



Fiscal Year (FY) 2023 Performance Evaluation Summary

Contractor: Lawrence Livermore National Security, LLC (LLNS)

Contract: DE-AC52-07NA27344

Evaluation Period: October 1, 2022 – September 30, 2023

Basis of Evaluation: FY 2023 Performance Evaluation and Measurement Plan (PEMP)

The FY 2023 PEMP for this contract is available at: <https://www.energy.gov/nnsa/articles/fy2023-strategic-performance-evaluation-and-measurement-plan-lawrence-livermore>

The Contract is available at: <https://www.llnslc.com/#prime>

Award Fee Scorecard

Goal	Rating		At Risk Available	Final
	Adjectival	Percent		
Goal-1: Mission Delivery: Nuclear Weapons	Excellent	95%	\$19,352,890	\$18,385,246
Goal-2: Mission Delivery: Global Nuclear Security	Excellent	95%	\$ 4,838,223	\$ 4,596,312
Goal-3: Mission Innovation: Advancing Science and Technology	Excellent	100%	\$ 7,257,334	\$ 7,257,334
Goal-4: Mission Enablement	Very Good	90%	\$ 9,676,445	\$ 8,708,801
Goal-5: Mission Leadership	Excellent	91%	\$ 7,257,334	\$ 6,604,174
Total Award Fee		94%	\$48,382,226	\$45,551,867

In addition, the fixed fee and total fee summaries are provided below:

	Available	Final
Fixed Fee	\$20,735,240	\$20,735,240
SPP (Fixed Fee)	\$10,069,000	\$10,069,000
Total Fixed Fee	\$30,804,240	\$30,804,240
Total Fee (Award Fee and Fixed Fee)	\$79,186,466	\$76,356,107

LLNS earned Excellent ratings on Goals 1, 2, 3, and 5, exceeding almost all of the Objectives and Key Outcomes. LLNS successfully achieved fusion ignition in the National Ignition Facility (NIF), receiving very positive media attention and high accolades from the scientific community world-wide for this historic accomplishment, opening an entirely new energy regime with important implications to stockpile stewardship and clean energy production. LLNS successfully executed NNSA program priorities, continuing to successfully deliver on our nation’s challenging stockpile requirements and lead the Weapons Laboratories in strengthening the underpinning and future stockpile stewardship. LLNS continued to successfully deliver at a very high level across the balance of the NNSA mission portfolio including Non-Proliferation, Emergency Management, Incident Response, and Nuclear Counterterrorism while effectively supporting DOE and Strategic Partnership Project (SPP) programs. The National Security missions were successfully executed by leveraging and advancing the frontiers of Science, Technology, and Engineering (ST&E). Through its strong partnership with NNSA and effective leadership in overcoming labor and supply chain challenges. LLNS earned a Very Good rating on Goal 4, exceeding many of the Objectives and Key Outcomes with relatively few issues.

Overall LLNS earned an Excellent (94 percent) rating for FY 2023, exceeding almost all of the objects and key outcomes under the PEMP goals, meeting overall cost, schedule, and technical performance requirements with accomplishments that significantly outweigh issues.

Accomplishments:Goal 1

- Successfully achieved fusion ignition in the NIF and demonstrated repeatability with another record yield shot.
- Executed W80-4 baseline replan per requirements on schedule to support new First Production Unit date of FY 2027.
- Made significant progress on W80-4 Polymer creeper/crawler production yield issue from 0 percent to 50 percent or greater.
- Progressed pit production activities, resulting in 24 of 42 quality evaluation releases at LANL and 10 of 14 QERs at the Kansas City Nuclear Security Campus (KCNSC).
- Developed new detector system using hybridized complementary metal-oxide semiconductor technology and successfully demonstrated in two NIF shots to explore phase behavior.
- Executed the first cryo-layered deuterium-tritium doped high-density carbon capsule experiment to study reaction in the NIF.
- Successfully completed the level-2 milestone “Uncertainties for radiochemical cross sections.”
- Demonstrated next-generation software readiness for El Capitan and commenced delivery of management network and infrastructure for NNSA’s first Exascale class computing resource.

Goal 2

- Provided effective support and expertise in monitoring of Nuclear Emergency Support Team’s sensor networks deployed in Eastern Europe and in presentation of a nuclear forensics concept of operations.
- Delivered outstanding management of Low Yield Nuclear Monitoring to advance nuclear detonation detection capabilities by successfully executing a radionuclide tracer release experiment.
- Provided excellent leadership with the Priority Research Objectives for Arms Control Technology Innovation, Verification, and Evaluation venture, completed detailed plans and defined venture goals, strategy, and approach.
- Maintained U.S. Designated Laboratory for Chemical Weapons Convention Analyses certification.
- Earned the highest grade on Organization for the Prohibition of Chemical Weapons, Environmental and Biomedical proficiency tests.

Goal 3

- Evaluated feasibility of remote monitoring of individual nuclear reactor operations at significant distance using scalable water-based technology, may be cost-efficient and environmentally friendly alternative compared with more common liquid-scintillator-based detectors.
- Developed new approach for the study of radioactive and/or precious elements in a much more efficient way, requiring 1,000 times less materials than previous state-of-the-art methods, without compromising data quality, reported in Nature Chemistry, Inorganic Chemistry, and Nature.
- Developed new method of sintering solid-state electrolyte films with carbon dioxide, which overcomes manufacturing challenges of solid-state batteries, published, and featured on cover of ACS Energy Letters.
- Earned three R&D 100 awards including High Energy Low Dispersion gratings, Glass using Direct Ink Writing Technologies Energy Inks, which is three-dimensional printer feedstock that allows production of functioning battery and other devices.

Goal 4

- Achieved its cumulative goal of 1 million work hours without a construction injury, which spanned several years.
- Developed and submitted a 10CFR851 variance to use Cal/OSHA for construction at LLNL.
- Successfully executed Emergency Management corrective action plan including 4 EA-33 findings and moved to a more risk-based emergency management program in collaboration with NNSA.
- Successfully achieved Critical Decision-2/3 for the Digital Infrastructure Capabilities Expansion Line-Item Project.
- Effectively planned for infrastructure modernization, first site to fully implement BUILDER.
- Implemented a novel Narcan program that contributes to the safety of its Security Police Officers in case of an accidental exposure to deadly opioids while conducting vehicle searches.

Goal 5

- Steadfast leadership and commitment to successfully achieve grand scientific challenge of laser fusion ignition in NIF and demonstrate repeatability with record yield.
- Planned, coordinated, and executed NIF celebration with Department of Energy/NNSA officials, members of Congress, employees, and partners.
- Partnered with NNSA to streamline requirements under Model Contract Project with excellent results.
- Demonstrated commitment to NNSA priorities and initiatives by aligning Laboratory Strategic Plan with NNSA Strategic Vision.
- Supported public involvement for the Site-wide Environmental Impact Statement draft review with in-person and virtual meetings and developed responses to comments for the final document.
- Successfully completed a new Investment Strategy for Science and Technology.
- Provided leadership in the infrastructure area working with Pantex, Y-12, and Savannah River on infrastructure modeling.
- Activated Emergency Operations Center to monitor conditions for extended winter rainstorms that drove significant curtailment of Site 300 operations.
- Completed the largest and most complex lease-to-own contract in LLNS history to support El Capitan.
- Established engineering apprenticeship program with local community colleges, new internship program in collaboration with the Nevada Nuclear Security Site and the University of Las Vegas, continued to expand opportunities for veterans significantly increasing their ranks in the workforce.

Issues:Goal 1

- A number of product review teams experienced delays, including the System Test and Qualification for the W87-1 and the Pellet Can Assembly (PCA).

Goal 2

- Missed multiple deliverables on the Analysis Techniques for Arms Control in the Context of Integrated Deterrence scoping study throughout the project's lifecycle plan.

Goal 4

- Delays in performing materials control and accountability physical inventory negatively impacted operations.
- Despite progress in lockout/tagout, continued to experience hazardous energy events.