) through the Work Breakdown Structure (WBS) and Organizational Breakdown Structure (OBS) for program management insight and control as well as to meet customer reporting requirements.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
25.A.1	**Is performance measurement information summarized from the control account to the project level through the WBS and OBS for project management analysis purposes and customer reporting?**				
	Consistent analysis from the CA through the WBS and OBS is needed to ensure that managers understand their responsibilities for managing and controlling the allociation of resources to the work scope. IMPACT OF NONCOMPLIANCE Inconsistent analysis between the CAM level and the project level masks performance and increases project costs.	**Automated Tests:**			
		1. Compare the sum of BCWScur at various WBS levels to insure consistency. This test compares the levels to insure BCWScur is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where WBS Levels (Format 1 total BCWScur – (sum (all BCWScur from the EVM Cost Tool))) does not equal zero for every level of the WBS	X / Total WBS Elements in Format 1 Pass: X = 0 Flag: X > 0 Tolerance = $1K	EVM Cost Tool, IPMR/CPR Format 1
		2. Compare the sum of BCWScum at various WBS levels to insure consistency. This test compares the levels to insure BCWScum is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where WBS Levels (Format 1 total BCWScum – (sum (all BCWScum from the EVM Cost Tool))) does not equal zero for every level of the WBS	X / Total WBS Elements in Format 1 Pass: X = 0 Flag: X > 0 Tolerance = $1K	
		3. Compare the sum of BCWPcur at various WBS levels to insure consistency. This test compares the levels to insure BCWPcur is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where WBS Levels (Format 1 total BCWPcur – (sum (all BCWPcur from the EVM Cost Tool))) does not equal zero for every level of the WBS	X / Total WBS Elements in Format 1 Pass: X = 0 Flag: X > 0 Tolerance = $1K	
		4. Compare the sum of BCWPcum at various WBS levels to insure consistency. This test compares the levels to insure BCWPcum is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where WBS Levels (Format 1 total BCWPcum – (sum (all BCWPcum from the EVM Cost Tool))) does not equal zero for every level of the WBS	X / Total WBS Elements in Format 1 Pass: X = 0 Flag: X > 0 Tolerance = $1K	

		5. Compare the sum of ACWPcur at various WBS levels to insure consistency. This test compares the levels to insure ACWPcur is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where WBS Levels (Format 1 total ACWPcur – (sum (all ACWPcur from the EVM Cost Tool))) does not equal zero for every level of the WBS	/ Y = Total WBS Elements in Format 1 Pass: X = 0 Flag: X > 0 Tolerance = $1K
		6. Compare the sum of ACWPcum at various WBS levels to insure consistency. This test compares the levels to insure ACWPcum is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where WBS Levels (Format 1 total ACWPcum – (sum (all ACWPcum from the EVM Cost Tool))) does not equal zero for every level of the WBS	/ Y = Total WBS Elements in Format 1 Pass: X = 0 Flag: X > 0 Tolerance = $1K
		7. Compare the sum of BAC at various WBS levels to insure consistency. This test compares the levels to insure BAC is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where WBS Levels (Format 1 total BAC – (sum (all BACs from the EVM Cost Tool))) does not equal zero for every level of the WBS	/ Y = Total WBS Elements in Format 1 Pass: X = 0 Flag: X > 0 Tolerance = $1K
		8. Compare the sum of EAC at various WBS levels to insure consistency. This test compares the levels to insure EAC is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where WBS Levels (Format 1 total EAC – (sum (all EAC from the EVM Cost Tool))) does not equal zero for every level of the WBS	X / Total WBS Elements in Format 1 Pass: X = 0 Flag: X > 0 Tolerance = $1K
		9. Compare the sum of BCWScur at various OBS levels to insure consistency. This test compares the levels to insure BCWScur is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where OBS Levels (Format 2 total BCWScur – (sum (all BCWScur from the EVM Cost Tool))) does not equal zero for every level of the OBS	X / Total OBS Elements in Format 2 or EVM Cost Tool Data. Pass: X = 0 Flag: X > 0 Tolerance = $1K	EVM Cost Tool, IPMR/CPR Format 2

10. Compare the sum of BCWScum at various OBS levels to insure consistency. This test compares the levels to insure BCWScum is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where OBS Levels (Format 2 total BCWScum – (sum (all BCWScum from the EVM Cost Tool))) does not equal zero for every level of the OBS	/ Y = Total OBS Elements in Format 2 or EVM Cost Tool Data. Pass: X = 0 Flag: X > 0 Tolerance = $1K
11. Compare the sum of BCWPcur at various OBS levels to insure consistency. This test compares the levels to insure BCWPcur is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where OBS Levels (Format 2 total BCWPcur – (sum (all BCWPcur from the EVM Cost Tool))) does not equal zero for every level of the OBS	X / Total OBS Elements in Format 2 or EVM Cost Tool Data. Pass: X = 0 Flag: X > 0 Tolerance = $1K

12. Compare the sum of BCWPcum at various OBS levels to insure consistency. This test compares the levels to insure BCWPcum is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where WBS Levels (Format 2 total BCWPcum – (sum (all BCWPcum from the EVM Cost Tool))) does not equal zero for every level of the OBS	X / Total OBS Elements in Format 2 or EVM Cost Tool Data. Pass: X = 0 Flag: X > 0 Tolerance = $1K
13. Compare the sum of ACWPcur at various OBS levels to insure consistency. This test compares the levels to insure ACWPcur is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where OBS Levels (Format 2 total ACWPcur – (sum (all ACWPcur from the EVM Cost Tool))) does not equal zero for every level of the OBS	X / Total OBS Elements in Format 2 or EVM Cost Tool Data. Pass: X = 0 Flag: X > 0 Tolerance = $1K
14. Compare the sum of ACWPcum at various OBS levels to insure consistency. This test compares the levels to insure ACWPcum is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where OBS Levels (Format 2 total ACWPcum – (sum (all ACWPcum from the EVM Cost Tool))) does not equal zero for every level of the OBS	X / Total OBS Elements in Format 2 or EVM Cost Tool Data. Pass: X = 0 Flag: X > 0 Tolerance = $1K
15. Compare the sum of BAC at various OBS levels to insure consistency. This test compares the levels to insure BAC is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where OBS Levels (Format 2 total BAC – (sum (all BACs from the EVM Cost Tool))) does not equal zero for every level of the OBS	/ Y = Total OBS Elements in Format 2 or EVM Cost Tool Data. Pass: X = 0 Flag: X > 0 Tolerance = $1K

			16. Compare the sum of EAC at various OBS levels to insure consistency. This test compares the levels to insure EAC is rolled up correctly. The Y value for this test is the number of months being reviewed and the X value is expressed as one or more levels not being consistent.	X = # of occurrences where OBS Levels (Format 2 total EAC – (sum (all EAC from the EVM Cost Tool))) does not equal zero for every level of the OBS	X / Total OBS Elements in Format 2 or EVM Cost Tool Data. Pass: X = 0 Flag: X > 0 Tolerance = $1K	
			Manual Tests:			
			1. Verify the data elements in the EVM Cost Tool and the variance analysis correlates to the IPMR/CPR Format 1 , 2 and 5.	a. Confirm the EVM Cost Tool values match the IPMR/CPR Format 1 for current and cumulative BCWS, BCWP, and ACWP, plus BAC and EAC. Confirm this at the bottom summary level, and perform 10 spot checks on WBS elements at different levels.	Document all discrepancies as compliance concerns	EVM Cost Tool, IPMR/CPR Format 1
				b. Confirm the value of MR and UB on the IPMR/CPR Format 1 with the values shown in the CBB log.		
				c. Confirm the EVM Cost Tool values match the IPMR/CPR Format 2 for current and cumulative BCWS, BCWP, and ACWP, plus BAC and EAC. Confirm this at the bottom summary level, and perform 10 spot checks on OBS elements at different levels.		EVM Cost Tool, IPMR/CPR Format 2
				d. Confirm the value of MR and UB on the IPMR/CPR Format 1 with the values shown in the CBB log.		IPMR/CPR Format 1, CBB Log
				e. Compare variance value (current/cumulative) from IPMR/CPR Format 1 to Format 5 to confirm if the correct variances are addressed in Format 5.		IPMR/CPR Format 1 and 5
				f. Review Format 5 explanations to verify the explanations reflect the information from the CA level VARs.		VARs, IPMR/CPR Format 5

	Guideline 26 - Implement managerial action taken as the result of earned value information.				
	Ensure all levels of program management are reviewing performance measurement data, implementing corrective action plans, and using the information for decision-making purposes.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
26.A.1	**Is there evidence the contractor's management uses and analyzes earned value information (at least on a monthly basis) as a part of their decision-making?**				
	Earned value information must be incorporated into project management reviews with internal manager and the customer. This QE LOI also focuses on the use of EVM information in the decision-making of corporate leadership. IMPACT OF NONCOMPLIANCE If project management does not use the EVM data to manage the project, the result may be projects with poor cost and schedule performance.	**Manual Tests**			
		1. Ask for and review the contractor's monthly EVM Business Rhythm calendar to determine if the contractor is using EVM data to help manage the project.	a. ~~2.~~ Review 5 of the CAs with significant VARs and compare the VAR corrective actions with those noted on the project corrective action plans and corrective action log (if used).	Document all discrepancies as compliance concerns.	EVM Business Rhythm Calendar, VARs
		IH On Site Interview Questions:			
		1. Project Manager: Given the weekly cadence, how often are corrective action plans and implementation reviewed and monitored by the team?			
		2. Project Manager: Can you demonstrate the review and use of earned value information at senior management levels?			
		3. Senior Leader: What EVM reports do you receive and at what level? How do you use this information?			
26.A.2	**Do corrective actions identify risk mitigation steps, including activities to reduce cost/schedule impacts. Do the corrective actions include a completion schedule and the identification of person(s) responsible for executing the corrective action plans?**				
	Corrective Action Plans should identify risks, specific actions, mitigation steps, completion schedules, and the responsible managers. These plans should be documented in the EVM system. IMPACT OF NONCOMPLIANCE Unless corrective actions are identified, scheduled, and assigned to a responsible person, corrective actions and risk mitigation efforts may fail to be implemented.	**Manual Tests**			
		1. Select three IPMR/CPR reports and review the Format 5 variance analysis along with the VAR for the same control account.	a. Does the corrective action section of the Format 5 list specific actions, risk mitigation or impact, completion dates, and responsible person(s)?	Document all discrepancies as compliance concerns	IPMR/CRP Format 5, VARs
			b. Review three reporting elements that have VARs in at least two reports. Has the corrective action section been updated in the latest report?		
		2. Conduct a manual trace of the Corrective Action Log to ensure it is traceable and integrated with the risk management plan.	a. Verify the log reflects the VARs in terms of reporting period, responsible person, and identified corrective action.		Corrective Action Log, VARs
			b. Check to see if corrective action log items are integrated with the risk register.		Corrective Action Log, Risk Register
			c. Confirm the log contains the CA or WBS level, description of the corrective action, type of variance and month of inception, responsible person, any schedule coding related to the corrective action, and expected actual completion date. It should be updated when actually closed.		Corrective Action Log
			d. Verify corrective action addresses cost and schedule impact mitigation or forecasting impact.		Corrective Action Log

3. From 26.A.4. Confirm VAR Analysis relies on the predictive capability of the EVMS to evaluate the impact of the variance in terms of underlying causes of performance discrepancies, other potential factors to consider, and any schedule delays.	a. For 10 CAs with a current or cumulative CV and/or SV, or a VAC, verify the root cause and impact clearly and effectively explains the reason for the variance, and the corrective action addresses the larger issue of how to mitigate future variances.	Document all discrepancies as compliance concerns	VARs
	b. For any identified CV, make sure the corrective action addresses the mitigation of future cost growth or includes a task to update the EAC as necessary.		
	c. For any identified SV, make sure the impact addresses the schedule, including the critical path, the ECD, and the quantification of any EAC impact.		
	d. Review all VARs in the latest IPMR/CPR to ensure that the corrective action directly relates to the root cause(s) description.		
	e. Review any VARs in the latest IPMR/CPR without a corrective action plan. These should be limited and include an explanation stating “why” no corrective action is required or possible.		VARs, IPMR/CPR VARs, Corrective Action Log
IH On Site Interview Questions: From 26.A.4			
1. Material CAM: Please explain the planning and process to avoid variances because of discrepancies in material timing.			

26.A.3	**Are corrective action plans that are generated through the variance analysis process tracked to their resolution and closure?**				
	Variance analysis reports are required when the control account beaches a variance threshold. Part of the VAR is documenting corrective action plans to reduce or mitigate the variance. The VAR corrective action must identify the activities, responsible person for implementation, and the estimated completion date. A corrective action log is a best practice that documents and facilitates follow up on the actions through completion (see QE LOI 26.A.2). IMPACT OF NONCOMPLIANCE Without tracking to closure, corrective actions plans may not be completed and the results of corrective actions are unknown.	**Manual Tests**			
		1. If log is used by the contractor, confirm the Corrective Action Log is up to date.	a. X = # of Corrective Actions with estimated completion dates < time now/ Y = Total # of Corrective Actions	Document all discrepancies as compliance concerns	Corrective Action Log
		2. Conduct a manual trace to confirm corrective actions identified in the Format 5 are included in the Corrective Action Log (if used).	a. X = # of Corrective Actions identified in Format 5 not included in Corrective Action Log (if used).		Corrective Action Log, IPMR/CPR Format 5
		IH On Site Interview Questions:			
		1. CAM: Please walk through a corrective action plan, to include schedules, validation, and implementation of corrective action.			
26.A.4	**Does the prime contractor monitor subcontractor corrective action(s) through closure?**				
	The prime must track the subcontractor corrective actions in the prime's corrective action system. IMPACT OF NONCOMPLIANCE If the prime has not reviewed and approved subcontractors' corrective actions, the lack of oversight may have adverse impacts on the successful performance of the project.	**Manual Tests**			
		1. Conduct a manual review of the prime's corrective action log for subcontract action items.	a. Review the corrective action log to ensure subcontracted actions are included in the log and tracked to closure.	Document all discrepancies as compliance concerns	Corrective Action Log
			b. Compare the log to the prime IMS to determine if applicable corrective action for the subcontract effort is included and coded in the prime IMS.		Corrective Action Log, IMS
		IH On Site Interview Questions:			
		1. CAM responsible for managing subcontractor with EVM flow down: How do you review the sub's corrective actions? How do you monitor and track these to completion?			
		2. CAM responsible for managing subcontractor without EVM flow down: How do you generate and track corrective actions for the subcontractor? How do you monitor their progress and track these to completion?			
26.A.5	**Are significant changes in float values reviewed by management?**				
	Float values will change as the schedule is statused or approved changes (e.g., baseline change proposals (BCPs) are implemented and network relationships are modified. By itself, the EV schedule variance (SV) will not reveal critical path information and should be analyzed in conjunction with network-based schedule information. The SV should be relatable to the schedule status indicated by the contractor's master and subordinate schedules. IMPACT OF NONCOMPLIANCE Significant changes in float values between periods may indicate issues with the integrity of the schedule network.	**Manual Tests**			
		1. Fuse. Is high float routinely reviewed and corrected? This test looks at float greater than 60 days and uses a 10% threshold.	a. X = # of activities and milestones from forecast IMS with change of float greater than 60 days	X / # of incomplete activities and milestones. Calculate for 4 months and compare between each month for three comparisons. Pass: X/Y < = 10% Flag: X/Y > 10%	IMS
		IH On Site Interview Questions:			
		1. Project Controls: How are significant changes in float values identified, tracked and what is the process used to review the changes and flow of work (logic ties).			
		2. Project Manager: If a change in Total Float values results in activities becoming more critical how is this reviewed in terms of current resource allocations?			

	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.				
	The purpose of this GL is to ensure estimates of the cost to complete the remaining requirements on a program are periodically reassessed. A most likely estimate of the total cost for completing all authorized program work is maintained and reflects future impacts and risks/opportunities not yet captured in performance. Estimates to Complete (ETCs) remaining work are time-phased in accordance with the expected completion dates and support funding requirements.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
27.A.1	**Does the contractor require monthly and comprehensive EACs within control accounts at the level where resources are planned consistent with the documented EVM process?**				
	In projects, during the monthly review cycle, CAMs review the accuracy and currency of the CA EAC at the same EOC levels and, if necessary, generate a revised CA EAC for approval. The comprehensive EAC is required annually and prepared, at a minimum, at the WP/planning package/SLPP level. IMPACT OF NONCOMPLIANCE Failure to base EACs on resource requirements creates uncertainty in resources needed to complete the work scope and increases the risk of accomplishing the work.	**Automated Tests:**			
		1	X = # of incomplete WPs with zero or negative EAC	X / Total # of incomplete WPs Pass: X/Y = 0 Flag: X/Y > 0	EVM Cost Tool
		Manual Tests:			
		1. Verify for three months that the monthly EAC was updated consistent with the documented process.	a. Review the SD and supporting EAC process(s) for the monthly process and when monthly EACs are required.	Document all discrepancies as compliance concerns	EVM SD, VARs,
			b. Review the EACs for the past three months to verify that the monthly EAC been updated when warranted.		
		2. Conduct a manual trace between corrective actions and EAC revisions.	a. For 10 CAs that breach the variance thresholds, determine how many list an adjustment to the EAC. Examine both the impacts and corrective actions.	Document all discrepancies as compliance concerns	VARs, Corrective Action Log
			b. Using the EVM Cost Tool, locate the data for the accounting period corresponding to the log, plus two accounting periods previous to this one. c. Based on actual dates of completion on the corrective action log, determine when EAC adjustments were to be made, and check the data for the corresponding period to make sure these changes have been made, and are traceable between the log and the EAC adjustments.		EVM Cost Tool, Corrective Action Log, VARs
		IH On Site Interview Questions:			
		1. CAM: What level of detail do you go to when developing an EAC?			
		2. PM: When do you update the monthly EAC? What are the factors or drivers that would cause you to need to update the monthly EAC? **(From 27.C.1)**			
		3. PM: What is the approval process for the monthly EAC? **(From 27.C.1)**			
		4. PM: What process do you use to develop the best/worst/most likely EACs for the IPMR/CPR? **(From 27.C.1)**			

27.A.2	Do the contractor's externally reported EACs and the internally generated EACs from a summarization of the CA EACs reconcile?				
	The PM is responsible for reporting the most likely EAC each month as well as the best and worst case EACs. Also EACs are reported by WBS in Format 1 and by OBS in Format 2 of the IPMR/CPR. The EACs by WBS and OBS should tie with internal reports. IMPACT OF NONCOMPLIANCE Without reconciliation, the contractor is not using the same information to manage the project as is used to report to DOE.	**Manual Tests:**			
		1. Reconcile internal and external EACs.	a. Review the project statement of work or PEP to determine the level of EAC reporting. b. Review the EACs from the last three IPMRs/CPRs by looking at the sum of the EACs reported on Format 1, column 15. c. Review the sum of the EACs in the internal EVMS reports for the same periods. d. Compare the Most Likely EACs (IPMR/CPR Format 1, block 6c) at the total project level to determine if this EAC is different than the column 15 EAC or the EACs in the internal reports. e. The numbers must be the same at the summary level unless there is a reconciliation described in the IPMR/CPR Format 5 summary analysis. f. Perform a few spot checks at different WBS levels between the internal EVMS reports and the IPMR/CPR Format 1, column 15. g. If the numbers do not reconcile, verify the IPMR/CPR Format 5 discussion, as reported in PARSII, captures the reason for the delta.	Document all discrepancies as compliance concerns	Project Work Statement, PEP, IPMR/CPR Format 1 and 5

27.A.3	**Are ETCs based on time-phased resource plans that are consistent with schedule forecast dates?**				
	The review of ETCs must always include a review of the latest schedule forecast dates, as the schedule forecast will drive costs and must be continually evaluated. IMPACT OF NONCOMPLIANCE Without time phasing the ETC, future activities will not be aligned with project deliverables.	**Automated Tests:**			
		1.	X = # of incomplete CA's where (IMS Forecasted start or finish dates do not align with time phased ETC in the EVM Cost Tool)	/ Y = Total # of incomplete CA's Pass: X/Y = 0 Flag: X/Y > 0	IMS, EVM Cost Tool
		Manual Tests:			
		1. Confirm ETCs are supported by time phased resources	a. In the CAP, review the latest time phased ETC at the detailed resource level for five separate CAs having a mix of elements of cost. b. Review the IMS for the same CAs and WPs. c. Within the CA, determine if the time phasing of resources of the ETC for a specific WP coincides with the completion date for that same WP in the IMS. d. The ETC and forecast IMS dates must be within the same accounting month. They should also be relatively proportional. All other factors being equal, an activity planned to start on the last day of the fiscal period should have a minimal quantity of resources versus a task planned at the beginning and going through the entire fiscal period.	Document all discrepancies as compliance concerns	CAP, IMS

27.A.4	**Is an evaluation of all subcontracted effort included in the EAC?**				
	It is the responsibility of the prime to ensure all project work scope (including subcontractor effort) is reviewed in the development of the EAC. IMPACT OF NONCOMPLIANCE Without inclusion of subcontracted work, an EAC is incomplete to determine future funding needs or resources required to complete the work scope.	**Manual Tests:**			
		1. Determine if the monthly EAC analysis includes all major subcontracted scope and the realism.	a. Review the RAM to determine if there are any subcontracts that have dedicated CAs or if there are CAs with a mix of prime and subcontractor work. Isolate the CAs and WPs for subcontractors only for the purpose of this LOI.	Document all discrepancies as compliance concerns	RAM
			b. Review the CPI metrics for the CAs/WPs to determine if the current EAC is reasonable or must be updated. The EAC can be evaluated for realism through comparison of the CPI to the TCPI.		EVM Cost Tool, EVM Internal Reports, VARs, IPMR/CPR
			1. The cumulative Cost Performance Index (CPI) measures the historical efficiency of work performance. The formula is: BCWPcum/ACWPcum = CPIcum. The To Complete Performance Index (TCPI) measures how efficient one must be to achieve the EAC being forecast. The formula is: (BAC - BCWPcum) / (EAC – ACWPcum). History tends to repeat itself and generally, the TCPI should be within 10% of the CPIcum to be considered achievable or justified. EACs that produce a CPIcum - TCPI < -.10 or > +.1 should always be adequately explained by the CAM and/or involve an EAC update. Recommend projects consider a 5% threshold that trigger an ETC trend analysis. c. Compare the EAC to independent EACs calculated with CPIcum and SPIcum. EACs calculated by using the CPIcum and CPI / SPI methods that differ from the current EAC by more than +/-10% should have an updated EAC or the CAM must have a justification why the current EAC is acceptable. The justification should be in the latest VARs.		

			1. CPIcum Method - The formula is: BAC/CPIcum = EAC. This formula is always valid and is typically the minimum EAC. 2. CPI / SPI Method – This formula includes cost and schedule performance. The formula is: ACWPcum + (BAC – BCWP) / (CPIcum * SPIcum) = EAC. This formula is only valid with SPI <=0 and not valid in the last 25% of the project.		
			d. If the internal EVMS reports do not contain the CPI, SPI or TCPI, a manual calculation will need to be conducted.		
		2. Determine how subcontractor EACs are captured	a. For subcontract CAs, compare the latest EAC values in the EVM Cost Tool to the subcontractor status updates, such as the subcontractor IPMR/CPR if available. Note that the EACs in the prime's EVM Cost Tool will contain subcontractor fee, which must be contained in separate WPs.		
			b. Verify the EAC values in the EVM Cost Tool roll up to the EAC values on the IPMR/CPR Format 1.		
		3. Is the prime's projected EAC for subcontractor fee, consistent with expectations, as applicable?	a. Verify prime's projected EAC for subcontractor fee, consistent with expectations, as applicable.		
		4. Conduct a trace between the subcontractor EAC and the subcontractor reported EAC in the prime EVM Cost Tool.	a. Review the RAM for subcontractor CAs. Review the total project time phasing to see if any subcontracts are planned. b. Compare the subcontractor EAC with the equivalent EAC in the prime tool. Are they the same for the same scope of work? If not do they reconcile and discussed in the IPMR/CPR format 5?		RAM, EVM Cost Tool, CAP, Subcontractor IPMR/CPR, Prime IPMR/CPR Format 5
		IH On Site Interview Questions:			
		1. CAM with subcontract responsibilities: How do you evaluate subcontractor performance when developing the EAC? Do you make any adjustments to the subcontractor's reported EAC? If so, explain.			
		2. CAM with subcontracts: Are supplier EAC updates included in monthly communication and reports for IMS performance updates, and/or for ACWP			

27.B.1	Are control account EACs maintained and updated promptly based on EOC level performance impacts to the project, scope changes, schedule technical performance and schedule/cost impacts?				
	CAMs have the responsibility to review for currency their control account EACs every month during the variance analysis process. Thresholds do not have to be exceeded to change an EAC, just knowledge that the current ETC is no longer realistic and does not represent the work remaining. An update to the EAC may be because of schedule delays, cost variances, degrading performance indices, technical performance issues, realized risks, scope changes, etc. IMPACT OF NONCOMPLIANCE Failure to update the EAC based on trends understates potential impacts.	**Automated Tests:**			
		1. X = # of incomplete CA's (at a minimum) with BAC & without EAC/ Y = Total # of incomplete CAs	2. From 27.B.3?? test below does not make sense. 1. Pass: X/Y = 0 X = # of CAs with TCPIeac less CPIcum +/- the |.1| (absolute value) / Y= Number of CAs. = Total # of CAs. This is where %C is >= 15% Pass: X/Y <10% of the CAs have TCPIeac – CPIcum within the .1 absolute thresholds (-.09 to +.09) Flag: X/Y >= >= 10% of the CAs have TCPIec-CPIcum greater than or equal to .1 or less than or equal -.1. Flag: X/Y > 0		EVM Cost Tool
		2. All 3 tests are complementary and considered 1 test in the results of pass or Flag.	1. X = # of CAs or WBS levels that (ACWPcum + ((BAC - BCWPcum) / (CPIcum X SPIcum)) / EAC > 1.1 or < .9 for CAs and all WBS levels that have percent complete >=.15	/ Y = # of CAs + # of WBS levels. Pass: X/Y is <= 10% Flag: X/Y > 10%	EVM Cost Tool
			2. X = # of CAs or WBS levels where TCPI(EAC) - CPI <= -0.1 or >=.1 for levels with percent complete >= .15	/ Y = # of CAs + # of WBS levels. Pass: <= .1 Flag: X/Y > .1	
			3. X = # of CAs or WBS levels that have VAC < CVcum and cost variance is negative	/ Y= Total # of CAs plus total number of WBS levels. Pass: X/Y <= 10% Flag: X/Y >= > 10%	
		Manual Tests:			
		1. Confirm EOCs are part of the EAC development	a. Review the latest monthly EAC and supporting documentation (typically an ETC justification that the PM approves). b. Determine if the supporting details are discussed and justified at the EOC level. Analyze for 10 CAs.	Document all discrepancies as compliance concerns	EVM Cost Tool, ETC Justification,
			c. Compare the ETC prior to the monthly EAC update and after to identify if changes were made at the EOC level. Compare for 10 CAs.		EVM Cost Tool, ETC Justification, Baseline Change Documentation

		2. Determine if EACs are maintained and updated as soon as practical.	a. Review the last three months of internal EVMS reports that provide the performance indices SPI and CPI. b. Look for a deterioration of either the cumulative SPI or CPI over the last three months.	The data must correlate with no inconsistences.	Internal EVM Reports, EVM Cost Tool, VARs
			c. Review the last three months of internal EVMS reports which document the control account EACs. d. Look for a change in the EAC that would be commensurate with the change in performance e. Review the last three months VARs in the impact section for those CAs that show a change in performance		Internal EVM Reports, EVM Cost Tool, Baseline Change Documentation
			f. There should be a correlation between the VARs, EACs reported in the internal reports and those CAs that declined in performance. g. Otherwise, if internal reports indicate performance warranting at least a 5% growth or reduction to EAC, there must be no more than a one month delay between reporting the new EAC and the internal reports introducing these performance trends. h. At a minimum, even if the EACs have not yet been changed, verify the CAM can justify why the EAC is reasonable. (Add to CAM interview)		VARs, EVM Cost Tool, EVM Internal Reports, IPMR/CPR
		IH On Site Interview Questions:			
		1. CAM: When would you change your control account EAC?			
		2. CAM: How do you approve the EAC?			
		3. CAM: Can you justify why you believe the EAC is reasonable?			
		4. CAM: When are you required to update your EAC? **(From 27.B.3)**			
		5. CAM: Do you understand TCPIeac? **(From 27.B.3)**			

27.C.1	Does the annual Comprehensive EACs consider risk, funding, and all project costs by EOC and is it conducted in accordance with the documented EVM process?				
	The Earned Value Guidelines define the EAC as the sum of the contract's cumulative to-date Actual Cost of Work Performed (ACWP) plus the company project manager's best estimate of the time-phased resources (funds) required to complete the remaining authorized work, the Estimate to Complete (ETC). At least annually, a complete "bottoms-up" EAC, called the Comprehensive EAC, is required. A comprehensive EAC is also often prepared at the start of a major project phase, such as the start of production or construction. Consequently, it can reflect the reduced uncertainty resulting from a design release and/or a released bill of material. It must consider risk, funding and all project costs by EOC as documented in the EVM SD and applicable procedures. IMPACT OF NONCOMPLIANCE The EAC provides project management assurance that all factors impacting the total cost to complete project objectives have been considered. Failure to include direct and indirect performance, results in an incomplete EAC which will not provide accurate information. .	**Automated Tests:**			
		1.	X = $ value of CAs where completed work absolute values (BCWPcum - BAC) = 0 and ETC > 0	X / total value of CAs Pass: X/Y = 0 Flag: X/Y > 0 The test is looking for completed work that still has a future ETC remaining.	EVM Cost Tool
		Manual Tests:			
		1. Confirm proper guidance is provided to project personnel developing the comprehensive EAC	a. Review the EAC process in the System Description or EVM supporting processes that describes the comprehensive EAC process.	Document all discrepancies as compliance concerns	EVM SD, Procedures
			b. Review the last comprehensive EAC documentation including the ground rules and assumptions and kickoff meeting content.		EAC Kickoff Documentation
			c. Confirm the process or the project specific ground rules and assumptions provide guidance regarding the following: 1. Cut-off dates for the cumulative BCWS, BCWP and ACWP		
			2. The remaining BCWS by EOC		
			3. Level of detail required by EOC		
			4. Risks and opportunities to be included in the ETC		
			5. Guidance regarding rates to be used		
			6. Issues regarding availability of resources		
			7. A schedule for completion of the comprehensive EAC		
			8. Basis of estimate requirements		
			9. Guidance on inclusion of authorized work only, with exclusion of unauthorized work such as potential changes		

		2. Verify Material Commitment Report values are sufficient to complete the project.are less than or equal to the EAC.	a. Using the EVM Cost Tool, select 10 CAs containing an element of cost for material. 1. Compare the latest CA EAC values in the EVM Cost Tool to the Material Commitment Report.	Document all discrepancies as compliance concerns and make CAM interview questions.	EVM Cost Tool, Material Commitment Report
			2. Compare the open purchase orders for material to the Comprehensive EAC for remaining material.		Open POs, EVM Cost Tool
			3. Check the ACWP for material in the EVM Cost Tool and/or reports from the MRP system.		EVM Cost Tool, MRP Reports
			4. The commitment values for material should correspond to the ETC for remaining work. Determine if there are any future purchase orders for material that have not yet been committed.		
			5. The sum of ACWP + ETC (remaining commitment values + uncommitted purchase orders) must equal the EAC.should be less than or equal to the EAC.		
		3. Confirm that the SD and EAC process documents address inclusion of future conditions, such as process improvements, facility or capital improvements, etc.	a. The guidance should document that the most current set of direct and indirect rates be used in the EAC. Should these rates not cover the entire duration of a specific project, the contractor must project the rates for the out years on a similar, rational basis, based on sound estimates for indirect pools and bases. (See Guideline 13.A.3)		EVM SD and Procedures
		4. Review the last comprehensive EAC.	a. Was an estimation of future conditions to derive the most accurate estimate at completion, e.g., projected rate changes, process improvements that may result in reduced costs, or other economic factors that may impact future costs addressed		Comprehensive EAC

5. Review the last comprehensive EAC and see if it included a EAC rational as to how the estimate was generated.	a. Obtain the information for the last comprehensive EAC update. b. Review the EAC changes - are they supported by a EAC rational and approval? Approval may take various forms or be in total as long as demonstrable?
6. Confirm the project manager and project control staff verifies the realism of the comprehensive EAC at the project level.	a. Determine if the following EAC realism checks are required and have been used for validation of an EAC or as a requirement to update an existing EAC: 1. Comparison of CPIcum to TCPIeac 2. Comparison of EAC to Cum CPI IEAC 3. Comparison of EAC to CPI / SPI IEAC

IH On Site Interview Questions:
1. Project Manager: Please show the detailed documentation for the last completed Comprehensive EAC.
2. CAM: how do you evaluate past performance when developing your estimates for a comprehensive EAC?
3. Project Controls: what set of direct and indirect rates do you use when burdening the direct estimates for the comprehensive EAC?
4. CAM: Do you include risks or opportunities in determining the EAC and if so, how?
5. Material CAM: How do you develop the EAC for your assigned material items? Have you made any EAC adjustments to planned purchase orders that have not yet been committed?
6. Project Manager: When building a comprehensive EAC, how are future conditions best estimated?
7. Project Controls: What direct and indirect rates were used in the last comprehensive EAC? Did you need to project any rates for out years?
8. Project Manager: Who would you contact to discuss a funding breach, and what would be the timeline for this communication?
9. CAM: What funding constraints, if any, where you provided to develop your initial comprehensive EAC?

	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 project organizations.				
	This guideline addresses changes to the baseline in one of two ways: 1.) Incorporate Negotiated Changes: The requirements for handling the incorporation of DOE directed changes, and 2.) Authorized Unpriced Work (AUW): A unique aspect of implementation is reacting to non-formal changes. This section sets the minimum expectation for handling AUW.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
28.A.1	**Are authorized changes incorporated in the CBB, PMB and the IMS no later than one full accounting period following the contractor baseline change documentation approval?**				
	The baseline must reflect the current authorized work scope with contractual changes. The timely and accurate incorporation of contractual changes ensures that the information generated from the execution of the baseline plan provides an accurate picture of progress and facilitates appropriate management actions and decisions. IMPACT OF NONCOMPLIANCE Without timely incorporation of authorized changes, the baseline does not reflect the current authorized work scope from contractual changes, which prevents the proper execution of authorized work.	**Manual Tests:**			
		1. Confirm the process or EVM SD addresses the timely incorporation of new work scope, i.e contract/project modification, no later than one full accounting period after baseline change documentation approval.	a. Does the document clearly state the requirement for timely incorporation of new work scope, but no later than one full accounting period following baseline change documentation approval?	Document all discrepancies as compliance concerns	EVM SD
		2. Confirm contractor baseline changes are incorporated no later than one full accounting period following baseline change documentation approval.	a. Review the control account reports from the EVM Cost Tool with an “as of” date that matches the month-end(s) when the changes were incorporated.	Document all discrepancies as compliance concerns	EVM Cost Tool Reports, Contract, Contract MODs, Baseline Change Documentation
			b. Trace the revised budget on the approved baseline change documentation to the control account reports, and then trace upward to the reporting level in the IPMR/CPR. c. The reported BAC in the IPMR/CPR must match the adjusted BAC at the reporting level.		Baseline Change Documentation, EVM Cost Tool Reports, IPMR/CPR
		3. Verify project/contract modifications are incorporated per the process.	a. Review the contract and select three contract modifications that added work scope. b. Select these from the last twelve periods of data. c. Review the CBB log to determine when these modifications were approved as a baseline change and incorporated into the baseline. 1. X = # contract modifications which add/revise scope that are not incorporated into the PMB in accordance with the System Description	Pass: X = 0 Flag: X > 0	Contract and MODs, CBB Log, EVM SD

		4. Confirm that the reviewed project/contract project modifications are reflected in the IMS.	a. For the same modifications, review the IMS for the same periods to determine if the work scope changes modified the baseline IMS dates as either new activities or modified existing activities. 1. X = # contract modifications which add/revise scope that are not incorporated into the IMS in accordance with the System Description	Pass: X = 0 Flag: X > 0	Contract and MODs, IMS, EVM SD

28.A.2	Is UB distributed to or removed from control accounts or summary level planning packages as soon as practicable, but not later than two accounting periods after the DOE approved change document?				
	Once a DOE approved change document has been approved, the UB budget and scope must be distributed to CAs and/or SLPPs no later than two full accounting periods. IMPACT OF NONCOMPLIANCE Failure to distribute scope and budget in a timely manner after a stop work order may result in delays in detailed planning and work execution. Failure to reclaim budget (in the event of a stop work) in a timely manner may result in work being performed after a stop work order has been issued.	**Manual Tests:**			
		1. Confirm the SD addresses the timely incorporation of UB; not later than two accounting periods after the DOE approved change document is received.	a. Review the EVM SD. b. Verify the document clearly states the time requirement for timely distribution from UB and subsequent incorporation of the definitized scope and budget to be no later than two full accounting periods.	Document all discrepancies as compliance concerns	EVM SD
		2. Confirm the timely incorporation of UB, no later than two accounting periods after the DOE approved change document is received.	a. Review the CBB log and select up to three transactions that changed PMB. b. Select these from the last twelve periods' data.	Pass: X = 0 Flag: X > 0	CBB Log, Contract and MODs
			c. Review the CBB log and contract modifications, BCPs, SOWs, WADs, the IMS and CAPs to determine when these were definitized by contractual action and incorporated into the baseline 1. X = $ value of Format 1 UB not distributed within timeframe in accordance with the SD		CBB Log, Contract and MODs, Baseline Change Documentation, SOWs, WADs, IMS, CAPs, IMPR/CPR Format 1
		IH On Site Interview Questions:			
		1. Project Controls: How often to you review the balance of UB remaining?			

<table>
<tr><td>28.A.3</td><td colspan="4">Does the contractor incorporate authorized changes into the WBS Dictionary, IMS, EVM Cost Tool, CBB Log, and Work Authorization within the same accounting period?</td></tr>
<tr><td rowspan="8"></td><td rowspan="8">The intent of this QE LOI is to ensure all baseline documents (work scope, schedule, and budget) are in agreement with the change authorized on the internal baseline change document, are compliant with the contract change and are all updated during the same accounting period. These QE LOI do not address timing, but do require that when changes are made all of the documentation must be updated in the same month.

IMPACT OF NONCOMPLIANCE
Failure to incorporate authorized changes in the appropriate baseline documents will result in a baseline that is no longer integrated, which result in unauthorized work being performed, or authorized work not being performed.</td><td colspan="3"><u>Manual Tests:</u></td></tr>
<tr><td rowspan="2">1. Verify the process mandates updating baseline documents within the same accounting period.</td><td>a. Review the EVM SD.
b. Confirm the document clearly states the requirement to update baseline documents, all within the same accounting period.</td><td rowspan="5">Document all discrepancies as compliance concerns</td><td>EVM SD</td></tr>
<tr><td>c. Verify the document listing and the approval authority.</td></tr>
<tr><td rowspan="4">2. Per the process, confirm baseline documents are updated after internal (external if required) baseline change documentation approval.</td><td>a. Review the CBB log and select ten approved baseline change documents. Select these from the last twelve periods’ data.
b. Review the baseline change documents to determine if any of the following baseline documents should have been modified: WBS, WBS Dictionary, work authorization documents (WADS), IMS, RAM, control account/WP plans, EVM Cost Tool, and/or other baseline documents as specified by the EVM SD.</td><td rowspan="4">CBB Log, Baseline change documents, WBS, WBS Dictionary, WADs, IMS, RAM, CAPs, EVM Cost Tool, EVM SD</td></tr>
<tr><td>c. Review the appropriate documents to determine if and when they were modified after the baseline change document approval.</td></tr>
<tr><td>d. Confirm the documents subsequently approved by the correct authority were updated within the same accounting period.</td></tr>
<tr><td colspan="3">IH On Site Interview Questions:</td></tr>
<tr><td colspan="3">1. CAM: After a baseline change document (BCP, BCR, etc.) has been approved, what other baseline documents must be amended, and which ones are you responsible for amending?</td></tr>
<tr><td colspan="3">2. Project Controls: After a baseline change document (BCP, BCR, etc.) has been approved, what other baseline documents must be amended, and which ones are you responsible for amending? How do you follow up to ensure that all baseline documents have been amended in the same accounting period?</td></tr>
</table>

28.B.1	**Is AUW incorporated into the PMB at the estimated value of the full authorized scope regardless of any "Not To Exceed" (NTE) spending limitation?**				
	AUW must be incorporated into the PMB at its estimated value for the entire work scope and therefore not be limited to a contractual funding limitation such as a Not to Exceed (NTE). IMPACT OF NONCOMPLIANCE Failure to incorporate the full, estimated budget for all newly authorized work results in a baseline that does not fully represent the work scope of the changed contract.	**Manual Tests:**			
		1. Confirm the full amount of the AUW estimate has been placed in UB.	a. Review the CBB log for the past twelve months for any authorized changes involving AUW.	Document all discrepancies as compliance concerns	CBB Log, DOE email or change document authorizing the AUW
			b. Review the DOE email or change document authorizing the AUW. Did it have an NTE amount, and if so, did the NTE restrict the AUW estimate in the baseline?		
		IH On Site Interview Questions:			
		1. Project Controls: For AUW, how do you ensure the entire estimate is placed in UB, regardless of an NTE?			
		2. Project Controls: What is the basis for the amount placed in UB/CBB logs for AUW?			

	Guideline 29 - Reconcile current budgets to prior budgets in terms of changes to the authorized work and internal replanning in the detail needed by management for effective control.				
	Ensure the ongoing integrity of the Contract Budget Base (CBB), budget traceability throughout the lifecycle of a program must be maintained. Current budgets must reconcile to prior budgets in terms of changes to work scope, resources, schedule, and rates so that the impact of contract changes and internal replanning on overall program growth is visible to all stakeholders.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
29.A.1	**Is the freeze period defined in the SD as no less than the current accounting period plus one period, and is it consistently applied?**				
	The freeze period must be defined in the SD and must be the current accounting period plus the next accounting period. IMPACT OF NONCOMPLIANCE Frequent, continuing, or unallowable adjustments to the baseline within the freeze period will result in the lack of insight into true performance variances and the potential for actual cost mischarging.	**Manual Tests:**			
		1. Confirm process documents define a freeze period.	a. Review the contractor's EVM SD. b. Verify there is a clear description of the freeze period, defining it as current accounting period plus next period, at a minimum.	Document all discrepancies as compliance concerns	EVM System Description
			c. Confirm there is a clear definition of allowable and unallowable baseline changes within the freeze period.		
			d. Verify there is clearly stated guidance on the preparation, coordination, and approval process.		
		IH On Site Interview Questions:			
		1. Project Controls: How do you review baseline change requests that contain proposed changes within the freeze period?			
29.A.2	**Are baseline changes that are defined and implemented within the freeze period described in the EVM system description, with any exceptions designed to improve the quality of EVMS data?**				
	Managers must restrict any baseline and accounting changes during a defined freeze period. IMPACT OF NONCOMPLIANCE Frequent or continuing adjustments to the baseline or accounting data within the freeze period may result in the lack of insight into true performance variances and the potential for actual cost mischarging.	**Automated Tests:**			
		1. Pull a report from the EVM Cost Tool to verify there are no PPs in the freeze period (WPs must be detailed planned before the freeze period).	a. X = # of PPs that have baseline start dates in the freeze period or earlier	Pass: X = 0 Flag: X > 0	EVM Cost Tool
		Manual Tests:			
		1. Verify process documentation provides guidance on changes allowed during the freeze period.	a. Review the contractor's EVM SD. 1. Does it contain a clear description of allowable and unallowable baseline changes within the freeze period, limited to the changes described above?	Document all discrepancies as compliance concerns	EVM SD
			2. Is there a clear definition of the preparation, coordination, and approval process?		

		2. Verify freeze period changes are appropriate and documented in the IPMR/CPR Format 5.	a. Perform a manual check of changes in the freeze period to ensure compliance and process adherence. Review approved baseline change requests that were approved during the period from twelve to three months ago, and select six that had baseline changes in the freeze period. b. X = # of changes checked that are not in accordance with contractor's defined process	Pass: X = 0 Flag: X > 0	Baseline Change Documentation, EVM SD, IPMR/CPR Format 5
		3. Review IPMR/CPR Format 5 to determine if the freeze period changes were documented.	X = # of freeze period changes not documented in the IPMR/CPR Format 5	Document all discrepancies as compliance concerns	IPMR/CPR Format 5
		IH On Site Interview Questions:			
		1. CAM: Is a rolling wave/block plan methodology used for detailed planning?			
		2. CAM: What is the timeline for detailed planning and PP conversion prior to the freeze period?			

29.A.3	**Does documentation for any baseline change include all relative items that impact the baseline planning?**				
	Managers must ensure that all baseline change documentation is reconciled throughout the EVMS. IMPACT OF NONCOMPLIANCE Failure to properly document the supporting details for proposed baseline changes invalidates the integrity of the PMB.	**Manual Tests:**			
		1. Verify process documentation includes baseline change documentation parameters.	a. Review the contractor's EVM SD. b. Verify the documentation contains a clear description of the requirement to include the items listed above, plus others as appropriate, in the baseline approval documentation.	Document all discrepancies as compliance concerns	EVM SD
			c. Verify there is a clear description of the requirement to approve baseline changes if the baseline element of cost(s) needs to be changed.		
		2. Review baseline change requests that were approved during the last six periods, and select six.	a. Confirm this documentation refers to changes in work scope or the means in which the work will be performed (i.e., in house vs. subcontractor).	Document all discrepancies as compliance concerns	Baseline Change Documentation, EVM SD
			b. Review the supporting documentation for the BCR for compliance against the contractor's EVM SD. c. X = # of changes checked that are not in accordance with contractor's defined process	d. Pass: X = 0 e. Flag: X > 0	
		3. Review approved BCRs for the last twelve months to determine if any included a change in earned value technique (EVT). If so, verify the changes resulted in one of the two following actions:	a. The existing WP was closed (setting BCWScum and BAC equal to BCWPcum, keeping the cost variance) and a new WP was opened and planned using the new EVT (preferred method), or	Document all discrepancies as compliance concerns	Approved Baseline Change Documentation, EVM Cost Tool, QBDs
			b. The existing WP EVT was revised by justifying the change because of an error, recalculating BCWP new cum-to-date percent complete with the new EVT and new documented QBDs, verifying the schedule was updated reflecting the EVT change and impact to the schedule data, and reviewing and justifying the new time phased budget data (if applicable).		

29.B.1	**Are the revised schedules and budgets resulting from authorized baseline changes traceable to the prior schedules and budgets?**				
	Current budgets and schedules must reflect the current levels of authorized work and be based on resources needed to complete that work. The budgets must be traceable to original authorized budgets and scope. IMPACT OF NONCOMPLIANCE Inability to trace the changes leading to the current budget baseline results in a lack of confidence that the baseline changes were properly authorized and implemented, leading to a lack of confidence in the validity of the baseline.	**Manual Tests:**			
		1. Confirm that the BAC reconciles with approved budget changes.	a. Review the CBB log to identify which control account budgets were revised during the current period. b. For each control account, sum the value of the BAC from the prior period (from the EVM Cost Tool output) plus the value of the approved BAC change as shown in the log. c. Compare that sum to the current budget shown for the control account in the EVM Cost Tool. The numbers must equal. Count the number of CAs where this comparison is not equal to zero. 3. X = # of CAs where ((Prior period CA BAC + Sum (current period changes to CA BAC)) - Current period CA BAC) <> 0 = total # CAs	4. Pass: X = 0 5. Flag: X = >0	CBB Log, EVM Cost Tool, Approved Baseline Change Documentation
		2. Confirm the IMS supports the authorized baseline changes.	a. Review the IMS PoP for the applicable activities that support the work scope that was changed by the authorized change. 1. Confirm that activity baseline start and finish dates support any changes in the PoP.	Document all discrepancies as compliance concerns	IMS, Approved Baseline Change Documentation, EVM Cost Tool
			2. If the IMS is resource loaded, confirm the changes are reflected in the resource allocation.		

29.B.2	**Are internal changes fully authorized consistent with the contractors change control/SD process?**				
	Internal replanning should not be used as an alternative to proper initial planning, nor should it be used to mask legitimate variances. IMPACT OF NONCOMPLIANCE Failure to follow the established process results in unauthorized baseline changes and also the potential for out of scope work or unauthorized expenditures and/or unallowable costs.	**Manual Tests:**			
		1. Confirm the process for baseline change revisions.	a. Review the EVM SD. b. Verify the document clearly defines the process for the preparation, review, and approval of internal baseline changes. c. Confirm the document clearly defines the approving authority.	Document all discrepancies as compliance concerns	EVM SD
		2. Verify baseline changes are reviewed, approved, and documented.	a. Select ten BCRs from the CBB log over the last six periods and review the approved BCR. b. Confirm that the correct authority (per the SD) approved the BCR.		Baseline Change Documentation, CBB Log
			c. Verify the appropriate personnel, e.g., CAM, project control, scheduler, etc., also coordinated on the BCR prior to final approval.		
29.B.3	**If the proposed change involves UB, does the change reconcile with the transfer to or from CAs, SLPPs, or MR?**				
	Management must ensure that if a change involves the UB, it is reconciled with the CAS, SLPPS, or MR. IMPACT OF NONCOMPLIANCE Failure to record offsetting and equal entries against UB and the distributed budget will result in erroneous values for the budgets and an inaccurate baseline.	**Manual Tests:**			
		1. Per the process, confirm the timely distribution of UB.	a. Review the Project's budget logs (CBB, UB, MR, etc.) to identify UB transactions over the past six periods. b. Determine when the budget was placed into UB, and then when it was distributed. c. Compare this to the maximum time allowed in the SD. (Note: exceptions should be made for budget that is still undefinitized that may remain in UB until definitized) 1. X = $ value of Format 1 UB not distributed within timeframe in accordance with the SD	Pass: X = 0 Flag: X > 0	Logs, EVM SD
		2. Verify UB transactions are supported by BCRs.	a. Review the Project's budget logs (CBB, UB, MR, etc.) to identify UB transactions from UB to CAs over the past six periods. 1. Confirm each transaction is properly supported by an approved BCR.	Document all discrepancies as compliance concerns	Logs, EVM SD, Baseline Change Documentation

		2. Verify each transaction that distributes UB has an opposite transaction that adds budget to one or more CAs in the distributed budget.		Logs
		3. Review the supporting BCRs for compliance with the System Description.		EVM SD, Baseline Change Documentation
3. Verify movement of budget and work from CAs into UB		a. Review the CBB log to identify any transfer from control account budgets into UB. 1. Confirm each transaction is properly supported by any approved BCR and that the corresponding work is also being transferred.	Document all discrepancies as compliance concerns	CBB Log, Baseline Change Documentation
		2. Verify each transaction has a corresponding decrease in the distributed budget by control account.		
4. Verify the value of UB is not negative.		a. X = $ value of IPMR/CPR Format 1 UB	Pass: X => $0 Flag: X < 0	IPMR/CPR Format 1

29.B.4	**Does the contractor limit the use of management reserve (MR) to use within project scope and out of scope control account changes; indirect rate changes, changes to planning assumptions; make/buy decisions, or subcontractor original negotiations?**				
	While the contractor system may specify restrictions on the use of MR, there are general principles that must be observed. MR is used for new work that is within scope of the project, but is out of scope to the control account. Other circumstances include risk and opportunity handling, work needing to be repeated, and changes to future budgets for work that has not yet begun. MR may also be allocated for significant indirect rate changes, changes to planning assumptions, make/buy changes, or subcontractor original negotiations and technically based risks identified in the contractor risk register. MR is never used to offset or zero out variances, for either cum-to-date or projected variances. MR is never a negative value. IMPACT OF NONCOMPLIANCE Violating the prohibition against applying MR to existing work within the CAs will result in elimination or distortion of performance variances, severely curtailing management's ability to identify and correct performance issues and/or estimate project completion cost and/or date.	**Manual Tests:**			
		1. Confirm MR values reconcile between internal and external reporting.	a. Review the IPMR/CPR from the prior reporting period. Take the reported value of MR, and then add the sum of all MR changes for the current reporting period from the project's budget logs (CBB, UB, MR etc.,) log. Compare this to the reported MR value in the IPMR/CPR for the current reporting period. 1. X = ($ value of previous period Format 1 MR + Sum (all current period MR changes from log)) - current Format 1 MR	Pass: X = 0 Flag: X <> 0	Logs, EVM Cost Tool, IPMR/CPR
		2. Verify MR values reconcile between external reporting and the baseline change log value	a. Compare the values for MR in the IPMR/CPR (last reporting period) to the value of MR in the project's budget logs (CBB, MR, UB, etc.,) log (as of the last reporting period). 1. X = Format 1 MR – project budget logs (CBB, MR, UB, etc.).	Pass: X = 0 Flag: X <> 0	Logs, IPMR/CPR Format 1

		3. Confirm each MR transaction has a corresponding BCR and is not for: Known problems Masking variances Overruns	a. Review the CBB log to identify MR transactions over the past six periods. b. Verify each transaction is properly supported by an approved BCR.	Pass: X = 0 Flag: X <> 0	CBB Log, Baseline Change Documentation
			c. Review the supporting BCRs for allowed uses within the list below: compliance with the System Description. 1. project scope and out of scope control account changes; 2. indirect rate changes, changes to planning assumptions; 3. make/buy decisions, 4. or subcontractor original negotiations? 5. Technical based risks defined in the risk register. 6. X = # of Format 1 MR transactions not in accordance with System Description allowed reasons		Baseline Change Documentation, EVM SD
		4. Confirm MR value is not negative. a. Review the IPMR/CPR for the past six periods.	X = $ value of IPMR/CPR Format 1 MR	Pass: X => $0 Flag: X< $0	IPMR/CPR Format 1
29.C.1	**Are changes to BCWS in open WPs beyond the freeze period limited to time phasing the existing budget?**				
	The only permissible change to open WPs is a change in the time phasing of the existing budget by EOC beyond the freeze period without DOE approval/direction. This procedure is to ensure baseline stability and a continuing valid measurement of reported BCWP. IMPACT OF NONCOMPLIANCE Failure to have effective baseline controls in place for open WPs will result in an unstable baseline, unauthorized changes, and lack of insight into the true performance of the project.	**Manual Tests:**			
		1. Verify there are no changes to BAC of open WPs by reviewing the WP data in the EVM Cost Tool output.	a. X = $ Value of BAC for WPs where cum ACWP > 0 and current month BAC does not equal previous month BAC. Note: exclude overhead and allocation roll-up accounts/WPs.	b. Pass: X = 0 c. Flag: X <> 0	
		2. Review the CBB log for the past twelve months for any changes to open WPs.	a. Review the BCR and supporting details to ensure that the only change was to the time phasing of budget beyond the freeze period.	Document all discrepancies as compliance concerns	CBB Log, Baseline Change Documentation
			b. Review the IMS to ensure that the corresponding change was made to the baseline dates and duration as appropriate.		IMS

29.C.2	**Are open LOE Work Packages with insignificant cumulative ACWP reviewed for purposes of replanning to reduce false variances?**				
	Management must ensure that open LOE WPS are recorded at the proper time and aligned when the actual expected costs occur. LOE WPs may be replanned within the freeze period when few cumulative actuals have occurred, to ensure that BCWP will be recorded at the proper time to align with the time frame when actual costs are expected to occur. The interpretation of few is less than 10% actuals to date as compared with the cumulative budget. However, if significant actual costs have already been recorded, these baseline changes are prohibited without a scope change. IMPACT OF NONCOMPLIANCE When LOE WPs are not replanned to align with expected actual costs, BCWP will be still be automatically recorded, resulting in a false cost variance.	**Manual Tests:**			
		1. Verify that LOE work packages with less than 10% actuals compared to the BAC have been replanned into the future.	a. Review the CAP, filtered for LOE, for WPs with less than 10% actuals and greater BCWP.	Document all discrepancies as compliance concerns	EVM Cost Tool - CAP
29.D.1	**Are all changes documented in the CBB log that includes CA, SLPP, PP, MR, UB information and reconciled month to month.**				
	Every transaction for MR or UB must be thoroughly documented with the appropriate supporting details in change control documentation. Typically, an entry is made in the project's applicable budget log (CBB, MR, UB, etc.) when the CAM requests a number to begin preparation of the change. After approval, the approval date is noted in the log, and the appropriate adjustments are made to MR or UB, and to the distributed budget. IMPACT OF NONCOMPLIANCE Inappropriate or improperly tracked baseline changes result in an unstable and corrupt baseline, causing bad information for decision making by the project manager. Baseline changes that are poorly justified may lead to poor work execution and scope creep.	**Manual Tests:**			
		1. Verify process documentation and implementation describes the requirements for MR and UB tracking in the project's applicable log(s) (CBB, MR, UB, etc.).	a. Review the contractor's EVM SD. b. Confirm the process contains a clear description of the requirement to track MR allocation by control account in the applicable log.	Document all discrepancies as compliance concerns	EVM SD
			c. Confirm the process contains a clear description of what is allowable and unallowable for MR allocation.		
			d. Confirm the process contains a clear description of the requirement to track UB distribution by control account in the applicable log.		EVM SD, logs
			e. Confirm that the logs are implemented consistent with the process		
		3. Confirm baseline changes are reflected in revised project documentation reconcile to previous documents.	a. Review the CBB log and select three BCRs that were approved during the period within the last twelve months.	Document all discrepancies as compliance concerns	CBB log, Baseline Change Documentation

			b. Review the BCR for information about the approved changes to work scope, schedule, and budget. Compare the following documents for each BCR: WBS, work authorization document, IMS, and WP budgets. Trace from the prior values in the prior documents for work scope, schedule, and budget to the new values in the amended documents. There must be traceability from the prior to the new documents, based on the approved BCR changes.		EVM Cost Tool, Baseline Change Documentation, WADs, WBS Dictionary, IMS, logs, RAM, IPMR/CPR, PARSII.
		4 This was added at the end of this LOI - not sure where it came from.	Do changes to the PMB only include those made as a result of formal reprogramming, contractual redirection, internal replanning, distribution of UB, and use of MR?	Document all discrepancies as compliance concerns	EVM Cost Tool, Baseline Change Documentation
		5 This was added at the end of this LOI - not sure where it came from.	Are changes to the PMB recorded in the project documentation (WADs, WBS Dictionary, schedules, logs, RAM, internal change documentation, and significant changes addressed in external reports such as IPMR/CPR, and PARSII)?		EVM Cost Tool, Baseline Change Documentation, WADs, WBS Dictionary, IMS, logs, RAM, IPMR/CPR, PARSII.
		6 This was added at the end of this LOI - not sure where it came from.	Does change documentation provide visibility into the “from/to” changes by control account and the control account time-phasing?		Baseline Change Documentation

	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 must 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.				
	Ensure retroactive changes to previously reported data are limited in order to maintain the credibility of using data to project future cost and schedule performance. The changes should be limited to routine accounting adjustments, definitization of customer-approved contract actions, rate changes, economic price adjustments, or correction of errors.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
30.A.1	**Does the contractor limit retroactive changes to routine accounting adjustments, definitization of contract actions, customer or management directed changes, or to improve the baseline integrity and accuracy of performance measurement data?**				
	Management controls and limits the number of retroactive changes to previously reported data. IMPACT OF NONCOMPLIANCE Failure to control and restrict retroactive changes to the above conditions may result in a significant number of retroactive changes to previously reported data, thereby invalidating the monthly analysis and management decisions by the contractor's management and by the DOE.	**Automated Tests:**	Note: the following checks are not necessarily pass/Flag. If there are any CAs or WPs with data that meet the criteria, further review is required as specified in Step 2 of Artifact Traces		
		1. At level where budgets are established, Check for any negative values for the current period BCWS:	a. X = Total $ Value of BCWScur < 0 (Note: Looking for negative BCWScur values)	X / Total Value of BCWScur. Pass: X = 0 Flag: X < 0 If this step Flags, continue with step 2 in Artifact Traces between Documents.	EVM Cost Tool
		2. Check for any negative values for BCWPcur:	a. X = Total $ Value of BCWPcur < 0	X / Total $ BCWPcur Pass: X = 0 Flag: X < 0 If this step Flags, continue with step 3 in Artifact Traces between Documents.	
		3. Check for any negative values for the current period ACWP:	a. X = Total $ Value of ACWP cur < 0	X / Total Value of ACWPcur b. Pass: X = 0 c. Flag: X < 0	
		4. Check for any negative values for cumulative to date BCWS:	a. X = Total $ Value of BCWScum < 0	X / Total $ BCWScum Pass: 0 Flag: X < 0 If this step Flags, continue with step 2 in Artifact Traces between Documents. There must be no instances of negative cum-to-date data.	

		5. Check for any negative values for cumulative to date BCWP:	a. X = Total $ Value of BCWPcum < 0	X / Total $ BCWPcum. Pass: X = 0 Flag: X < 0 If this step Flags, continue with step 2 in Artifact Traces between Documents. There must be no instances of negative cum-to-date data.	
		6. Check for any negative values for cumulative to date ACWP:	a. X = Total $ Value of ACWPcum < 0	X / Total $ ACWPcum Pass: X = 0 Flag: X < 0 If this step Flags, continue with step 2 in Artifact Traces between Documents. There must be no instances of negative cum-to-date data.	
		Manual Tests:			
		1. Verify the process documentation provides adequate controls for retroactive changes.	a. Review the contractor's EVM SD and any supporting process documentation. 1. Confirm there is a clear definition of retroactive changes, along with a clear description of allowable and unallowable retroactive changes.	Document all discrepancies as compliance concerns	EVM SD and procedures
		2. Verify no changes are made to prior reporting periods via the PARSII Retroactive Change Indicator report.	X = # of changes made to prior reporting periods via the PARSII Retroactive Change Indicator report.	If changes, then discuss with PM/CAM the justification.	PARSII Retroactive Change Indicator Report
		3. If step 2 in the Data Analysis (Automatable) Flags, continue with this step to determine restrictions on negative current BCWP and related documentation.Confer with the CAM there is a technical basis that caused the negative BCWP (if not single point adjustment).	a. Review the IPMR/CPR for the month of incorporation and determine if the adjustment is explained adequately in the Format 5.	Document all discrepancies as compliance concerns	IPMR/CPR Format 5
		IH On Site Interview Questions:			
		1. Project Controls: What adequate internal controls are in place for retroactive changes?			

30.A.2	**Is the use of single point adjustments restricted to the development of a new realistic PMB, performed with customer approval, and in accordance with the Contractor's documented System Description?**				
	A Single Point Adjustment (SPA) is the process that sets existing contract cost and/or schedule variances to zero and typically accompanies a replan of remaining effort with the goal of completing the project on schedule and within budget. IMPACT OF NONCOMPLIANCE Frequent and uncontrolled use of SPA techniques results in performance variances being continually eliminated, with the result that performance data is useless for analysis and predictive forecasting.	**Automated Tests:** These tests overlap and are counted as one. The primary purpose is to see if a single point adjustment of any type occurred. Then the follow-up should be can the contractor demonstrate that it was performed to create a realistic baseline and they obtained Government approval	Note: the following checks are not necessarily pass/Flag. If there are any CAs or WPs with data that meet the criteria, further review is required as specified in Step 2 of Artifact Traces.		
		1. Find the S = P variation of the Single Point Adjustment:	X = Sum (BCWPcur) When the SVcur = 0 AND Declared EVT <> LOE SVcur = BCWPcur - BCWScur	X / Total BCWPcur Pass: X/Y =0 Flag: X/Y <>0	EVM Cost Tool
		2. Find the P = A variation of the Single Point Adjustment:	X = Sum (BCWPcur) When the CVcur = 0 CVcur = BCWPcur - ACWPcur	X / Total BCWPcur Pass: X/Y =0 Flag: X/Y <>0	
		3. Find the S = P = A variation of the Single Point Adjustment:	X = Sum (BCWPcur) When the SVcur = 0 AND Declared EVT <> LOE And When the CVcur = 0 SVcur = BCWPcur - BCWScur CVcur = BCWPcur - ACWPcur	x / Total BCWPcur Pass: X/Y = 0 Flag: X/Y <> 0	
		4. Find the S = P variation of the Single Point Adjustment:	X = Sum (BCWPcum) When the SVcum = 0 AND Declared EVT <> LOE SVcum = BCWPcum - BCWScum	X / Total BCWPcum Pass: X/Y =0 Flag: X/Y <>0	
		5. Find the P = A variation of the Single Point Adjustment:	X = Sum (BCWPcum) When the CVcum = 0 CVcum = BCWPcum - ACWPcum	X / Total BCWPcum Pass: X/Y =1 Flag: X/Y <>1	

		6. Find the S = P = A variation of the Single Point Adjustment:	X = Sum (BCWPcum) When the SVcum = 0 AND Declared EVT <> LOE And When the CVcum = 0 SVcum = BCWPcum - BCWScum CVcum = BCWPcum - ACWPcum	X / Total BCWPcum Pass: X/Y <> 0 Flag: X/Y = 0	
		Manual Tests:			
		1. If the contractor chooses to incorporate an SPA process, confirm it is properly documented.	a. Review the contractor's EVM SD and any supporting process documentation for a clear description of the SPA process, its use, and the requirement to limit these adjustments to rebaselining in order to lay in a more realistic baseline.	Document all discrepancies as compliance concerns	EVM SD
			b. Verify the SD or process documentation requires that advance notification of a SPA be given to the customer's contracting officer for approval.		
		2. If step 1-6 in the Data Analysis (Automatable) identifies SPA adjustments, continue with this step to evaluate SPA documentations and implementation.	a. Review the data for the CAs or WPs in the output from the EVM Cost Tool for the reporting period. Review the supporting details for compliance with the contractor's processes and any specific guidance issued for the SPA.	Document all discrepancies as compliance concerns	EVM Cost Tool, Supporting Details
			b. Review the customer's contracting officer approval documentation and compare the date of the approval to the date of the SPA. The approval date must be earlier than the date of the SPA incorporation.		Customer's Contracting Officer approval, SPA documentation

	Guideline 31 - Prevent revisions to the project budget except for authorized changes.				
	Prevent the incorporation of unauthorized revisions into the Contract Budget Base (CBB).				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
31.A.1	**Are project budgets (CBB or TAB) only revised through project authorization from DOE?**				
	Disciplined baseline change control helps maintain the relationship between the Contract Budget Base (CBB) at target cost and the project value (includes profit and/or fee). IMPACT OF NONCOMPLIANCE Unauthorized revisions could inadvertently result in baseline budgets or schedules that exceed the contract budget base (CBB). Failure to maintain this one-to-one relationship between the CBB and the project value may also result in authorized work not being approved and budgeted if the CBB target cost does not reconcile with the value of the project that includes profit and/or fee.	**Manual Test:**			
		1. Verify any changes to project budget values are authorized.	a. Review the CBB log over the past twelve months. b. Confirm any change to the CBB results only from a contract/project award or modification.	Document all discrepancies as compliance concerns	CBB logg, contract/project award/MOD
			c. Ensure the contract/project award or modification number is noted in the log.		
			d. Verify the date of the log entry was after the effective date of the award or modification.		
		2. Confirm any implemented OTBs adhere to the process.	a. Review the CBB log to determine if any OTBs have been implemented. b. Note the date of the OTB and the official contracting officer documentation granting approval to initiate the OTB. c. Verify the date of the OTB occurs after the approval date.	Document all discrepancies as compliance concerns	CBB log, OTB documentation and approval
			d. When comparing the approval date from the CBB log to the IPMR/CPR reports, confirm the OTB was incorporated in the same month.		CBB log, IPMR/CPR
			e. Verify the OTB is reported properly in the IPMR/CPR.		

	Guideline 32 - Document changes to the performance measurement baseline.				
	Ensure changes to the Performance Measurement Baseline (PMB) are transparent to program stakeholders and are documented throughout internally and externally affected systems and reports.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
32.A.1	**Are authorized changes to the PMB documented and traceable throughout the contractor's EVMS?**				
	Using a disciplined, systematic change control process to document PMB changes provides assurance that everyone on the project team is using the same technical scope, schedule, and budget baselines to measure and manage performance. This enhances internal and external management confidence in the performance data that is used to make programmatic decisions.. IMPACT OF NONCOMPLIANCE Failure to properly document baseline changes results in a poor baseline that will be difficult to execute. This will also result in difficulty when implementing subsequent baseline changes.	**Manual Test:**			
		1. Verify baseline changes are documented and justified.	a. Review the CBB log and select ten baseline change requests. b. Confirm the justification addresses the differences between the original baseline and the proposed change, including the rationale for the change. c. The justification must also include scope, schedule, and budgetary impacts. 1. X=# of baseline change documents without justification	Pass: X = 0 Fail: X <> 0	CBB Log, Baseline Change Documentation
		2. Confirm approved changes in the baseline budget and schedule are traceable.	a. Review the CBB log and select three BCRs for the last twelve months. Trace the approved baseline change through the following documents: 1. Budget: trace the phased budget from the BCR details to the WP budgets in the EVM Cost Tool output and to the resource loading in the IMS.	Document all discrepancies as compliance concerns	CBB Log, Baseline Change Documentation, EVM Cost Tool, IMS
			2. Total budget: trace the total BAC for each control account from the BCR to the EVM Cost Tool output, WAD, dollarized RAM, internal cost reports and IPMR/CPR (if available at that level)		CBB Log, Baseline Change Documentation, EVM Cost Tool, IMS, WAD, RAM, Internal Cost Reports, IPMR/CPR
			3. Schedule: trace the revised dates from the BCR to the baseline IMS dates and the WAD.		CBB Log, Baseline Change Documentation, EVM Cost Tool, IMS, WAD
			4. If applicable verify WBS change, WBS Dictionary changes, control account/WP plans		CBB Log, Baseline Change Documentation, WBS Dictionary, WADs, EVM Cost Tool, CAPs
		IH On Site Interview Questions:			
		5. CAM: After a BCR has been approved, what other baseline documents must be amended, and which ones are you responsible for amending? How do you follow up to ensure that all baseline documents have been amended?			

	Guideline 4 - Identify the company organization or function responsible for controlling overhead (indirect costs).				
	This GL is to ensure the project manager understands who within the company structure is responsible for establishing, approving, managing, controlling, and assigning resources to overhead (indirect costs) budgets.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
4.A.1	**Does a disclosure statement or other document define the indirect cost structure, burden base and the type of cost including the Elements of Cost contained in each defined rate?**				
	The contractor must have formal (written) procedures for identifying the applicable pools and cost elements. These procedures must also identify the method used to allocate costs from the pools to the appropriate receiving bases. The need for these descriptions will exist in the contractor's EVM SD that will reference the actual descriptions located in the contractor's Disclosure Statement and internal accounting procedures/instructions. IMPACT OF NONCOMPLIANCE Failure to define the indirect cost structure, burden base and the type of cost contained in each defined rate could cause indirect costs to be allocated, budgeted and collected in an inconsistent manner and can lead to a lack of indirect cost control and serious cost-overrun problems for projects.	**Manual Tests:**			
		1. Verify that the Disclosure Statement or the Contractor's Accounting Procedures define the indirect cost structure, burden base and the type of cost contained in each defined rate.	a. Obtain the Disclosure Statement and Accounting Procedures. Review to ensure one of these documents defines the indirect cost structure, burden base and the type of cost contained in each rate.	Document all discrepancies as compliance concerns	Disclosure Statement, Accounting Procedures

4.A.2	**Is there a process that clearly reflects how indirect cost responsibility is established, budgets are developed, authority is controlled for expenditures, thresholds are published, expenses are controlled, and variance analysis is performed as necessary?**				
	This QE LOI sets up the requirement for the contractor to have documentation and execution of an indirect budgeting, expenditure, and analysis of all indirect pools. IMPACT OF NONCOMPLIANCE Failure to provide written procedures that clearly define the indirect cost processes could lead to ineffective management and control of indirect costs – leading to significant cost overruns for the project.	**Manual Tests:**			
		1. Verify the Contractor's EVM SD clearly describes or references procedures that reflect processes for Indirect Management and Control. Also, verify the Accounting Procedures clearly describe the procedures that reflect those same Indirect processes.	a. Obtain the EVM SD and check to see if detailed procedures are described or referenced (e.g., Accounting Procedures for Indirect Management and Control) for the processes to establish indirect cost responsibility, develop budgets, control authority for expenditures, publish thresholds, control expenses and perform variance analysis as necessary.	Document all discrepancies as compliance concerns	EVM SD, Accounting Procedures
			b. Obtain the Contractor's Accounting Procedures and review the indirect management procedures to ensure they clearly define the processes for establishing indirect cost responsibility, developing budgets, controlling authority for expenditures, publishing thresholds, controlling expenses and performing variance analysis as necessary.		
			c. Is the implementation consistent with the defined process?		
		2. Verify organizational assignments and authority level are clearly defined for each indirect pool/category.	a. Obtain and review the contractor's organization charts and check to see if organizational assignments and authority level have been established for each indirect pool/category.		Org Charts
			b. Obtain job descriptions, task assignments, and control assignments to determine if there is a clear description and assignment to manage and control indirect costs for each indirect pool/category.		Job Descriptions, task assignments, control assignments - indirect pool/category
		3. Obtain the contractor's EVM SD and detailed indirect procedures and verify they describe the managers' responsibility for controlling indirect costs and their authority over the charges within the indirect cost pool	a. Ensure the managers are able to initiate cost corrections.		EVM SD, Accounting Procedures
			b. Ensure limits of each indirect manager's authority are stated very specifically.		

			c. Obtain the managers' job description and ensure the managers' responsibility for managing and controlling indirect costs is included.		Indirect manager's job description
		4.	Obtain the contractor's Accounting Procedures (detailed indirect procedures) and verify they document the processes and responsibility for managing indirect pool corrective actions, including the requirement for management review and oversight		Accounting Procedures
		5.	Obtain the Corrective Action Plans/Log to verify indirect corrective actions are being documented and managed.		Corrective Action Plans/Log
		6. Obtain the contractor's EVM SD and Accounting Policies and Procedures and verify they are consistent with the CAS Disclosure Statement.	Obtain any formally documented temporary authorization of changes. Note: the intent here is that the documents are "consistent" not that they are identical.		EVM SD and Accounting Policies/Procedures, CAS Disclosure Statement

4.A.3	**Is the level of indirect cost allocation and management within the project defined in the contractor's System Description or detailed indirect procedures?**				
	The contractor must define within the EVM SD or detailed indirect procedures how indirect costs will be allocated and applied within the project budgets. IMPACT OF NONCOMPLIANCE Failure to define and document the contractor's level of indirect cost allocation and management for projects could lead to an inequity of cost allocation to projects and a lack of cost control and serious cost overrun problems.	**Manual Tests:**			
		1. Verify the contractor's EVM SD and/or detailed indirect procedures define the level of indirect cost allocation and management within the project.	a. Obtain the contractor's EVM SD and detailed indirect procedures. Verify within these documents that formal guidance for identifying, defining and managing the level of indirect cost allocation within the project exists.	Document all discrepancies as compliance concerns	EVM SD and/or Indirect Accounting Procedures

	Guideline 13 - Establish overhead budgets for each significant organizational component of the company for expenses, which will become indirect costs. Reflect in the project budgets, at the appropriate level, the amounts in overhead pools that are planned to be allocated to the project as indirect costs.				
	The contractor must establish indirect (overhead, burden, COM, and G&A expense) budgets at the appropriate organizational level for each pool and cost sub-element. Program-specific budgets for indirect costs are developed and planned in conjunction with the direct budgets and must be consistent with the contractor's documented procedures for how indirect costs are approved and allocated to the program. This methodology is normally described in the organization's accounting procedures.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
13.A.1	**Are indirect budgets established and projected, annually at a minimum, for each organization which has authority to incur indirect costs?**				
	Each functional organization that has the authority to incur indirect costs must be accountable for the establishment, maintenance, and control of its own indirect budget. IMPACT OF NONCOMPLIANCE Without establishment of indirect budgets on a regular basis, the contractor has no ability to establish indirect rates and properly allocate indirect costs.	**Manual Tests:**			
		1. Verify indirect budgets are established and projected, annually at a minimum, for each organization which has authority to incur indirect costs	a. Obtain the contractor's Disclosure Statement and detailed indirect procedures. b. Review the definition of indirect expenses, overhead pools (including their composition), and the bases for allocation to the contract. c. Ensure they describe the procedures for establishing indirect budgets, annually at a minimum, for each organization that has authority to incur indirect costs.	Document all discrepancies as compliance concerns	Disclosure Statement, Indirect Accounting Procedures
			d. Verify the procedures specify each organization that has authority to incur indirect costs.		
			e. Ensure the contractor's EVM SD describes the requirement to establish annual indirect budgets. Note this may be a general statement with a reference to the detailed accounting procedures.		EVM SD
			f. Obtain the contractor's internal reports to verify indirect budgets have been established and at what level and organization.		EVM Cost Tool Reports, Indirect internal reports
			g. Obtain the initial budget for the current fiscal year. Review the budget document to ensure the annual budgeting cycle is implemented no later than the start of the fiscal year.		EVM Cost Tool, Annual budget
			h. Review the annual budgeting process to ensure that the kickoff and budget was developed prior to the beginning of the fiscal year		Annual Budgeting Procedures/Process - Indirects
		IH On Site Interview Questions:			
		1. Indirect Cost Manager: How do you project your company's business volume? What is the percentage breakout by category, e.g., firm/on contract, follow on, likely to win, or less likely to win? **(From 13.A.3)**			

13.A.2	**Are Indirect budgets incorporated into the PMB in concert with documented processes and current rates (i.e., approved, provisional, proposed)?**				
	Just as with direct budgets, indirect budgets must be included in the PMB using the current rates to ensure the PMB represents a realistic baseline plan as specified in the Contractor's EVM SD. IMPACT OF NONCOMPLIANCE Failure to include realistic indirect budgets in the PMB would invalidate the PMB as a realistic baseline plan.	**Manual Tests:**			
		1. Review the EVM SD and contractor policy and procedures for indirect budgeting and cost control to ensure processes are included for incorporating indirect budgets into the PMB (note: the location of detailed processes may be referenced in the EVM SD).	a. Verify the contractor has a process to ensure indirect rates are updated as necessary.	Document all discrepancies as compliance concerns	EVM SD and Indirect policy and procedures
			b. Obtain internal EVM reports (CAPs) and compare to indirect budgets and rates to verify indirect budgets are incorporated into the PMB using current rates.		CAPs

	Guideline 19 - Record all indirect costs that will be allocated to the project.				
	All indirect costs must be properly and correctly allocated in a consistent manner to the contract(s) that apply and at the level where overhead budgets are established.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
19.A.1	**Are indirect costs charged to the appropriate indirect pools?**				
	The contractor has the responsibility through internal audits to assure that indirect charges are properly recorded throughout the accounting structure. The contractor also has the responsibility to assure that such costs are not duplicated (i.e. that they are not charged to more than one pool nor charged to both an indirect pool and at the same time to a direct/allowable cost element). IMPACT OF NONCOMPLIANCE The lack of clear definition of organizational assignments and authority level for each indirect pool/category can lead to a lack of indirect cost control and to serious cost overrun problems for projects.	**Manual Tests:**			
		1. Review the contractor's internal audit reports to assess whether indirect costs are applied properly without duplication.	a. Examine an accounting cost element report. b. Ensure that the cost elements are charged to the appropriate pools without duplication.	Document discrepancies as compliance concerns.	
19.A.2	**Are the indirect rate adjustments applied consistently among all applicable projects?**				
	Indirect cost adjustments can be made on a monthly basis by using cumulative data information rather than single-month data as the basis for allocation of indirect costs to contracts. Unless these periodic adjustments are made when actual indirect cost rates significantly vary from the budgeted rates, contractor data being generated by the performance measurement system will be distorted. IMPACT OF NONCOMPLIANCE The failure to apply indirect rate adjustments consistently among all applicable projects over and/or under-allocation of the pool costs is likely to occur and contractor data being generated by the EVM system will be distorted which could impact the project EAC.	**Manual Tests:**			
		1. Verify the contractor has a process to ensure indirect rates are updated as necessary.	a. Review the EVM SD and Accounting Procedures to verify that a process is in place to update indirect rates as necessary and that the updated rates are applied consistently.	Document all discrepancies as compliance concerns	EVM SD and Accounting Procedures, FPRA, Indirect Internal Reports
			b. Review the current FPRA and verify when and how the contractor is updating rates and making periodic adjustments to prevent significant year-end adjustments.		
			c. Obtain internal reports to verify indirect rates are being updated and applied consistently among all projects.		

	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.				
	Indirect cost variances are regularly identified and reviewed for insight into their impact on overall program cost performance. This will facilitate program management's ability to forecast future indirect cost performance as well as develop corrective action plans intended to regain program objectives.				
#	**Interpretive Discussion**	**Test Steps**	**Test Metric**	**Metric Threshold**	**Artifacts**
24.A.1	**Are there variance thresholds established for indirect pool variance analysis and reporting?**				
	Indirect pools such as Overhead, Burdens, G&A, or COM must each have thresholds established for indirect performance of the base and expenses. IMPACT OF NONCOMPLIANCE Failure to document thresholds can indicate a risk for large adjustments to project costs and result in funding shortages.	**Manual Tests:**			
		1. Verify that thresholds are established for each pool defined in the CAS Disclosure Statement	a. Obtain the disclosure statement. Verify the number and type of indirect cost pools.	Document all discrepancies as compliance concerns	Disclosure Statement, Indirect Thresholds for each pool
			b. Interview the accounting staff responsible for indirect identified in Guideline 1. Ask to see the thresholds for each pool in the current year.		
			c. Review the thresholds for the pool for reasonableness, reviewing tolerance for the size and scope of the pool.		
24.A.2	**Are the results of indirect variance analysis provided to the appropriate level of project management on a routine basis?**				
	This QE LOI ensures that the indirect variance analysis is provided to the capital assets projects to support the EAC update process. IMPACT OF NONCOMPLIANCE Failure to integrate indirect analysis with project level EAC analysis can significantly understate total project costs.	**Manual Tests:**			
		1. Verify the PM receives the results from indirect variance analysis that exceeds a threshold.	a. Interview the project manager of the project(s) being reviewed. Verify that the project manager or project controls analyst received notification of the indirect pool analysis results.	Document all discrepancies as compliance concerns	Indirect Pool Analysis
			b. Examine the date of the notification to verify that the project manager or project controls analyst received it within 30 calendar days or one reporting period of the analysis.		