Working Group: Safety
Subgroup: Integrated Safety Management
Task Group: Contractor Assurance System
FY22 Task 1: Risk-Based Assessment Planning

Risk-Based Assessment Planning

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SUMMARY

During the Energy Facility Contractor Group (EFCOG) Contractor Assurance System (CAS) Task Group's FY21 Fall Meeting, task group members expressed interest in expanding the current knowledge base on risk-based assessment planning[1]. This became the objective of the CAS Task Group's FY22 Task 1, the results of which are outlined in this white paper.

The task team elected to focus on the four categories below, which were of greatest interest:

1. Prioritization of self-assessments, informed by enterprise-level risks and the organization's top strengths and vulnerabilities
2. Use of risk assessment tools at each level of the organization
3. Integration of assessment plans between contractors and Department of Energy /National Nuclear Security Administration customers [including site offices] to optimize coverage
4. Use of assessments to identify strengths

The task team identified numerous novel or exceptional practices to share with the Complex, as outlined in this report. Some common themes emerged as individual areas of strength:

- Contractors created various novel approaches to continually evaluate risk through data aggregation and analysis.
- Contractors identified a broad range of risk factors to quantify and prioritize assessments. (See Appendix A for a list of risk factors in use across the Complex.)
- Some contractors developed software solutions that enable full transparency and collaboration with their respective Field Offices.

Additionally, the task team's benchmarking efforts identified some common challenges in the following areas:

- Contractors commonly expressed a desire to more quickly identify and respond to changing or emerging risks.
- Contractors want to streamline the integrated assessment planning processes to be more efficient and effective.
- Several contractors cited difficulty centralizing data needed for risk-based assessment planning, particularly across large sites.

[1] Risk-based assessment planning is defined, for the purpose of this effort, as the approach to selecting and subsequently scheduling assessments to perform based on criteria related to an entity's risks or potential barriers to achieving its objectives. Objectives and associated risks may be related to safety, security, quality, or other functions.

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1. PURPOSE

Assessments are an integral element of any CAS, as required by Department of Energy (DOE) O 226.1B *Implementation of Department of Energy Oversight Policy* and DOE O 414.1D *Quality Assurance.* Assessments enable evaluation of the effectiveness of risk mitigations, ensuring compliance and providing assurance to DOE/National Nuclear Security Administration (NNSA) and all the organization's stakeholders. DOE contractors, like all organizations, have limited resources to execute required assessments and discretionary assessments. Selecting and planning the assessments based on risk, contractors ensure these limited resources are focused on assessments that will provide the most value in terms of assurance.

DOE contractors employ a variety of approaches to risk-based assessment planning, sometimes with multiple approaches at a single site. The purpose of this task was to expand the existing knowledge base through the identification of real, proven applications and examples that can be put into practice by contractors across the Complex.

2. SCOPE

The task team elected to focus on the four categories below, which were of greatest interest:

1. Prioritization of self-assessments, informed by enterprise-level risks and the organization's top strengths and vulnerabilities
2. Use of risk assessment tools at each level of the organization
3. Integration of assessment plans between contractors and Department of Energy (DOE)/National Nuclear Security Administration (NNSA) customers [including site offices] to optimize coverage
4. Use of assessments to identify strengths

Information was received from the following entities:

- DOE Enterprise Assessments (EA-30)
- Site/Field Offices
  - Sandia Field Office (SFO)
  - Golden Field Office (GFO)
- Contractors
  - Argonne National Laboratory (ANL)
  - Brookhaven National Laboratory (BNL)
  - Idaho National Laboratory (INL)
  - Lawrence Livermore National Laboratory (LLNL)
  - Los Alamos National Laboratory (LANL)
  - National Renewable Energy Laboratory (NREL)
  - Oak Ridge National Laboratory (ORNL)

- Pacific Northwest National Laboratory (PNNL)
- Sandia National Laboratories (SNL)
- Savannah River Nuclear Solutions (SRNS)
- Washington River Protection Solutions (WRPS)

The following functional areas were represented in the responses:

- Environmental, Safety, & Health (ES&H)
- Safeguards & Security (S&S)
- Quality Assurance (QA)
- Finance
- Independent/Internal Audit (IA)

3. DEFINITIONS

None.

4. NARRATIVE

Based on the categories described in Section 2, the task team developed a questionnaire to solicit information about current approaches to risk-based assessment planning in order to identify real, proven applications and examples that can be put into practice. The questionnaires were disseminated to various sites across the Complex. In select cases, task team members interviewed respondents to gather more information. Information gathered was reviewed by the task team against the following criteria.

- **Novel or exceptional application**: Implementation of the practice which is innovative, especially effective, or otherwise noteworthy.
- **Common practice**: Implementation of the practice which is common to several or most sites.
- **Common challenge**: Factor which makes implementation of the practice difficult and is common to several or most sites.

Notable responses were identified by the task team and are listed in this section. The sources of each response (entity and functional area, if applicable) follow in parentheses.

4.1. EFCOG Best Practice 1: Prioritization of self-assessments, informed by enterprise-level risks and the organization's top strengths and vulnerabilities

Novel or exceptional applications

The following novel or exceptional practices were identified:

- Using a chartered Performance Integration Board to provide institutional oversight of laboratory operations, support enterprise-wide collaboration and consistency of common operational elements to reduce institutional risk, provide recommendations on matters related to risk management, and, where appropriate,

provide decisions on management actions and initiatives related to operations. (ORNL)

- Considering input from DOE Office of Inspector General (OIG) and the local field office on areas of high risk. (SNL IA)
- Evaluating the seven risk factors from the DOE/OIG Audit Manual[2] at the enterprise level. (SNL IA)
- Leveraging multiple readily available data sources to update the risk analysis more frequently, sometimes weekly. This helps with monitoring the risk landscape as it changes. (SNL QA)
- Using agile framework, which allows quicker response to changes in the risk landscape. (SNL QA, PNNL)
- Implementing the Institute of Internal Auditors Three Lines model[3]. Line organizations perform self-assessments based on risks within their purview; functional areas (e.g., policy owners in QA, ES&H, S&S, etc.) assess adequacy and implementation of their respective policies, including assessments of the first line; and the independent audit organization assesses any area based on risk, including assessments of the first and second lines. (SNL)
- Functional Area Program Managers (FAPM) performing a yearly risk-based analysis using the Functional Area metrics to identify decreasing areas of performance. This evaluation allows the programs to be more efficient through identifying and addressing non-value-added lines of inquiry, as well as identifying and targeting specific risks in the following year's assessments. (SRNS)
- Incorporating assessments into risk handling strategies. (WRPS)
- Using Risk management, internal audit, and QA to inform the annual integrated assessment planning process of risks associated with Project Mission, critical facilities and near-term milestones which are not covered in the draft plan. The input is reviewed by senior management and assessments are added to the schedule and approved as part of the process. (WRPS)
- Applying continuous risk assessment principles by incorporating risks identified in assessments into future assessment plans. (DOE EA-30)
- Performing a deep-dive risk analysis of functional areas to inform assessment planning. (DOE EA-30)
- Using Contractor Leadership Dashboard metrics shared in CAS to inform contractor ongoing performance confidence in operational areas, allowing Field

[2] https://stage.energy.gov/sites/default/files/2014/12/f19/DOE%20OIG%20Audit%20Manual%20%28Release%208%29%20-%202014.pdf

[3] https://www.theiia.org/en/content/position-papers/2020/the-iias-three-lines-model-an-update-of-the-three-lines-of-defense/

Office Subject Matter Experts (SMEs) to focus assessment planning on medium- and higher-risk areas. (DOE GFO)

Common practices

The following practices are used by several organizations:

- To develop annual assessment plans, consideration is first given to contractually required assessments; then management directed assessments are determined based on risk. See Appendix A for a list of risk factors used across the Complex.
- Use of a central group that develops, oversees, and manages the assessment program, organizes the assessment planning/schedule process, and provides integration opportunities between organizations. Individual Program areas are responsible for analyzing their risks and developing Assessment Plans, which are provided to the central group.

Common challenges

The following challenges are common to several organizations:

- Inadequate review of emerging/changing risks and assessment schedules/planning to ensure they are relevant and appropriate.
- Difficulty monitoring and evaluating risks on an ongoing basis as changes occur.
- Limited access to top management to gauge concerns that are not captured in enterprise-level risk registers.

4.2. EFCOG Best Practice 2: Use of risk assessment tools at each level of the organization to inform assessment planning

Novel or exceptional applications

The following novel or exceptional practices were identified:

- Considering risks identified during Safety Management Program Reviews, specifically facilities' hazard categorization and safety management program accreditation and implementation. (SNL ES&H)
- Managing programmatic risks in a centralized software application that enables risk escalation, management, and reporting. Assessment groups can use this programmatic risk data to inform their assessment plans. (SNL)
- Providing risk management training to the Internal Audit organizations to assist in identifying risk. (ORNL)
- Developing a five-year plan that details the upcoming contractually required assessments. Knowing these required assessments, each program area at SRNS can plan ahead and incorporate LOIs from identified risks to monitor for trends and identify actions to mitigate/prevent recurrence of these risks. (SRNS)

- Provide a flowdown matrix of the applicable requirements to implementing documents for lead assessors to consider in the LOI development phase of the assessment. (WRPS)
- Evaluating risk scores that can be calculated with and without management influence factors. (DOE EA-30)
- Using leading indicators in risk scoring, e.g., near misses, combinations, or quantities of certain types of DOE O 232.2A occurrences. (DOE EA-30)
- Noting federal oversight observations (red, yellow, or green) scored for potential future risk to performance in ES&H through tracking sheet. Quarterly evaluation for change in trending, or any worsening condition could identify risk area for Focused Oversight over a time period in partnership with contractor point of contact. (DOE GFO ESHO/NREL ESH&Q)

Common practices

The following practices are used by several organizations:

- Risk worksheets that help departments/mission centers determine numeric risk levels (using the likelihood and impact) for the risks they identify. Putting together a library of worksheets would be a great asset to all contractors.
- Software solutions that automate risk management worksheets and help departments/mission centers document and calculate numeric values for the risks they identify. Those risks are then tied to specific assessments or assurance activities in the schedule to capture the appropriate evaluation and oversight of the risk and the established mitigations. The software also contains the contractually required assessments and links them to those assessments that satisfy the requirement.
- A list of required assessments that the central group ensures are scheduled and completed as required.
- Risk management responsibilities and assurance/assessment planning in the same organization.

Common challenges

The following challenges are common to several organizations:

- Difficulty balancing the desire for individual choice of risk tools with the need for centralized data.
- Using multiple risk scoring approaches that, when not integrated, may over- or underrepresent the relative risk of certain factors.
- Less than adequate training in the value of the available tools including risk management, assessment, and issues management. Improved communication and value-added reports would build management's confidence that available tools can help them succeed.

- Informal, inconsistent documentation of lower-level assurance activities that address or plan to address concerns that do not rise to the level of a formal risk.
- Perception that risk ranking determines assessment plan, rather than informing it.
- Not leveraging inputs and outputs from Office of Management and Budget (OMB) Circular A-123[4] entity assessments to inform assessment planning.
- A lack of risk management and other relevant training for new Functional Area Managers (FAMs) and performance assurance staff.
- A need for more senior management engagement to ensure credible risk-based assessment schedules/planning meets the organization's needs.

4.3. EFCOG Best Practice 3: Integration of assessment plans between contractors and DOE/NNSA customers [including site offices] to optimize coverage

Novel or exceptional applications

The following novel or exceptional practices were identified:

- Collaboration through integrated assessment working group meetings where functional areas discuss, coordinate, and integrate assessment plans. (SNL)
- Use of standardized daily and quarterly oversight summaries to inform both performance evaluation and assessment planning. (SFO)
- Full collaboration between the contractor and the DOE Field Office counterparts. One contractor's assessment planning is performed and documented in a common software tool (both contractor and DOE field office using the same software database) making reporting, analysis, and approvals easier and more efficient with their DOE counterparts. Face-to-face meetings during Assessment Schedule Planning adds value and understanding of assessment drivers, identified risks, and the appropriate integration of assurance activities. They also improve consistency and quality of assessments for both entities and provides transparent information in the tool. (LLNL)
- Collaboration with the DOE Field Office to integrate a shared software application/tool to provide risk management, assessment schedule planning tools, and issues management tracking on a shared platform. Two other contractors are evaluating the same software tool and database with their DOE Field Offices. (LLNL)
- Strong coordination of initial and updated Assessment Planning and execution of the Integrated Assessment Schedule between field office functional areas and contractor independent assessment team. (DOE GFO)

[4] https://obamawhitehouse.archives.gov/omb/circulars_a123_rev

- Biannual calls to exchange information that informs both EA-30 and field office assessment planning. Specific independent reviews can be requested during these engagements. (DOE EA-30)

Common practices

The following practices are used by several organizations:

- Consideration of input from DOE Field Office in assessment planning.
- Sharing schedules with the DOE Field Office and coordinating, shadowing, and teaming with the Field Office on assessment activities.

Common challenges

The following challenges are common to several organizations:

- Need for streamlining of the integrated assessment planning process.
- Difficulty integrating assessment planning and execution across large sites with multiple functional areas.
- Insufficient integration and coordination between Internal Audit and DOE-ID into the annual planning.
- Integrating different assessing entities through disciplines that overlap across HQ, field, contractor leadership, and operations. Levels of inquiry across disciplines such as Financial, Internal Audit, Cyber/IT, Regulatory, HR, Project Management, Legal, ESH&Q, and Contracting can have different approaches, tools, and methods for assessment, and coordinating with leadership is necessary to avoid duplication of efforts.

4.4. EFCOG Best Practice 4: Use of assessments to identify strengths

Novel or exceptional applications

The following novel or exceptional practices were identified:

- Sharing relevant strengths identified in previous assessments with recipients of new assessment findings to promote the adoption of best practices in their corrective action plans. Strengths are cataloged by topic, making them easy to locate. (SNL QA)
- Identifying “strength” trend codes to best practices and identified strengths from internal and external assessments in the issue management system. An automated report is linked to the dashboard and the strengths can be pulled by any employee at any time. (WRPS)
- Sharing strengths found during assessment of operations as best practice with other contractor functions to promote efficiency/lessons learned across disciplines. (DOE GFO / NREL)

Common practices

The following practices are used by several organizations:

- Assessors are encouraged to identify strengths as well as vulnerabilities in assessments.

Common challenges

The following challenges are common to several organizations:

- Limited integration between lessons learned and assessment planning.

4.5. Notable information Beyond Scope

Through benchmarking, several organizations provided additional information that was outside the scope of this effort. Due to its potential value in expanding the knowledge base, it is provided below.

- Assessors perform in-depth discovery of risks related to their topical assessments to ensure that the assessment plan focuses on the areas that provide the most value. (SNL QA)
- Minimizing administrative burden of participating in assessments to reduce disruption to operations. (SNL S&S)
- Development of measures to quantify the value of assessments from the perspective of risk coverage. (SNL QA)
- Ensuring at least one member of the assessment team has up-to-date assessment training. Reviews of completed assessments are performed to assure they meet standards established in the training. (BNL)
- A self-assessment quality evaluation is performed on assessments to ensure that assessments are completed accurately and adequately. Feedback is provided to the program areas so that template LOIs may be improved. (SRNS)
- Assessments are determined before the beginning of each fiscal year, including a combination of contractually required and management directed assessments. Assessments are scheduled to occur throughout the year to ensure that the workload is distributed evenly. This prevents a backlog of assessments and ensures that assessors can continually provide quality assessments. (SRNS)
- Maintenance of metrics on the timeliness of scheduled self-assessments to ensure that assessments are completed in a timely manner and identify any concerns within specific program areas/facilities as it pertains to the completion of their assessments. (SRNS)
- Key performance indicator on the assessment schedule monitored by senior management over the performance period. (WRPS)
- An after-action review of assessment planning to validate approach. (DOE EA-30)

- Risk assessment informs workforce planning. If there is a gap in workforce competency related to identified risk areas, additional contractors with the necessary expertise are hired. (DOE EA-30)
- Assessment planning twice per year allows more timely response to emerging or changing risks. (DOE EA-30)
- Field Office shadows Independent Assessments by subject area, then Field Office SMEs provide observations back to contractor through feedback through the Contracting Officer. (DOE GFO)

5. CONCLUSION

EFCOG provides a forum for sharing ideas and promoting improvement. The novel practices identified by this task team, if implemented, can improve risk-based assessment planning across the Complex, resulting in increased assessment value and responsible stewardship of taxpayer dollars.

APPENDIX A. LIST OF RISK FACTORS USED ACROSS THE DOE COMPLEX FOR ASSESSMENT PLANNING

A common practice identified across the Complex is to prioritize assessments based on calculated risk scores of each assessable entity (e.g., sites, facilities, processes, programs, etc.). The following is a list of risk factors currently being used across the Complex to calculate risk scores for the purpose of assessment planning.

- Management concerns (e.g., self-identified Enterprise-level risks)
- Potential harm to reputation or public confidence
- Potential exposure to fines, lawsuits, or other financial impacts
- Degree of self-assessment, including:
    - Time since last assessment
    - Ongoing or planned assessments
- Results of performance monitoring, such as:
    - Contractor Assurance System metrics
    - Internal audits and assessments (e.g., self-assessments, independent audits, etc.)
    - External audits (e.g., Office of the Inspector General, Government Accountability Office, etc.)
    - National Nuclear Security Administration Performance Evaluation Reports
- Facility hazard category
- Material facility condition
- Degree/level/frequency of facility usage
- Role of facility in overall Department of Energy mission
- Trends in high-significance Occurrence Reporting and Processing System (ORPS) reports
- Near misses
- Defense Nuclear Facilities Safety Board (DNFSB) reports
- Degree of activity-level work
- Changes, such as:
    - New project startups
    - New or modified requirements
    - New or modified systems or processes
    - Organizational changes (e.g., reorganization, Management and Operating Contractor change, etc.)
- Expected effectiveness of existing controls, based on hierarchy of controls

- Lessons from industry or other sites (e.g., issues occurring within the DOE complex or in comparable industries)
- Exceptions to policy or other controls
- Opportunity for waste, fraud, and abuse
- Areas of concern determined to be out of scope of prior assessments

APPENDIX B. QUESTIONNAIRE

Intro: The Energy Facility Contractors Group (EFCOG*) Contractor Assurance System Task Team is seeking your input! We are on a mission to identify the DOE Complex best practices, tools, and processes related to risk-based assessment planning so that they can be shared for our collective learning and improvement. A white paper highlighting the best practices identified by this effort will be shared on the EFCOG website at the end of FY22. To accomplish our goal, our team is reaching out to experts across the enterprise to learn how our various organizations approach this topic. You have been identified as someone with valuable knowledge in this area and we would love to hear from you!

If you are interested in contributing to this effort, please complete the attached questionnaire. Based on your responses, a member of our team may be reaching out to you schedule a virtual meeting to solicit additional information or examples of your work. (If you prefer not to provide a written response but still wish to participate, please let us know and we may schedule a virtual meeting in lieu of the questionnaire.)

*EFCOG's mission is to promote excellence in all aspects of the operation, management, and integration of DOE facilities in a safe, environmentally sound, efficient, and cost-effective manner through the ongoing exchange of information on lessons learned. You can learn more about the organization here.

Goal: gather unique tools, approaches as well as challenges related to risk-based assessment planning

Terms (please note capitalization):

- **Assessment Planning** refers to the process of developing the list of assessments to be performed in a determined time frame (e.g., fiscal year).
- **Assessment Plan** refers to the list of assessments that are to be performed in a given time frame (e.g. fiscal year).
- **assessment planning** refers to the process of developing an assessment plan for a specific assessment
- **assessment plan** refers to the detailed plan developed for a specific assessment. assessment plans generally include objective, scope, methodology(ies), schedule, team members, et.al.

Background

1. What organization are you affiliated with (Corporate Parent, Project Contractor, M&O Contractor, DOE Site Office, Other DOE)?
2. What is the size of your organization (total number of employees and subcontractors)?
3. What DOE Office is your organization affiliated with (Science, NNSA, EM, Nuclear, etc.)? If none, enter N/A.
4. Are you responding on behalf of (your department, functional area, contractor, DOE Site Office, DOE Program Office, corporate entity)?

Part 1 – Assessment Planning – Schedule Development

5. Where does the responsibility for risk management and Assessment Planning lie? (e.g. mission center, central group, line organization)
6. How is the Assessment Program managed? E.g.
    - Central – one group plans, performs all assessments
    - Decentralized – line organizations plan, perform assessments
        - Are results provided to a central group for review?
    - Combination – central group oversees Assessment Program for institution; line organizations plan, perform

    Please describe
7. Is a enterprise-wide Assessment Plan developed?
    a. If so, what for what time span (e.g., fiscal year)
8. How are Assessment Plans developed?
9. How is risk considered in Assessment Planning?
    a. Is there a Risk Management Process that informs Assessment Planning?
    b. What are the inputs to your Risk Management Process?
    c. How is the Risk Management Process managed? E.g.
        - Central – one group responsible for the institution
        - Decentralized – line organizations perform risk management
            - Are results provided to a central group for review?
        - Combination – central group oversees risk management at various levels of the institution

    Please describe

10. Is training in risk management available / provided / required?
11. How much of the Assessment Plan contains required assessments versus discretionary assessments? (e.g., 60% required, 40% discretionary)
12. Do you coordinate / collaborate with the DOE customer on the Assessment Plan?
13. What is the approval process for the Assessment Plan?
    a. Is the DOE customer involved in approval of the Assessment Plan?
14. What organization assures risks are addressed in the Assessment Plan?
15. What tools and/or software are used to develop and manage Assessment Plans?

Part 2 – assessment plan development

16. How are identified risks incorporated into assessment plans?
17. Are templates used to develop assessment plans?
    a. If so, does the template include incorporation of risks

Part 3 - Conclusion

18. Please summarize your best practices.
19. What areas are you focusing on to improve?

APPENDIX C. REFERENCES

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APPENDIX D. ACRONYMS

ANL	Argonne National Laboratory
BNL	Brookhaven National Laboratory
CAS	Contractor Assurance System
DOE	Department of Energy
EA	Enterprise Assessments
EFCOG	Energy Facility Contractors Group
EM	Environmental Management
ES&H	Environmental, Safety, and Health
ESH&Q	Environmental, Safety, Health, and Quality
ESHO	Environmental, Safety, and Health Office
FAM	Functional Area Manager
FARM	Functional Area Program Manager
GFO	Golden Field Office
IA	Independent Audit or Internal Audit
INL	Idaho National Laboratory
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
LOI	Lines of inquiry
M&O	Management & Operating
NNSA	National Nuclear Security Administration
NREL	National Renewable Energy Laboratory
OIG	Office of Inspector General
ORNL	Oak Ridge National Laboratory
PER	Performance Evaluation Report

PNNL	Pacific Northwest National Laboratory
QA	Quality Assurance
S&S	Safeguards & Security
SFO	Sandia Field Office
SNL	Sandia National Laboratories
SRNS	Savannah River Nuclear Solutions
WRPS	Washington River Protection Solutions