Audit of the NRC's Use of Requests for Additional Information in Licensing Processes for Spent Nuclear Fuel

OIG-21-A-08
April 9, 2021

**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

WASHINGTON, D.C. 20555-0001

April 9, 2021

MEMORANDUM TO: Margaret Doane
Executive Director for Operations

FROM: Dr. Brett Baker */RA/*
Assistant Inspector General for Audits

SUBJECT: AUDIT OF THE NRC'S USE OF REQUESTS FOR
ADDITIONAL INFORMATION IN LICENSING PROCESSES
FOR SPENT NUCLEAR FUEL (OIG-21-A-08)

Attached is the Office of the Inspector General's (OIG) audit report titled *Audit of the
NRC's Use of Requests for Additional Information in Licensing Processes for Spent
Nuclear Fuel*.

The report presents the results of the subject audit. Following the March 25, 2021 exit
conference, agency staff indicated that they had no formal comments for inclusion in this
report.

Please provide information on actions taken or planned on each of the recommendation(s)
within 30 days of the date of this memorandum. Actions taken or planned are subject to OIG
follow-up as stated in Management Directive 6.1.

We appreciate the cooperation extended to us by members of your staff during the audit. If
you have any questions or comments about our report, please contact me at (301) 415-5915,
or Mike Blair, Team Leader, at (301) 415-8399.

Attachment: As stated

Office of the Inspector General

U.S. Nuclear Regulatory Commission
Defense Nuclear Facilities Safety Board

OIG-21-A-08
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Results in Brief

Why We Did This Review

The U.S. Nuclear Regulatory Commission (NRC) licenses and regulates the storage of spent fuel, both at commercial nuclear power plants and at separate storage facilities. The NRC conducts a safety review prior to granting a license or certificate for the storage of spent fuel.

A request for additional information (RAI) is the mechanism by which NRC staff collect the information needed in licensing requests in order to make a regulatory decision regarding whether a license or certificate should be granted, renewed, modified, or denied.

The audit objective was to assess the efficiency and effectiveness of the NRC's use of requests for additional information during the spent fuel licensing process.

Audit of the NRC's Use of Requests for Additional Information in Licensing Processes for Spent Nuclear Fuel

What We Found

The NRC's use of RAIs during the spent fuel licensing process is effective and efficient. However, opportunities exist for improvement with regard to enhancing understanding of the risk-informed concept as it relates to RAIs and facilitating effective management transition within the DFM.

There is an inconsistent understanding of applying the risk-informed concept to RAIs. Agency positions should be readily understood; however, the expectations regarding how to risk-inform RAIs are unclear. As a result, there can be tension between licensing and technical staff during the RAI process.

Additionally, a process to ensure effective management transition is missing. Management should have plans in place to respond to personnel changes; however, a formalized process to facilitate manager transitions has not been implemented. As a result, the RAI process may be less efficient.

What We Recommend

This report makes three recommendations to enhance the NRC's use of RAIs during the spent fuel licensing process. Agency management opted not to provide formal comments for inclusion in this report.

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APPENDICES

ABBREVIATIONS AND ACRONYMS

CFR	Code of Federal Regulations
DFM	Division of Fuel Management
DSFM	Division of Spent Fuel Management
ISFSI	Independent Spent Fuel Storage Installation
NMSS	Office of Nuclear Material Safety and Safeguards
NRC	U.S. Nuclear Regulatory Commission
OIG	Office of the Inspector General
PM	Project Manager
RAI	Request for Additional Information

I. BACKGROUND

The NRC licenses and regulates the storage of spent fuel, both at commercial nuclear power plants and at separate storage facilities. Under Title 10, Part 72, of the *Code of Federal Regulations[1]* (10 CFR Part 72), the NRC regulates facilities that store spent fuel in two different ways. The NRC may grant site-specific licenses after a safety review of the technical requirements and operating conditions for an independent spent fuel storage installation (ISFSI). In addition, nuclear power reactor licensees are authorized, via a general license, to store spent fuel on site in NRC-certified dry storage casks. Following a similar safety review, the NRC may issue a certificate of compliance and add a cask to a list of approved spent fuel storage systems through a rulemaking.

Table 1: Definitions

> **Certificate of Compliance** or CoC is the certificate issued by the Commission that approves the design of a spent fuel storage cask.
>
> **Independent Spent Fuel Storage Installation** or ISFSI is a complex designed and constructed for the interim storage of spent nuclear fuel, solid reactor-related Greater Than Class C Waste, and other radioactive materials associated with spent fuel and reactor-related Greater Than Class C Waste storage.

Source: 10 CFR Part 72.

Request for Additional Information

A request for additional information (RAI) is the mechanism by which NRC staff collect the information needed in licensing requests in order to make a regulatory decision regarding whether a license or certificate should be granted, renewed, modified, or denied. RAIs are necessary when the information was not included in an applicant's initial submission, is not contained in any other docketed correspondence, or cannot reasonably be inferred from the information available to agency staff.

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[1] "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste."

Each RAI should have three parts. The first is a question, or a description of the information needed to complete the staff's review. Next, the RAI must have a justification, or a brief explanation of why the NRC made the request, specifically identifying why the information provided by the applicant is deficient. Lastly, the RAI must have a regulatory basis, or an identification of the applicable regulatory requirement that the applicant must meet.

Responsible NRC Office

The Office of Nuclear Material Safety and Safeguards (NMSS) is responsible for regulating activities that provide for the safe and secure production of nuclear fuel used in commercial nuclear reactors; the safe storage, transportation and disposal of high-level radioactive waste and spent nuclear fuel; and the transportation of radioactive materials regulated under the *Atomic Energy Act of 1954*, as amended. The NMSS is the overarching responsible office, which includes the Division of Fuel Management (DFM).

The DFM is the resulting division from the merger of the Division of Spent Fuel Management (DSFM) and the Division of Fuel Cycle Safety, Safeguards and Environmental Review, in October 2019. The division has regulatory responsibility for the front and back ends of the nuclear fuel cycle, including uranium conversion, enrichment, deconversion, and fuel manufacturing; spent fuel storage and transportation; transportation of radioactive materials; and, ultimate disposal of fuel. Licensing project managers and technical reviewers from various DFM branches are involved in the issuance of RAIs for spent fuel licensing actions.

Table 2: DFM Branches Involved in the Spent Fuel RAI Process

Branch	Description
Storage and Transportation Licensing Branch	Manages and coordinates the safety, security, and environmental reviews and issues initial licenses, renewals, and amendments for spent fuel storage cask designs under 10 CFR Part 72, including the certification of storage systems under the general license provisions of 10 CFR Part 72.
Containment, Thermal, Chemical, and Fire Protection Branch	Conducts the technical safety review of spent fuel storage cask designs under 10 CFR Part 72, including the certification of storage systems under the general license provisions of 10 CFR Part 72.
Inspection and Oversight Branch	Provides programmatic oversight of the fuel cycle facility operating and construction inspection programs as well as the transportation and spent fuel storage inspection programs.
Materials and Structural Branch	Conducts materials and structural safety reviews of spent fuel storage cask designs under 10 CFR Part 72, including the certification of storage systems under the general license provisions of 10 CFR Part 72.
Nuclear Analysis and Risk Assessment Branch	Conducts the technical safety review of spent fuel storage cask designs under 10 CFR Part 72, including the certification of storage systems under the general license provisions of 10 CFR Part 72.

Source: NRC.

In the Storage and Transportation Licensing Branch, the project managers (PMs) coordinate preparation, review, and issuance of RAIs. PMs also prepare the RAI cover letter correspondence. The licensing branch chief reviews and approves RAIs to ensure consistent application of the RAI process.

Technical reviewers in the remaining branches are responsible for the quality, format, and content of their RAIs. Their branch chiefs review and approve input to the RAI package to ensure the package is complete, in the correct format, accurate, and needed to reach a regulatory decision on the application.

The RAI Process

The review process begins with either pre-application activities, such as a meeting between the licensee and NRC staff, or the submission of an application. Once the NRC receives the application, NRC staff review the application to ensure it has sufficient information to conduct the technical

review. This is called the acceptance review. After the application has been accepted, NRC staff begin their technical review.

Staff base their technical reviews on guidance contained in the NRC's Standard Review Plans.[2] During the technical review, NRC technical reviewers can develop RAIs if certain information that is necessary for staff to make a regulatory decision is missing from the application. After the technical reviewer develops the RAI, the RAI is reviewed by a senior technical reviewer during a peer review. The RAI is also reviewed by the technical branch chief, the project manager, and the licensing branch chief. Once all necessary individuals have reviewed and concurred on the RAI, it is issued to the applicant, who then responds to the RAI.

Upon receiving their response, NRC staff will then review the additional information provided and make a licensing decision, or there can be additional rounds of RAIs. If more than one round of RAIs is needed, staff must obtain DFM management approval. Ultimately, a licensing decision is made to grant, renew, modify, or deny the license or certificate, and the final product is a report called a final safety evaluation report. Figure 1 provides a summarized overview of the RAI process in flowchart form.

Figure 1. RAI Process Flowchart
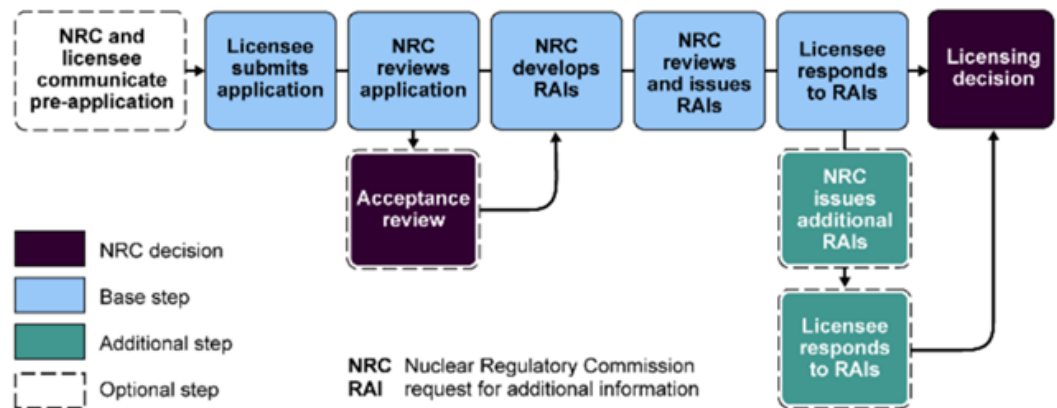
**Source:** GAO-17-344: Requests for Additional Information in Nuclear Licensing.

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[2] Standard Review Plans are documents that provide guidance to the NRC staff for reviewing an application. The Standard Review Plans define acceptable methods for the NRC staff to review the application and determine if the applicant has demonstrated compliance with the applicable regulatory requirements.

RAI Metrics

The Nuclear Energy Innovation and Modernization Act required the NRC to develop performance metrics for the processing of applications for design certifications or approvals, licenses, license amendments, license renewals, and certificates of compliance, among other things. The NRC established a 3-year generic milestone metric for issuing the final safety evaluation report for new licenses, license amendments, and license renewals for Certificates of Compliance and ISFSIs. The OIG reviewed this metric for Fiscal Years 2019 and 2020 and found that in both years, the DFM met its metric of completing 100 percent of its safety evaluation reports in less than 3 years.

The NRC also sends a quarterly status report to the U.S. Senate Committee on Environment and Public Works titled *Status Report on the Licensing Activities and Regulatory Duties of the U.S. Nuclear Regulatory Commission*. The NRC provides basic data and information associated with the NRC's licensing activities and regulatory duties, including information about RAIs for the NRC's spent fuel business line. In particular, the NRC provides data about the total inventory of open RAIs, number of RAIs issued, number of RAIs responded to by licensees, and number of RAIs closed for spent fuel.

Figure 2. RAI Data for Fiscal Year 2020 Spent Fuel Licensing Actions[3]
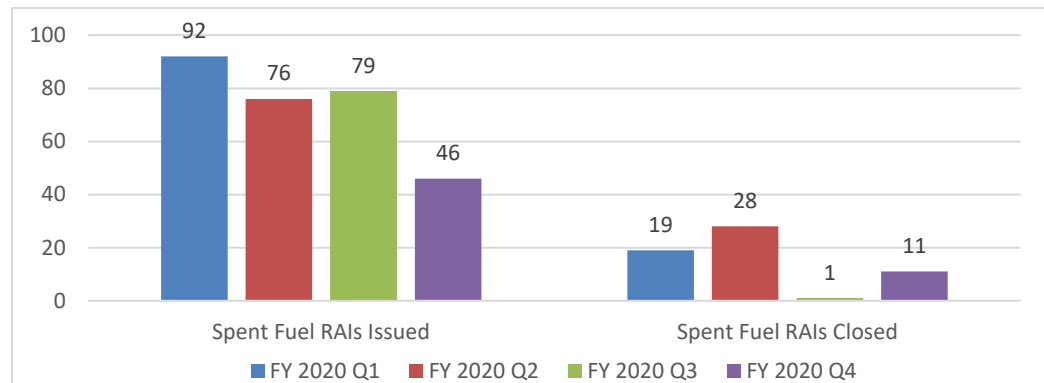
Source: OIG generated based on the quarterly Congressional report *Status Report on the Licensing Activities and Regulatory Duties of the U.S. Nuclear Regulatory Commission.*

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[3] RAIs are considered closed once the final safety evaluation, environmental assessment, or environmental impact statement is finalized. Further, the DFM is in the process of reviewing two consolidated interim storage applications.

Guidance on Being Risk-Informed

In May 2018, the NRC issued SECY-18-0060, "Achieving Modern Risk-Informed Regulation," which discussed the need for systematic and expanded use of risk and safety insights in decision making, including the need to appropriately scale the scope of staff review and level of detail needed from an applicant for licensing decisions, consistent with NRC regulations and the overall standard of reasonable assurance of adequate protection.

In response, the NMSS issued a memo[4] which directed staff to focus resources and expertise on the most safety-significant portions of a licensing decision. Specifically, the memo indicated that technical reviewers should determine as early as possible if the information in the application is sufficient to make the necessary regulatory finding; and RAIs should be pursued if the submitted and docketed information is not sufficient for the staff to make a finding, and such requests should provide a clear regulatory basis for why the information is needed. The DFM's director also issued a memo[5] to staff providing high-level expectations on applying risk-informed thinking to the processing of licensing actions, including RAIs.

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[4] "Key Principles for Nuclear Material Safety and Safeguards Reviews," January 15, 2019.

[5] "Licensing Process Expectations," January 24, 2020.

II. OBJECTIVE

The audit objective was to assess the efficiency and effectiveness of the NRC's use of requests for additional information during the spent fuel licensing process. The report appendix contains information on the audit scope and methodology.

III. FINDINGS

The NRC's use of RAIs during the spent fuel licensing process is effective and efficient. However, opportunities exist for improvement with regard to enhancing understanding of the risk-informed concept as it relates to RAIs and facilitating effective management transition within the DFM.

A. Inconsistent Understanding of Applying the Risk-Informed Concept to RAIs

There is an inconsistent understanding of applying the risk-informed concept to RAIs. Agency positions should be readily understood; however, the expectations regarding how to risk-inform RAIs are unclear. As a result, there can be tension between licensing and technical staff during the RAI process.

What Is Required

Agency Positions Should be Readily Understood

The NRC's "Principles of Good Regulation" states that agency positions should be readily understood and easily applied. Further, according to the U.S. Government Accountability Office's *Standards for Internal Control in the Federal Government*, effective information and communication are vital for an entity to achieve its objectives. Management should internally

communicate quality information across reporting lines to enable personnel to perform key roles. Additionally, management should identify, on a timely basis, significant changes to internal and external conditions that have already occurred, or are expected to occur, and communicate those to the appropriate personnel.

What We Found

There is an Inconsistent Understanding of Applying the Risk-Informed Concept to RAIs

Staff understand the general concept of being risk-informed, but there is an inconsistent understanding of how that concept should be applied to the RAI process.[6]

Differing Views and Understandings

Staff have their own individual views and understanding of what risk-informed means. A technical reviewer may have a different understanding of risk-informed concepts than a PM. For instance, there were different answers among technical reviewers when asked what risk-informed means as it relates to the RAI process. Additionally, there were different views between PMs and technical reviewers regarding what applying the risk-informed concept meant in a particular case.[7]

Some PMs opined technical reviewers ask questions that are not risk-informed. These PMs believe some technical reviewers ask questions that are not truly necessary, or are out of curiosity, rather than out of a need for the information. Some PMs also opined that RAIs could benefit from greater risk-informed thinking.

There is no agreed upon definition or clear expectation regarding what risk-informed means in the context of RAIs. The OIG asked 25 PMs and technical reviewers: "If there is a RAI related to a requirement that is of

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[6] With regard to the concept of risk-informing, the OIG's focus area was risk-informing relative to the RAI process; however, the concept of risk-informed thinking applies to the entire licensing review process.

[7] Differing views and opinions can also be indicative of a healthy organization where differing views are heard.

low safety significance, but it is required by the regulations, should that RAI be issued, even though it would not significantly impact safety?" Of these 25 staff members, 60 percent said the RAI should be issued, 24 percent said the RAI should not be issued, and 16 percent were unsure. The mixed responses illustrate a differing understanding of what risk-informed means in relation to RAIs, or how the staff are supposed to risk-inform when it comes to RAIs.

Figure 3. Analysis of Responses from Project Managers and Technical Reviewers

Should a RAI be issued if it's related to a regulatory requirement of low safety significance?

■ Yes ■ No ■ Unsure
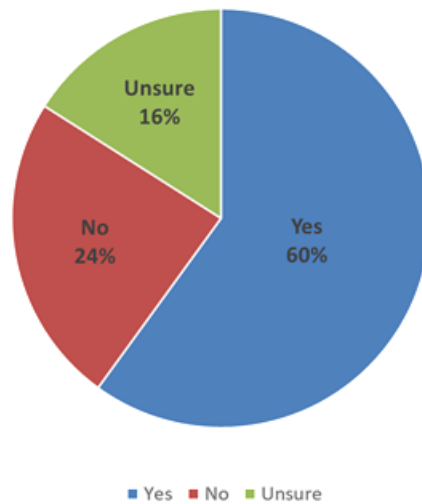
Source: OIG-generated.

Why This Occurred

The Expectations Regarding How to Risk-Inform RAIs are Unclear

The tools, procedures, techniques, and examples for applying the risk-informed concept to the RAI process can be enhanced.

Unclear Guidance

The DFM has a division instruction for the RAI process. Currently, it does not include guidance related to applying the risk-informed concept to the RAI process. However, the DFM is in the process of revising its internal

procedures, including the division instruction on RAIs, to provide additional guidance on risk-informing RAIs.

The existing guidance on being risk-informed consists of two memoranda that provide high-level direction to the staff. In 2019, the NMSS issued a memorandum to the staff directing them to focus resources and expertise on the most safety-significant portions of a licensing decision. In 2020, the DFM issued a memorandum to the staff that provides high-level expectations for processing licensing actions. While both memoranda mention RAIs, neither document provides specific expectations or guidance related to how to risk-inform RAIs.

Both PMs and technical reviewers have told the OIG they want more concrete guidance from management regarding how to risk-inform their reviews. Some staff have stated they are unclear as to what a risk-informed review looks like. Part of this confusion may stem from the fact that RAIs that were considered "good" RAIs in the past are now considered "bad," or not risk-informed. Additionally, staff were never provided examples of what a risk-informed RAI should look like, or what separates a "good" RAI from a "bad" RAI under the current risk-informed environment. Staff have noted that training on how to risk-inform RAIs with case studies and examples of RAI questions that would be considered risk-informed would be helpful. Further, branch chiefs have told the OIG it is important for management to provide clearer guidance to staff regarding their expectations for implementing the risk-informed concept.

Balancing the Risk-Informed Concept with Regulatory Requirements

Some staff have difficulty balancing the push to be risk-informed with ensuring the applicant is meeting the regulations. Staff are expected to use their professional engineering judgment to help risk-inform their reviews. However, when technical reviewers have exercised this engineering judgement to risk-inform their reviews, some reviewers reported that the Office of the General Counsel[8] has sometimes questioned their judgments. As a result, these staff noted that they are less likely to invoke the same degree of engineering judgment and risk-

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[8] The Office of the General Counsel plays a role in the spent fuel licensing process. When completing the safety evaluation report, DFM staff submit it to the Office of the General Counsel for legal sufficiency review. Although the Office of the General Counsel is not required to review RAIs, staff may contact them for their insights on potential RAIs.

informed thinking in subsequent reviews. Staff said they would like more guidance and clearer expectations on navigating the risk-informed framework within the legal landscape.

<u>Risk Tool</u>

The DFM is currently revising its division instructions, including providing additional guidance on how to risk-inform RAIs, and is developing a risk tool to be used during the licensing process. DFM management is engaged with the development of this risk tool. This tool is intended to help with evaluating risk for licensing actions. Through use of this tool, staff will be able to identify the most risk significant areas of the application in the beginning of the review and focus their review on the more risk significant areas. The Nuclear Energy Institute endorses this risk tool and believes it has the potential to be valuable. However, for this value to be realized, the Nuclear Energy Institute believes the tool must be transparently applied such that its use is visible to the industry. Further, DFM staff are completing assignment and alignment meetings, which help to provide guidance and alignment on what risk-informed means for applications.

Why This Is Important

There Can Be Tension Between Licensing and Technical Staff During the RAI Process

An inconsistent understanding of how to apply the risk-informed concept to the RAI process has caused some disagreement and tension between staff in the licensing branch and technical branches, resulting in frustration for PMs and technical reviewers. Although the OIG has not identified any major schedule delays, disagreement can hinder the efficiency of the RAI process as the process can take longer and potentially cause schedule delays in casework. In cases where there is a high level of disagreement, the staff may have to bring the RAI to division management for a decision, and in those situations, a case may not move forward for weeks.

Among some technical staff, there is a sense there is more opposition and disagreement from the licensing branch compared to the past, due to differing views of what being risk-informed means. Additionally, some

technical reviewers feel they are not being allowed to ask applicants questions. However, additional tools and guidance that provide clear expectations relating to risk-informing the RAI process can aid in promoting a common understanding between staff and reduce tension. Despite internal tension, spent fuel industry representatives told the OIG that the RAI process has gotten better over the years and referred to the process as "helpful" and "not overly burdensome." Industry representatives were complimentary of the improved communication between the industry and the NRC.

Recommendations

The OIG recommends that the Executive Director for Operations:

1.   Update guidance to document strategies or tools to be used for risk-informing requests for additional information; and,

2.   Conduct training across the division on how to risk-inform relative to the request for additional information process, and conduct refresher training on an as needed, periodic basis.

B. A Formal Process to Ensure Effective Management Transition is Needed

A process to ensure effective management transition is missing. Management should have plans in place to respond to personnel changes; however, a formalized process to facilitate manager transitions has not been implemented. As a result, the RAI process may be less efficient.

What Is Required

Management Should Have Plans in Place to Respond to Personnel Changes

In the *Standards for Internal Control in the Federal Government*, the Government Accountability Office states management should demonstrate a commitment to recruit, develop, and retain competent individuals.

Management should have plans in place to address the entity's need to respond to sudden personnel changes. Moreover, management should enable individuals to develop competencies appropriate for key roles and tailor training based on the needs of that role.

What We Found

### A Process to Ensure Effective Management Transition is Missing

The DFM does not have any formal processes to ensure effective management transition. When new branch chiefs take on their role, they often do not have experience in the technical disciplines they oversee.

Frequent Management Transition

Some staff indicated that frequent transition in the DFM can impact the RAI process. When asked to classify the rate of transition in the branch chief position, most staff and management rated transition as medium to high. Staff cited transition in division management positions as well. The high rate of management transition in the DFM can be, in part, attributed to the division's relatively recent formation in October 2019, and the use of rotational assignments[9] to develop greater overall capability and versatility within the staff. The OIG analyzed the number of individuals in branch chief and division management positions in the former DSFM and the recently formed DFM.

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[9] A rotational assignment is designed to develop employee skills, foster a greater understanding of NRC programs, develop greater cohesion and cooperation among the staff, and provide an employee with broader experiences and new challenges. Rotations among supervisory positions are also used to develop future candidates for greater leadership responsibilities in the agency, which helps build a cadre of qualified candidates for eventual selection and promotion to the Senior Executive Service.

Figure 4. Number of Individuals in Branch Chief and Division Management Positions since October 2014
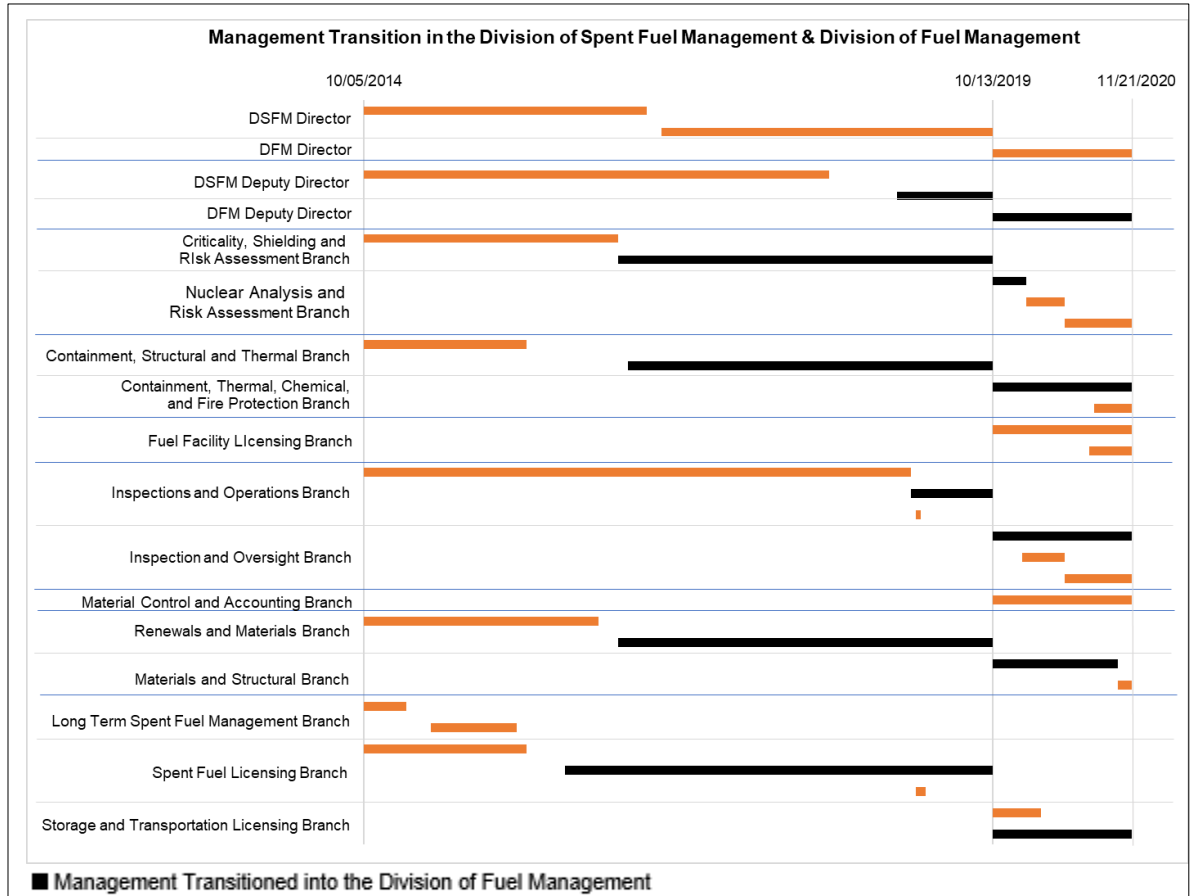
Source: OIG generated based on the NRC's system of record for personnel and payroll information.

According to the OIG's analysis, there were 12 branch chiefs,[10] 2 deputy division directors, and 2 division directors in the DSFM between October 2014 and October 2019. Since the DFM's formation in October 2019 through November 2020, there have been 15 branch chiefs, 1 deputy division director, and 1 division director.

Because there is a high rate of management turnover, it is important to ensure there is effective management transition. The division is working on a template to help with the branch chief transition process. The template will help facilitate effective branch chief transition and will contain some of the necessary information that the incoming branch chief will

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[10] Between October 2014 and October 2019, two branch chiefs in the DSFM each held a branch chief position in two different branches.

need, such as the status of licensing actions and subject matter experts within the branch.

Why This Occurred

A Formalized Process to Facilitate Manager Transitions Has Not Been Implemented

The DFM does not have a formalized process to address management transitions.

Management Transition Process Can Be Improved

DFM staff have an expectation for the branch chief to have some familiarity with the work conducted within their group. However, when a new branch chief comes in, the burden of teaching the branch chief and getting him or her up to speed falls on the staff. Staff spend a lot of time teaching the new branch chief, and because there is so much turnover, that person could be gone in a year, and then staff go through the same process with someone new. Both staff and branch chiefs opined the transition process can be improved by having the outgoing branch chief assist with the new branch chief's transition.

As part of a formalized transition process for new branch chiefs, current branch chiefs and staff suggested: (a) taking the training that the technical staff attend, such as training modules on the different technical disciplines within the DFM; and, (b) providing a document or presentation for the incoming branch chief that includes references and things they need to know.

A previous self-assessment identified management turnover as a high-priority issue area. In 2019, the Building a Smarter Fuel Cycle Licensing Program working group found "there is no direct guidance describing the elements of effective management turnover, especially in the context of the continuity of licensing action reviews." The working group recommended the DFM, "Develop a more formalized expectation and process related to the conduct of management turnover (e.g., establishing a management transition plan) that includes the status, actions, and discussions related to significant licensing issues and actions." DFM

management endorsed this recommendation, and the staff are in the process of implementing it.

<u>Knowledge Management Initiatives</u>

As a knowledge management tool, the DFM implemented cross training sessions where various technical disciplines give high-level briefings. In addition, one of the division instructions the DFM is currently revising pertains to lessons learned. Through this division instruction, the DFM will implement a process to identify and document lessons and best practices in a database based on past casework and inspections. This database may be beneficial as a knowledge management tool for incoming branch chiefs.

Why This Is Important

The RAI Process May Be Less Efficient

Although there are benefits to rotational assignments, such as developing employee skills and future candidates for leadership roles in the agency, frequent transition among management can also cause inefficiencies. Without formal processes, there could be significant impact on timeliness and scope of reviews. Branch chiefs may take longer approving RAIs because they do not understand the technical issues to make a safety determination. For example, branch chiefs may not understand the technical area well enough to understand why a technical reviewer is asking a question. Branch chiefs may also have a different stance on a licensing action, which can result in a scope change in the middle of the review. Additionally, one of the internal controls in the RAI process is branch chief concurrence. If the branch chiefs do not have experience in their discipline, or they do not agree with the scope of the review, the effectiveness of that internal control can be weakened. Industry representatives also shared the belief that management transition can result in inefficiencies. With each new manager, industry representatives must develop new relationships and come to a mutual understanding regarding what the issues might be on a review.

Further, the high rate of branch chief turnover is bad for staff morale and causes consternation and uncertainty. Staff explained it is difficult for

them to get guidance from management when managers are not familiar with the discipline they are overseeing. An effective and formalized process could make the management transition process more efficient and minimize the impact on staff.

Recommendation

The OIG recommends that the Executive Director for Operations:

3.   Create and implement a formalized process to facilitate effective management transitions in the Division of Fuel Management.

IV. CONSOLIDATED LIST OF RECOMMENDATIONS

The OIG recommends that the Executive Director for Operations:

1.   Update guidance to document strategies or tools to be used for risk-informing requests for additional information;

2.   Conduct training across the division on how to risk-inform relative to the request for additional information process, and conduct refresher training on an as needed, periodic basis; and,

3.   Create and implement a formalized process to facilitate effective management transitions in the Division of Fuel Management.

V. AGENCY COMMENTS

An exit conference was held with the agency on March 25, 2021. After reviewing a discussion draft, agency management provided comments that have been incorporated into this report, as appropriate. As a result, agency management opted not to provide formal comments for inclusion in this report.

OBJECTIVE, SCOPE, AND METHODOLOGY

Objective

The audit objective was to assess the efficiency and effectiveness of the NRC's use of requests for additional information during the spent fuel licensing process.

Scope

The audit focused on the NRC's use of RAIs during the spent fuel licensing process. The OIG conducted this performance audit from August 2020 to March 2021 via teleconferences at NRC headquarters (Rockville, MD).

Internal controls related to the audit objective were reviewed and analyzed. Specifically, the OIG reviewed the components of control environment, risk assessment, and information and communication. Within those components, the OIG reviewed the principles of establishing structure, responsibility, and authority; recruiting, developing, and retaining competent individuals; identifying, analyzing, and responding to change; and, communicating quality information internally.

Methodology

The OIG reviewed relevant criteria, regulations, and guidance documents for this audit including:

- The *Atomic Energy Act of 1954*, as amended.
- 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
- 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater than Class C Waste."
- The Nuclear Energy Innovation and Modernization Act.

- Status Reports on the Licensing Activities and Regulatory Duties of the U.S. Nuclear Regulatory Commission.
- NUREG-2215, "Standard Review Plan for Spent Fuel Dry Storage Systems and Facilities."
- NUREG-2216, "Standard Review Plan for Transportation Packages for Spent Fuel and Radioactive Material."
- SECY-18-0060, "Achieving Modern Risk-Informed Regulation."
- SFST-3, Rev. 4, "Requests for Additional Information."

The OIG interviewed DFM staff and management to gain an understanding of the division's RAI process as it relates to spent fuel licensing, and staff from the Office of the General Counsel to identify their role in the process. Auditors also interviewed a sample of spent fuel vendor representatives as well as industry personnel from the Nuclear Energy Institute to obtain their perspectives on the NRC's RAI process for spent fuel licensing. The OIG also reviewed RAIs and RAI responses for various types of licensing actions from the major vendors in the dry cask storage industry, including both closed and ongoing licensing casework.

Furthermore, auditors conducted an analysis to identify the transition rate in management positions in the DSFM and the DFM, among other analyses.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Throughout the audit, auditors considered the possibility of fraud, waste, and abuse in the program.

The audit was conducted by Mike Blair, Team Leader; Regina Revinzon, Audit Manager; Janelle Wiggs, Senior Auditor; and, Connor McCune, Management Analyst.

TO REPORT FRAUD, WASTE, OR ABUSE

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                       11555 Rockville Pike
                       Rockville, MD 20852

COMMENTS AND SUGGESTIONS

If you wish to provide comments on this report, please email the OIG using this [link](#).

In addition, if you have suggestions for future OIG audits, please provide them using this [link](#).