

A Model for CAS Self-Assessment

Prepared for the Contractor Assurance Working Group of the Energy Facility Contractors Group

Introduction

An effective Contractor Assurance System integrates contractor management, supports corporate parent governance and facilitates government oversight systems. The purpose of a CAS is threefold:

- A CAS is a primary tool used by contractor management to reasonably ensure that mission objectives and contract requirements are met; ensures that workers, the public, and the environment are protected; and ensures that operations, facilities, and business systems are effectively run and continuously improved.
- A CAS integrates the contractor's governance and management system to manage acceptable performance outcomes, to provide oversight of contract performance, and to hold contractor management accountable for these outcomes and provide assurance to NNSA.
- A robust and effectively functioning CAS provides transparency and builds trust between NNSA and its contractor, helps to ensure alignment across the NNSA enterprise in accomplishing and addressing mission needs, and allows NNSA to optimize its oversight functions by leveraging the processes and outcomes of its contractors.

Multiple methods have been used in recent years to assess Contractor Assurance Systems across the DOE. Much has been learned from these efforts. This paper aggregates this learning into an assessment model that can be applied to a Contractor Assurance System (CAS). It can also be applied to management and assurance systems in general.

Assessment Model

A CAS takes several years to implement and reach maturity. Throughout maturation, CAS assessments play a vital role in continuously improving the system to ensure that it fulfills its intended purpose.

The lines of inquiry for an initial CAS assessment should focus on whether the design has the potential to fulfill the requirements as specified in a contractor's prime contract and achieve the purpose of a CAS. This assessment should also evaluate if a contractor's CAS has the needed elements and whether the contractor's management of its CAS supports successful implementation and continuous improvement of the system. Finding design and management system errors at this stage of maturity can prevent expensive rework at later stages.

Once the initial design and management approach are verified, CAS assessments should shift to evaluating the level of **Implementation** and **Effectiveness** of the individual elements of the system and the system as a whole. Assessing these parameters together enables an organization to continuously improve how it approaches assurance while also improving performance, rather than tackling these dimensions sequentially.

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Implemented: The processes used to implement the elements described in a contractor's CAS description document are sufficiently defined that they can be executed in a repeatable and predictable manner. The processes are being used in the specified manner by the contractor's functional and organizational segments.

Effective: The processes used to implement the elements described in a contractor's CAS description document are demonstrating the desired outcomes, with sustained good performance levels and /or favorable trends in evidence. Significant implementation gaps would preclude a CAS from being deemed effective.

After a CAS has been determined to be Implemented and Effective, the CAS assessment can be streamlined to focus on sustainability. Such an assessment would evaluate whether system and element implementation is being maintained and whether effectiveness is being sustained and continuously improved. Independent parent organization assessments of a contractor's CAS can be used effectively to augment and validate CAS self-assessments, especially if these independent assessments focus on aspects of implementation and effectiveness assessment where conflict-of-interest may be a concern in the contractor's self-assessment.

Basic Assessment Methodology

1. Using the contractor's CAS description document, select the CAS elements to be assessed. If not already defined as part of the CAS description, establish overall success factors for the CAS, keeping the purpose of the CAS in mind.
2. Using the definitions of Implemented and Effective and specific knowledge of the organization and its CAS, define the Implementation and Effectiveness criteria to be assessed for each element:
 - a. Select the critical few 3-5 **Characteristics** defining the desired end state for implementation and effectiveness for each element, aligning the characteristics with overall CAS success.
 - Brainstorm Implementation and Effectiveness characteristics for each element based upon the CAS success factors.
 - Combine or reduce the characteristics until the most important 3-5 remain for Implementation and most important 3-5 remain for Effectiveness.
 - b. Define the most relevant **Observable** for each **Characteristic** for each element.
 - Observables specify what is visible, measurable, or analyzable about the Characteristic.
 - Implementation observables should focus on objective information that can be used to determine that elements are sufficiently well-defined so as to be repeatable and

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predictable and are in use across relevant organizational and functional parts of the contractor's organization.

- Effectiveness observables should focus on quantitative performance information that can be used to determine if a CAS element is achieving desired results. These observables can also include objective information that would be a contra-indication of effectiveness.
 - Observables should strive to create a balanced set of information about the implementation and effectiveness status for the element.
- c. Define evidence-based thresholds for each **Observable** for the following:
- **Implemented:** The quantitative level of objective evidence for the observable that is sufficient to specify the element as Implemented. Degree of existence and usage of specified processes across functions and organizational sub-units can be useful as implementation thresholds. Evidence of fact-based continuous improvement can also be useful.
 - **Not Implemented:** The quantitative level of objective evidence for the observable that would indicate that the element is clearly not implemented.
 - **Effective:** The quantitative level of objective evidence for the observable that is sufficient to specify the element as basically effective. CAS-related measures provide useful sources of evidence for this type of threshold.
 - **Not Effective:** The quantitative level of objective evidence, such as measures, for the observable that would indicate that the element is clearly not effective. These thresholds can also include contra-indications, that if exist, would be evidence that the CAS element is not effective.
3. Define information that needs to be collected and created to make the threshold determinations for each **Observable**. Drawing from a diverse set of information that can be efficiently collected is likely to enable the most accurate determinations:
- a. Documents and Reports: useful as evidence of use, of repeatability and predictability, and of continuous improvement.
 - b. Measure level and trends: activity measures can be used as evidence of usage, cycle time measures as evidence of repeatability and predictability, outcome measures as evidence of results.
 - c. Interviews: useful as evidence of usage consistent with process specifications.

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- d. Other assessments: useful to collect needed information where scope collaboration is possible. Otherwise, this information is primarily useful as sources of potential contra-indications or supporting information.
 - e. Special Analyses: may be useful to establish evidence for degree of usage for organizations that support CAS processes with information systems. Also useful as measurements of year-to-year changes that are not part of the contractor's regular measures.
4. Select and train the assessment team members to successfully collect the needed information and make the determinations.
 5. Perform the assessment:
 - a. The team collects and documents evidence.
 - b. The team compares assessment results to the thresholds and determines a "Best Fit" for each **Observable**.
 - c. If evidence is between the two thresholds, a "Partially Implemented" or "Partially Effective" determination is used.
 6. Analyze collective results and develop a CAS Assessment Report:
 - Document all information used to determine "Best Fit" for each **Observable** for each element
 - Summarize for each element:
 - o Findings: Non-compliances.
 - o Issues: major barriers to achieving implementation or effectiveness.
 - o Opportunities for Improvement: areas that, if addressed, would significantly enhance implementation or effectiveness.
 - Combine individual determinations into overall implementation and effectiveness determinations for each element.
 - Combine element determinations into an integrated determination for the CAS overall. Document changes from the previous year's CAS Self-Assessment.

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Developing Implementation and Effectiveness Characteristics

The following questions may help translate the purpose of a CAS into a useful set of Implementation and Effectiveness Characteristics for CAS elements. The questions should be tailored as needed for site-specific considerations.

Element	Leading Questions that may help define Implementation Characteristics and Observables	Leading Questions that may help define Effectiveness Characteristics and Observables
Assessments	<ul style="list-style-type: none"> • How do you know that assessments will be planned and performed in a reliable and predictable manner across the organization? • How do you know that assessments will be planned and performed in a manner that is consistent with the risks and performance uncertainties related to the organization’s mission objectives and contractual requirements? • How do you know that the assessment planning and performance processes are maintained consistent with changing organizational needs? • What defines which functions and parts of the organization should be performing assessments? • How would you know that the defined functions parts of the organization are performing assessments as expected? • How do you know that the assessment planning and performance processes are appropriately integrated with other CAS elements and management systems? 	<ul style="list-style-type: none"> • Are assessments being planned as expected? How do you know? • Are there frequency, cycle time, or quality expectations that apply to assessment planning? If so, how do you know how well you are performing against them? • Are assessments are being performed as expected? • Are there frequency, cycle time, or quality expectations that apply to assessment planning? If so, how do you know how well you are performing against them? • Is assessment data reliably translated into actionable information? How do you know? • Is assessment data adequately transparent to DOE elements and corporate governance? How do you know? • Do assessments reliably lead to organizational improvement? How do you know? • Are assessments reliably finding issues before they are identified by external assessors and before they become problems? How do you know?

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Element	Leading Questions that may help define Implementation Characteristics and Observables	Leading Questions that may help define Effectiveness Characteristics and Observables
Measures	<ul style="list-style-type: none"> • How do you know that outcome measures and their performance targets are selected consistent with the organization’s mission objectives and contractual requirements? • How do you know that outcome measures are selected in a reliable and predictable manner across the organization and its functions? • How do you know that leading indicators are selected in a reliable and predictable manner for outcome measures? • What defines which functions and parts of the organization should be selecting and using outcome measures and leading indicators? How do you know that they are doing so? • How do you know that measures are appropriately integrated with other CAS elements and management systems? 	<ul style="list-style-type: none"> • Are measures being selected as expected? How do you know? • Are measures being used by managers to evaluate organizational and functional performance? How do you know? • Are there frequency, cycle time, or quality expectations that apply to measures planning? If so, how do you know how well you are performing against them? • Are unfavorable measure performance levels and trends reliably translated into actionable information? How do you know? • Are measures adequately transparent to DOE elements and corporate governance? How do you know? • Do measures reliably lead to organizational improvement? How do you know? • Are measures reliably finding issues before they are identified by external assessors and before they become problems? How do you know?
Issues and Corrective Action Management	<ul style="list-style-type: none"> • How do you know that issues are identified and translated into corrective actions in a reliable and predictable manner across the organization? • How do you know that corrective actions will reliably and predictably resolve the issues with which they are associated? • How do you know that issues and corrective actions are prioritized in a manner that is consistent with the organization’s mission objectives and contractual requirements? • How do you know that the issues and corrective action management processes are maintained consistent with changing organizational needs? • What defines which functions and parts of the organization should be formally managing issues and corrective actions? • How do you know that the issue and corrective action management processes are appropriately integrated with other CAS elements and management systems? 	<ul style="list-style-type: none"> • Are issues being identified as planned? How do you know? • Are issues being translated into corrective actions as planned? How do you know? • Are issues and corrective actions being managed across functions and sub-units of the organization as expected? • Are there frequency, cycle time, or quality expectations that apply to issue processing? If so, how do you know how well you are performing against them? • Are there frequency, cycle time, or quality expectations that apply to corrective action development and management? If so, how do you know how well you are performing against them? • Is issue and corrective action management data transparent to DOE and corporate governance? How do you know? • Are issues being effectively resolved? How do you know? • Are patterns and trends from issues being used to help identify performance uncertainties, risks, and emerging issues? How do you know?

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Element	Leading Questions that may help define Implementation Characteristics and Observables	Leading Questions that may help define Effectiveness Characteristics and Observables
Continuous Improvement	<ul style="list-style-type: none"> • How do you know that relevant lessons learned are collected and shared in a reliable and predictable manner across the organization and with the DOE? • What defines which functions and parts of the organization should be sharing and acting upon lessons learned? • How would you know that the defined functions parts of the organization are using lessons learned as expected? • How do you know that performance levels and trends are reliably translated into opportunities for risk reduction and performance improvement? • How do you know that opportunities for risk reduction and performance improvement are prioritized in a manner that is consistent with the organization’s mission objectives and contractual requirements? • How do you know that the continuous Improvement processes are appropriately integrated with other CAS elements and management systems? 	<ul style="list-style-type: none"> • Are lessons learned being collected and shared as planned? How do you know? • Are lessons learned being acted upon as planned? How do you know? • Are there frequency, cycle time, or quality expectations that apply to lessons learned processing? If so, how do you know how well you are performing against them? • Is feedback and information from accident, event, and incident reporting and worker feedback processes being used to help identify opportunities for risk reduction and performance improvement? How do you know? • Are identified opportunities for risk reduction and performance improvement translating reliably into changes to systems, processes, and capabilities? • Are the changes to systems, processes, and capabilities achieving the desired organizational results? How do you know? • How do you know that continuous improvement gains can be sustained into the future?

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Example of Implementation Characteristic, Observable, Thresholds

Implementation Characteristic	Institutional expectations are defined for selecting and performing Independent Assessments, Management Assessments, and Management Observations and Verifications	
Observable: Whether the Institution has defined the processes to be used for selecting and performing Independent Assessments, Management Assessments, and Management Walkarounds		
Thresholds		Best Fit
“Implemented” Criteria: By the start of the next fiscal year assessment planning cycle, the Assessment Program Description and supporting procedures are up to date in the Institutional Requirements Center and senior leaders and their staff have been updated on any changes for the upcoming assessment planning cycle.		
“Partially Implemented” Criteria: Less than “Implemented” but more than “Not Implemented”		
“Not Implemented” Criteria: By the start of the next fiscal year assessment planning cycle, the Assessment Program Description and supporting procedures are not up to date in the Institutional Requirements Center or senior leaders and their staff have been not been updated on any changes for the upcoming assessment planning cycle.		

Example of Effectiveness Characteristic, Observable, Thresholds

Effectiveness Characteristic	Issues are being effectively resolved by the Issues and Corrective Action Management Process	
Observable: Whether the Management Review Boards (MRBs) are evaluating resolution effectiveness as part of their processes and whether the results of effectiveness evaluations show favorable results		
Criteria		Best Fit
“Effective” Criteria: >90% of MRBs (organizational and functional) are evaluating issue resolution effectiveness as part of their management process. >90% of issues that are determined to require effectiveness evaluations by MRBs are effectively resolved		
“Partially Effective” Criteria: Less than “Effective” but more than “Not Effective”		
“Not Effective” Criteria: <75%% of MRBs (organizational and functional) are evaluating issue resolution effectiveness as part of their process. >70% of issues that are determined to require effectiveness evaluations by MRBs are effectively resolved		

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Example of Overall Implementation and Effectiveness Communication

