I am pleased to provide this summary of major activities completed by the Office of Enterprise Assessments (EA) during fiscal year 2023 across our three mission areas: independent oversight (assessments); safety and security enforcement; and safety, security and leadership training provided by the National Training Center.

In this report, readers will find a description of our corporate planning, analysis, and integration process; an overview of our independent oversight, enforcement, and training programs; highlights of our assessment reports and other documents issued during the year (including links to unclassified reports and documents); a compilation of best practices and recommendations from assessment reports; and accomplishments in managing the EA organization during fiscal year 2023.

Our organization has established a set of Mission, Vision and Values statements, developed and refined by working groups composed of Federal staff across EA over the past 4 years. I highlight our Vision Statement here:

“To be a respected partner in building a high-performance Department of Energy culture through our risk-informed, fact-based programs that advance continual learning.”

This Vision Statement reflects a core principle of our organizational culture and aspirations as a team, and drives our daily work. We appreciate the opportunity to support the Department of Energy in this way and look forward to continuing to work with our colleagues across the agency during fiscal year 2024 and beyond.

John E. Dupuy
Director
Office of Enterprise Assessments
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Acronyms

ANL  Argonne National Laboratory
BEA  Battelle Energy Alliance
BNI  Bechtel National, Incorporated
BNI/WTCC  Bechtel-AECOM Waste Treatment Completion Company
CAIRS  Computerized Accident/Incident Reporting System
CDM  Construction, Demolition, and Maintenance
C.F.R.  Code of Federal Regulations
CNS  Consolidated Nuclear Security
CSMP  Chemical Safety Management Program
DEIA  Diversity, Equity, Inclusion, and Accessibility
DOE  U.S. Department of Energy
EA  Office of Enterprise Assessments
EA-10  Office of Enforcement
EA-20  Office of Safeguards and Security Assessments
EA-40  Office of Resources Management
EA-30  Office of Environment, Safety and Health Assessments
EA-60  Office of Cyber Assessments
EFCOG  Energy Facility Contractors Group
EPHA  Emergency Planning Hazards Assessment
ES&H  Environment, Safety and Health
FM&T  Federal Manufacturing and Technology
FNOV  Final Notice of Violation
FPE  Fire Protection Engineer
FTCP  Federal Technical Capability Panel
FY  Fiscal Year
IH  Industrial Hygiene
IN  Office of Intelligence and Counterintelligence
INL  Idaho National Laboratory
JHA  Job Hazard Analysis
KCNSC  Kansas City National Security Campus
LANL  Los Alamos National Laboratory
LBNL  Lawrence Berkeley National Laboratory
LLNL  Lawrence Livermore National Laboratory
LLNS  Lawrence Livermore National Security
MSTS  Mission Support and Test Services
NNSA  National Nuclear Security Administration
NNSS  Nevada National Security Site
NTC  National Training Center
NTESS  National Technology and Engineering Solutions of Sandia
NWP  Nuclear Waste Partnership
ORPS  Occurrence Reporting and Processing System
Acronyms (cont’d.)

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<td>SSC</td>
<td>Structures, Systems, and Components</td>
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<td>WP&amp;C</td>
<td>Work Planning and Control</td>
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<td>WRPS</td>
<td>Washington River Protection Solutions</td>
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<td>Y-12</td>
<td>Y-12 National Security Complex</td>
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Executive Summary

The U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) implements (1) an internal independent assessment function for the Department that examines operations relating to safeguards and security (physical, information, and cyber); environment, safety, and health (nuclear, industrial, and construction); emergency management; and other critical functions of the DOE enterprise; (2) the DOE enforcement provisions of the Atomic Energy Act of 1954, as amended, in the areas of nuclear safety, worker safety and health, and classified and sensitive information security; and (3) a broad curriculum of safety, security, and leadership training designed to maintain and enhance the proficiency and competency of the Department’s Federal and contractor workforce in fulfilling DOE’s missions.

EA establishes an Operational Plan at the start of each fiscal year to establish Strategic Goals for the upcoming year and identify performance objectives, action items, and deliverables for each EA first-tier office that are intended to fulfill the Strategic Goals and EA’s functions, responsibilities, and authorities. At the end of the fiscal year, each first-tier office summarizes its key accomplishments and activities relative to the Strategic Goals and Operational Plan deliverables. This report describes EA’s accomplishments for fiscal year 2023. In summary, EA:

• Issued 73 independent oversight reports for assessments of 40 DOE locations or entities; 4 environment, safety and health lessons learned reports; 2 cybersecurity rollup reports; and 1 safeguards and security special assessment requested by Congress. The 73 assessment reports consisted of 17 safeguards and security-related reports; 21 cybersecurity-related reports; and 35 nuclear safety, worker safety and health, and emergency management-related reports that covered more sites and organizations than EA typically evaluates in a given year.

• Issued 14 enforcement outcomes consisting of 5 Preliminary Notices of Violation, 1 Final Notice of Violation, 3 Consent Orders, and 5 Enforcement Letters. During the year, the Office of Enforcement also initiated 12 enforcement investigations and performed 6 onsite investigations and 2 fact-finding visits. The enforcement investigations and outcomes represent a large increase in safety and security significant events across the complex requiring enforcement engagement.

• Issued more than 77,000 training certificates representing more than 290,000 hours of student training; significantly expanded the number of courses meeting International Accreditors of Continuing Education and Training certification criteria, which allows DOE Federal and contractor personnel to receive continuing education units for attending EA National Training Center courses; and developed and updated core courses addressing safety culture, employee concerns program management and implementation, and requirements of DOE’s Diversity, Equity, Inclusion, and Accessibility Strategic Plan.
• Developed an expanded corporate planning process and continued efforts to improve internal analytical capabilities to increase integration of EA’s varied activities and better target selection of enforcement, oversight, and training activities to support the Department’s missions and help address its challenges.
U.S. Department of Energy  
Office of Enterprise Assessments  
Fiscal Year 2023 Year-End Report

Mission Program Overview

The U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) implements (1) an internal independent assessment function for the Department that examines operations relating to safeguards and security (physical, information, and cyber); environment, safety, and health (nuclear, industrial, and construction); emergency management; and other critical functions of the DOE enterprise; (2) the DOE enforcement provisions of the Atomic Energy Act of 1954, as amended, in the areas of nuclear safety, worker safety and health, and classified and sensitive information security; and (3) a broad curriculum of safety, security and leadership training designed to maintain and enhance the proficiency and competency of the Department’s Federal and contractor workforce in fulfilling DOE’s missions.

The following graphic lists the high-level documents that confer or directly relate to the responsibilities and authorities for EA to carry out its primary functions of independent oversight, enforcement, and training.

**Independent Oversight**
- DOE Policy 226.2, Policy for Federal Oversight and Contractor Assurance Systems
- DOE Order 226.1, Implementation of Department of Energy Oversight Policy
- DOE Order 227.1, Independent Oversight Program

**Enforcement**
- Secretary of Energy Designation Order No. S1-DES-EA1-2019
- 10 C.F.R. Part 820, Procedural Rules for DOE Nuclear Activities
- 10 C.F.R. Part 824, Procedural Rules for the Assessment of Civil Penalties for Classified Information Security Violations
- 10 C.F.R. Part 851, Worker Safety and Health Program
- 10 C.F.R. Part 1017, Identification and Protection of Unclassified Controlled Nuclear Information

**Training**
- DOE Order 426.1, Department of Energy Federal Technical Capabilities
- Various DOE Orders (225.1, 470.4, 471.7, 472.2, 473.1, 473.2)
Planning and Integration

EA establishes an Operational Plan at the start of each fiscal year (FY) to establish Strategic Goals for the upcoming year and identify the performance objectives, action items, and deliverables for each EA first-tier office that are intended to fulfill the Strategic Goals and EA’s functions, responsibilities, and authorities. At the end of the FY, each first-tier office summarizes its key accomplishments and completed activities relative to its intended Operational Plan deliverables. Those summaries are the basis for this report.

In FY 2023, the EA leadership team continued to mature its planning processes to incorporate analysis-informed decisions about the greatest safety and security risks to the Department and strengthen the integration of work across EA’s mission areas. The EA Director established six focus groups of subject matter experts from across the EA offices to conduct high-level analyses of DOE safety and security performance and related Departmental operating conditions in assigned EA mission areas. The focus groups considered current performance and performance trends; relevant information from external entities such as the DOE Office of the Inspector General, U.S. Government Accountability Office, and Defense Nuclear Facilities Safety Board; major DOE site issues that could impact or should guide EA activities; and whether significant shifts in resources allocated within EA may be warranted. Based on these analyses, the focus groups began identifying tentative EA field activities for the next FY along with suggested timeframes and resource estimates. This information served as the basis for discussion at the first of two multi-day EA leadership planning meetings.

In the next quarter, the EA Director appointed an EA first-tier office director to lead a working group to review and update EA’s Strategic Goals, considering the early planning efforts of the focus groups. During this time, EA also reviewed and updated its functions, responsibilities, and authorities document to identify changes in DOE policy or safety and security responsibilities that could impact EA operations. Next, using all of the preliminary planning information, the EA first-tier assessment offices (Safeguards and Security Assessments (EA-20); Environment, Safety and Health Assessments (EA-30); and Cyber Assessments (EA-60)) began developing proposed activities for FY 2024 at each DOE site, including an estimated timeframe, topic areas, team size, duration, and rationale for each activity. Finally, during the summer of 2023, the organization drew from this information and discussions at a second leadership planning meeting to establish the actions and deliverables in its FY 2024 Operational Plan. In addition, the EA Director issued memoranda to the affected Heads of Departmental Elements of major program offices informing them of EA’s planned assessments in FY 2024.

The following graphic depicts EA’s overall planning and integration process.
The focus group work and leadership planning meetings help identify areas where EA offices can integrate their efforts to enhance EA’s support to the Department. Examples of internal collaboration in FY 2023 include:

- **EA-60** providing cybersecurity subject matter expertise to the EA Office of Nuclear Engineering and Safety Basis Assessments to support assessments of software quality assurance. This effort included initial support and feedback on a pilot assessment and then continuing support in assessment interviews, documentation reviews, and discussions with site and EA-30 staff.

- **EA-60** collaborating with the EA Office of Emergency Management Assessments to provide cybersecurity expertise during an emergency management exercise at the Nevada National Security Site.

- **EA-20** teaming with EA-60 to conduct a security-focused assessment.

- **EA-20 and EA-60** supporting the National Training Center (NTC) in developing and presenting a new Safeguards and Security Executive Leadership Training course. These
offices provided multiple presenters and a steering committee member to assist in course delivery and provide input to presentations and lesson plans.

- The NTC collaborating with the Office of Enforcement (EA-10) to evaluate safety deficiencies noted at a site. The NTC provided subject matter experts to ensure EA-10 communications with the site were consistent with NTC direction and instruction on firearms training.

- As the result of an EA-20 assessment, the NTC fulfilled a request from a site to evaluate its armory operations by reviewing records, procedures, policies, and workflows as an independent subject matter expert review. The NTC coordinated the activities with EA-20 to ensure the consistency and transparency of results.

Future planning efforts will continue to emphasize synergy and collaboration within EA to maximize efficient, effective, and advantageous use of EA resources.

**Independent Oversight**

EA is responsible for implementing an independent oversight program for security and safety within DOE according to DOE Orders 227.1, *Independent Oversight Program*, and 226.1, *Implementation of Department of Energy Oversight Policy*. To carry out this responsibility, EA conducts independent assessments and other activities to identify gaps and vulnerabilities in programs and performance related to safeguards and security, worker and public health and safety, emergency management, and cybersecurity. EA considers relative risks, past performance, trends in safety and security across DOE, and the results of internal analysis in selecting the specific oversight activities it conducts. The program is intended to assist DOE line managers in recognizing and mitigating conditions that could negatively impact workers, the public, the environment, or national security. It is also intended to complement, not replace, DOE line management’s responsibility to monitor and oversee contractor security and safety programs and performance, manage contracts, and conduct self-assessments.

Independent oversight assessment reports are provided to DOE senior managers, applicable DOE program and line managers, contractor managers, and congressional oversight committees. Additionally, these reports are shared with other DOE stakeholder organizations, such as the Offices of Environment, Health, Safety and Security; Inspector General; Chief Information Officer; and Intelligence and Counterintelligence (IN), as applicable, to promote improvements in security and safety performance. EA also posts all assessment reports that do not contain classified or controlled unclassified information on the Department’s website to promote transparency with the public.

**Independent Oversight Accomplishments**

In FY 2023, the EA independent oversight offices issued 73 reports for assessments of 40 DOE locations or entities; 4 environment, safety, and health lessons learned reports; 2 cybersecurity
rollup reports; and 1 safeguards and security special assessment requested by Congress. This represents a significant increase in the number of sites and organizations EA typically evaluates in a year. EA completed another 11 assessments with reports pending issuance, and EA-30 completed 27 field notes documenting operational awareness activities.

The following table identifies the assessment locations for the EA independent oversight reports issued in FY 2023 by assessment area. Reports for individual locations and activities may identify best practices, findings requiring corrective action, deficiencies, and opportunities for improvement. Cross-cutting and rollup reports, which provide analyses of results from multiple assessments or cover a topic more broadly within DOE, usually identify best practices and recommendations. The best practices conveyed in FY 2023 assessment reports and recommendations from the environment, safety and health lessons learned reports are provided in appendix B. The ensuing paragraphs provide more information about FY 2023 activities in each assessment area.

FY 2023 EA Independent Oversight Assessment Reports by DOE Location/Entity

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<th>Under Secretary/Assistant Secretary/Program and Location</th>
<th>Safeguards &amp; Security</th>
<th>Cybersecurity</th>
<th>Nuclear Safety &amp; Environment</th>
<th>Nuclear Engineering &amp; Safety Basis</th>
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5
FY 2023 EA Independent Oversight Assessment Reports by DOE Location/Entity

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<th>Under Secretary/Assistant Secretary/Program and Location</th>
<th>Safeguards &amp; Security</th>
<th>Cybersecurity</th>
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A. Safeguards and Security Assessments (EA-20)

EA-20 issued 17 reports for safeguards and security appraisals at 13 locations in FY 2023, consisting of 3 multi-topic assessments, 5 limited-notice performance test assessments, 3 security-focused assessments of special access program facilities, and 6 security-focused assessments of secure compartmented information facilities. The office also completed a special assessment requested by Congress that examined the Department's use of artificial intelligence for physical security.

EA-20 continued its robust efforts to broadly share the results of its assessments to maximize their benefit to the Department. The office developed a comprehensive tracking and trending report that was briefed to more than 120 internal and external Departmental stakeholders in December 2022 and used to provide other tailored briefings to Departmental working groups and external entities. EA-20 began a new practice whereby assessment leaders brief the cognizant field office manager on relevant lessons learned when concluding a multi-topic assessment at a site. The office also continued collaborating with multiple DOE stakeholder offices to enable staff members of those offices to observe and augment EA-20’s appraisal activities, which benefits EA and the participants and their organizations. The office also developed a post-appraisal survey instrument to solicit participant feedback after each significant appraisal to identify efficiencies and improve the effectiveness of EA-20 appraisal activities.

EA-20 staff were pivotal in supporting DOE's policy implementation efforts, mainly related to DOE Order 473.1A, Physical Protection Program, and DOE Order 473.2A, Protective Force Operations. The office also actively supported Departmental and Program Secretarial Office activities in FY 2023 through various means, including supporting five security program implementation workshops, two security policy Integrated Project Teams, and an NNSA Defense Nuclear Security program implementation workshop. EA-20 supported the NTC in developing the Safeguards and Security Executive Leadership Training course, provided instructors for multiple NTC courses, and provided analytical summaries from each significant appraisal activity to the NTC to support its training needs analysis processes.

The office continued managing and training the DOE Composite Adversary Team, a group of DOE-qualified Security Police Officers and Office of Secure Transportation Federal Agents. This team supports appraisal activities by simulating adversary behavior during performance testing.
EA-20 conducted extensive training sessions for the team, including week-long training at Fort Knox, Kentucky, and hands-on explosive training at the Idaho National Laboratory. EA-20 also continued managing the DOE Engagement Simulation System, a nonlethal system that enhances evaluations by simulating combat conditions and accurately assessing the effects of weapons fire during hostile engagements.

B. Environment, Safety and Health Assessments (EA-30)

EA-30 conducts assessments of nuclear safety and the environment, nuclear engineering and nuclear facility safety bases, worker safety and health, and emergency management. The office issued 39 reports in FY 2023, 4 of which are lessons learned reports derived from a series of related assessments.

Nuclear Safety and Environmental Assessments

In FY 2023, the Office of Nuclear Safety and Environmental Assessments issued 15 reports for nuclear safety-related assessments of 12 DOE sites, facilities, or projects. Assessment activities focused on supporting a strong safety culture across DOE and advancing the effective management of safety systems at high-hazard nuclear facilities. Other assessments evaluated conduct of operations activities, fire protection programs, and selected aspects of other nuclear safety system elements.

The office completed four independent assessments in FY 2023 as part of a multi-year effort to strengthen safety culture across the DOE complex by evaluating the effectiveness of safety culture survey instruments and their interpretation at a cross-section of DOE sites. When properly developed, executed, and evaluated, safety culture surveys provide organizations with invaluable institutional feedback to improve the health of their safety culture programs. Previous EA safety culture sustainment assessments across multiple DOE sites found significant areas for improvement in the effective development, implementation, and analysis of safety culture surveys. Based on these observations and through close coordination with the Office of Environment, Health, Safety and Security; program offices; and field offices, EA-30 initiated a major effort to assess the effectiveness of safety culture survey tools used for decision-making at eight DOE sites. The assessments conducted in FY 2023 provided contractor and field office management with value-added insights and opportunities for improving the quality of organizational survey tools and data interpretation methods based on best practices from government and industry safety culture programs. Key results from these and planned safety culture survey assessments will be captured in a lessons learned report scheduled for completion in FY 2025. That report is intended to enable the Department to maximize the benefits from its organizational safety culture feedback mechanisms, strengthen safety culture programs in a strategic manner based on best practices, and serve as a leading continuous learning organization.

The office conducted two independent assessments at high-hazard DOE nuclear facilities in FY 2023 to enhance the reliability and management of structures, systems, and components (SSCs)
designed to protect the safety and health of workers, the public, and the environment during normal facility operations and accident conditions. EA subject matter experts performed comprehensive evaluations of design and engineering, quality assurance, maintenance and work planning, surveillance and testing, operations, training and qualifications, and issues management activities related to major site safety-class/safety-significant SSCs and vital support systems with the potential to impact site nuclear safety. The strengths and vulnerabilities identified during these assessments can assist sites in mitigating potential risks to optimal safety system performance and ensure that workers, the public, and the environment remain protected from radiological hazards. These assessments reflect EA’s long-term commitment to promoting the safe operation of facilities critical to the success of DOE’s many nuclear missions through expert evaluations that provide actionable feedback and lessons learned to DOE program offices, field offices, and contractors.

**Nuclear Engineering and Safety Basis Assessments**

The Office of Nuclear Engineering and Safety Basis Assessments issued six reports for assessments at six DOE locations and two lessons learned reports in the areas of fire protection and the integration of safety into nuclear facility design in FY 2023. Assessments focused on (1) ensuring that high-hazard nuclear facility projects are complying with requirements for integrating safety into the design process and are constructed in accordance with engineering requirements and industry standards, (2) evaluating the safety basis for high-risk nuclear facilities, (3) evaluating contractor management of identified safety issues, and (4) evaluating software quality assurance process implementation.

The June 2023 report, *Lessons Learned from Assessments of the Integration of Safety into Design of New U.S. Department of Energy Nuclear Facilities*, analyzes the results of nine assessments of new DOE high-hazard (hazard category 1 and 2) nuclear facility design and construction projects conducted between January 2018 and December 2022. The objective of these assessments was to examine the integration of safety into the design of and the development of safety design basis documents for the new nuclear facilities. This lessons learned report was distributed through the DOE OPEXShare lessons learned website. The February 2023 report, *Lessons Learned from Assessments of Fire Protection at U.S. Department of Energy Sites*, analyzes the results of 15 fire protection assessments conducted between August 2015 and July 2022 at 16 nuclear facilities and 1 non-nuclear facility among 11 sites within the DOE complex. These lessons learned reports identify common strengths and weaknesses, best practices, and recommendations to promote organizational learning and improve performance throughout the DOE complex (see appendix B).

EA-30 continued to evaluate documented safety analyses and technical safety requirements at specific high-risk facilities across the DOE enterprise to determine whether potential nuclear safety issues exist in formulating and implementing specific administrative controls (SACs). The analyses of three nuclear facilities completed in FY 2023 – the Los Alamos Weapons Engineering Tritium Facility, Savannah River Site H-Canyon, and Pantex – identified concerns with SAC development and implementation. Resolution of the identified issues will promote a robust
and reliable control set, utilizing the hierarchy of control selection, for long-term facility operations at the assessed sites.

EA-30 completed the last two in a series of enterprise-wide targeted assessments of the management of safety issues by contractors and one follow-up assessment. These assessments evaluated corrective action processes and their implementation at DOE facilities, identifying positive attributes and systemic weaknesses across DOE. Results from these assessments will be documented in a rollup lessons learned report in FY 2024. The report will contain best practices, lessons learned, and recommendations to be shared across the DOE enterprise to improve the resolution of safety issues and promote continuous improvement in other DOE program areas.

EA-30 continued to perform an enterprise-wide assessment of software quality assurance (SQA) process implementation by conducting targeted assessments of contractor, field element and program office SQA programs and activities for a sample of DOE sites. Assessments at two sites are nearing completion, and assessments at three additional sites are planned. The resolution of the issues identified by these assessments will promote a robust and reliable quality assurance program and convey improvement opportunities to strengthen the DOE safety SQA central registry.

**Worker Safety and Health Assessments**

The Office of Worker Safety and Health Assessments issued six reports for assessments conducted at six DOE locations and two lessons learned reports in FY 2023. The assessments largely focused on evaluating work planning and control (WP&C) programs, some with an emphasis on implementing industrial hygiene (IH) programs within an integrated safety management system. The December 2022 report, *Lessons Learned from Assessments of Work Planning and Control at U.S. Department of Energy Sites*, provides a collective analysis of assessments of WP&C programs completed between 2020 and 2022 at seven DOE sites.

EA-30 conducted two additional WP&C assessments in FY 2023, with an emphasis on IH, for the underground and clean-up work at the Fermi National Accelerator Laboratory Long-Baseline Neutrino Facility Far Site and the West Valley Demolition Project. Underground and clean-up work activities pose specific IH hazards, such as inhalation hazards during underground activities and workplace and environmental releases of radiological or chemical hazards during open air demolition. These assessments provided feedback to assist the sites in ensuring that employees are protected from IH hazards to reduce workplace health injuries and illnesses. The reports also promote lessons learned, share best practices, and provide enterprise-wide feedback for improvement.

The office also conducted an analysis of assessments that included construction, demolition, and maintenance (CDM)-related work in the assessment scope to provide an enterprise-wide lessons learned report. EA conducted 18 such assessments from January 2018 through November 2022. Fifteen were assessments of WP&C at 13 DOE sites and 3 were assessments
of construction safety at 2 DOE sites. The lessons learned report is focused on the CDM aspects of these assessments as they relate to occupational safety and health, IH, radiological protection, electrical safety, explosives safety, and DOE field element oversight. The flow down of safety requirements to subcontractors was also assessed at selected sites. The lessons learned presented in the report, *Lessons Learned from the Assessments of Construction, Demolition and Maintenance Work at U.S. Department of Energy Sites*, are based on a collective analysis of the assessment results as well as Computerized Accident/Incident Reporting System (CAIRS) data for calendar years 2018 to 2021 and relevant Occurrence Reporting and Processing System (ORPS) data for January 2018 through November 2022. Additionally, information contained in the 2019 report, *Lessons Learned from Assessments of Work Planning and Control at U.S. Department of Energy Laboratories*, and the aforementioned December 2022 lessons learned report, was included in this report as it relates to CDM activities. The report identifies common strengths and weaknesses, best practices, and recommendations (see appendix B) to promote organizational learning and improve performance throughout the DOE complex, and was distributed on the DOE OPEXShare website.

EA-30 conducted further analysis of subcontractor occupational injury and illness recordkeeping data in CAIRS and event data in ORPS to better inform future worker safety and health assessment planning. This analysis supplemented the CAIRS and ORPS data analyzed in the lessons learned report by expanding the scope to all enterprise CDM-related work in the past 5 years. A white paper summarizing this effort recommended that EA-30 focus on specific CDM activities (hazardous energy control, hazard identification, injury and illness prevention, and personnel exposure) during future assessments of subcontractor organizations across the complex.

**Emergency Management Assessments**

The Office of Emergency Management Assessments issued four reports for assessments of selected aspects of emergency management programs at four DOE sites and an assessment of the emergency management oversight activities implemented by Headquarters line management organizations in FY 2023. The latter assessment evaluated the effectiveness of the Office of Environmental Management, NNSA, and the Office of Science in implementing the oversight requirements of DOE Order 151.1D, *Comprehensive Emergency Management System*, and DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy*, as well as the implementation of program office processes by specific field elements.

EA-30 completed two assessments, and initiated a third, in a series of enterprise-wide targeted assessments designed to evaluate the all-hazards planning basis and associated all-hazards surveys and emergency planning hazards assessments (EPHAs) for transuranic (TRU) waste operations. Results from these targeted assessments are expected to promote consistency in response planning, implementing protective actions, and selecting emergency action levels at sites that ship TRU waste to the Waste Isolation Pilot Plant. Additional emergency management appraisals conducted at two defense nuclear facilities identified concerns with the emergency management technical planning basis or associated calculations at TRU waste
facilities, further underscoring the need to identify best practices, lessons learned, and associated weaknesses that can be shared across the DOE enterprise to improve TRU waste operations and promote continuous improvement.

EA-30 continued to assess emergency management capabilities to determine whether site- and facility-level exercise programs adequately validate required emergency preparedness capabilities. These efforts identified significant concerns, including exercises not involving high-consequence scenarios; lack of integration with local, state, and Federal agencies and organizations responsible for supplementing onsite response capabilities; and not validating critical response capabilities. The office also appraised the effectiveness of site offices and the associated management and operating contractors’ abilities to plan, execute, and evaluate full-participation emergency management exercises. Identified issues concentrated on inconsistencies with EPHAs, lack of timely initial assessments, and weaknesses in protective action criteria. The evaluations provided feedback that will support improved proficiency and conformance with established requirements.

EA-30 conducted an analysis to enhance the planning of its independent emergency management assessments of DOE operations based on the risks posed to workers and the public and improve coverage of high-risk/hazardous material sites. The analysis examined EPHAs, nuclear facility safety basis requirements, and facility hazard categorizations conducted in accordance with DOE-STD-1027-2018, Hazard Categorization of DOE Nuclear Facilities. It provides an improved baseline understanding of the overall health of the Department’s emergency management performance, with specific focus on production facilities, utilization facilities, and waste storage facilities that are operated for national security purposes. The effort resulted in the development of a risk-informed four-year assessment plan focusing on performance-based assessments (emergency management exercise evaluations) for higher risk facilities on a more consistent basis. The resulting schedule promotes better allocation of oversight resources for assessments at sites posing greater risks.

C. Cyber Assessments (EA-60)

EA-60 issued 21 reports for cybersecurity assessments and two rollup reports in FY 2023. These included one assessment of a Tier-1 High Value Asset for the Department that alleviated the need for an additional audit from the Department of Homeland Security, five reports for assessments of IN Field Intelligence Elements or facilities, and the required annual Federal Information Security Modernization Act (FISMA) metrics for DOE’s National Security Systems and the Intelligence Community Inspector General FISMA report for the Department.

EA-60 focused on expanding its stakeholder engagements to include strategic efforts with the DOE and NNSA Chief Information Officers, program offices, and integrated Joint Cybersecurity Coordination Center to collaborate in both assessment- and knowledge management-related activities. The office utilized the Open Worldwide Application Security Project Threat and Safeguard Matrix concept to create nine matrices covering cloud attacks, industrial control system attacks, insider threat attacks, intellectual property theft, phishing, ransomware,
sensitive data (e.g., controlled unclassified information), supply chain attacks, and web app attacks for use as frameworks for technical and programmatic cybersecurity performance assessments. This effort included collaboration with the Argonne National Laboratory and ShadowServer organizations to implement a data feed of publicly visible DOE assets and their vulnerabilities across the agency’s attack surface that is available on-demand and refreshed daily. The office conducted eight stakeholder engagements to enhance assessment planning and scoping, and produced seven site-specific threat reports to facilitate tailoring the assessment approach. Office staff also participated on integrated project teams to update DOE Order 206.1, Department of Energy Privacy Program, and DOE Order 205.1C, DOE Cybersecurity Program, and establish the DOE Cybersecurity Strategy, and provided cybersecurity subject matter expertise on the Tiger Team to develop generative artificial intelligence guidance for DOE. EA-60 also continued to evolve its knowledge management and knowledge development efforts to capture, store, and employ the knowledge gained through assessment and stakeholder engagement activities for use in future assessments, planning, and generating information for DOE leadership.

EA-60 continued to socialize its assessment capabilities and value proposition during multiple Department-wide engagements such as the Chief Information Officer/Chief Information Security Officer Summit and the DOE Cyber Conference, and provided briefings to stakeholders within the DOE Office of the Chief Information Officer, the Energy Facility Contractors Group (EFCOG), and other government agencies and commercial entities during the Fusion Energy Industry Panel. EA-60 also collaborated with the Western Area Power Administration (WAPA) to assess its pre-production energy management system and worked with the DOE Office of Cybersecurity, Energy Security, and Emergency Response’s consequence driven, cyber-informed engineering team to identify high consequence processes and capabilities that could impact operations of the new system. This activity provided WAPA with information to help enhance the security of implementation and provided the vendor key areas to update prior to deployment.

**Safety and Security Enforcement**

EA implements DOE’s safety and security enforcement program authorized by the Atomic Energy Act of 1954, as amended, according to the following regulations in title 10 of the Code of Federal Regulations (C.F.R.): Part 820, Procedural Rules for DOE Nuclear Activities; Part 824, Procedural Rules for the Assessment of Civil Penalties for Classified Information Security Violations; Part 851, Worker Safety and Health Program; and Part 1017, Identification and Protection of Unclassified Controlled Nuclear Information. The enforcement program is predicated on the principle that DOE’s contractors are in the best position to identify, report, and correct noncompliant conditions and those that do so will not be subject to enforcement unless the consequences or potential consequences of the noncompliances to nuclear safety, worker safety, or national security are significant. Thus, the decision to conduct an enforcement investigation is based on an evaluation of the safety or security significance associated with a potentially noncompliant condition or event. EA-10 sometimes conducts a
site fact-finding visit to help decide whether an enforcement investigation is warranted. The
general enforcement process is depicted in the following graphic.

The enforcement regulations give the Director of Enforcement latitude and discretion in
investigating noncompliances and determining the appropriate outcome for an enforcement
proceeding based on the relevant facts and circumstances. For noncompliances deemed safety
or security significant, DOE (EA for non-NNSA contractors or the NNSA Administrator for NNSA
contractors) can issue a Notice of Violation to impose a civil penalty on most DOE/NNSA
contractors that violate applicable regulations. Penalties are determined by statutory limits
and the severity level assigned to the violation(s), and may be escalated or mitigated by
applying discretionary adjustment factors described in enforcement policies. In some cases, a
civil penalty may be waived if the contractor has already been subject to a contract fee
reduction for the violations.

If the circumstances of a case do not necessarily warrant issuance of a Notice of Violation,
DOE/NNSA may elect to settle a noncompliance matter with a contractor. Consent Orders and
Settlement Agreements do not impose a civil penalty, but may require the contractor to pay a
monetary remedy and complete specified corrective actions. For less safety or security
significant matters, EA-10 may issue an Enforcement Letter to a DOE or NNSA contractor to
draw management’s attention to a problem area that does not otherwise warrant enforcement
investigation or to provide feedback on the contractor’s response to a safety or security issue.
EA-10 also conducts regulatory program assistance reviews when requested by a contractor to
evaluate the contractor’s processes for identifying, screening, reporting, and correcting
noncompliances.

**Enforcement Accomplishments**

EA-10 issued 14 enforcement outcomes in FY 2023, consisting of 5 Preliminary Notices of
Violation (PNOVs), 1 Final Notice of Violation (FNOV), 3 Consent Orders, and 5 Enforcement
Letters. The office also initiated 12 enforcement investigations, performed 6 onsite
investigations, and completed 2 fact-finding visits and 1 regulatory program assistance review.
The enforcement investigations and outcomes represent a large increase in safety and security
significant events across the complex requiring enforcement engagement.
The office held its annual Safety and Security Enforcement Workshop virtually in May 2023 to present New Enforcement Coordinator training and enforcement program updates to Federal and contractor enforcement coordinators and other interested Department stakeholders. There were 71 attendees at the New Enforcement Coordinator training and 103 attendees for the program updates. The office also conducted numerous briefings during the year to distribute key lessons learned from enforcement cases. These included presentations to multiple EFCOG working groups and the DOE Security Awareness Special Interest Group, and at the Nuclear Executive Leadership Training course and annual DOE IH Meeting. In response to concerns from Federal enforcement stakeholders, the office began an effort to update and streamline EA’s Noncompliance Tracking System process. While work on this initiative will continue in FY 2024, early feedback has been positive.

The following table identifies the enforcement outcome documents issued in FY 2023, which are further described in the ensuing paragraphs. The 5 PNOVs issued in FY 2023 became final orders because the affected contractors did not contest the PNOVs.

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<tr>
<th>Enforcement Area</th>
<th>Outcome</th>
<th>Contractor</th>
<th>Site</th>
<th>Initiating Event</th>
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<td>Los Alamos National Laboratory</td>
<td>Water Tank Overfill and Other Nuclear Safety Events</td>
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<td>Nuclear Safety</td>
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<td>Consent Order</td>
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<td>Worker Safety and Health</td>
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### FY 2023 Enforcement Outcomes

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</tbody>
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### A. Nuclear Safety Enforcement

1. **Preliminary Notice of Violation, Triad National Security**

   On May 18, 2023, NNSA issued a PNOV to Triad National Security (Triad), the management and operating contractor for the Los Alamos National Laboratory, for violations of 10 C.F.R. Part 830 related to a series of nuclear safety events that occurred during a six-month period at the laboratory's Plutonium Facility. The four events included fissionable materials being placed in an area where nuclear criticality safety mass-control requirements were exceeded; a glove breach that released radioactive contamination resulting in skin contamination of three workers; an overfilled water bath that resulted in flooding a vault containing fissionable materials; and a water tank for a wet vacuum system that overflowed into a negative pressure chilled cooling water tank, which then flowed into the glovebox ventilation system servicing multiple rooms and gloveboxes containing fissionable materials.

   The PNOV cites five Severity Level II violations in the areas of work processes, management processes, quality improvement (with two violations related to causal analysis and corrective actions), and criticality safety requirements. A potential civil penalty of $571,187 was not imposed because NNSA withheld approximately $1,408,640 in available contract award fee partially in response to the violations associated with these events.

2. **Enforcement Letter, Triad National Security**

   On June 29, 2023, DOE issued an Enforcement Letter to Triad expressing concerns about an incident during which four Triad employees received unplanned radiation doses while working at the Los Alamos Neutron Science Center. The letter identifies concerns with
potential weaknesses in Triad’s radiation monitoring and control practices to anticipate and detect high dose rates and adequately control High Radiation Areas; unplanned radiation exposure to employees, including an employee dose of approximately 475 millirem; and incomplete causal analysis that did not fully consider safety systems or management oversight, resulting in potentially missed opportunities to prevent recurrence.

B. Worker Safety and Health Enforcement

1. Final Notice of Violation, Centerra-Los Alamos

On October 6, 2022, NNSA issued an FNOV to Centerra-Los Alamos, a subcontractor providing security services to the prime contractor (Triad) at the Los Alamos National Laboratory, for violations of 10 C.F.R. Part 851 related to an event at a laboratory live fire range that occurred when a worker was moving a utility tractor downrange during the firing of live 5.56 mm frangible ammunition. The FNOV reaffirmed the June 8, 2022, PNOV that cited two Severity Level I violations in the areas of management responsibilities and firearms safety; and hazard identification, assessment, prevention, abatement, training, and information, and imposed a civil penalty of $106,000.

2. Consent Order, Honeywell Federal Manufacturing & Technologies

On November 7, 2022, DOE and NNSA entered into a negotiated Consent Order with Honeywell Federal Manufacturing & Technologies (FM&T), the management and operating contractor for the Kansas City National Security Campus (KCNSC), to resolve potential noncompliances with 10 C.F.R. Part 851 associated with a nitrogen asphyxiation event that caused a worker to lose consciousness and fall, resulting in a mild concussion and cervical contusion.

The Consent Order references the immediate and longer-term actions taken by Honeywell FM&T to prevent recurrence of a similar event not only at the KCNSC but across the broader Honeywell Aerospace organization. It also identifies continuing Office of Enforcement concerns with the contractor’s implementation of worker safety and health requirements after having completed corrective actions for this event. These include contractor deficiencies in implementing its management of change program and WP&C requirements to analyze hazards and establish controls for an immediately dangerous to life or health (IDLH) atmosphere, conducting IH exposure assessments, employee safety training, and responding to previous concerns about potential IDLH conditions.

In deciding to settle this matter with a Consent Order, NNSA placed considerable weight on Honeywell FM&T’s willingness to engage in open and honest communications during the enforcement investigation and the growing and changing workforce at the KCNSC facility. The Consent Order did not include a monetary remedy, considering a fee reduction already incurred by Honeywell FM&T relating to the event, but requires completion of additional
corrective actions to fully address the potential noncompliances and address DOE’s remaining concerns.

3. **Preliminary Notice of Violation, Nuclear Waste Partnership**

On November 14, 2022, DOE issued a PNOV to Nuclear Waste Partnership, the management and operating contractor for DOE’s Waste Isolation Pilot Plant, for violations of 10 C.F.R. Part 851 related to a crush injury to the hand of a worker conducting post-maintenance component testing on a waste transporter that resulted in the partial amputation of two fingers. The PNOV cites two Severity Level I and two Severity Level II violations in the areas of management responsibilities; hazard identification and assessment, and training and information; occupational injury recording and reporting; and emergency response. No civil penalty was imposed considering that DOE withheld $889,423 in available contract award fee for the contractor’s performance failures related to these violations.

4. **Consent Order, The Regents of the University of California**

On December 9, 2022, DOE entered into a negotiated Consent Order with the Regents of the University of California (UC), the management and operating contractor for DOE’s Lawrence Berkeley National Laboratory (LBNL), to resolve potential noncompliances with 10 C.F.R. Part 851 relating to five events that occurred during a seven-month period at LBNL.

The five events addressed by the Consent Order include: (1) loss of control of a 180-pound steel retaining pin during a lifting operation, (2) overloading of a powered industrial truck with an extendable boom (telehandler) causing the truck to tip forward, (3) serious injuries to a worker performing abrasive blasting, (4) the tip-over of a telehandler carrying a load, and (5) a complex finger fracture to a worker performing preventive maintenance on an exhaust hood. Although 48 corrective actions were completed, the Consent Order outlines continuing Office of Enforcement concerns with UC’s implementation of worker safety and health program requirements in multiple areas. DOE placed considerable weight on UC’s investigation, responses, and wide-ranging corrective actions that are likely to prevent recurrence of these events in deciding to enter into a Consent Order. The Consent Order did not include a monetary remedy, considering a fee reduction already incurred by UC relating to these events. The Order requires completion of additional corrective actions to fully address the potential noncompliances and address DOE’s remaining concerns.

5. **Enforcement Letter, Superior Tank Solutions, Inc.**

On December 15, 2022, DOE issued an Enforcement Letter to Superior Tank Solutions, Inc., a subcontractor to UC at LBNL, expressing concerns about the contractor’s implementation of worker safety and health requirements associated with an abrasive blasting event that severely injured a subcontractor worker when a blast hose malfunctioned. The letter identifies deficiencies in implementing management responsibilities and performing
adequate safety oversight of its subcontractor for work performed at height within a permit-required confined space.

6. **Preliminary Notice of Violation, Advanced Industrial Services, Inc.**

   On December 15, 2022, DOE issued a PNOV to Advanced Industrial Services, Inc., a subcontractor to Superior Tank Solutions, Inc., for violations of 10 C.F.R. Part 851 relating to serious injuries sustained by one of its workers when a blast hose malfunctioned while performing abrasive blasting inside a tank at LBNL.

   The PNOV cites one Severity Level I violation for noncompliances in the areas of management responsibilities, hazard prevention and abatement, construction safety, and emergency response. The PNOV imposed a civil penalty of $10,600, after mitigating the base civil penalty for the extent of the contractor’s investigative and corrective actions and adjustment for the company’s staff size at the time of the event.

7. **Consent Order, Mission Support and Test Services**

   On December 19, 2022, DOE and NNSA entered into a negotiated Consent Order with Mission Support and Test Services, the management and operating contractor at the Nevada National Security Site (NNSS), to resolve potential noncompliances with 10 C.F.R. Part 851 related to an uninterruptible power supply battery bank failure that exposed numerous employees to low levels of toxic gases and some to potentially oxygen-deficient atmospheres. The Consent Order outlines the extensive investigative and corrective measures taken by the contractor, which was a significant factor in deciding to settle the matter with a Consent Order. The Consent Order required the contractor to remit a monetary remedy of $79,500 and complete certain corrective actions within specified deadlines.

8. **Preliminary Notice of Violation, North Wind Portage, Inc.**

   On February 8, 2023, DOE issued a PNOV to North Wind Portage, Inc., the management and operating contractor at DOE’s Moab Uranium Mill Tailings Remedial Action Project Site, for violations of 10 C.F.R. Part 851 associated with an event that occurred when a worker was installing new track rollers on a bulldozer using a boom crane when the load shifted and fell to the concrete floor, crushing two fingers of the worker’s left hand that had to be partially amputated. The PNOV cites two Severity Level I and one Severity Level II violations in the areas of hazard identification and assessment, hazard prevention and abatement, emergency response, and training and information. The PNOV imposed a civil penalty of $222,600 that was reduced from a potential penalty of $265,000 based on the contractor’s corrective actions, which partially addressed the violations identified in the PNOV.
9. **Enforcement Letter, Honeywell FM&T**

On June 14, 2023, DOE issued an Enforcement Letter to Honeywell FM&T expressing concerns about the contractor’s implementation of 10 C.F.R. Part 851 requirements during outdoor firearms training and qualification activities at the KCNSC. The letter outlines concerns with hazard identification and assessment and emergency response for inadequate analysis of the hazards associated with conducting outdoor activities during inclement weather or elevated temperatures, and deficiencies in responding to an employee exhibiting heat stress symptoms during these activities.

10. **Enforcement Letter, Mission Support and Test Services**

On June 16, 2023, DOE issued an Enforcement Letter to Mission Support and Test Services expressing concerns related to a vehicle fire that occurred at the NNSS Motor Pool Maintenance Facility, resulting in burns to a worker and significant facility damage. The letter identifies concerns with the contractor’s implementation of 10 C.F.R. Part 851 requirements in the areas of management responsibilities, hazard identification and assessment, and hazard prevention and abatement. It outlines deficiencies in performing a job hazard analysis, identifying safe methods of removing fuel from vehicles, and ensuring employees understood the scope of work, possessed the necessary skills to perform the work, and were properly supervised.

C. **Classified Information Security Enforcement**

1. **Enforcement Letter, Battelle Energy Alliance**

On November 4, 2022, DOE issued an Enforcement Letter to Battelle Energy Alliance, the management and operating contractor for DOE’s Idaho National Laboratory, expressing concerns with the contractor’s storage and protection of classified information. The letter identifies deficiencies in the WP&C process and storage and protection of classified information associated with the improper control of a classified information repository that was drilled open after the locking mechanism failed. It also identifies previous instances of improper storage and protection of classified matter regarding this same repository. The letter acknowledges that the contractor has implemented corrective measures for the concerns that should reduce the likelihood of similar incidents in the future.

2. **Preliminary Notice of Violation, National Technology and Engineering Solutions of Sandia**

On December 16, 2022, NNSA issued a PNOV to National Technology and Engineering Solutions of Sandia, the management and operating contractor for the Sandia National Laboratories, for violations of 10 C.F.R. Part 824 associated with the introduction of unauthorized electronic equipment into security areas at the contractor’s laboratory in Albuquerque, New Mexico. The PNOV cites three Severity Level II violations for failures to conduct thorough self-assessments, conduct adequate and thorough inquiries into security events, and protect and control classified information to prevent unauthorized disclosure.
The PNOV imposed a civil penalty of $205,000, which was reduced from a potential penalty of $410,000 for the timely and effective corrective actions taken by the contractor in response to the issues.

**Safety and Security Training**

EA operates the NTC in Albuquerque, New Mexico, as the Department’s Center of Excellence for Security and Safety Training and Professional Development. The NTC designs, develops, and implements state-of-the-art training and education for Departmental leadership and Federal and contractor staff nationwide in the areas of nuclear safety, safeguards and security, protective force, and professional development, thereby strengthening the expertise available to meet the current and future mission needs of the Department. Training and certification activities are conducted at the NTC through instructor-led, virtual, site certification, instructor certification and e-learning platforms, and at DOE sites via mobile training teams. The NTC certifies courses, instructors, and armorers throughout the Department and supports the Department's Federal Technical Capability Panel (FTCP) and Technical Qualification Program. The NTC also incorporates lessons learned and best practices identified during EA assessments and investigations into its training curricula to foster more effective training programs.

**National Training Center Accomplishments**

The NTC continued to deliver high quality safety and security training in support of the Department’s missions, with more than 77,000 training completion certificates issued in FY 2023, representing more than 290,000 hours of student training. The NTC also continued to provide superior stewardship of NTC campus resources, upgrading assets as necessary to support Departmental training and qualification needs and student safety.

The NTC significantly expanded the number of courses meeting International Accreditors of Continuing Education and Training (IACET) certification standards, which allows attendees of those courses to be eligible for internationally recognized continuing education units. In FY 2023, the NTC exceeded its goal by revising 52 instructor-led courses, developing 17 new instructor-led courses, and updating 11 eLearning courses, for a total of 80 courses that can provide continuing education units. The NTC will now prepare all new courses for IACET certification as they are developed. The NTC also completed a more than 3-year effort to bring all of its eLearning courses into compliance with section 508 of the Rehabilitation Act of 1973.

The NTC completed delivery of a pilot course for security leaders, *Safeguards and Security Executive Leadership Training*, to obtain consensus on course flow and final content from the course Steering Committee. The committee’s input is included in the final version of the course that is scheduled to be presented in the first quarter of FY 2024. The NTC also developed and piloted a *Business Writing for Contracting* instructor-led course that includes such topics as Statements of Work, Business Justifications, Justification and Approvals, and Determinations and Findings. The course has been delivered twice and is available for future delivery.
The NTC worked with the DOE Employee Concerns Program (ECP) to establish *ECP Manager/Investigator* training to promote consistent standards for ECP professionals across the DOE enterprise. The training incorporates all elements required by DOE’s Diversity, Equity, Inclusion, and Accessibility (DEIA) Strategic Plan, including trauma-informed training material. The NTC worked with DOE’s Safety Culture Improvement Panel to update the *Safety Culture for DOE & DOE Contractor Senior Leaders* and *Safety Culture Training for Front Line Leaders* courses. The courses now include tools, resources, and case studies that focus on the prevention of harassment, intimidation, retaliation, and/or discrimination when engaging in protected activities, such as those covered by Equal Employment Opportunity and whistleblower-related regulations. The NTC also developed a new course, TLP-175, *Safety Culture Assessor*, that is now available for delivery within the safety culture curriculum.

The NTC completed and delivered 29 Contractor Acquisition University training courses, completed site certification requests for protective force training at 4 DOE sites, completed Training Approval Program requests for 5 DOE sites, and reconstituted a Readiness Review course with a new mentoring component to assist DOE field offices in meeting nuclear facility startup and restart requirements. The NTC team led development of the FY 2023 FTCP Strategic Plan and continued program improvements and progress on aligning strategic goals and objectives through ongoing discussions with the panel, during an April 2023 face-to-face meeting, and during monthly FTCP calls. The NTC also led and supported the creation of FTCP-sponsored Functional Area Qualification Standards utilizing NTC technical leadership and subject matter experts.

**Organizational Management**

EA’s Office of Resources Management (EA-40) provides organizational management support to EA leadership in the areas of finance and budget, contracts, procurement, human resources, administrative services, internal performance analysis, and strategic and program planning. The highest priorities of the office are prudent management of the resources entrusted to EA by the Administration and Congress and fostering a healthy organization that allows all employees to achieve their greatest potential in support of EA’s missions.

**Organizational Management Accomplishments**

The EA analysis program matured considerably in FY 2023 by continuing to expand its use of analytical tools to synthesize information within EA to support activity planning and prioritization based on Departmental needs. EA-40 orchestrated this year’s expanded corporate planning process to support development of EA’s annual Operational Plan that included formulating six internal cross-organizational focus groups to analyze DOE safety and security performance and trends. The resulting analyses fed into assessment planning for FY 2024, providing a stronger technical planning basis and helping to prioritize and integrate future assessments.
EA-40 led the development and execution of a process to formulate a new 2023-2025 Staffing and Workforce Plan. The plan’s development provided a systematic process for EA managers to assess their current missions and skills mix, conduct succession planning, and consider organizational structure. EA-40 also led a working group to review EA’s external communications activities, which convey information about our mission and work products to stakeholders across the Department, other Federal agencies, and the public. This effort will result in a report with recommendations for EA leadership to enhance our communications.

Contracting and budget management was also a central focus in 2023. EA continued to work toward resolution of protests for a new ten-year contract to manage the NTC valued at over $200 million, and has begun the process to recompete a separate contract to provide an array of support services to the organization. Prudent execution of the FY 2023 budget, defense of the Administration’s FY 2024 budget request for EA, and early development of the FY 2025 budget were priorities for EA-40 and EA senior leadership throughout the year.

EA-40 continued to provide executive sponsorship of the EA DEIA Council. Among many activities, the Council organized three Learning Sessions, incorporated DEIA elements into all-hands meetings, and identified ways to expand the diversity of applicants for EA Federal positions. The EA leadership team underwent a half-day training session focused on inclusive leadership and inclusive language, and has infused a DEIA focus into regular employee communications.

Finally, EA-40 managed a plethora of activities essential to successful daily operation of the organization. This included managing and repurposing Headquarters office space, providing employees information technology equipment and other tools needed to perform their jobs, orchestrating a very active tempo of internal and external communications and collaboration programs, developing documents and briefings to support EA senior leadership and program planning, and accelerating implementation of a new recordkeeping program, among other activities.
Appendix A: FY 2023 Independent Oversight Reports

This appendix lists the independent oversight assessment reports issued in FY 2023 in chronological order by subject area, including links to reports that are publicly available.

A. Safeguards and Security

1. Independent Multi-Topic Assessment of Safeguards and Security at Sandia National Laboratories – New Mexico, November 30, 2022
2. Independent Focused Assessment of Security at a Special Access Program Facility, November 30, 2022
3. Independent Focused Assessment of Security at a Sensitive Compartmented Information Facility, November 30, 2022
4. Independent Focused Assessment of Security at a Special Access Program Facility, December 14, 2022
5. Independent Focused Assessment of Security at Sensitive Compartmented Information Facilities, February 7, 2023
6. Independent Focused Assessment of Security at a Sensitive Compartmented Information Facility, February 7, 2023
7. Independent Limited-Notice Performance Test Assessment of Safeguards and Security at the Hanford Site, March 14, 2023
8. Independent Limited-Notice Performance Test Assessment of Safeguards and Security at the Pantex Plant, March 31, 2023
9. Independent Limited-Notice Performance Test Assessment of Safeguards and Security at the Lawrence Livermore National Laboratory, March 31, 2023
10. Independent Limited-Notice Performance Test Assessment of Safeguards and Security at the Sandia National Laboratories, New Mexico, April 21, 2023
11. Independent Limited-Notice Performance Test Assessment of Safeguards and Security at the Idaho National Laboratory, June 1, 2023
12. Independent Focused Assessment of Security at Sensitive Compartmented Information Facilities, June 5, 2023
13. Independent Focused Assessment of Security at a Sensitive Compartmented Information Facility, June 5, 2023
14. Independent Focused Assessment of Security at a Sensitive Compartmented Information Facility, June 5, 2023
15. Independent Multi-Topic Assessment of Safeguards and Security at Los Alamos National Laboratory, June 15, 2023
16. Independent Focused Assessment of Security at Special Access Program Facilities, September 6, 2023
17. Independent Multi-Topic Assessment of Safeguards and Security at the Y-12 National Security Complex, September 13, 2023
B. Environment, Safety and Health

Nuclear Safety and Environmental

1. Independent Assessment of Conduct of Operations at the Hanford Site Tank-Side Cesium Removal Facility, October 2022
2. Independent Assessment of Safety Culture Survey Methods and Interpretation at the Nevada National Security Site, December 2022
3. Independent Assessment of Conduct of Operations at the Hanford Site 324 Building Disposition Project, January 2023
4. Independent Assessment of Safety System Management for the Advanced Test Reactor at Idaho National Laboratory, January 2023
5. Independent Assessment of Interim Storage of Spent Nuclear Fuel at the Idaho Cleanup Project, January 2023
6. Independent Assessment of Safety Culture Survey Methods and Interpretation for the Portsmouth and Paducah Depleted Uranium Hexafluoride Conversion Facilities, February 2023
7. Independent Assessment of Safety System Management at the Savannah River Site Concentration, Storage, and Transfer Facilities, April 2023
8. Independent Assessment of the Management of Safety Issues at the Lawrence Livermore National Laboratory, April 2023
9. Independent Assessment of Nuclear Criticality Safety Program and Controls for the Uranium-233 Processing Campaign at Oak Ridge National Laboratory, April 2023
10. Independent Assessment of Safety System Management of Cell Equipment Blast Door Interlocks at the Pantex Plant, May 2023
11. Independent Assessment of Nuclear Maintenance Management at the Idaho Cleanup Project, June 2023
12. Independent Assessment of Safety Culture Survey Methods and Interpretation at the Hanford Site Waste Treatment and Immobilization Plant, June 2023
13. Independent Assessment of Safety Culture Survey Methods and Interpretation at Argonne National Laboratory, July 2023
14. Independent Assessment of the Fire Protection Program at the Idaho National Laboratory Transient Reactor Test Facility, August 2023
15. Independent Assessment of the Fire Protection Program at the Y-12 National Security Complex, August 2023
16. Independent Assessment of the Chemical Safety Management Program at the Hanford Site Waste Treatment and Immobilization Plant, September 2023
17. Independent Assessment of the Fire Protection Program at the Oak Ridge National Laboratory High Flux Isotope Reactor, September 2023
18. Independent Assessment of Safety System Management at Sandia National Laboratories - New Mexico Annular Core Research Reactor Facility, September 2023

Nuclear Engineering and Safety Basis

1. Independent Assessment of Specific Administrative Controls at the Los Alamos National Laboratory Weapons Engineering Tritium Facility, November 2022
2. Independent Assessment of Conduct of Operations at the Paducah Depleted Uranium Hexafluoride Conversion Facility, December 2022
5. Independent Assessment of Shutdown and Inactive Facility Risk Management at the Hanford Site, March 2023
6. Independent Assessment of Specific Administrative Controls at the Savannah River Site H-Canyon, May 2023
8. Independent Assessment of Specific Administrative Controls at the Pantex Plant, September 2023

Worker Safety and Health
1. Independent Assessment of Work Planning and Control for Cleanup Work at the Oak Ridge Reservation, November 2022
2. Lessons Learned from Assessments of Work Planning and Control at US Department of Energy Sites, December 2022
3. Independent Assessment of Work Planning and Control at the Fermi National Accelerator Laboratory Long-Baseline Neutrino Facility Far Site, January 2023
4. Independent Assessment of Work Planning and Control for Cleanup Operations at the West Valley Demonstration Project, February 2023
5. Independent Assessment of Work Planning and Control at the Los Alamos National Laboratory Los Alamos Neutron Science Center, May 2023
6. Independent Assessment of Work Planning and Control at the Paducah Gaseous Diffusion Plant, June 2023
8. Independent Assessment of the Safety Management Program at Southwestern Power Administration, August 2023

Emergency Management
1. Independent Assessment of Emergency Management at the Lawrence Livermore National Laboratory, December 2022
2. Independent Assessment of Transuranic Waste All-Hazards Planning Basis at the Savannah River Site, March 2023
3. Independent Assessment of Headquarters Line Management Oversight of Emergency Management Programs, April 2023
4. Independent Assessment of the Transuranic Waste All-Hazards Planning Basis at the Los Alamos National Laboratory, May 2023
5. Independent Assessment of Emergency Management at Argonne National Laboratory, June 2023

C. Cybersecurity
1. Independent Programmatic and Technical Assessment of the Idaho Operations Office Unclassified Cybersecurity Program, October 2022
2. Independent Programmatic and Technical Assessment of the Environmental Management Los Alamos Unclassified Cybersecurity Program, October 2022
3. Independent Assessment of a Field Intelligence Element Cybersecurity Program, October 2022
4. Independent Programmatic and Technical Assessment of the Strategic Petroleum Reserve Classified and Unclassified Cybersecurity Program, December 2022
5. Independent Assessment of a Field Intelligence Element Cybersecurity Program, December 2022
6. Independent Technical Assessment of the Western Area Power Administration Common Supervisory Control and Data Acquisition/Energy Management System, January 2023
7. Independent Programmatic and Technical Assessment of the National Energy Technology Laboratory Unclassified Cybersecurity Program, January 2023
8. Independent Technical Assessment of the DIII-D National Fusion Facility Unclassified Cybersecurity Program, January 2023
10. Independent Programmatic and Technical Assessment of the Environmental Management Consolidated Business Center Unclassified Cybersecurity Program, February 2023
11. Independent Programmatic and Technical Assessment of the Environmental Management Nevada Unclassified Cybersecurity Program, March 2023
12. Independent Assessment of the Department of Energy Office of Intelligence and Counterintelligence Enterprise Cybersecurity Program, March 2023
15. Independent Assessment of a Field Intelligence Element Cybersecurity Program, May 2023
19. Independent Programmatic and Technical Assessment of the National Nuclear Security Administration Sandia National Laboratories Classified Cybersecurity Program, August 2023
20. Independent Programmatic and Technical Assessment of the Office of Scientific and Technical Information Classified Cybersecurity Program, August 2023
21. Independent Programmatic and Technical Assessment of the Southwestern Power Administration Unclassified Cybersecurity Program, September 2023
22. Independent Assessment of a Field Intelligence Element Cybersecurity Program, September 2023
23. Independent Programmatic and Technical Assessment of the SLAC National Accelerator Laboratory Unclassified Cybersecurity Program, September 2023
Appendix B: FY 2023 Best Practices and Lessons Learned Report Recommendations

The best practices and recommendations provided below were extracted from U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) assessment reports issued in fiscal year (FY) 2023. The successful attributes are compiled here so that program office and field element leadership and safety and security experts across the Department can consider employing or adapting them in their operations. Additional detail may be found in individual assessment reports, and DOE personnel are invited to contact EA for further information or to share other best practices and lessons learned.

EA considers a best practice to be a safety or security-related practice, technique, process, or program attribute observed during an EA appraisal that may merit consideration by other DOE and contractor organizations for implementation because it: (1) has been demonstrated to substantially improve safety or security performance of a DOE operation; (2) represents or contributes to superior performance (beyond compliance); (3) solves a problem or reduces the risk of a condition or practice that affects multiple DOE sites or programs; or (4) provides an innovative approach or method to improve effectiveness or efficiency.

**BEST PRACTICES IDENTIFIED IN SAFEGUARDS AND SECURITY ASSESSMENT REPORTS ISSUED IN FY 2023**

**Best Practices in Safeguards and Security Program Planning and Management**

- At the Nevada National Security Site:
  - Mission Support and Test Services (MSTS) implements the unanalyzed security condition process to integrate security into operational changes and projects. The process establishes parameters that prompt additional security reviews and analysis, supporting risk-informed decision-making.
  - MSTS maintains an Emergency Worker Protection Guide to aid emergency responders. The guide has hazardous material release information based on analyses of potential significant security events.
  - MSTS has a process that notifies operations, project, procurement, and management personnel if hazardous material quantities exceed set thresholds. The process assures the quantities of hazardous materials do not exceed the amounts evaluated in security and other supporting analyses.

- At the Pantex Plant:
  - Consolidated Nuclear Security (CNS) evaluates the effectiveness of essential element compensatory measures using a defined process. The process:
    - Performance tests compensatory measures
    - Determines the figure of merit when essential elements are outside of normal operating conditions
    - Ensures compensatory measures supply an adequate level of protection.

- At the Y-12 National Security Complex (Y-12), CNS has implemented a tool that integrates multiple sources of safeguards and security performance data to track essential element performance. The
tool supports security risk analysis and planning with real-time data from security systems (i.e., Argus) and performance test results.

Best Practice in Physical Protection Systems

- At Y-12, CNS has a 3D-printed tool that reduces the safety risks and decreases the time for testing passive infrared sensors and balancing magnetic switches. The tool allows systems personnel to assess elevated equipment from the ground, eliminating the risk associated with elevated work platforms and ladders.

Best Practice in Protective Force

- At Sandia National Laboratories – New Mexico (SNL-NM), National Technology and Engineering Solutions of Sandia (NTESS) has a process to complete annual reviews and update memorandums of understanding. The process includes all signatories, including external organizations, involved with joint training exercises.

Best Practices in Material Control and Accountability

- At Los Alamos National Laboratory (LANL), Triad National Security (Triad) has implemented processes using commercially available software to automate routine material control and accountability tasks, including:
  - Training validation (material balance area custodian, tamper-indicating device applicator, etc.)
  - Credential verification (i.e., clearance, human reliability program status)
  - Approval routing (nuclear material shipments, software changes, etc.)
  - Record generation and retention.
- At Y-12, CNS uses blind testing in its annual quality assurance activities for non-destructive assay methods. Blind testing supports consistency in measurement performance and supplies insight into potential errors, training effectiveness, and variability in measurement techniques.

Best Practice in Classified Matter Protection and Control

- At LANL, Triad digitally archives accountable matter using National Archives and Records Administration-approved scanning equipment and processes. The digital archive is on a permission-restricted server that controls the end user’s ability to access, print, copy, or download. The digital library streamlines the use of accountable matter while decreasing physical accountable holdings.

BEST PRACTICES IDENTIFIED IN ENVIRONMENT, SAFETY AND HEALTH ASSESSMENT REPORTS ISSUED IN FY 2023

Best Practices in Work Planning and Control (WP&C) Programs

- At Lawrence Livermore National Laboratory (LLNL):
  - The Lawrence Livermore National Security (LLNS) WP&C program has strengths identified in six specific WP&C elements, including qualified work planners, the competent worker program,
task-based job hazard analyses (JHAs), pre-analyzed tasks (PATs), the integration of worker training requirements into work control documents (WCDs), and a WP&C tool.

- The WP&C tool is a core web-based system that enables work planners, working in conjunction with responsible individuals and subject matter experts, to develop new, or modify existing, WCDs. The tool provides a mechanism for identifying task-based hazards and PATs; ensures consistency with institutional environment, safety and health (ES&H) requirements; and includes the Facility Activity Schedule, an innovative scheduling tool that makes it easy to determine whether a work package has been scheduled and released.

- The qualified work planner program requires that work planners possess broad knowledge and experience in ES&H, facility operations, and program work activities, and work with responsible individuals and maintenance supervisors to develop WCDs using the WP&C tool.

- The competent worker program establishes requisite worker skills, knowledge, experience, and training such that WCDs can focus on unique tasks, hazards, and controls.

- Task-based JHAs are documented, task-level hazard analyses that form the core of the WCD and include hazards and controls, boundary conditions, prerequisites, action statements, pre-job talking points, and task notes.

- PATs are ES&H-approved, task-based JHAs for specific work that can be incorporated into a WCD without change, may be customized as needed, and provide a consistent set of controls for the same tasks, improving the efficiency of planning new work that may involve tasks that have been previously analyzed.

- Worker training requirements are integrated into WCDs to provide a mechanism for work supervisors to ensure that workers are current in the training required to perform each work task. The training requirements and status in the matrix are updated nightly.

  - The Integrated Health of the Program analysis process effectively integrates contractor assurance system and field office oversight results to provide both laboratory and DOE field element senior management with valuable insights regarding performance within functional areas.

- At the Savannah River Site (SRS):
  - The work management Visual Management Tool facilitates efficient work planning through an innovative computer-based system that was developed in house by Savannah River Remediation (SRR).
  - The work oversight processes, task-based observation and management field observation, are effective tools for identifying areas for improvement and future oversight opportunities.
  - SRR requires construction subcontractors to develop a process in their worker protection programs to self-assess safety during work activities using focused observation checklists. SRR provides online resources to facilitate the development of focused observation checklists matching a subcontractor’s scope of work.

- At the Paducah Gaseous Diffusion Plant:
  - The Four Rivers Nuclear Partnership Industrial Hygiene (IH) Work Permit process is a practical and useful mechanism for identifying, analyzing, and documenting IH hazards and controls in activity-level WCDs.
- Procedure CP5-SM-1001 documents a noteworthy process for ensuring that all skill of the worker (SOW) work is analyzed and documented. Appendix A of this procedure describes identified SOW work and the relevant JHA for controlling the hazards. For work that is not included in the appendix but is low hazard and low complexity and meets the specified restrictions for excluded work, the procedure describes the process for adding potential excluded work. The same work planning process that is used for higher hazard work is also used for the SOW work; a hazard identification checklist planning team walks down the work and documents the work scope. If the work can be excluded, the team completes the checklist, a JHA is developed, and the appendix is updated to add this new excluded work activity.

- At SNL-NM, NTESS’s emphasis on the critical thinking approach as fundamental to WP&C has enabled staff to focus on identifying those risks at the work activity level that may have a low probability of occurrence but unacceptably high consequences to worker safety and health. This practice has led to a better understanding and identification of failure modes, unacceptable consequences, mitigation and control measures, and the definition of acceptable risks.

- At Argonne National Laboratory (ANL):
  - UChicago Argonne’s WP&C Program Office’s virtual micro-learning sessions effectively cover WP&C topics through focused, 30-minute (or less), training sessions that enable ANL researchers and staff to learn about specific WP&C topics of interest in an efficient and interactive manner.
  - UChicago Argonne developed an innovative artificial intelligence-enhanced knowledge mining process that integrates keyword identification with draft WCDs, enabling WCD authors to link available lessons learned to applicable draft and active WCDs.

- At LANL, Triad’s rehearsal-of-concept drill results in greater confidence that high-hazard and complex work activities can be completed safely and efficiently.

**Best Practices in the Safety of Construction, Demolition, and Maintenance Work**

- At Y-12:
  - Bechtel National, Inc. (BNI) uses the direct inclusion of applicable lessons learned into construction work packages at the Uranium Processing Facility project, which makes it easy for the supervisor/foreman to include the lessons learned in the pre-job briefing, ensuring that the workforce is aware of the lessons learned and reinforcing the value of the lessons learned process.
  - BNI implements a more robust approach to lift plans at the Uranium Processing Facility project than that specified in DOE STD-1090-2011. This approach provides enhanced lift hazard controls, including use of a three-tiered lift plan structure for risk categories low, medium, and critical lifts. Each lift risk category defines more restrictive criteria such as weight limits and specialized rigging.

- At the West Valley Demonstration Project, CH2M HILL-BWXT West Valley has developed and implemented unique and robust radiological and IH controls as well as dust suppression methods, daily limits on demolition rate and ground waste accumulation, continuous real-time Environmental Continuous Air Monitor monitoring in the control room, and fixed air sampling and deposition surveys to provide early detection of any contaminant migration beyond posted work area boundaries associated with the Main Plant Process Building open-air demolition.
• At Fermi National Accelerator Laboratory:
  − Fermi Research Alliance (FRA) build plans require the identification of risks and potential injuries as well as prevention plans for each work step and are developed for discrete construction activities.
  − FRA uses a radiofrequency identification system (i.e., an audible proximity alarm system) to alert when certain mobile equipment is operating in the vicinity of workers below and above ground.

• At the Waste Isolation Pilot Plant (WIPP), Nuclear Waste Partnership (NWP) includes on work package instructions, drawings, and specifications quick response codes, which can be scanned with a mobile application to inform the user whether they are using the current, authorized version during use in the field.


• At Idaho National Laboratory (INL):
  − Battelle Energy Alliance (BEA) has established a comprehensive integrated work control process that implements the Maintenance Work Management Module (MWMM) of iQ WorkSmart. BEA’s implementation and use of the MWMM effectively supports the management of maintenance work, assets, supply chains, operations coordination, and compliance.
  − BEA has integrated its conduct of engineering framework with its iQ WorkSmart computer system to effectively manage the engineering change process. The iQ WorkSmart software automates and integrates many INL processes, procedures, instructions, and associated databases and forms. The iQ WorkSmart approach has the potential to produce significant improvements in efficiency, thereby reducing costs.
  − BEA cognizant system engineers use the E.R. Suite SystemIQ software to effectively develop System Health Reports (SHRs). The computer software integrates system health information in one place, organizes the system health reporting and scoring process, and assembles the SHRs, providing a very effective centralized system for the engineers to manage their system health information and reports.

• At the Hanford Site, Washington River Protection Solutions (WRPS) monthly conduct of operations council meetings demonstrate excellent engagement by personnel throughout the organization and provide evidence of the strong pursuit of continuous conduct of operations improvement.

• At the Pantex Plant, stored items in the warehouse are labeled with color-coded stickers to provide warehouse personnel a visual indicator of acquisition level, controlled expiration date, critical spare indicator, property-controlled items, and storage level.

Best Practices in Integrating Safety into the Design of New Nuclear Facilities

• At the Hanford Site:
  − BNI extensively identified and evaluated potential controls for chemical hazards that were outside the routine scope of the hazardous material protection program in the hazard analysis. This provided a firm foundation for the identification and grading of the chemical safety management program (CSMP) controls in chapter 18 of the Hanford Site Waste Treatment and Immobilization Plant Low Activity Waste Facility documented safety analysis.
BNI developed a facility-specific safety and health program to protect the safety and health of workers under 10 C.F.R. Part 851, Worker Safety and Health Program, and implemented it as the CSMP under 10 C.F.R. Part 830, Nuclear Safety Management. The creation of the CSMP, which is described in chapter 18 of the Hanford Site Low Activity Waste Facility documented safety analysis, allowed control of toxic chemical hazards outside the routine scope of the hazardous material protection program without the need for designating safety significant structures, systems, and components (SSCs), thereby simplifying the technical safety requirement and operational requirements.

WRPS developed functions and requirements evaluation documents and instrument requirements evaluation documents to support safety basis system evaluation of safety significant SSCs at the Hanford Site Tank Farms Tank Side Cesium Removal Project. These documents also support design, procurement, commercial grade dedication, startup, and operations by specifying key design attributes and critical characteristics through systematic and comprehensive failure analysis.

Best Practices in Safety Culture

- At the Hanford Site:
  - DOE Hanford holds routine discussions on culture topics with all its Hanford Site contractors.
  - DOE Hanford used the Performance Evaluation and Measurement Plan (PEMP) to communicate observed safety culture strengths and weaknesses to BNI.
  - The BNI and Bechtel-AECOM Waste Treatment Completion Company (BNI/WTCC) Nuclear Safety and Quality Culture Monitoring Panel is an effective model for pulling together and actively engaging many diverse organizational groups in a manner that uses clear criteria not only to facilitate review of multiple safety culture data feeds but also to recommend actions to senior management for improving their organization’s culture.
  - To improve survey participation of those who do not have ready access to computers, BNI/WTCC schedules groups of employees to complete the survey at a set time and location using electronic audience response systems to anonymously complete the surveys.
  - BNI/WTCC has developed a structured benchmarking process to compare the operation of its culture monitoring and improvement efforts to those of other DOE organizations to facilitate learning and improvements.

- At ANL:
  - The Argonne Site Office uses the PEMP to reinforce the importance of safety culture and to communicate safety culture observations to its contractor, UChicago Argonne.
  - UChicago Argonne has established safety culture as an endemic risk factor in the Enterprise Risk Management program. Laboratory resources are provided consistent with risk ratings and the effectiveness of mitigation plans. Executive leadership and the Laboratory Board of Governance actively monitor the status of safety culture and mitigations.

Best Practices in Training and Qualifications

- At the Oak Ridge Reservation, the United Cleanup Oak Ridge (UCOR) virtual radiological protection mockup capability provides innovative, real-time quantitative evaluation of a trainee’s radiological survey and personnel monitoring effectiveness. UCOR uses a computerized mannequin and
radiological survey equipment with radio frequency technology that allows trainees to practice various radiological scenarios with realistic meter responses.

- At the Hanford Site, the WRPS training and qualification program for operators includes hands-on conduct of operations and human performance training that includes a variety of rigorous training activities to ensure that trainees understand and appreciate the importance of conduct of operations fundamentals.

**Best Practices in Managing Safety Issues**

- At Y-12:
  - CNS readily displays and monitors its distribution of issue significance levels to detect changes in its issues management implementation across Y-12 and within specific functional areas or divisions.
  - CNS provides an expected time commitment for a causal analysis of an issue based on its significance level (SL) (i.e., a one-to-two-hour analysis for SL C, D, and E issues, a one-to-eight-hour analysis for simple SL B issues, a one-to-two-day analysis for moderately complex SL B issues, and one-to-two week or more analysis for SL A issues and complex SL B issues). These expected time commitments ensure the efficient use of resources and help prevent prolonged causal analyses.
  - Information used to report and manage the recovery from an event (including the specific gaps in the implementation of requirements that led to the event) is simultaneously available to CNS personnel for identifying and categorizing the associated issues for resolution per CNS's issues management process.
  - Even if a causal analysis is not required, CNS issue owners are expected to use, and are held accountable for using, their judgment to determine “what the causes are (not the problem, but the causes of the problem)” and to develop an action plan to “rectify the issue and significantly reduce the likelihood of recurrence.”

- At LLNL, LLNS monitors issue significance levels quarterly and assesses the implementation of its categorization process approximately every two years. LLNS then appropriately responds to emerging trends to ensure that issues are appropriately categorized based on the significance of the issue. As a result, LLNS performance in this area exceeds that of other DOE facilities whose issues management programs have been recently assessed.

- At the Hanford Site, DOE Hanford’s integration of its oversight and issues management system with the contractor’s issues management system automates entries for issues and notifications for the closure of issues.

**Best Practices in Fire Protection Programs**

- The Hanford Site established a Fire Protection Forum that serves as an opportunity for routine, open discussions among the Hanford Site’s prime contractors and DOE on fire protection topics and issues. The Fire Protection Forum has wide participation, including contractors’ fire protection engineers (FPEs), managers, the Hanford fire marshal, fire department staff, and the DOE FPE. The Forum assists the DOE field office in maintaining uniform and integrated fire protection programs across the site.
• A former contractor at the Hanford Site fire department established a self-contained breathing apparatus program that sponsored technicians to attend the manufacturer’s continuing education program every 2 years.

• At LANL, Triad’s system engineers developed and maintained system health reports, updated quarterly, using a “Path to Green” approach to drive system performance improvements, which supported operations and maintenance.

• The fire department under a former contractor at the Nevada National Security Site maintained a fully equipped shop and certified technicians to perform all maintenance, refurbishment, and hydrostatic testing on portable fire extinguishers.

• At the Pacific Northwest National Laboratory, Battelle Memorial Institute Building 325 Radiochemical Processing Laboratory facility operators used fire protection system drawings contained in inspection, testing, and maintenance procedures to record inspection and test results, including valve positions and other attributes. Additionally, Battelle maintained a substantial inventory of fire protection spare parts that are dedicated and controlled in accordance with guidance established in American Society of Mechanical Engineers Nuclear Quality Assurance-1.

• At the Pantex Plant, CNS conducted combustible loading dispositions for specific weapons programs and/or facilities that contain nuclear material (e.g., bays and cells, ramps and corridors, and storage facilities) to prevent an unacceptable exposure to thermally sensitive components. Minimal combustible material was observed in the facility, and the material present was logged and evaluated. Fire modeling evaluated fires from representative fuel packages to ensure appropriate minimum separation distances. A rigorous combustible control program limits the ability of an incipient fire to spread to an explosives package.

• At Y-12, CNS effectively performs quarterly self-assessments and evaluations of open fire protection impairments that formally verify the status of corrective actions, monitor the sustained implementation of assigned compensatory actions, and reinforce the priority of completing corrective actions.

• At SRS, the Savannah River Nuclear Solutions fire department conducted monthly walkthroughs of a process building undergoing construction to maintain familiarity and to validate the status of the Baseline Needs Assessment and pre-incident plans. Also, the Site Utilities Division used an interactive computer model of the underground piping infrastructure that identified facilities impacted by closure of sectional control valves.

• At WIPP, NWP adopted a hazard analysis and checklist to evaluate the needs for fire suppression systems (FSSs) on mine vehicles. The process used a comprehensive five-phase analysis to determine the potential for fire, assess the consequences of fire, determine the need for fire protection, select from the available fire suppression options, and establish the appropriate FSS hardware.

• At INL, Battelle Energy Alliance developed an extensive drawing of the Transient Reactor Test Facility fire barriers, floor plans, elevations, and penetration schedule that clearly identifies rated fire barrier locations, assigned penetration numbers for tracking and/or reference, and types of penetration (e.g., fire dampers, conduits, fire doors). Such detail provides readily available information on through-penetration fire-rated seals and facilitates an effective reference for appropriate inspection, testing, and maintenance to ensure that fire barriers are maintained according to work instructions and design requirements.
Best Practices in DOE Emergency Management

- Although DOE Order 151.1D, *Comprehensive Emergency Management System*, does not specify the frequency for programmatic assessments, the Office of Environmental Management verified that all surveyed field elements conduct annual assessments of contractor emergency programs. Moreover, the Portsmouth/Paducah Project Office and Richland Operations Office conduct annual assessments of contractor emergency programs using a formal Criteria Review and Approach Documents.

**RECOMMENDATIONS FROM ENVIRONMENT, SAFETY AND HEALTH**

**LESIONS LEARNED REPORTS ISSUED IN FY 2023**

EA recommendations are suggestions for senior line management’s consideration for improving program or management effectiveness. EA recommendations are typically derived from the aggregate consideration of the results of a series of appraisals as are those provided below.

<table>
<thead>
<tr>
<th>Recommendations from <strong>Seven Assessments of Work Planning and Control at DOE Sites</strong></th>
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<tbody>
<tr>
<td><strong>DOE Field Elements</strong></td>
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<tr>
<td>Conduct periodic self-assessments of the Technical Qualification Program (TQP) to ensure that the TQP is appropriately implemented, including tracking qualification status and establishing a formal continuous training program to provide adequate DOE field element oversight of WP&amp;C.</td>
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<tr>
<td>Conduct triennial self-assessments of the Facility Representative Program to provide adequate DOE field element oversight of WP&amp;C.</td>
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<tr>
<td><strong>Site Contractors</strong></td>
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<tr>
<td>To strengthen WP&amp;C programs:</td>
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<tr>
<td>- Benchmark LLNL, which has developed a strong WP&amp;C program. Many elements of the LLNL program can be applied to research, operations, and/or maintenance-type work.</td>
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<tr>
<td>- Ensure that the programs include the appropriate standards and specify when a hazard analysis must be performed, including the fall protection program.</td>
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<td>To enhance WP&amp;C programs for research work activities:</td>
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<td>- Include a process for identifying and evaluating the critical work tasks within a research experiment (tasks with the greatest hazards), identifying the potential adverse consequences and hazard controls to mitigate the consequences, and documenting an assessment of the overall risk to the researchers (e.g., the “critical thinking” risk assessment approach to WP&amp;C used by SNL-NM Center 1800 researchers).</td>
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</table>
### Recommendations from *Seven Assessments of Work Planning and Control at DOE Sites*

- Verify that the research WP&C process incorporates a mechanism for documenting an exposure assessment for each experiment that addresses the potential biological, chemical, physical, and ergonomic hazards of the experiment.

To strengthen WP&C implementation, emphasize the identification and analysis of hazards and development of controls in the following areas:

- Ensure adequate tailoring of hazards and controls to specific work activities and avoid overreliance on general JHAs. Areas of concentration should include work at heights and lockout/tagout.

- Ensure that IH exposure assessments are complete and accurate, and that workplace contaminant, chemical exposure, and physical hazard controls are identified with consistent hazard controls specified and implemented.

For work involving radiological hazards, provide additional focus and rigor in the following areas:

- Ensure that job-specific air sampling is properly conducted and representative of worst-case conditions at posted radiological boundaries during intrusive work. At some sites, Radiological Work Permits (RWPs) specifying perimeter or job-specific air sampling may need to be improved to achieve this objective.

- Ensure that contamination control practices for areas, equipment, and personnel, including removable contamination surveys and frisking, are adequate to detect the potential spread of contamination beyond posted radiological boundaries during intrusive work, and to verify that RWP contamination limits are not exceeded.

To improve SOW programs:

- Develop a SOW program tailored to research work.

- Clearly define what work can be accomplished as SOW.

- Ensure that all work has some level of hazard analysis, work release, and pre-job briefing.

- Ensure that all workers are trained and qualified to perform SOW activities.

- Incorporate guidance from *DOE-HDBK-1211-2014, DOE Handbook: Activity-Level Work Planning and Control Implementation*, appendix A.

To improve the performance of subcontracted work:

- Establish clear contract flowdown safety requirements in subcontracts and conduct oversight to ensure that DOE and prime contract safety requirements are included in sub-tier contracts.

- Increase oversight for subcontracted work for those areas where the DOE requirements are more stringent than the Occupational Safety and Health Administration requirements (e.g., silica).

- Ensure that subcontractors understand the DOE requirements (e.g., American Conference of Governmental Industrial Hygienists silica requirements).

- Ensure (in the following order) that proper engineering controls, administrative controls, and appropriate personal protective equipment are applied to eliminate or mitigate workplace hazards.

- Increase personal and area IH monitoring on the jobsite.

To strengthen the Contractor Assurance System and feedback and improvement performance:
**Recommendations from Seven Assessments of Work Planning and Control at DOE Sites**

- Conduct periodic assessments to determine how well applicable lessons learned, areas for improvement, and worker feedback are captured, analyzed, shared, and subsequently implemented in applicable WCDs.
- Develop specific metrics for WP&C performance, including key leading indicators.
- Collect, trend, and analyze available job performance information, such as worker feedback, for potential lessons learned.

**Recommendations from 18 Assessments of the Safety of Construction, Demolition, and Maintenance Work at DOE Sites**

### DOE Field Elements

Ensure an adequate Facility Representative and subject matter expert staffing level with personnel who are fully qualified through the TQP. Ensure effective implementation of the TQP including the validation of training and qualification in the electronic TQP, timely qualification of personnel performing oversight of contract construction activities, and continuous training. Provide construction safety training to Facility Representatives and other oversight personnel as needed to ensure they are capable in hazard identification.

Integrate oversight of contractor CDM work into site office assessment planning, with a particular emphasis on the contractor IH program, explosives safety, lockout/tagout and excavations/penetrations, fall protection, barricade use, and eyewash availability.

Identify and trend low-level CDM issues to determine if they should be included in contractor assessments.

Ensure that contractors establish and use the Computerized Accident/Incident Reporting System (CAIRS) operation-type reporting codes for construction work in accordance with DOE Order 231.1B, *Environment, Safety and Health Reporting*.

Analyze Occurrence Reporting and Processing System (ORPS)/CAIRS data specific to CDM and use the results to conduct targeted CDM assessments.

### Site Contractors

Provide increased oversight focus on subcontracted construction and demolition work.

Conduct reviews of the silica program to ensure that all exposed employees are included, all silica hazards are identified, silica exposure assessments are conducted, and hazard controls are properly implemented.

Conduct reviews of the contractor hearing protection program to ensure all exposed employees are included, all noise hazards and effective controls are identified and implemented in WCDs and procedures, and all sound level instruments are properly calibrated before each use.

Conduct reviews of the contractor asbestos program with a focus on ensuring the identification of all asbestos hazards and effective controls in WCDs and procedures.
### Recommendations from 18 Assessments of the Safety of Construction, Demolition, and Maintenance Work at DOE Sites

- Restrict the use of mechanical excavating equipment directly over known energized hazardous energy sources, preclude mechanical equipment use within a specified distance (e.g., three feet) from energized lines, and ensure as-built drawings are accurate and subsurface scanning methods margins of error are properly considered.

- Ensure that separate CAIRS reporting organization codes with construction operations code incorporated are established for each well-defined type of construction work (e.g., capital construction project or sitewide construction activities by prime or subcontractors).

### Recommendations from Nine Assessments of the Integration of Safety into Design of New DOE Nuclear Facilities

To improve the development of the hazard and accident analyses:
- Provide enhanced training for the safety analysts on the DOE-STD-3009, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*, expectations for the development of the hazard and accident analysis in safety design basis documents.

To improve the development of safety functional and performance requirements:
- Safety basis organizations should examine their training protocols and ensure that they include the DOE-STD-3009 expectations for the identification of safety functions and functional requirement, as well as system evaluations.

### Recommendations from 15 Assessments of Fire Protection at DOE Sites

#### DOE Field Elements

To enhance DOE field/site office assurance of the quality of safety basis documents with respect to fire protection:
- Ensure that safety basis review teams are appropriately staffed with FPEs who are familiar with implementing DOE-STD-1104, Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents, section 4.5, and thoroughly scrutinize fire protection-related analyses and technical safety requirements, and associated engineering bases.

To enhance DOE field/site office oversight of fire protection:
- Ensure that Facility Representative, safety system oversight, and FPE oversight planning processes include field assessments with priority on credited safety systems to include validating critical fire protection SSCs performance parameters through the safety basis and supporting engineering products during scheduled assessments.
### Recommendations from 15 Assessments of Fire Protection at DOE Sites

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<tbody>
<tr>
<td>To improve nuclear facility safety bases, associated engineering products, and flowdown to implementing surveillance and maintenance procedures (this recommendation can be conceptually applied to nonnuclear facility fire protection documents):</td>
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<tr>
<td>- Conduct periodic cross-functional reviews of selected safety class and safety significant fire protection SSCs addressed in the safety basis, associated engineering products, and the flowdown to implementing surveillance and maintenance procedures by a team composed of safety basis analysts, engineers, and FPEs (and/or other engineering/scientific disciplines, as appropriate). These cross-functional reviews could be structured as part of the contractor’s self-assessment program.</td>
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</table>

To improve the development and update of future safety basis and fire protection documents, and associated engineering products:

- Ensure that safety basis/fire protection document development and update teams include fire protection staff who have the technical skills and sufficient time to provide complete and accurate designs/analyses and supporting documented engineering products.

To improve fire protection programs (FPPs) and implementation:

- Enhance FPP self-assessment plans by incorporating the applicable elements of the implementation verification review process described in DOE Guide 423.1-1B, *Implementation Guide for Use in Developing Technical Safety Requirements*, appendix C. Also, ensure that FPP self-assessment plans have input from safety basis analysts and engineers to include, for example, validation of design criteria and technical adequacy of calculations.
Appendix C: FY 2023 Enforcement Documents

This appendix lists the enforcement case outcome documents issued in FY 2023 in chronological order for each enforcement area and links to those documents.

A. Nuclear Safety Enforcement
   1. Preliminary Notice of Violation, Triad National Security – Water Tank Overfill and Other Nuclear Safety Events (May 18, 2023)
   2. Enforcement Letter, Triad National Security – Worker Internal Exposure (June 29, 2023)

B. Worker Safety and Health Enforcement
   1. Final Notice of Violation, Centerra-Los Alamos – Live Fire Near Miss Event (October 6, 2022)
   2. Consent Order, Honeywell Federal Manufacturing & Technologies – Nitrogen Asphyxiation Event (November 7, 2022)
   4. Consent Order, The Regents of the University of California – Five Significant Safety Events, including Abrasive Blasting Worker Injury (December 9, 2022)
   5. Enforcement Letter, Superior Tank Solutions, Inc. – Abrasive Blasting Injury Event (December 15, 2022)
   6. Preliminary Notice of Violation, Advanced Industrial Services, Inc. – Abrasive Blasting Injury Event (December 15, 2022)
   7. Consent Order, Mission Support and Test Services – Uninterruptible Power Supply Battery Bank Failure Event (December 19, 2022)
   8. Preliminary Notice of Violation, North Wind Portage, Inc. – Bulldozer Track Roller Hand Injury (Finger Amputation) Event (February 8, 2023)
   10. Enforcement Letter, Mission Support and Test Services – Vehicle Fire and Employee Injury (June 16, 2023)

C. Classified Information Security and Unclassified Controlled Nuclear Information Enforcement
   2. Preliminary Notice of Violation, National Technology and Engineering Solutions of Sandia – Introduction of Unauthorized Electric Equipment into Security Areas (December 16, 2022)