

Chapter 3: Environmental Management Systems



CHAPTER 3

The Idaho National Laboratory (INL) and Idaho Cleanup Project Environmental Management Systems implement the U.S. Department of Energy (DOE) commitments for the protection of the environment and human health. DOE strives to be in full compliance with environmental laws, regulations, and other requirements that protect the air, water, land, natural, archeological, and cultural resources potentially affected by operations and activities conducted at the INL Site. This policy is implemented by integrating environmental requirements, pollution prevention, and sustainable practices into work planning and execution and by taking actions to minimize the impact of INL Site operations and activities.

3. ENVIRONMENTAL MANAGEMENT SYSTEMS

The framework that DOE has chosen to use for Environmental Management Systems (EMSs) and sustainable practices is the International Organization for Standardization (ISO) Standard 14001:2015, “Environmental Management Systems – Requirements with Guidance for Use.” The ISO 14001:2015 model uses a system of policy development, planning, implementation, operation, checking, corrective action, and management review. Ultimately, ISO 14001:2015 aims to improve performance as the management cycle repeats. The EMS must also meet the criteria of Executive Order 14057, “Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability,” and DOE O 436.1, “Departmental Sustainability,” which require federal facilities to put EMSs into practice. Sites must maintain their EMS either by being certified for use or in conformance with the ISO 14001:2015 standard following the accredited registrar provisions or self-declaration instructions.

INL balances research, development, and demonstration; waste management; and decontamination and decommissioning activities in support of the INL mission with the protection and preservation of human health and the environment. INL complies with applicable laws, regulations, and other requirements. INL’s EMS integrates environmental protection, environmental compliance, pollution prevention, and continual improvement into work planning and execution throughout work areas as a part of the Integrated Safety Management System.

INL is a combination of all operating contractors and the U.S. Department of Energy, Idaho Operations Office (DOE-ID), and includes the Idaho Falls campus and the research and industrial complexes termed the “INL Site” that is located 50 miles west of Idaho Falls, Idaho. For the purpose of this report, INL consists of those facilities operated by Battelle Energy Alliance, LLC (INL contractor), or by the Idaho Environmental Coalition, LLC (Idaho Cleanup Project [ICP] contractor). INL and ICP contractors are referred to by their noted acronyms and include all facilities under their individual responsibilities.

The two main contractors have established EMSs for their respective operations. The INL and ICP have been certified to meet the requirements of ISO 14001 since 2005. In 2019, the INL contractor became the first DOE national laboratory to be certified by the Nuclear Quality Assurance Certification Program. Many elements of the Nuclear Quality Assurance-1 align with and complement the ISO 14001:2015 standard.



INL and ICP contractors have established EMSs for their respective operations and were last certified to the ISO 14001:2015 standard in 2020. Recertification of the EMS is required every three years. INL and ICP contractors will undergo a recertification audit in 2023 to the current standard. The EMS is audited annually to verify that it is operating as intended and in conformance with ISO 14001:2015 standards. INL and ICP contractors were both audited in 2022 by an external, accredited auditor and were recommended for continued certification to the ISO 14001:2015 standard. Results from the INL contractor audit showed no nonconformities, four management system strengths, and no opportunities for improvement. Results from the ICP audit showed no nonconformities and four management system strengths.



3.1 Environmental Management System Structure

The INL and ICP contractors' EMSs incorporate a Plan-Do-Check-Act approach to provide a framework under which the environmental, safety, and health programs are managed.

- Plan – Defines work scope, identifies environmental aspects, analyzes hazards, and develops hold points and mitigations
- Do – Implements defined controls and performs the work scope
- Check – Evaluates performance, management reviews, and contractor's assurance practices
- Act – Incorporates corrective actions, improvements, and lessons learned into practices.

This approach is interactive and iterative through the various work activities and functions, including policies, programs, and processes. The approach is also an integral part of the overall management of the Site's environmental compliance and performance. The main focuses of this cycle are on (1) environmental policy, (2) planning, (3) implementation and operation, (4) checking and corrective action, and (5) management review.

3.2 Environmental Policy

INL and ICP contractors state their commitments to the environment through an overarching policy that is displayed to employees. The policy commits specifically to do the following:

- Environmental protection
- Environmental compliance
- Pollution prevention
- Continual improvement.

INL and ICP contractors' employees integrate environmental requirements and pollution prevention techniques into work planning and execution to minimize the environmental impacts of their activities.

3.3 Plan

3.3.1 Environmental Aspects

INL and ICP contractors have evaluated their activities, products, and services to identify the environmental aspects of its work activities that could affect the environment or the public or result in noncompliance with regulatory requirements. INL and ICP contractors perform these evaluations against all applicable federal and state regulations, state permits, and local laws. These regulations and permits are the foundation for environmental standard operating procedures and implementing documents. INL and ICP contractors use the National Environmental Policy Act planning tool for all proposed actions that would take place onsite. INL uses the Environmental Compliance Permit Process, while ICP uses



the Environmental Checklist process to evaluate all activities and projects to ensure the proposed actions consider and mitigate environmental aspects as necessary. Environmental aspects are listed below:

Air Emissions. Air emissions applies to operations or activities that have the potential to generate air pollutants in the form of radionuclides, chemical and combustion emissions, fugitive dust, asbestos, and refrigerants. INL and ICP contractors have an Environmental As Low As Reasonably Achievable review process per DOE O 458.1, "Radiation Protection of the Public and the Environment," that protects the public and the environment against undue risk of radiation. The Environmental As Low As Reasonably Achievable Committee evaluates activities that have the potential for radiological impact on the environment and the public and determines the requirements for radiological emissions.

Chemical Use and Storage. Chemical use and storage apply to activities that purchase, store, or use laboratory or industrial chemicals, pesticides, or fertilizers. INL and ICP contractors have processes in place to maintain adequate inventory of appropriate emergency response equipment and to report inventories and releases.

Contaminated Sites Disturbance. Contaminated site disturbance applies to activities in Comprehensive Environmental Response, Compensation, and Liability Act areas of contamination or Resource Conservation and Recovery Act corrective action sites. INL and ICP contractors have processes to properly identify contaminated sites.

Discharging to Surface, Storm, or Groundwater. Discharging to surface water, storm water, or groundwater applies to activities that have the potential to contaminate U.S. groundwater or water. INL and ICP contractors have spill prevention and response plans in place for areas that have the potential to contaminate U.S. groundwater or water.

Drinking Water Contamination. Drinking water contamination activities are related to constructing, operating, and maintaining drinking water supply systems and equipment or activities with the potential to contaminate drinking water supplies. This includes bacteriological, radiological, or chemical contamination of drinking water.

Disturbing Cultural Resources. Cultural resource disturbance applies to activities that have the potential to adversely affect cultural resources such as disturbing soils by grading, excavating, sampling, off-road vehicle use, or removing vegetation. It also applies to the protection of sensitive cultural or biological resources from disturbance. The potential for adverse effects also applies to modifying or demolishing historical buildings or structures that are 50 years old or older. INL has a cultural resources management team that evaluates work activities at INL to minimize the impact on historical buildings and cultural sites before an activity begins.

Generating and Managing Waste. Regulated, hazardous, or radioactive material and waste packaging and transportation applies to activities that generate, store, treat, or dispose of hazardous, radioactive, or industrial waste. INL and ICP contractors have a waste management program that integrates and dispositions containerized hazardous, radioactive, or industrial waste and gives guidance on how to minimize the amount of regulated waste generated.

Releasing Contaminants. Releasing contaminants applies to activities that may release potentially hazardous contaminants into water, soil, or other noncontaminated or previously contaminated locations. All INL and ICP contractors' employees are trained to report any release to either their Program Environmental Lead or to the Spill Notification Team. Releases are tracked to verify that they are cleaned up properly. Planned operations and research with the potential to release contaminants are evaluated to mitigate any significant environmental impacts.

Polychlorinated biphenyls (PCB) Contamination. PCB contamination applies to activities that use PCB-contaminated equipment or store and dispose of PCB-contaminated waste. INL and ICP contractors have processes in place to identify PCBs in excess equipment and to comply with regulatory requirements related to the use, marking, storage, and disposal of PCB equipment or waste.

Interaction with Wildlife/Habitat. Interaction with wildlife/habitat activities includes the potential to disturb or affect wildlife or their habitat or activities involving revegetation and weed control. INL and ICP contractors have processes in place to ensure that identification and consideration is given to the cumulative impacts required by the National Environmental Policy Act, the Endangered Species Act, or the Migratory Bird Treaty Act. Procedures and processes are also implemented to control noxious weeds and revegetation of disturbed sites.

Using, Reusing, and Conserving Natural Resources. Using, reusing, and conserving natural resources applies to activities that use or recycle resources such as water, energy, fuels, minerals, borrow material, wood, or paper products



and other materials derived from natural resources. This beneficial aspect also applies to waste disposition activities, including building demolition and activities implementing sustainable practices and conserving natural resources.

3.4 Do (Implementation and Operations)

3.4.1 Structure and Responsibility

The organizational structures INL and ICP contractors have in place establish roles and responsibilities for environmental management within research, development, and demonstration; operations; waste management; decontamination and decommissioning; and other support organizations within Environmental, Safety, Health, and Quality. Identified technical points of contacts communicate environmental regulatory requirements and required document submittals to the U.S. Environmental Protection Agency, the Idaho Department of Environmental Quality (DEQ), and other stakeholders. The technical points of contact work with the projects, researchers, and facilities to ensure the requirements are implemented.

3.4.2 Competence, Training, and Awareness

INL and ICP contractor training directorates conduct training analysis and designs and develop and evaluate environmental training. Environmental training gives personnel the opportunity to gain experience, knowledge, skills, and abilities necessary to accomplish the following:

- Perform their jobs in a safe and environmentally responsible manner
- Comply with federal, state, and local environmental laws; regulations and permits; and INL requirements and policies
- Increase awareness of environmental protection practices and pollution and prevention/waste minimization opportunities
- Take action in an emergency.

3.4.3 Communication

INL and ICP contractors implement comprehensive communication programs that distribute timely information to interested parties such as the public, news media, regulatory agencies, and other government agencies. These programs provide communications about the environmental aspects of work activities, among other topics. Examples include the Media and Community Relations Program and the Strategic Initiatives Program, which distribute information to the public through public briefings, workshops, personal contacts, news releases, media tours, public tours, and news conferences. The programs also coordinate tours of INL for schools, members of the public, special interest groups, and government and elected officials. Internal communications regarding environmental aspects are available via intranet sites, procedures, emails, posters, brochures, booklets, trainings, and personal interaction with environmental staff.

3.4.4 Operational Control

Environmental personnel evaluate each work activity at INL to determine the level of environmental review needed. Environmental personnel also apply administrative and engineering controls. Administrative controls include procedures and best management practices. Engineering controls include using protective equipment and barriers to minimize or avoid environmental impact.

3.4.5 Document and Record Control

Environmental documents are prepared, reviewed, revised, and issued per INL and ICP contractors' standards and procedures. INL's document control system maintains the current version of documents and makes legible and dated copies available to employees.



3.5 Check

INL and ICP contractors internally monitor compliance with environmental laws and regulations through the Assurance Portfolio process in the Contractor Assurance System. INL and ICP contractors conduct assurance activities through performance metrics, observations, and assessments. Issues, trends, or improvements identified through these activities are rolled into the INL issues management database where corrective actions are assigned and tracked to completion. Examples of contractor assurance activities include monitoring progress toward environmental objectives for each organization and an internal assessment of the EMS against the ISO 14001:2015 standard. Contractor assurance activities in the environmental organization are documented in a management review.

Various regulators also perform external assessments. Idaho DEQ conducts several inspections annually to verify that INL is complying with state permits. The U.S. Environmental Protection Agency also participates in Federal Facility Act-driven inspections and, on a determined frequency, participates alongside Idaho DEQ in compliance evaluation inspections. Chapter 2, “Environmental Compliance Summary,” provides results of the annual external agency audits and inspections of INL’s Environmental Program.

Annually, INL and ICP contractors perform a surveillance audit as required by the ISO 14001 standard. Additionally, every three years, INL and ICP contractors are audited for recertification to the ISO 14001 standard. A qualified party outside the control or scope of the EMS must perform the formal recertification of the EMS audit. INL and ICP contractors have been certified to the ISO 14001 standard since 2005.

3.6 Act

INL and ICP contractors establish, implement, and maintain an issues management program in accordance with an internal procedure for contractor assurance. It deals with actual or potential conditions of nonconformity, such as Notices of Violation, nonconformities with regulation, and opportunities for improvement from internal assessments and audits. All employees have access to the issues management software and the authority to identify and document any conceived issue. Communication of these identified issues is performed through the management review process. Throughout all operations, environmental concerns, safety, and emergency preparedness issues are documented and submitted for management review.

INL and ICP contractors’ management review of EMS occurs through a process that includes weekly, monthly, quarterly, and annual meetings with committees and councils. Management review identifies issues that carry the largest environmental risks and provides mitigations and hold points. Through the Contractor Assurance System, EMS performance trends, audit findings, objectives and targets, improvements, and risks are documented in a management review that is sent to senior management. Through this process, senior management is aware of the largest environmental risks to the INL Site. Senior management evaluates the management review and recommends actions to continually improve environmental performance.

3.7 INL Site Resiliency

Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents. Energy resiliency is the ability to prepare, prevent, and recover from energy and water disruptions that impact mission assurance on federal installations. This means providing reliable power under routine and off-normal conditions, including those caused by extreme weather events. Adaptation refers to actions taken to reduce risks from changed climate conditions and to prepare for expected future changes.

As outlined in Executive Order 14008, “Tackling the Climate Crisis at Home and Abroad,” the DOE Climate Adaptation and Resilience Plan issued in August of 2021 and the Climate Adaptation Policy Statement build upon prior DOE actions that were taken to bolster adaptation and increase the resilience of DOE facilities and operations. INL and ICP contractors completed the studies for the Climate Vulnerability Assessment and Resilience Plan (VARP) (INL/RPT-22-68812) (CCN 329748) in 2022 as a tool for decision makers to establish resilient priorities across INL and associated communities.



3.7.1 Performance Status

All sustainable activities support energy resiliency and, by default, make the INL Site a more resilient institution. Sustainable activities include the following:

- Replace permanent closure of an aged underground diesel storage tank, thereby increasing environmental protection and lessening the environmental risks of maintaining underground storage tanks. This is an interim step as INL moves toward net-zero emissions.
- Add sustainable acquisition clauses in electronics acquisition blanket purchase orders. As noted in the INL Green Purchaser award, using Electronic Product Environmental Assessment Tool (EPEAT) products reduces energy use, thus helping to reduce electric load and demand.
- Ensure procurement requirements lend preference to local suppliers and manufacturers, thereby shortening the supply chain and reducing the chances of delivery disruptors.
- Complete the annual update of operational procedures, engineering documents and processes guidelines to address sustainability, emergency planning, and operational resiliency.
- Complete energy and water-reduction projects, resulting in lower energy use and load demands on the servicing utility.
- Evaluate and consider alternative energy solutions ranging in scope from microgrid renewable generation to potential small modular reactor projects capable of providing local clean alternative energy.
- INL contractor continues developing net-zero carbon strategies and reporting.

Ecosystem resiliency is also an integral component of sustainability. Because much of the INL Site is managed as a native sagebrush steppe ecosystem, it is vulnerable to the effects of climate change. Proactive land stewardship practices can mitigate the effects of climate change and preserve natural ecosystem services such as water balance, nutrient cycling, wildlife habitat availability, and carbon sequestration. A brief list of activities INL undertook that support ecosystem sustainability are included here, but additional information can be found in Chapter 9:

- Continued to implement conservation planning documents for sage-grouse, bats, migratory birds, and their habitats
- Managed the Sagebrush Steppe Ecosystem Reserve according to the Environmental Assessment and Management Plan
- Restored sagebrush to several hundred acres where it had been lost to wildland fire and continued to monitor natural vegetation recovery according to current fire recovery plans
- Stabilized disturbed soils using revegetation of native species, where appropriate
- Controlled noxious weeds to limit the risk of spreading and maintained the integrity of native plant communities
- Continued monitoring the abundance and distribution of vegetation and several wildlife taxa across the INL Site
- Facilitated ongoing ecological research led by university collaborators through the National Environmental Research Park.

Comprehensive emergency response procedures are in place that cover all INL Site facilities:

- The INL contractor procedures include PLN-114, “Idaho National Laboratory (INL) Emergency Plan/Resource Conservation and Recovery Act (RCRA) Contingency Plan,” which addresses the elements of—and is the primary component in—defining and directing the INL Emergency Management Program. The plan implements DOE policy and requirements for an EMS and an RCRA contingency plan specified in INL Requirements Document 16100, “Emergency Management System,” which includes citations to DOE O 151.1D, “Comprehensive Emergency Management System,” and other DOE requirements. The plan was updated in Fiscal Year (FY) 2022.



- The ICP contractor procedures include PLN-2012, “ICP Emergency Plan/RCRA Contingency Plan,” and the emergency response elements that are required in DOE O 151.1D, “Comprehensive Emergency Management System,” for the Idaho Nuclear Technology and Engineering Center (INTEC), the Radioactive Waste Management Complex, the Advanced Mixed Waste Treatment Project, Accelerated Retrieval Project, and the ICP contractor-operated buildings in Idaho Falls, Idaho.

Several INL Emergency Management procedures, including PLN-4267, “INL Continuity of Operations Plan” were updated to better prepare the INL Site for naturally occurring phenomenon. INL’s emergency plans and emergency plan implementing procedures (EPIs) are reviewed at least annually and revised if necessary. The plans and EPIs may be revised based on the following factors:

- Changes in emergency planning or company operations, policy, concept of operations, procedures, organization and staffing, and facility operations or mission
- Direction of the DOE-ID Emergency Management Program administrator
- Failure of emergency plan implementing procedures during drills, exercises, and real events
- Results of audits, evaluations, appraisals, and self-assessments
- New facility information.

3.7.2 Plans and Projected Performance

The concept of resiliency is evolving in real time. In this season of change, all built environments will require careful reconsideration, and it will fall to the facility management to promote a building culture that stands on the pillars of safety, quality, and efficiency.

INL and ICP contractors will be guided by science to build resilience into DOE-ID-managed lands, facilities, and equipment. A general framework used in resiliency planning includes identifying exposure, translating that exposure into potential impacts, prioritizing risk, devising solutions, and securing funding. INL and ICP contractors will work with internal and external stakeholders to address threats to missions and programs.

Both INL and ICP contractors completed and submitted a VARP to the DOE Sustainability Dashboard for the facilities within their respective stewardships. The VARP enables INL and ICP to identify, prepare for, and meet the challenges posed by climate change, and will build upon other existing DOE risk assessments processes.

In FY 2022, DOE sites were required to complete a Climate Change VARP. Both INL and ICP contractors completed and submitted a VARP to the DOE Sustainability Dashboard for the facilities within their respective stewardships. The VARP is both a plan and a process. It is a plan that lays out climate change vulnerabilities of specific facilities and systems, and it is the process of managing climate change-related risks to DOE’s assets and operations. Therefore, it begins the implementation of the five priority adaptation actions found in the VARP: (1) assess vulnerabilities and implement resilience solutions; (2) enhance climate adaptation and mitigation co-benefits; (3) institutionalize climate adaptation and resilience across INL policies, directives, and processes; (4) provide climate adaptation tools, technical support, and climate science information; and (5) advance deployment of emerging climate technologies.

The INL contractor VARP identified 11 categories of resilient solutions to be tracked for implementation:

- Upgrade or replace older, inefficient heating, ventilation, and air conditioning systems
- Upgrade site drainage plan and systems
- Harden energy supply and infrastructure, including modular reactor installation, electric distribution and system upgrades, and install a second point of interconnect to the utility
- Harden/stabilize road infrastructure.
- Enhance fire-safe protective design (i.e., enhance firebreaks around structures, such as parking lots or landscaping)



- Fortify critical infrastructure and supply chains (i.e., develop a next generation Continuity of Operations Plan, identify vendors of critical supplies within a 500-mile radius)
- Install additional backup power for vulnerable critical buildings and operations
- Support the study, development, and installation of microgrid infrastructure systems.
- Update existing underperforming infrastructure and implement adaptable infrastructure strategies (upgrading building envelope, installing efficient lighting and controls, and other energy and water efficiency measures).
- Improve human capital systems that contribute to increasing human resilience
- Implement processes that allow for a healthy and robust ecosystem that sustains sagebrush-dependent species.

The IEC contractor VARP identified seven categories of resilient solutions to be tracked for implementation:

- Dust damage and heat exposure prevention through heating, ventilation, and air conditioning updates and maintenance
- Weatherization and hardening of infrastructure
- Worker education and on mitigating risks around outdoor work
- Partnership with INL to limit the spread and damage from wildfires
- Flood mitigation through local stormwater evaluation, maintenance, and potential landscaping
- Establishment of additional monitoring wells
- Additional backup energy generation.

The VARP will be improved and updated continuously to account for changing climate conditions and new strategies to mitigate climate risks. Resilience solutions proposed in the VARP will be tracked on DOE's Sustainability Dashboard, and progress on those solutions will be reported at least annually. As specified in the Vulnerability Assessment and Resilience Planning Guidance, VARPs will be revised at least every four years to incorporate new information and data from the latest National Climate Assessment.

INL contractor continues the process of incorporating resilient design into new and existing buildings. Engineering specification documents were updated to reflect current federal energy efficiency requirements and an updated *INL High Performance and Sustainable Building* guidebook will be published early in FY 2024.

Highly energy-efficient lighting, roofing, and automation systems continue to be installed in new buildings and during retrofit activities. The result is not just an increase in the resilience of the building but of the surrounding community as well because it decreases the demand for available resources and infrastructure.

Proactive land stewardship is an important component of supporting continued mission-critical activities and future development with minimal disruption. INL's Natural Resources group continues to monitor the ecological condition of wildlife and vegetation resources across the INL Site, which includes assessing current resource conditions and the effects of stressors like climate change on the ecosystem. While the region is adapted to current climate trends and events, increased frequency and severity of hazards can alter the integrity of the ecosystem without proactive land stewardship to implement adaptive management solutions.

The resiliency team across the Natural Resources group identified the following recommended resilience solutions:

- Adaptive landscape management using ecological monitoring data
- Inventory sensitives species vulnerable to climate change
- Update/Develop biological/ecological resource planning documents
- Reduce wildland fire risk and enhance natural resource recovery strategies
- Update restoration/revegetation guidance documents
- Develop and implement integrated pest management system



- Manage wildlife/human interactions and reduce conflicts
- Engage agency stakeholders for developing best management practices.

INL is well-positioned to address the need for organizational resilience elements in future plans. With leadership commitment, INL will continue to ensure that appropriate events and risk elements are considered as part of INL Site programs and planning activities. Policies and procedures will be evaluated to determine whether they should be modified to consider organizational risks. Emergency response, workplace safety and health, and the most updated scientific knowledge will continue to be incorporated into all facets of organizational resilience.

3.8 Sustainability Goals

In 2021, Executive Order 14057, “Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability,” was issued. The executive order establishes sustainable environmental stewardship goals that advance sustainable practices. Specifically, it directs agencies to reduce emissions across federal operations, invest in American clean energy industries and manufacturing, and create clean, healthy, and resilient communities. The president’s executive order directs the federal government to use its scale and procurement power to achieve five goals:

1. By 2030, 100% carbon pollution-free electricity, at least half of which will be locally supplied clean energy to meet 24/7 demand.
2. By 2035, 100% zero-emission vehicle acquisitions, including 100% zero-emission light-duty vehicle acquisitions by 2027.
3. Net-zero emissions from federal procurement no later than 2050, including a “Buy Clean” policy to promote the use of construction materials with lower embodied emissions.
4. A net-zero emissions building portfolio by 2045, including a 50% emissions reduction by 2032.
5. Net-zero emissions from overall federal operations by 2050, including a 65% emissions reduction by 2030.

The evolving priorities for sustainability are incorporated into the annual update of the *Idaho National Laboratory Site Sustainability Plan* (DOE-ID 2022) at the beginning of each new fiscal year. It describes the overall sustainability strategy for INL and ICP contractors for the current fiscal year and includes a performance status in the areas of greenhouse gas emission reduction, energy management, water management, waste diversion, fleet management, clean and renewable energy, green buildings, and other areas for the completed fiscal year. Each sustainability goal, INL and ICP contractors’ performance status, and planned actions are detailed in Table 3-1.

3.9 Environmental Operating Objectives and Targets

INL establishes objectives based on the environmental policy, legal and other requirements, environmental aspects, INL’s Strategic Plan, and the perspectives of its stakeholders. The INL contractor plans, implements, monitors, and reports quarterly on these objectives and targets in management review reports and in an annual Performance Evaluation and Measurement Plan. The ICP contractor develops its objectives and targets annually and reports the status biannually to senior management through the Executive Safety Review Board.

The INL contractor completed 95% of the EMS objectives and targets in FY 2022. Each year, the ICP contractor identifies environmental objectives and targets to be met during the FY. During FY 2022, the ICP contractor had 10 objectives implemented by 10 targets; 90% of the EMS Objectives and Targets were completed.

3.10 Accomplishments, Awards, and Recognition

The INL and ICP contractors were both audited in 2022 by an external, accredited auditor and achieved recertification for conformance to the ISO 14001:2015 standard. The results from the INL contractor audit found no nonconformities, four management system strengths, and no opportunities for improvement. Results from the ICP audit showed no nonconformities and four management system strengths.



INL and ICP contractors' EMS performance data was submitted to DOE's EMS Database Application and received a "green" for the EMS performance metrics listed below:

- Environmental aspects were identified or reevaluated using an established procedure and were updated as appropriate.
- Measurable environmental goals, objectives, and targets were identified, reviewed, and updated as appropriate.
- Operational controls were documented to address how significant environmental aspects that were consistent with objectives and targets were fully implemented.
- Environmental training procedures were established to ensure that training requirements for individual competence and responsibility were identified, conducted, monitored, tracked, recorded, and refreshed, as appropriate, to maintain competence.
- EMS requirements were included in all appropriate contracts. Contractors fulfilled defined roles and specified responsibilities.
- EMS audit/evaluation procedures were established, audits were conducted, and nonconformities were addressed or corrected. Senior leadership review of the EMS was conducted, and management responded to recommendations for continual improvement.
- Using an established procedure(s), previously identified activities, products, and services (and their associated environmental aspects) and all newly identified activities, products, and services (and their associated environmental aspects) were evaluated for significance within the past fiscal year. In addition, the results of the analysis were documented, and any necessary changes were made or are scheduled to be made. Documented, measurable environmental objectives are in place at relevant functions and levels, and by the end of FY 2022, at least 80% of the objectives had either already been accomplished or scheduled to be met.
- Within the past fiscal year, operational controls associated with identified significant environmental aspects are established, implemented, controlled, and maintained in accordance with operating criteria.
- Within the past fiscal year, an environmental compliance audit program was in place, audits were completed according to schedule, audit findings were documented, and corrective and preventative actions were defined/documented and on schedule for completion by an established date.

INL was named one of 76 winners nationwide for the 2022 EPEAT Purchaser Awards. The EPEAT awards recognize leadership in the procurement of sustainable electronics. INL has earned the prestigious annual award since 2015 and earned the 5-star award level two years in a row.

Now in the award program's eighth year, the Green Electronics Council—the organization that manages the EPEAT ecolabel—recognized INL for contributing to DOE reaching a savings of \$10.7 million from their purchases of IT products. Winners were recognized for their purchases from six EPEAT product categories: (1) computers and displays, (2) imaging equipment, (3) mobile phones, (4) servers, (5) televisions, and (6) photovoltaic modules.

The council honored 2022 EPEAT winners on July 28 at a virtual ceremony. Award winners earned one star for each product category in which they purchased EPEAT registered products, and INL was recognized as a 4-star winner.



Table 3-1. Summary table of DOE sustainability goals (DOE-ID 2023).

DOE GOAL	CURRENT PERFORMANCE STATUS	PLANNED ACTIONS AND CONTRIBUTIONS	OVERALL RISK OF NON-ATTAINMENT
ENERGY MANAGEMENT			
Reduce energy-use intensity (Btu per gross square foot) in goal-subject buildings	Energy-use intensity was 146,033.7 Btu/ft ² for FY 2022, which represents a decrease of 5.4% from FY 2015 and 2.9% from FY 2021.	<p>Twenty light-emitting diode lighting and other projects are planned for FY 2023, providing an estimated \$72K (1,160 megawatt hours [MWh]) in energy savings at total a cost of \$772K.</p> <p>Investigate feasibility of a large energy-reduction performance contract project from the compiled results of the energy and water audits.</p>	Medium/Financial Low cost of energy and water make project payback difficult to justify on a lifecycle basis.
Energy Independence and Security Act Section 432 continuous (four-year cycle) energy and water evaluations	<p>Energy and water evaluations were completed in 16 covered buildings in FY 2022.</p> <p>These audits represent 15% of the current covered buildings for the second year of the third four-year audit cycle (June 1, 2020, through May 31, 2024). INL contractor is on track with its planned and scheduled audits.</p>	<p>Complete annual energy audits for 25% of INL's 105 covered buildings for each year of the third four-year audit cycle (June 1, 2020, through May 31, 2024).</p> <p>INL plans to audit 23 buildings in FY 2023.</p> <p>ICP plans to audit 35 buildings in FY 2023, ensuring all ICP covered buildings will be evaluated.</p>	Low/None INL contractor's building audit program is fully established.
Meter individual buildings for electricity, natural gas, steam, and water, where cost-effective and appropriate	<p>Idaho Falls: 42 buildings metered for electricity with either standard or advanced metering. Twenty-five buildings use and are metered for natural gas with standard meters. Twenty-one buildings are metered for water with standard meters.</p> <p>Research and Industrial Complexes: 87 buildings with electric meters, 65 of which have advanced meters.</p>	<p>Two new INL buildings planned for completion in FY 2023 will have advanced metering.</p> <p>Advanced electric and natural gas meters are planned in INL Idaho Falls buildings (approximately 44 meters) to connect to SkySpark energy management system. This activity is planned for FY 2023 and FY 2024.</p>	Low/None New INL buildings are specified for advanced metering, and selected appropriate buildings are specified for sub-metering.



Table 3-1. continued.

DOE GOAL	CURRENT PERFORMANCE STATUS	PLANNED ACTIONS AND CONTRIBUTIONS	OVERALL RISK OF NON-ATTAINMENT
Reduce potable water-use intensity (gal per gross square foot)	Water intensity was 119.7 gal/ft ² in FY 2022, a decrease of 31.2% from FY 2007 and 14.6% from FY 2021. Updated water balance and identified high water use intensity processes and buildings.	Prepare and implement a more detailed water balance evaluation. Implement audit-identified low and moderate cost water conservation measures, including high-efficiency water technologies.	Medium Water usage is highly dependent upon the varying process water consumption at the Advanced Test Reactor Complex and INTEC.
WATER MANAGEMENT			
Reduce non-potable freshwater consumption (gal) for industrial, landscaping, and agricultural	Not applicable. Water obtained from the Snake River Plain Aquifer and is considered potable.	Industrial, landscape, and agricultural (water is not applicable).	Low/None Industrial, landscape, and agricultural water is not used.
WASTE MANAGEMENT			
Reduce nonhazardous solid waste sent to treatment and disposal facilities	Generated 2,748,832.5 lbs (1,246.9 metric tons [MT]) of nonhazardous municipal solid waste in FY 2022. In FY 2021, 2,695,757.0 lbs (1,222.8 MT) was generated, resulting in an increase of municipal solid waste generated of 2.0% year-over-year (YOY). Diverted 53.8% of nonhazardous solid waste in FY 2022 by recycling 1,478,831.6 lbs (670.8 MT) of materials.	Continue to educate personnel emphasizing the priority of waste reduction from the previous year. Continue to evaluate potential outlets and expansion of recyclable waste. Explore glass recycling partnership with the city of Idaho Falls. Investigate and develop a regional composting facility based on West Yellowstone pilot project.	Medium Fluctuations in building use, including classified spaces, employee engagement, and market forces, greatly affect this goal.
Reduce construction and demolition materials and debris sent to treatment and disposal facilities	Generated 11,794.4 MT of construction and demolition (C&D) waste in FY 2022 compared to 23,184.3 MT in FY 2021, resulting in a decrease of 49.13% of C&D waste generated YOY. Diverted 28.1% (7,304,071.1 lbs or 3,313.1 MT) of its C&D waste in FY 2022.	Continue employee education and contract language inclusion and incorporate additional materials into current C&D waste diversion processes. Work with regional industrial recycle entities and develop a strategy to recycle two construction waste streams: concrete and gypsum.	Medium Construction continues to increase while markets accepting construction debris are limited. The cost of transporting to an acceptable recycler is a major factor in the decision process.



Table 3-1. continued.

DOE GOAL	CURRENT PERFORMANCE STATUS	PLANNED ACTIONS AND CONTRIBUTIONS	OVERALL RISK OF NON-ATTAINMENT
FLEET MANAGEMENT			
<p>Reduce petroleum consumption</p>	<p>Fuel usage data indicate 725,392 gasoline-gal equivalents of petroleum-based fuels was used in FY 2022, which is a 22.7% reduction from FY 2005 and a 9.4% reduction from FY 2021. This data was unavailable at time of submission due to the Federal Automotive Statistical Tool reporting schedule being later than DOE Dashboard reporting schedule.</p> <p>INL resumed its use of R99 renewable diesel as a sustainable alternative to aid INL in reaching its zero-emission goals.</p>	<p>The INL contractor implements its Net Zero Plan, a greater emphasis will be placed on acquiring electric buses and heavy equipment along with electrifying its light-duty fleet and installing supporting charging stations.</p> <p>Hydrogen-powered vehicles are also being considered.</p> <p>Optimize fleet composition by reducing vehicle size, eliminating underused vehicles, and acquiring vehicles to match local fuel infrastructure.</p>	<p>Medium</p> <p>The petroleum reduction goal will be challenging due to the cost and availability of electric motor coaches and heavy equipment.</p>
<p>Increase alternative fuel consumption</p>	<p>Data indicates 70,426 gasoline-gal equivalents of alternative fuels were used in FY 2022, which is a 7.9% reduction from FY 2005 and a 97.5% increase from FY 2021.</p> <p>INL contractor installed three electric vehicles (EVs) charging stations for a total of 23 and installed one electric bus charging station.</p>	<p>Determine less-costly sources of R99 for the interim while electric buses are being evaluated and procured.</p>	<p>Medium</p> <p>The alternative fuel increase goal will be challenging due to cost and availability of EVs and the excessive cost of renewable diesel.</p>
<p>Acquire alternative fuel and EVs</p>	<p>Acquired 29 new light-duty vehicles in FY 2022, five of which were alternative fuel vehicles (AFVs) or EVs.</p>	<p>Identify the next group of petroleum-fueled vehicles for replacement with AFVs or EVs and ensure that all existing AFVs are replaced EVs when available.</p> <p>Work with General Services Administration to achieve 75% or greater AFV and EV light-duty acquisitions.</p>	<p>Medium</p> <p>This goal has historically been met but it may be difficult to reach in the future due to the availability of appropriate EV light-duty vehicle fuel types supplied by General Services Administration.</p>



Table 3-1. continued.

DOE GOAL	CURRENT PERFORMANCE STATUS	PLANNED ACTIONS AND CONTRIBUTIONS	OVERALL RISK OF NON-ATTAINMENT
CLEAN AND RENEWABLE ENERGY			
<p>Increase consumption of clean and renewable electric energy</p>	<p>Procured 16,488 MWh of renewable energy certificates from Idaho Falls Power at a total cost of \$90,684.</p> <p>This purchase of renewable energy certificates, in addition to the 78.1 MWh of onsite generation (e.g., microgrid and, small photovoltaic) plus bonuses, totals 17,274 MWh (7.9%) of renewable energy for FY 2022.</p>	<p>The INL contractor implements its recently developed Net Zero Plan, a greater emphasis will be placed on the internal applications of renewable energy generation to meet this goal.</p> <p>Incremental increases of purchased renewable energy certificates and onsite generation will continue to be made to meet a minimum of the 7.5% goal each YOY.</p>	<p>Low Established process for procuring renewable energy certificates.</p>
<p>Increase consumption of clean and renewable non-electric thermal energy</p>	<p>Two buildings with solar-transpired walls to provide make-up air preheating.</p>	<p>Investigate the additional use of solar water heating, make-up air preheating, or ground source heat pumps in select locations.</p>	<p>Medium Due to the low cost of electric energy, it is challenging to justify the installation of thermal renewable energy.</p>
SUSTAINABLE BUILDINGS			
<p>Increase the number of owned buildings that are compliant with the Guiding Principles for Sustainable Buildings</p>	<p>At the end of FY 2022, 26 DOE-owned buildings were compliant with the Guiding Principles for Sustainable Federal Buildings (Guiding Principles), which represents 40.63% of applicable buildings. This includes 21 buildings with less than 25,000 gross square feet.</p> <p>Completed update to INL High Performance and Sustainable Building Strategy.</p>	<p>Document Guiding Principles compliance on two new construction buildings in FY 2023 and four additional new construction buildings by the end of FY 2024.</p> <p>Implement a program to reassess buildings on a four-year cycle per the 2020 Guiding Principles.</p>	<p>Low The 15% goal was achieved.</p>



Table 3-1. continued.

DOE GOAL	CURRENT PERFORMANCE STATUS	PLANNED ACTIONS AND CONTRIBUTIONS	OVERALL RISK OF NON-ATTAINMENT
ACQUISITIONS AND PROCUREMENT			
Promote sustainable acquisition and procurement to the maximum extent practicable, ensuring all sustainability clauses are included as appropriate	In FY 2022, 97.8% of the contracts contained applicable clauses.	Achieve 100% compliance. Continue to incorporate improvements to the Sustainable Acquisition Program, including procedures, policies, and enhanced work processes that increase visibility, availability, and use of sustainable products.	Low The goal continues to be achieved.
EFFICIENCY AND CONSERVATION MEASURE INVESTMENTS			
Implement lifecycle cost-effective efficiency and conservation measures with appropriated funds or performance contracts	Fifteen energy-reduction projects were completed in FY 2022, providing over \$45K in energy cost-savings. No additional Energy Savings Performance Contract (ESPC) projects were developed in FY 2021.	Light-emitting diode lighting projects are planned for 20 buildings. Continue to evaluate the cost effectiveness of ESPC options.	Low While there are no current plans for an additional ESPC project, the INL Site does have established plans and goals for projects awarded and targeted in FY 2023.
ELECTRONIC STEWARDSHIP AND DATA CENTERS			
Electronics stewardship from acquisition and operations, to end of life	In FY 2022, 100% of electronic devices were reused or recycled; however, only 96.4% were recycled with a certified recycler.	Unless federal requirements dictate otherwise, 100% of electronics are reused or recycled. Continue to partner with Information Management and Property Disposal Services to improve electronics end-of-life disposition.	Low This goal continues to be achieved.
Increase energy and water efficiency in high-performance computing and data centers	Continued consolidating server infrastructure in the old high-performance computing data center by virtualizing physical machines and taking advantage of cloud and container hosting options.	Install and monitor advanced energy meters in all data centers and accurately quantify power usage effectiveness.	Medium Low energy costs and long construction times may prohibit major investments in updated resiliency measures.



Table 3-1. continued.

DOE GOAL	CURRENT PERFORMANCE STATUS	PLANNED ACTIONS AND CONTRIBUTIONS	OVERALL RISK OF NON-ATTAINMENT
ORGANIZATIONAL RESILIENCE			
<p>Implement climate adaptation and resilience measures</p>	<p>Completed a comprehensive VARP initiative. INL contractor identified 11 categories of resilient solutions categories and ICP contractor identified 7. INL contractor emergency plans and EPIs were reviewed and revised, as necessary. Operating policies and procedures were evaluated to determine whether they should be modified to consider organizational risks.</p>	<p>Initiate detailed analysis (e.g., cost estimates and schedules) for projects identified in the VARP process. Emergency response, workplace safety and health, and updated scientific knowledge will be incorporated into all facets of organizational resilience, procedures, and protocols. Pursue lifecycle cost-effective energy resilience solutions that provide the most reliable energy to critical mission operations.</p>	<p>Low to Medium Investment upgrades in existing buildings are a long-term process. New buildings are being built to include resiliency measures.</p>
MULTIPLE CATEGORIES			
<p>Reduce Scopes 1 and 2 greenhouse gas emissions</p>	<p>Scopes 1 and 2 emissions were 77,267.1 MT of carbon dioxide equivalent (MT CO₂e) compared to 89,391.4 MT CO₂e in FY 2021, for a YOY reduction of 13.6% and a 45.2% reduction from the FY 2008 baseline.</p> <p>Emissions decreased due to the reduced Emissions and Generation Resource Integrated Database (eGRID) emission factors and a slight decrease in facility energy use.</p>	<p>Refine a targeted list of high-value, low-cost energy conservation measure projects with a focus on those reducing total emissions 45% by the end of FY 2024.</p> <p>Reduce or minimize the quantity of toxic and hazardous chemicals acquired, used, or disposed that will assist INL in pursuing agency greenhouse gas reduction targets.</p>	<p>Medium INL contractor has committed to be carbon net-zero by the end of FY 2031. Significant progress was made toward exceeding the overall goal, but YOY Scopes 1 and 2 greenhouse gases emissions may continue to vary.</p>
<p>Reduce Scope 3 greenhouse gas emissions</p>	<p>FY 2022 Scope 3 emissions were 20,366.8 MT CO₂e compared to 15,586.6 MT CO₂e in FY 2021, for a YOY increase of 30.7% and a 42.2% reduction from the FY 2008 baseline.</p> <p>The increase from previous year is due mainly to lifting of restrictions on business travel.</p>	<p>Continue to encourage teleworking, video conferencing, and carpooling as effective ways to reduce the amount of air and ground travel, including employee commuting. Achieve a YOY 2% annual reduction for five years for a total 10% reduction.</p>	<p>Medium Significant progress was made toward exceeding the overall goal, primarily due to ongoing telework and travel restrictions. YOY Scope 3 greenhouse gases emissions may continue to vary.</p>



3.11 References

- DOE-ID, 2022, "FY 2022 Idaho National Laboratory Site Sustainability Plan," DOE/ID-11383, Rev. 13, Idaho National Laboratory, December 2021.
- DOE O 151.1D, 2019, "Comprehensive Emergency Management System," Change 1, U.S. Department of Energy, October 4, 2019.
- DOE O 436.1, 2011, "Departmental Sustainability," U.S. Department of Energy, May 2, 2011.
- DOE O 458.1, 2013, "Radiation Protection of the Public and the Environment," Administrative Change 4, U.S. Department of Energy.
- Endangered Species Act (ESA) of 1973 (16 USC § 1531 et seq.).
- Executive Order 14008, 2021, "Tackling the Climate at Home and Abroad," the U.S. White House, Office of NEPA Policy and Compliance, January 27, 2021.
- Executive Order 14057, 2021 "Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability," the U.S. White House, Executive Office of President, December 8, 2021.
- INL/RPT-22-68812, 2022, "Climate Vulnerability Assessment and Resilience Planning for Idaho National Laboratory," September 2022.
- ISO 14001:2015, "Environmental Management Systems – Requirements with Guidance for Use," International Organization for Standardization, September 15, 2015.
- Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 USC § 703 et seq.).
- PLN-114, 2022, "Idaho National Laboratory (INL) Emergency Plan/Resource Conservation and Recovery Act (RCRA) Contingency Plan," Idaho National Laboratory, September 12, 2022.
- PLN-2012, 2022, "ICP Emergency Plan/RCRA Contingency Plan," Rev. 64, Idaho Cleanup Project, February 21, 2022.
- PLN-4267, 2021, "Idaho National Laboratory Continuity of Operations Plan," Rev. 9, Idaho National Laboratory, May 2, 2022.



American pronghorn