



Fiscal Year 2004
Annual Performance
Evaluation and Appraisal

Lawrence Livermore National Laboratory



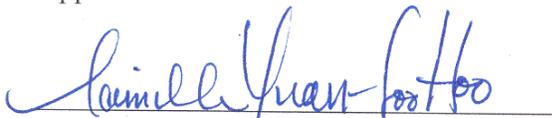
Prepared by:

**Livermore Site Office
National Nuclear Security Administration
January 2004**

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 "**Satisfactory**" is earned for Operations. This report, the "Fiscal Year 2003 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
Manager
Livermore Site Office

Date: 1/7/05

FY 2004 Annual Performance Evaluation and Appraisal
for
Lawrence Livermore National Laboratory

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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 2004, the self-assessment period for the Laboratory is October 1, 2003 through September 30, 2004, 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, 2004.

Overall Appraisal Results

This is the second annual contract performance assessment under the restructured Appendix F process. The Livermore Site Office (LSO) has worked closely with NNSA HQ, the Los Alamos Site Office, the Lawrence Livermore and Los Alamos National Laboratories and the University of California, 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's self-assessment, LSO reviews, external reviews and audits, NNSA HQ input and LSO's daily operational oversight. Based upon these activities, LLNL has earned an **Outstanding** rating in Mission and a **Satisfactory** rating in Operations.

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

Mission

LLNL has continued to make "outstanding" contributions to Research & Development, and Simulation during FY-2004. Development and application of tools for stockpile certification is the basis for this overall rating. LLNL has been the leader for application of Quantifications of Margins and Uncertainty and has presented that methodology well. Execution and analysis of experiments (examples from JASPER, Piano, NIF, and hydrodynamics) has strongly supported stockpile certification needs. Significant advances in computing and in acquisition of new computing platforms have also enabled Stewardship success. LLNL has been quite responsive to planning and communication needs except that integration with other performers (for example within Inertial Confinement Fusion) has sometimes been inadequate and activities supporting insight and oversight by federal managers have been too limited. NNSA also needs stronger support from LLNL on authorization basis issues for nuclear safety.

LLNL has consistently provided a world-class scientific effort in addressing the national needs of Stockpile Stewardship in accordance with the direction of the NNSA. LLNL has created a vital balance between internationally recognized science in the open, and the commensurate research in the closed. The cross-fertilization has certainly been key to progress sustained this past year and we hope that this balance is maintained in the future.

LLNL must be congratulated in keeping this balance. Detailed issues can be found in the Appendix F summaries. Here we highlight selected points.

- Pushing the development of QMU as a methodology to address certification and assessment as we move farther from the test base has been exemplary. This has been evidenced through NIF, ASC and the Science and Engineering Campaigns. The application to the weapons systems and experiments, while still in its infancy, is gaining

ground and we expect the development to rapidly continue as well as the breadth of applications.

- Support for the DARHT 2nd axis recovery effort at LANL remains outstanding.
- The NIF Project was maintained within budget, scope, and schedule. LLNL did an outstanding job in accomplishing activities associated with the NIF Demonstration Program and the NIF Experimental Support Technologies Program.
- ASC Purple contract with IBM was renegotiated in view of changing technologies to bring a \$60M cost savings while delivering the same capabilities. Progress in code development, application, the underlying science and computer science remain impressive.
- LLNL is commended for the validation work for the Unicorn SCE subcriticality through simulation as well as the W88 warhead primary baseline assessment.
- Diamond anvil cell work is world-class and the complete phonon dispersion curve of plutonium has been well recognized.
- LLNL has done an excellent job of executing experiments in the national hydrotest plan.

LLNL's NAI Directorate has come a long way over the last year in fulfilling the goals of Objective 4. The DRC reviews that assessed the overall performance of NAI have reported out positively regarding NAI's accelerated progress and accomplishments in meeting the Objective 4 measures, especially those achievements of P and R Divisions primarily focused on international cooperation and technologies deployment. NAI, as the lead directorate for this Objective, continues to excel in effectively executing a very broad-based technology development program and in conducting extensive field operations utilizing a wide-spectrum of the LLNL matrix. The balancing of priorities in conducting long-term R&D while responding to urgent national security operational requests, has presented considerable management challenges that continue to be struggled with, but are being well handled, in meeting ever increasing demands. For the many noteworthy impressive accomplishments, and the successes in the execution of existing activities and the growth of its programs, NAI's performance is Outstanding.

LLNL has an extensive science and technology base and many specialized research facilities and equipment not only to support the DOE mission but also commitments to non-DOE sponsors. The Laboratory sustains its science and technology base by effectively managing their internal investments in long-term research activities such as the Laboratory Directed Research and Development (LDRD) Program. Academic collaborations and the use of LDRD helps attract and retain outstanding staff. LLNL also leverages their funding by taking on reimbursable projects with Non-DOE entities. Partnerships and collaborations continue to support DOE's mission. Partnering mechanisms can vary from licensing agreements, Work for Others Proposals, Department of Homeland Security (DHS) reimbursable agreements, through Cooperative Research and Development Agreements, procurements, as well as research collaborations with universities and teaming with other laboratories. The Non-NNSA portion of the budget accounts for over 30 percent of Livermore's budget. In addition to supporting NNSA and other DOE offices, most LLNL programmatic directorates are now funded by a large variety of Non-DOE sponsors such as NASA, NIH, DHS, DARPA, DTRA, NRC, and industry.

A number of External Director's Review Committees highlighted the quality of work and mission relevance at LLNL. Examples include the Chemistry and Material Science (CMS) committee, which reported that a grade of "Outstanding" could easily be supported in this discipline directorate. Projects reviewed were of a high quality and illustrated the breadth of the underlying science program in Energy and Environmental Sciences Directorate. The Physics and Advanced Technologies (PAT) Directorate Committee was very impressed with the competence and dedication of the PAT employees and work reviewed.

Operations

The Contractor has made good efforts to communicate its expectations of fair treatment to employees. This effort has been demonstrated by reviewing and where necessary, revising current policies, implementing a new pay equity system, redesigning the diversity strategy, and keeping current with recent developments in State and Federal disability law. The Contractor's Management should continue to communicate to supervisory personnel and employees its expectations of how employee relation matters should be managed in the first instance so that they do not evolve into significant issues.

In the area of recruiting and retention, LLNL provided credible evidence of accomplishment against performance, notably, the extensive recruiting activity on UC campuses, implementation of the IPPP program and the effectiveness and savings resulting from implementation of the L-Hire (a web based employment system). Also noteworthy were the major upgrade to self-directed learning opportunities, establishment of a database to track leadership development demographics, the upgrade of marketing materials and enrollment processes, and the detailed description of a weapons point of contact. There is an on-going concern about critical skills metrics report data and the methodology employed to obtain it. LLNL is engaged with NNSA to better meet these expectations.

Performance under Objective 8 continues to show mixed results. LLNL is considered "World Class" in operational facilities, maintaining a 99.7 per cent availability for RTBF facilities, being on target for meeting deferred maintenance goals on critical facilities and for achieving FIRP Program objectives. In addition, LLNL is once again recognized for the quality, comprehensiveness, and timeliness of the TYCSP.

For ES&H, LLNL is recognized for their revisions to the ES&H self-assessment procedures; the rollout of the Issues Tracking System and for progress towards implementing the non-nuclear authorization basis WSS. There are still concerns with the self-assessment reports in that they lack rigor, do not justify overall conclusions and lack assurance that effective actions are identified and implemented. LSO also has concerns with the implementation of ISM, noting the Mover incident as an example where ISM implementation was weak.

Nuclear Facility Safety continues to be of major concern to LSO. There have been a few achievements, only one TSR violation and three timely 10CFR830 submittals. However, significant issues remain: USQ Process implementation, Safety Basis amendments not in conformance with 10CFR830, resolution of LSO comments on B-332 DSA/TSRs, AB CAP

closure, USQ CAP issuance and the lack of submittal of a QAIP. These on-going issues are of such significance in terms of Nuclear Facility Safety, that LLNL is at an Unsatisfactory performance level.

With regards to Safeguards & Security, notable improvements are recognized in Protective Force Training; consolidation/reduction of CREM holdings; DBT implementation plan/upgrades; and key control processes. In addition, LLNL received a Satisfactory rating from the recent OA review. Areas still needing attention include an assessment of the risks associated with unclassified cyber security, assessments and implementation of the cyber NAPs, and a need to address recurring deficiencies (i.e. uncompleted cyber security corrective actions and uncorrected self-identified ISSM deficiencies).

LLNL has made notable accomplishments in terms of DNFSB commitments completed: plutonium packaging (94-1) and consolidation (97-1). However, the DNFSB commitment to complete the Inactive Actinides Working Group Materials Characterization and Storage Adequacy Report is behind schedule.

LLNL has also demonstrated improvement in the Environmental Management area, completing all enforcement agreeable milestones at the main site as well as at Site 300 where substantial cost savings were noted. LLNL exceeded its goals for Newly Generated Waste Treatment and Disposal, completed the TRU waste characterization and started operations of equipment at DWTF on time.

The Emergency Management Program at LLNL has been reorganized to strengthen project management and better integrate the program into existing management systems. In addition, there has been satisfactory progress towards completing hazards assessments. Unfortunately, these achievements are not enough to overcome significant deficiencies. LLNL did not complete the agreed-to schedule of upgrades including full implementation of a drill program for facilities with hazards assessment, and had inadequate quality in some emergency planning documents. In addition, LLNL has yet to implement an effective issues management system for the emergency management program.

LLNL financial, human resources, procurement, property and information management systems and activities remain sound, and overall assessment of Lab performance under this objective is "Good". LLNL continued to perform effective accounting practices, provided sound financial stewardship of assets made available to the Lab, and budget products and services provided by the contractor's CFO organization were of high quality. Human Resources implemented the Objective Matrix and met most performance goals outlined for FY04. Procurement operations maintained a very comprehensive risk-based self-assessment program that ensured compliance with internal and external policies and procedures. The Lab made notable improvements in awarding contracts in the small disadvantaged and service-disabled veteran owned small business categories. Personal Property sensitive items inventory and the equipment inventory resulted in an "Outstanding" level of performance. In the area of fleet management, utilization standards were developed and the Lab met the Department's fleet reduction target. Also, several integration measures with other organizations were established to ensure key linking support processes are adequately assessed and resulting information shared. In the area of Information

Management, the Lab developed an Institutional Information Technology Program to define and manage, on a common basis, the IT spending done by various elements of the Laboratory with institutional funds provided largely out of G&A; the LLNL CIO broadened the scope of the IT Architecture function to enhance standardization and efficiency; and, a comprehensive portfolio management process was put in place to review all institutional IT services and projects expenditures. And lastly, functional integration of various business activities at LLNL continues to be pursued. Closely tied to these efforts is the Lab focus on improving the consistency of project management practices across disparate organizations.

LLNL efforts to sustain community initiatives continue to be at the Outstanding level. Community relations is a high priority and LLNL has an extensive outreach program as well as the Public Affairs Office that addresses California science and education goals and key community initiatives. Examples include: The University of California's Edward Teller Education Center (ETEC) located at LLNL, was officially dedicated in November 2003; Science & Technology Education Program (STEP), in partnership with ETEC, held several workshops for approximately 500 middle school and high school teachers to help further their knowledge, skills, and abilities in the area of science and math; STEP continued its partnership with ETEC to expand UC's K-12 science education into the Central Valley with existing Regional Education Centers in Fresno and Merced and they also created new Centers in Bakersfield and Davis; Science on Saturday (SOS) lecture series offered in the Tri-Valley had a record attendance of 450 people for the NIF lecture, and the series was extended to the San Joaquin Valley, in collaboration with UC Merced and Merced College; and Community Leader Day for local dignitaries

Overall LLNL Rating

Mission		Outstanding
1.	Conduct warhead certification and assessment actions using a common UC Design Laboratory Strategy	Good
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 contractors	Outstanding
4.	Implement an integrated science and technology-based program aimed at preventing the proliferation or terrorist acquisition of weapons of mass destruction and other new and emerging threats	Outstanding
5.	Enhance and nurture a strong science and technology base in support of national security strategic objectives	Outstanding
6.	Achieve successful completion of projects and development of user facilities	Outstanding

Operations		Satisfactory
7.	Utilize UC strengths to recruit, retain and develop the workforce basis	Good
8.	Maintain a secure, safe, environmentally sound, effective and efficient operations and infrastructure basis in support of mission objectives	Satisfactory
9.	Improve or maintain effective business systems and practices that safeguard public assets and support mission objectives	Good
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)	Good
Use progress toward quantifying margins and reducing uncertainties, and experience in application, to further refine the certification methodology.	

LLNL has established strong leadership in the development of Quantification of Margins and Uncertainty (QMU) as the warhead certification methodology and its implementation, including application to weapons systems. At the JASON's QMU review LLNL presented several groundbreaking presentations on the application of QMU to generic and system specific problems showing remarkable progress since the NNSA Science Council Review. At the March Hydrottest Review, LLNL also clearly showed how such experiments fit within the QMU methodology.

LLNL has applied QMU in developing the Certification Plan for the W80-3. Within the Certification Plan, an extensive watch list of potential failure modes and margins were identified. Currently, an uncertainty evaluation is in progress using radiographic analysis to correlate device performance. LLNL used DAKOTA in optimization, sensitivity, and uncertainty quantification studies in FY04.

Issues and Concerns:

The NNSA notes that QMU is being driven by LLNL leadership and is not universally accepted within the design division personnel at the laboratory. Further work in developing the primary certification roadmap is also needed.

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

LLNL has set a clear example of the application of QMU to warhead assessment and certification in the W80 program where QMU has informed considerations of what changes can be made and what experiments are required to recertify the weapon system.

LLNL has participated in numerous workshops and reviews relative to developing a common assessment methodology using QMU. A consensus at the highest level has been achieved. Though further development is needed, QMU tools are being developed in the LLNL science, engineering, and ASC R&D programs. In addition, these tools and the QMU methodology have been applied to stockpile work and are reflected in the LLNL Annual Assessment Reports and the W80-3 Certification Plan.

For example, the W80-3 Certification Plan has identified all of the component and system requirements, risks to meeting those requirements, and risk mitigation measures that establishes the failure modes and margin of W80-3 components and systems. This work is supplemented by numerous activities that are being conducted to estimate and reduce uncertainties (e.g., both numerical and experimental uncertainties) as part of the overall assessment strategy.

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 and certification by executing coordinated programs of targeted small- and large-scale experiments and mining of archival UGT data to improve predictive capability. Develop and execute a program of hydrotests that addresses certification needs.	

- Secondary Assessment in A/X-Division is well managed as was demonstrated in NNSA review (Dec 2003) and the April 2004 national working group meeting. LLNL has made excellent progress in developing models in support of Secondary Assessment. New models have been implemented in ASCI codes that have supported directed stockpile work. LLNL has applied these new models to improve primary factors for use in UGT re-analysis.
- LLNL has also completed an outstanding effort to validate a new manufacturing technique in collaboration with LANL and AWE.
- Excellent progress has been made in initial case dynamics and radiation flow MTE. The progress flows from excellent management coordination and communication between LANL and LLNL sites.
- The deployment of new diagnostics at Site 300 represents a very significant modernization of their capabilities.
- JASPER has steadily produced data and a recent issue of flyer plate distortion that was identified was investigated and corrected rapidly.
- The diamond anvil cell work is world-class and, in particular, some unclassified work measuring the complete phonon dispersion curve of plutonium has received great international attention including publication in Science magazine.
- LLNL has done an excellent job of executing experiments in the national hydrotest plan

Issues and Concerns:

- For pit lifetime determination, more work is needed with LANL to characterize the useful information, if any, that can be obtained from further analysis of underground nuclear tests (UGTs)

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

NA-122.4—LLNL met expectations in support of the W87LEP milestone

Performance Measure 2.3 (joint measure)	Satisfactory
Demonstrate advances in radiography technology and develop joint options and recommendations for future x-ray and proton radiographic capability that support the quantitative certification methodology.	

LLNL was directed as their highest priority to provide support to the DARHT 2nd axis recovery effort at LANL. Their work in this regard has been outstanding. LLNL has provided and tested options for insulator redesign as backups had the mycalex design proven not to work. LLNL has continued to operate the ETA II accelerator to refine our understanding of electron beam - conversion target dynamics which has lead to improvements in target modeling capabilities.

LLNL's second priority in this area has been upgrading the reliability of the FXR accelerator and providing diagnostics improvements. This facility has been operating reliably and providing data as required to support the national hydrotest plan.

LLNL has, on its own initiative, been exploring the feasibility of scaled hydrotests in systems using insensitive high explosives. If this proves out, this will enable NNSA to avoid a large number of very high cost experiments required for future primary certification efforts.

LLNL has continued to develop a novel accelerator technology, called the Dielectric Wall Accelerator as a technology for compact high-energy radiographic applications. This work is recognized as world-class research.

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

LLNL is aggressively working toward increasing predictive capabilities within ASC simulations and responding to the needs of the designer communities. The codes are reaching a level of maturity and fidelity where they can be more widely used by the Stockpile stewardship community. Kudos to AX-Division and their response to the W80 LEP requirements, and to B-Division for their long-range planning activities. We encourage AX will follow a similar course in planning. Also, significant, laudatory efforts are ongoing to integrate the QMU with verification and validation (V&V).

Issues and Concerns:

LLNL needs to clarify milestone outcomes to ensure adequate resources, scheduling of activities and support from experiments. Further, LLNL needs to establish a program for peer review of weapons code simulation results within the National ASC program. Support to V&V activities with needed resources continues to be an issue. Lastly, we do not feel that due diligence was exercised in the lab self-assessment of “Issues” associated with this measure.

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

LLNL clearly recognizes that future increased usage and area of applicability of ASC simulation and modeling tools will require that ASC codes have less phenomenology, better material models, and improved performance.

Issues and Concerns:

The lab has not clearly articulated a long-range strategy for achieving their goals. In addition, LLNL needs to more tightly coordinate ASC efforts with the other Campaigns.

Performance Measure 2.6 (joint measure)	Good
Develop and implement a collaborative and complementary program of experiments at High Energy Density (HED) facilities that supports the quantitative certification methodology.	

- First HED experiments at NIF with 4 beams have been an outstanding success and are a major achievement for NIF and the ICF Program. These joint LLNL/LANL hydrodynamic experiments at NIF produced data of high quality that has had significant impact on validation of ASC advanced simulation codes. Collaboration on this with LANL has been exceptional. This program of work is an outgrowth of earlier activities on OMEGA and Z; the integrated program executed at all three facilities has been noteworthy and of importance. The quality of this work has been recognized via invited talks at major scientific meetings.

- As described to the Defense Science Board in summer 2004, LLNL plans for HEDP experiments at NIF and other facilities are soundly based on QMU. Experiments are prioritized via the degree to which they address issues driving greatest uncertainties. LLNL has followed NNSA guidance that QMU is to be used as a tool to prioritize and justify technical activities.
- The first 4-beame experiments discussed above constituted completion of a NNSA Campaign 10 level 1 milestone due Q4FY04. All FY2004 Campaign 10 level 2 milestones relevant to HED experiments were successfully accomplished.
- NNSA concurs with the LLNL self assessment that maintaining an integrated, self-consistent NIF use plan will required continued LANL/LLNL coordination and collaboration.

Issues and Concerns:

Experimental planning, advanced diagnostic development, diagnostic calibration, and target fabrication require careful integration of activities of all the sites to increase efficiency by consolidation, cooperation and leveraging capabilities. LLNL should be applauded for making attempts at integrating more closely with the other laboratories, though these attempts have met with limited success to date. LLNL is encouraged to continue and increase the efforts it has begun to provide forums for discussion, and to develop integrated planning.

Performance Measure 2.7 (joint measure)	Good
Develop and initiate an integrated program for plutonium capabilities of LANL and LLNL to support the overall NNSA strategic requirements.	

LLNL has made a good start at an integrated program for Pu capabilities. They have done an excellent job of putting together an initial plutonium experimental strategy.

Issues and Concerns:

The laboratory still needs to work with NNSA HQs in the development of an integrated national approach to maintenance of plutonium capabilities across the board including management of material and integrating pit lifetime information

Performance Objective 3	Outstanding
Develop with NNSA and implement near-term balanced weapon programs that are coordinated with the other NNSA M&O contractors	

Performance Measure 3.1	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 support NNSA as required during interagency and community coordination of the Annual Assessment Process.	

- All milestones associated with the annual assessment process were accomplished.
- Director's letter was on track to be sent by 30 September 2004 according to self-assessment but delivery was affected by classified computing stand-down.

Issues and Concerns:

Impact of CREM shutdown.

Performance Measure 3.2	Outstanding
Conduct stockpile surveillance activities, investigate on a priority basis significant findings and issues identified in technical assessment reports, and establish closure plans for all Significant Finding Investigations (SFIs).	

- Closure plans are only required for high priority SFIs.
- LLNL provided all required input for the production agencies to proceed with disassembly and inspection, and component evaluations.
- LLNL coordination with SNL, Pantex and WETL to modify B83 surveillance hydro to use alternate detonator cable assemblies in order to conserve these assets is commendable.
- LLNL closed 4 SFIs in FY04 and is ready to close the last open SFI pending completion of measurements to be conducted at Pantex.
- LLNL is re-evaluating the B83 JTA program in response to NNSA direction to eliminate SNM. NNSA is interested in how LLNL manages this issue for cable drop tests.

- For the Enhanced Surveillance Campaign, LLNL completed its FY04 milestone to start 6-8 mil radiography exam at Pantex and continued pit radiography scan at Pantex.

Issues and Concerns:

Authorization basis and stand-down issues at Pantex have slowed the completion of SFIs and LLNL is working with Pantex on a recovery plan to eliminate backlog in FY05.

Performance Measure 3.3	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.	

- LLNL completed most of the planned FY04 experimental program required to provide data to validate and improve the models for the W80-3.
 - Four of six large-scale hydrotests and all seven small-scale hydros planned for FY04 were conducted.
 - Twenty-nine Omega shots planned for the W80-3 were fired.
 - Successful captive carry tests CFTU-1,2,3, and 4 were completed.
 - Nine key peer review issues resolved.
 - W80-3 certification plan completed, including incorporation of QMU.
- Disassembly of FSET-B2 and STMT-B environmental test units completed.
- FY04 Congressional budget cuts delayed start of FSET-Q2 and STMT-Q engineering environmental tests to FY05.

Issues and Concerns:

- LLNL completed most of the planned FY04 experimental program required to provide data to validate and improve the models for the W80-3.
 - Assembly issues delayed the 2 (of 6 planned) large-scale hydrotests that were not fired and these will be fired in FY05.

Performance Measure 3.4	Outstanding
Deliver on W88 Pit Manufacturing and Certification Project major milestones.	

Due to the ongoing changes in the Pit Manufacturing and Certification Campaign in FY04, LLNL staff supporting the campaign found themselves revising and reprioritizing their own activities to be consistent with the reprogramming of pit project funding. Regardless of these challenges, LLNL has provided an exemplary level of support to the Pit Project Office.

Significant accomplishments in FY04 by LLNL under this performance measure include:

- Validation of Unicorn SCE subcriticality through 2-D and 3-D calculations. This information was presented at the Unicorn Subcritical Experiment Evaluation Committee meeting in March 2004, and subsequently revised, showing agreement with LANL data.
- Completion of the initial W88 warhead primary baseline assessment incorporating all relevant NTS events.
- Completion of eight Engineering Evaluations in support of the qualification of LANL manufacturing processes for pit manufacture.

Completion of two Level 2 milestones related to improved pit manufacturing technology development. This work supports both long-term Pit Manufacturing Capability and the Modern Pit Facility.

Performance Measure 3.5	Good
Meet directive schedule requirements.	

NA-122.4—Met W87 LEP schedules

NA-122.5--Given the issues that the complex faced due to CREM, LLNL did as well as could be expected in supporting the plants efforts to meet the directive schedule requirements.

Issues and Concerns:

Impact of CREM shutdown.

Performance Measure 3.6	Outstanding
Provide technical support to production complex operations, including the Integrated Weapons Activity Plan (IWAP) and other weapons response analyses.	

NA-11 Outstanding

Documentation assessing the response of a conventional high explosive system to a slow heat abnormal environment for weapon system test was completed under C6.

NA-12 input Rating: Average = 89, Good

NA-122.4-Good, 88

NA-122.5-Outstanding, 90

NA-122.5--B83 SS-21 activities were performed as planned, with slight delays caused by CREM. Weapons response analysis was provided in support of a timely HAR submittal, as outlined in the SS-21 schedule.

Issues and Concerns:

Impact of CREM shutdown.

NA-122.4--LLNL had resource issues meeting the original schedule for the W87 weapon response due to lack of resources able to cover all items such as JOWOGs with the UK,.

NA-122.4—Suggest that extra resources be provided to support weapon response activities.

Performance Measure 3.7	Satisfactory
Establish and implement a weapons design and manufacturing quality assurance program consistent with NNSA requirements.	

Based upon the Quality Assurance Survey 2.0 of LLNL’s Pit Surveillance Program performed by NA-121.3 and LSO/NSID personnel, LLNL demonstrated that it meets the Adjectival Rating of Satisfactory on Mission Objectives and Operations Objectives (see attached evidence file AL-2-2004-LL-P-1, QAS 2.0 Report). LLNL demonstrated that quality system is established, although needing to be current. Improvements in some QC-1 areas are needed for compliance. Documented deficiencies do not substantially affect overall pit surveillance performance.

Issues and Concerns:

LLNL needs to provide Quality Assurance support and oversight of pit surveillance program.

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 and other new and emerging threats	

Performance Measure 4.1	Good
Sustain and augment international cooperative activities to enable implementation of U.S. nonproliferation policy.	

The most noteworthy area in support of this measure has been NAI's exceptional work in the Forensics Science Center. The FSC OPCW achievements in consistent high performance in the required proficiencies tests to maintain certification has put LLNL at the forefront of demonstrating superior analytical capability in identifying unknown chemical weapons related agents in extremely minute quantity samples. The continued outstanding work on the international front in securing Russian SNM, and securing FSU borders is also noteworthy. Livermore has successfully developed a seismic cooperation program in the Middle East and South Asia that demonstrates active regional participation, interest, and useful science and technology cooperation to both regional scientific objectives and to U.S. nonproliferation policy and objectives. LLNL has also developed technologies and performed analyses on past data related to possible future nuclear test site transparency regimes, and in-force treaties such as the Threshold Test Ban Treaty acted as technical liaison to the International Monitoring System for NNSA.

The Laboratory has performed well in support of WSSX activities in general; however, there is room for improvement. LLNL support to PPRA has been outstanding. LLNL provides technical expertise and negotiation support to NA-241 on the development of a nondestructive assay measurement technology to measure plutonium oxide. With regard to the HEU Transparency program, LLNL usually provides outstanding technical and logistical assistance in support of NA-241.

LLNL has also provided outstanding support for cooperative international export control work in country and effective licensing and end-use/end-user review.

The contractor is consistently in the middle third of DOE national laboratories in its overall performance under the IPP program. Its science and engineering applied to IPP projects is solid. Five funded projects (Infrared Imaging Camera, Digital Transmission Technology, Breast Cancer Diagnostic, Ultrapure Ferrous Alloys, and Detector for Hidden Explosives) show a diverse set of advanced technologies within the area where the contractor has traditional strengths (specialty materials, instrumentation). Three projects currently under consideration (Ceramic HEPA Filter, Shock Wave Cutter for Offshore Oil/Gas Platform Removal, and Ultraviolet Water Treatment) are well above average technically and expected to compete strongly during the next funding cycle. Early commercial results are beginning to be achieved on one of the contractor's projects (Medical Isotope Gases), with a modest

number of jobs created or supported in the former Soviet Union. Output of refereed publications and talks, an indicator of scientific quality, has been commensurate with the level of project work. Key Russian institutes and spinoff companies (VNIIEF, VNIITF, Biofil) are being engaged by the contractor's IPP projects, clearly fulfilling DOE's nonproliferation mission as well as the mandates of the original IPP authorizing legislation.

The contractor has 11 IPP projects underway, which makes it a strong participant. IPP proposals are rigorously evaluated against IPP program criteria, which include commercializability and engagement of weapons of mass destruction scientists, engineers and technicians. The overall approval rate for IPP projects is now about 50% (i.e., the program gets twice as many proposals as it can fund), so the contractor's strong participation is noteworthy.

The contractor is in the middle third of the ten national laboratories and the Kansas City plant that participate in IPP for the quality of its project selection, planning, organization, implementation and control. Results are achieved in timely fashion, within budget, and the participants (each IPP project involves a national laboratory, one or more former Soviet (FSU) weapons of mass destruction institutes, and a U.S. industry partner) work smoothly together. The contractor fulfills its role in technical oversight and contribution/verification/development of FSU work and deliverables under the IPP projects, lowering the technical risk for the U.S. industry partner and increasing the likelihood of commercialization of the results of the IPP project. Contractor principal investigators on IPP projects are invariably strong leaders and organizers as well as capable scientists and engineers.

The self-assessment for objective 4 is reasonable. In the HEU Downblending section on page 79, the write-up should more closely match the work done in support of the HEU Transparency Implementation Program, including: support for monitoring assignments in Russia (and reciprocal visits to the U.S.), support for data management, special studies and analyses, and integrated input to senior management.

Regarding assessment of the contractor's performance on HEU Transparency Implementation Program, the Laboratory did an outstanding job in support for monitoring trips and activities, including logistics, planning, health/bioassay and safety support for 24 trips to Russia plus Russian visits to facilities in the U.S. Contractor did an outstanding job processing transparency information from Russian sites and managing and sharing it with multiple users on a secure network; and providing required reciprocal transparency data to Russia. Contractor did an outstanding job developing, training, maintaining, and analyzing data related to portable non-destructive assay equipment deployed in Russia. Contractor did a good job on special studies and analyses, although in one case could have been more proactive in coordinating with other laboratories and following through. Contractor provided excellent technical support within NNSA and in the interagency, and the staff at the Washington Operations Office integrated inputs from other laboratories and provided input to senior management. Contractor provides technical experts for monitoring visits and

assignments in Russia, and they do an outstanding job. Contractor needs to continue to look ahead, be proactive, coordinate issues, and follow through.

Livermore understands the NCI mission and how it is evolving. Livermore also has the resources to support NCI's mission as required by the NCI Director, and Livermore is to be congratulated for its unflagging effort in bringing an ISTC project in Seversk to fruition – the first of its kind for NCI. However, there always seem to be “issues” with Livermore that require special time and attention. There tend to be greater cost overruns with Livermore than other labs, and managerial direction is not always clear. Livermore's uncosted balances, moreover, are a continued cause for concern. Its performance is a solid “satisfactory.”

Issues and Concerns:

The contractor has five old IPP projects underway involving no industry partner and which were approved as long ago as 1997. These projects need to be brought to an orderly conclusion, especially as they were intended to be of no longer than one year's duration. This adversely impacts IPP performance in the area of uncosted funding balances. The contractor is aware of this situation.

Regarding WSSX, the Laboratory should keep NA-241 better informed of schedule delays and follow NA-241 guidance more closely. In addition, due to LLNL was unable to provide requested support on HEU transparency in one instance, which required NA-241 to, on short notice, approach another national laboratory for that support.

The performance of the Team Lead for the K-45 project has been reasonably good, and is improving. As the team leader for the past several years, he has needed constant supervision that required the NA-252 Office Director to involve the LLNL upper management to ensure that his required tasks are being performed. He has not been dedicating a sufficient amount of time to reviewing contract deliverables and signing the contracts needed to complete the K-45 site. LLNL upper management was asked to ensure he allocated sufficient time to work on this issue. When DOE headquarters was informed that he would not be able to sign all the LLNL pledged contracts for FY04, a phone call was made to the LLNL upper management by the NA-252 office director. As a result of the phone call, the contracts were placed before the end of the September 2004. An International Commerce License (ICL) violation was committed by LLNL in FY04 which strains DOE's relationship with the Commerce Department.

Regarding NCI, a major concern is the apparent lack of clear managerial direction. Individuals sometimes seem to be vying for the position of NCI representative. We sometimes receive conflicting messages about Livermore plans, and we often find that our messages to Livermore are not received – a cause of some embarrassment and unnecessary cost. Further, Livermore needs to give greater thought to coordinating its travel plans, including its requests for approved travel. There is sometimes a lack of discipline in meeting HQ guidance. For example, on one project over \$70,000 was charged to HQ, after clear

directions to stand down were transmitted. On other projects we have been given contradictory recommendations from various Livermore staff - for example, on who LLNL would like to serve on certain delegations. I am also concerned about LLNL's uncosted balances, though I am certain that these will go down as a key project is finally able to move forward

Performance Measure 4.2	Outstanding
Sustain and advance the scientific and technical underpinnings required to detect, identify, and monitor proliferation-related activities.	

On the remote sensing front to further accomplish global situational awareness of potential WMD proliferation activities, NAI has been a proven leader in hyperspectral imaging, and ultralightweight optics.

The work related to antineutrino detection techniques when developed will improve the capability of IAEA inspectors to non-intrusively monitor reactor cores for safeguard purposes.

LLNL has provided interdiction and technical reviews, in support of, for example, NIAG (nuclear interaction action group), MIAG (missile inter-nation action group) and SVTC (secret video teleconference). Also provided technical review, in particular, for biological cases. In both cases, LLNL has been effective and responsive.

Cumulatively, the contractor ranks at the outstanding level for its performance of its nonproliferation R&D programmatic activities for this assessment period. In the area of remote sensing, the contractor has produced a significant number of S&T breakthroughs, particularly in persistent monitoring and spectral technologies, which have advanced our national security objectives.

Issues and Concerns:

The contractor program management has improved with respect to meeting schedule and deliverables requirements, but a shortage of principal investigators further aggravated with dual oversight responsibilities of NA-22 and DHS projects is a NA-22 concern.

Performance Measure 4.3	Outstanding
Sustain and enhance intelligence analysis capabilities and develop tools to improve the nation's ability to detect and thwart proliferation and terrorism.	

The Nuclear Assessment Program continues to perform outstanding work, and is continuing to expand its capabilities to include the chemical and biological threat assessments. The deployment of several analysts in support of the Iraq Survey Group's investigation into Iraq's

WMD program proved to be of considerable value to that important effort. The role played by Z-Division analysts in assessing the WMD capabilities of several other countries of concern also proved extremely valuable to senior government policy officials both in the executive and legislative departments. Additionally, the operational and intelligence support to the Libyan nuclear weapons program dismantlement effort was also widely considered to be an invaluable contribution by LLNL.

Issues and Concerns:

Support PRAP (proliferation risk analysis program) studies, for the analysis of current proliferation trends and concerns has been good. Livermore has conducted intelligence analysis with policy relevance, which helps us to thwart proliferation. However, necessary tasks are not always well understood and deliverables are not always timely, and only satisfactorily performed.

Performance Measure 4.4	Outstanding
Develop and transition for deployment 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.	

The Radiation Detection Center has developed highly sophisticated, portable, easy-to-use detectors that have been commercialized and are being used by DHS entities nationwide. These detectors are of utmost importance in assisting border authorities in screening for illicit radiological material including SNM. Enhanced room-temperature detection capability utilizing new materials are furthering considerable improvements in field applications. The national concern for radiological material smuggling in cargo transport containers has driven high priority work in innovative active radiation interrogation techniques which promise significant success for near-term field applications.

The work to make the APDS system more compact and portable has been quite impressive in enhancing and expanding the effectiveness of the BioWatch program to provide early warning of a biological attack.

The creation of the LLNL Biodefense Knowledge Center puts NAI in the forefront leading the effort to coordinate, integrate, and respond to real-time biodefense issues in collaboration with other key national laboratories.

The continuing outstanding role of the Forensic Science Center in supporting the law enforcement community has earned the center a leading role in the analysis of unknown potential threat samples that no one else has the capability, experience, and outstanding achievement record to perform.

LLNL's continued exceptional participation and performance on the various emergency preparedness and response teams provides a critically needed national capability to conduct detailed analyses, and to rapidly deploy necessary assets off-site on short notice during times of heightened alert.

Issues and Concerns:

The Laboratory has generally performed well in support of WSSX counterterrorism activities; however, there is room for improvement. The Laboratory should keep NA-241 better informed of schedule delays and follow NA-241 guidance more closely.

Performance Measure 4.5	Outstanding
Sustain and expand activities to provide scientific and technical capabilities to meet near-term and long-term U.S. defense policy needs.	

The SATRN program continues to make great strides in increasing the communication transmission capability needed to support military operations objectives. CAPS also continues to provide the very best available counterproliferation planning system to the military.

Issues and Concerns:

The Laboratory does excellent work in the limited number of WSSX projects it undertakes, but there is room for significant expansion of LLNL's role in the WSSX program.

Performance Objective 5	Outstanding
Enhance and nurture a strong science 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 needed to support our national security missions and emerging national needs.	

Strategic S&T planning activities for six thematic areas at LLNL have been in development since 2003. These plans will set the technology roadmap and highlight the direction for LLNL for future investments in order to ensure the long term vitality of LLNL and to support NNSA's mission and emerging national needs, aid in recruitment and to maintain scientific facilities and infrastructure.

An overview of the S&T plans was presented in June 2004 to Chairs of the external Director's Review Committees (DRC). Members of the DRC Chairs Committee endorsed this new forum, in order to assess the vitality and health of S&T across Lab's organizations along with support to national and state interests

NNSA HQ authorized LLNL's FY 2004 LDRD Program Plan and to fund the LDRD program at the six percent funding level, which is the maximum amount allowed by law. Two hundred twenty LDRD projects were funded at \$70.0 million in FY 2004. LLNL's LDRD portfolio was aligned with DOE's mission areas and supported national security and enhanced core competencies at Livermore in a variety of areas: stockpile stewardship/campaigns, biological sciences, chemistry and material sciences, math and computational science, advanced sensors and instrumentation development, homeland security, laser science, NAI, energy and environmental science and technologies, health, physics and space technologies. Over 80 percent of the LDRD projects funded in FY 2004 supported the national security missions.

LLNL has received numerous awards and has been involved in the national and international S&T community and collaborations with universities and industry. Two LLNL scientists received the Presidential Early Career Awards, the Air Force honored three LLNL employees with the Exemplary Civilian Service Medals, and five R&D 100 Awards for LLNL were received in 2004.

LLNL's scientists have published in noteworthy refereed journals and participated in top-level professional societies. The LDRD program was responsible over 50 percent of LLNL's 2004 patents.

The LDRD Program supported over 50 percent of LLNL postdoctoral fellows during this reporting period.

Outstanding and noteworthy S&T contributions have been made throughout Livermore's programs and disciplines. Specific examples are: (1) Active Neutron Interrogation of Cargo containers, (2) Gene Silencing, and (3) Uranium Nitride Fuel

FY 2003 LSO Concerns Addressed: LLNL has addressed LSO's concern regarding finding an Associate Director's (AD) replacement for the Energy and Environment. In the Interim a replacement has been acting since the former AD retired in June 2004. A search committee was formed in 2004 and replacement has been selected and she plans to begin in November 2004. Action is closed.

Issues and Concerns:

FY 2005 Action Item: LLNL has been working on new S&T plans over the last two years. The plans should be formalized and officially approved in writing by the Livermore's Director to set the direction and establishment of priorities to ensure all laboratory employees and DOE are informed about Livermore's strategic vision, how it will support future mission areas with milestones for implementation. The plan should remain a living document that is periodically revised. LSO could not validate any official "written plan" during this validation period; however, documentation was provided on the planning processes and presentations to the Lab Director and the external Directorate Review Committees.

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 and technology base in support of national security missions and emerging national needs.	

LLNL has maintained and established recently unique experimental facilities to support scientific research for DOE and external sponsors. Some examples are:

The National Institute of Health has renewed funding in 2004 for the Livermore's Center for Accelerator Mass Spectrometry (CAMS) and is considered by NIH as a National Research Resource for biomedical AMS.

Livermore's Forensic Center has chemical and forensic analysis capabilities to support national security needs in nuclear, chemical, biological and high explosives counterterrorism. LLNL has become the second U. S. Laboratory certified by the Organization for the Prohibition of Chemical Weapons (OPCW). The OPCW is responsible for implementing the Chemical Weapons Convention.

The National Atmospheric Release Advisory Center (NARAC) provides services that can map the probable spread of hazardous material accidentally or intentionally released into the

atmosphere. NARAC supplies atmospheric plume predictions in real time to support emergency management. Department of Homeland Security has utilized this facility during 2003 and 2004.

The Radiation Detection Center fosters the development of innovative radiation detection techniques and serves as an institutional resource for Laboratory programs and other government agencies.

The Biosecurity and Nanoscience Laboratory at Livermore was established in 2004 by providing a scientific environment for the detection, identification, and characterization of harmful biological pathogens (viruses, spores, and bacteria) and chemical toxins to support the nation’s fight of biological weapons and life threatening diseases.

The Center for Biotechnology, Biophysical Sciences and Bioengineering at LLNL will provide support to academic, other federal agencies, and industry to work on emerging medical, and bioscience and environmental technologies.

The Biodefense Knowledge Center was established by the Department of Homeland Security in 2004 at Livermore to assist DHS and this nation in the fight against bioterrorism. One of the center’s functions is to prepare threat assessments against potential bioterrorism attacks.

FY 2003 LSO Concern Addressed: During FY 2003, LSO expressed concerns related to funding of the Institutional resource, CAMS. During 2004, NIH has provided funding to continue CAMS as a National Resource for \$8.0 million over the next 5 years. Action is closed.

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

LLNL works with Non-DOE agencies to leverage the laboratory’s capabilities. Over 900 projects are currently ongoing at Livermore.

LLNL has expertise in many areas of science and technology relevant to future national security needs such as missile defense, laser science, munitions, nanofabrication, remote sensing, and advanced instrumentation. LLNL seeks opportunities to apply this expertise to address significant issues across the federal and state government.

LLNL is supporting several energy-related R&D projects for the State of California Energy Commission:

- A two-year effort is underway to demonstrate operation and control of an advanced natural gas fueled engine.
- Analyzing the use of micro-seismic detection technologies for locating geothermal energy resources and enhancing the economics of geothermal plants by recovery of resources such as high purity silica from geothermal brines.

Livermore’s expertise supports the National Aeronautics and Space Administration (NASA) projects:

- Analysis of extraterrestrial “nanosample” materials from comets and asteroids
- X-ray spectroscopy of astrophysical plasmas.

LLNL is supporting the National Institutes of Health (NIH):

- Integrated Molecular Analysis of Genes and their Expression Program
- Investigating the role of dietary mutagens in causing cancer in humans.

LLNL has a long history of collaboration with Department of Defense (DoD), such as the advanced conventional munitions technologies program on development of new energetic materials for the design and analysis of munitions, advanced propellant systems.

- Several major projects are supporting the Missile Defense Agency regarding optical signatures by utilizing remote sensing instruments for tracking missile intercepts. Another focus is development of pumped propulsion for boost phase intercepts.
- LLNL is working in developing a 100-KW average power solid state laser to be deployed on a mobile battlefield platform in support of the Army’s Space and Missile Defense Command. In FY 2004, the project achieved its first ever successful, closed-loop aberration control of an active high-power laser resonator operating in a heat capacity mode with no active cooling.

FY 2003 DOE HQ Science Concern: HQ expressed one concern related to LLNL supporting SC projects. During 2004, LLNL convened a committee to investigate LLNL’s ongoing relationship with SC. The committee developed a detailed set of recommendations that were reported to the Director for his consideration and review. Ongoing Action.

FY 2003 DOE HQ OCRWM Concern: HQ expressed concerns related to program responsiveness, cost overruns, and their management of Yucca Mountain Project (YMP). LLNL has selected a new manager to handle LLNL’s YMP activities in March 2004. In addition, a new engineering operations manager was also appointed. The new team is just getting started in 2004 in addressing HQ’s concerns.

Performance Measure 5.4	Outstanding
Foster active participation in the broad scientific community, leveraging unique	

Laboratory expertise and capabilities; develop strategic collaborations with other national laboratories, industry and academia.

Many of LLNL's research and development activities are performed in partnership with industry, academic institutions, and other laboratories. As part of their technology transfer mission, LLNL has a responsibility to work on developing technologies for the commercial marketplace to aid in the promotion of economic development and national competitiveness and for important national priorities.

LLNL has formed partnerships in a variety of areas such as for biological science technology and bio-analytical devices, lasershot peening, homeland security technologies such as detectors, micropower impulse radar, energy technologies, radiation therapy solutions, and on the next generation lithography system.

Several successful industrial partnering and commercialization agreements are:

- During March 2004, the ORTEC business unit of AMETEK, Inc. reported their first commercial sale of its radiation detector. LLNL licensed the technology to ORTEC in June 2003.
- EMC Corporation reported substantial earned royalties based on LLNL developed software system technology for mass data storage for scientific computing needs.
- Jobin Yvon, Inc. reported their first commercial sale of multilayer dielectric diffraction gratings during FY 2004. Jobin Yvon signed a licensing agreement in June 2002 for this technology.
- LLNL has transferred their lasershot peening technology to Metal Improvement Corporation (MIC). In January 2004, MIC was selected by Rolls Royce to refurbish their jet engine fan blades.
- LLNL licensed their technology to Microfluidic Systems, Inc. (MFSI). MFSI received \$4.5 million from DHS to develop and build an automated system that identifies airborne pathogens.
- LLNL signed a license with Innovative Survivability Technologies (IST) in January 2004. It has been reported that IST has made their first commercial sale of the radiation detection system called ARAM during 2004.

Several noteworthy new and ongoing university partnerships were enhanced in 2004. Examples include:

- LLNL enhanced their relationship with the Naval Post Graduate School (NPGS) by appointment of an LLNL employee as NPGS/LLNL Laboratory Professor.
- LLNL continued its strong collaboration with the National Science Foundation Center for Adaptive Optics at UC Santa Cruz, pursuing research on human vision, imaging extra-solar planets using ground-based telescopes, and developing advanced-concept optics systems for the next generation of astronomical telescopes.

During FY 2004, LLNL received over \$4.5 million in royalty income. During this time period, there were 158 inventions reported, 97 U.S. Patent applications and 13 initial foreign patents filed. A total of 94 U.S. Patents and 9 foreign patents were issued to LLNL for their inventions in FY 2004.

Performance Objective 6	Outstanding
Achieve successful completion of projects and development of user facilities	

Performance Measure 6.1	Outstanding
Execute construction projects as identified and agreed to between NNSA and Laboratories within budget, scope and schedule.	

The overall performance of the three line item projects Terascale Simulation Facility (TSF), Sensitive Compartmented Information Facility (SCIF), and Engineering Technology Complex Upgrade (ETCU) is excellent. Both the cumulative cost performance index and schedule performance index for each project is 1.0 or higher which means that the projects are performing at or better than their baselines. This substantially exceeds the objective of .90 or better. LLNL's other line item projects, which are not part of this rating, are exhibiting similar performance. They also have indices of 1.0 or better. Therefore the LLNL performance has been out standing.

The TSF project continues to progress ahead of schedule and within budget. The project team was able to maintain an accelerated construction schedule during this reporting period. All the computer floors will be delivered on the early schedule and the offices will be completed allowing the program to move in over a year ahead of the original schedule. It is anticipated that this will be a very successful project.

The ETCU project team received NNSA Headquarters approval of the project performance baseline in FY04. The project is on schedule having completed the Roof Equipment Replacement subtask within the established milestone and commencing the Seismic Upgrade and General Modifications subtasks on schedule. Currently the Seismic Upgrade is slightly behind schedule though the General Modifications are slightly ahead of schedule and both are under budget. Overall the project is on track with the approved baseline budget and schedule.

The SCIF project is essentially complete having finished the facility on schedule and within the current baseline cost. An interim security accreditation was granted allowing the move in to begin in preparation for commencement of operations. The facility was dedicated by the NNSA Acquisition Executive and the project team was commended for their exemplary recovery from budget problems experienced in FY 2003. Preparations for project close out are underway and completion of the project at Critical Decision 4 is scheduled for November 2004.

NIF

The Contractor did an Outstanding job in accomplishing NIF Project activities during FY 2004 and keeping the Project within budget, scope and schedule. Based on the latest earned value data, through August 2004, the NIF Project is over 82% complete (vs. 78% at the end of

FY 2003) and within approximately one month of schedule. The NIF Project cumulative Cost Performance Index (CPI) and cumulative Schedule Performance Index (SPI) were 1.00 and 0.99 respectively. The NIF Project FY 2004 CPI and SPI were 1.00 and 0.91 respectively, based on 11 months of available data. The NIF Project Safety record continues to be “world class.” At the end of FY 2004 the NIF Project passed 4 million hours without a lost workday. The NIF Project had a 12-month average total recordable case rate (TRR) of 0.4 for FY 2004, which is well below the National and California State TRRs, and is an improvement from FY 2003. All 35 NIF Project FY 2004 DOE Performance Milestones were accomplished, with 27 completed on or ahead of schedule and 8 completed late by less than 30 days. Two FY 2004 DOE Performance Milestones were moved into FY 2005 after BSCR change actions were approved. In addition, one DOE Level 1 milestone, #1060 “Complete IMI Subcontract BIS installation,” was completed in November 2003 over two years ahead of the DOE target date of March 2006. Some IMI subcontract work was de-scoped from the IMI subcontract as a cost savings, but this work is still scheduled to be completed in FY 2006. One DOE Level 3 milestone, #3080 “BIS Turnover to Commissioning – TB”, was completed in November 2003 ten months ahead of the DOE target date of September 2004. NIF Project management changes were implemented in FY 2004 as part of the NIF Project transition from construction to production, commissioning & operations. Optics production remains on schedule to meet Line Replaceable Unit production & installation plans. Integrated computers and controls systems software releases & deployments are on schedule and have made substantial improvements in automated shot operations during FY 2004. The Beampath Infrastructure System utilities installation remains on track, with the last major contract for mechanical utilities installation approved by DOE/NNSA and awarded by the Contractor in April 2004. In addition, the last major contract for electrical utilities is on track for award in early FY 2005.

Issues and Concerns:

The institutional Earned institutional Earned Value Management System (EVMS) certification project is on schedule for a certification review in March 2005 consistent with the UC and DOE schedule agreement.

The impact of the Small Business Initiative on project delivery is unclear.

During FY 2004 NIF Project line item unallocated contingency decreased to approximately 16 percent of the budgeted cost of work remaining. Although the contingency is considered adequate, LLNL management is encouraged to pay close attention to this issue to assure that contingency is maintained at an adequate level for the remaining NIF Project work.

Performance Measure 6.2	Good
Develop and implement, with NNSA and other appropriate DOE programs, plans to support optimal use of scientific, research and test facilities and capabilities (e.g., NIF, DARHT, CFF, terascale computing facilities, LANSCE, test readiness) at both Laboratories.	

LLNL successfully completed difficult renegotiation with IBM on the Purple contract with significant savings to the program, minimal impact to performance and schedule deliverables. Subsequently, they successfully installed a Purple early delivery system. The software work currently being done for the BG/L, and Purple early delivery platforms has been progressing well. The LLNL Path Forward program element members and technical team earn kudos for helping to issue two new contracts in FY04.

In general LLNL does an outstanding job of in the operation of its research facilities to sustain the goals of stockpile stewardship. The accomplishments at the new JASPER facility have provided remarkable improvements to our database of plutonium properties and LLNL's accomplishments at site 300 despite the aging FXR accelerator are noteworthy.

The Laboratory did an outstanding job in accomplishing activities associated with the NIF Demonstration Program and the NIF Experimental Support Technologies Program. Good progress was made during FY 2004 in developing a NIF Activation and Early Use Plan, but integration with the broader inertial fusion and high energy density science communities has not been adequate.

NIF

The Laboratory did an Outstanding job in accomplishing NIF Programs activities associated with development of NIF user facilities. Good progress was made during FY 2004 in developing a NIF Activation and Early Use Plan.

NIF Demonstration Program (NDP): NDP started Earned Value Management System (EVMS) reporting to DOE/NNSA in January 2004. Based on the latest earned value data, through August 2004, the NDP is over 65% complete (vs. ~58% at the end of FY 2003) and is on schedule. The NDP cumulative Cost Performance Index (CPI) and cumulative Schedule Performance Index (SPI) were 1.00 and 1.00 respectively. The NDP FY 2004 CPI and SPI were ~1.03 and ~0.98 respectively, based on 11 months of data. All 20 NDP FY 2004 DOE Performance Milestones were accomplished, with 17 completed on or ahead of schedule and 3 completed late by less than 30 days. NIF laser performance shot campaigns completed during FY 2004, using one or all four of the currently commissioned NIF Early Light (NEL) laser beams, have now demonstrated all but one of the NIF Project completion criteria when extrapolated to an 8-beam bundle or to 96-beam performance. NIF physics experimental campaigns completed during FY 2004 studied laser-plasma interactions, hydrodynamics of materials, and beamline integrated performance. Joint LLNL/LANL hydro experiments

included the first double jet experiments on 2-D & 3-D complex targets, producing data relevant for the Stockpile Stewardship Program.

NIF Experimental Support Technologies Programs (EST):

- National NIF Diagnostics Program (NNDP):
During FY 2004 several new diagnostics were acceptance tested, installed, and commissioned on the NIF Target Chamber, including the Velocity Interferometry for Any Reflector (VISAR), the Dante soft x-ray spectrometer, the Filter Fluorescer (FFLEX) high-energy x-ray spectrometer, and the near backscatter imager (NBI). These diagnostics and previously commissioned diagnostics were successfully used for the FY 2004 NIF experimental shot campaigns. Diagnostics reliability improved during FY 2004 from ~93% to ~95%. NNDP activities are approximately 1-2 months behind schedule.
- NIF Cryogenic Target Systems Program (NCTS):
During FY 2004 the NCTS Mission Need Statement was prepared and Critical Decision 0 was approved on March 26, 2004. NCTS conceptual design was started and is on schedule to meet the Critical Decision 1 milestone scheduled for March 2005.

Issues and Concerns:

NIF Activation and Early Use Plan:

While LLNL worked effectively to formulate the proposed plan, integrate their efforts with LANL, and solicit input from the other ICF sites, additional participation by all the ICF sites is highly desirable. LLNL should encourage additional communication, including regular status updates on the experimental planning, and the formation of effective partnerships with all the ICF sites in the execution of the NIF Activation and Early Use Plan. LLNL should also find additional ways to receive critical input and peer review of decisions that must be made. These efforts will help to forge national support for this critical plan.

NIF Experimental Support Technologies Programs (EST):

- National NIF Diagnostics Program (NNDP):

NNDP activities are approximately 1-2 months behind schedule. Management should monitor this situation carefully to ensure that the diagnostic availability is matched to the experimental plans.

Costs and effort associated with user experiments require continual monitoring. It is important that experimental activities required to support the goal of ignition in 2010 not disrupt the NIF Project baseline.

The national community could benefit from more information about the status and plans for the NIF Experimental Support Technologies: diagnostics, cryogenic systems, user optics and target area systems.

Further work is required on the NIF Activation and Use Plan in order to make it a true budget quality “plan.” The first priority effort in FY2005 should be the assembly of an integrated, resource loaded national plan for indirect drive ignition.

Next year’s self-assessment should include information on all areas within NIF experimental science.

Operations

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

Performance Measure 7.1	Good
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.	

Overall, the LLNL self-assessment and what is known through other oversight activities under the contract supports an evaluation of “**Good**” for this measure. The LLNL Self-Assessment provided information regarding:

- The conduct of workforce reviews including: the general purpose of the reviews and information they cover; general comments from the reviews regarding recruitment and retention; retention strategies that flowed from the Employee Survey; a brief discussion of the Integrated Pay and Performance Program (IPPP) and the Flexible Work Options Program, and; a discussion of Critical Skills.
- Implementation of Survey Action Team (SAT) recommendations including coverage of IPPP status, flexible work schedule implementation, career development program enhancements, SAT recommendations completed during this evaluation period and status of the one recommendation not yet completed.
- The institutional recruiting effort including the annual recruitment assessment and planning meetings with customer clients, University of California (UC) recruitment program efforts, the UC/DOE Laboratory Recruitment Program, the LLNL recruitment program on UC campuses, other FY04 recruitment program accomplishments, and the L-Hire program implementation initiatives.
- Issues affecting recruitment.

LLNL provided credible evidence of accomplishment against this performance measure and the format of the Self-Assessment was consistent with the Lab’s Implementation Guidelines. All of the assessment issues documented provide support for achievement of Good results and several of the initiatives listed are Outstanding. Most notably the extensive recruiting activity on UC campuses, implementation of the IPPP program and the effectiveness and savings resulting from implementation of the L-Hire (a web-based employment system) are examples of excellence in LLNL Human Resources activities. There are opportunities for improvement of the Self-Assessment. Specifically:

- There is a continuing concern, within NNSA, regarding the Laboratory’s ability to provide meaningful reporting of critical skill mix and readiness and whether efforts to recruit and retain critically skilled employees are on track.

- Presentation of statistical information to demonstrate the Lab’s current status regarding employees with critical skills, diversity of the workforce, and retention of the workforce would have strengthened the assessment. Such statistics should be at the heart of this performance measure.
- Statistics regarding the “Laboratories’ long-range core and critical skill requirements” would set the context for determining how well LLNL is doing overall in meeting the key facet of this performance measure.
- Information regarding the number of workforce reviews conducted and when they occurred, plus a summary of information covered in the reviews, could have been used to lend credence to the notion that the reviews add value to LLNL’s recruitment and retention activities.
 - Information regarding the specific recruitment and retention strategies flowing from the workforce reviews would add strength to the discussion.
- Summary information regarding the Survey Action Team initiatives and completion status would have provided additional context for the effects of this effort on recruitment and retention.
 - One action under the Survey Action Team initiatives was not completed. The self-assessment indicated that a presentation that highlights the benefits of working at the Lab will be finished by the end of the calendar year while the Lab Implementation Guidelines state all SAT initiatives would be complete in FY04.

Issues and Concerns

Although the Laboratory continues to submit the semi-annual Critical Skills Metrics Report, NNSA has an ongoing concern about the data and the methodology employed to obtain it. At present, there are ongoing discussions with LLNL HR managers in an attempt to reinstate the methodology and indicators employed previously for the semi-annual assessment report under the now defunct Appendix O or other mutually agreed upon approach.

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

Overall, the LLNL self-assessment and what is known through other oversight activities under the contract would support an evaluation of “**Good**” for performance measure 7.2. LLNL Self-Assessment: The LLNL Self-Assessment provided information regarding:

- a. Workforce reviews
- b. Development of succession pools
- c. Management Institute
- d. Management and Leadership courses offered in FY04

- e. UC Programs for management and leadership
- f. Diversity Leadership
- g. Directorate leadership programs
- h. Leadership lecture series
- i. Open enrollment courses
- j. External courses
- k. Self-directed learning
- l. Operations process improvement
- m. Issues

LLNL provided credible evidence of accomplishment against this performance measure and the format of the Self-Assessment is somewhat consistent with the Lab’s Implementation Guidelines. All of the assessment issues documented provide support for achievement of good results and several of the initiatives listed are outstanding. Most notably the major upgrade to self-directed learning opportunities, the database to track leadership development demographics and the upgrade of marketing materials and enrollment processes are examples of excellent improvements in this performance area. There are opportunities for improvement of the Self-Assessment. Specifically:

- Presentation of statistical information to describe LLNL leadership and succession pool characteristics including diversity would strengthen the assessment. Such statistics should form an integral part of self-assessment in this performance measure.
- Information regarding the number of workforce reviews conducted and when they occurred, plus a summary of information covered in the reviews regarding leadership and succession pools would demonstrate the use of such reviews in achieving results in this performance area.
- Information regarding the role of workforce reviews in the development and implementation of leadership and management development programs as is specified in the Implementation Guidelines was not addressed.
- Leadership program participant database reflecting promotions, increased responsibility, program participation
- Statement of diversity objectives and discussion of actual impact of Leadership and Management Development Programs upon the objectives.

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

LLNL earned a “Good” rating, meeting their requirements, providing a detailed description of LLNL weapon points-of contact. This included descriptions for both managers and engineers, including their responsibilities, selection process, training and succession. This information was provided in a presentation dated 2/2/2004.

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

Performance Measure 8.1	Outstanding
Meet facility short and long term needs to support mission requirements: <ul style="list-style-type: none"> • Critical facilities, including nuclear facilities, will meet operational needs for programmatic work requirements by minimizing unplanned system outages and downtime. • Facility management will be consistent with NNSA's deferred maintenance goals and the objectives identified in the approved FY04 Ten-Year Comprehensive Site Plan (TYCSP). 	

LLNL has executed its FIRP projects exceptionally well during this evaluation period. LLNL program costed 72.4% of the FY2004 FIRP resources authorized by the FIRP Program Manager. This funding supported the buy-down of approximately \$11.5 million in deferred maintenance (DM). The elimination of FY2004 DM has enabled LLNL achieve stabilization of their back log a year in advance of the NNSA corporate goal deadline of FY2005.

LLNL helped institute a program using indirect dollars to fund Institutional General Plant Projects (IGPP). In fact, LLNL was selected as a pilot site to demonstrate execution of the new IGPP and did an outstanding job with construction of a modern cafeteria for LSO/LLNL employees. The successful completion of the cafeteria provided a significant improvement in the quality of life for Site employees. The program has been managed to the satisfaction of NNSA and the Office of Engineering and Construction Management. The FY04 program included \$6.5M of IGPP activities used specifically for multi-program activities. The projects were performed within the baseline cost, scope and schedule.

LLNL submitted their FY2005 TYCSP on time and consistent with the guidance requirements. The LLNL TYCSP is considered a superior quality document demonstrating sustained excellence in facilities and infrastructure management and planning.

LLNL has done an exceptional job at executing facility disposition and demolishing excess structures. Of particular note is that LLNL has demolished over 110,000 gross square feet (gsf) since the Programs inception that included contaminated structures with no lost work days due to injuries. LLNL has also done a superb job of planning and preparation for the demolition of a 93,000 gsf expense funded line item. The Program has approved the justification for mission need, critical decision - 0 (CD-0) and they have prepared the necessary documentation for a CD-1 through CD-2/3 approval.

LSO informed HQs that LLNL has fully implemented the new DOE Order 430.1b, Real Property Asset Management (RPAM).

Performance Measure 8.2	Satisfactory
<p>Achieve continual improvement in ISM:</p> <ul style="list-style-type: none"> • 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 institutional corrective actions derived from violations enforceable under the Price Anderson Amendments Act. 	

ISM Implementation

- LLNL made a substantial revision to ES&H Document 4.1, *Directorate Environment, Safety, and Health Self-Assessment Program*. Feedback on the review of this document was provided to LLNL at midyear review. Major concerns on Document 4.1 were: 1) Enhancements to the Directorate SA program is unclear since several requirements were dropped; 2) Several weaknesses identified by LSO and the 2002 OA SEMI were not addressed.
- LSO review of the Directorate self-assessment reports found that although the new SA reports followed the new format of Document 4.1, the information justifying the overall conclusions of the program’s ES&H performance were inconsistent among the Directorates. It is not clear in many Directorates Annual Reports if or how the stoplight chart, as well as other sources of information, were used to support the overall conclusions regarding ISM implementation. Similar observation was made by LSO in the previous years.
- LLNL met the commitment to roll-out ITS and institutional enrollment by 9/30/04. Overall, the new web-based Issues Tracking System (ITS) is a major improvement over DefTrack for corrective action management. However, LSO reviewed ES&H Document 4.2 and has discussed several concerns regarding the use of ITS with LLNL..
- The 96% completion rate of corrective actions reported by LLNL is accurate. However, several corrective actions were reopened by LSO as the results of the verification/ validation activities,
- LLNL took several steps to improve their activity level work control program, including steps to improve hazard analysis at the activity level.
- The radiological uptake incident in the WIPP Mobile Vendor facilities indicated poor implementation of ISM principles.

Non-nuclear Safety Basis

The contractor continues to make exemplary progress on implementing the Non-nuclear authorization basis WSS. The following activities occurred during this rating period per the agreed upon performance measures.

- LLNL completed and issued ES&H Manual Section 3.1 which provides the guidance for the implementation of the WSS.
- Training has been developed for the analysts, preparers and facility management.
- The Pilot of the process was completed with results that validated the appropriateness and viability of the WSS.
- An implementation plan has been developed and submitted to LSO which documents the process by which all facilities will be updated to the new requirements in the WSS. The implementation plan was devised using a risk-based approach to set up a phased implementation.
- Several safety basis documents have been submitted to LSO for approval in support of delegation

PAAA

- Except for problems noted under Performance Measure 8.3, corrective actions for noncompliances reported in NTS have been timely and effective.

Issues and Concerns:

The Directorates' Self-Assessment program (ES&H Document 4.1) still focus on facility status, but does not clearly include requirements for process review, observations of work, and functional areas review.

LSO is concerned that ITS Policy (ES&H Document 4.2) is still not addressing several known weakness areas which result in a finding on the feedback function from the 2002 SEMI and from other LSO ISMS review.

Performance Measure 8.3	Unsatisfactory
Continue to comply and improve performance in meeting the requirements of 10 CFR 830, Subparts A and B.	

The contractor's performance in the area of compliance and improvement in meeting the requirements of 10CFR830 Subparts A and B was **Unsatisfactory**. Associated with Subpart A, the contractor revised and updated the Quality Assurance plan (QAP) and submitted it to DOE on time. The QAP described and satisfied the requirements of Subpart A and how the contractor will be conducting work to satisfy the ten criterion of the QAP, including the application and integration with the Safety Management System. The contractor issued an institutional software quality assurance (ISQA) policy and drafted an ISQA implementation plan. An approved ISQA implementation plan was not completed or formally submitted to LSO during Fiscal Year 2004 as committed. The contractor in conjunction with LSO conducted quality assurance assessments for B-696 R structure and the B-332 confinement final stage HEPA filter. Two Software Quality Assurance (SQA) assessments were conducted under the DNFSB Recommendation 2002-1 Implementation Plan.

Associated with Subpart B, several issues were identified by LSO from an Unreviewed Safety Question (USQ) assessment (December 2003) that evaluated technical adequacy of USQ Determinations (USQD) and closure of a USQ assessment performed by the Contractor's Assurance Review Office (ARO). Four of the seven findings from the ARO assessment could not be verified as closed. Of the 28 USQDs reviewed, three should have been positive, two provided incomplete information for an independent reviewer to reach the same conclusion, eight had unclear information but were likely negative and the remaining 15 USQDs were adequate. The contractor was very slow in developing a USQ corrective action plan. LSO did not find the initial submittal of the plan to be acceptable and the plan had to be reworked. Progress is being made on corrective actions even though the Corrective Action Plan (CAP) is not approved. The contractor also revised the USQ procedure during FY2004. Several procedure modifications were made that were inconsistent with 10CFR830 and the USQ Guide resulting in another revision.

Preparation of safety basis amendments proceeded poorly in the first six months of the Fiscal Year. Although in September 2003, LSO informally shared criteria for development of safety basis amendments (derived from the requirements), the contractor prepared most amendments not compliant with 10CFR830, Subpart B. After LSO formally transmitted the same criteria in February 2004, safety basis amendments quality improved but not all submittals were acceptable without supplemental information.

The contractor submitted the Building 332 Documented Safety Analysis and Technical Safety Requirements (TSR) to meet the 10CFR830 schedule exemption. LSO identified 273 comments on these two documents. The contractor was also responsible to address 85 conditions of approval either prior to or in that submittal. LSO identified four conditions of approval that were not satisfied and two Potential Inadequacies to the Safety Analyses (PISA). The contractor was very slow in resolving LSO comments and the concerns supporting the conditions of approval. The contractor also submitted the DSA/TSRs for on-site transportation and Hazardous Waste Management facilities on time.

The ARO completed a high quality review (April 2004) of closure of the contractor's authorization basis (AB) CAP. This review identified that five of the 13 corrective actions did not have enough information to verify completion. The contractor was very slow in revising the AB CAP to address these issues.

The contractor is to be commended for only one TSR violation in Fiscal Year 2004, but this violation was identified by an external organization. There were no repeat TSR violations. The Laboratory has had difficulty in keeping TSRs current at their nuclear facilities per 10CFR830, Subpart B.

The contractor did an excellent job in the area of criticality safety. No criticality safety infractions occurred during Fiscal Year 2004. The contractor adequately performed their annual criticality accident drill and a good self assessment of the criticality safety program.

Issues and Concerns:

Implementation of the contractor’s Quality Assurance Program and related self assessments will need to continue at a more aggressive pace. The area of suspect counterfeit parts continues to need maturity in light of the growing number of incidents requiring re-evaluation of systems. Because the ISQA implementation plan has not been approved, inconsistencies continue in software quality assurance practices.

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. The contractor still needs major improvements in their USQ program. Integration of maintenance activities into screenings, providing adequate technical basis on determinations and understanding what should go into the USQ process continue to be concerns by LSO. Although the ARO has annual nuclear safety assessments, day-to-day oversight of nuclear safety is not being performed by the contractor other than by LSO.

Performance Measure 8.4	Satisfactory
Improve security performance using risk management principles to ensure an effective safeguards and security program.	
<ul style="list-style-type: none">• Achieve continual improvement in ISSM with consistent application of ISSM principles across all organization levels and across all laboratory facilities.• Develop appropriate plans and initiatives in accordance with DOE/NNSA policies (e.g., DBT) so that NNSA expectations are addressed while balancing mission requirements with S&S resource allocations and new requirements.• Detect, deter and mitigate foreign counterintelligence collection and espionage efforts at the Laboratories.	

The performance indicators in this performance objective for safeguards and security are to achieve continual improvement in ISSM and to develop plans and initiatives to meet NNSA expectations in a manner that is secure and operationally effective. Good performance was demonstrated by the contractor by the following activities:

- The contractor responded to a significantly changed Design Basis Threat with a comprehensive, well-managed implementation plan.
- Continuing improvements were sustained in training of Protective Force personnel.
- Inspection results by the DOE Office of Independent Assessment (OA) and Protective Force exercises demonstrate reasonable assurance that protection requirements are met for special nuclear materials.
- Accountable nuclear material inventories were accurate.
- OA-20 gave a rating of “Effective Performance” to the Classified Cyber Security Program.

- LSO gave an overall rating of “Satisfactory” in the 2003/2004 survey of the contractor’s safeguards and security programs.

Counterintelligence

The Contractor’s Counterintelligence Office (CI) Office performed outstandingly in FY 2004 culminating in an “Outstanding” rating awarded by an external Office of Counterintelligence (OCI), Department of Energy (DOE) Inspection Team. The period of the inspection covered the period June 4, 2001 through March 22, 2004. During this reporting period, the CI Office also dedicated on a part time basis a Counterintelligence Officer (CIO), who under the leadership of the CI Office’s Senior Counterintelligence Officer (SCIO) developed an outstanding CI Program for the Lawrence Berkeley National Laboratory (LBNL) until its transfer in June 2004 to another NNSA Office of Defense Nuclear Counterintelligence (ODNCI) office.

The CI Office has incorporated CI program components, i.e., Analysis, Operations and Investigations, Cyber, Awareness and Training into an integrated and focused CI effort within each area. There is a synergy between the Operations and Investigations Program and the Analysis, Cyber and Awareness aspects of the overall CI program, with information from the latter three components contributing to the initiation of CI investigations. All of the components of the CI program are strongly supported by the Contractor’s Senior Management. The CI Office initiates investigations commensurate with guidelines of the Investigations Program Procedural Guide.

The CI Office’ Senior Counterintelligence Officer has been selected to serve on the LLNL Director’s Foreign National Governance Board.

The CI Office completed its portion of a Material Protection Control and Accountability (MPC&A) Program Study. In addition, it provided four analytical assessments to OCI/ODNCI and has met its milestones in updating its CY 2004 classified CI/CT Threat Assessment for LLNL.

The CI Office has updated its evaluation of LLNL’s Cooperative Research and Development Agreements (CRADAs) and provided its risk-assessment results to IPAC.

One of the CI Office’s analysts went on foreign travel to support and work with another LLNL Division in furtherance of Weapons of Mass Destruction (WMD) proliferation prevention.

The CI Office is credited with 155 Intelligence Information Reports (IIRS) published during FY 2004 the highest number excluding Cyber specific in the CI Program. These IIRs were disseminated throughout the U.S. Intelligence Community (USIC) and NNSA senior management.

The CI Office obtained the services of David Kaczynski, brother of the “Unibomber” Ted Kaczynski and had him speak to general audiences at LLNL and LBNL on “Doing the Right Thing-When it is the Hardest Thing to Do.” His message conveyed the essence of awareness-to know the indications of espionage or terrorism and to report suspicious behavior. The CI

Office continued to deliver tailored messages to specific audiences (as opposed to a general audience) through the *Tech Transfer Notes* and *Russian Outlook*. The newsletters provide information and a strong connection between the CI Office and the LLNL personnel and organizations to who the publications are distributed. *Tech Transfer Notes* is posted on the CI Awareness Task Force Web site, where it is available to CI Awareness Task Force members for use in their awareness programs. The CI Office's Awareness Coordinator also provides input for Security Police Officer "Roll Call" briefings, another audience-specific communication tool. In April, May, and June, the CI Office posted the first three "Spy of the Month" features on its Web pages, courtesy of Bechtel/NV CI Office.

The CI Office's cyber person provided significant assistance to LLNL's Classified Removable Media (CREM) reduction effort, eliminating the need for 60% of the CI Office's CREM and consolidating accountability for the remaining CREM.

During this year, all 15 employees of the CI Office attended advanced professional training courses beating the CI performance measure of sending 40% of CI personnel to advanced training.

The CI Office's liaison efforts were superior with close relationships with agencies of the USIC. It has worked closely with the Federal Bureau of Investigation (FBI), San Francisco and has hosted several visits involving FBI Headquarters representatives from Washington, DC to discuss CI/CT.

In addition, the CI Office provides information to the Protect Force Division (PFD) and the University of California and Livermore police forces. The CI Office completed the first additions of the Suspicious Incidents Chart, which is an ongoing CT analysis of information reported to the PFD, Livermore Police Department, Safeguards & Security Organization, and Office of Investigative Services. The chart is updated monthly by the CI Office and shared with all of the above entities.

As an example of the CI Office's awareness efforts, 49% (5,537 personnel) of 11,300 LLNL personnel received in-person awareness briefings in FY 2004. The CI Office provided CI awareness briefings to the LLNL Director, Deputy Directors, and several other LLNL entities, to include the Foreign National Working Group. The CI Office has developed fifteen general and tailored CI presentations that have been given by its staff to LLNL personnel and audiences.

Issues and Concerns:

LSO rated the contractor's performance in safeguards and security program management as SATISFACTORY in the 2003/2004 safeguards and security survey report; however, the sub-topic of management and administration was rated as MARGINAL. The report noted that avoidable and recurring security deficiencies including those described in the following paragraphs were attributable to a less than adequate ISSM implementation, particularly with respect to management attention to safeguards and security conditions.

LSO rated the contractor’s performance in unclassified cyber security as MARGINAL in the 2003/2004 safeguards and security survey report. The report noted that LLNL had not satisfactorily completed or sustained actions to correct cyber security findings previously given by LSO, OA, and DOE Office of Inspector General (OIG). One of these findings is that LLNL has not identified its critical systems or systems that process/contain sensitive unclassified information. Consequently, cyber security measures are not determined on the basis of a formal risk assessment, nor are the security measures tested and certified. This issue was first identified by OA in 1993.

The 2004 stand-down of classified removable electronic media (CREM) operations found systemic deficiencies in the contractor’s practice of accounting for CREM items within enclosures such as hard drive cases and CD cases. These deficiencies should have been identified and addressed in 2002 as part of a DOE-complex wide initiative and in subsequent LLNL self-assessments. Also, contractor self-assessments should have found systemic deficiencies in marking classified computer equipment. The OA gave a finding for deficiencies in the contractor’s self-assessment methodology in cyber security.

LSO rated the contractor’s performance in unclassified visits and assignments by foreign nationals as MARGINAL in the 2003/2004 safeguards and security survey report. The report noted that the contractor has an inefficient methodology for processing foreign national access requests that negatively impacts its capacity to evaluate risks. This capacity is further limited by the contractor’s current situation in not having a security plan and certification testing for its restricted network.

Performance Measure 8.5	Good
Manage inventories of surplus and excess SNM consistent with DOE/NNSA approved plans.	

The contractor performed a good job managing its surplus and excess SNM which was consistent with DOE/NNSA approved plans. The contractor completed both the 94-1 and 97-1 DNFSB commitments during the past rating period. It has worked with the Savannah River Site on accepting the surplus inventory of Pu at LLNL which will reduce the amount of SNM stored on-site. The contractor prepared shipping procurement plans for containers needed to meet future shipping schedules. It passed the WIPP Certification audit, and plans were developed to ship excess SNM as waste to WIPP. The contractor also has participated in the development of disposition project planning, as required by HQ and submitted a plan for repackaging additional quantities of MOXable Pu and U in FY05. This proposal was approved by HQ in the amount of \$1 million. The contractor made good progress on its two inactive actinide disposition projects in FY04.

Although the contractor, as Team Leader for the IAWG, developed a first draft of the Material Characterization and Storage Adequacy Report, a DNFSB deliverable, assigned to

LLNL by NA-10, the IAWG members decided the report was structurally and materially deficient. The responsibility for completing the final report was transferred to Los Alamos National Laboratory. BWXT Y-12 provided the necessary technical editing for the report.

Issues and Concerns:

LLNL, as team leader for the Inactive Actinides Working Group, did not complete Strategy Part II, Materials Characterization and Storage Adequacy Report, which is a deliverable to the Defense Nuclear Facilities Safety Board.

Performance Measure 8.6	Good
Environmental Management Program: Maintain an Environmental Management Program consistent with DOE negotiated regulatory requirements, funding levels, and NNSA policy. (LANL) Execute the Environmental Management Program consistent with the DOE-approved baseline. (LLNL)	

The contractor did a **Good** job in meeting the performance measures for the Environmental Management program. During FY 2004, the contractor accomplished the following:

- The contractor did an **outstanding** job in disposing of 501.5 cubic meters of newly generated low-level radioactive waste, which exceeded the Gold Chart metric of 450 cubic meters by 11.4%. In addition, the contractor completed this job while maintaining a positive cost variance.
- The contractor did a **good** job of disposing of 460 cubic meters of legacy waste and prepare an additional 190 cubic meters of TSCA-regulated waste for shipment. In addition, the contractor supported the characterization and certification of approximately 750 drums of transuranic waste. The contractor also received and characterized 10 transuranic waste drums from the Lawrence Berkeley National Laboratory. Finally, the contractor ended the fiscal year with a cost variance of 15.4%.
- The contractor did a **good** job in executing the environmental restoration subproject at the Livermore site. The contractor established full hydraulic control for contaminant plumes for which remediation systems have been built; controlled the offsite movement of contaminant; and reduced the size of the plumes is dramatically reduced. All enforceable agreement milestones were met and the cost variance was 4.7%.
- The contractor did an **outstanding** job in executing the environmental restoration subject at Site 300. The contractor achieved cleanup of the Pit 6 contaminant plume to regulatory standards; convinced the U.S. Environmental Protection

Agency to consider more cost-effective approach to cleanup of the High-Explosives Process Area. The contractor met all enforceable agreement milestones, except one (Pit 7 Complex RI/FS) for which the regulatory agencies requested an extension. The contractor also achieved a cost variance of 7.7%.

- The contractor did a **good** job in increasing its waste treatment and processing capabilities at the Decontamination and Waste Treatment Facility. The contractor started operating seven pieces of equipment as scheduled.

Performance Measure 8.7	Unsatisfactory
Implement an Emergency Management Program within NNSA approved schedules. (LLNL)	

The LLNL emergency management program has not completed the schedule of upgrades agreed to in the Emergency Preparedness Project Management Plan (PMP). Therefore, LLNL is rated unsatisfactory. Concerns focus on the progress made in developing and implementing a drill program required for Emergency Preparedness Hazards Assessment (EPHA) facilities, the inadequacy of some emergency planning documents, and issues management. These areas of concern indicate that the LLNL emergency management program has not completed the necessary upgrades to the program needed to maintain a comprehensive program.

3. Issues and Concerns

The requirements for EPHA facility-specific emergency plans and drills have been recently formalized in the ES&H Manual dated August 2004. However, LLNL has not fully implemented these requirements as agreed to in the PMP. LLNL has conducted some EPHA facility-specific drills (emergency preparedness files include 4 of the approximate 20 EPHA-related drills) but the development of the facility-specific emergency plans and full implementation of the drill program was supposed to be completed by the end of FY04.

The quality of some of the emergency planning documents is not adequate. Originally, the PMP identified that process documents would be developed to provide the detail missing in the existing emergency plan implementing procedures (EPIPs). However, in early FY04, LLNL decided that the process documents would not be developed. The quality of some of the EPIPs can no longer be considered to be acceptable since the process documents have not been developed to supplement the EPIPs. One example of insufficient program documentation is the Program Administration EPIP (EPIP-141). This document should describe the overall process of how the emergency preparedness (EP) program is managed. Some of the major process components missing are: comprehensive roles and responsibilities for the EP positions; description of the corrective action assignment, prioritization, and tracking system; the self-assessment process; and document development, control, and revision system. Another example of an inadequate document is the Emergency Readiness

Assurance Plan (ERAP). This document is supposed to be a management-planning tool that provides a framework for identifying and implementing improvements to the emergency management program. LLNL has submitted a plan similar to that used for program upgrades for the past 3 years. This sort of plan has not provided the necessary detail needed to assure the EP programmatic improvements are managed effectively and successfully completed. Revisions will be required in order for LSO to approve the LLNL ERAP.

Issues management remains a concern despite being identified as an issue in the past 2 annual internal contractor self-assessments and the past 2 inspections performed by OA-30. While EP is now addressing this concern through an improved tracking system, the system has only recently been implemented and has not yet been formalized in EP documentation.

4. Laboratory Accomplishments:

The LLNL Emergency Preparedness Program Self-Assessment dated September 2004 identified 8 of 15 functional elements in the emergency preparedness program as containing notable concerns. LLNL should be commended for self-identifying program weaknesses.

LSO received 13 EPHAs in FY04 for review and concurrence. While LSO comments for the B696R EPHA have not been resolved and the B612 EPHA did not get completed in the 3 year-revision cycle, most EPHA documents have been satisfactorily revised in accordance with the PMP schedule.

LLNL's FY04 annual exercise demonstrated that critical deficiencies identified in past exercises and assessments such as EOC command and control are being corrected. There was only one repeat weakness from the FY03 annual exercise in the area of consequence assessment. This weakness was retested in the NA-41 No-Notice Exercise and was successfully demonstrated.

In September, the emergency management program was reorganized to strengthen project management, more effectively coordinate all elements of the emergency management program and to better integrate the program into existing management systems because it was recognized that significant concerns, including repeat concerns, had not been completely addressed in the past 3 years of scheduled programmatic upgrades.

Performance Objective 9	Good
Improve or maintain effective business systems and practices that safeguard public assets and support mission objectives	

Performance Measure 9.1	Good
Demonstrate effective internal business controls and processes to maintain an acceptable Financial Management System in accordance with DOE/NNSA requirements (e.g., SCIC, FMFIA), Human Resources administrative systems and approved Procurement and Property Systems. This includes the management of a risk-based, cross-functional, integrated, and credible assessment program.	

A. Financial Management

For FY04, performance of the financial management is supported at the “**Outstanding**” level.

- This has been demonstrated throughout the year in the more than two dozen external and internal reviews.
 - Several of these reviews called for minor corrections and a number required no corrective action.
 - LLNL internal reviews of such topics as time and attendance system password controls, data center network controls, general ledger closing routines, bank account administration, and precious metals inventory accounting procedures all indicate the high level of performance of the financial management system. Minor improvements to reports and file maintenance were recommended, but no major deficiencies were noted.
 - The contractor continues to implement the recommendation of the Ernst & Young Business Process Internal Control Assessment, sponsored by the University of California. Price Waterhouse Coopers’ recommendations regarding documentation, training and password protocol are being implemented.
- The contractor continued to perform effective accounting practices at a high performance level during FY 2004.
 - Most accounts payable and receivable indicators show constant or improved performance.
 - Bank reconciliations are done in a timely and effective manner.
 - The use of a continuous quality improvement model has led to a number of enhancements, including collaborations with Procurement officials on internal controls, soliciting feedback from customers to improve services, and working with Property officers on equipment identification issues.
 - The staff of the NNSA Office of Financial Management (OFFM) has also reviewed the contractor’s accounting practices during the year. OFFM concludes that the contractor accounting practices are timely and reconciled.

- The contractor accounting practices are in accordance with Cost Accounting Standards.
- LLNL provided outstanding financial stewardship of assets made available to the Laboratory.
 - Self assessments of feeders to the general ledger improved the internal controls to assure compliance with DOE and federal accounting policy.
 - The contractor continued to prepare for the transition from MARS to I-MANAGE/STARS and submitted a clean test file. This preparation was a significant effort during FY 2004.
 - The CFO staff worked with internal reviewers to assess procedures and seek improvements. The effective internal self-assessment and review programs find and resolve issues while balancing the needs of contractor management with those of the OFFM and DOE/IG. Reviews included administration of the Awards program, Morale Funds, and Health Services receipts. Only minor changes were deemed necessary and are being implemented.
 - The contractor practices for accumulation of funds to support the LDRD program were reviewed by OFFM and found to be acceptable.
- The budget products and services provided by the contractor's CFO organization are of high quality.
 - Analysis, reports and interactions with resource managers throughout the site have kept costs within appropriate control levels.
 - Improvements have been made to the planning, pricing and rate management systems.
 - The budget staff is playing a lead role in working with HQ and other contractors to establish procedures to accomplish the DOE goals in the area of small business purchasing.

B. Human Resources Management

The assessment documents provide support for achievement of a "Satisfactory" rating for Human Resources Management performance.

- The Self Assessment provided information on the following:
 - a. Internal management controls for HR including discussion of in-place controls to ensure privacy and appropriate access to personnel information, ensure personnel policies are followed and Lab compensation and benefit programs are consistent with UC policy, DOE guidelines and legal requirements.
 - b. Implementation of HR Objectives Matrix and accomplishment of performance goals.
 - c. LLNL Audit and Oversight Program review of HR programs in FY04 including audits of the Participating Guest Program, Awards Program and Service Awards Program. Initiatives for completing recommendations from the audit of the Participating Guest Program are underway. Recommendations resulting from the Service Awards Program audit are complete. Several of the recommendations resulting from the draft audit of the Awards Program are under consideration.

- d. Internal control and process reviews performed by the Accounting Department and regarding timekeeping and payroll plus actions taken as a result.
- e. An improved tracking system implemented in FY04 to monitor contract limitations, and review and resolve unallowable costs.
- f. Full implementation of L-Hire (Phase II), the Laboratory's web-based employment system.
- g. LLNL HR participation with the CFO and other LLNL stakeholders to develop a system to facilitate exchange of faculty and staff within the UC system while ensuring controls regarding benefits, work time and assignment duration are maintained.
- n. The HR organization's work with LLNL Property staff to develop metrics related to sharing of information regarding employee terminations and reassignments to ensure accuracy of property custody issues.
- o. Issues
- There are opportunities for improvement of the Self-Assessment. Specifically, it would be helpful to:
 - Specify key HR "functional requirements" so as to better relate them to the assessments/audits performed,
 - Provide more specific description of HR internal controls,
 - Have greater discussion of actual improvements implemented as result of assessments, and
 - Greater discussion regarding effectiveness of integration activities and increased description of cross-functional metrics.
- As a point of clarification, the LLNL self assessment states that "Human Resources implemented the Objectives Matrix and met all performance goals outlined in FY04." It is true that the Objectives Matrix was implemented but LLNL did not meet the performance goal for the measure on "% of fully utilized job groups - minorities". Achievement was less than the established goal of 50%.

C. Procurement Management

Taking into consideration the contractor's self assessment, operational awareness activities conducted by the site office, and third party independent reviews, contractor performance of Procurement function is supported at the "**Good**".

- The Procurement Management System is based primarily on the Objectives Matrix that is supported by the Procurement System Evaluation Plans of internal controls, surveys, and improvement initiatives, and provides the protocol for assessing the comprehensive performance of the Procurement Management System. The procurement quality index is acknowledged to be the most important in evaluating the Procurement Management.
- The contractor has a well-developed, comprehensive self-assessment, and evaluation program. 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 their ability to produce quality documents, implement and monitor internal controls; self assess the transactions, and implement timely and effective corrective actions.
- The contractor continues to closely monitor credit card and blanket release transactions. This process provides for disciplinary action to card holders for inappropriate transactions.
- The contractor's procurement management division has strong leadership and 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 a successful purchasing system.
- Working to develop and continue successful long-term relationships with key suppliers remains a top priority and a success. The contractor continues its superiority and leadership in ensuring accurate information is available and total needed information is provided to the staff to perform their functions. This resulted in improved expertise among their personnel and increases the number of quality procurements which is consistent with best business practices.
- The employee satisfaction rating was not very respectable. The cause of this down turn in satisfaction was due to a lab-wide restructuring whereby many of the procurement personnel were included. A corrective action plan has been implemented by management.
- The level of spending in the various socioeconomic categories continued to improve; in particular, small business achievements were at 43% well above the 35% goal, as well as women-owned small business spending exceeded the goal. The contractor made notable improvements in awarding contracts in the small disadvantaged and service-disabled veteran-owned small business categories.
- The contractor continues to reduce cycle time for the more complex and large dollar procurements and to pursue alternate procurement approaches to reduce the cost of a procurement action.
- The Procurement department implemented two improvement initiatives. An E-business Supply chain was implemented to consolidate current systems and integrate with programmatic systems. The new E-commerce vendors were awarded and the catalogs loaded with full utilization beginning of FY05. This new electronic ordering system is expected to reduce cycle time and reduce errors associated with phone and fax orders. Several integrated initiatives with finance and property were developed this period. The purpose is to partner, to understand and to close gaps when activities are passed from one division to another in carrying out the balance of the program. The outgrowth of this effort will be evaluated in FY 05.

- There were numerous audits by third parties this year. The recommendations were not significant to disapprove the purchasing system. The recommendations are fully implemented or are in the process of implementation. The recommendations are validated as part of the procurement quality index on the objectives matrix.

D. Personal Property Management

Based on consideration of the contractor's self assessment, operational awareness activities conducted by the NNSA Service Center, and third party independent reviews, the contractor performed the Property function at the "**Good**" level.

- 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.
- Inventory results of 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 FY04 inventory continues the trend. Fiscal Year 2004 is the first year of a three year inventory program that calls for back to back statistical sample inventories in FY04 and FY05 followed by a wall to wall inventory in FY 06.
- The Sensitive items inventory resulted in a find rate based on acquisition value of 99.95 percent. The contractor located 9301 items of the 9308 contained in the sample. The Equipment inventory resulted in a find rate of 99.99 percent, with the contractor locating 10,195 items of the 10,200 sampled. 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. A random sample validation was conducted of the Laboratory's results with 80 items out of an 80 item sample being located.
- 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. Utilization standards have been developed and are in place for all vehicles requiring them. 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 contractor met the Department's fleet reduction target for their facility of 33 vehicles on time.
 - In addition, an independent review of the contractor's Fleet Management Program was conducted by the Service Center's Fleet Manager, a senior member of his staff and a representative from HQ, NA-133. Overall the review is extremely complimentary of the Fleet Management Program and does not note any deficiencies.
- The Property Management Division has established 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 have been implemented for these most important relationships and results are being evaluated and assessed. Management’s development and implementation of integration measures reflects an attitude receptive to change and a desire to constantly improve.

- There were no audits or reviews initiated or completed during the assessment period by the OIG or the GAO. An internal audit report No. 04-13, Property and Selected Purchasing Controls Follow Up was issued on May 20, 2004. The report provided updated status on 19 recommendations that were made in an internal review concluded in April 2003. In general, good progress is being made in addressing the recommendations with 5 of the 19 being fully closed and 7 being partially complete.

Performance Measure 9.2	Good
Improve the efficiencies of Information Management through enterprise initiatives. (LLNL)	

Overall, the LLNL self-assessment supports an evaluation of “**Good**” for performance measure 9.2.

The LLNL Self-Assessment provided information regarding:

- p. Visions for key enterprise process and supporting IT infrastructure visions
- q. Architecture and “technology watch”
- r. Governance and portfolio management
- s. Stretch goal successes
- t. Other activities
- u. Issues

LLNL provided credible evidence of accomplishment against this performance. All of the assessment issues documented provide support for achievement of good results.

Performance Measure 9.3	Good
Develop an integrated cost basis to assess, measure, and improve performance of institutional processes and management systems.	

Overall, the LLNL self-assessment supports an evaluation of “Good” for performance measure 9.3.

The LLNL Self-Assessment provided information regarding:

- a) Process Improvement Initiative

- b) People Information Program
- c) Foreign Nationals Process
- d) Project Management Process
- e) Chief Information Officer (CIO) Strategic Plan
- f) Participation in the National Laboratory Improvement Council
- g) NLIC's Current Areas of Emphasis
- h) Issues

LLNL provided credible evidence of accomplishment against this performance. All of the assessment issues documented provide support for achievement of good results.

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.	

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) The University of California’s Edward Teller Education Center (ETEC) located at LLNL, was officially dedicated in November 2003; 2) STEP that leads the Laboratory’s efforts in K-14 science education, in partnership with ETEC, held several workshops for approximately 500 middle school and high school teachers to help further their knowledge, skills, and abilities in the area of science and math. Participant feedback was positive; 3) STEP continued its partnership with ETEC to expand UC’s K-12 science education into the Central Valley with existing Regional Education Centers in Fresno and Merced and they also created new Centers in Bakersfield and Davis; 4) The Contractor’s Science on Saturday (SOS) lecture series offered in the Tri-Valley had a record attendance of 450 people for the NIF lecture. The series was extended to the San Joaquin Valley, in collaboration with UC Merced and Merced College; 5) PAO conducted many successful outreach activities. The School Tour program for local 4th and 5th grade students in the Tri-Valley area increased in participation from the year before, from 13 to 29 classes and from 461 participants to 1,028 participants; and 6) PAO conducted a half-day family-oriented science event called, *Got Science? Discover Science Saturday*. More than 2000 people attended the event. The Contractor in partnership with ETEC, piloted a new Summer Adventure Institute at LLNL (SAIL): CSI Livermore Lab. The Institute was very successful with positive student and parent surveys returned. The program received local newspaper and cable TV coverage.

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

Performance Measure 10.2 – Responsibility for this measure rests with the Public Affairs Office. PAO did an outstanding 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 a 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) PAO participated with the NNSA

Livermore Site Office in the development of a community relations plan for NNSA's *Site Wide Environmental Impact Statement for Continued Operation of LLNL and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement for LLNL (SW/SPEIS)*. The plan included public information materials, briefings and correspondence with key stakeholders, presentations to community groups, and public hearings in Livermore, Tracy, and Washington, D.C.; and 3) PAO partnered with the Livermore-Pleasanton Fire Department, County of Alameda Office of Emergency Services, and the City of Dublin and developed emergency self-help materials that were mailed to almost 75,000 addresses in the Tri-Valley.

Appendices

Appendix A

Ratings

Overall LLNL Rating

Overall Rating	
Mission (Performance Objectives 1-6)	Outstanding
Operations (Performance Objectives 7-10)	Satisfactory

Rating by Performance Objective

Mission		
1.	Conduct warhead certification and assessment actions using a common UC Design Laboratory Strategy	Good
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 contractors	Outstanding
4.	Implement an integrated science and technology-based program aimed at preventing the proliferation or terrorist acquisition of weapons of mass destruction and other new and emerging threats	Outstanding
5.	Enhance and nurture a strong science and technology base in support of national security strategic objectives	Outstanding
6.	Achieve successful completion of projects and development of user facilities	Outstanding

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

Appendix A
Ratings
Ratings by Performance Measure

1.	Conduct warhead certification and assessment actions using a common UC Design Laboratory Strategy	Good
1.1*	Use progress toward quantifying margins and reducing uncertainties, and experience in application, to further refine the certification methodology.	Good
1.2	Demonstrate application of a common assessment methodology using Quantification of Margins and Uncertainty (QMU), in major warhead assessments.	Outstanding

2.	Develop with NNSA and implement long-term balanced, integrated stewardship	Outstanding
2.1	Support the needs of warhead assessment and certification by executing coordinated programs of targeted small- and large-scale experiments and mining of archival UGT data to improve predictive capability. Develop and execute a program of hydrotests that addresses 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*	Demonstrate advances in radiography technology and develop joint options and recommendations for future x-ray and proton radiographic capability that support the quantitative certification methodology.	Satisfactory
2.4	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 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 the quantitative certification methodology.	Good
2.7*	Develop and initiate an integrated program for plutonium capabilities of LANL and LLNL to support the overall NNSA strategic requirements.	Good

3.	Develop with NNSA and implement near-term balanced weapon programs that are coordinated with the other NNSA M&O contractors	Outstanding
3.1	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 support NNSA as required during interagency and community coordination of the Annual Assessment Process.	Outstanding
3.2	Conduct stockpile surveillance activities, investigate on a priority basis significant findings and issues identified in technical assessment reports, and establish closure plans for all Significant Finding Investigations (SFIs).	Outstanding
3.3	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
3.4	Deliver on W88 Pit Manufacturing and Certification Project major milestones.	Outstanding
3.5	Meet directive schedule requirements.	Good
3.6	Provide technical support to production complex operations, including the Integrated Weapons Activity Plan (IWAP) and other weapons response analyses.	Outstanding
3.7	Establish and implement a weapons design and manufacturing quality assurance program consistent with NNSA requirements.	Satisfactory

4.	Implement an integrated science and technology-based program aimed at preventing the proliferation or terrorist acquisition of weapons of mass destruction and other new and emerging threats	Outstanding
4.1	Sustain and augment international cooperative activities to enable implementation of U.S. nonproliferation policy.	Good
4.2	Sustain and advance the scientific and technical underpinnings required to detect, identify, and monitor proliferation-related activities.	Outstanding
4.3	Sustain and enhance intelligence analysis capabilities and develop tools to improve the nation's ability to detect and thwart proliferation and terrorism.	Outstanding
4.4	Develop and transition for deployment 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	Sustain and expand activities to provide scientific and technical capabilities to meet near-term and long-term U.S. defense policy needs.	Outstanding

5.	Enhance and nurture a strong science and technology base in support of national security strategic objectives	Outstanding
5.1	Nurture and maintain the Laboratory science and engineering excellence in disciplines 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 and technology base in support of national security missions and emerging national needs.	Outstanding
5.3	Execute a strategic portfolio of non-NNSA sponsored research 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 community, leveraging unique Laboratory expertise and capabilities; develop strategic collaborations with other national laboratories, industry and academia.	Outstanding

6.	Achieve successful completion of projects and development of user facilities	Outstanding
6.1	Execute construction projects as identified and agreed to between NNSA and Laboratories within budget, scope and schedule.	Outstanding
6.2*	Develop and implement, with NNSA and other appropriate DOE programs, plans to support optimal use of scientific, research and test facilities and capabilities (e.g., NIF, DARHT, CFF, terascale computing facilities, LANSCE, test readiness) at both Laboratories.	Good

Joint LANL / LLNL Measures are 1.1 2.3 2.6 2.7 6.2

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.	Good
7.2	Implement leadership and management development programs aligned with workforce planning and diversity objectives.	Outstanding
7.3	Establish a weapons point of contact development program.	Good

8	Maintain a secure, safe, environmentally sound, effective and efficient operations and infrastructure basis in support of mission objectives	Satisfactory
8.1	Meet facility short and long term needs to support mission requirements: <ul style="list-style-type: none"> • Critical facilities, including nuclear facilities, will meet operational needs for programmatic work requirements by minimizing unplanned system outages and downtime. • Facility management will be consistent with NNSA's deferred maintenance goals and the objectives identified in the approved FY04 Ten-Year Comprehensive Site Plan (TYCSP). 	Outstanding
8.2	Achieve continual improvement in ISM: <ul style="list-style-type: none"> • 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 institutional corrective actions derived from violations enforceable under the Price Anderson Amendments Act. 	Satisfactory
8.3	Continue to comply and improve performance in meeting the requirements of 10 CFR 830, Subparts A and B.	Unsatisfactory
8.4	Improve security performance using risk management principles to ensure an effective safeguards and security program. <ul style="list-style-type: none"> • Achieve continual improvement in ISSM with consistent application of ISSM principles across all organization levels and across all laboratory facilities. • Develop appropriate plans and initiatives in accordance with DOE/NNSA policies (e.g., DBT) so that NNSA expectations are addressed while balancing mission requirements with S&S resource allocations and new requirements. • Detect, deter and mitigate foreign counterintelligence collection and espionage efforts at the Laboratories. 	Satisfactory
8.5	Manage inventories of surplus and excess SNM consistent with DOE/NNSA approved plans.	Good
8.6	Environmental Management Program: <ul style="list-style-type: none"> • Execute the Environmental Management Program consistent with the DOE-approved baseline. (LLNL) 	Good
8.7	Implement an Emergency Management Program within NNSA approved schedules. (LLNL)	Unsatisfactory

9.	Improve or maintain effective business systems and practices that safeguard public assets and support mission objectives	Good
9.1	Demonstrate effective internal business controls and processes to maintain an acceptable Financial Management System in accordance with DOE/NNSA requirements (e.g., SCIC, FMFIA), Human Resources administrative systems and approved Procurement and Property Systems. This includes the management of a risk-based, cross-functional, integrated, and credible assessment program.	Good
9.2	Improve the efficiencies of Information Management through enterprise initiatives. (LLNL)	Good
9.3	Develop an integrated cost basis to assess, measure, and improve performance of institutional processes and management systems.	Good

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)	Outstanding

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
QMU	Quantification of Margins and Uncertainties
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
TYCSP	Ten Year Comprehensive Site Plan
UC	University of California

Unsatisfactory

Satisfactory

Good

Outstanding