



## FY2021 Performance Evaluation Summary

**Contractor:** Lawrence Livermore National Security, LLC

**Contract:** DE-AC52-07NA27344

**Evaluation Period:** October 1, 2020 – September 30, 2021

**Basis of Evaluation:** Fiscal Year (FY) 2021 Performance Evaluation and Measurement Plan (PEMP)

The FY 2021 PEMP for this contract is available at: <https://www.energy.gov/nnsa/articles/fy21-llnl-final-pemp-090820-signed>

The Contract is available at: <https://www.energy.gov/nnsa/lawrence-livermore-national-laboratory-contract>

### Award Fee Scorecard

The LLNS contract has an award term component under which LLNS can earn an additional year on its contract if performance meets or exceeds certain criteria. To be eligible to earn available award term, LLNS must earn an adjectival score of Very Good or better in four of six Goals and receive no adjectival score of Satisfactory or lower in any Goal, and further, meet any additional requirements as specified in the LLNS contract. The Fee Determining Official concluded the LLNS performance for the FY 2021 performance year satisfied the criteria and earned LLNS an additional year of Award Term, as follows:

Goal	Rating		At Risk Available	Final	Award Term
	Adjectival	Percent			
Goal-1: Mission Execution: Nuclear Weapons	Very Good	89%	\$14,432,774	\$12,845,169	Met
Goal-2: Mission Execution: Global Nuclear Security	Excellent	95%	\$2,061,825	\$1,958,734	Met
Goal-3: DOE & Strategic Partnership Projects Mission Objectives	Excellent	99%	\$0	\$0	Met
Goal-4: Science, Technology & Engineering (ST&E)	Excellent	99%	\$4,123,650	\$4,082,413	Met
Goal-5: Mission Enablement	Very Good	90%	\$12,370,949	\$11,133,854	Met
Goal-6: Mission Leadership	Very Good	89%	\$8,247,299	\$7,340,096	Met
<b>Total Award Fee</b>	<b>Very Good</b>	<b>90.6%</b>	<b>\$41,236,497</b>	<b>\$37,360,266</b>	<b>Met</b>

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

	Available	Final
Fixed Fee	\$17,672,784	\$17,672,784
SPP (Fixed Fee)	\$8,295,000	\$8,295,000
Total Fixed Fee	\$25,967,784	\$25,967,784
<b>Total Fee (Award Fee and Fixed Fee)</b>	<b>\$67,204,281</b>	<b>\$63,328,050</b>

LLNS overcame significant challenges and earned a Very Good Rating on Goal 1, exceeding expectations on many Objectives and Key Outcomes. Despite the impacts of COVID-19, 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 of stockpile stewardship. LLNS earned Excellent ratings on Goals 2-4, exceeding expectations on nearly all Objectives and Key Outcomes. 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). LLNS earned a Very Good rating on Goal 5, exceeding expectations on many Objectives and Key Outcomes with relatively few issues. On Goal 6, LLNS earned a Very Good rating as it exceeded expectations on nearly all Objectives and Key Outcomes through its strong partnership with NNSA and effective leadership in overcoming historic challenges.

Overall, LLNS earned a Very Good rating for FY2021, exceeding many of the objectives and key outcomes under the PEMP goals, meeting overall cost, schedule, and technical performance requirements with accomplishments that greatly outweigh issues.

**Accomplishments:**Goal 1

- Cycle 25 of Annual Assessment was completed with release of the Director's letter.
- NIF achieved the highest yield to date
- LLNS successfully supported the Weapons Survivability program mission, completed L1 milestone/FY20-21 pegpost which baselined the enterprise capabilities for hostile environments weapons survivability
- LLNS made good progress in Phase 6.3 for W80-4 LEP and in preparations for Phase 6.4 entry
- LLNS successfully completed Phase 6.2 for the W87-1 Modification Program and also submitted the necessary contributions to the Phase Gate to help transition to Phase 6.2A
- Sierra HPC capability made a major impact on enhancing the AAR, W80-4 LEP, and W87-1 programs by significantly decreasing simulation time and increasing fidelity in simulations of interest

Goal 2

- Conducted innovative research in ground-based nuclear detonation detection to improve detection of low-yield underground nuclear explosions globally
- Provided Subject Matter Expert (SME) support in implementing nuclear security engagement with partners worldwide and led much of the International Nuclear Security engagement in the Middle East and North Africa

Goal 3

- Developed a machine learning model to assist in COVID-19 drug discovery efforts, which was a finalist for the Gordon Bell Special Prize for High Performance Computing-Based COVID-19 Research
- Along with partners deployed "Ruby," a high-performance computing (HPC) cluster that will support the National Ignition Facility's inertial confinement fusion (ICF) experiments

Goal 4

- Developed the first-ever living 3D-printed aneurysm to improve surgical procedures and personalize treatments that could help overcome one of biomedical engineering's biggest hurdles: the time it takes for new surgical techniques and technologies to leap from the laboratory to the clinic

- Developed an ultra-compact, lightweight, and minimally invasive optoelectronic neural implant that can be used for long-term studies of brain activity and was published in Materials Letters
- Scientists earned DOE Secretary Achievement Awards, multiple scientists were selected as fellows of various scientific societies, an atmospheric scientist was honored with the American Geophysical Union's 2020 Bert Bolin Award, and a computational scientist was awarded the 2021 James Corones Award in Leadership, Community Building and Communication

#### Goal 5

- Exascale Computing Facility Modernization project met cost and schedule expectations, and Emergency Operations Center (EOC) is on cost and ahead of schedule
- LLNS upgraded its Central Alarm Station, completed construction of the Site 300 Range Classroom within budget, and completed the Lifecycle Replacement of KIOSK West Gate Drive on schedule and under budget
- Supply Chain's Strategic Sourcing savings of \$50,134,000 equaled 5.66% savings, exceeding the target of 4%
- LLNS successfully completed all assigned TRU waste shipments per approved shipping schedule and successfully achieved 68% storage reduction
- Delivered the BUILDER software ahead of schedule and was the first site to include utility data
- Further developed and expanded the Safety, Analytics, Forecasting, Evaluation, and Reporting (SAFER) system to include 120K work orders for four standard maintenance metrics

#### Goal 6

- Supported and executed effective partnerships with the production sites in response to the new national emphasis on accelerating production and certification/qualification timelines by completing construction of the Polymer Enclave building and working with FM&T to begin executing programmatic work; collaborating with CNS to install and bring into operation a Cold Hearth Melter at Oak Ridge; working with Pantex on an HE enclave
- LLNS and the United Kingdom's ConserV Bioscience Ltd collaborated on the development of a broad-spectrum, "universal" coronavirus vaccine designed to provide protection against coronavirus pathogens of human and animal origin, including but not limited to MERS, SARS, and SARS-CoV-2
- LLNS leadership coordinated with senior NNSA leadership on safety protocols, lessons learned, and overall best practices and administered approximately 4,780 vaccines and 2,920 COVID-19 tests in their continued response to the COVID pandemic
- Received Glassdoor Employees' Choice Award (third year in a row), recognizing LLNL as one of best places to work, at #23 nationwide in 2021

#### **Issues:**

##### Goal 1

- W80-4 and W87-1 staffing issues could impact program schedules and deliverables
- LLNS did not meet some W80-4 milestones and 87-1 scope and deliverables
- Contained Firing Facility (CFF) has been down since June 2021

##### Goal 5

- Timely development of a Corrective Action Plan is needed to improve hazardous energy controls which should also improve Conduct of Operations, and Worker Safety and Health programs
- Maintenance work order backlog is increasing

##### Goal 6

- Schedules are starting to slip on the W80-4 and W87-1 program deliverables
- Continued leadership focus is needed to address ongoing technical staffing shortages