

## **EFCOG BEST PRACTICE: CONTRACTOR ASSURANCE SYSTEM EFFECTIVENESS VALIDATION**

**Facility:** DOE laboratory partners and contractors subject to Contractor Assurance System requirements

**Point of Contact:** John A. McDonald, 509-373-0418, John\_A\_McDonald@rl.gov

### **Brief Description of Best Practice:**

The DOE requires laboratory partners and contractors (called “contractors” for simplicity throughout this document) to validate the effectiveness of their Contractor Assurance System (CAS) processes. This consensus-developed Best Practice provides contractor management with a framework for validating CAS effectiveness. An effective CAS, when used appropriately by management to inform decision making, provides reasonable assurance that the contractor will sustain safe and compliant mission execution and operational excellence<sup>1</sup>.

**Why the best practice was developed:** Consistency and efficiency can be improved across the DOE enterprise by using a common framework which includes key attributes to validate CAS effectiveness. The framework also identifies current approaches, which can be used to validate CAS effectiveness. These include peer review, parent organization (corporate) oversight, and assessments. The framework contained in this Best Practice can be tailored, as appropriate.

**What are the benefits of the best practice:** The Best Practice provides a common set of attributes that DOE and contractors can use to validate CAS effectiveness. The framework facilitates sharing of lessons learned and proven approaches among individual companies and organizations which ultimately contributes to improved mission execution and operational excellence.

### **Description of the Best Practice:**

#### **Background:**

When management applies CAS to inform decisions, reasonable assurance is provided that risks will be managed, mission objectives will be met efficiently and effectively, and continuous improvement will be supported.

The CAS is expected to include activities such as:

- Assessments
- Issues management system
- Performance analysis
- Feedback and improvement
- Metrics and performance indicators
- CAS program implementation and monitoring
- CAS effectiveness review

A joint EFCOG/DOE Task Team (Attachment 1) identified multiple approaches used by DOE and NNSA contractors to support validation of CAS effectiveness including:

- Contractor Peer Review
- Parent Company Assessment
- Pre-Performance Evaluation and Measurement Plans (PEMP) Review Self-Evaluation

---

<sup>1</sup> “Mission execution and operational excellence” includes all aspects and functions of contract execution, including environment, safety, security, health, business systems, and financial systems.

- Periodic Integrated Safety Management System (ISMS) Effectiveness Review
- Other Internal or External Assessments

Brief summaries of these approaches are provided in Attachment 2 of this Best Practice. The actual approach used by a contractor to validate CAS effectiveness is typically identified after discussion with their local DOE Field office.

### **Contractor Assurance System Effectiveness Attributes:**

The following CAS effectiveness attributes were developed by the joint EFCOG/DOE Task Team. The attributes and additional sub-elements are provided in Attachment 3. After the approach is selected to validate CAS effectiveness, these attributes can be tailored to the type of organization such as laboratory or operations.

- 1. Organizational Learning:** The contractor achieves improvement in mission execution by: conducting proactive, credible, and critical assessments and analysis of performance, including abnormal events; identifying, correcting, and closing issues; performing trend analysis; generating and applying lessons learned; and conducting routine performance monitoring. Improvement in mission performance and risk reduction resulting from CAS related efforts is evident.
- 2. Management Leadership:** CAS information is an integral part of management and leadership decision-making. Management's use of CAS should result in a positive effect on mission execution and sustainability of improvements. An actively engaged management team addresses issues and communicates actions and results in a timely manner.
- 3. Employee Engagement:** Workers are actively engaged in improving performance.
- 4. Risk Informed:** Risk management is a foundational element of CAS; it enables management to optimize performance. The CAS is risk informed and focused on outcomes.
- 5. Work Conducted by Others:** The contractor ensures CAS appropriately integrates work conducted by others (e.g., subcontractors, other DOE contractors, university or industry partners, and other federal agencies).
- 6. Governance Engagement:** Corporate governance entities are informed by CAS and constructively engaged in monitoring performance information, and steering/supporting needed improvements.
- 7. Credible, Objective, and Transparent:** Trust, accountability, transparency, integrity, and respect are maintained through all organizational levels via increased communication and integration of CAS. The CAS effectively informs DOE oversight.

### **Reporting CAS Effectiveness Validation Results:**

Regardless of the approach used, results of CAS effectiveness validations are transparent and openly available to the DOE. This also allows the Field Office to provide constructive feedback on priorities and improvement options, and inform their own oversight activities for maximum mission benefit.

### **Summary Conclusion:**

The framework contained in this Best Practice can be tailored to validate CAS effectiveness, as appropriate. An effective CAS informs decision making, and provides reasonable assurance that the contractor will sustain safe and compliant mission execution and operational excellence.

CAS is effective when:

- Management and employees are engaged, demonstrating ownership and accountability for CAS activities, resulting in improved mission execution and operational performance;

- Risks are identified and managed with decisions being risk-informed – what is important gets done;
- The organization learns from its successes and failures and from those of others;
- There is trust and transparency among the partners; results of CAS are broadly shared internal and external to the organization;
- CAS drives continuous feedback and performance improvement with identification and correction of negative performance/trends before they become significant issues.

#### References:

1. DOE P 226.2, *Policy for Federal Oversight and Contractor Assurance Systems*, 8/9/16
2. DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*, 4/25/11
3. Contract-specific DOE H Clauses (Special Contract Requirements)
4. DOE G 226.1-2A, *Federal Line Management Oversight of Department of Energy Nuclear Facilities*, 4/14/14
5. NNSA SD 226.1B, *NNSA Site Governance*, 8/12/16
6. DOE G 450.4-1C, *Integrated Safety Management System Guide*, Attachment 10, 9/29/11
7. Applicable Department of Energy Acquisition Regulations (DEAR)
8. DOE Office of Science, *Contractor Assurance System Peer Review Guide and Lines of Inquiry*, Rev. 1, 04/15/10
9. DNFSB Letter on Nuclear Safety Oversight, 9/2/2016
10. DOE Response to DNFSB on Nuclear Safety Oversight, 10/3/16
11. EFCOG CAS Maturity Model Power Point (in Progress Activity)
12. EFCOG CAS Survey Results, Fall 2016
13. CRENEL Final Report Volume 1 and Volume 2, 10/2015
14. Memo From S1 Review of DOE Implementation of CRENEL Response 12/12/16
15. GAO-15-216, *National Nuclear Security Administration: Actions Needed to Clarify Use of Contractor Assurance Systems for Oversight and Performance Evaluation*, 5/22/2015
16. The Federal Oversight and Contractor Assurance System Directives, Pat Worthington, Safety Culture Improvement Panel Meeting, September 7, 2016
17. Voluntary Protection Program ([www.vpppa.org](http://www.vpppa.org))

**Attachment 1:**  
**Joint EFCOG/DOE CAS Effectiveness Task Team Memo**



FROM: William Morrison, EFCOG Chair *WAM Morrison*  
TO: Ingrid Kolb, Chair, Directives Review Board  
Matt Moury, Associate Under Secretary for Environment, Health, Safety  
and Security

SUBJECT: EFCOG/DOE Contractor Assurance System (CAS) Effectiveness Task Team

The purpose of this correspondence is to inform you of EFCOG's plans for developing a Best Practices document by April 30, 2017 for transparently and objectively determining the effectiveness of a contractor's CAS. With increasing value, attention, and scrutiny being placed on effective Contractor Assurance Systems (CAS) by various segments of the DOE, the DNFSB, and contractors, the need to assess how well a CAS is functioning with a high degree of transparency has taken on increasing priority.

The CAS is a critical part of an organization's tools to assure operational effectiveness. It serves as one of the most influential ISMS core functions of continuous improvement and feedback. An effective CAS provides a level of confidence that a contractor is identifying and fixing its own issues before bigger issues become self-revealing. The foundation of an effective CAS is an ISMS culture which values self-assessment, self-identification of issues, timely and effective corrective actions, and diverse performance monitoring.

Because of its importance and complexity, CAS is a process that benefits from individual companies and organizations sharing lessons learned and best practices to more effectively implement and assess its effectiveness. Improved long-term performance could be achieved by DOE and its contractors using a common approach to assess CAS effectiveness. This would be evident from improving productivity coupled with reduced severity and significance and frequency of events. One obvious and immediate benefit is the sharing of resources around the complex to assess CAS effectiveness, and to observe, document and disseminate best practices.

EFCOG is in the process of forming a joint senior level EFCOG/DOE Task Team to identify a consensus approach for determining whether or not a CAS is effectively implemented. A diverse team of senior industry leaders representing major contractors, DOE, DNFSB, and INPO, with CAS experience, will develop an EFCOG Best Practice Guide to be used by DOE contractors. This document would include an approach to determine the effective implementation of a CAS at a contractor facility.

Our goal is to issue an EFCOG Best Practices document by April 30, 2017 that identifies a consensus approach for determining the effectiveness of an Organization's CAS. The EFCOG Safety Working Group (SWG), chaired by John McDonald and with

Page 1 of 2

---

Ray Skwarek from UCOR as EFCOG Sponsoring Director, has functional responsibility for the Contractor Assurance System (CAS) and would take the lead for this effort for EFCOG.

EFCOG has worked extensively with Dr. Pat Worthington on this activity in her position as the DOE SWG Liaison, as well as her DOE management responsibilities which include the CAS program. We intend that Pat be involved with this activity as a Co-Chair for continuity.

We will communicate our progress to you over the next few months, and if you have questions at any time, please contact me or John Longenecker, EFCOG Managing Director.

## Attachment 2:

### CAS Effectiveness Validation Approach Examples

The Task Team identified the following approaches to validate CAS effectiveness currently in use by DOE and NNSA contractors. The approach actually used by the contractor should be determined after discussion with the local DOE Field Office.

#### **Contractor Peer Review (commonly used in Science, Nuclear Energy, and NNSA)**

**Background:** Peer review, coupled with quantitative and qualitative metrics, offers an opportunity to gain a better understanding of and then to assess the effectiveness of an entity's CAS. A well-selected team of peers that have expertise can produce valuable insights with respect to the overall quality of the CAS and its execution within an organization. Detailed critiques and insightful suggestions from experts permit checks and balances among contrasting points of view. Including individuals with executive management expertise can also help to identify new or missed opportunities. Peer review can also identify links to others in the DOE and contractor community and to relevant benchmarks found elsewhere.

An effective CAS peer review addresses three key factors: (1) governance—how well the parent organization is executing its oversight and stewardship responsibilities (including how the entity's supervisory board or equivalent body holds management accountable for performance); (2) management systems, processes, practices, and tools—how well are they working together, consistently implemented, used, and understood; and (3) impact of CAS and its products—how the contractor and DOE act on indicators to manage performance and risks.

**Peer Review Team:** A peer review team should consist of peers with management and knowledge of CAS design and/or implementation. An effective peer review team also includes members that have experience in the entity's line of work—i.e., mission compatibility/experience (important for context). Individuals selected must be free of biases or conflicts that would prevent them from providing a trusted perspective to the entity's management on CAS effectiveness. A peer review team may include DOE and contractor members depending on the scope of the review.

The peer review team should be involved in development of the assessment strategy including but not limited to development of review criteria and approaches and documenting these in a planning document that is socialized with the entity's management to ensure the review will serve its intended purpose.

**Planning:** As a prerequisite for an effective peer review, the context within which an assessment of CAS is conducted—including the set of applicable requirements—needs to be clearly elucidated before the review strategy is developed and applied. There is no single formula that works for all organizations. It is crucial to identify clearly at the outset the purposes and scope of the CAS peer review. Typically, an effective CAS peer review focuses on the following objectives:

- CAS processes, tools, methods and practices (as described in the entity's CAS description) have been effectively implemented.
- Credible, actionable information is systematically obtained and used to manage and improve performance.
- The entity's issues management program, including critiques, casual analysis, and corrective actions, is used to effectively resolve issues and prevent recurrence.
- The applicable workforce understands and models desired behaviors.
- The Lessons Learned program and worker feedback mechanisms contribute to improved operational performance.
- The maturity path leads to a balanced and cost effective approach to producing the desired CAS outcomes.

- Interface and functionality of CAS with DOE and Corporate entities is effective.

Key focus areas may include implementation of CAS at specific facilities, projects, and/or locations. The review can also provide a means of sharing good/notable practices and/or lessons learned, fostering continuous improvement across DOE. While compliance issues and observations may be identified during a CAS peer review, compliance is not the focus and deficiencies will only be noted if observed.

### **Parent Company Assessment (commonly used in Science, Environmental Management, and NNSA)**

Conducting an independent review of CAS effectiveness as part of their oversight portfolio has the benefit of increasing the Parent Company's level of confidence in the data streams produced by the Project. In addition to Project results (i.e., mission achievement – the “what”), the Parent Company has a vested interest in whether the methods being used (the “how”) to achieve the mission are consistent with corporate expectations, standards, and values. This requires periodic effort by the Parent Company to access performance information first-hand, getting closer than usual to the conduct of work on the Project, and not be fully dependent on information that is reported by the project.

Typically, a Parent Company CAS effectiveness validation process must include the attributes of a sound assessment, such as:

- Of sufficient duration, with enough resources, to address the sufficiency of all the elements of CAS.
- Conducted by qualified individuals with direct work experience with the CAS elements, rather than by the governing Board/Oversight group members themselves.
- Lines of inquiry based on, or informed by, the CAS Requirements/Source documents.
- Informed by existing CAS component effectiveness validation efforts that have been conducted by the Project.
- Client involvement and/or communication.

A Parent Company may access peer assessors from the CAS organizations at different sites, may use senior operationally-experienced managers not directly involved with the function being assessed, and may supplement with knowledgeable consultants. Use of external resources provides the benefit of a benchmarking opportunity for the assessor, as they may see approaches or attributes worth bringing back to their contractor.

Many contractors have a Board of Directors that includes multiple partner Parent Organization representation. Parent organization involvement in those cases may be coordinated through the Board.

### **Pre-Performance Evaluation and Measurement Plans (PEMP) Review Self-Evaluation (commonly used by Environmental Management)**

The contractor may perform a critical self-evaluation or self-assessment within a specified time during an award fee evaluation period. If a Special Emphasis Area (SEA) has been identified for CAS effectiveness, the CAS SEA criteria should be considered to perform this evaluation. Additional criteria or measures may also be used to provide a more objective evaluation. These may be developed by the contractor and discussed with the DOE to provide greater objectivity or clarity.

The contractor identifies issues potentially affecting the completion of the CAS SEA, the overall success of the program, and actions taken or recommended to resolve those issues. It should be viewed positively by both the DOE and the contractor if the contractor self-discloses an issue that falls within the scope of the CAS SEA, and appropriately addresses it in a timely manner. While regular CAS reviews during the PEMP period are common, if a determination of CAS Effectiveness is expected, the PEMP process offers a setting for this determination to be performed and communicated to DOE.

### **Periodic ISMS Effectiveness Review (Used by some Environmental Management contractors)**

The DEAR clause establishes the requirement for the review, update, and submittal for DOE approval, its safety Performance Objectives, Measures, and Commitments (POMCs) consistent with and in response to DOE's program and budget execution guidance and direction. This annual activity is often influenced by three activities:

- Contractor self-evaluation efforts to measure system effectiveness
- Field Office review and feedback on completed and proposed POMCs,
- Periodic direction from DOE Environmental Management on ISMS declaration activities

As part of the contractor's strategy for supporting ISMS declaration, CAS effectiveness may also be validated.

### **Other Assessments (commonly used by all DOE programs)**

To evaluate the effectiveness of CAS implementation, a contractor-led internal assessment can be used. Typically a contractor will prepare an annual assessment plan that contains both required assessments, as well as assessments targeted based on risk or perceived weaknesses or areas of focus. In some circumstances, an external review team may be deemed appropriate. This assessment would be conducted as part of the CAS assessment process and documented. Lines of inquiry (LOI) would be developed as part of the assessment planning process and used to conduct the assessment. The results of assessments may involve findings, observations, or simply identify improvement opportunities. Other methods of assessing CAS include:

- Use of a CAS maturity model (Ref 11). Improvement opportunities identified during the assessment consider the costs, potential benefits, and company risk profile. The frequency of the assessments varies, typically based on the maturity of the CAS element. Frequency should be agreed to by the DOE and the contractor.
- Self-revealing events or issues are routinely reviewed to determine if it reveals a potential for improvement in the CAS. Even with an effective CAS, there is still potential for upsets and opportunity to improve; each occurrence provides an opportunity for CAS improvement. This would also be a potential LOI on a CAS assessment.

### Attachment 3:

#### Contractor Assurance System Effectiveness Attributes

A CAS effectiveness validation can be enhanced with consideration of the following effectiveness attributes and sub-elements. Use of these attributes by the contractor can be tailored to their specific situation.

- 1. Organizational Learning:** The contractor achieves improvement in mission execution by: conducting proactive, credible, and critical assessments and analysis of performance including abnormal events; identifying and correcting issues; performing trend analysis; generating and applying lessons learned; and conducting routine performance monitoring. Improvement in mission performance and risk reduction resulting from CAS related efforts are evident.
  - a. CAS program, processes, and response to outputs are evaluated and improvements made as necessary.
  - b. Events are used to identify system-level learning opportunities.
  - c. The results of assessments are used to drive improvement (e.g., risk reduction, process efficiencies).
  - d. Management effectively sets priorities using the results of the issues management system.
  - e. Organizational trends are identified, examined, communicated, and addressed.
  - f. The contractor seeks to learn from others (operating experiences, lessons learned, benchmarking, etc.).
  - g. Assessments, management observations, performance monitoring, and other CAS processes regularly find and address significant issues internally before they become consequential events.
- 2. Management Leadership:** CAS is an integral part of management and leadership decision making, demonstrating positive effect on mission execution and sustainability of improvements. Management addresses issues and communicates actions and results in a timely manner.
  - a. Senior management uses CAS to monitor performance and takes action to manage risks.
  - b. Management at all levels demonstrates ownership for the application of CAS related information for their functional or mission area.
  - c. Management demonstrates self-critical, candid, and objective evaluation of performance.
  - d. Managers actively monitor performance where work is conducted.
  - e. Managers encourage a questioning attitude, foster constructive dialogue, and ensure issue disposition at the appropriate level.
  - f. Managers ensure that corrective actions effectively address the identified issues.
  - g. Managers employ an appropriate risk handling strategy, when issues cannot be resolved in a timely manner.
- 3. Employee Engagement:** Workers are actively engaged in improving performance.
  - a. Employees actively participate in CAS activities, although they may not describe them as such.
  - b. Employees use the processes for eliciting, capturing, and addressing their suggestions, concerns, and dissenting opinions.
  - c. Employees demonstrate a constructive, questioning attitude and healthy skepticism regarding safe, compliant, and effective performance.

- d. Managers and employees work together to discuss continuing improvements, recognize and resolve issues, and learn from their experiences.
- 4. Risk Informed:** Risk management is a foundational element of CAS, enabling management to focus on what is important. The CAS is risk informed, with a focus on outcomes and performance optimization.
- a. CAS activities and outputs are integrated with the contractor's risk management processes.
  - b. The CAS is tailored to meet the needs and unique risks of the site or activity.
  - c. Assessment activities are risk-informed (likelihood and consequence), and include consideration of recent performance.
  - d. Issues are categorized and addressed according to their significance.
  - e. The output of CAS activities, including trends and analysis, is communicated to senior management using a graded approach that considers hazards and risks.
  - f. Identified actions or opportunities for risk reduction translate into performance improvements.
- 5. Work Conducted by Others:** The contractor ensures CAS activities appropriately address work conducted by others (e.g., subcontractors, university or industry partners, other federal agencies).
- a. The contractor has flowed down CAS requirements to other entities conducting work, using a tailored approach.
  - b. The contractor monitors and evaluates work conducted by other entities as part of CAS.
  - c. CAS activities consider performance information from other entities conducting work.
- 6. Governance Engagement:** Corporate governance entities are informed by CAS and constructively engage in monitoring performance information generated by CAS, and steering/supporting needed improvements.
- a. The contractor provides corporate governance with sufficient information derived from CAS to support their evaluation of contract performance.
  - b. Corporate governance representatives regularly engage in constructive dialogue with the DOE customer on performance.
  - c. Corporate governance monitors and evaluates contractor performance to identify opportunities where additional action is appropriate.
  - d. The contractor addresses issues and recommendations received from corporate governance.
- 7. Credible, Objective, and Transparent:** Trust, accountability, transparency, integrity and respect are maintained through all organizational levels via increased communication and integration of CAS. The CAS effectively informs DOE oversight.
- a. The contractor communicates CAS related information to DOE in an expeditious manner.
  - b. CAS related information and activities are transparent in that DOE has ready access to information.
  - c. The contractor is open to feedback from DOE and acts to improve performance.
  - d. DOE has confidence in the credibility and constructiveness of the contractor's CAS efforts.