



OFFICE OF THE INSPECTOR GENERAL

U.S. NUCLEAR REGULATORY COMMISSION

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Audit of NRC's Integrated Materials Performance Evaluation Program

OIG-20-A-10

June 15, 2020



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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

**OFFICE OF THE
INSPECTOR GENERAL**

June 15, 2020

MEMORANDUM TO: Margaret M. Doane
Executive Director for Operations

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

SUBJECT: AUDIT OF NRC'S INTEGRATED MATERIALS
PERFORMANCE EVALUATION PROGRAM
(OIG-20-A-10)

Attached is the Office of the Inspector General's (OIG) audit report titled *Audit of NRC's Integrated Materials Performance Evaluation Program*.

The report presents the results of the subject audit. Following the June 3, 2020, 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 followup 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

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Results in Brief

Why We Did This Review

The Nuclear Regulatory Commission (NRC) retains a regulatory leadership and oversight role over Agreement States through the Integrated Materials Performance Evaluation Program (IMPEP). IMPEP ensures uniform nationwide regulation by reviewing the regulatory performance of both NRC and Agreement States using a common set of performance criteria. NRC has responsibility to periodically review the actions of the Agreement States to comply with the requirements of the Atomic Energy Act (AEA) and to continue to maintain adequate and compatible programs.

IMPEP teams consist of 3 to 8 individuals, depending on the size of the program. The team consist of both NRC and Agreement State personnel with at least one Agreement State representative. Approximately 10 to 12 IMPEP reviews are scheduled every year. Reviews of each of the NRC regions, SS&D, and Agreement States are typically scheduled every 4 years.

The audit objective was to assess and evaluate the IMPEP program, determine if the program is meeting its stated objectives, and to identify any areas for improvement.

Audit of NRC's Integrated Materials Performance Evaluation Program

What We Found

NRC's IMPEP is generally efficient and effective. However, IMPEP could be strengthened through development and implementation of detailed guidance relating to how a NRC consolidated IMPEP will function.

Currently, there is no formal process for consolidating NRC's Regions I, III, IV, and SS&D IMPEPs, as formal guidance for consolidating the NRC IMPEPs has yet to be approved by NRC. Organizations must establish structure, responsibility, and authority as part of its control environment. Without finalizing the guidance clarifying the structure, as well as roles and responsibilities, NRC's Regional and Sealed Source & Device (SS&D) consolidated IMPEP could potentially be inconsistently implemented in the future.

What We Recommend

This report makes one recommendation to finalize existing IMPEP guidance that addresses the organization, structure, and procedures to consistently implement NRC's consolidated IMPEP Program. Agency management states their general agreement with the findings and recommendations in this report.

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ABBREVIATIONS AND ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AEA	Atomic Energy Act of 1954, as amended
IMPEP	Integrated Materials Performance Evaluation Program
MRB	Management Review Board
NMSS	Office of Nuclear Material Safety and Safeguards
NRC	Nuclear Regulatory Commission
OIG	Office of the Inspector General
SS&D	Sealed Source & Device
SA	State Agreements
WBL	Web-Based Licensing System

I. BACKGROUND

Regulation of Radioactive Materials

The United States Nuclear Regulatory Commission (NRC) is responsible for protecting the health and safety of the public and the environment by licensing and regulating civilian uses of radioactive materials. NRC is responsible for licensing and regulating the use of source material,¹ byproduct material,² and special nuclear material.³ Of the approximately 18,664 active source, byproduct, and special nuclear materials licenses in place in the U.S., about 12 percent are administered by NRC, while the rest are administered by Agreement States.

Agreement State Program

In accordance with the *Atomic Energy Act of 1954*, as amended (AEA), NRC may enter into agreements with State governors under certain conditions. States will enter into an agreement with NRC to consolidate regulatory responsibility for almost all radiation sources at the State level. This allows States to create and maintain a cadre of knowledgeable people in all radiation matters at the State level. Additionally, the States retain the fees from licenses instead of NRC retaining these fees.

These agreements authorize individual States to regulate the use of specific radioactive materials within their borders. This includes radioisotopes used in medicine and industry. States that meet these conditions and agree to regulate materials using the same or compatible standards as NRC are called Agreement States.⁴

¹Source material refers to uranium or thorium, or any combination thereof, in any physical or chemical form or ores which contain greater than 0.05 percent by weight of uranium and/or thorium.

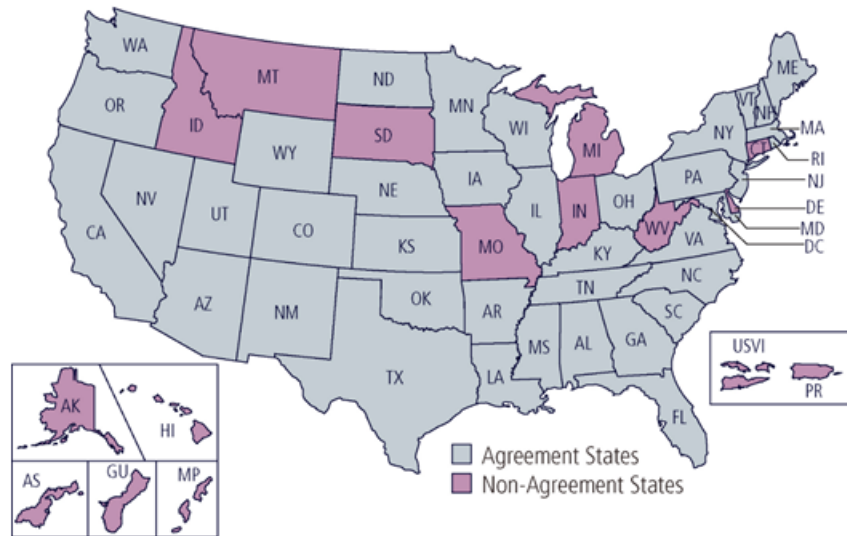
²By-product material refers to any radioactive material (except uranium and plutonium) produced by a nuclear reactor.

³Special nuclear material refers to plutonium, uranium-233, or uranium enriched in the isotopes uranium-233 or uranium-235.

⁴Agreement States do not regulate nuclear reactors, fuel fabrication facilities, large quantities of certain special nuclear materials, and storage of high-level radioactive waste.

Currently, there are 39 Agreement States that have regulatory authority over radioactive materials licensees. (See Figure 1)

Figure 1: Agreement States



Source: NRC

Integrated Materials Performance Evaluation Program

NRC retains a regulatory leadership and oversight role over Agreement States through the Integrated Materials Performance Evaluation Program (IMPEP). NRC began IMPEP in 1994 and fully implemented it in 1995. IMPEP ensures uniform nationwide regulation by reviewing the regulatory performance of both NRC and Agreement States using a common set of performance criteria. NRC has responsibility to periodically review the actions of the Agreement States to comply with the requirements of the AEA and to continue to maintain adequate and compatible programs.

IMPEP Reviews

IMPEP reviews include both common and non-common performance indicators. Common indicators are reviewed for all NRC and Agreement State programs. These are: (1) Technical Staffing and Training; (2) Status of Materials Inspection Program; (3) Technical Quality of Inspections; (4) Technical Quality of Licensing Actions; and (5) Technical Quality of Incident and Allegation Activities. Non-common indicators are only reviewed in NRC regions⁵ and Agreement States that have applicable programs. Non-common indicators are specific to a State's Agreement. Non-common indicators include: (1) Legislation, Regulations, and Other Program Elements; (2) Sealed Source & Device (SS&D) Evaluation Program; (3) Low Level Radioactive Waste Disposal Program; and (4) Uranium Recovery Program. These indicators are evaluated through thorough document review prior to and during a week-long onsite review and inspector accompaniments.

Overall, there are 39 Agreement States and 4 NRC programs reviewed under IMPEP. NRC's four IMPEPs are for Regions I, III, IV and SS&D. NRC Regions I, III, and IV cover all materials licensees within their regions, with Region I responsible for overseeing source, byproduct, and special nuclear material licensees located in Region II. For non-Agreement States (and Agreement States that have not retained authority to conduct SS&D evaluations), SS&D is a function of NRC Headquarters. Currently, the regions and headquarters are reviewed as individual entities. However, in December 2019, NRC senior management made the decision to review the NRC as one entity, starting in FY 2021.

IMPEP teams consist of three to eight individuals, depending on the size of the program. The teams consist of both NRC and Agreement State personnel with at least one Agreement State representative. Approximately 10 to 12 IMPEP reviews are scheduled every year. Reviews of each of the NRC regions, SS&D, and Agreement States are typically scheduled every four years.⁶ Every year the IMPEP schedule is

⁵The Sealed Source and Device Evaluation Program (a non-common performance indicator) is located at NRC Headquarters and is reviewed separately.

⁶A State may be approved for a 5-year review frequency if it has had two consecutive IMPEP reviews with all indicators found satisfactory. Likewise, a State may also have a shorter interval between IMPEP reviews due to performance weaknesses.

drafted for the next review cycle. Once the IMPEP schedule is finalized, the team members are chosen and the specific programs to be reviewed are identified.

Management Review Board

The Management Review Board (MRB) is a board of four senior level NRC managers and an Agreement State representative whose purpose is to ensure the adequacy of the Agreement States' and regions' materials programs through the IMPEP process. The MRB provides a senior-level review of the IMPEP team's findings and recommendations, and the MRB Chair issues the final NRC determination to the region or Agreement State.

Responsible NRC Offices and Budget

The Office of Nuclear Material Safety and Safeguards (NMSS) is the lead office and has overall responsibility for the IMPEP program. Headquarters and regional staff help implement IMPEP reviews in all NRC and Agreement State programs.

Prior to fiscal year 2021, IMPEP was combined in NMSS' budget with other State liaison activities. However, for fiscal year 2021, NMSS estimates IMPEP's program budget to be \$4 million.

II. OBJECTIVE

The audit objective was to assess and evaluate the IMPEP program, to determine if the program is meeting its stated objectives, and to identify any areas for improvement. Appendix A contains information on the audit scope and methodology.

III. FINDING

NRC's IMPEP is generally efficient and effective. However, IMPEP could be strengthened through development and implementation of detailed guidance relating to how the NRC consolidated IMPEP will function.

A. NRC Oversight of IMPEP Could be Strengthened

Currently, there is no formal process for consolidating NRC's Region I, III, IV, and SS&D IMPEPs, as the formal guidance for consolidating the NRC IMPEPs has yet to be finalized and approved by NRC. Organizations must establish structure, responsibility, and authority as part of its control environment. Without finalizing the guidance clarifying the structure, as well as roles and responsibilities, NRC's Regional and SS&D consolidated IMPEP could potentially be inconsistently implemented in the future.

What Is Required

Management Should Establish the Necessary Organizational Structure

For an organization to operate in an efficient and effective manner, the Government Accountability Office's *Standards for Internal Control in the Federal Government* states management should establish the organizational structure necessary to enable the entity to plan, execute,

control, and assess the organization in achieving its objectives. Management should also consider the overall responsibilities assigned to each unit, determine what key roles are needed to fulfill the assigned responsibilities, and establish the key roles. Those in key roles can further assign responsibility for internal control to roles below them in the organizational structure but retain ownership for fulfilling the overall responsibilities assigned to the unit.

What We Found

No Established Process for Consolidating NRC's Regional and SS&D IMPEP Reviews

No established process exists for consolidating NRC's review of its three regional offices and SS&D. In 2017, a self-assessment team composed of staff from NRC and the Agreement States performed a focused, self-assessment of IMPEP. The self-assessment team observed that one difference in the review of NRC's materials licensing and inspection program, compared with the Agreement States, is that the Regional and Headquarters programs are reviewed separately and not as part of an integrated system. NRC reviews its three regional offices (and the Headquarters SS&D program) as totally separate and independent organizations, each receiving a separate IMPEP report and MRB review meeting. The self-assessment team proposed management consider performing NRC's IMPEP review as one program and be reviewed in a similar fashion as States with multiple agencies.

In December 2019, the MRB Chair made the decision NRC would pursue a consolidated IMPEP in Fiscal Year 2021. Although NRC's Regional and SS&D consolidated IMPEP could be compared to larger States, this will be the first time a consolidated effort occurs. Neither Management Directive 5.6, "Integrated Materials Performance Evaluation Program," the overarching IMPEP guidance, nor the IMPEP implementation State Agreement procedures describe a process for NRC's Regional and SS&D consolidated IMPEP.

SA-100,⁷ *Implementation of IMPEP*, and related IMPEP implementation guidance has been updated to reflect changes to NRC's IMPEP and is currently issued in interim status. NMSS is also in the process of putting together an implementation plan for NRC's Regional and SS&D consolidated IMPEP, but there is uncertainty whether current IMPEP guidance will be updated to include this implementation plan if it is approved.

Why This Occurred

Implementation Guidance Has Not Been Finalized and Approved

Although staff have drafted guidance for conducting NRC's Regional and SS&D IMPEP, it has not been finalized and approved by NMSS senior management.

No Decision on Who Can Lead IMPEPs

NMSS has not yet determined who will lead future consolidated Regional and SS&D IMPEPs nor the composition of the consolidated IMPEP team. The first NRC consolidated IMPEP review will be conducted in 2021, led by an NRC staff member. However, staff are in the process of determining whether future efforts will be led by an NRC Team Leader, Agreement State personnel, or co-led by the two. Staff are still open to the possibility that an Agreement State representative could lead in the future, but that decision has not been finalized. Currently, IMPEP guidance does not prohibit Agreement State personnel from leading an IMPEP team. To lead any IMPEP, an Agreement State representative would have to be trained and qualified in accordance with IMPEP guidance and approved by NRC management.

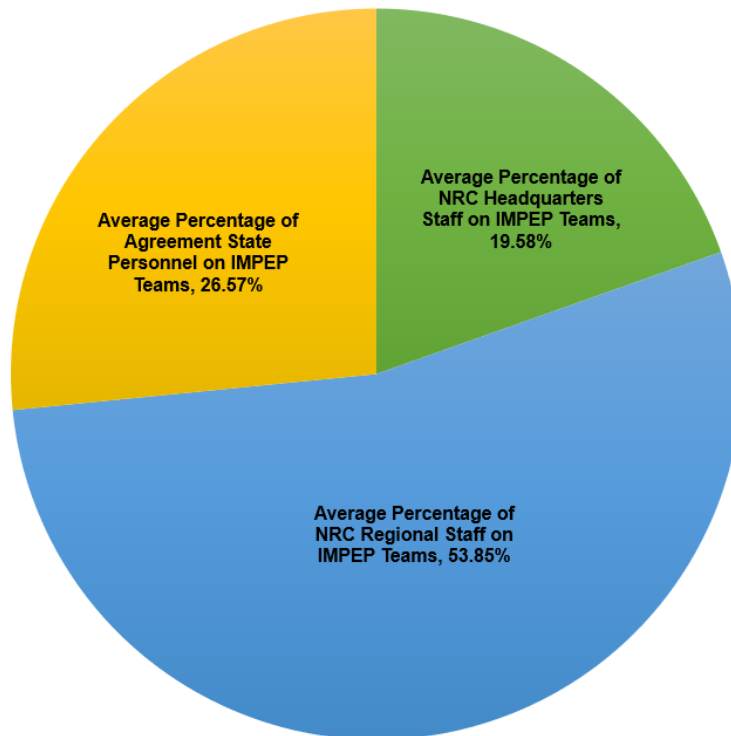
Changes to Team Composition

NMSS is proposing 8 to 10 trained and qualified NRC staff and Agreement State personnel to conduct the NRC consolidated IMPEP. Staff stated that most of the team will be composed of Agreement State personnel; however, OIG analysis has illustrated that Agreement State participation

⁷SA-100 describes the procedures for conducting IMPEP reviews including scheduling, staffing, and reporting the results of reviews of the NRC and Agreement State radiation control programs.

only averages approximately a quarter of the IMPEP team, while the remaining team members are primarily from the regions.

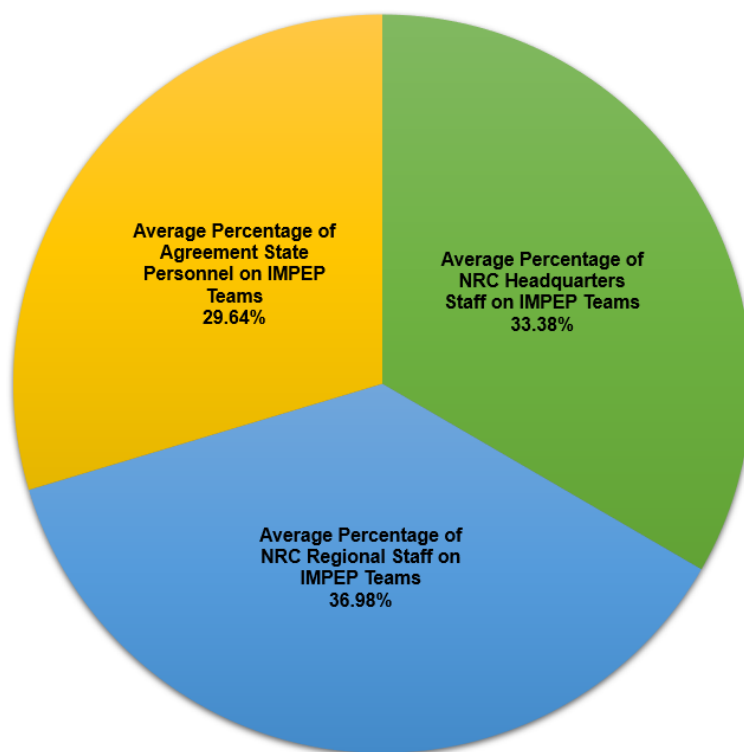
Figure 3. Average IMPEP Team Composition Between 2014 and 2019



Source: OIG analysis based on NRC data

Also, IMPEP teams for previous regional reviews comprise approximately a third of regional staff from the regions that did not receive an IMPEP.

Figure 4. Average IMPEP Team Composition for NRC Regional and Sealed Source & Device Reviews Between 2010 and 2019



Source: OIG analysis based on NRC data

Lastly, the inspection accompaniments will depend on the number of people on the IMPEP team and availability of team members.

No Process for Agreement State to Access Sensitive Data

NMSS has not finalized Agreement State IMPEP team member access to sensitive and non-publicly available information. The onsite review will take place at Headquarters and the Regional Offices will still complete their respective IMPEP questionnaires. All materials licensing actions for NRC are maintained in the Web-Based Licensing System (WBL)⁸ and the Agencywide Documents Access and Management System (ADAMS),⁹ but only NRC staff have access to sensitive and non-publicly available information. NRC will have to determine how Agreement State team

⁸WBL is a materials licensing system that supports NRC and some Agreement States in managing the licensing information, including the initial application through license issuance, amendment, reporting, and termination, of businesses that use radioactive materials.

⁹ADAMS is the official recordkeeping system, through which NRC provides access to vast libraries or collections of documents related to the agency's regulatory activities.

members will gain access to sensitive and non-publicly available information related to their responsible common and non-common performance indicators.

Why This Is Important

NRC's Regional and SS&D Consolidated IMPEP Could Be Inconsistently Implemented in the Future

Future implementation of NRC's Regional and SS&D consolidated IMPEP could change based on who leads, who is involved, and access to information that is non-publicly available.

IMPEP Team Lead Affects Implementation Process

Without deciding who will ultimately lead NRC's Regional and SS&D consolidated IMPEP for future reviews (between NRC and the Agreement States, or co-leading), (a) planning and implementation of future IMPEPs may take longer (e.g., writing the report, coordinating staff), (b) implementation of the actual IMPEP may be inconsistent despite the training received, and (c) access to non-publicly available information will have to be coordinated well in advance.

Team Composition Depends on Availability of Members

Coordinating staff to complete the IMPEP effort may be a challenge. SA-100 states the review teams for NRC will consist of at least nine members: a team leader from another NRC Region or NMSS, and at least half of the team Agreement State representatives. The agency could encounter independence issues if NRC Regional staff review their own programs. There may not be enough Agreement State involvement to review NRC's consolidated IMPEP due to scheduling and staff turnover. Between 2014 and 2019, 46 different Agreement State personnel from 22 Agreement States participated in 60 IMPEPs. Only 37 percent of State personnel participated in more than one IMPEP during that time period. While efficiency is gained by completing the onsite review entirely at Headquarters, the actual process to complete the IMPEP could take longer due to scheduling and availability of team members.

Potential Data Vulnerability

In previous NRC Regional IMPEPs, NMSS has exercised oversight and protection of non-public information. Also, NMSS has revised IMPEP implementation guidance to improve the overall process. However, without expressed oversight of NRC's sensitive and non-publicly available information to Agreement State representatives on the consolidated IMPEP, NRC could experience vulnerability in protecting that data. Sensitive unclassified information must only be furnished to those with a need-to-know in order to conduct official business, and it must remain under the control of an individual with authorized access to such information. Management should limit access to resources and records to authorized individuals and assign and maintain accountability for their custody and use. This will require a much more coordinated effort from Headquarters staff to monitor Agreement State personnel that will require access to non-publicly available or sensitive information to review their respective indicators.

Recommendation

OIG recommends that the Executive Director for Operations

1. Finalize existing IMPEP guidance that addresses the organization, structure, and procedures to consistently implement NRC's consolidated IMPEP Program.

IV. AGENCY COMMENTS

An exit conference was held with the agency on June 3, 2020. Prior to the meeting, agency management reviewed a discussion draft and provided comments that have been incorporated into this report, as appropriate. Agency management stated their general agreement with the findings and recommendations and opted not to provide formal comments for inclusion in this report.

OBJECTIVE, SCOPE, AND METHODOLOGY

Objective

The audit objective was to assess and evaluate the IMPEP program, determine if the program is meeting its stated objectives, and to identify any areas for improvement.

Scope

The audit focused on NRC's Integrated Materials Performance Evaluation Program (IMPEP). OIG conducted this performance audit from October 2019 to April 2020 at NRC headquarters (Rockville, MD), and onsite observation of IMPEP reviews in Arizona, Kentucky, and Georgia. During that time, internal controls related to the audit objectives were reviewed and analyzed.

Methodology

OIG reviewed the following relevant criteria and guidance documents for this audit, to include:

- The *Atomic Energy Act of 1954*, as amended.
- Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)."
- AD-800: Office of Federal and State Materials and Environmental Management Programs (FSME) Procedure Approval: Communications Between FSME/Regional Offices and Agreement States.
- SA-10, *Oversight of the National Materials Program*.
- SA-100, *Implementation of the Integrated Materials Performance Evaluation Program (IMPEP)*.

- SA-101 *Reviewing the Common Performance Indicator, Status of Materials Inspection Program* through SA-111, *Office of Nuclear Material Safety and Safeguards Procedure Approval, Implementation of Management Directives 5.10 "Formal Qualifications for Integrated Material Performance Evaluation Program Team Members and Team Leaders."*

OIG observed three IMPEP reviews, and four Management Review Boards (MRBs). IMPEPs observed included Arizona, Kentucky and the March 2020 accompaniments associated with the Georgia IMPEP. Additionally, OIG interviewed NMSS, regional staff, and NRC management to gain an understanding of NRC's process for preparing and executing IMPEP reviews. Auditors also interviewed Agreement State staff to obtain their perspectives and roles in IMPEP.

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; Tim Wilson, Audit Manager; Kristen Lipuma, Audit Manager, Janelle Wiggs, Senior Auditor, Deyanara Gonzalez-Lainez, Senior Auditor, Stephanie Dingbaum, Auditor, Connor McCune, Management Analyst, and John Thorp, Senior Technical Advisor.

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COMMENTS AND SUGGESTIONS

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