



# **POLICY ISSUE**

## **(Information)**

**DATE:** April 24, 2024 **SECY-24-0034**

**FOR:** The Commissioners

**FROM:** John W. Lubinski, Director  
Office of Nuclear Material Safety  
and Safeguards

**SUBJECT:** ANNUAL REPORT TO THE COMMISSION ON LICENSEE  
PERFORMANCE IN THE NUCLEAR MATERIALS AND WASTE SAFETY  
PROGRAM FOR FISCAL YEAR 2023

**PURPOSE:**

To provide the annual report for fiscal year (FY) 2023 on significant nuclear materials issues and licensee performance trends in the Nuclear Materials and Waste Safety Program.<sup>1</sup>

**SUMMARY:**

For FY23, the staff evaluated significant nuclear materials issues and licensee performance activities for trends based on reportable events and operating experience associated with Nuclear Materials and Waste Safety Program licensees. This evaluation included both U.S. Nuclear Regulatory Commission (NRC) and Agreement State licensees. The staff concluded that there were no significant nuclear materials issues or discernible adverse trends in licensee performance and that public health and safety were maintained. The staff did not identify any Nuclear Materials and Waste Safety Program licensees that met the criteria for discussion at the Agency Action Review Meeting (AARM) that will be held on May 13, 2024.

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<sup>1</sup> The Nuclear Materials and Waste Safety Program is implemented through the Nuclear Materials Users, Fuel Facilities, Spent Fuel Storage and Transportation, and Decommissioning and Low-Level Waste business lines. The High-level Waste (HLW) business line was not included in this annual report. There were limited Nuclear Waste Policy Act activities which occurred in FY23, as part of the HLW business line. The NRC continued to provide a monthly update to Congress on the status of its remaining Nuclear Waste Fund appropriations and provided support and advice in NRC proceedings. No significant nuclear materials issues and licensee performance trends were applicable.

## BACKGROUND:

On June 28, 2002, the Commission issued Staff Requirements Memorandum (SRM)-M020501, "Briefing on Results of Agency Action Review Meeting—Reactors, 9:00 A.M., Wednesday, May 1, 2002, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (Open to Public Attendance)" (ML021820604). In the SRM, the Commission directed the staff to propose a process for providing the Commission with annual updates on significant nuclear materials issues (such as overexposures, medical events, and lost or stolen sources) and on adverse licensee performance.

In response to SRM-M020501, the staff developed "Proposed Process for Providing Information on Significant Nuclear Materials Issues and Adverse Licensee Performance," dated December 11, 2002 (SECY-02-0216; ML022410435). On February 25, 2003, the Commission issued SRM-SECY-02-0216 (ML030560328), which approved the staff's proposed criteria and process and directed the staff to provide the report on an annual basis. Subsequently, in "Revision of the Criteria for Identifying Nuclear Materials Licensees for Discussion at the Agency Action Review Meeting," dated September 16, 2008 (SECY-08-0135; ML082480564), the staff updated the criteria to provide additional clarity and incorporate the NRC's current policies and procedures. The Commission approved the revised criteria and directed the staff to include an additional criterion pertaining to licensees that were discussed at a previous AARM, but whose corrective actions were ineffective in correcting the underlying performance issues. The revised criteria for identifying nuclear materials licensees for discussion at the AARM were included in "Revision of the Criteria for Identifying Nuclear Material Licensees for Discussion at the Agency Action Review Meeting," dated September 20, 2011 (SECY-11-0132; ML112280111). Annually, the staff evaluates the Nuclear Materials and Waste Safety Program licensees per the process described in Management Directive 8.14, "Agency Action Review Meeting" (ML23074A011).

## DISCUSSION:

The staff evaluated licensee performance activities in FY23 for trends using strategic goals and performance measure data, significant licensee performance issues, data derived from escalated enforcement actions, operating experience reports, assessment of data reported to the Nuclear Material Events Database (NMED), abnormal occurrence (AO) data, Integrated Materials Performance Evaluation Program (IMPEP) significant actions, and programmatic self-assessment results and improvements. The sections below present the results of the staff's evaluation.

With a focus on continued partnership with the Agreement States, in the execution of the National Materials Program,<sup>2</sup> a representative from the Organization of Agreement States will participate in the FY23 AARM.

### Licensees with Significant Performance Issues

For FY23, the staff did not identify any licensees that met the criteria for significant performance issues warranting discussion at the AARM.

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<sup>2</sup> The National Materials Program is a broad and collective effort within which the NRC and the Agreement States function in carrying out their respective regulatory programs for radioactive material. The goal of the National Materials Program is the protection of public health, safety, security, and the environment associated with the hazards of radioactive material while effectively using regulatory resources.

### Strategic Goals and Performance Measure Data

In the Annual Performance Plan and Report (ML23038A113), the agency reported its FY23 performance results. The staff's performance relative to Strategic Goal 1, "Ensure the Safe and Secure Use of Radioactive Materials," is directly relevant to the assessment in this paper. All four business lines met the performance goals for both safety and security, with no occurrences which met the reporting criteria.

### Escalated Enforcement Action Review

Escalated enforcement actions include notices of violation (NOVs) for Severity Level I, II, and III violations; problems; civil penalties; NOVs to individuals; and orders to modify, suspend, or revoke NRC licenses or the authority to engage in NRC-licensed activities. In FY23, the NRC issued 43 escalated enforcement actions involving Nuclear Materials and Waste Safety Program licensees. The 15-year average for the Nuclear Materials and Waste Safety Program is 58 escalated enforcement actions per year.<sup>3</sup> The NRC Office of Enforcement dashboards were used to collect and assess this information. The total enforcement in FY23 is within one standard deviation of the 15-year average.

In FY23, both the Decommissioning and Low-Level Waste and the Spent Fuel Storage and Transportation business lines issued zero escalated enforcement actions. The Fuel Facilities business line issued two escalated enforcement actions: a confirmatory order and a Severity Level III problem.

The NRC regulated 2,088 material licensees in FY23.<sup>4</sup> Approximately two percent of NRC licensees within the Nuclear Materials Users business line received an escalated enforcement action (41 escalated enforcement actions). Within the last 15 years, the number of escalated enforcement actions issued by the NRC has been within 1 and 3% of the Nuclear Materials Users.

The Organization of Agreement States (OAS) surveyed the Agreement States regarding how many escalated enforcement actions were issued in FY23. This was in response to continued collaboration with NMSS management and a desire to enhance the assessments available to the National Materials Program. Thirteen out of 39 Agreement States responded to the survey. This represents a new effort in collaboration between the OAS and the NRC. Given this is the first time such information was collected and only a small number of Agreement States responded, it is not possible to identify any trends from the data. The NRC staff will work with OAS to interpret the data and determine whether this type of information can be integrated in a future AARM.

### Operating Experience

No generic issues were identified within the Nuclear Materials and Waste Safety Program.

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<sup>3</sup> The 15-year dataset that we are comparing the FY23 data to includes the years FY08 - FY22.

<sup>4</sup> STC-23-075, "Annual Count of Active Radioactive Material Licenses in the National Materials Program," dated November 13, 2023 (ML23311A078).

### *Fuel Facilities*

The FY23 Fuel Cycle Operating Experience Report (ML24019A043) described a review of fuel cycle facility event reports and violations from FY23. The assessment included a review of events at fuel facilities with a focus on the categories of criticality safety, natural phenomenon hazard, operational safety (chemical), construction, operational safety (fire), and radiation protection. There was an increase in FY23 events when compared to the previous year; however, two of the event notifications were caused by earthquakes in New Mexico. These event notifications elevated the attention of the NRC to these conditions but did not represent any licensee failures. Additionally, the commencement of operations of a new Category 2 enrichment facility, and the restart of operations at a fuel cycle facility that had not been operating in the previous years, meant that the number of operating fuel facilities in FY23 increased from six to eight. Given this, the staff did not consider the increase in events from FY22 to be a licensee performance trend. No changes to our regulatory processes were recommended.

The assessment considered the violations that were issued within FY23, including in the criticality safety, operational safety-chemical, construction, and radiation protection performance areas. Of the 11 violations that were issued, only one was a Severity Level III violation with the others being Severity Level IV violations. Failure and/or degradation of management measures continued to be the most common contributing factor to events and violations. Because this factor was also identified in last year's report as a frequent contributor to events and violations, NMSS provided a presentation to the Region II staff to highlight these data. Within this year's report, the management measures which caused the most events and violations were further delineated into subcategories; configuration management, training and qualification, and procedures (including human factors related to not following procedures or errors in executing procedures). Inspectors will continue to focus on management measures as part of the NRC inspection program.

No Part 21 reports were issued in FY23 that were relevant to fuel cycle facilities.

### *Spent Fuel Storage and Transportation*

The FY23 Spent Fuel Storage and Transportation Operating Experience Report (ML24029A045) contained an assessment of spent fuel storage and transportation inspection violations from FY23. This assessment included inspection violations from both Part 72 Certificate of Compliance (CoC) holders and licensees, and Part 71 CoC holders and users inspected by the Inspection and Oversight Branch in the Division of Fuel Management (DFM). The assessment noted that in FY23 there was a decrease in violations related to tornado hazards protection. The decrease in violations in this area was likely attributable to NRC's issuance of Enforcement Guidance Memorandum (EGM) 22-001, "Enforcement Discretion for Noncompliance of Tornado Hazards Protection Requirements at Independent Spent Fuel Storage Installations," dated April 15, 2022 (ML22087A496) and the resulting disposition of unresolved inspection items that had been identified during NRC inspections. The staff developed Regulatory Guide 3.77, "Weather-Related Administrative Controls at Independent Spent Fuel Storage Installations," which was issued in September 2023. This regulatory guide provided an approach deemed acceptable by the NRC for Independent Spent Fuel Storage Installation (ISFSI) licensees and CoC holders to meet regulatory requirements under 10 CFR Part 72, regarding protection against environmental conditions and natural phenomena. Based on the analysis of inspection violations from FY21 to FY23, there were no additional trends that

would warrant a change in the regulations or current regulatory processes for the inspection of Part 72 CoC holders and licensees, or Part 71 CoC holders and users.

No Part 21 reports were issued in FY23 that were relevant to Part 72 or Part 71 CoCs.

### *Decommissioning and Low-Level Waste*

The Decommissioning, Uranium Recovery and Waste Programs (DUWP) Operating Experience Report FY23 (ML24009A283) included an assessment and summary of escalated and non-escalated enforcement.<sup>5</sup> No events were reported that were relevant to safety and security for the complex material decommissioning, low-level waste, or uranium recovery sites. No Part 21 reports were issued in FY23 that were relevant to the Decommissioning and Low-level Waste business line.

On September 13, 2023, the staff issued Information Notice 2023-04, "Operating Experience Related to Fire Events at Decommissioning Nuclear Power Plants in the United States (ML23088A143)," to inform stakeholders of fire events in radiologically controlled areas; posted radiologically contaminated areas; instances of failure to control combustible material and/or perform adequate fire watches; or implement other fire protection activities at decommissioning power reactor sites. These fire events were documented in NRC decommissioning reactor inspection reports from 2018 to 2023.

### *Nuclear Materials Users*

The Nuclear Materials User Operating Experience Report FY23 (ML23264A066) included an assessment of events and enforcement actions to inform future inspections and licensing reviews and to provide an opportunity to consider whether communication to stakeholders is needed. No Part 21 reports were issued in FY23 that were relevant to the Nuclear Materials User business line. The assessment binned the non-escalated and escalated Notices of Violation,<sup>6</sup> as well as the orders and confirmatory action letters, into five categories; (1) Radiation Protection; (2) Material Security, Control and Accountability; (3) Regulatory and Administrative Matters; (4) Transportation; and (5) Medical. By observing the graphical representation of the enforcement data, as well as considering event data and observations from the staff, technical areas were selected for further analysis.

The assessment focused on the category of Radiation Protection because it contained the most findings, overall. The Administrative Controls and Oversight subgroup contained 45 findings. 23 violations were cited against 10 CFR 20.1101, "Radiation Protection Programs," section (c), which required a review of the content and implementation of the radiation safety program, at

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<sup>5</sup> The FY23 DUWP Operating Experience Report included the apparent violation identified in "Holtec Decommissioning International, LLC, Oyster Creek Nuclear Generating Station – NRC Inspection Report No. 05000219/2023002" (ML23214A247), dated August 22, 2023. The corresponding SLIII violation and civil penalty were not issued until November 9, 2023 (ML23306A127). As such, the DUWP OpE Report included the review of an escalated enforcement action that will be binned with the FY24 escalated enforcement actions.

<sup>6</sup> The Nuclear Materials Users Operating Experience Report did not include problems, which is a grouping of notices of violations with a similar theme, and instead included the notices of violation identified within the problems. The assessment also included apparent violations, which were discussed during the alternate dispute resolution process and in which corrective actions were issued in a confirmatory order instead of the violations being noticed. As such, the escalated enforcement count contained within the OpE Report does not match the Office of Enforcement dashboard.

least annually. This was the most frequently cited requirement in FY23. In addition, the assessment looked at physical inventory and leak testing issues; security (Less than Category 2 quantity of radioactive material); reciprocity; malfunctioning devices; and radiopharmaceutical events. The assessment identified three areas for continued inspector emphasis: including the awareness of and accountability for radiation safety and regulatory compliance at the highest levels of a licensee's organization, compliance with physical inventory and leak testing requirements, and security requirements for portable gauge licensees. In addition, the staff recommended issuance of two information notices, which are currently being developed.

The NMED event study, titled "Nuclear Material Events Database; Fixed Gauge Failures FY14-FY23 (ML24016A067)," was issued in November 2023. The event study assessed possible trends in the overall events, as well as possible trends for specific gauge models. NMED contained 473 events involving the failure of fixed gauges during FY14- FY23. Some of the events involved more than one gauge. A total of 571 fixed gauges were involved in the 473 events. A vast majority of the events (409 events out of 473 total events) involved failures of the shutter or the shutter operating mechanism. These failures included issues such as the shutter sticking open (unshielded), the shutter operating mechanism failing, or a missing shutter. The event study concluded that no statistically significant trends were identified in the review of fixed gauge failure events documented in NMED.

The NMED Annual Report for FY23 (ML24031A609) provided an assessment of nuclear material events reported by NRC licensees, Agreement States, and non-licensees. The NMED data were analyzed for the main event types, aggregated for the evaluation of potential trends, and presented in an annual summary report that included a detailed description of individual events.

The NMED Annual Report for FY23 included an assessment of nuclear material event reports to identify statistically significant trends and significant events. To account for random fluctuations in the event data from year to year and to assess any trends, the assessment included data from the last 10 FYs. A trend analysis was performed on each event category to identify the existence or absence of a statistically significant trend. The criteria used in the trend analysis to identify a statistically significant trend, or absence thereof, are the computed fit and slope of the least squares linear model that is valid at a 95 percent confidence level. The assessment displayed plots of the annual number and trend of NMED events that occurred during the 10-year period, including in NRC jurisdiction, Agreement State events, and for the total. The trend analysis determined that each of these represented a statistically significant decreasing trend over the past 10 years. A trend analysis was performed on seven event categories to identify the existence or absence of a statistically significant trend; Lost/Abandoned/Stolen Material, Medical, Radiation Overexposure, Release of Licensed Material or Contamination, Leaking Sealed Source, Equipment, and Transportation. The two categories, Lost/Abandoned/Stolen Material and Transportation, both had a statistically significant decreasing trend. The two categories, Leaking Sealed Source and Equipment, both had a statistically significant decreasing trend associated with the NRC licensees, but not Agreement State licensees. The three categories, Medical, Radiation Overexposure, and the Release of Licensed Material or Contamination, had neither an increasing nor decreasing trend. No category had a statistically significant increasing trend.

### Abnormal Occurrence Data

The FY23 Report to Congress on Abnormal Occurrences contained 11 events involving nuclear materials as abnormal occurrences and one updated medical event from FY22. For the FY23 abnormal occurrences, two events involved NRC licensees, and the remaining nine events involved Agreement State licensees. Seven abnormal occurrences were medical events, one event involved the overexposure of an embryo/fetus, two events involved stolen industrial radiography cameras, and one event involved diverted industrial radiography cameras. No other events of interest were included in the Report to Congress.

### Integrated Materials Performance Evaluation Program

IMPEP continues to be an effective tool for evaluating the adequacy and compatibility of Agreement State and NRC radiation control programs. Overall, Agreement State and NRC programs remained adequate to protect public health and safety, with a few needing improvements. During FY23, NRC and Agreement State staff conducted nine IMPEP reviews. All nine Agreement State programs reviewed were found to be adequate to protect public health and safety. Eight of the nine programs reviewed were found compatible with the NRC's regulatory program. Also, during FY23, the Commission approved the staff's recommendation to discontinue the Probationary period for the Mississippi Agreement State Program after the follow-up IMPEP, and the Program was placed on a period of Heightened Oversight. In addition, the Management Review Board Chair removed the Rhode Island Agreement State Program from Heightened Oversight on January 17, 2022 (ML24029A119). The Washington Agreement State Program remains on Heightened Oversight. No other radiation control programs were placed on enhanced oversight during FY23. Additional details are in the "Annual Report on Agreement States and the NRC's Radioactive Materials Programs for Calendar Year 2023" (ML24059A440).

### ISFSI Inspection Program Self-Assessment

The ISFSI Inspection Program Self-Assessment (ML23101A087), issued on November 29, 2023, included the results of the NRC staff's assessment of the ISFSI Inspection Program for calendar years 2021 and 2022. This review also included an assessment of the implementation and outcomes of each major change to the program made through the ISFSI Inspection Program Enhancement Initiative (ML20078P093), which the staff issued on March 18, 2020. Representatives from NMSS and the four regional offices conducted the self-assessment.

The self-assessment demonstrated that the ISFSI inspection program is effective in achieving its program goals. In addition, the staff concluded that the enhancements made to the ISFSI inspection program through the Enhancement Initiative created a more risk-informed, comprehensive, and consistent inspection program.

While the self-assessment indicated that the ISFSI inspection program is effective, the staff identified recommendations that may further enhance the program. These recommendations include the following: training to ensure that inspector time is charged consistently across the program; allocating 10 additional hours for follow-up inspection between onsite inspections to Inspection Procedure (IP) 60858, "Away-From-Reactor ISFSI Inspection Guidance" (ML20294A520); providing regular training sessions that highlight 10 CFR 72.48 reviews; and the retirement of IP 60857, "Review of 10 CFR 72.48 Evaluations" (ML20232D098) while capturing the guidance in other documents.

The updates to the ISFSI inspection program, which followed the ISFSI Inspection Program Enhancement Initiative, have further aided the inspection staff in focusing on the most risk significant activities. The self-assessment found that the revised triennial inspection frequency contributed to improved consistency in the timing of inspections among the regional teams and licensees. The team identified that for inspections using IP 60855, "Operation of an ISFSI" (ML20294A519), the average level of effort in each region was consistently around 30 percent less than the estimated effort identified in the inspection procedure. Through review of all inspection reports and discussions with branch chiefs, the staff determined that the ISFSI inspection program fulfilled all inspection requirements during these inspections. Additionally, the team determined the factors that led to the underutilization of hours and identified internal corrective actions to improve accounting and tracking of time charged to inspections. Over the next 3 years, the staff will evaluate whether the resource estimate in the inspection procedure overestimated the level of effort needed to complete the inspection procedure objectives or whether the other corrective actions were effective. Some corrective actions have already been taken and others are planned. Overall, the staff's efforts in this area are improving the inspection program.

CONCLUSION:

Based on the review of licensee performance trends, operating experience reports, and identified improvements documented in this paper, the staff concluded that the Nuclear Materials and Waste Safety Program is functioning effectively to protect public health and safety. The staff concluded that there are no discernible adverse licensee performance trends and no significant nuclear materials issues. This paper does not address any new commitments or resource implications.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objections.



Signed by Lubinski, John  
on 04/24/24

John W. Lubinski, Director  
Office of Nuclear Material Safety  
and Safeguards



SUBJECT: ANNUAL REPORT TO THE COMMISSION ON LICENSEE PERFORMANCE IN THE NUCLEAR MATERIALS AND WASTE SAFETY PROGRAM FOR FISCAL YEAR 2023. DATED: April 24, 2024

WITS TICKET NO. 2002000966

**ADAMS Accession No.:** ML24059A052

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