Fiscal Year 2005
Annual Performance Evaluation and Appraisal

Lawrence Livermore National Laboratory

NNSA Livermore Site Office

Prepared by:

Livermore Site Office
National Nuclear Security Administration
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CONTRACTING OFFICER'S EVALUATION

The NNSA Livermore Site Office Manager reviewed and discussed the recommendations of functional managers and staff concerning the appropriate adjectival ratings with which to rate the University of California's performance in the management and operation of the Lawrence Livermore National Laboratory. Based upon this process, an adjectival rating of "**Outstanding**" is earned for Mission, and a **"Good"** is earned for Operations. This report, the "Fiscal Year 2005 Annual Performance Evaluation and Appraisal - Lawrence Livermore National Laboratory" provides the basis for my determination, and is hereby endorsed and approved.

Approval:

Camille Yuan-Soo Hoo

Camille Yuan-Soo Hoo
Manager
Livermore Site Office

Date: 3-13-06

FY 2005 Annual Performance Evaluation and Appraisal
for
Lawrence Livermore National Laboratory

Table of Contents

Introduction			**1**
	Evaluation Process		**1**
	Performance Period		**2**
Overall Appraisal Results			**3**
Overall LLNL Rating			**10**
Detailed Appraisal Results			**11**
	Mission		**11**
	Objective 1		**11**
	Objective 2		**13**
	Objective 3		**21**
	Objective 4		**25**
	Objective 5		**28**
	Objective 6		**32**
	Operations		**40**
	Objective 7		**40**
	Objective 8		**43**
	Objective 9		**52**
	Objective 10		**62**
Appendices			**64**
	Appendix A	**Ratings**	**64**
	Appendix B	**Acronyms**	**70**

Introduction

This report was produced by the U. S. Department of Energy (DOE) National Nuclear Security Administration (NNSA), Livermore Site Office (LSO) to provide the Contracting Officer's written assessment of the Contractor's performance at the Lawrence Livermore National Laboratory (LLNL) under contract W-7405-ENG-48, Appendix F. Contract Appendix F defines the Objective Standards of Performance agreed to by DOE/NNSA and the University of California (Contractor or UC) to annually measure the Contractor's overall performance of its Science and Technology (S&T) Mission and its Operations. UC is eligible to earn program performance fee based on the Objective Standards of Performance listed in Appendix F of the contracts.

There may be programs, systems, compliance requirements or observations not covered by Appendix F presented in this report. These additional observations are limited to items of performance that require the attention of the Laboratory Director, but are not effectively covered by Appendix F performance measures. Although these items are included in this report, they do not contribute to the basis for the overall rating of Contractor performance under Appendix F.

Evaluation Process

The Contractor and NNSA have agreed to use a performance-based management system for Laboratory oversight as part of the contract. These standards are used for the appraisal and evaluation of work under this contract. The primary objective of this report is to provide a summary of the annual Contracting Officer's written assessment of the Contractor's performance and the amount of earned Program Performance Fee as specified in contract clause H.007 and H.014, respectively. The parties agree that the purpose of the Appendix F is to focus on strategic and mission-critical activities (i.e., the "critical few") and to appraise the Contractor's systems and outcomes in terms of:

- Are they producing appropriate national security, science and technology results? and
- Are they producing these results efficiently, safely and securely?

The Contractor will provide an annual Contractor's Evaluation Report assessing their performance. An annual Performance Evaluation Report prepared by the Site Office Manager will provide an evaluation of the Contractor's performance during the Appendix F appraisal period. DOE/NNSA will use the Contractor's Evaluation Report as the primary basis for the annual appraisal of Contractor performance, recognizing that DOE/NNSA will take into account other pertinent information, including that performance against each Strategic Performance Objective is subject to timely availability of adequate funding, as well as operational oversight, internal and external program reviews and audits, consistent with the intent of this Contract, in determining the annual appraisal for performance.

The validation effort is conducted by teams responsible for the various Performance

Objectives and Measures represented in Appendix F. These teams, with guidance from LSO management, are responsible for developing an adequate, independent basis for assessing the quality, credibility, and accuracy of the Contractor's self-assessment. These evaluations are used as a basis for the Contracting Officer's evaluation of the Contractor's performance.

Performance Period

Designed to capture performance for Fiscal Year 2005, the self-assessment period for the Laboratory is October 1, 2004 through September 30, 2005, unless specified in the Performance Objective. Significant performance between the later date and the end of the Fiscal Year is to be assessed by the Laboratory and provided as a supplement to the self-assessment. The Contractor provided the self-assessment of LLNL, supplemental information and proposed rating to LSO in October, 2005.

Overall Appraisal Results

This is the third annual contract performance assessment under the restructured Appendix F process. The Livermore Site Office (LSO) has worked closely with NNSA Headquarters, the Los Alamos Site Office, the Lawrence Livermore and Los Alamos National Laboratories and the University of California (UC), Office of the President, to develop, negotiate and implement what we believe to be an improved contract assessment tool that focuses on completing the NNSA mission as defined in the NNSA Strategic Plan while allowing the contractor flexibility in determining how the work will be accomplished.

In assessing the performance of Lawrence Livermore National Laboratory (LLNL), the LSO considered, but was not limited to LLNL self-assessment, LSO reviews, external reviews and audits, NNSA HQ input and LSO daily operational oversight. Based upon these activities, LLNL has earned an **Outstanding** rating in Mission and a **Good** rating in Operations.

These ratings are supported by the following examples with the detailed LSO rating sheets attached.

Mission

Performance Objective 1: Warhead Certification

LLNL continues to exhibit strong leadership in the effort to develop Quantification of Margins and Uncertainties (QMU) as a certification methodology and refine how it is applied to certification and assessment activities. A major breakthrough was the exemplary work performed to address energy balance issues in a nuclear weapon based on ingenious and compelling theoretical, experimental and computational efforts. Another very clear example was the uncertainty analysis that was applied to the LLNL peer-review efforts to provide confidence in the subcriticality of the Unicorn experiment. A focus has been the continued use of the Primary Metrics and Secondary Baseline Model Projects to identify the “best” calibrated models for a given weapon system. For the W80 LEP, a variety of experiments and calculations have been conducted to address the principal issues identified in the certification plan and in Red Team reviews, including full scale and focused hydrotests to improve the models being used for performance analysis. It also included new work related to material compatibility and corrosion and to warhead behavior in temperature extremes. Margins and associated uncertainty for a particularly important potential failure mode were included in this year’s Annual Assessment Report.

Performance Objective 2: Stewardship

The execution of experiments at the JASPER (Joint Actinide Shock Physics Experimental Research) Facility has provided valuable, first-of-a-kind data including high accuracy EOS data and data on plutonium aging. Improvements in diagnostic techniques and experimental execution are to be commended. These successes have been offset, however, by facilities issues, including a shutdown due to control system software and delays in target delivery due to the plutonium facility (B332) stand down.

LLNL did improve the performance of the Flash X-Ray (FXR) facility with a 20% brighter x-ray pulse, which should, in future, produce better high-resolution radiographs with less noise so that small details will be more visible. LLNL Advanced Scientific Computations (ASC) was able to apply first principle material science simulations for shock compression melting and rapid solidification for various surrogate materials; complete the primary metrics project in reanalysis of nuclear test data that led to development of improved models for boost physics; and deliver the BlueGene/L computer to support significant research activities for component lifetime.

Strong progress was made in developing new capabilities for the National Ignition Facility (NIF). All relevant milestones were successfully completed. In addition, LLNL did a very effective job leading development of a community–wide plan to develop experiments to be conducted on NIF. Three US national laboratories (LLNL, LANL, SNL), the Atomic Weapons Establishment (AWE), and three other institutions (Laboratory of Laser Energetics, General Atomics, Bechtel Nevada) and NNSA participated in the planning.

In addition to meeting all planned deliverables, LLNL advanced the technical state of the art in FY2005 significantly. New approaches for ignition targets were devised, which has increased our confidence in ignition significantly. New techniques for characterizing ignition targets were also demonstrated. The first set of NIF experiments executed in FY2004 and early FY2005 were a true technical "tour de force" and has resulted in numerous publications and invited talks. LLNL also did an outstanding job leading a detailed High Energy Density (HED) planning exercise involving LANL, Sandia National Laboratory (SNL), and the United Kingdom.

Performance Objective 3: Near-Term Weapons Program

LLNL was successful in closing one of three Significant Finding Investigations (SFIs) in FY 2005 and has no high priority SFIs open. Bringing up the continuous measurement machine at Pantex enabled long-awaited closure of the W87 SFI. The remaining open SFIs are on-track for closure in FY 2006. Also, LLNL was extremely helpful and flexible in their scheduling to provide support for pit shipments and radiography operations at Superblock. LLNL staff provided excellent support in helping LANL complete approximately 90% of the required engineering evaluations on pit manufacturing activities. LLNL also provided independent peer review assessments of the W88 pit and the W76 LEP. Using ASC codes developed at LLNL, Defense and Nuclear Technologies (DNT) has developed a baseline model of the W88 pit and is now collaborating to compare the results with simulation work at LANL. Similarly, LLNL is also looking at W76 design issues.

Other significant accomplishments in FY 2005 by LLNL include: the validation of Unicorn and Krakatau subcritial experiment (SCE) subcriticality through 2-D and 3-D calculations; completion of the initial W88 warhead primary baseline assessment incorporating 9 relevant NTS events; and completion of the radiochemistry assessment of the W88 primary on most significant test events using the LLNL independent methodology. All hydrodynamic tests were completed in accordance with the W80-3 Integrated Master Schedule (IMS). LLNL supported the Safety Enhanced Reentry Vehicle (SERV) and Joint Test Assembly 4 (JTA-4) in an excellent manner.

LLNL has displayed a noticeable weakness in addressing weapon-response issues that is primarily addressed under Performance Objective 3. This weakness may reflect a more fundamental question as to their ability to assist NNSA in developing and implementing balanced, long-term stewardship. Added to this is a lack of strategic direction for code development to ensure the agility, longevity and quality of simulations that is necessary for the success of ASC predictive capabilities. LLNL is expected to demonstrate progress in these areas in FY 2006. Additionally, LLNL is strongly encouraged to follow the Predictive Science Panel's recommendations to apply QMU principles to guide future investments to enhance ASC capabilities. LLNL and the other partners in the National Ignition Campaign will need to continue to work closely together to ensure success. Lastly, LLNL needs to improve its responsiveness to NNSA requests.

Performance Objective 4: Nuclear Nonproliferation

The Laboratory's nuclear nonproliferation achievements earned an outstanding rating. The Laboratory received an "A" grade in the 16th Organization for the Prohibition of Chemical Weapns (OPCW) proficiency test, for which it prepared the samples and test scenario, maintaining its certification as an OPCW-designated chemical weapons challenge inspection analytical laboratory, as well as successful maintenance of its ISO-17025 and Dilute Solution RDT&E facility certifications. In addition, the Laboratory completed and commissioned comprehensive Material Protection Control and Accounting (MPC&A) upgrades for three naval nuclear weapons storage sites in the Kamchatka region, the Kurchatov Institute, and Krasnoyarsk-45.

The contractor completed fabrication, assembly, system integration, and field testing of new compact long-wave-infrared DS2 spectrometer; measured sensitivity is comparable to community-standard instrument but DS2 instrument is 10 times smaller; a patent was awarded for the DS2 optical design and 8 other patent applications have been filed for LLNL-designed compact Mid Wave Infrared (MWIR) and Long Wave Infrared (LWIR) spectrometers.

Researchers at the Laboratory achieved experimental confirmation of the ability to use scintillator-based antineutron detection to track reactor power, fuel burnup, and plutonium content; these measurements represent the earliest point in the fuel cycle at which plutonium content can be reliably measured, including at the moment of production. Laboratory scientists also made major advances in the development of biodetection instrumentation, including the demonstration of Autonomous Pathogen Detection System (APDS) units deployed as a network and the Laboratory received a 2005 R&D 100 Award for the Bioaerosol Mass Spectrometer (BAMS), which can rapidly identify (<2 minutes) single particles of biological threat agents.

The Laboratory also had success in commercializing its innovations. Two examples are the licensing of the Adaptable Radiation Area Monitor (ARAM) technology and analysis software to a commercial partner (and receipt of a 2005 R&D 100 Award for the technology) and commercialization of LLNL's RadScout portable radionuclide identifier as the ORTEC Detective. Advanced Measurement Technology has sold hundreds of Detectives to the

Department of Homeland Security, the Department of Defense, and other U.S. agencies as well as to the IAEA and European governments.

Performance Objective 5: Science, Engineering, and Technology Base

The Laboratory's long range S&T planning effort "Aurora," introduced a new 2025 vision. Aurora has five strategic planning areas: (1) Mission and Sponsors; (2) Science and Technology; (3) Operations and Infrastructure; (4) Workforce and Work Environment; and (5) Partnerships and Relationships. LLNL has also maintained outstanding expertise in the following areas of core competencies: stockpile stewardship program/science; high energy density science; nuclear, radiative, and astrophysical science; biological/chemical materials science; computational and math science; and energy and environmental sciences. LLNL scientists and engineers received numerous awards from the external S&T community, including the Presidential Early Career Award for Scientists and Engineers, an E. O. Lawrence Award, the DOE Gold Award, two Edward Teller Medals, the George Pake Prize, the Biot Medal, a Humboldt Research Award, the Theos J. Thompson Award, an Excellence in Fusion Engineering Award, and four R&D 100 awards. Finally, LLNL issued 1,229 publications from January through October 17, 2005, about 30 percent of which were co-authored by researchers at various UC campuses, demonstrating collaboration with peer groups within academia.

Performance Objective 6: Facilities and Infrastructure

LLNL ASC delivered the two largest computing machines (BlueGene/L and ASC Purple) in the world. They also made significant improvements in computing infrastructure, including file systems, visualization and security systems. LLNL ASC is to be commended for activating the new Terascale Simulation Facility (TSF) for classified operations four months ahead of schedule. The lab also employed innovative solutions to significant procurement challenges, delivering two world-class computing machines and making them available to the laboratories, the complex and the scientific community in a short time. In addition, they are to be lauded for their significant efforts in working with HQ to develop a prototype Earned Value Management System (EVMS) for the project management of ASC Purple.

The Engineering Technology Complex Upgrade project FY 2005 performance has been slightly under budget and ahead of schedule. The Energetic Materials Processing Center project performance was on schedule and budget in FY 2005 until Headquarters' decision to cancel the project. RTBF mission essential facility availability was over 99%, well above the 90% target. While implementation of the LLNL maintenance implementation plan has been affected by the B332 stand down, LLNL is a recognized leader in the weapons complex regarding the planning and execution of facility maintenance.

The NIF Project remained on cost and schedule while undergoing a significant rebaselining. LLNL led all of the Inertial Confinement Fusion (ICF) laboratories in development of the National Ignition Campaign Execution Plan, which was responsive to NNSA guidance that ignition be managed as an "enhanced management" activity. The revised plans for NIF and ignition were reviewed by external groups (JASON, Office of Science) and found to be solid and executable.

The work by LLNL to bring the Device Assembly Facility (DAF) at Nevada Test Site into nuclear operations has been slower than desired and has caused delay to programs such as Emergency Response. The highest priority schedules to enable material moves to DAF and preparations for subcritical experiments have been met, but other programs have been delayed because the authorization basis work by LLNL could not be executed more rapidly.

Operations

Performance Objective 7: Recruitment and Retention

The contractor made good efforts to recruit and retain a skilled diverse workforce. For example, non-retirement attrition of the critical skills population was 2.3 % for the Defense Program (DP) population, and 3.0% for the pipeline population, meeting or exceeding the 3 % threshold established by NNSA for each group. LLNL also expanded its outreach programs at UC campuses and had more than 120 research collaborations with UC campuses in FY 2005. The contractor's commitment to leading employee development practices continued, with major upgrades to the search engines for self-directed learning opportunities. For the Weapons Point of Contact development program, LLNL developed formal position descriptions for the system manager and system engineer positions, selected a new system manager and system engineer for the W87 warhead, and selected a system manager and a different system engineer for the W80-0,1 stockpile warhead types. LLNL also has initiated succession activities for the system managers for the W62 and B83 weapon types.

Performance Objective 8: Safe, Secure, Environmentally Sound, Effective, and Efficient Operations

The independent oversight inspection of Environmental Safety and Health (ES&H) management conducted by the Office of Independent Oversight and Performance Assurance (OA-40) in October 2004 found that ISMS is implemented with varying levels of effectiveness across all and within the various directorates. The corrective action plan for the OA-40 inspection (OA-40 CAP) was approved by LSO in April 2005.

In implementing non-nuclear safety basis program, the contractor submitted fifteen new safety basis documents and the Final Authorization Basis Document for the Biological Safety Level 3 Facility for LSO review and approval. These documents were all approved and demonstrated GOOD implementation of the new ES&H Manual, Document 3.1 - Nonnuclear Safety Basis Program.

In the Emergency Management Program, the Laboratory completed all fiscal year 2005 Emergency Readiness Assurance Plan (ERAP) deliverables. Deliverables included: annual updates to the LLNL Emergency Plan and Emergency Plan Implementing Procedures; Emergency Preparedness Hazards Assessments (EPHA); EPHA facility-specific Emergency Plans and drills; the annual exercise; and the annual self-assessment.

LLNL implementation of the criticality safety program met both DOE and National consensus standards. Additionally, during a recent self-assessment of the Livermore Site Office, NNSA

Headquarters criticality safety expert determined that the LLNL criticality safety program was one of the best in the DOE complex. Please refer to the detailed write up for a more in-depth discussion of nuclear safety. Nuclear safety, although rated satisfactory, is a low satisfactory and continuous improvement is needed.

The Contractor did an outstanding job operating the waste management facilities in a safe, compliant manner while maximizing Environmental Management (EM) funds. The Contractor disposed of 517 m^3 of mixed and low level wastes, 67 m^3 above their EM Corporate Performance Measure of 450 m^3, a 14 % increase beyond the measure. The Contractor's year end cost variance was 5.6 %.

In managing the Legacy Waste Project (LWP), the contractor exceeded the 650 m^3 legacy waste inventory reduction target delineated by the Corporate Performance Gold Chart Metrics for this fiscal year. The Laboratory eliminated 1,147 m^3 of mixed and low level legacy waste this year, which was an unprecedented volume of offsite mixed and low level legacy waste shipments.

LLNL has not identified and implemented cost efficiencies for the EM program.

The Site Safeguards and Security Plan was updated in January 2005 to address the significant changes in protection strategy expectations that have occurred since September, 2001. Implementation plans are approved for implementing protection strategies against a contemporary design basis threat. Unclassified cyber systems were reaccredited in September 2005 to implement current requirements of the Federal Information Security Management Act and NNSA cyber security policies.

The Counterinelligence (CI) Office at LLNL provided outstanding support to LLNL and other entities within DOE, NNSA and other Federal, state, and local agencies. The Laboratory's CI Office created a first and most comprehensive counterterrorism (CT) tool, the *Suspicious Incidents Report*, through working relationships with UC, Office of Investigative Services (OIS), Safeguards and Security, the Protective Force Division (PFD), the Federal Bureau of Investigation (FBI), the Livermore Police Department (LPD) and the Sandia National Laboratories' CI Office. The CI Office also completed the most comprehensive CI/CT Threat Assessment (TA) of any throughout the NNSA enterprise. This will also serve as the basis for future TAs for all Department facilities within the Bay Area. Finally, the CI Office is credited with an incredible 162 Intelligence Information Reports (IIRS) published during the year, the largest number by far in the CI enterprise. These IIRs were disseminated throughout the U.S. Intelligence Community (USIC) and NNSA senior management.

Performance Objective 9: Business Processes and Systems

In the financial management area, the Laboratory performed at an outstanding level. Twenty one reviews and audits conducted by DOE Inspector General (IG), Government Accountability Office (GAO), Price Waterhouse Coopers (FY 2004 UC Regents financial audit), and the contractor internal Audit and Oversight staff, produced no major recommendations. The Chief Financial Officer (CFO) and the Laboratory worked closely to improve the reporting of assets, to improve the processing of purchase orders, and to speed reimbursements related to non-purchase payments. The contractor made the conversion to the new DOE accounting system (STARS) without major disruption.

In the area of Human Resources (HR), the contractor started the People Information Project (PIP), which consolidates people information into a single data base, standardizes and re-engineers HR processes and terminology, and develops enhanced HR reporting and intelligence tools. In addition the Human Resources Directorate released Phase III of Lhire/eRecruit and expanded the Integrated Performance and Pay Program initiatives.

Under Objectives Matrix Balanced Scorecard Measures, the contractor performed the procurement function at the "outstanding" level. The contractor has a well-developed, comprehensive self-assessment and evaluation program, which was considered a "best practice" by the NNSA Procurement Evaluation & Re-engineering Team.

In the inventory of property management, the contractor has historically produced "best in class" results and the FY 2005 inventory continues the trend by accounting for 99.97 percent of the attractive property. In addition, the Equipment inventory resulted in a find rate of 100 percent. The results of both inventories are at the outstanding level of performance.

Performance Objective 10: Community Initiatives

The Laboratory's science education outreach programs made significant contributions to the community. LLNL made a major commitment to the World Year of Physics (WYOP) 2005 by holding educational and community events highlighting Albert Einstein's work. The Laboratory's Science on Saturday (SOS) had record attendance at all five Tri –Valley lectures in 2005, with approximately 600 students and teachers attending each lecture. In addition, teacher participation in Edward Teller Education Center's (ETEC) regional centers increased from 505 in 2004 to 582 in 2005, reflecting the addition of new Teacher Research Academies in Fusion/Astrophysics and Biophotonics, and the first placements of teachers in research internships at LLNL. Finally, the Laboratory and Livermore Valley Joint Unified School District signed a memorandum of understanding to work together to enhance science education in the district, enabling the Laboratory to integrate its CSI Livermore summer program into the school district's 2005 summer school program.

Overall LLNL Rating

Mission		**Outstanding**
1.	Conduct warhead certification and assessment actions using a common UC Design Laboratory Strategy.	**Outstanding**
2.	Develop with NNSA and implement long-term balanced, integrated stewardship.	**Outstanding**
3.	Develop with NNSA and implement near-term balanced weapon programs that are coordinated with the other NNSA M&O site contractors and DoD customers and that foster complex-wide solutions to meet the needs of the U.S. nuclear deterrent.	**Good**
4.	Implement an integrated science and technology-based program aimed at preventing the proliferation or terrorist acquisition of weapons of mass destruction as well as detecting and responding to their deployment or use.	**Outstanding**
5.	Enhance and nurture a strong science, engineering, and technology base in support of national security strategic objectives.	**Outstanding**
6.	Optimize current and evolving mission performance by providing effective and efficient facilities and infrastructure.	**Good**

Operations		**Good**
7.	Utilize UC strengths to recruit, retain and develop the workforce basis.	**Good**
8.	Maintain safe, secure, environmentally sound, effective, and efficient operations in support of mission objectives.	**Satisfactory**
9.	Improve or maintain effective business processes and systems that safeguard public assets and support mission objectives	**Outstanding**
10.	Sustain and/or implement effective Community Initiatives	**Outstanding**

Detailed Appraisal Results

Mission

Performance Objective 1	Outstanding
Conduct warhead certification and assessment actions using a common UC Design Laboratory Strategy.	

Performance Measure 1.1 (joint measure)	Outstanding
Use progress toward quantifying margins and uncertainties, and experience in application to further refine and document the certification methodology.	

(NA115)
LLNL is to be commended for its continued work to develop and refine its methodology for performing Quantification of Margins and Uncertainties (QMU) analysis of the nuclear explosive package for a variety of key issues related to reliability and performance. In addition to its own work, LLNL is to be commended for its work with LANL in resolving issues associated with the use of the QMU approach to certification.

(NA113)
LLNL has continued to exhibit strong leadership in the effort to develop QMU as a certification methodology and refine how it is applied. A major breakthrough was the exceptional work that was performed to address energy balance issues in a nuclear weapon based on innovative, thorough and compelling experimental, theoretical and computational efforts. Another very clear example was the development of the uncertainty analysis applied to the LLNL peer review efforts in support of providing confidence in the subcriticality of the Unicorn experiment.

A focus has been the continued use of the Primary Metrics and Secondary Baseline Model Projects as a method for identifying the “best” calibrated models to represent a given weapon system.

Performance Measure 1.2	Outstanding
Demonstrate application of a common assessment methodology using Quantification of Margins and Uncertainty (QMU) in major warhead assessments.	

(NA113)
LLNL has done an outstanding job of developing and applying the QMU methodology to assessment and certification activities. This included all of the warheads that LLNL has

assessment responsibilities for most notably the W80 Life Extension Program (LEP) activities.

For the W80 LEP, a variety of experiments and calculations have been conducted to address the principle issues identified in the certification plan and in Red Team reviews including full scale and focused hydrotests to improve the models being used for performance analysis. It also included new work related to material compatibility and corrosion and to warhead behavior in temperature extremes.

Margins and associated uncertainty for a particularly important potential failure mode were included in this year's Annual Assessment Report.

Performance Measure 1.3	**Outstanding**
Complete the annual assessments of the safety, reliability, and performance of all warhead types in the stockpile to include whether nuclear testing is required for resolution of any issue and to support NNSA as required during interagency and community coordination of the Annual Assessment Process.	

(NA115 input)
LLNL and SNL accomplished all requirements on time. The Laboratory Director's annual assessment letter was released in October 2005. The Annual Assessment Briefing to SAGSAT was completed in June 2005 and the Annual Assessment Report (AAR) was issued in August 2005 and Weapon Reliability Report distributed in May 2005; the AARs were reformatted to present the information more clearly by moving the data to appendices and cleaning up the report.

The report addressing the update to the internal LLNL Secondary Modeling and Assessment Annual Stewardship was completed and provided to NA-115.

Performance Objective 2	Outstanding
Develop with NNSA and implement long-term balanced, integrated stewardship.	

Performance Measure 2.1	Outstanding
Support the needs of warhead assessment, certification, and simulation validation by executing a coordinated program of targeted small- and large-scale experiments and mining of archival UGT data to improve predictive capability. Develop and execute a program of hydrotests and subcritical experiments that addresses assessment and certification needs.	

(NA115)
PHOENIX: Activities for generating a resource-loaded test execution schedule are nearing completion. They began sub-system assembly and testing; validated the grounding and shielding plan, continued Big Explosives Experimental Facility (BEEF) bunker activation, completed fireset development, and completed non-high explosive (HE) hardware procurements for experiments Free Flight Tests 1 and 2 (FFT-1 and FFT-2).

Joint Actinide Shock Physics Experimental Research (JASPER): Four Pu shots were executed in 4th quarter. Data was excellent for all four experiments, and the 4th quarter output from JASPER resulted in six total EOS-quality shots executed in FY 2005. This met the minimum DSW contribution to JASPER in the IP.

Each sub-program element manager of the Engineering Campaign has received adequate end-of-year reports in some form, email, programmatic briefings, and manager discussions. However, during the NA-115 programmatic review conducted at the laboratory during the week of October 3, 2005, the following observations were noted:

PHOENIX Experiment – The substitution of a planned sub-critical experiment for a new PHOENIX experiment was done quickly based on the information presented to Headquarters staff at a recent programmatic review.

This technical approach has promise but it is not clear if all trade-offs and technical risks were considered adequately to minimize these risks before the decision was made to initiate this class of experiments.

The PHOENIX budget seems very tight (and perhaps insufficient) right from the start leaving no room to absorb cost, schedule, or technical risks.

Engineering Campaign Milestones – With the exception of the discussion below, all subprograms met their milestones and delivered technical achievements as projected. Excellent work was accomplished under each subprogram. However,

Enhanced Surveillance – Project to install upgrade to computed tomography equipment for 1 to 2 mil resolution was delayed by issue with flammable coolant used in the system. The system redesign that was required caused delay and resulted in a level two milestone from being attained during FY 2005 as promised ("red" milestone).
It was not clear from the presentations and discussions whether additional costs were incurred as a result of the required redesign.
Better communication between the design agency (lab) and the production agency (plant) might have avoided delay, and perhaps the cost of a redesign. In general, technology development within the laboratory needs to be better coordinated with the implementation of the technology in the complex.

(NA113)
LLNL has done an outstanding job in the execution of its hydrotest plan in what has been a difficult year because of the CREM stand-down and fallout from the LANL safety and security stand-down. LLNL has actively and successfully applied process improvements to the execution of these tests in order to increase shot rates, fidelity and efficiency. LLNL's philosophy of performing large numbers of focused experiments to improve understanding of physical processes has been extremely productive and has had a large impact on the ability to quantify uncertainties in predictions.

The execution of experiments at JASPER has provided valuable first of a kind data including high accuracy EOS data and data on plutonium aging. Improvements in diagnostic techniques and experimental execution are commendable.

These successes have been offset, however, by facilities issues, including a shutdown due to control system software and delays in target delivery due to the plutonium facility (B332) standdown.

A-Program has validated its new energy balance model against several UGTs in various regimes and completed modern re-analysis of these tests. The B Program Primary Metrics Project applied re-analyzed nuclear test data to assessments of primary performance in support of uncertainty quantification methodology development and the development of improved physics models for boost physics.

LLNL completed important work at the Advanced Photon Source (APS) to measure the EOS of Plutonium as a function of age and alloy content, and to measure phase boundaries and has developed novel diamond anvil cell techniques to measure phase transition kinetics.

Performance Measure 2.2	Outstanding
Conduct design and analysis of nuclear weapons that address the future needs of the U.S. nuclear deterrent.	

(NA115 input)
LLNL completed closeout activities for the Robust Nuclear Earth Penetrator (RNEP) project. The test unit was partially disassembled and put in storage per close out plan. LLNL provided technical reports to NNSA/HQ on this project.

Performance Measure 2.3 (joint measure)	Outstanding
Develop the requirements for advanced radiographic capabilities to support assessment and certification, and develop or demonstrate supporting radiographic technologies.	

(NA113)
LLNL has done an outstanding job in supporting the DARHT 2nd axis recovery and commissioning project. LLNL's contribution to the project during the LANL safety and security stand-down was vital to the successful progress that the project made and LLNL's contribution to issues of beam transport and x-ray conversion target physics are essential to ensuring project success. LLNL completed ETA-II tests of DARHT-II downstream beamline in preparation for scaled experiments at DARHT-II; completed acceptance calculations for the Scaled Experiments to determine allowable beam energy and current range for experiments; and designed beam pipe modification to downstream transport line for scaled experiments.

LLNL also improved the performance of the FXR with a 20% brighter x-ray pulse, which should produce better high-resolution radiographs with less noise so that small details will be more visible.

Performance Measure 2.4	Outstanding
Develop and demonstrate ASC simulation and modeling capabilities that support the ongoing needs of stockpile assessment and certification.	

(NA114)
LLNL ASC is to be commended for their cooperation and support to the NIF program office. NIF has used ASC codes to design and prepare for experiments; support surveillance activities in resolving significant findings; enhanced the uncertainty quantification methodologies thru the primary metric project techniques; and converted the operation of key computing platforms in timely manner to address immediate and urgent needs of the stockpile.

LLNL successfully lead the tri-lab efforts to identify (as L1 ASC milestone) stockpile requirements for future advanced computing platforms.

To ensure continuing support to the stockpile certification and the complex, LLNL is expected to strengthen its management of the code development, especially the burn calculation with advanced physics, in order to support the W80 schedule. They are also expected to utilize ASC tools across the complex to meet other stockpile needs such as design of experiment, facilities security, and manufacturing, and pursue other venues, such as the IPT process successfully deployed at LANL, to further enhance the integration across the complex.

Performance Measure 2.5	**Outstanding**
Improve and apply tools and models for prediction of systems, subsystems, and/or component lifetimes.	

(NA114)
With the exception of one L2 milestone, LLNL ASC was successful in meeting its commitment in delivering improved capabilities. LLNL ASC was able to apply first principle material science simulations for shock compression melting and rapid solidification for various surrogate materials; complete the primary metrics project in reanalysis of nuclear test data that led to development of improved models for boost physics; and deliver the BlueGene/L computer to support significant research activities for component lifetime.

LLNL was successful in using ASC to provide a significant cost saving modification for a LEP. LLNL successfully ported and tested their two key application codes for the distance computing aspect of the Red Strom user environment milestone.

Strategic direction for code development to ensure the agility, longevity and quality of the simulation is necessary for the success of ASC predictive capabilities, and LLNL is expected to demonstrate progress and success in these areas starting in FY 2006. LLNL is strongly encouraged to follow the Predictive Science Panel's recommendation to apply QMU principles to guide future investments in enhancing ASC capabilities.

(NA113)
LLNL produced a high-quality report on the observation of aging effects in the underground test data-base. In particular LLNL demonstrated the clear necessity of reanalyzing underground test data in order to reduce uncertainties and correct errors in the original data interpretation and has executed an extensive effort to complete this reanalysis.

LLNL made excellent progress on developing models for plutonium aging and to address the pit-lifetime issue, and has developed a wide-ranging set of techniques to conclude that plutonium aging effects, to date are minimal including first of a kind gas gun data from JASPER, diamond anvil cell experiments, immersion density, dilatometry, x-ray diffraction, and transmission electron microscopy experiments.

LLNL’s development of simulation techniques to understand aging effects has been outstanding.

Performance Measure 2.6 (joint measure)	Outstanding
Develop and implement a collaborative and complementary program of experiments at High Energy Density (HED) facilities that supports assessment and certification needs.	

LLNL has done an outstanding job technically in this area this year. Strong progress was made in developing new capabilities for NIF. In addition to completing successfully their major milestone (1253) - "Complete integration of local x-ray calibration facilities," the Lab accomplished the following:

1. NIF equation-of-state targets were completed that required new state-of-the art capabilities.
2. The plasma piston platform was demonstrated for isentropic EOS and strength data.
3. The VISAR system was commissioned on NIF and was used to demonstrate uniform high-pressure shocked samples at pressures overlapping UGT regimes.

LLNL also did a very effective job leading development of a community–wide plan to develop experiments to be conducted on NIF. Three US national laboratories (LLNL, LANL, SNL), AWE, three other institutions (LLE, GA, BN) and NNSA participated in the planning.

Issues and Concerns:

NIF and SSP connections, particularly the importance of fusion ignition: With the advent of the National Ignition Campaign, it is critically important that LANL and LLNL define in detail the contributions of ignition to QMU and SSP and the associated specific NIF ignition experiments that will be performed to quantify uncertainties related to fusion burn issues.

Connections between the National Ignition Campaign and NIF SNM material properties experiments and the Primary Certification Plan need to be greatly improved.

A Secondary Certification Plan needs to be developed. Requirements for experiments in all HEDP facilities (NIF/OMEGA/Z) and their connection to QMU/weapon assessment need to be clearly outlined in this plan.

LLNL did not respond to the initial NNSA call for development of a modified HED weapon physics plan in response to the reduced FYNSP. Improved responsiveness to inquiries of this type is needed.

Performance Measure 2.7 (joint measure)	Outstanding
Develop and implement an integrated program with a central goal to achieve ignition at NIF in 2010.	

The Contractor made outstanding progress on National Ignition Campaign activities during FY 2005, including leading the development of a comprehensive National Ignition Campaign Execution Plan for performing the first ignition experiments on NIF in FY10 in collaboration with LANL, SNL, UR/LLE & GA. LLNL's leadership of this effort was key to instilling the project-like discipline required for the effective planning and management of this Enhanced Management Program; bringing all of the participating institutions to the table for constructive discussions of this culture-changing national effort executed under a single management plan required vision, tact, and perseverance. The National Ignition Campaign Execution Plan was completed and approved by NNSA in June 2005.

The National Ignition Campaign will be implemented as an enhanced management activity, with a single management structure uniting activities at all of the participating institutions. National Ignition Campaign enhanced management reporting did not get started in FY 2005.

A NIF Activation and Early Use Plan was developed in collaboration with LANL, UR/LLE, SNL & GA and issued in June 2005. As required by Congress, a JASON review of the National Ignition Campaign plans was completed in FY 2005, with the final JASON report on NIF Ignition submitted to Congress on schedule. In addition, the directors of the weapons laboratories and the Laboratory for Laser Energetics delivered a position paper on ignition.

The development of the National Ignition Campaign Execution Plan was effectively coordinated with the NIF directed change rebaseline to meet the Congressional due date of June 30, 2005.

FY 2005 MRT Milestone Accomplishments:

All valid (i.e. as modified through change control) FY 2005 MRT milestones were accomplished. In particular:

"Begin hohlraum experiments on NIF first quad" (MRT#1430) was completed ahead of schedule in September, 2004.

"Place specifications and requirements of cryogenic system engineering for NIF under configuration control" (MRT1257) was completed ahead of schedule in June 2005

"Place ignition point design under configuration management" (MRT#1678) was completed on schedule in September 2005.

"Validate use of tritium with NIF ignition target components" (MRT#819) was completed on schedule in June 2005.

"Document capsule and hohlraum specifications for room temperature transport ignition target designs" (MRT#1249) was completed in September 2005.

FY 2005 Technical Accomplishments:

Excellent progress has been made on implementing the plan for ignition in the areas of ignition physics experiments, target design, target fabrication, and advanced diagnostic development. The ICF Program continued to develop improved ignition target designs and completed the preliminary design and specifications of the FY2010 ignition target that uses ~ 1 MJ of laser energy, consistent with FY2010 operation of NIF. Target fabrication technology advanced significantly, demonstrating the ability to produce NIF-scale sputtered beryllium and plastic capsules that meet surface finish requirements for ignition designs, and the capability to drill and counter-bore fill holes in both Be and CH with lasers and Focused Ion Beam (FIB) technology. Capsule filling and characterization were also advanced, with demonstration of the ability to fill capsules with deuterium-tritium (DT) fuel through micron-scale fill tubes using a scientific prototype of the filling system that will be used on NIF, and development and application of applied x-ray phase contrast imaging for DT fuel layers inside beryllium capsules.

The ICF experimental program performs experiments at the OMEGA laser at the University of Rochester's Laboratory for Laser Energetics and other smaller facilities worldwide. These experiments test diagnostic concepts planned for NIF as well as alternative ideas for ignition target designs. In particular, tests at Omega validated the expected enhancement in radiation temperature in a hohlraum made of a mixture of high-Z materials, consistent with theory and modeling.

In addition, the ICF Program conducted the first hohlraum experiments on NIF. The successful experiments were conducted in collaboration with Los Alamos National Laboratory, Sandia National Laboratory, the Atomic Weapons Establishment (AWE) in England, and France's Commissariat a l'Energie Atomique. The results successfully connected these experiments with the historical database, and provided new information on hohlraum filling. The experiments also explored the high temperature regime, and demonstrated the capability of the existing diagnostics suite.

Issues and Concerns:

Success of the NIC will require continued cooperation among all participants in identifying and resolving the challenges inherent in such an undertaking. The NIC Director bears a substantial responsibility for maintaining a positive collaboration among the participants and

assuring that all available capabilities are utilized as effectively as possible in pursuit of the ignition goal.

Maintaining funding for planned National Ignition Campaign activities will be a challenge.

Loss of user experiments on NIF prior to the first ignition experiments in FY 2010, due to the NIF rebaseline and priority on completing the NIF Project.

Performance Measure 2.8 (joint measure)	**Good**
Develop and implement an integrated program for plutonium capabilities of LANL and LLNL to support the overall NNSA strategic requirements.	

LLNL has done an excellent job of developing an integrated dynamic plutonium strategy and has submitted an implementation plan for plutonium experiments. The agreed upon national priorities for experimental data have been rigorously followed in executing programs.

LLNL and LANL have jointly developed a planning methodology for plutonium facilities and infrastructure and have made excellent progress in applying this to meeting current operation exigencies including providing alternatives for issues caused by the TA –55 work backlogs, the LANL safety and security stand-down and the LLNL plutonium facility stand-down. Much of this is, however, reacting to operational exigencies that are self-imposed, and much effort is needed to develop a long-term strategy for facility management generally and to consolidate activities under the enormous pressures to reduce both redundancies in capabilities and inventories of materials.

Performance Objective 3	Good
Develop with NNSA and implement near-term balanced weapon programs that are coordinated with the other NNSA M&O site contractors and DoD customers and that foster complex-wide solutions to meet the needs of the U.S. nuclear deterrent.	

Performance Measure 3.1	Good
Conduct stockpile surveillance activities, investigate significant findings and issues identified in technical assessment reports on a prioritized basis, and establish closure plans for Significant Finding Investigations (SFIs).	

(NA115)
LLNL successfully closed one of three Significant Finding Investigations (SFIs) in FY 2005 and have no high priority SFIs.

Performance Measure 3.2	Outstanding
Deliver on the major milestones for the Life Extension Programs for the W76, the B61-7/11, and the W80-3 in accordance with the joint DOE/DoD phase 6.x process.	

(NA115)
LLNL and SNL completed and obtained NNSA and Air Force concurrence on the PDRAAG agenda.

- LLNL and SNL supported several PDRAAG date changes requested by the Air Force.
- LLNL and SNL completed and published the Preliminary Final Weapon Development Report.
- PDRAAG meeting was conducted successfully.
- PDRAAG minutes and action items prepared for the Air Force.

LLNL worked with LANL to develop schedule for Interlaboratory Peer Review (IPR) and obtained NNSA approval.

- LANL conducted the IPR.
- LANL had to work within the CREM stand down to get the IPR finished. This was late but did not cause a problem in overall schedule for the W80-3 Life Extension Program.
- LANL published final report with LLNL comments included.
- SNL conducted an IPR in conjunction with the Design Review. Final report has been prepared but is not distributed outside of SNL.

Completed Phase 6.3 activities and gained authorization for Phase 6.4 (NA-10 signed letter April 15, 2005). Conducted Digital Capability Test (DCT)-1, Weapons Interface Test (WIT)-

2, Full System Test (FST)-2, and MIC2A Tests (supporting documentation in HQ Program Review Meeting Minutes of March 8 and July 12, 2005). LLNL completed preliminary modeling of Pantex process flows (supporting documentation in PX site Review Meeting Minutes of March 31, 2005).

Hardware provided which supported captive carry flight test (CFTU), Free Flight Test (FTU-1) and ground tests (System-Thermal and Mechanical Test (STMT) and Full Scale Engineering Test (FSET). All tests were either started or completed as scheduled in accordance with the W80-3 Integrated Master Schedule (IMS).

Hardware was provided which supported the large-scale hydrodynamic test program for the W80-3. All hydrodynamic tests were completed in accordance with the W80-3 IMS.

Milestones 661 and 658 provided information, which will be used for the QMU process as part of the certification for the W80-3.

Engineering releases for FY 2005 have been completed and provided to the Production Agencies. This was a problem at the beginning of the year; however, a matrix was developed for the engineering releases required and the agreed upon dates when they were due. This matrix supports the W80-3 IMS.

Performance Measure 3.3	**Outstanding**
Deliver on W88 Pit Manufacturing and Certification Project major milestones.	

(NA118)
Pit Certification Assessment: LLNL has done excellent work in its efforts to perform physics peer reviews and other project support to LANL, considering the current pace of pit project activities. LLNL has shown a great deal of flexibility in temporarily assigning plutonium machinists and other specialists to LANL during the LLNL Superblock shutdown to cross-train these individuals and provide support for pit-related fabrication activities. LLNL was extremely helpful and flexible in their scheduling to provide support for pit shipments and radiography operations at Superblock. LLNL staff provided excellent support in helping LANL complete up to 90% of the required engineering evaluations on pit manufacturing activities. Other significant accomplishments in FY 2005 by LLNL under this performance measure include:

- The validation of Unicorn and Krakatau SCE subcriticality through 2-D and 3-D calculations. This information was presented for a second time at a Unicorn Subcritical Experiment Evaluation Committee meeting in early October 2005, with additional emphasis on uncertainty analysis.
- Completed the initial W88 warhead primary baseline assessment incorporating 9 relevant NTS events.
- Significant progress on the W88 secondary baseline assessment.
- Completion of the radiochemistry assessment of the W88 primary on most significant test events using the LLNL independent methodology.

Pit Manufacturing Capability Assessment: LLNL has continued to have outstanding performance in the Pit Manufacturing Capability (PMC) area. Unfortunately, a level 2 milestone for the Tilt-Pour furnace was not met this year due to the Superblock standdown. This was beyond the control of the PMC manager at LLNL and the milestone is expected to be completed in FY 2006 after Superblock restart.

Modern Pit Facility Assessment: LLNL completed required technical support activities necessary to maintain progress in the Modern Pit Facility project. LLNL's outstanding responsiveness in providing needed manufacturing equipment technical input to complete important project design and requirement documents continues to be critical to the completion of the facility conceptual design.

Overall Assessment: LLNL has provided significant value for the funds provided by the W88 pit project in FY 2005 and has been extraordinarily customer-oriented in its acceptance and scheduling of work that was not in the original baseline. NA-118 assigns an adjectival grade of Outstanding for App. F Performance Measure 3.3.

Performance Measure 3.4	**Outstanding**
Meet directive schedule requirements.	

(NA115)
LLNL did an excellent job in providing the revised LEO tables by March 31. They attended the first meeting with HQs to discuss several issues related to the contents of the FY 2006 CDD and provided the necessary information in excellent presentations at the major LEO meeting with the affected production sites on March 23, 2005. They continue to support the process, i.e., finalize the CDD, in a consistent manner.

LLNL supported the Safety Enhanced Reentry Vehicle (SERV) and JTA-4 in an excellent manner. All deliverables were on time. FTU-19 build was completed on schedule and successfully flown on 25 August 2005. SERV-1 flew on 21 July 2005 and SERV-2 with FTU-19 on 25 August 2005. The JTA 4 Product Realization Teams (PRT) have been established and qualification activities have commenced. The milestone has been met despite severe FY 2005 program budget cuts that required a re-evaluation of the JTA-4 program.

Performance Measure 3.5	Satisfactory
Provide technical support to production complex operations, including the Integrated Weapons Activity Plan (IWAP) and other weapons response analyses.	

LLNL performed in an outstanding manner on the W80 LEP. All certification and QMU activities were performed successfully and on schedule. LLNL met all ADAPT milestones on agreed schedule and at agreed cost. However, LLNL has demonstrated weaknesses that resulted in delays in providing Pantex with essential information in support of key weapons response issues and completing their authorization basis activities. The lack of resources dedicated to efficient and effective weapons response evaluation led to significant delays across the complex and directly contributed to the failure to meet FY 2005 dismantlement goals.

Performance Measure 3.6	Good
Complete the establishment of, and implement in accordance with NNSA-approved plans, a weapons design and manufacturing quality assurance program consistent with NNSA requirements (QC-1, Rev 10).	

A Quality Assurance Survey of LLNL was conducted by NA 121.3 to assess the level of compliance with Weapons Quality Policy QC-1 on August 1-5, 2005. The review concluded that LLNL was compliant with 13 elements and non compliant with 12. In some cases the reasons for listing an element as non compliant were minor, in other cases, they were more serious. LSO has directed LLNL to submit a revised Quality Assurance Plan for FY 2006 that more specifically addresses the requirements of QC-1.

Performance Measure 3.7	Outstanding
Develop and execute projects to improve the responsiveness of the design, manufacturing, and testing infrastructure of the integrated nuclear weapons complex.	

LLNL is working closely with NNSA HQ and other sites in the weapons complex to develop and implement projects related to mission needs of the Responsive Infrastructure (RI) initiative. LLNL is providing leadership for two of the RI Pilot Projects, Rapid Case Manufacturing and Multi-Unit Processing. These projects address two key limitations in the complex responsiveness. LLNL has made significant contributions to both the planning and technical progress of these two projects.

Performance Objective 4	Outstanding
Implement an integrated science and technology-based program aimed at preventing the proliferation or terrorist acquisition of weapons of mass destruction as well as detecting and responding to their deployment or use.	

Performance Measure 4.1	Outstanding
Provide technical capabilities to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons; and enable the implementation of U.S. nonproliferation policy.	

Noteworthy achievements include:

- Receipt of an "A" grade in the 16th OPCW proficiency test;
- Commissioning of MPC&A upgrades for three naval nuclear weapons storage sites;
- Provision of significant analytical support to the IAEA resulting in reports on specific nuclear proliferation topics;
- Conduct of the first Bishkek Declaration Workshop.

Issues and Concerns:

Last year's HQ concerns which resulted in a reduced performance rating for this measure have been alleviated with no further issues or concerns remaining. Thus the performance rating for this measure has been increased from Good to Outstanding.

Performance Measure 4.2	Outstanding
Provide scientific research capability that produces cutting-edge R&D as well as the testing and evaluation needed to detect, identify, and monitor proliferation and terrorist-related WMD activities.	

Noteworthy achievements include:

- Outstanding work on the DS2 spectrometer;
- Demonstrated success of the Sonoma system;
- Successful production and integration of the half-scale version of the nanolaminate mirror facesheet for the AMT;
- Delivery of the GNEM R&E Knowledge Base;
- Development of significantly enhanced geophysical models coupled with large-scale computing to apply to synthetic seismograms;

- Experimental confirmation of antineutrino detection in support of IAEA safeguards applications.

Performance Measure 4.3	**Outstanding**
Support the needs of the intelligence community by providing intelligence analysis capabilities and science and technology that improve the nation's ability to detect and thwart proliferation and terrorism.	

Noteworthy achievements include:

- Generation of many outstanding reports on analyses of foreign weapons programs and WMD threats;
- Publication and top level briefings on nuclear stability in South Asia;
- Participation in finalizing the Duelfer Report on Iraq WMD programs;
- Development and demonstration of all-source information analysis tools;
- Production of a prototype CT SIR that HQ is considering to extend throughout the NNSA complex.

Performance Measure 4.4	**Outstanding**
Develop and support the deployment of technologies and analytical capabilities that strengthen the nation's ability to protect against and respond to terrorist use of weapons of mass destruction and other threats against the U.S. homeland.	

Noteworthy achievements include:

- Major advances in the APDS deployed as a network;
- Receipt of the R&D 100 Award for BAMS;
- Deployment of the BKC and its expansion to include CBRNE threats under NSTTAR program;
- Completion of three material threat assessments;
- Participation in three major DHS exercises;
- Breakthrough in active interrogation methods for cargo container nuclear material detection.

Performance Measure 4.5	Outstanding
Apply advanced science and technology to meet immediate and long-term U.S. defense community needs.	

Noteworthy achievements include:

- Licensing of the ARAM, and receipt of the R&D 100 Award;
- Commercialization of the RadScout radionuclide identifier;
- Provision of NARAC/IMAAC operational support to national security events, exercises, and responses to actual occurrences;
- Successful proof-of -principle demonstration of novel parallel semantic graph algorithms;
- Continued successful execution of CAPS, and development of new strategies for assessing the WMD capability of non-state entities;
- Acceptance of the Sonoma system by DOD, and potential for wider application;
- Design and application of armor system for tactical army vehicle conversions;
- Completion of 2D & 3D large-scale simulations of collateral damage in neutralizing chemical and biological agents stored underground.

Performance Measure 4.6	Outstanding
Maintain and deploy, as required, nuclear emergency response teams for CONUS and OCONUS response to radiological and nuclear threats.	

Noteworthy achievements include:

- Increased participation by all response teams in a wide spectrum of activities;
- Provision of Home Team capabilities for field deployments;
- Construction of equipment and training aids for use in ARG and JTOT exercises;
- Development of new diagnostic tools for nuclear incident response;
- Hosting of many training sessions for new response team members, and for other agencies;
- Adaptation of nuclear incident response deployment protocols to natural disaster recovery efforts.

Performance Objective 5	Outstanding
Enhance and nurture a strong science, engineering, and technology base in support of national security strategic objectives.	

Performance Measure 5.1	Outstanding
Nurture and maintain the Laboratory science and engineering excellence in disciplines and capabilities needed to support our national security missions and emerging national needs.	

LLNL enhanced their competencies and excellence in key S&T areas such as the Bioscience Directorate's work on the Synthetic High Affinity Ligands (SHAL). SHAL has applications to radioimmunotherapy and in biodefense. Dr. Balhorn's work has contributed to a National Institute of Health (NIH) grant recently awarded to the University of California (U.C.) Davis, and LLNL.

LLNL has provided an excellent briefing on the Large Aperture Synoptic Survey Telescope under the Physics and Advanced Technologies Directorate which is supposed to track dark energy and dark matter and to track objects that change. This is an example whereby LLNL is not just providing engineering support and delivering a system but will also be involved in the research program. This work is funded by the National Science Foundation (NSF) and private funds via the Work for Others (WFO) Program.

Similarly, the Computations external DRC notes that, "the Directorate is world class in computational sciences and has developed a unique vision for future multi-scale and multi-physics knowledge representation and extraction based on predictive simulation and knowledge discovery."

Performance Measure 5.2	Outstanding
Develop and implement an integrated and balanced strategy for investing LDRD, programmatic and institutional resources to ensure the long-term vitality of the Laboratory science, engineering, and technology base in support of national security missions and emerging national needs.	

LLNL continued to make investments to support future mission capabilities to meet emerging needs. LLNL continued to upgrade the Janus laser, purchased time resoled Raman and infrared absorption and reflectivity equipment to make measurements in diamond anvil cells and a two x-ray point projection imaging systems. These investments will support equation of state refinements of metals.

In FY 2005, the LLNL LDRD Program has continued to be very successful in its scientific accomplishments and in creating a research environment that attracts new post- doctoral students to the laboratory. Several noteworthy projects funded by LDRD are:

- Two laboratory technologies, Inductrack and Adapatable Radiation Area Monitor (ARAM), received honorable mention in the Federal Laboratory Consortium (FLC) award for excellence in Technology Transfer competitions. General Atomics licensed the LLNL technology for Inductrack. ARAM is LLNL developed technology and it is licensed to Innovative Survivability Technologies (IST). To date sixteen units have been delivered for deployment at California border crossings. Both of these Research and Development technologies were originally funded by LLNL's LDRD Program.
- The Image Content Engine.
- Development of Sample Handling and Analytical Expertise for the Stardust Comet Sample Return Mission.
- Development and Application of a computational tool for short pulse high intensity target interactions.

Issues and Concerns:

Funding cuts in LDRD Program will affect long-range R&D planning at LLNL and reduce recruitment of post-doctoral students.

Performance Measure 5.3	**Outstanding**
Execute non-NNSA sponsored research and development that builds on unique Laboratory expertise and capabilities and enhances the ability to meet current and future national security needs.	

LLNL conducts non-NNSA WFO projects funded by other federal agencies such as the DHS, NASA, and the NIH. Meeting the needs of the national security mission requires state-of-the-art research facilities and multidisciplinary staff of skilled scientists and engineers.

A diverse number of LLNL projects are supported by the NIH which are related to DNA repair, role of food mutagens that cause cancer, and healthcare technologies.

The Bioscience external DRC praised the level of S&T, noting that the Bioscience directorate has obtained funding because of the quality of science.

During 2005, LLNL received funding for the NuSTAR project from NASA as well as playing a key role in the development of the Large Synoptic Survey Telescope (LSST), which will be a world-class 8.4 meter telescope that is now scheduled for completion in 2010.

A suite of activities was conducted by LLNL to support the DHS and the DoD such as:

- Continued utilization of NARAC (National Atmospheric Release Advisory Center)/IMAAC (Interagency Modeling Atmospheric Assessment Center) for operational support to National Security Special Events (Examples are: the State of the Union Address, Democratic and Republican Conventions), national exercises such as TOPOFF 3 and responses to exercises and real events around the world. IMAAC coordinates all federal efforts to model airborne releases into one emergency response organization for the DHS.
- Successful execution of the Counterproliferation Analysis and Planning System (CAPS) program for DoD, including consequence and signature assessments. More than 1,000 users access CAPS and its 12,000 web pages each month through classified networks.
- LLNL released version 6.0 of the Joint Conflicts and Tactical Simulation (JCATS) for the DoD.
- During FY 2005, LLNL continued to make progress on the Solid State Heat Capacity Laser (SSHCL) for the Army Space and Missile Defense Command to aid in short term air defense.
- The establishment of the DHS Biodefense Knowledge Center (BKC) at LLNL with participation/collaboration with other DOE laboratories.

Performance Measure 5.4	**Outstanding**
Foster active participation in the broad scientific and technical community, leveraging unique Laboratory expertise and capabilities; develop strategic collaborations with other national laboratories, industry, and academia.	

Partnerships and collaborations are a key element for the S&T base for LLNL. LLNL external DRC chairs recommended a FY 2005 grade of "outstanding" for this measure based on the "quality and strength of collaborations at the level of the individual investigator." Several key examples of outstanding partnerships and collaborative efforts are listed below:

- The Physics and Advanced Technologies external DRC rated LLNL's accomplishments as Outstanding. The LLNL scientists in astrophysics and institutes are working with the UC Santa Cruz, Center on Adaptive Optics and with the Max Planck Institute on supernova and nucleosynthesis. The NSF Center for Adaptive Optics at U. C. Santa Cruz received a renewal for its second five-years of operation.
- The UC Davis Cancer Center is affiliated with LLNL. LLNL has been informed that the National Institute of Health grant will be renewed for five more years.
- Bruce Macintosh is leading a team at LLNL on building the next generation of adaptive optics for the international Gemini Observatory. Collaborators include UCLA, UC Berkeley, JPL, and the Canadian Hertzberg Institute of Astrophysics.
- LLNL's partnership with the Naval Postgraduate School (NPS) continues and 10 FY 2005 seminars were hosted jointly by NPS and LLNL.

Industrial Partnership activities have also been very successful during FY 2005. Several noteworthy commercialization activities are listed below:

- The U. S. Food and Drug Administration has approved Abbott Laboratories' UroVysion™ DNA probe assay, which is based on technology developed by LLNL for use as an aid in the initial diagnosis of bladder cancer in patients with hematuria.
- Microfluidic Systems Inc. (MFSI) another LLNL Licensee announced it signed a CRADA with the U. S. Army Medical Research Institute for Infectious Disease to evaluate a pathogen sample processing technology. MFSI was also awarded a contract under DHS to develop a BioAgent Autonomous Networked Detector System.
- During 2005, ORTEC, a business unit of AMETEK announced that it had been awarded a contract with DHS to develop an advanced spectroscopic portal monitoring system. The new portal monitoring systems will be based on technologies developed by LLNL and licensed to ORTEC. ORTEC has also reported sales of over 80 "Detective" radiation detectors.
- During 2005, Cepheid announced that it received purchase orders for approximately 300 GeneXpert modules to be used with the Biohazard Detection System developed by Northrop Grumman Corporation to rapidly analyze and detect potential biological threats in the United States via the Postal Service.

LLNL researchers have published cutting edge science done for these programs in peer-reviewed journals which enhances the stature and reputation of a national laboratory. Moreover, they have excelled in their industrial partnering and commercialization of state of the art technologies. During FY 2005, LLNL executed 93 patent and copyright licenses. LLNL reported 136 inventions, and 84 U. S. patent applications filed. A total of 93 U. S. patents and 11 foreign patents were issued in FY 2005 for LLNL's inventions.

In conclusion the licensing revenue achieved by LLNL is a new high with $5.6 Million in royalty income. The overall S&T evaluation of 5.4 is at the Outstanding level.

Performance Objective 6	Good
Optimize current and evolving mission performance by providing effective and efficient facilities and infrastructure.	

Performance Measure 6.1 (joint measure)	Outstanding
Refine and execute, in coordination with NNSA and other appropriate DOE programs, plans to support optimal use by both laboratories of scientific, research, and test facilities.	

LLNL set new standards for performance, delivering two world-leading computing machines (BlueGene/L and Purple), and making significant improvements in computing infrastructure to include file systems, visualization and security systems. LLNL ASC activated the new computing facility (Tera Scale Facility) for classified operations four months ahead of schedule. The LLNL ASC management team is to be commended for their innovative solutions to resolve significant procurement challenges and delivering two world-class computing machines and making them available to the laboratories, the complex and the scientific communities in a short time. In addition, they are commended for their significant efforts in working with HQ in developing a prototype Earned Value Management System (EVMS) for the project management of ASC Purple. LLNL has met the milestones for the Test Readiness Program, including completing the FY 2005 Test Scenarios and Capabilities Assessment Report.

NIF

The Contractor did an excellent job in accomplishing activities associated with the NIF Cryogenic Target Systems (NCTS), the National NIF Diagnostic Program (NNDP), and other NIF Experimental Support Technologies (EST) Program activities.

NIF Cryogenic Target Systems Program (NCTS):

During FY 2005 the NCTS Conceptual Design, a joint effort by LLNL, LANL, UR/LLE & GA, was completed and submitted to NNSA in March 2005. NCTS preliminary design has started and is on schedule for completion in FY 2006. A preliminary NCTS Project Execution Plan was prepared. The NCTS Acquisition Strategy was prepared. The NCTS is currently being managed under NNSA's Capital Acquisition Management requirements. Preparation for NCTS Critical Decision 1 "Approve Alternative Selection and Cost Range" has started. NCTS monthly activity reporting to NNSA started in May 2005. Related MRT milestones were completed as scheduled.

National NIF Diagnostic Program (NNDP):

During FY 2005 additional diagnostics were tested, installed, and commissioned on the NIF Target Chamber, including Dante soft-x-ray spectrometer, Fast Filtered Fluorescer Experiment (FFLEX), and the Near Backscatter Imager (NBI). NIF diagnostics, including previously commissioned diagnostics, e.g. Full Aperture Backscatter Station (FABS) &

Flexible X-ray Imager (FXI), were successfully utilized on NIF Early Light (NEL) experiments and commissioning shots during FY 2005. Diagnostics fielded to date have shown excellent reliability, with an improvement from 95% to 98% during FY 2005, which is an outstanding achievement for collection of shot data.

An Ignition Diagnostics Requirements Workshop was held at LLNL in June 2005 with participants from LANL, SNL, UR/LLE, NRL, MIT, CEA & UC Berkeley. At the workshop a plan to develop ignition diagnostics was presented and diagnostics requirements teams were formed. Ignition diagnostics requirements reviews started in FY 2005 and the requirements are expected to be under configuration management by March 2006. NNDP quarterly reviews were held as planned in October 2004, February 2005, May 2005, & August 2005.

Related MRT milestones were completed as scheduled.

Other Experimental Support Technologies:
User optics accomplishments during FY 2005 included delivery of a set of continuous phase plates and polarization smoothing crystals.

Issues And Concerns:

Maintaining funding for planned Experimental Support Technologies program activities will be a challenge. All areas may require re-evaluation to assure they are consistent with overall NIC/NIF planning responding to deviations from approved funding profiles.

NCTS may require project-level change control action to address changes to anticipated funding. The interface between the NCTS project and NIC Program change control systems will require careful management.

Loss of user experiments on NIF prior to the first ignition experiments in FY 2010, due to the NIF rebaseline and priority on completing the NIF Project.

Performance Measure 6.2	**Outstanding**
Execute construction projects as identified and agreed between NNSA and the Laboratories within scope, schedule, and budget.	

The contractor's performance has been outstanding this year on the three projects below. LLNL is successfully executing to the scope, cost and schedule baseline parameters for the stipulated projects as measured by the earned value performance measurement systems. This Performance Measure focuses on the high-significance line-item construction projects including:

Engineering Technology Complex Upgrade (ETCU)

The ETCU project has demonstrated excellent performance during FY 2005 executing the project scope according to plan and is projected to deliver the project slightly under budget and slightly ahead of schedule. The current cumulative Earned Value Management (EVM) data remains positive: Schedule Performance Index (SPI) is 1.00 and Cost Performance Index (CPI) is 1.03. The project has maintained the average SPI and CPI in the "green" status (no more than 10% negative) for all of FY 2005. This project has implemented controls consistent with LLNL's EVM system description and completed the review by an independent agent as a part of LLNL's site-wide certification review with no findings!

Energetic Materials Processing Center (EMPC)
The EMPC project developed an excellent performance baseline plan of which NNSA's External Independent Review (EIR) team was very complimentary. The EIR resulted in no findings and the project was submitted for Critical Decision 2. NNSA HQ initiatives to consolidate high explosive work resulted in the project being stood down pending a Complex-wide strategy. The design is completed at approximately 85% and will be archived in a manner that allows resumption when appropriate. The cumulative CPI is 1.01 and the SPI is 0.99 and the project has maintained the average SPI and CPI in the "green" status (no more than 10% negative) for all of FY 2005. This project is on hold.

Terascale Simulation Facility (TSF)
The TSF project maintained outstanding performance and has accelerated selected portions of Building 453 to deliver the entire project scope approximately nine months ahead of the schedule completion milestone and within budget. The project was nominated for Secretary's Excellence in Acquisition Award and the Secretary's Award of Achievement. The cumulative CPI is 1.00 and the SPI is 1.02 and the project has maintained the average SPI and CPI in the "green" status (no more than 10% negative) for all of FY 2005.

Overall
ETCU and TSF are all tracking closely with their current approved baseline scope, schedule and cost. The average of their EVMS performance indices is 1.01 and exceeds the Appendix F objective of 0.90. EMPC was doing excellent until it was put on hold. TSF is expecting to deliver the completed project nine months ahead of schedule and within budget due to outstanding project management. The project has been nominated for Secretary level awards.

National Ignition Facility (NIF)
LLNL did an Outstanding job in accomplishing NIF Project activities associated with the Total Project Cost (TPC) funded Line Item Construction Project and the Operating funded NIF Demonstration Program (NDP) during FY 2005, including successfully completing a Congressional funding reduction directed change rebaseline and continuing to make good technical progress.

The FY 2005 Congressional funding reduction to the NIF Project (TPC & NDP), including the FY 2005 rescission, was a directed "Programmatic Baseline Change" with significant impact to the NIF Project, including a reduction of over 300 project staff midway through FY 2005, a $54.3 million increase in the NDP baseline cost, and a 6-month extension to Critical

Decision 4 “Approve Start of Operations”. A rebaseline of the NIF Project, including an Independent Project Review in April 2005, a revision of the NIF Project Execution Plan, and a new Congressional Project Data Sheet were completed and the Baseline Change Proposal (BCP 05-001) was approved by the Level 1 Baseline Change Control Board authority (NA-10), on June 23, 2005. The NIF directed change rebaseline was coordinated with the development of the National Ignition Campaign Executive Plan to meet a Congressional due date of June 30, 2005.

A NIF Transition Period Implementation Plan (TPIP) was developed jointly by the NIF Project Office and the NNSA Office of the NIF Project, and approved by NA-10 for use from January though June 2005, while the NIF directed change rebaseline was processed. During this rebaseline period NIF Project earned value management system (EVMS) reporting was suspended. Excellent progress was achieved during the rebaseline Transition Period with all but one of the 47 TPIP milestones completed by June 30, 2005. NIF Project EVMS reporting was restarted for the July through September 2005 period, with 19 of the 20 DOE reportable milestones scheduled for completion during this period completed (including the last TPIP milestone). Based on the latest earned value data, through August 2004, the NIF Project is over 81% complete and on schedule. The NIF Project cumulative Cost Performance Index (CPI) and cumulative Schedule Performance Index (CPI) were 1.00 and 1.00 respectively, and the Cost Variance & Schedule Variance were $8.2 million and -$2.7 million respectively. In addition three NIF Project Execution Plan Level 2 milestones: “Laser Glass Melting Complete” (ms05-24 MRT#870) was completed on schedule in December 2004; “Deliver 80kj to Switchyard Calorimeters (Single Bundle)”(ms06-29 MRT#1850) and “Deliver Laser Bay Automated Bundle Shot Controls” (ms05-37 MRT#1679) were completed ahead of schedule in August 2005. Two milestones, “Final safety analysis report for NIF approved” (ms05-23 MRT#869) and “First NIF bundle commissioned” (ms05-22 MRT#868), originally planned for FY 2005 were deleted consistent with the NIF Project rebaseline. NIF project unallocated contingency at the end of FY 2005 is considered adequate at ~22% of remaining costs.

The NIF Project maintained its outstanding safety record during FY 2005, with no lost work days during the Fiscal Year and over 4.47 million hours worked since December 14, 2000 without a lost work day. A National Safety Council 4 million work hours award was received in November 2005. For FY 2005 the NIF Project achieved a total recordable case rate (TRR) of 2.1, which is a little worse than FY 2004. The NIF Project TRR is good compared to the CA State average TRR of 4.8 and the National average TRR of 6.5. In addition, good progress was made in the closeout of “Open Safety Related Findings. During FY 2005 525 new safety related findings were generated and 482 were closed out by the end of August 2005, with 183 findings remaining open of which 48 are long term Fire Hazard Analysis findings.

Technical progress during FY 2005 included:

- NIF Early Light user shot campaign was completed in October 2005 after almost 400 shots
- Target Chamber First Wall installation was completed in March 2005

- computer controls for the First Bundle & Second Bundle were installation qualified in Laser Bay 2 in March 2005 & May 2005 respectively, and automated computer controls (HotShot software) were successfully used on the First Bundle in August 2005
- First Bundle of 8 laser beams was installation qualified & operational qualified in August 2005, with 136 kJ achieved (a world laser energy record)
- By the end of FY 2005, almost 1000 (~17%) of the 5,752 Line Replaceable Units (LRUs)
- Optics production continued to meet LRU production & installation requirements during FY 2005, with laser glass melting completed in December 2004
- Beampath Utilities (electrical & mechanical systems) installation continued during FY 2005 on pace for completion in FY 2006, with the last major contract for electrical utilities installation approved by DOE/NNSA
- At the end of FY 2005 the NIF Project was over 81% complete and on schedule with the rebaseline plan

All NIF Project monthly reports prepared during FY 2005 were received on time, with the January & February 2005 reports combined as agreed to by the Federal Project Director. NIF Project monthly reviews were held during the first quarter of FY 2005, but were suspended during the Transition Period and through the end of the Fiscal Year.

The NIF Project participated in the UC/LLNL EVMS certification review in September 2005 and has started preparing responses to the two Corrective Action Requests related to the NIF Project

Issues and Concerns:

The EMPC project is on hold until HQ decision is made regarding an effort to consolidate High Explosive activities within the NNSA Complex. The design has been archived at the 85% level for resumption when/if directed.

There are no follow-on line item construction projects in the foreseeable future. This raises the concern that the contractor may have their very good project management capability be lost in next few years.

Following the re-baseline, there are essentially no options remaining to mitigate the impacts of reductions from the approved funding profile. The impacts of even small reductions may require substantial re-planning and have significant impacts to both the project and the goal of ignition 2010.

Performance Measure 6.3	**Good**
Improve and sustain the physical infrastructure needed to support Laboratory operations.	

- **Execute the Facilities and Infrastructure Recapitalization Program.**
- **Manage facilities in a manner consistent with NNSA's deferred maintenance goals and other objectives as stated in the approved Ten-Year Comprehensive Site Plan.**
- **Sustain planned availability of mission essential facilities.**
- **Implement the FY05 NNSA-approved Maintenance Implementation Plan (MIP).**

The contractors overall rating is good. This is a composite rating for the four sub-items, two are outstanding, one is good, and one is unsatisfactory (MIP implementation). Basically the contractor has an outstanding facilities management program that has received recognition from both inside and outside the Department. The contractor has demonstrated a leadership role in the development and implementation of facilities management systems. Many of their systems are considered to be the model for the rest of the weapons complex. However, the lack of implementation of the Maintenance Implementation Plan (MIP) as required by DOE Order 433.1 has resulted in the lowering what would've been an outstanding rating to good.

Execute the Facilities and Infrastructure Recapitalization Program.
The contractor is rated outstanding for FIRP project costing, Ten Year Comprehensive Site Plan and Disposition performance as Good and Project Management performance as Satisfactory.

Manage facilities in a manner consistent with NNSA's deferred maintenance goals and other objectives as stated in the approved Ten-Year Comprehensive Site Plan (TYCSP).
The contractor is rated as good on this item. NA-52 rated the contractor's performance as satisfactory for ratio 78 % of FY 2003 baseline deferred maintenance accomplished per dollar spent. NA-52 gave a "needs improvement" for FY 2009 projected (per the FY 2006 TYCSP) Facility Condition Index (FCI) for Mission Essential Facilities of 5.2 % versus the goal of 5.0 %. LSO rates the 78 % as a good to outstanding. The contactor is almost reaching the FCI goal of 5 % with significantly reduced funding and that is rated as good by LSO.

Sustain planned availability of mission essential facilities.
The contractor is rated outstanding for this item. RTBF facilities (15 building complexes) availability was >99% for the performance year which was well above the target of 90%. NA-117 also rated the contractor as Outstanding.

Implement the FY05 NNSA-approved Maintenance Implementation Plan (MIP).
The contractor is rated unsatisfactory for this item. The contactor made progress toward completion of their Maintenance Implementation Plan (MIP), but unsatisfactory progress toward its implementation. No graded approach analysis, either as described in the existing MIP or as modified for a new MIP, has been accomplished by NMTP on their Structures, Systems and Components (SSCs). The specific methods of applying the graded approach to achieve four risk categorizations to decide maintenance detail and resources were clearly spelled out in the existing MIP, but the implementing actions related to the graded approach were not accomplished as represented.

The contactor had self-reported Administrative Control Program (ACP) Technical Safety Requirement violations in two of their nuclear facilities. TSR recovery plans were required after problems were recognized in a variety of ACPs, including Maintenance, and which also required operational curtailment.

While the contractor's overall performance for this sub-element is rated as unsatisfactory, two of their organizations performed acceptably or better. Laboratory Services Division (LSD), through Plant Engineering Department, performed excellently by helping facilitate the MIP, playing a supporting role to nuclear facility maintenance responsibility, and submitting a timely draft of their portion of the MIP. Safety and Environmental Protection (SEP), through their Radioactive Hazardous Waste Management (RHWM) Division, performed adequately by submitting their draft appendix of the MIP in a timely manner.

Issues and Concerns:

Proposed significant cuts in FIRP funding per August 25, 2005 TYCSP guidance would create an issue of meeting the FY09 Program goal reflecting the industry standard of "good or better (5% FCI or less)."

The RTBF budget remains extremely stressed although performance for planned availability is >99%. Maintenance and modernization of facility equipment has also been adversely impacted by funding constraints.

Performance Measure 6.4	**Good**
Support planning, implementation, and execution of SNM consolidation and/or relocation activities, including reducing inventories of surplus and excess SNM consistent with DOE/NNSA approved plans.	

The contractor performed at the good level for this performance measure. The stand-down of programmatic activities in B-332 halted re-packaging of surplus materials at LLNL during most of FY 2005. However, the hiatus did not adversely impact LLNL since the DOE had not made any decisions regarding consolidation and disposition of LLNL surplus nuclear materials in FY 2005.

In FY 2005, the contractor, as did other NNSA contractors, continued to be engaged in several DOE-sponsored nuclear materials committees addressing the issue of surplus nuclear materials inventories in the DOE complex. Additionally, the contractor supplied several nuclear material inventory data reports to NA-124 (DOE Office of Operations and Construction Management), NA-261 (DOE Office of Disposition Projects), and the Savannah River Site (SRS) describing the quantities and types of surplus and excess SNM in storage at LLNL. The contractor also fulfilled a requirement from NA-124 to develop disposition maps for all of its surplus nuclear materials.

Operations

Performance Objective 7	Good
Utilize UC strengths to recruit, retain and develop the workforce basis.	

Performance Measure 7.1	Outstanding
Recruit and retain a skilled and diverse workforce that meets the Laboratories' long-range core and critical skills requirements by implementing a human resource strategy that leverages student programs and UC relationships.	

The contractor did a good job of recruiting and retaining a skilled and diverse workforce. The contractor has also been successful in its implementation of a human resource strategy that leverages student programs and UC relationships.

Highlights of accomplishments include:

- Non-retirement attrition of the critical skills population was 2.3 % for the Defense Program (DP) population, and 3.0 % for the pipeline population. This bodes very well, given that the threshold established by NNSA is 3 % for each group.
- The contractor continued to make strides on creating a more welcoming and inclusive work environment (e.g., FY 2005 hiring increased the diversity of the senior management group).
- The contractor expanded its outreach programs at UC campuses and had more than 120 research collaborations with UC campuses in FY 2005.
- Director's workforce reviews continued to be an important part of assessing the contractor's capability and ensuring accountability.

In addition:

- The contractor's reinstituted process for identification of employees actively engaged in critical skills work was an excellent example of quality review of workforce capabilities.
- Workforce Reviews continued to be used to evaluate and plan retention and recruitment activities and results.
- HR initiatives to strengthen management controls and improve connection of HR practices to the marketplace continued (i.e., IPPP, A&S restructuring and Management Study).
- There was a strong array of programs for outreach to future employees to replenish the pipeline and significant efforts were accomplished to improve recruitment metrics.
- During FY 2005, the contractor offered 22 diversity programs and activities.

- The contractor implemented client-specific recruitment strategies; this included deployment of staff to assist with the development and implementation of the Engineering and Computation directorates and diversity recruitment initiative.

Issues and Concerns:

The contractor needs to better define and state its long-range core and critical skills requirements.

The contractor has not adequately communicated results of its workforce review process and discussions, nor clearly explained how results are used as the basis for ensuring an optimal workforce to meet its mission requirements.

Performance Measure 7.2	**Good**
Implement leadership and management development programs aligned with workforce planning and diversity objectives.	

The contractor did a good job of implementing and continuing leadership and management development programs.

Highlights of accomplishments include:

- The contractor continued to value employee development.
- Existing courses and vendor contracts were reviewed and updated to include a diversity component.
- The number of directorates initiating and completing directorate leadership programs increased in FY 2005.
- DOE/NNSA benchmarked LLNL leadership development programs via a video conference conducted in FY 2005 to discuss how the contractor's program and lessons learned might assist NNSA in the development of the DOE/NNSA leadership program. Materials, templates, and tools were provided and follow-up discussions held.
- The contractor's commitment to leading employee development practices continued, with major upgrades to the search engines for self-directed learning opportunities.
- Infrastructure was enhanced to better support implementation of leadership and management development strategies.
- The contractor retained an external consultant to assist in the establishment of their succession management framework and provide links between business strategy and talent management systems.

In addition:

- Employee and leadership development programs were extensive, well-organized and well attended.
- A database to track demographics of leadership and management development program participants was developed.
- The contractor added and expanded courses to better address the development needs of technical managers and employees.
- Contractor conducted an experiential leadership development program that reinforced the importance of sensitivity, empathy, tolerance and mutual respect, as important leadership traits.

Issues and Concerns:

The contractor needs to better define and state its workforce & diversity objectives.

The contractor can improve in its demonstration of how its leadership and management development programs reflect the workforce's diverse nature.

While the overall population for women and some minority groups has steadily increased, there are cases where the new availability based on the 2000 census has outpaced the contractor employment representation.

Performance Measure 7.3	**Good**
Establish and implement a weapons point of contact development program.	

During FY 2005, LLNL developed formal position descriptions for the system manager and system engineer positions, selected a new system manager and system engineer for the W87 warhead, and selected a system manager and a different system engineer for the W80-0,1 stockpile warhead types. The individuals selected for the W87 and W80 positions have appropriate experience on their respective systems and appear well-prepared for these assignments. LLNL has initiated succession activities for the system managers for the W62 and B83 weapon types.

Performance Objective 8	Satisfactory
Maintain safe, secure, environmentally sound, effective, and efficient operations in support of mission objectives.	

Performance Measure 8.1	Satisfactory
Achieve continuous improvement in ISM System performance: • **Assure consistent and effective application of ISM principles across all organization levels and across all Laboratory facilities.** • **Implement a Work Smart Standard for the safety basis of non-nuclear facilities.** • **Ensure effective implementation of an ES&H corrective action management program, including institutional corrective actions derived from violations enforceable under the Price Anderson Amendments Act.** • **Implement an Emergency Management Program within the NNSA-approved schedules. (LLNL)**	

Consistent and Effective ISMS Implementation and Corrective Action Management Program

- The independent oversight inspection of ES&H management Inspection conducted by the Office of Independent Oversight and Performance Assurance (OA-40) conducted in October 2004 found that ISMS is implemented with varying levels of effectiveness across all and within the various directorates. The corrective action plan for (CAP) for the OA-40 inspection (OA-40 CAP) was approved by LSO in April 2005. The implementation of the CAP is progressing satisfactorily; actions due date were completely timely as required, and due date extension requests to LSO followed the appropriate process.
- OA-40 provided significant comments on the OA-40 CAP for the lack of start dates and action details, some proposed actions did not address many of the causal factors, and some proposed actions did not address all elements of the findings. A supplemental to the OA-40 CAP is being prepared by LLNL to address the comments from OA-40.
- Feedback for improvement function at LLNL was rated as Needs Improvement by OA-40. No significant corrective actions were due during this performance period so that significant progress can be demonstrated.
- The OE Investigation Summary Report, dated August 30, 2005, concluded that "In most cases, it appears that LLNL has not been able to demonstrate effective resolution of some of the underlying causes of the longstanding deficiencies documented by several of the DOE reviews associated with this investigation." LLNL did not approve a corrective action plan to the June 2004 PAAA Program Review until March 11, 2005. Thus many actions taken to address the deficiencies in LLNL's causal analysis, corrective action tracking, and independent verification of completion and validation of effectiveness were delayed. Nevada Test Site reports have not been kept

up to date to show corrective actions taken. Thus the PAAA program is rated as unsatisfactory for this fiscal year.

Implementation of Non-nuclear Safety Basis Standard

- The contractor did a good job of implementing the non-nuclear safety basis program. During fiscal year 2005, the contractor submitted fifteen (15) new safety basis documents and the Final Authorization Basis Document for the Biological Safety Level 3 Facility for LSO review and approval. These documents were all approved and demonstrated good implementation of the new ES&H Manual, Document 3.1 - *Nonnuclear Safety Basis Program.*
- The contractor submitted an implementation plan for the Work Smart Standard (WSS), UCRL-ID-150214, R2, which was approved in October of 2005 and updated and approved by NNSA in September 2005. The schedule is success oriented and provides a reasonable approach for phasing in the new requirements.
- The contractor received delegation of approval authority for Light Science and Industry Facilities in May 2005. This delegation was based on the contractor's completion of the following activities: facility-level and safety analyst training, resolution of feedback and comments on the procedures for implementation, and the contractor's ability to exercise the appropriate level of risk acceptance for these facilities.
- The contractor presented an acceptable path forward on documenting risk acceptance criteria and lines of inquiry for non-nuclear safety basis approvals.

Implementation of Emergency Management Program

- The contractor performed at the good level for implementing processes and completing tasks that form the basis of the emergency management program. The contractor completed all FY 2005 Emergency Readiness Assurance Plan (ERAP) deliverables. These deliverables included but were not limited to: annual updates to the LLNL Emergency Plan and Emergency Plan Implementing Procedures; Emergency Preparedness Hazards Assessments (EPHA); EPHA facility-specific Emergency Plans and drills; the annual exercise; and the annual self-assessment. ERAP deliverables were of acceptable quality and were received on schedule.
- The contractor completed other tasks and deliverables that exceeded the overall operational performance requirements. Institutional guidance on the Self-Help Program was developed and the Self-Help training course revised, ten EPHA facility-specific Emergency Plans were completed versus six required by the ERAP, all EPHA facilities participated in a drill or exercise during the performance period versus the two-year implementation cycle described by the ERAP, the contractor participated in a joint LLNL/SNL exercise that tested integration of emergency response between the two sites, and the relocation of the Emergency Communications Network equipment to the Building 490 Emergency Operations Center was initiated. These tasks and deliverables were of acceptable quality.

- In June 2005, the Office of Independent Oversight and Performance Assurance (OA-30) conducted an inspection of the LLNL emergency management program. While seven findings were identified during this inspection, OA-30 recognized that LLNL had implemented numerous improvements in the site's emergency management program that provided the framework for an effective program. The contractor continues to work with LSO to establish short-term and longer-term systematic changes to the emergency management program in response to the June 2005 OA-30 inspection. The final Corrective Action Plan will improve upon the framework established by the LLNL Emergency Programs Organization and result in a more robust emergency management program.

Issues and Concerns:

Consistent ISMS Implementation and Effective Corrective Action Management

- The preparation of the Supplemental OA-40 CAP to include more details on the proposed actions, measurable deliverables, and effectiveness evaluation of actions taken to address OA-40 comments continues to be a challenge.

- There is a need to clarify interaction and responsibilities between the newly formed Office of Institutional Performance Assessment (OIPA) and the ES&H Assurance Review Office (EAO) to ensure that the independency of the EAO organization is maintained.

- There is a need to include an assessment of effectiveness of corrective actions appropriate to enhance the feedback for improvement process at LLNL.

Non-Nuclear Safety Basis

- The contractor must continue to emphasize the importance of implementing the non-nuclear safety basis program which requires ensuring that appropriate funding and resources are allocated for the implementation of planned milestones.

Emergency Management Program

- Sustained upgrade efforts are still needed to ensure continued attention to technical bases, processes, and quality assurance to meet programmatic requirements.

Performance Measure 8.2	Satisfactory
Comply with and achieve continuous improvement in nuclear safety and quality performance under 10 CFR 830.	

The contractor's performance in the area of compliance and improvement in meeting the requirements of 10CFR830 Subparts A and B was satisfactory. Four primary elements were considered for evaluation under this performance measure as follows: a) nuclear safety at LLNL; b) criticality safety at LLNL; c) quality assurance at LLNL; and d) LLNL performance of 10CFR830 at NTS. Note that each element was not weighted equally.

Associated with nuclear safety, overall the contractor's performance was unsatisfactory. Several issues were identified by LSO from an Unreviewed Safety Question (USQ) assessment (October 2004) that evaluated the performance of the USQ Program for Environmental Management facilities. The review concluded that the Radioactive and Hazardous Waste Management (RHWM) USQ process was not adequately implemented. The Laboratory has been very slow in addressing corrective actions associated with the RHWM USQ review. The OA-40 review during October 2004, also identified issues with USQ screenings and concluded that the USQ process was not being executed in Building 332 in accordance with 10CFR830. The Laboratory was resistant to reporting Potential Inadequacies to the Safety Analysis (PISA) associated with the OA-40 review in a timely manner. Processing of these PISAs and other PISAs throughout the Fiscal Year have taken much longer than required in the Laboratory's USQ procedure. The Laboratory successfully revised their USQ procedure to remove first level screenings during FY2005. New leadership in the Laboratory's Hazard Control Division (Authorization Basis Section specifically) is creating better alignment to DOE requirements across all areas of nuclear safety.

Planning for upcoming safety basis amendments did not significantly improve over last year's performance in the first six months during FY 2005. The Laboratory successfully completed the inventory reduction in Building 251 resulting in a downgrade of Hazard Categorization from two to radiological. Resolution of Documented Safety Analysis (DSA) comments for other nuclear facilities (e.g., B-331 and B-334) required extensions beyond the re-submittal dates deferring their implementation. The Laboratory made very slow progress on resolution of DOE comments associated with the Building 332 DSA and Technical Safety Requirements (TSR) deferring re-submittal and the subsequent implementation.

There were a large number of TSR violations this year. Many of the TSR violations were associated with Administrative Control Programs in Building 332 as a result of the OA-40 assessment. In several cases the Laboratory was not proactive in timely reporting of the violation and development of recovery plans that addressed the TSR failure. Self identification of the Fire Protection TSR violation in Building 332 demonstrated an improvement in identification of a TSR violation, self-reporting and development of a recovery plan. The Laboratory continues to struggle to successfully implement 10CFR830 Subpart B as a result of lack of resources.

The contractor did an outstanding job in the area of criticality safety. A recent LSO assessment of LLNL's implementation of criticality safety program concluded that LLNL meets both DOE and National consensus standards. Additionally, during a recent self-assessment of LSO, an NNSA Headquarters criticality safety expert determined that the LLNL criticality safety program was one of the best in the DOE complex. LSO has also observed that LLNL actively works to improve its program and processes using input from facilities management as well as input received through self-assessment processes.

The contractor did a satisfactory job in complying with and continuously improving quality performance under 10CFR830. Overall, the contractor met operational performance expectations for quality assurance (QA). The Livermore Site Office (LSO) assessment of the Suspect/Counterfeit Items (S/CI) prevention processes indicates that the contractor is doing a good job implementing this institutional quality assurance process. The review included nuclear and radiological facilities and activities. The OA-40 assessment found several deficiencies with implementation of QA. Corrective actions to address these deficiencies were developed and approved by LSO. Of the two corrective actions related to QA, one was completed on schedule and one was to be completed with a one month extension. LSO review of the contractor's institutional quality assurance program found that while compliant with quality assurance requirements overall, additional detail in the QA Program documentation is necessary to demonstrate compliance with the requirements of the QA Rule and Order. Quality assurance assessments of safety software have identified some deficiencies, opportunities for improvement, and noteworthy practices. The deficiencies have been addressed by corrective action plans. The contractor met operational performance expectations for software quality assurance (SQA).

Key accomplishments associated with quality assurance included:

- The contractor has approved and implemented an institutional SQA policy.
- The contractor's Institutional Software Quality Assurance (ISQA) Implementation Plan (IP) was completed, signed and approved for use and implementation.
- The contractor completed, on-time, the corrective action required for the MXL Fire Detection and Alarm System (FDAS) assessment conducted in July 2004; an assessment that focused on the Instrumentation and Controls (I&C) software requirements for Defense nuclear facilities.
- The contractor teamed with LSO in the assessment of HSC Outokumpu safety software. There were four (4) issues, six (6) Opportunities for improvement, and one (1) noteworthy practice found. The Laboratory has submitted corrective actions (CA) for the issues found that have been accepted by LSO.
- The contractor has demonstrated outstanding leadership and personnel support of the NNSA Roadmap for Nuclear Facility Quality Assurance Excellence.

No input was received from the Nevada Site Office concerning the performance of LLNL for this performance measure.

Issues and Concerns:

In Nuclear safety, the contractor has been very slow in responding to LSO comments and concerns on assessments and nuclear safety documentation. This has to improve to ensure timely implementation of safety basis documents and timely correction of issues affecting safety. Corrective actions need to address not just the individual concern but the cause of the concern to prevent re-occurrence. The Laboratory with few exceptions is resistant to self reporting of nuclear safety violations (TSR violations and PISAs). The contractor continues to need significant improvements in their USQ program.

The effectiveness of the quality assurance program continues to be a challenge for the contractor. Indicators of this include issues and deficiencies identified by: the DOE Office of Independent Oversight and Performance Assurance (OA-40), the DOE Office of Price-Anderson Enforcement (OE) in the Investigation Summary Report of the MOVER event (discussed in section 8.1), and LSO oversight activities.

Performance Measure 8.3	**Good**
Maintain an environmental management program consistent with the DOE-approved baseline, funding levels, policy, and negotiated regulatory requirements. • **Effectively integrate environmental stewardship into the ISM system.** • **Effectively manage environmental compliance agreements.** • **Effectively manage the direct funded environmental restoration and waste management programs.**	

8.3.A. Newly Generated Waste Subproject
The Contractor did an outstanding job operating the waste management facilities in a safe, compliant manner while maximizing EM funds. The Contractor disposed of 517 m^3 of mixed and low level wastes, 67 m^3 above their EM Corporate Performance Measure of 450 m^3, a 14% increase beyond the measure. The Contractor's year end cost variance was 5.6%.

8.3.B. Legacy Waste Subproject
The Contractor did an outstanding job in managing the Legacy Waste Project (LWP). The Contractor exceeded the 650 m^3 legacy waste inventory reduction target delineated by the Corporate Performance Gold Chart Metrics for this fiscal year. The Contractor eliminated 1,147 m^3 of mixed and low level legacy waste this year, which was an unprecedented volume of offsite mixed and low level legacy waste shipments. Although the Contractor did not completely disposition the legacy waste by September 30, 2005, the Contractor's performance was outstanding considering all the schedule, compliance and technical risks that had to be managed and resolved. Finally, there are enough funds to complete the disposition of the remaining 44 m^3 in FY 2006.

8.3.C. Livermore Site Environmental Restoration Subproject
The Contractor performed satisfactorily in managing the Livermore Site Environmental Restoration Subproject. The Contractor completed all (four) of its enforceable agreement construction milestones during FY 2005. However, the cost variance was between 0% and

-5% (-0.4%), which was satisfactory.

8.3.D. Site 300 Environmental Restoration Subproject
The Contractor performed well in managing the Site 300 Environmental Restoration Subproject. The Contractor completed all (five) of its enforceable agreement construction milestones during FY 2005. However, the cost variance was between 0% and 5% (3.5%), which was good.

8.3.E. Cost Savings/Project Efficiencies Measure
The Contractor did an acceptable job in pursuing cost savings and project efficiencies in accordance to their Plan of Action. More specifically, the Contractor developed a proposal with a recommendation for action for one-time "campaign waste".

8.3.F. Implementation of Environmental Management System
The Contractor needs to improve on its implementation of an ISO 14001 Environmental Management System (EMS). The Contractor did not submit to the Livermore Site Office a written or electronic notification that the ISO 14001 EMS is in place and self declaration can begin. In addition, the Contractor could not provide evidence that some pieces of the EMS were in place.

Issues and Concerns:

In FY 2005, the Contractor continued to be behind schedule in implementing ISO 14001 EMS. Even if the Contractor was on schedule, it would still be challenging to put an EMS in place and have EMS independently reviewed by December 31, 2005. Given the current status, the Contractor is at risk to complete its remaining EMS commitments.

Also, although the Contractor did an outstanding job in managing the Legacy Waste Project, LSO expects the Contractor to complete the LWP by the end of November 2005. This is a reasonable, but very aggressive, schedule. The remaining legacy wastes are difficult waste streams to disposition.

LLNL has not identified and implemented cost efficiencies for the EM program.

Performance Measure 8.4	Good
Achieve continuous improvement in security performance through ISSM and risk management principles. • **Demonstrate continuous improvement in the implementation of ISSM including line management directed self-assessments.** • **Develop and implement appropriate plans and initiatives in accordance with DOE/NNSA policies so that NNSA expectations are addressed while balancing mission requirements with S&S resource allocations and new requirements.** • **Effectively manage accountable Classified Removable Electronic Media (CREM).** • **Effectively account for Special Nuclear Materials.** • **Detect, deter, and mitigate foreign intelligence collection and espionage at the Laboratory.** • **Implement corrective actions as a result of findings from external agencies in accordance with the approved timeline in the corrective action plan.**	

Achieve continuous improvement in security performance through ISSM and risk management principles.

Demonstrate continuous improvement in the implementation of ISSM including line management directed self-assessments.

- ISSM was improved through self-assessments by staff training in self-assessments and by strengthening the roles and responsibilities of Associate Directors in conducting self-assessments.

Develop and implement appropriate plans and initiatives in accordance with DOE/NNSA policies so that NNSA expectations are addressed while balancing mission requirements with S&S resource allocations and new requirements.

- The Site Safeguards and Security Plan was updated in January 2005 to address the significant changes in protection strategy expectations that have occurred since September, 2001. Implementation plans are approved for implementing protection strategies against a contemporary design basis threat.

- Unclassified cyber systems were reaccredited in September 2005 to implement current requirements of the Federal Information Security Management Act and NNSA cyber security policies.

- Security plans were approved to apply protection measures to a Select Agent Bio-Surety Laboratory.

Effectively manage accountable Classified Removable Electronic Media (CREM).

- Reviews found adherence to current NNSA policies for CREM protection. A full inventory of CREM was completed with no accountability problems noted.

Effectively account for Special Nuclear Materials.

- Reviews found effective accounting of Special Nuclear Materials.

Detect, deter, and mitigate foreign intelligence collection and espionage at the Laboratory.

- The CI Office at LLNL provided outstanding support to LLNL and other entities within DOE, NNSA and other Federal, state, and local agencies.

Issues and Concerns:

Further emphasis in planning is needed to accomplish timely certifications to support accreditations of classified cyber systems.

Continued emphasis in planning is needed to accomplish vulnerability assessments and force-on-force exercises in accordance with NNSA expectations.

Performance Objective 9	Outstanding
Improve or maintain effective business processes and systems that safeguard public assets and support mission objectives.	

Performance Measure 9.1	Outstanding
Demonstrate effective internal business controls and processes to maintain acceptable Financial Management and Human Resources systems and approved Procurement and Property Management systems. This includes the management of a risk-based, cross-functional, integrated, and credible assessment program.	

Financial Management

The contractor continues to perform its Financial Management activities in an outstanding manner. Performance in all areas of budget management and accounting services is at a high level and work exceeds government performance expectations. The CFO organization uses a number of internal and external reviews, audits, and self-assessments to provide a fact based evaluation of its operation. During the rating period, 21 reviews and audits produced no major recommendations. Sixteen of these led to minor corrective activities and the other five contained no recommendations. Internal self-assessments of financial management within the Directorates revealed no reportable deficiencies. Reviews and audits were conducted by DOE IG, GAO, Price Waterhouse Coopers (FY 2004 UC Regents financial audit), and the contractor internal Audit and Oversight staff.

During the rating period, the contractor upgraded several reports and systems. The CFO organization worked closely with other contractor organizations (Property, Procurement, Business Services) to improve the reporting of assets, to improve the processing of purchase orders, and to speed reimbursements related to non-purchase payments. The contractor made the conversion to the new DOE accounting system (STARS) without major disruption.

The contractor has established project plans for several major initiatives. The Contractor is moving forward with plans to operate a project-based accounting system. A plan to restructure the distributed cost system was submitted to NNSA in August 2005. Both plans are proactive steps undertaken by the contractor to improve its financial management system. At NNSA's request, the contractor also has developed a plan to implement the requirements of the Sarbanes-Oxley Act of 2002 through the Office of Management and Budget Circular A-123, Appendix A.

The contractor responded in an exemplary way to specific financial management criteria set forth by the NNSA Field CFO, including providing accurate and timely resource and financial reporting, demonstrating effective financial accounting practices, managing and implementing efficient and effective direct and indirect cost distribution systems.

Human Resources
The contractor's Human Resources Department worked with Finance, Business Services, and UC to develop guidelines for Multi-Location Assignments (MLA), which have been approved by UC for implementation by December 2005, and will be submitted to LSO for approval. The MLA facilitates the exchange of faculty and staff within the UC system while ensuring proper controls are in place to track and monitor employees' time, benefits, contributions, and assignment durations.

The contractor started the People Information Project (PIP). It consolidates people information into a single data base, standardizes and re-engineers HR processes and terminology, and develops enhanced HR reporting and intelligence tools.

Procurement
The contractor performed the procurement function at the outstanding level during the FY 2005 performance period. This rating is based primarily on procurement's performance under Objectives Matrix Balanced Scorecard Measures and also takes into consideration the contractor's self-assessment, operational awareness activities conducted by the site office, and third party independent reviews. The Objectives Matrix provides the protocol for assessing the comprehensive performance of the Procurement System on a real time basis and has been in use since FY 2003. In August 2005 the procurement management system underwent an independent assessment by a Procurement Evaluation & Re-engineering Team (PERT), which was comprised of individuals from NNSA-HQ and other DOE/NNSA Management & Operations contractors.

The contractor has a well-developed, comprehensive self-assessment and evaluation program, which was considered a "best practice" by the PERT. The methodology, approach, and analysis performed by the procurement staff are exemplary and demonstrate a sound basis for evaluating the contractor's purchasing system. Procurement operations maintain a very comprehensive risk-based self-assessment program that ensures compliance with internal and external policies and procedures. The contractor's internal information systems contribute to its ability to produce quality documents, implement and monitor internal controls, self-assess the transactions, and implement timely and effective corrective actions. The results of the self-assessments disclosed a very high level of compliance for FY 2005.

The contractor was able to achieve this very high level of compliance without sacrificing performance in other critical areas. Procurement continued to provide a good customer service, effectively manage its Key Suppliers, and adequately control its costs during the period. In fact, the contractor's Key Supplier Program was considered a "best practice" by the PERT. Moreover, the contractor consistently ensured that accurate information was available and that total needed information was provided to the staff to perform its functions, resulting in improved expertise among its personnel and increased number of quality procurements. The contractor also exceeded its goals for small business, women-owned small business, and HUB Zone small business awards.

In the area of employee satisfaction, the contractor achieved a significant turnaround from its unsatisfactory performance in FY 2004 based on the results of its recently completed employee survey. Implementation of the contractor's corrective action plan resulted in improved survey results.

Overall, the contractor's procurement management organization has strong leadership and an effective management structure and in conjunction with an educated staff, maintains accurate and current policies and practices, fosters and maintains good relationships with internal and external customers, and develops and implements innovative improvement projects to reduce procurement costs, which all contribute to a successful purchasing system. The contractor's procurement management system is mature, well managed, and supported organizationally by top management. The contractor's procurement department is the standard for other entities within the agency to benchmark.

The results of the contractor's comprehensive self-assessments as well as our operational awareness activities were validated by the PERT third party review. The results of the review were extremely positive and reported eight items as "best practices" and nineteen items as "strengths." Furthermore, there were no negative observations made by the team of a significant nature. Some of the "best practices" included LLNL's Self-Assessment Program, Supplier Management Program, dedicated Subcontract Administration Support Team, and Electronic Ordering System (EOS). The PERT review validated the contractor's exceptional performance that was monitored by the federal staff. As a result, the contractor's procurement authority was increased from $10 million to $20 million and extended for two years.

Property

The contractor performed the Property function at the good level during the FY 2005 performance period. The Personal Property Management System is based primarily on the Property Performance Assessment Model. The Model provides the protocol for assessing the comprehensive performance of the Property Program on a real time basis and has been in use since its development in 1996. On-site validation reviews were performed by federal staff throughout the fiscal year.

This evaluation took into consideration the contractor's self assessment, operational awareness activities conducted by the NNSA Service Center, and third party independent reviews. Other factors considered were the existence of appropriate internal controls and compliance with applicable laws, regulations, and orders.

Inventory results of attractive personal property are generally acknowledged to be the single most important determinant in the evaluation of an overall property management program. The contractor has historically produced "best in class" results and the FY 2005 inventory continues the trend by accounting for 99.97 % of the attractive property.

The equipment inventory resulted in a find rate of 100 %. The results of both inventories are at the outstanding level of performance. Such results reflect the completeness of the

contractor's overall Property Management Program. The Laboratory continues to be a leader among the other Departmental facilities in the area of personal property inventory results.

The contractor discovered that some property items were not tagged within five days of receiving notification from the purchasing system database. Property Management created a process map to determine areas for improvement and deployed the solution that the re-tagging effort would be better served by the Property Management Liaison Group because of its existing involvement with the Property Center Representatives. Property Management increased its staff support to meet its tagging requirements. There has been continuous improvement for this measure throughout the three quarters of the fiscal year.

When a contractor employee terminates, the property items are to be re-assigned to an active employee. The contractor found a system weakness because of problems encountered in obtaining the data from other directorates. Based on interactions with the directorates, the data on terminated employees is provided timely to reduce the risk of unaccountable personal property.

In the area of fleet management, the contractor continues to aggressively manage a decentralized vehicle management program that places overall responsibility and accountability for vehicles with the directorates. The contractor's fleet management implements and monitors to approved utilization standards. Directorate monitoring of utilization is highly encouraged, which results in routine intra-directorate vehicle rotation to avoid under utilized vehicles. Performance for the four classifications of vehicles being measured reflects utilization well above the minimum 100 percent mark.

The Property Management Division continued implementing several integration measures with other organizations to ensure key support processes that link them with other organizations are adequately assessed and resulting information shared. The most critical organizational relationship to the control of personal property exists between the Procurement Division and Property Management Division, and to a lesser extent Material Distribution Division and Property Management. Integration measures results for the second year produced improvements in communication and changes to processes to enable closure of gaps between the organizations hand-off points.

The contractor's Personal Property Management Program is a mature program. The program is well managed and supported organizationally by top management. The staff is well trained and understands their role in accomplishing the overall objectives of the program. A relatively simple philosophy of "strict individual accountability" has been woven into day-to-day operations so as to have become transparent. The program is dynamic in nature and management is continuously working to improve performance. Change is embraced and supported but it is critically assessed to determine whether it makes good business sense. The program fully understands the concept of customer satisfaction and the organizational dynamics necessary to achieve it. Overall, the Personal Property Management Program is leader and innovator of change for other entities within the Department to benchmark.

Issues and Concerns:

In the area of Financial Systems Management, EPAR implementation will require changes to a number of other internal systems. Concern is that existing systems are not denigrated to improve another.

There is need for the contractor to more fully define its internal business controls and processes, more fully describe and communicate its management of a risk-based, cross functional and integrated assessment program in the Human Resources systems and processes area.

In the procurement area, the contractor's ability to attract, develop and retain a staff of highly qualified purchasing and subcontracting professionals for the future is a concern. The actual turnover rate for procurement was nearly 15 % in FY 2005, well in excess of the contractor's forecast as well as industry standards.

In FY 2005 a number of corrective actions were implemented, which resulted in improved overall survey results from the unsatisfactory earned in FY 2004. The FY 2005 survey results continue to identify low employee satisfaction relative to salary issues. This low level of satisfaction is in part attributable to the restructuring of all Administrative & Specialist (A&S) job classifications and salaries carried over from FY 2004. The purpose of the restructuring was to create a market-driven salary structure with job family matrices linked to the market. The procurement positions were lumped into a non-homogeneous job family that included property administration, material distribution, traffic, and warehouse operations. Unlike the majority of the other job classifications included in this job family, subcontracting and procurement personnel possess very high levels of education and specialized experience. This non-homogenous market survey process has resulted in extremely low pay raises for the procurement staff and may lead to high turnover in FY 2006, jeopardizing the contractor's ability to maintain an approved purchasing system.

The continuity of the management team, succession planning, and its long-term ability to continue to effectively manage the procurement function are also a concern. Seventy-five percent of the managers listed on the procurement organization chart for September 2005 carry "acting" titles. Many of these "acting managers" remain slotted in non-supervisory positions and have been performing in this capacity for one year or more despite the fact that the laboratory completed the restructuring of management job classifications and salaries several months ago. Failure to permanently fill these supervisory positions at the appropriate pay grade may result in high turnover in FY 2006, jeopardizing the contractor's ability to maintain an approved purchasing system.

Performance Measure 9.2	Good
Demonstrate continuous improvement in the effectiveness of business processes and the information technologies that support these business systems (i.e., Financial Management, Human Resources, Procurement, Property Management, and Information Management).	

Financial Management
The contractor performance in the financial management area is good. The contractor's commitment to improvement is at a high level and meets or exceeds government expectations.

The contractor made the DOE directed conversion to a new DOE accounting system, STARS, without significant disruption. This new DOE system has required many system and process changes and the conversion was a major undertaking. All contractor file submissions have been accepted by DOE without significant revision. The contractor continues to make internal improvements in automated tools available to field resource managers. The CFO worked with Property, Procurement, and Business Services managers on several internal improvements.

Plans have been put into place on two major initiatives undertaken by this proactive contractor. A plan to restructure the distributed cost system was submitted and accepted by NNSA in August. Also planning is underway to move the contractor internal accounting operation to a project based system. DOE expects to see significant improvements from these initiatives in future years.

Human Resources
In the Human Resources area, the contractor released Lhire/eRecruit Phase III in December 2004. Examples of new functionality are: an automated applicant pre-screening tool that allows for initial applicant screening on line; redesign of the Applicant Education pages which improved capability to capture applicant education data; auto population of Essential Skills, Knowledge and Abilities into the interview evaluation criteria; and an update of the Employment Start form to capture data required for payment of hiring bonuses.

The Integrated Performance and Pay Program (IPPP), which began in 2004, included an assessment of all contractor performance programs, job classifications, and pay structures to ensure they are competitive with market, reflect best practices, and improve consistency of classification and pay practices across directorates. IPPP initiatives completed in FY 2005:

- The new Recognition and Awards Program designed to ensure consistent and equitable use across the Laboratory is the product of a survey action team recommendation to "improve and broaden support for the Laboratory's awards and recognition program".
- Implementation of a new Administrative Management series, which reduced the previous Management series by 52%. The new structure provides consistency of classification and pay across the directorates.

- Implemented new defined target zones for all classifications in order to link performance more closely to pay.

Procurement
The contractor demonstrated continuous improvement in the effectiveness of business processes and information technologies that support the procurement function and earned a rating of good for the period. The rating is based on the Improvement Initiatives Measures set forth in the Procurement Objectives Matrix as well as the development and implementation of information systems in support of procurement.

E-Procurement spending increased significantly by over $7 million in FY 2005. E-Procurements consist of web-based transactions using the contractor's Electronic Ordering System (EOS) where the order entry, acknowledgment, and payment are accomplished without manual intervention. The purpose of the EOS system and its supporting agreements is to reduce cycle time for common items, realize lower prices, and increase control of small purchases by reducing the number of credit card transactions. The ratio of EOS spending to credit card spending increased from 18% in FY 2004 to over 35 % in FY 2005. It is noted that the EOS system, which was implemented in FY 2004, was considered a "best practice" by the Procurement Evaluation and Engineering Team during its review in August 2005.

Development work to upgrade the various procurement IT systems under the Laboratory Integrated Network for Contracts and Supplies (LINCS) project, which began in FY 2002, continued. Two Technical Release Representative (TRR) Self-Assessment modules were released in early FY 2005 to automate the weekly and quarterly review processes. However, the contractor disclosed that this new software does not provide data in the format necessary to perform the self-assessments of weekly UniCard orders. As a result, self-assessment of weekly UniCard orders, which is an internal control within the purchasing system, is well behind schedule. However, this is mitigated by the fact that the contractor continues to perform its quarterly and annual TRR self-assessments in a timely manner. A recovery plan was submitted on September 13, 2005 and the contractor anticipates completing the necessary programming changes and implementing updated software in October 2005.

In July 2005, Phase One of User Acquisition was released, which allows employees to electronically shop EOS catalogs, create a purchase request, and send the request to the TRR who processes the EOS order. A catalog for computer peripheral equipment was also added during the year.

Property Management
In the area of property management, the contractor successfully controls and accounts for personal property in the Sunflower Assets (SFA) database through the life cycle of the property. SFA is populated on a daily basis when property items are procured via the Purchasing and Receiving Information System (PARIS). Electronic notifications are received by Property Management, alerting them that property needs to be tagged.

The interfaces with Human Resources, Procurement, and Property Management are evidenced through several cross-functional measures that require input from those contractor organizations. The Property Management Division continues to work with the Chief Financial Officer to create a systematic solution for identifying and tagging capital assets in a timely manner. The Property Management Division is proactive in resolving issues identified as a result of metrics such as reassignment of property from terminated contractor employees to active employees and database accuracy.

Issues and Concerns:

In the area of procurement, delays in developing LINCS, which the contractor initiated in FY 2002 and which includes the much-needed replacement for its outdated Procurement, Accounting, and Receiving Information System (PARIS), are a concern. In FY 2005 the CFO introduced a new accounting system, Enterprise Project Accounting and Reporting (EPAR), which will have extensive feeder requirements and require integration by procurement. To date, the feeder requirements have not been established. LINCS development effort is temporarily on-hold as the programmers have been redirected to complete critical enhancements to previously released LINCS modules. Once these enhancements are completed and the EPAR requirements are fully defined, LINCS development will again be placed on-hold as the programmers are redirected to EPAR integration. In addition to negatively impacting the LINCS schedule, it appears the integration and deployment of EPAR will result in changes to current business practices. It does not appear that the contractor fully considered these factors in scheduling the integration and deployment of EPAR.

Performance Measure 9.3	**Good**
Demonstrate improvement in cost effectiveness of both institutional processes and management systems.	

This particular performance measure includes assessment of all the contractor initiatives for institutional processes which produce cost effectiveness. The contractor initiated an Institutional Process Improvement initiative and metrics project.

The contractor established the Institutional Metrics Working Group which established dashboards for facilities, procurement, financial, Chief Information Officer, human resources, security and ES&H.

The Process Improvement (PI) Office has developed process re-engineering capabilities, purchase process mapping software, trained facilitators to support PI projects across the institution and held workshops on process improvement.

Performance Measure 9.4	Good
Demonstrate an effective integrated monitoring program that documents and tracks corrective actions and which addresses all internal and external business system review findings and recommendations.	

The good rating is based on a review of LLNL's self-assessment and LSO operational awareness activities completed throughout the assessment period. The Laboratory did a very good job in developing an integrated tracking system by leveraging its existing Audit Tracking System (ATS), previously used to only track internal audit management corrective actions (MCAs). To satisfy the intent of the measure, external reviews and other internal reviews required integration into a monitoring system that could be used by management to assure MCAs were being resolved timely and be visible to upper management to intervene/take appropriate action as needed if items were not resolved timely. Overall, the expanded and enhanced ATS now successfully tracks MCAs responsive to findings and recommendations from external reviews and reportable self-assessments as well as internal audits. LSO will now expect the contractor in future periods to demonstrate the effectiveness of its monitoring program by including measurable results relative to closure of MCAs in a timely manner. In addition, while the contractor has established criteria for reporting significant self-assessment findings, the criteria may also need to include reporting self-assessment findings not being resolved in a timely manner to ensure items are being elevated to the appropriate level of management for awareness and possible intervention.

The contractor implemented an effective process to identify and capture external findings and recommendations. Prior to FY 2005, the contractor had a monitoring program for tracking MCAs resulting from internal audit reports. The contractor conducted a review of all external audit reports issued since February 2003 containing findings related to the Laboratory. MCAs responsive to open external audit findings were negotiated with the Laboratory point of contact (POC). The LSO was consulted to ensure that applicable findings were captured. In addition, the contractor developed criteria and requested the directorates to identify "reportable" self-assessment findings.

The contractor has developed procedures to develop and independently validate corrective action plans based on discussions with the Laboratory POC and LSO. The procedure requires a joint agreement between the Laboratory's Audit & Oversight Department (A&O), LSO and the POC on the planned MCAs. This process will need to be refined to assure the appropriate contractor and LSO staff are involved. Once entered into the ATS the POC is responsible for completing the MCA and updating the status.

The contractor developed processes and procedures to track and monitor corrective actions and to ensure timely resolution. FY 2005 represents the first year for tracking external reviews and reportable self-assessments at the institutional level; therefore, most of the effort was directed at developing and deploying the system. Now that the system is operational, it contains baseline information to trend and measure effectiveness in timely resolution of

MCAs. As of September 30, 2005 the system contained 69 total MCAs. The MCAs by type follow:

- Internal Audit 43
- External Audit 25
- Self-assessment 1

The contractor has developed processes and procedures to verify implementation of corrective actions is effective. One of the key features and an enhancement to the system is that it provides an on-line, real-time tool allowing assigned POCs the ability to input the status of MCAs. Once identified as complete by the POC, an automated email is generated and sent to the assigned auditor in A&O who is required to complete validation within 10 working days. This process is noteworthy since the validation is performed by an organization independent of the organization responsible for the MCA.

Performance Objective 10	Outstanding
Sustain and/or implement effective Community Initiatives.	

Performance Measure 10.1	Outstanding
Leveraging the UC expertise and mission in science education, the laboratories will establish and maintain science education outreach programs with the joint goals of community outreach and substantive contribution to science education.	

The Contractor did an outstanding job establishing and maintaining science education outreach programs with the joint goals of community outreach and substantive contribution to science education.

Performance Measure 10.1 - Two organizations contribute to the accomplishments of this performance measure, the Science & Technology Education Program (STEP) and the Public Affairs Office (PAO). Highlights in this area include:

1. LLNL made a major commitment to the World Year of Physics (WYOP) 2005 of which DOE was the lead U.S. agency by holding educational and community events that highlighted Albert Einstein's work and educated the public on the importance of physics;

2. Science on Saturday (SOS) had record attendance at all five Tri –Valley lectures in 2005, with approximately 600 students and teachers attending each lecture;

3. Teacher participation in ETEC's regional centers increased from 505 in 2004 to 582 in 2005. Growth in participation reflected the addition of new Teacher Research Academies in Fusion/Astrophysics and Biophotonics, and the first placements of teachers in research internships at LLNL;

4. The Lab hosted more than 500 middle school students from Livermore and Oakland at Engineers Day in February 2005 and in July 2005, the Lab hosted 2300 people for the second annual Got Science? Discover Science Saturday program which increased from 2,000 people the prior year; and

5. LLNL and Livermore Valley Joint Unified School District (LVJUSD) have signed a memorandum of understanding to work together to enhance science education in the district. The MOU enabled LLNL to integrate its CSI: Livermore summer program, piloted at ETEC in August 2004, into the school district's 2005 summer school program.

Performance Measure 10.2	Good
The Laboratory will develop local community initiatives to include those programs or responses addressing mutual goals and concerns. (LLNL)	

Responsibility for this measure rests with the Public Affairs Office. PAO did a good job in developing a number of community outreach initiatives to address areas of potential concern to the community. Highlights include:

1) The Lab Director hosted the Annual Community Leader Day for more than 150 local dignitaries for elected and appointed community officials to better acquaint them with the operations of the Laboratory and the NNSA's Livermore Site Office;

2) LLNL communicated regularly with City of Livermore officials on matters related to the BSL-3 facility;

3) the Laboratory continued to provide support to the NNSA Site Office for its preparation of the Site-Wide Environmental Impact Statement for Continued Operation of LLNL and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement for LLNL;

4) the Lab continued to offer tours to the public and operate the Discovery Center, both of which highlight LLNL scientific research, programs, and facilities; and

5) printing of the LLNL Community Newsletter, "Discover LLNL" was increased from 3, 000 to 5,000 to reach a wider local audience.

Since adding this requirement, LLNL has done a good job of communicating with LSO Public Affairs. LSO monitored LLNL's communications and notification throughout the FY 2005 assessment period.

Appendices
Appendix A
Ratings

Overall LLNL Rating

Mission (Performance Objectives 1-6) **Outstanding**

Operations (Performance Objectives 7-10) **Good**

Rating by Performance Objective

Mission		
1.	Conduct warhead certification and assessment actions using a common UC Design Laboratory Strategy	**Outstanding**
2.	Develop with NNSA and implement long-term balanced, integrated stewardship	**Outstanding**
3.	Develop with NNSA and implement near-term balanced weapon programs that are coordinated with the other NNSA M&O site contractors and DoD customers and that foster complex-wide solutions to meet the needs of the U.S. nuclear deterrent.	**Good**
4.	Implement an integrated science and technology-based program aimed at preventing the proliferation or terrorist acquisition of weapons of mass destruction as well as detecting and responding to their deployment or use.	**Outstanding**
5.	Enhance and nurture a strong science, engineering, and technology base in support of national security strategic objectives	**Outstanding**
6.	Optimize current and evolving mission performance by providing effective and efficient facilities and infrastructure.	**Good**

Operations		
7.	Utilize UC strengths to recruit, retain and develop the workforce basis	**Good**
8.	Maintain safe, secure, environmentally sound, effective, and efficient operations in support of mission objectives.	**Satisfactory**
9.	Improve or maintain effective business processes and systems that safeguard public assets and support mission objectives	**Outstanding**
10.	Sustain and/or implement effective Community Initiatives	**Outstanding**

Appendix A
Ratings
Ratings by Performance Measure

	Description	
1.	**Conduct warhead certification and assessment actions using a common UC Design Laboratory Strategy**	**Outstanding**
1.1 *	Use progress toward quantifying margins and uncertainties, and experience in application to further refine and document the certification methodology.	**Outstanding**
1.2	Demonstrate application of a common assessment methodology using Quantification of Margins and Uncertainty (QMU) in major warhead assessments.	**Outstanding**
1.3	Complete the annual assessments of the safety, reliability, and performance of all warhead types in the stockpile to include whether nuclear testing is required for resolution of any issue and to support NNSA as required during interagency and community coordination of the Annual Assessment Process.	**Outstanding**

2.	**Develop with NNSA and implement long-term balanced, integrated stewardship**	**Outstanding**
2.1	Support the needs of warhead assessment, certification, and simulation validation by executing a coordinated program of targeted small- and large-scale experiments and mining of archival UGT data to improve predictive capability. Develop and execute a program of hydrotests and subcritical experiments that addresses assessment and certification needs.	**Outstanding**
2.2	Conduct design and analysis of nuclear weapons that address the future needs of the U.S. nuclear deterrent.	**Outstanding**
2.3 *	Develop the requirements for advanced radiographic capabilities to support assessment and certification, and develop or demonstrate supporting radiographic technologies.	**Outstanding**
2.4	Develop and demonstrate ASC simulation and modeling capabilities that support the ongoing needs of stockpile assessment and certification.	**Outstanding**
2.5	Improve and apply tools and models for prediction of systems, subsystems, and/or component lifetimes.	**Outstanding**
2.6 *	Develop and implement a collaborative and complementary program of experiments at High Energy Density (HED) facilities that supports assessment and certification needs.	**Outstanding**
2.7 *	Develop and implement an integrated program with a central goal to achieve ignition at NIF in 2010.	**Outstanding**
2.8 *	Develop and implement an integrated program for plutonium capabilities of LANL and LLNL to support the overall NNSA strategic requirements.	**Good**

*Joint LANL / LLNL Measures are 1.1 2.3 2.6 2.7 2.8 6.1

	Description	
3.	**Develop with NNSA and implement near-term balanced weapon programs that are coordinated with the other NNSA M&O site contractors and DoD customers and that foster complex-wide solutions to meet the needs of the U.S. nuclear deterrent.**	**Good**
3.1	Conduct stockpile surveillance activities, investigate significant findings and issues identified in technical assessment reports on a prioritized basis, and establish closure plans for Significant Finding Investigations (SFIs).	**Good**
3.2	Deliver on the major milestones for the Life Extension Programs for the W76, the B61-7/11, and the W80-3 in accordance with the joint DOE/DoD phase 6.x process.	**Outstanding**
3.3	Deliver on W88 Pit Manufacturing and Certification Project major milestones.	**Outstanding**
3.4	Meet directive schedule requirements.	**Outstanding**
3.5	Provide technical support to production complex operations, including the Integrated Weapons Activity Plan (IWAP) and other weapons response analyses.	**Satisfactory**
3.6	Complete the establishment of, and implement in accordance with NNSA-approved plans, a weapons design and manufacturing quality assurance program consistent with NNSA requirements (QC-1, Rev 10).	**Good**
3.7	Develop and execute projects to improve the responsiveness of the design, manufacturing, and testing infrastructure of the integrated nuclear weapons complex.	**Outstanding**

	Description	
4.	**Implement an integrated science and technology-based program aimed at preventing the proliferation or terrorist acquisition of weapons of mass destruction as well as detecting and responding to their deployment or use.**	**Outstanding**
4.1	Provide technical capabilities to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons; and enable the implementation of U.S. nonproliferation policy.	**Outstanding**
4.2	Provide scientific research capability that produces cutting-edge R&D as well as the testing and evaluation needed to detect, identify, and monitor proliferation and terrorist-related WMD activities.	**Outstanding**
4.3	Support the needs of the intelligence community by providing intelligence analysis capabilities and science and technology that improve the nation's ability to detect and thwart proliferation and terrorism.	**Outstanding**
4.4	Develop and support the deployment of technologies and analytical capabilities that strengthen the nation's ability to protect against and respond to terrorist use of weapons of mass destruction and other threats against the U.S. homeland.	**Outstanding**
4.5	Apply advanced science and technology to meet immediate and long-term U.S. defense community needs.	**Outstanding**
4.6	Maintain and deploy, as required, nuclear emergency response teams for CONUS and OCONUS response to radiological and nuclear threats.	**Outstanding**

	Description	
5.	**Enhance and nurture a strong science, engineering, and technology base in support of national security strategic objectives.**	**Outstanding**
5.1	Nurture and maintain the Laboratory science and engineering excellence in disciplines and capabilities needed to support our national security missions and emerging national needs.	**Outstanding**
5.2	Develop and implement an integrated and balanced strategy for investing LDRD, programmatic and institutional resources to ensure the long-term vitality of the Laboratory science, engineering, and technology base in support of national security missions and emerging national needs.	**Outstanding**
5.3	Execute non-NNSA sponsored research and development that builds on unique Laboratory expertise and capabilities and enhances the ability to meet current and future national security needs.	**Outstanding**
5.4	Foster active participation in the broad scientific and technical community, leveraging unique Laboratory expertise and capabilities; develop strategic collaborations with other national laboratories, industry, and academia.	**Outstanding**

6.	**Optimize current and evolving mission performance by providing effective and efficient facilities and infrastructure.**	**Good**
6.1 *	Refine and execute, in coordination with NNSA and other appropriate DOE programs, plans to support optimal use by both laboratories of scientific, research, and test facilities.	**Outstanding**
6.2	Execute construction projects as identified and agreed between NNSA and the Laboratories within scope, schedule, and budget.	**Outstanding**
6.3	Improve and sustain the physical infrastructure needed to support Laboratory operations. • Execute the Facilities and Infrastructure Recapitalization Program. • Manage facilities in a manner consistent with NNSA's deferred maintenance goals and other objectives as stated in the approved Ten-Year Comprehensive Site Plan. • Sustain planned availability of mission essential facilities. • Implement the FY05 NNSA-approved Maintenance Implementation Plan (MIP).	**Good**
6.4	Support planning, implementation, and execution of SNM consolidation and/or relocation activities, including reducing inventories of surplus and excess SNM consistent with DOE/NNSA approved plans.	**Good**

*Joint LANL / LLNL Measures are 1.1 2.3 2.6 2.7 2.8 6.1

	Description	
7	**Utilize UC strengths to recruit, retain and develop the workforce basis**	**Good**
7.1	Recruit and retain a skilled and diverse workforce that meets the Laboratories' long-range core and critical skills requirements by implementing a human resource strategy that leverages student programs and UC relationships.	**Outstanding**
7.2	Implement leadership and management development programs aligned with workforce planning and diversity objectives.	**Good**
7.3	Establish and implement a weapons point of contact development program.	**Good**

	Description	
8	**Maintain safe, secure, environmentally sound, effective, and efficient operations in support of mission objectives.**	**Satisfactory**
8.1	Achieve continuous improvement in ISM System performance: • Assure consistent and effective application of ISM principles across all organization levels and across all Laboratory facilities. • Implement a Work Smart Standard for the safety basis of non-nuclear facilities. • Ensure effective implementation of an ES&H corrective action management program, including institutional corrective actions derived from violations enforceable under the Price Anderson Amendments Act. • Implement an Emergency Management Program within the NNSA-approved schedules. (LLNL)	**Satisfactory**
8.2	Comply with and achieve continuous improvement in nuclear safety and quality performance under 10 CFR 830.	**Satisfactory**
8.3	Maintain an environmental management program consistent with the DOE-approved baseline, funding levels, policy, and negotiated regulatory requirements. • Effectively integrate environmental stewardship into the ISM system. • Effectively manage environmental compliance agreements. • Effectively manage the direct funded environmental restoration and waste management programs.	**Good**
8.4	Achieve continuous improvement in security performance through ISSM and risk management principles. • Demonstrate continuous improvement in the implementation of ISSM including line management directed self-assessments. • Develop and implement appropriate plans and initiatives in accordance with DOE/NNSA policies so that NNSA expectations are addressed while balancing mission requirements with S&S resource allocations and new requirements. • Effectively manage accountable Classified Removable Electronic Media (CREM). • Effectively account for Special Nuclear Materials. • Detect, deter, and mitigate foreign intelligence collection and espionage at the Laboratory. • Implement corrective actions as a result of findings from external agencies in accordance with the approved timeline in the corrective action plan.	**Good**

	Description	
9.	**Improve or maintain effective business processes and systems that safeguard public assets and support mission objectives**	**Outstanding**
9.1	Demonstrate effective internal business controls and processes to maintain acceptable Financial Management and Human Resources systems and approved Procurement and Property Management systems. This includes the management of a risk-based, cross-functional, integrated, and credible assessment program.	**Outstanding**
9.2	Demonstrate continuous improvement in the effectiveness of business processes and the information technologies that support these business systems (i.e., Financial Management, Human Resources, Procurement, Property Management, and Information Management).	**Good**
9.3	Demonstrate improvement in cost effectiveness of both institutional processes and management systems.	**Good**
9.4	Demonstrate an effective integrated monitoring program that documents and tracks corrective actions and which addresses all internal and external business system review findings and recommendations.	**Good**

	Description	
10	**Sustain and/or implement effective Community Initiatives**	**Outstanding**
10.1	Leveraging the UC expertise and mission in science education, the laboratories will establish and maintain science education outreach programs with the joint goals of community outreach and substantive contribution to science education.	**Outstanding**
10.2	The Laboratory will develop local community initiatives to include those programs or responses addressing mutual goals and concerns. (LLNL)	**Good**

Appendix B

Acronyms Used in This Report

CI	Counterintelligence
DBT	Design Basis Threat
DHS	Department of Homeland Security
DOE	U. S. Department of Energy
DWTF	Decontamination/Waste Treatment Facility (DWTF)
ETCU	Engineering Technology Complex Upgrade
FIRP	Facility and Infrastructure Recapitalization Program
HED	High Energy Density
ISM	Integrated Safety Management
ISSM	Integrated Safeguards and Security Management
IWAP	Integrated Weapons Activity Plan
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
LSO	Livermore Site Office
MC&A	Material Control and Accountability
NIF	National Ignition Facility
NNSA	National Nuclear Security Administration
NTS	Nevada Test Site
PISA	Potential Inadequacies to the Safety Analysis
QMU	Quantification of Margins and Uncertainties
RHWM	Radioactive and Hazardous waste management
RTBF	Readiness in Technical Base and Facilities
SAFE	Security Awareness for Employees
SCIF	Sensitive Compartmented Information Facility
SECON	Security Condition
SEMI	Safety and Emergency Preparedness Inspection
SFI	Significant Finding Investigation
SNM	Special Nuclear Material
TSF	Terascale Simulation Facility
TSR	Technical Safety Requirements
TYCSP	Ten Year Comprehensive Site Plan
UC	University of California
USQ	Unreviewed Safety Question