

2023

Idaho Operations Office Annual Report

U.S. DEPARTMENT OF
ENERGY

Office of
NUCLEAR ENERGY

Office of the Manager



As I reflect on all the work that has been achieved during fiscal year (FY) 2023, I feel genuine gratitude and excitement. The information contained in this annual report is but a small portion of what was completed. I am grateful for the 145 hard-working staff from the Department of Energy (DOE), Office of Nuclear Energy's (NE's) Idaho Operations Office (DOE-ID) and their willingness to push themselves to the limit on behalf of this noble endeavor. The most significant action this past FY could easily be the successful 5-year extension of the Idaho National Laboratory (INL) management and operating (M&O) contractor. DOE relies on the M&O contractor to carry out the execution of all government priorities at INL.

This office executes and delivers NE priorities: reactor research, development, demonstration, and deployment being among the highest of priorities. Our portfolio is one of the most complex in all of DOE. It takes all the highly trained and motivated DOE employees to help enable the nation's lead nuclear laboratory. FY 2023 business volume for INL exceeded \$1.8 billion, an 11.8% increase over the previous FY while receiving the highest ever total of reimbursable work. This type of increase is not entrusted to organizations unless appropriators have confidence that they will deliver. Because of Administration and Congressional support, the Infrastructure Investment and Jobs Act, known as the Bipartisan Infrastructure Law, and follow-on Inflation Reduction Act (IRA) kicked off many infrastructure projects at INL. Many projects were "shovel ready" because of DOE-ID's and Battelle Energy Alliance's (BEA) organized approach to anticipated infrastructure investment. The Materials and Fuels Complex (MFC) and the Advanced Test Reactor (ATR) will experience major improvements that will impact INL's reliability and the resilience of these vital nuclear facilities.

I characterize major accomplishments by separating them into three categories: nuclear energy, national security, and science and technology (S&T). The complexity and importance of this work is not done by just one

organization, but by many. The following is not an exhaustive list but highlights initiatives in which this office played a significant role. In FY 2023, this office:

- *Helped deliver the 90% design for the Microreactor Applications Research Validation and Evaluation (MARVEL) reactor*
- *Enabled tremendous progress in construction of the Sample Preparation Laboratory (SPL) line-item capital project*
- *Delivered the Preliminary Safety Analysis Report (PSAR) for the Portable Energy for Lasting Effect (PELE) reactor*
- *Was a major contributor to efforts collaborative with other laboratories, DOE program offices, and other federal agencies facilitating the United States' response in Ukraine*
- *Helped facilitate the Specific Manufacturing Capability's (SMC's) successful production goals, schedules, and expectations from the U.S. Army (SMC delivered 100% on time for all domestic and foreign military sales armor packages with zero quality defects)*
- *Supported work that will enable INL to successfully leverage a small-scale hydrogen-production demonstration and convince the Office of Energy*

Efficiency and Renewable Energy to invest in a commercial-sized production-demonstration capability at the INL Site; this forward thinking has allowed INL to begin building out an Energy Technology Proving Ground at its desert Site.

I am excited to see what FY 2024 will bring. MARVEL, PELE, the Demonstration of Microreactor Experiments (DOME), the Laboratory for Operation and Testing in the United States (LOTUS), and the Molten Chloride Reactor Experiment (MCRE) will all continue to make significant advances as they mature. The SPL will complete construction and begin transition to operations, ultimately enhancing INL's post-irradiation examination capabilities. SMC will continue to produce 100% quality armor for the U.S. Army, protecting our servicemen and women in harm's way. DOE-ID and INL, working together, will continue to advance the nation's energy needs and national security priorities.

Lance Lacroix, Manager
DOE-ID Operations Office
Idaho operations Office

*Bill Phillips, Michael Woods, Jacob Yingling,
molten salt reactor fuel research*



Idaho Operations Office

DOE-ID HEADCOUNT



NE 145

Office of Environmental Management (EM) 43

DOE-ID PROVIDED OVERSIGHT OF

\$1,823 million

of INL operating costs

\$820 million

for Strategic Partnership Programs

500 active

Strategic Partnership Projects (SPP) projects

500 active

software licenses

\$400 million

direct DOE-ID acquisitions, cooperative agreements, and grants

510 work

authorizations

\$18.4 billion

work packages in PICs

3,168 work

packages in PICs

DOE-ID provided excellent technical, financial, budget, contract, strategic partnerships, information management, facilities management, operations and safety, environmental, sustainability, and security oversight for the INL contract and all other DOE-ID direct-award contracts, grants, and financial-assistance agreements.

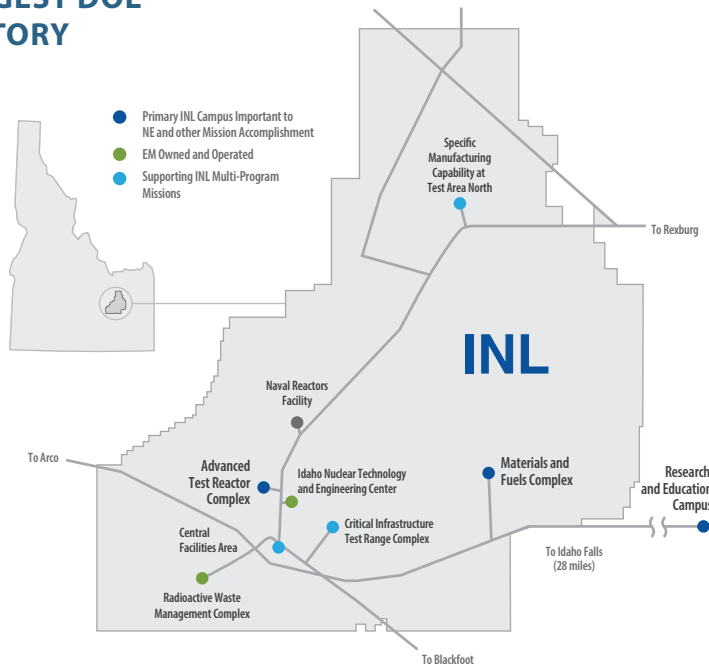
DOE-ID oversight of INL included a growing portfolio of projects, as evidenced by the chart below, which represents an overall increase of 11.8% from FY 2022. INL is the 5th largest laboratory in the DOE complex, with over 6,000 INL full-time equivalent (FTE) employees.

40 DOE-ID personnel received seven Secretary of Energy Achievement Awards recognizing their significant contributions to the DOE mission, including the following:

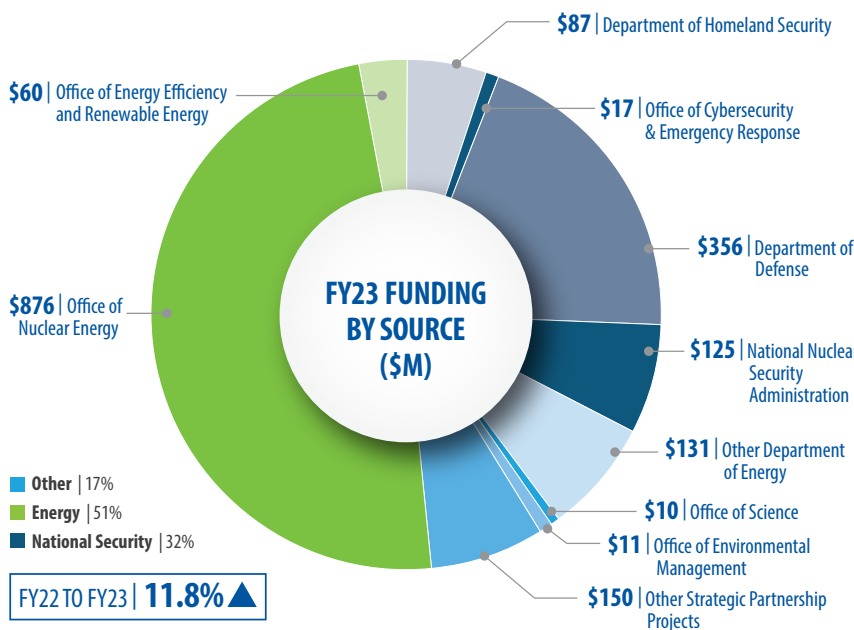
- Clean Energy Corps Core Competency Interview Team
- Per- and Polyfluoroalkyl Substances (PFAS) Policy Development Team
- ATR Core Internals Changeout (CIC) VI Team
- Top Head Closure Plate (I-Loop) Project Team
- Office of Business and Acquisition Management Idaho Cleanup Project Team
- Versatile Test Reactor (VTR) Environmental Impact Statement (EIS) Team
- Civil Nuclear Credit (CNC) Program Guidance Implementation Team

Additionally, 95 DOE-ID personnel received 116 awards for their noteworthy contributions to the DOE mission.

5TH LARGEST DOE LABORATORY



INL MISSION-DRIVEN FUNDING PORTFOLIO IS GROWING AND EVOLVING



\$1,823M FY23 total operating cost

\$1,212M FY23 DOE/NNSA costs

\$501M DPP (non-DOE/non-DHS)

\$4M CRADA

\$104M DHS costs

6,000+ Employees

569,178 Acres

890 Square miles

4 Operating reactors

22 Hazard Category II & III non-reactor facilities/activities

49 Radiological facilities/activities

17.5 Miles railroad for shipping nuclear fuel

44 Miles primary roads (125 miles total)

9 Substations with interfaces to two power providers

128 Miles high-voltage transmission & distribution lines

3 Fire stations

FY23 Human Capital

6,045 FTE employees

106 Postdoctoral researchers

584 Interns

21 Graduate fellows

46 Visiting scientists

1,830 Facility users

Office of Nuclear Energy Program Support and Execution

BUDGET AND COST MANAGEMENT HIGHLIGHTS:



Managed record high new funding for INL at \$2.34 billion



Managed \$1.823 billion INL business volume for 16 major fund sources

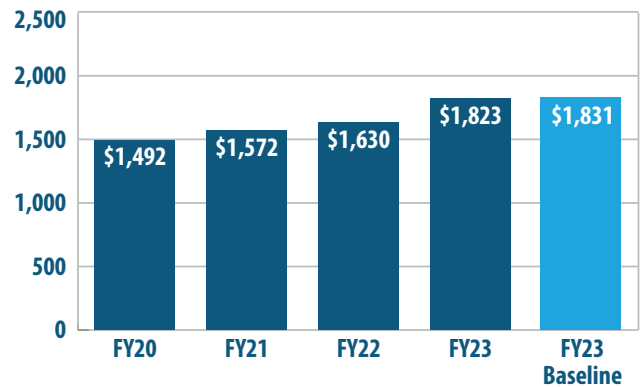
DOE-ID successfully oversaw INL's FY 2023 business volume, which finished at \$1.823 billion, an all-time high. Business volume was \$193 million higher than in FY 2022, demonstrating 11.8% growth.

New funding for FY 2023 finished at \$2.40 billion, an all-time high. New funding for FY 2023 was \$605 million higher than FY 2022, demonstrating 35% growth. The INL finished FY 2023 with \$3,710 million of total funding due to \$1,371 million in carryover.

DOE-ID provided expert oversight and management of INL's large portfolio, which spanned 16 major fund sources. Business volume by customer demonstrates the diversity of expertise provided by INL.

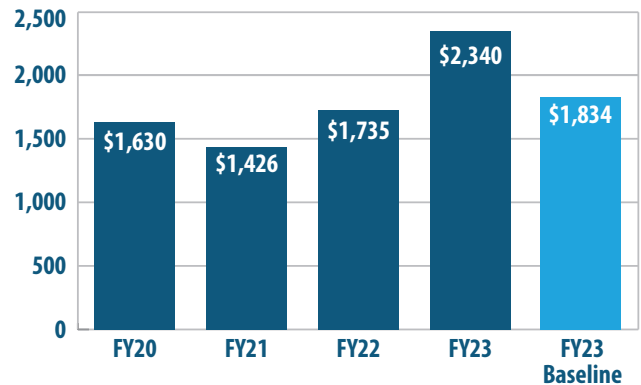
Business Volume (\$M)

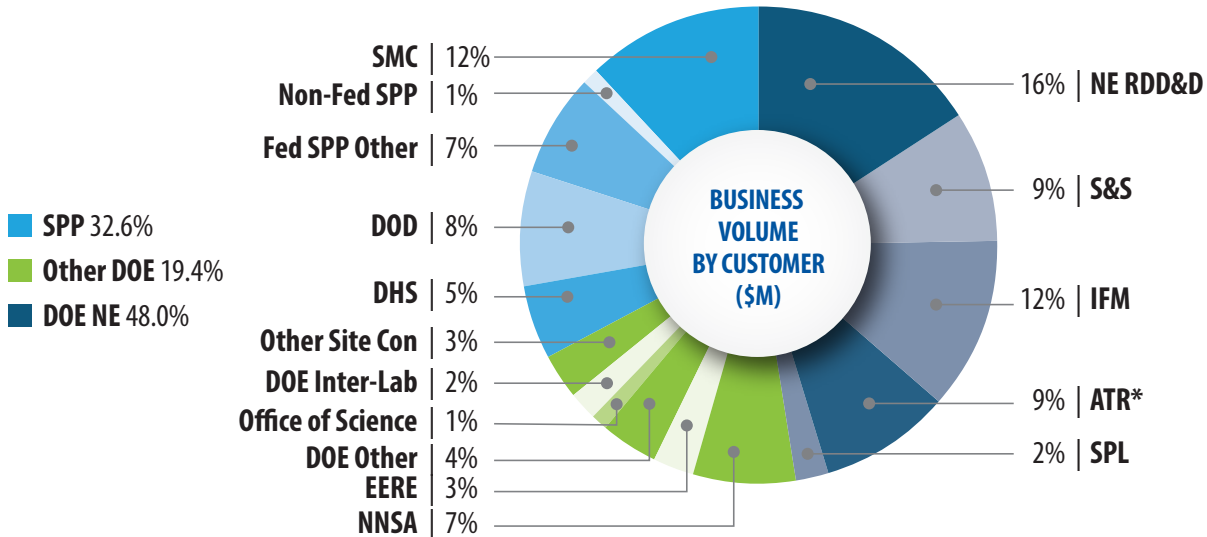
■ YTD
■ Year-End Estimates



New Funding (\$M)

■ YTD
■ Year-End Estimates





FINANCIAL SERVICES AND RESOURCES-MANAGEMENT HIGHLIGHTS:

Financial Services served on eight Chief Financial Officer (CFO) working groups

Industrial Relations and Audits

4 Served on 4 DOE working groups

13 Managed activities on 13 audits, three inspections, and two hotline issues with the Office of the Inspector General

25 Coordinated activities on 25 General Accounting Office audits and assessments

DOE-ID served on eight Office of the CFO’s working groups to solve technical issues and implement changes. Participation provided visibility to the Financial Services team, fostered, and developed important contacts and relationships with Headquarters (HQ) and other site peers, and facilitated early understanding of impacts to DOE-ID’s major contractor financial groups. These included the Buyer’s Work Center Working Group, Enterprise Accounting General Ledger Entries (EAGLE) Working Group, EAGLE Edits sub-team, EAGLE Leases sub-team, DOE Financial Management Training Development Team, Leases Working Group, Payment in Lieu of Taxes Integrated Project Team, and Data Analytics Working Group.

DOE-ID served on four DOE working groups to solve technical issues and implement changes, including Control Assessment Working Group; S3 Strategic Enterprise Risk Management Working Group; NE Diversity, Equity, Inclusion, and Accessibility Working Group; and Project Management Career Development Program Certification Review Board.

Office of Nuclear Energy Program Support and Execution

INFORMATION MANAGEMENT HIGHLIGHTS:



Provided oversight of more than 16,000 INL devices



Oversaw replacement of legacy site fiber exceeding 200 miles



Managed INL implementation of DOE IPv6 goal to achieve 20% of devices enabled to IPv6



Provided technical oversight of advanced execution of Executive Order (EO) 14028 and Zero-Trust Architecture (ZTA)



Expanded penetration testing, completed 15 tests, and identified 52 recommendations

DOE-ID manages the information technology (IT) systems and cybersecurity-operations-based programs for the DOE-ID office and oversight of INL for both classified and unclassified IT and cybersecurity operations.

DOE-ID coordinated with INL to successfully complete a 30-year service contract, supporting the first phase to replace over 200 miles of legacy site fiber, enhancing reliability and network bandwidth and creating a positive impact for decades to come.

DOE-ID successfully managed INL's completion of all planned FY 2023 tasks to supporting advanced execution of White House EO 14028, and ZTA, which supports new enhanced cybersecurity principles. DOE-ID ensured that INL complied with the Office of Management and Budget Memorandum 21-31, "Improving the Federal Government's Investigative and Remediation Capabilities Related to Cybersecurity Incidents." INL completed the first steps in executing transition to a ZTA

and is leading the way for the DOE complex, ahead of schedule.

DOE-ID ensured INL met the DOE IPv6 FY 2023 goal of 20% of identified devices migrating to IPv6-standard enabled. There were many IT assets updated based on the federal mandate and INL will continue to meet the DOE goal by FY 2025, setting a standard for IT operations.

DOE-ID worked with NE and INL to adopt enhanced Microsoft Office 365 collaboration capabilities offered by the DOE Office of the Chief Information Officer (OCIO). The services are now in place via Microsoft Teams and other new cloud capabilities. This helped synchronize and meet future collaboration objectives between the NE Program Office and INL.

INL was one of the first DOE sites to leverage the Axonius tool, which provides an inventory that is never more than an hour out of date. Further efforts will be necessary to continue to fill gaps in protected research networks using role-based

DOE-ID SUPPORTED MORE THAN:

16,000
DEVICES

200
LINEAR MILES OF FIBER

1,000
WIRELESS DEVICES

10,000
USERS

access, to leverage trust scores from various tools to determine user access within the environment and whether reauthentication is required, to support ZTA, and to evaluate the need for security at the file level to meet Executive Order 14028.

DOE-ID worked with NE and the OCIO, as early adopters, for wider implementation of enhanced collaborative capabilities via Microsoft Office 365. Plans were developed to expand capabilities. Microsoft Office 365 communication and collaboration capabilities allow for MS Teams, chat, and file sharing, opening doors for individuals and teams to effectively synchronize and integrate DOE-ID and

INL information-related programs, functions, and initiatives.

Penetration testing (pentest) to enhance network security was expanded to better prepare for ever-increasing threats. Cybersecurity expanded the pentest process to detect whether poor practices, weakness in configurations, or exploitable vulnerabilities exist in the systems. The focus is on identifying, detecting, and reporting any potential for vulnerabilities. The Pentest Team successfully completed 15 tests and identified 52 recommendations to better strength our capability to protect information.

DOE-ID’s Sitewide Fiber Upgrade supported a meshed network, providing 100 Gb everywhere within the INL footprint and future growth. The current fiber is brittle and extremely difficult to manipulate. This could impact key missions; emergency communications and all operations at INL could be substantially impaired if this fiber were to fail. This has been identified as a critical infrastructure issue of great importance and a key to our mission focus for FY 2023–2025. DOE-ID provided oversight to replace the end-of-life fiber that is more than 30 years old, and it completed Phase 1 replacement of more than 200 miles of legacy site fiber.



3,700

REMOTE
USERS

2,000

NETWORK
DEVICES

16,000

VIDEO TELE-
CONFERENCES

4M

EMAILS PER
MONTH

1,600

APPLICATIONS

Office of Nuclear Energy Program Support and Execution

ENERGY AND NATIONAL SECURITY STRATEGIC PARTNERSHIP HIGHLIGHTS:



Provided technical oversight to SMC, which met production schedules and expectations under budget



Facilitated implementation of Consequence-Driven Cyber-Informed Engineering through issuance of seven active licenses



Program oversight supported the Fall River microgrid-in-a-box demonstration



Ensured project completion of Biomass Feedstock National User Facility (BFNUF) upgrades



Accepted and managed \$820 million in reimbursable-work funding for INL



Processed more than 700 agreement actions for SPPs and Cooperative Research and Development Agreements (CRADAs)

DOE-ID had a successful year, with strong performance in contract management and oversight of the INL programs for agreements management and reimbursable-work acceptance; National and Homeland Security (N&HS); Energy, Environment, Science and Technology; Technology Deployment, Transfer, and Commercialization.

DOE-ID facilitated SMC's meeting production schedules and expectations from the Army—under cost and with 100% quality—to meet evolving production and development requirements through effective partnering, communication, and technical and operational management of world-class production facilities. This program supported the deployment of Abrams units to Ukraine in 2023.

DOE-ID coordinated an INL team of cyber-researchers, engineers, and analysts to provide a significant positive impact toward USCYBERCOM's goals. Through critical demonstrations and capability-development efforts, which include analysis, assessment, and testing, INL and DOE-ID provided critical leadership in support of high-priority national security missions. These successes demonstrated INL's leadership and support and provided notable growth across the sponsor set.

DOE-ID facilitated the implementation of the National Cyber-Informed Engineering Strategy and continued application and promulgation of Consequence-Driven Cyber-Informed Engineering (CCE) through seven active licenses for this INL-patented methodology for industrial control systems and critical national infrastructure that is more resilient to natural disasters and man-made impacts.

Through coordination with INL, DOE-ID supported Ukraine security establishment's efforts to find, procure, and ship six military transport planes' worth of essential power-grid equipment, which Ukraine is using to repair their infrastructure and restore power following targeted Russian attacks. INL helped prepare government and energy-company officials from Ukraine to respond to cyber incidents and to significantly increase the Ukrainians' ability to defend their nation's computer networks and critical infrastructure, under attack from Russian adversaries daily.

Supported by DOE-ID, INL deployed "Caldera Cast" with commercial partners (utilities, community planners, etc.). This web-based electric-vehicle charging-station configuration tool included information for those vehicles

that are currently available and chargers that meet National Electric Vehicle Infrastructure requirements. This created more clarity for station operators and others in planning to ensure that items available in this system match existing funding sources.

DOE-ID program oversight supported the Fall River Microgrid-in-a-Box demonstration, which exemplified how hydropower with advanced controls and use of a mobile microgrid can enable small communities' maintaining critical services during emergencies and provide for more resilient energy infrastructure.

DOE-ID ensured project completion for BFNUF upgrades that helped provide a capability for harnessing biomanufacturing to further climate-change solutions and helped DOE obtain strategic goals for the Sustainable Aviation Fuel Program.

DOE-ID led the development and implementation of the DOE Idaho Professional Development Program (IPDP). This program for recent graduates focuses on long-term succession planning for organizational stability and success in accomplishing DOE's clean-energy development and deployment goals. Five people participated in the first IPDP mentoring and cohort-development meetings and activities.



Abrams tank



Biomass Feedstock National User Facility



Microgrid-in-a-Box

Office of Nuclear Energy Program Support and Execution

CONTRACT-MANAGEMENT HIGHLIGHTS:



Extended INL contract with BEA for additional 5 years, through September 30, 2029



Awarded more than \$59 million for 72 NE projects across the country including:

\$50 million for 49 research and development (R&D) awards

\$6.3 million for infrastructure improvements to reactors at 15 universities

\$3.1 million to five university scientists for Distinguished Early-Career awards



Awarded \$6 million in scholarships and fellowships to:

92 undergraduate scholars

32 graduate fellows

39 colleges/universities in 28 states

DOE-ID successfully extended the INL M&O contract with BEA an additional 5 years. This effort involved significant interaction between BEA and DOE Office of Acquisition Management. With Secretarial approval, the INL contract was extended to September 30, 2029, increasing the contract value by \$14.33 billion with a new ceiling amount of \$41.51 billion. This extension was granted based on the high level of past performance by BEA, and it is critical to the continued performance of INL. It allowed DOE to move into FY 2024 with a seamless transition because BEA can continue to focus all efforts on contract performance instead of on developing a proposal to compete for a new contract. BEA has demonstrated its understanding of the DOE mission and the criticality of the work performed at INL.

DOE-ID renewed Yellowstone Warehouse, Engineering Research Office Building, and Energy Innovation Laboratory leased facilities within the Research Education Campus for 10 years, with upgrades to the facilities by the landlords to extend their useful life and bring them closer to our net-zero goal. DOE-ID also renewed and initiated contracts with private individuals, the Bureau of Land Management, and the U.S. Forest Service in support of the Seismic Monitoring Program. DOE-ID increased our overall portfolio, both

land and other facilities, by ensuring all DOE assets were included in the Facility Information Management System (FIMS) database. Received a Green FIMS scorecard this year after the MA-50 site visit. Provided support to INL and Idaho Environmental Coalition (IEC), which made strong progress in reducing greenhouse-gas emissions in the light-duty fleet through deployment of zero-emission vehicles and electric vehicle chargers.

DOE-ID awarded more than \$59 million for 72 nuclear energy projects across the country under the Consolidated Innovative Nuclear Research and Nuclear Energy University Programs. The projects will support nuclear-technology development, infrastructure improvements, and career opportunities at 35 U.S. universities. They will also help move the nation closer to its goal of achieving net-zero emissions by 2050 by expanding access to nuclear energy—the nation’s largest source of clean power.

The awards are divided into three areas to support nuclear energy research efforts at U.S. universities in 29 states:

- R&D (\$50 million): Supports 49 awards and brings collaborative teams together to solve complex problems to advance nuclear technology and understanding

- **Infrastructure Improvements (\$6.3 million):** Builds up scientific infrastructure and upgrades research reactors at 15 universities to expand the nation’s scientific capabilities and train the next generation of nuclear scientists and engineers
- **Career Development (\$3.1 million):** Awards five university scientists for their outstanding commitment to science and education and supports their research activities through DOE’s new Distinguished Early-Career Program.

DOE-ID awarded more than \$6 million in scholarships and fellowships for students across the country pursuing degrees in nuclear energy and engineering. The awards are provided through the Office of Nuclear Energy’s University Nuclear Leadership Program and include 92 undergraduate scholarships and 32 graduate fellowships for students at 39 colleges and universities in 28 states. These programs are critical to the continued support of nuclear-energy-related R&D work at our nation’s universities. This effort will help ensure that the United States will continue to develop the human resources and capabilities needed to advance current and new pathways that increase use of clean nuclear energy from domestic sources.

The Infrastructure Investment and Jobs Act enacted Section 40323 to establish and authorize the CNC Program. The objective of this \$6 billion CNC Program is to preserve the existing U.S. nuclear-reactor fleet and save thousands of high-paying jobs across the country. In the second year of the program, the DOE-ID CNC Program Team drafted and published, in the Federal Register, a request for information to inform lessons learned from Guidance One. Shortly after, DOE-ID issued the adjusted DOE Guidance for the second award cycle for the CNC Program.

DOE-ID provided CNC guidance-development assistance and contracting assistance as needed to the Grid Deployment Office to complete the full award cycle. In support of EO 13985, “Advancing Racial Equity and Support for Underserved Communities through the Federal Government,” the CNC Guidance included additional requirements for applicants to submit a Diversity, Equity, Inclusion, and Accessibility Plan that describes the actions that the nuclear reactor currently takes or will take to foster these points. DOE-ID also worked with the CNC’s first-round awardee to negotiate an acceptable award agreement. This work is critical to ensure the continued operations of the commercial-reactor fleet within the United States to ensure a stable, clean nuclear energy resource for our nation.



Awarded 197 procurement actions with total obligations of more than \$1.8 billion



Managed DOE-ID small-business goals and awarded \$69.6 million to small businesses



Managed BEA contract to ensure award of nearly \$450 million to small businesses



Managed IEC contract to ensure award of more than \$86 million to small businesses



Provided procurement support to the \$6 billion CNC Program



Provided procurement support to develop high-assay, low-enriched uranium (HALEU) enrichment and deconversion solicitations

Office of Nuclear Energy Program Support and Execution

NUCLEAR PROGRAMS SUPPORT HIGHLIGHTS:



Provided technical oversight for 452 active financial-assistance agreements and 40 contracts



Supported management of PICS and tracked 72 programs, including 3,187 work packages and 11,030 milestones valued at \$17.5 billion for NE



Worked with nine companies to Site reactor-demonstration projects at INL



Monitored technical and program progress of 393 INL PICS work packages

DOE-ID monitored and provided technical administration of 452 active federally funded cooperative agreements and grants, and more than 40 contracts that support NE missions. DOE-ID also prepared technical documents for solicitations and awards of newly desired federally funded cooperative agreements, grants, and contracts that support the NE mission. We provided technical oversight of NE program activities conducted at INL through direct funds and processed and conducted technical oversight of Laboratory Directed Research and Development (LDRD), CRADAs, and SPPs within DOE-ID.

DOE-ID successfully managed the NE Program Information Collection System (PICS) contract which manages NE's financial portfolio, work authorizations, travel approval, progress tracking, work packages, and change control. This required interacting with analysts, programmers, and auditors and approving changes to the database, yearly review of requirements and performance, and resolution of user complaints/recommendations.

PICS TRACKED:

71

Programs

3,187

Work packages

11,030

Milestones

\$17,584,632,915.00

DOE-ID developed HALEU enrichment and deconversion solicitations, which were complex, incorporated the National Environmental Policy Act (NEPA), appropriation law, other Federal Acquisition Regulation requirements, and industry recommendations. Ultimately, these solicitations will help establish a domestic commercial supply of HALEU fuel for new advanced reactor concepts. Without it, these new advanced reactor technologies would not be deployable.

DOE-ID resolved contract- and procurement-law issues, including legal reviews for HALEU enrichment and deconversion requests for proposal, acquisition plans, source-selection plans, and determinations and findings to stand up a domestic HALEU capability; obtained a waiver from McNamara-O'Hara Service

Contract Act requirements for the HALEU deconversion contract; and assisted in crafting first-of-its-kind procurement strategies related to a domestic uranium-enrichment capability.

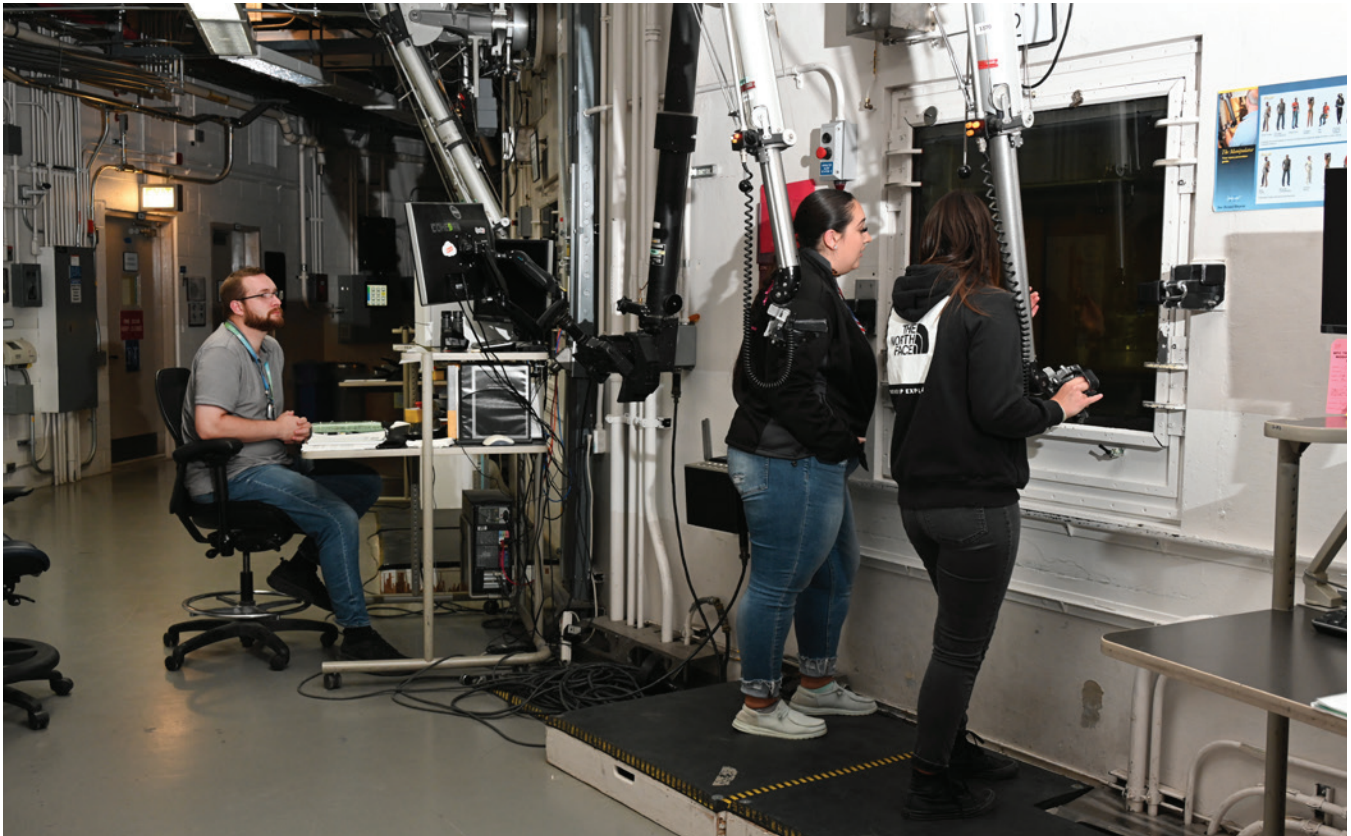
DOE-ID provided oversight to monitor technical and program progress on NE-funded program work (393 PICS work packages) at INL, including the high-visibility work associated with small modular reactors, accident-tolerant fuel development, Gateway

for Accelerated Innovation in Nuclear, National Reactor Innovation Center (NRIC), irradiation experiments, advanced reactors, nuclear energy advanced modeling and simulation, and hybrid energy programs.

DOE-ID managed the technical oversight for work-for-others (SPP/CRADA) activities conducted by INL, including work or partnerships for other U.S. agencies—National Aeronautics and Space Administration (NASA), Strategic Capabilities Office,

Nuclear Regulatory Commission (NRC), Department of Defense—or international agencies like Korea Atomic Energy Research Institute, Canadian Nuclear Laboratories, Japan Atomic Energy Agency or foreign and domestic industry.

HALEU production at Fuel Conditioning Facility



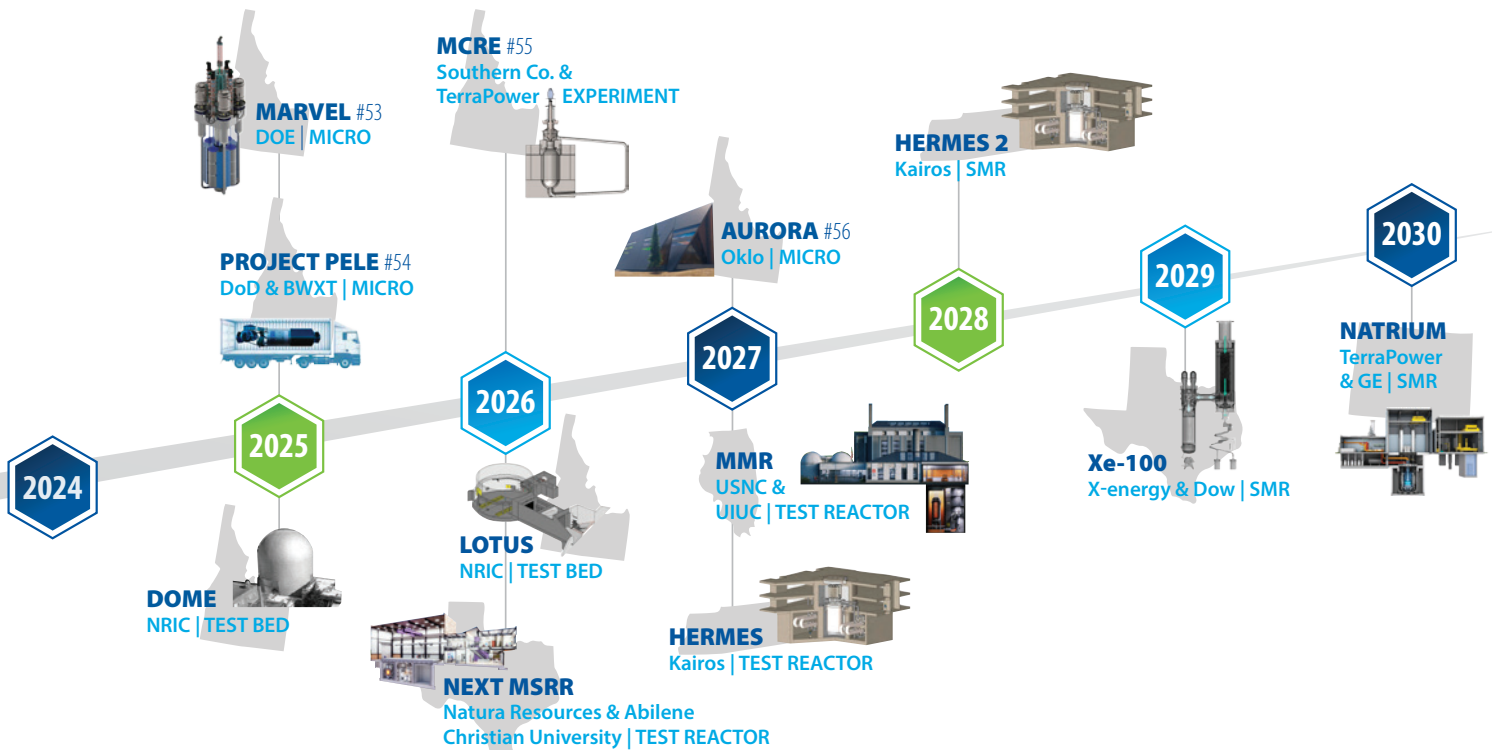
Advanced Reactor Demonstrations

DOE-ID ASSERTIVELY SUPPORTED ADVANCED REACTOR DEMONSTRATION AND DEPLOYMENT

DOE-ID assertively supported advanced reactor demonstration and deployment by working with companies like the Carbon Free Power Project, Oklo, Radiant, Atomic Alchemy, Aalo Atomic, Nano Nuclear, Curio Solutions, LLC, Kairos, Westinghouse, and Ultra Safe Nuclear Company on their requests to site reactor-demonstration projects at INL. This work has developed a process wherein DOE can partner with private industry to site and build a commercial reactor on INL. This effort paved the way for the Secretary of Energy's new Clean Up to Clean Energy initiative.

A significant accomplishment was the MARVEL project, which completed its 90% design milestone at the end of FY 2023. DOE-ID provided programmatic-oversight support and coordination with other DOE-ID office approvals and discussions for the MARVEL, PELE, and MCRE projects.

DOE-ID received, reviewed, and approved the DOME Proposed Documented Safety Analysis (PDSA), allowing construction to proceed, and the LOTUS Conceptual Safety Design Report. Also, in support of NRIC, several key long-lead procurements for DOME



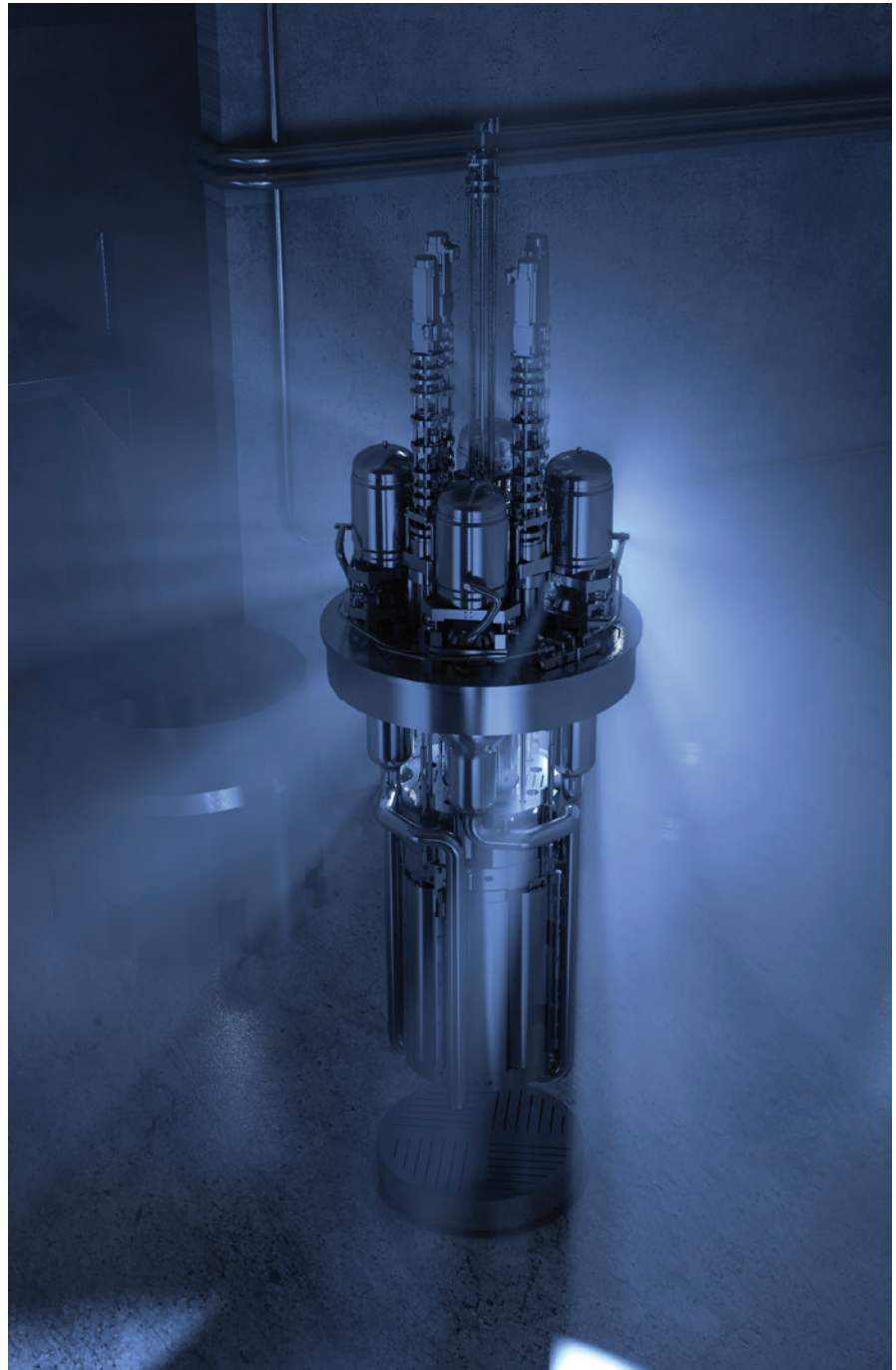
Artist's rendering of the MARVEL microreactor

equipment hatches and doors and the MCRE chemical fuel salt were submitted and approved by NE-ID. DOE-ID supported and concurred on 57 nuclear safety document reviews and approvals for new and existing INL facilities. Supporting new reactor projects PELE, MARVEL, DOME, and LOTUS allows the NE mission to progress successfully.

Another significant accomplishment in advanced reactor demonstration and deployment is the PELE project, which completed a draft PSAR.

DOE-ID participated in multiple Integrated project teams in support of NE's initiatives for microreactor design, test-bed projects, and alternate fuel technologies demonstration and development. These efforts resulted in a collaborative approach to understanding operational needs and a tailored approach to security requirement implementation.

DOE-ID took actions with BEA and the Safety Basis Approval Authority to provide guidance to for long-lead procurement requests (LLPRs) to allow advanced-reactor projects to procure components early, enabling design and construction schedules to be accelerated. DOE-ID issued new reactor guidance for design and operations expectations, as well as guidance for autonomous operation for the INL.



Office of Nuclear Energy Facilities, Operations, and Security

FY 2023 SAW SOME SIGNIFICANT ACCOMPLISHMENTS IN OUR RELENTLESS PURSUIT OF EXCELLENCE IN FEDERAL STEWARDSHIP.

FY 2023 saw some significant accomplishments in our relentless pursuit of excellence in federal stewardship. These achievements span our multiple missions to ensure that laboratory operations are safe and secure, and that the laboratory's infrastructure can meet our nation's research needs. Significant nuclear-operations accomplishments include the ATR's resumption of full-power operations, completion of the spent nuclear fuel (SNF) wet-to-dry milestone, and the initiation 55-ton scrap-cask emplacement at the Remote-Handled Low-Level Waste Disposal Facility (RH-LLWDF).

Nuclear-safety accomplishments included review of and responding to 63 safety-basis documents, including the safety-design strategies (SDSs) and documented safety analysis addendums for the Molten Salt Thermophysical Examination Capability and BEARTOOTH modifications, the DOME's PDSA, the MCRE SDS, the PELE PDSA, the LOTUS conceptual safety design report, and multiple LLPRs in support of these projects. DOE-ID staff reviewed and approved equivalency and exemption requests from in-service inspection, fire-protection, life-safety, and radiation-protection requirements that provided reasonable, cost-

effective alternatives that provided adequate protection to workers, the public, and the environment.

DOE-ID was instrumental in enabling mission accomplishment through reducing regulatory requirements, renegotiating Site Treatment Plan (STP) milestones, closing of a Resource Conservation and Recovery Act (RCRA) interim-status unit, completing the MCRE environmental assessment (EA), and strengthening relationships with the State Historic Preservation Office and Shoshone Bannock Tribes.

DOE-ID transitioned the submission of cleared background investigations from the Defense Counterintelligence and Security Agency's (DCSA's) Electronic Questionnaires for Investigations Processing (eQIP) system to the new National Background Investigation Service electronic application (eApp) system and increased their processing of active clearances and Homeland Security Presidential Directive 12 (HSPD-12) investigations needed to support most work on site. Clearance applications and adjudications were accomplished within the timeframes required under the Intelligence Reform and Terrorism Prevention Act.

The Radiological and Environmental Sciences Laboratory (RESL) continues to enable all radiological work across the complex through effective administration of the DOE Laboratory Accreditation Program (DOELAP). The results from RESL's Mixed Analyte Performance Evaluation Program (MAPEP) are used for every DOE site to fulfill quality-assurance requirements in 40 Code of Federal Regulations (CFR) 61 and DOE Order 458.1 and to demonstrate measurement capability in the site's Annual Site Environmental Report. DOE's Office of Environment,

Health, Safety & Security (EHSS) estimated that RESL's DOE Phantom Library saves the taxpayer over \$1 million per year through the lending of these phantoms to all DOE sites' radiological monitoring programs.

DOE-ID also completed several first-of-a-kind and novel approaches to meeting our mission. RESL produced the world's first lung phantom containing thorium-232 and the first ever chelated plutonium and uranium in real urine to test laboratories' capabilities to accurately measure

these isotopes. DOE-ID reviewed and approved two Space Nuclear System Specific Safety Analysis Reports meeting the National Security Presidential Memorandum (NSPM)-20, "Launch of Spacecraft Containing Space Nuclear Systems."

DOE-ID developed and vetted a novel approach to having DOE perform NEPA for pre-construction activities of new DOE-sponsored reactors to be licensed by the NRC.

Steve Bohrer in RESL laboratory



Office of Nuclear Energy Facilities, Operations, and Security

PROVIDING THESE OPPORTUNITIES WITHOUT SIGNIFICANT DISRUPTION TO DOE MISSION WAS ONLY POSSIBLE BECAUSE OF THE KNOWLEDGE, EXPERIENCE, AND PROFESSIONALISM OF THE INDIVIDUALS WITHIN THE ORGANIZATION.

During FY 2023, DOE-ID staff supported DOE in numerous respects. Specific support was provided through Tribal-liaison representative, EAP manager, ERO positions, Radiological Assistance Program (RAP), Independent Project Review for LOTUS, and Independent Low Level Waste Facility Federal Review Group (LFRG). The LFRG review and final approval of a special analysis allowed changes to the waste-acceptance criteria that were necessary for Naval Reactors Facility (NRF) 55-ton scrap-canister emplacements at RH-LLWDF. Other support included, participation on a multi-lab working group for the establishment of a classified waste vault at a commercial disposal facility, INL LFRG site representative, Project Peer Review of the Waste Isolation Pilot Plant Ventilation Project, DOE Nuclear Emergency Support Team by helping to maintain qualified personnel for radiological and nuclear operations. Additional support was provided through ATR and Integrated Waste Treatment Unit (IWTU) startup augmented oversight, team member on the accident investigation for a fatality at the Oak Ridge Site Office, voting member on the Safety Culture Improvement Panel, planning committee for the 2023 Annual Fire Protection Workshop, and strategic planning and implementing the Cleanup to Clean Energy Program.

To achieve organizational resiliency that can meet the DOE mission, DOE-ID staff acquired 12 additional qualifications or certifications during FY 2023. These qualifications are rigorous and could only be accomplished with the support of many within the office. Additionally, one subject-matter expert received the degree of Master of Science in Environmental Science.

Due to the vacant deputy manager position for half of FY 2023, four supervisors rotated to fill the position in an acting role. This resulted in other leadership opportunities to backfill temporarily as division directors and supervisors. Providing these opportunities without significant disruption to DOE mission was only possible because of the knowledge, experience, and professionalism of the individuals within the organization.

These FY 2023 contributions to the DOE mission were completed by approximately 65 members of DOE-ID organization. This was only possible through their individual effort, dedication, teamwork, and organizational resiliency as each division experienced staffing shortages. These challenges will only become harder as the DOE mission continues to grow unless the organization is staffed sufficiently to meet that mission.

**STAFFING AND TECHNICAL QUALIFICATIONS
(EXCLUDING SUPERVISORS/DIRECTORS)**

	Approved		
	FTE	Staffed	Qualified
FRs	9	78%	56%
NSS	3	67%	67%
QA	3	100%	66%
ISH	5	100%	80%
ESD	7	86%	86%

QUALIFICATIONS OBTAINED IN FY 2023

2	2	1	1	3	1	1	1
Facility Representative	Federal Project Director	Senior Technical Safety Manager	Radiation Protection	Environmental Compliance	Nuclear Material Control and Accountability	ATR Safety System Oversight	Occupational Safety

TWELVE TOTAL



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IDAHO FACILITIES MANAGEMENT HIGHLIGHTS:



Completed the ATR CIC VI outage and returned ATR to full power operation



MFC and IEC removed SNF from underwater basin storage 9 months ahead of schedule



Shipped more than 3,500 fuel bottles of sodium-bonded Experimental Breeder Reactor II (EBR-II) driver SNF to MFC



Completed 11 Mark IV electro refiner batch runs in the Fuel Conditioning Facility (FCF)



Created 400 kg of HALEU in regulus form



Completed the longest ATR irradiation cycle—65 days—during Cycle 171B-1

In March 2023, ATR operations completed the ATR CIC VI outage. In April 2023, ATR completed post-CIC nuclear testing and resumed thermal irradiation operations with Cycle 171A-1. The CIC-VI outage included the most-extensive outage scope to date on the ATR, completing major activities such as replacing ATR’s beryllium core internals and installing a new top head-closure plate supporting I-Loop capabilities. This sets up ATR for 10–15 years of performing materials testing irradiations in support of Naval Reactors and National Scientific User Facility sponsors.

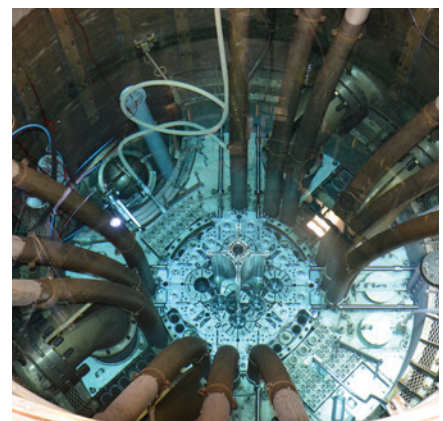
Following the completion of the ATR CIC, DOE-ID recognized the need to perform enhanced federal oversight of the reactor startup and nuclear testing to validate the core configuration,

based on the limited experience of the contractor’s operations staff. DOE-ID completed targeted oversight of critical steps in the reactor startup and the nuclear testing plan over an extended period that included several backshifts. This oversight validated the safe operation of the reactor to ensure that ATR would be able to safely support a wide range of vital missions for the U.S. Navy and DOE-NE, and it supported university research and nuclear industries in the U.S. and around the world.

MFC production facility personnel, in close coordination with IEC personnel, achieved completion of the 1995 Idaho Settlement Agreement (ISA) milestone to remove SNF from underwater-basin storage 9 months ahead of the December 31, 2023,



Reactor top head installation during CIC-VI



A rare view of the ATR core during Phase 2 of CIC-VI, just before reinstalling vessel top head

milestone date. More than 3,500 fuel bottles containing EBR-II sodium-bonded driver SNF were shipped to MFC from the Idaho Nuclear Technology and Engineering Center (INTEC) between 2011 and 2023. The SNF was safely and expeditiously received at the Radioactive Scrap and Waste Facility for interim dry storage and at FCF for electrometallurgical treatment.

To further the feedstock for advanced-reactor deployments, MFC production-facility personnel were able to complete 11 Mark IV electrorefiner batch runs in FCF. FCF treated 295 pounds of EBR-II heavy metal, surpassing the 1995 ISA 2019 Supplemental Agreement 3-year rolling average milestone of 165 pounds of treated heavy metal.

Treatment activities also created 400 kilograms of HALEU in regulus form for future advanced-reactor fuel feedstock.

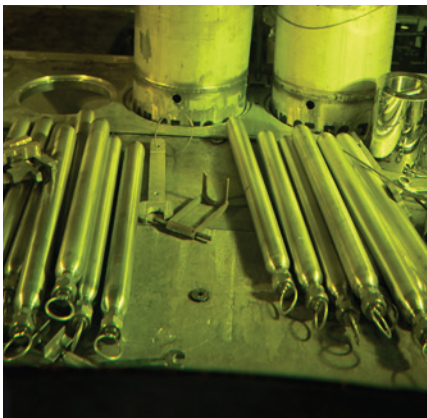
DOE-ID's project-management oversight improved through updating project-management procedures and incorporating succession planning for federal project directors. This resulted in increased quality of project documentation and better upfront planning for compliant performance baselines, increasing the probability of success and supporting programmatic needs.



Obtained Critical Decision (CD)-1 approval for LOTUS



Received 2 DOE Secretarial Achievement Awards, one for the ATR CIC-outage completion and one for the new top head-closure plate installation

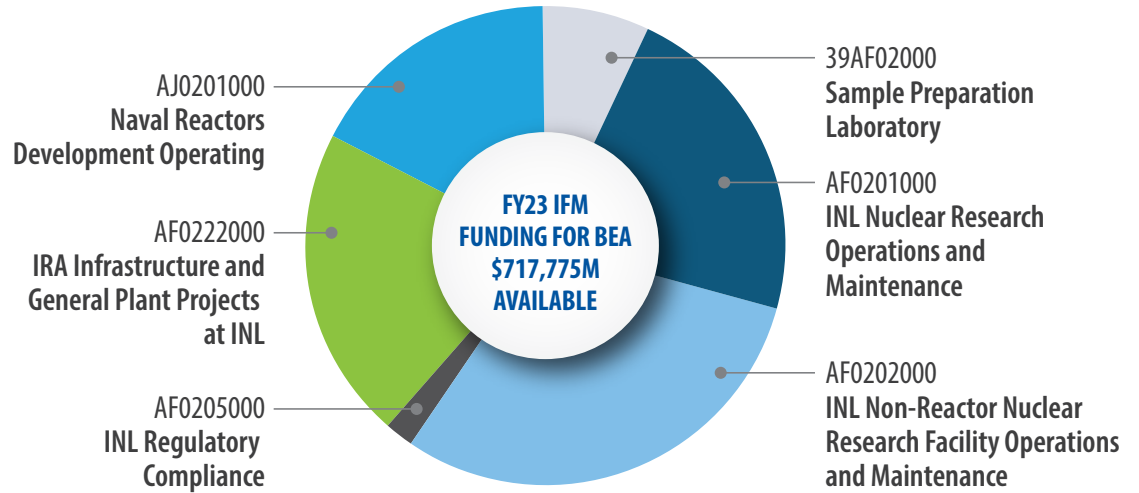


EBR-II fuel bottles awaiting transfer to an argon cell for moisture inspection



EBR-II fuel was shipped in a Hot Fuel Examination Facility (HFEF)-6 fuel cask on the new haul road between the Critical Infrastructure Test Range Complex and MFC

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*IRA-funded
ATR enterprise
backup-generator
replacement*



All INL STP FY 2023 milestones were satisfactorily met. DOE-ID obtained approval on the CD-0, mission need for the fuel-fabrication modernization capability project and obtained approval on CD-1, approve alternative selection and cost range for LOTUS.

DOE-ID commenced \$150 million of infrastructure investments under the IRA at the ATR and MFC complexes; completed hot-cell-liner installation on the line-item capital project SPL; completed Neutron Radiography Reactor fuel inspections; and produced the first HALEU reguli at HFEF from recovered EBR-II driver fuel in the metal waste-form furnace at Window 10M.

DOE-ID completed readiness and commenced waste receipt and disposal operations of the Naval Reactors 55-ton cask liners at the RH-LLWDF Facility. DOE-ID completed Transient Reactor Test Facility transient testing for the following programs: Resonant Ultrasonic Spectroscopy Laser-Advanced Low-Enriched Uranium Experiment, Nuclear Operations Effect on Mobility and Accelerated Diffusion Experiment, High Burnup Experiments in Reactivity Initiated Accident Experiment, temperature heat-sink, overpower response C2 and C3 modules, and NASA's Sirius-3 experiment.

DOE-ID completed down blending of the remaining Sandia Debris Bed low-equity highly enriched uranium oxide within the Fuel Manufacturing Facility and 28 9979 drums were shipped for disposal. DOE-ID partnered with BEA and the Idaho Power Corporation to support offsetting INL Scope 2 emissions, as required to comply

with the EO to achieve carbon-free emissions on schedule. DOE-ID also successfully presented a business proposal and letter of intent to the Fort Hall Business Council (FHBC) offering DOE's desire to purchase 10 MW of delivered power from any FHBC energy development.

FY 2023 WASTE SHIPMENTS

Waste Type	Volume (ft ³)	Containers
Hazardous, Industrial, Universal, and Recyclables	13,537	560
LLW and MLLW (Commercial TSDF)	64,091	370
RH-TRU (RSWF to INTEC)	29.4	4
RH-LLW (RSWF to RH-LLWDF)	17.655	5
RH-MLLW to INTEC	48.08	1

INFRASTRUCTURE PROJECTS

Project	Type	TPC (\$M)
SPL	Line Item	166
NRIC-LOTUS	Line Item	98.2
NRIC-DOME	Operating Funded	63
ATR Reactor Support Building	IGPP	19.7
INL Power Utility Building	IGPP	21.8
Live Fire Range Consolidated Training Facility	GPP	12
Test Area North Flexible Production Facility	GPP	29.9
Special Nuclear Test Bed—BEARTOOTH	IGPP	26.7
MFC Protective Support Building	GPP	15.6
	TOTAL	389.9

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ENVIRONMENT AND SUSTAINABILITY HIGHLIGHTS:

-  Reduced 181 regulatory requirements
-  Negotiated six new permits/agreements
-  Modified eight permits
-  Processed 171 federal/state/DOE regulatory compliance reports
-  Made 96 cultural-resource determinations
-  Planted 75,000 sagebrush seedlings

DOE-ID supported start-up of the IWTU and treatment of sodium-bearing waste, allowing receipt of SNF in accordance with the ISA Supplement. DOE-ID ensured closure of one of the remaining two RCRA interim-status units, a high priority for the state of Idaho Department of Environmental Quality (DEQ). Environment and Sustainability renegotiated 8 STP milestones to reduce risk of potential fines and penalties and maintain regulatory relationships.

DOE-ID finalized the DOE PFAS Roadmap Implementation Plan at INL to understand environmental risks.

DOE-ID fully executed the new Cultural Resource Programmatic Agreement (PA), providing a streamlined approach to Section 106 and implementing a highly effective Section 110 process. For this, DOE-ID received a DOE Sustainability Honorable Mention Award. The PA's execution reduced required consultation to less than 5% of all undertakings and provided for a reduction of approximately 73% of historic properties. DOE-ID awarded the University of Utah ethnohistorical study of the Shoshone Bannock Tribes to document their relationship to the INL lands and developed novel approach for NEPA and cultural resources with the NRC for reactor-demonstration projects on the INL Site. DOE-ID obtained a U.S. Fish and Wildlife Service grant for a 3-year sagebrush seed-collection and seed-planting project to support conservation measures in the Candidate Conservation Agreement.

NEPA ACTIONS:

169

NEPA determinations issued

99

DOE-ID categorical exclusion determinations made

70

INL categorical exclusions determined

45

Public comments reviewed

THREE

Final EIS for CNC, EA for MCRE, and Supplemental Analysis for IWTU issued

MANAGED AGREEMENTS, PERMITS, AND ENVIRONMENTAL PLANS

Agreements	Compliance	Natural and Cultural Resources
ISA	Idaho Wastewater Reuse Permits (3)	INL PA
STP	Industrial Wastewater Acceptance Permit	U.S. Fish and Wildlife Service Special Purpose Permit (2)
Notice of Non-Compliance and Consent Order	Drinking Water Systems (11) Synthetic Minor Facility Emissions Cap Interim Status RCRA Permits (2) Part B RCRA Permits (7) Risk-Based Disposal Approvals (4)	Idaho Fish and Game Wildlife Collection/Banding/Possession Permit (2) INL Candidate Conservation Agreement INL Bat Protection Plan Site Sustainability Plan



Sagebrush seedling

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OPERATIONS AND SAFETY HIGHLIGHTS:



Reviewed and approved equivalency and exemption requests from in-service inspection, fire-protection, life-safety, and radiation-protection requirements that provided reasonable, cost-effective alternatives that provide adequate protection to workers, the public, and the environment



Conducted enhanced federal oversight on ATR startup and nuclear testing to ensure safe operation of the reactor



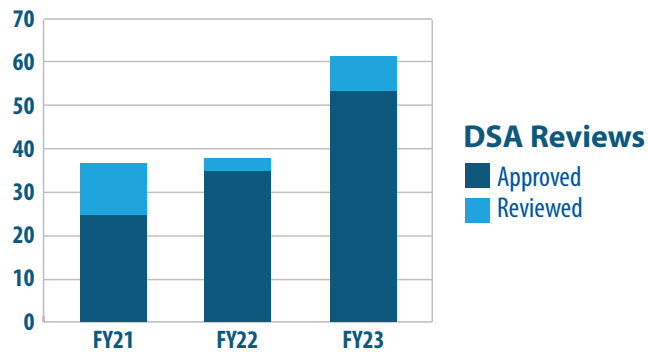
Developed improved processes to facilitate approval of LLPRs for PELE and MARVEL



Approved two Space Nuclear System-specific safety analysis reports, meeting NSPM-20, "Launch of Spacecraft Containing Space Nuclear Systems"

The DOE-ID authority having jurisdiction granted approval of the equivalency request for National Fire Protection Association 101, "Life Safety Code," requirements for a second means of egress from the Power Burst Facility-613 basement while an engineering solution could be determined and implemented. This directly supported the emergency-response and readiness efforts under the N&HS Program.

DOE-ID supported and evaluated INL activities related to the NRIC, including review of the NRIC program-management structure and the execution of an NRIC program-execution plan. DOE-ID successfully worked with the INL on outreach with prospective companies and stakeholders.



SECURITY HIGHLIGHTS:



Managed 5,566 active clearances



Facilitated 70 drills and exercises in support of the Emergency Management System



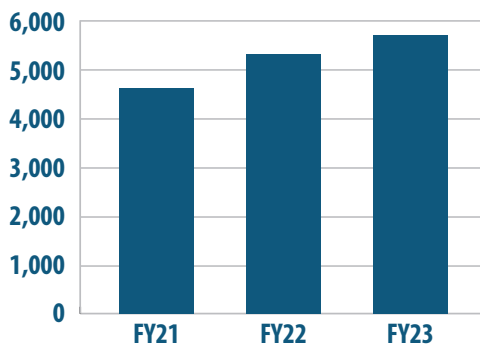
Responded to 240 Fire Department and medical-service calls

DOE-ID increased processing of personnel security clearances, HSPD-12 badge processing, and enrollment of cleared population into the Continuous Vetting Program in accordance with national requirements. It provided preliminary vulnerability reviews and analysis of multiple land-use agreements, funding awards, and projects in support of DOE-NE advanced nuclear-reactor and alternate-fuel initiatives.

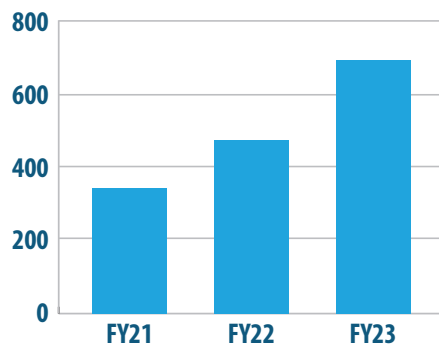
DOE-ID provided oversight to ensure security programs operated effectively, meeting requirements to support the NE mission and growth and provided oversight to ensure an efficient and effective Emergency Management System to ensure effective and efficient response to operational and energy emergencies. It ensured implementation of program and planning requirements for continuity readiness and preparedness activities, plan activation, and continuity of operations to include devolution and reconstitution to ensure continuous performance and delivery of essential functions.

DOE-ID processed active clearances that required access to classified information or special nuclear material so that these activities can be performed in accordance with national and departmental directives. Clearance adjudications were processed to enable the new workforce to begin classified activities in a timely manner.

Active Clearances



Adjudications



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EMERGENCY MANAGEMENT SUPPORTED:

- 70** Exercises/Drills
- 185** 185 Emergency Response Org Participants
- 7** Local Law Enforcement Agency MOUs
- 20** Emergency Services MOUs
- 4** MOAs: mutual fire aide, DEQ, NRF and Shoshone Bannock Tribes
- 24** Outside Agencies Participated in Full Scale Exercises
- 240** Emergency Responses, including 161 medical responses

DOE-ID successfully transitioned the submission of cleared background investigations from the DCSA's eQIP system to the new National Background Investigation Service eApp system. This required building a hierarchy or process flow within the DCSA system and ensuring accurate funding codes were established for each cleared contractor organization.

DOE-ID provided effective oversight of the security-enhancement infrastructure upgrades at the ATR Complex to effectively close milestones of an 8-year implementation plan. These efforts will support remaining activities required to facilitate closeout of the NE implementation plan.

DOE-ID provided effective oversight of Protective Force operations to ensure forces were highly effective in carrying out their mission and protecting NE assets and programs. This oversight enabled DOE-ID to sponsor Protective Force participation on behalf of DOE-NE in multiple high-level competitions—such as the National Nuclear Security Administration's 2023 Active Assailant Response Workshop, the Office of Enterprise Assessment Composite Adversary Team, and the Ninth Annual Mountain States Special Weapons and Tactics Training and Competition—where they received distinguished recognition and awards for their professionalism and representation of DOE-ID and NE.

DOE-ID provided effective oversight of the INL Safeguards and Security Program to ensure the 2023 Office of Security Assessments limited-notice performance test (LNPT) of the Nuclear Material and Control Program, Protective Force operation, security systems, performance testing, and the Trusted Agent Program resulted in effective execution of protection strategies. Results of the LNPT demonstrated the effectiveness of Safeguards and Security processes, procedures, and execution for the protection of NE security assets.

DOE-ID provided effective oversight for the conduct of six detailed large-scale comprehensive force-on-force (FoF) exercises. These were based on adversary threat, skills, and abilities consistent with the Design Based Threat Policy and multiple Joint Conflict and Tactical Simulation FoF scenario validation campaigns provided additional system-effectiveness data that was critical in establishing the analytical basis to support security operations under the federally authorized Site Security Plan. Oversight also verified that the upgrades identified in approved implementation plans were effective in the protection of security assets; and demonstrated that deviations from departmental protection requirements do not degrade protection effectiveness or increase risk to the NE mission.



Protective Force demonstration

OFFICE OF CHIEF COUNSEL HIGHLIGHTS:



Received and reviewed 1,840 tasks for legal review



Advised on first-of-its-kind HALEU-procurement strategy



Represented DOE and DOE-ID in the Department's ISA modernization effort



Received and processed 74 Freedom of Information Act and PA requests

DOE-ID resolved contract and procurement-law issues, including work with BEA legal to revise BEA's Legal Management Plan, and assisted with title-transfer agreements for samples from Halden Reactor in Norway and Byron Nuclear Power Station in Illinois.

DOE-ID worked with the Shoshone Bannock Tribes to revise our Memorandum of Agreement (MOA) to provide access to Middle Butte Cave and developed a process to disposition Tribal archaeological artifacts currently in DOE's possession.

DOE-ID also worked on land-use and Comprehensive Environmental Response, Compensation, and Liability Act issues related to a request from the Idaho Department of Fish and Game to expand the hunting boundary around the perimeter of the INL Site.

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RADIOLOGICAL AND ENVIRONMENTAL SCIENCES LABORATORY HIGHLIGHTS:



Irradiated over 2,000 dosimeters and made more than 500 radiological performance testing materials



Produced the world's first-of-a-kind lung phantom containing thorium-232



Produced the first-ever chelated plutonium and uranium in real urine



Produced more than 1,200 environmental performance testing samples and evaluated over 5,000 analytical results



Analyzed more than 200 samples with hard-to-detect radionuclides for NRC



Generated more than 1,000 results from analyzing 180 water samples for USGS

DOE-ID's RESL managed DOELAP, which is required by 10 CFR 835 for all radiation-monitoring programs. There are currently 27 programs across the DOE complex that are accredited and monitor dose to approximately 70,000 federal employees, contractors, and subcontractors, as well as members of the public who have worked in or entered controlled areas monitored for exposure to radiation. Over 180,000 measurements are made each year. RESL accredited the dosimetry and radiobioassay programs at Argonne National Laboratory, East Tennessee Technical Park, Hanford, Los Alamos National Laboratory, Nevada Nuclear Security Site, Sandia National Laboratory, and Oak Ridge National Laboratory.

The RESL staff irradiated more than 2,000 dosimeters and made over 500 radiological-performance testing materials, including radiological urine, fecal, thyroid phantoms, lung phantoms, and whole-body phantoms for DOE's radiation-worker monitoring programs to ensure that they can produce accurate results.

RESL produced the world's first-of-a-kind lung phantom containing thorium-232.

RESL produced the first-ever chelated plutonium and uranium in real urine

to test laboratories' capabilities to accurately measure these isotopes. The chelating effect was thought to come from workers' drinking excessive carbonated beverages that use a chelator as a preservative. The test was a success! Currently used chemical-separation methods don't have any problems.

RESL's MAPEP tests laboratories that analyze environmental samples for DOE. The results from this program are used for every DOE site to fulfill quality assurance requirements in 40 CFR 61 and DOE Order 458.1 and are used to demonstrate measurement capability in INL's Annual Site Environmental Report.

RESL tested 70 U.S.-based commercial laboratories and 28 international laboratories from the International Atomic Energy Agency, United Kingdom, Canada, United Arab Emirates, Spain, Oman, Malaysia, Monaco, Austria, Jordan, New Zealand, and the Republic of South Africa.

RESL is the NRC's radiological reference laboratory, and it analyzed over 200 samples with hard-to-detect radionuclides from decommissioning projects at San Onofre Nuclear Generating Station, U.S. Navy Surface Ship Support Barge, and Zion Nuclear Power Station. The samples required

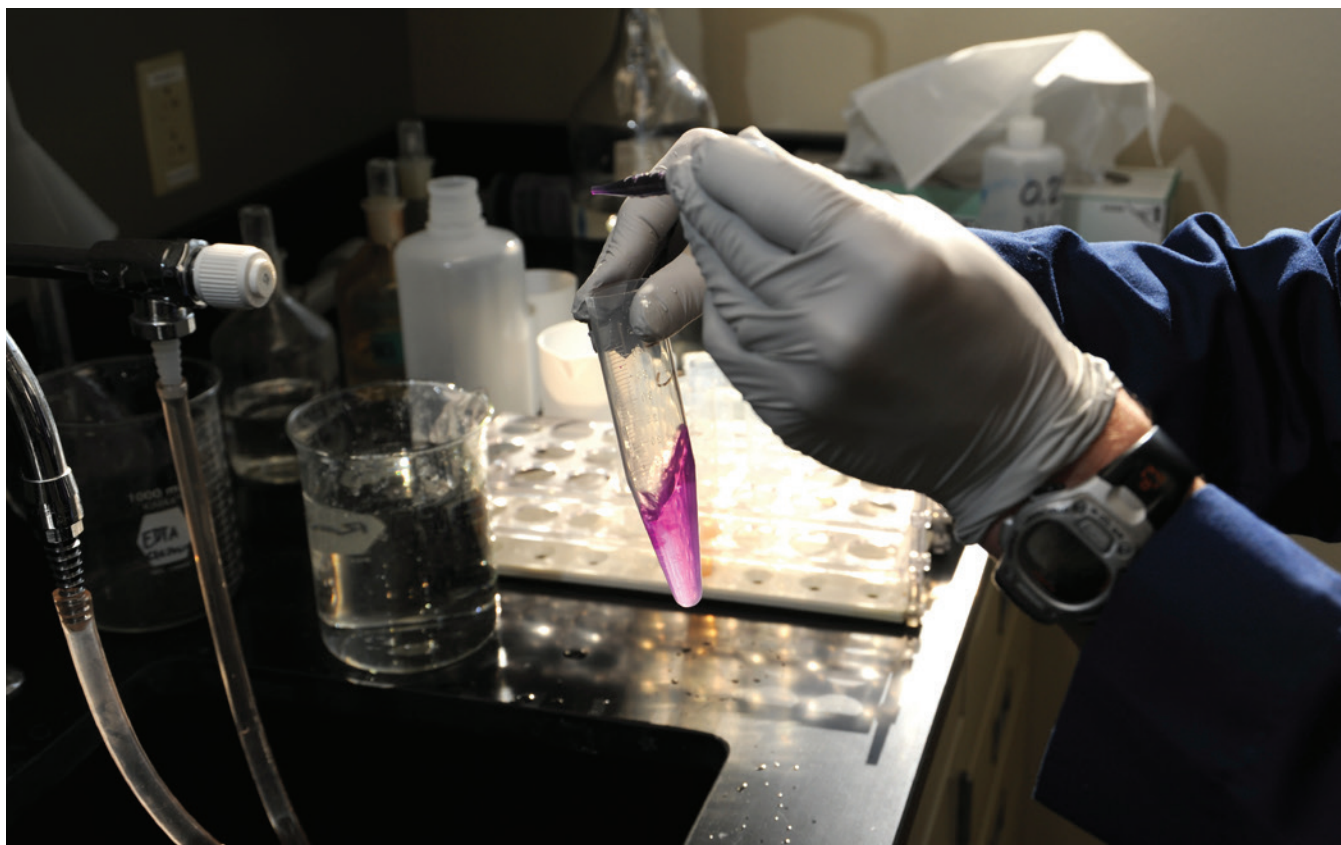
more than 1,000 chemical separation steps and generated over 2,000 individual radiological results.

RESL supported the U.S. Air Force's radio bioassay and dosimetry program, the U.S. Air Force's Technical Application Center, and the U.S. Naval Nuclear Propulsion Program through SPPs to produce radiological materials that are not available commercially.

RESL supported DOE's National Nuclear Security Administration's Office of Nuclear Incident Response's RAP during two detonation-training exercises held at INL. RESL also provided DOE RAP teams radiological air-filter-calibration standards and access to fresh fission-product and activation-product samples. These samples provided gamma-ray spectra that the RAP teams have never measured before and will be shared with all DOE regional RAP teams.

RESL operated the DOE Phantom Library for EHSS Office of Worker Safety and Health Policy. Because radiological-phantom costs are high, and phantoms must be replaced periodically due to radioactive decay, the minimal funding provided by EHSS is estimated to save the taxpayer over \$1 million per year through the lending of these phantoms to all the DOE sites' radiological-monitoring programs.

Analyzing radionuclides



Office of Nuclear Energy Facilities, Operations, and Security

NE CHIEF OF NUCLEAR SAFETY PROGRAM HIGHLIGHTS:



Supported and concurred on 57 nuclear-safety document reviews



Actively participated on Defense Nuclear Facility Safety Board (DNFSB) nuclear-safety activities, including DNFSB 2020-1, Nuclear Safety 2023-1

SENIOR SCIENTIST HIGHLIGHTS:



Authored and reviewed documents for INL 5-year contract extension



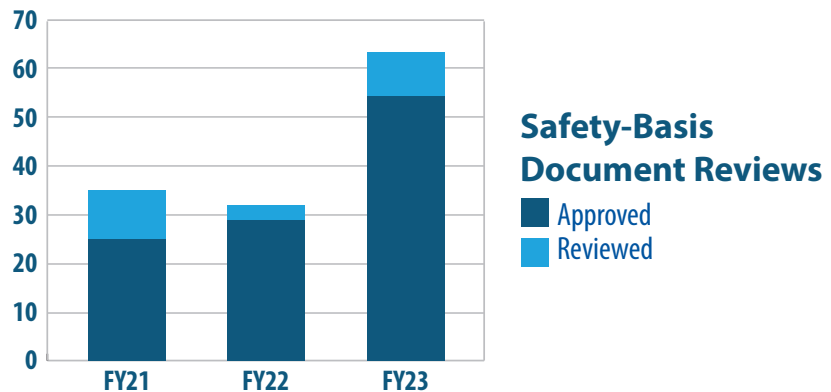
Developed and finalized FY 2022 Performance Evaluation and Measurement Plan (PEMP) final evaluation and Fee Determination Official letter



Developed and finalized FY 2023 PEMP

The Chief of Nuclear Safety was the NE representative on the DNFSB 2020-1, Nuclear Safety, Steering Committee, guiding the development and coordination of new and updated nuclear safety orders.

DOE-ID's Chief of Nuclear Safety was also DNFSB's Nuclear Energy coordinator and actively participated in DNFSB activities related to nuclear safety, including DNFSB 2020-1, Nuclear Safety, 2023-1, transportation, and coordination with board staff at INL for activities affecting the EM mission. NE has responsibility for areas such as emergency planning, natural phenomena, and nuclear material interests, making DNFSB oversight an NE priority.



DOE-ID successfully led the technical evaluation of the \$1.8 billion INL performance, as required in the PEMP. Through multiple evaluations of PEMP objectives and notable outcomes, oversight of INL was documented to support the FY 2023 evaluation and resulting fee for BEA.

DOE-ID contributed to the DOE complex by participating in Integrated Project Teams for revision of DOE Order 411.2, "Scientific Integrity, and DOE Order 241.1B, "Scientific and Technical Information Management." Other important participation included DOE Public Data Accessibility Working Group; DOE Persistent Identifiers Subcommittee; DOE Human Subjects Working Group; DOE Annual Plan Policy Committee; LDRD Policy Committee; Laboratory Appraisal Working Group for Office of Technology Transitions; and Laboratory Core Capability Evaluations for Advanced Computer Science, Visualization, and Data.

Acronyms

ATR	Advanced Test Reactor	FoF	Force-on-force	NRC	Nuclear Regulatory Commission
BEA	Battelle Energy Alliance	FTE	Full-time equivalent	NRF	Naval Reactors Facility
BFNUF	Biomass Feedstock National User Facility	FY	Fiscal year	NRIC	National Reactor Innovation Center
CCE	Consequence-Driven Cyber-Informed Engineering	HALEU	High-assay, low-enriched uranium	NSPM	National Security Presidential Memorandum
CD	Critical decision	HFEF	Hot Fuel Examination Facility	OCIO	Office of the Chief Information Officer
CFO	Chief Financial Officer	IEC	Idaho Environmental Coalition	OMB	Office of Management and Budget
CFR	Code of Federal Regulations	INL	Idaho National Laboratory	PA	Programmatic Agreement
CIC	Core Internals Changeout	INTEC	Idaho Nuclear Technology and Engineering Center	PDSA	Proposed documented safety analysis
CNC	Civil Nuclear Credit	IPDP	Idaho Professional Development Program	PELE	Portable Energy for Lasting Effect
CRADA	Cooperative Research and Development Agreements	IRA	Inflation Reduction Act	PEMP	Performance Evaluation and Measurement Plan
DCSA	Defense Counterintelligence and Security Agency	ISA	Idaho Settlement Agreement	PFAS	Per- and polyfluoroalkyl substances
DEQ	Department of Environmental Quality	IT	Information technology	PICS	Program Information Collection System
DNFSB	Defense Nuclear Facility Safety Board	IWTU	Integrated Waste Treatment Unit	PMCDP	Project Management Career Development Program
DOE	Department of Energy	LDRD	Laboratory Directed Research and Development	PSAR	Preliminary Safety Analysis Report
DOELAP	DOE Laboratory Accreditation Program	LFRG	Level Waste Facility Federal Review Group	R&D	Research and development
DOME	Demonstration of Microreactor Experiments	LLPR	Long-lead procurement requests	RAP	Radiological Assistance Program
EA	Environmental assessment	LNPT	Limited-notice performance test	RCRA	Resource Conservation and Recovery Act
EAGLE	Enterprise Accounting General Ledger Entries	LOTUS	Laboratory for Operation and Testing in the United States	RESL	Radiological and Environmental Sciences Laboratory
EBR-II	Experimental Breeder Reactor-II	M&O	Management and operating	RH-LLWDF	Remote-Handled Low-Level Waste Disposal Facility
EERE	Energy Efficiency and Renewable Energy	MAPEP	Mixed Analyte Performance Evaluation Program	S&T	Science & technology
EES&T	Energy, Environment, Science and Technology	MARVEL	Micoreactor Applications Research Validation and Evaluation	SCA	Service Contract Act
EHSS	Environment, Health, Safety & Security	MCRE	Molten Chloride Reactor Experiment	SDS	Safety-design strategies
EIS	Environmental Impact Statement	MFC	Materials and Fuels Complex	SMC	Specific Manufacturing Capability
EM	Environmental Management	MOA	Memorandum of Agreement	SNF	Spent nuclear fuel
EO	Executive Order	N&HS	National and Homeland Security	SPL	Sample Preparation Laboratory
FCF	Fuel Conditioning Facility	NASA	National Aeronautics and Space Administration	SPP	Strategic Partnership Projects
FHBC	Fort Hall Business Council	NE	Nuclear Energy	STP	Site Treatment Plan
FIMS	Facility Information Management System	NEPA	National Environmental Policy Act	VTR	Versatile Test Reactor
		NRAD	Neutron Radiography	ZTA	Zero-Trust Architecture



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