

Fiscal Year 2001  
Annual Performance Appraisal  
Lawrence Livermore National Laboratory



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Prepared by:

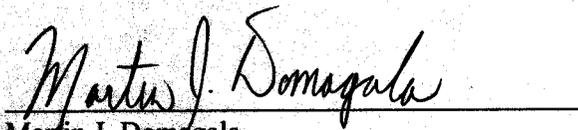
**Oakland Operations Office  
U.S. Department of Energy  
December 2001**

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## CONTRACTING OFFICER'S EVALUATION

The DOE Oakland Operations Office Performance Review Board reviewed and discussed the recommendations of functional managers and staff concerning the appropriate adjectival and numeric 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 and a unanimous vote of the members of this board, an adjectival rating of "**Outstanding**" is granted, based on a numeric rating of 922 points. This report, the "Fiscal Year 2001 Annual Performance Evaluation and Appraisal - Lawrence Livermore National Laboratory" provides the basis for my determination, and is hereby endorsed and approved.

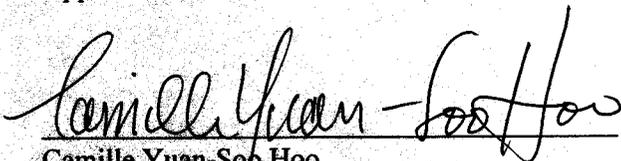
### Recommendation:



Martin J. Domagala  
Deputy Manager  
Chairperson, Performance Review Board

Date: DEC 18 2001

### Approval:



Camille Yuan-Soo Hoo  
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Date: DEC 18 2001

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for  
Lawrence Livermore National Laboratory  
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# **Executive Summary**

## Executive Summary

### Introduction

This report is produced by the U. S. Department of Energy (DOE), Oakland Operations Office (DOE OAK) 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. Contract Appendix F defines the Objective Standards of Performance agreed to by DOE and the University of California (Contractor or UC) to annually measure the Contractor's overall performance of Laboratory Management, Operations and Administration (O&A), and Science and Technology/programmatic (S&T) performance under the contract.

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 Laboratory performance under Appendix F.

### ***Performance Period***

This appraisal and evaluation is for the period October 1, 2000 through September 30, 2001 (Fiscal Year 2001). Some performance is measured on a calendar year basis, however, as described in the "Detailed Appraisal Results" section of the report.

### ***Appendix F - Objective Standards Of Performance And Contract Requirements***

This report provides the Contracting Officer's Fiscal Year 2001 evaluation and validation and the NNSA Administration's approval of the Contractor's self-assessment of performance in its management and operation of LLNL for DOE under the contract. In this contract, UC and DOE have agreed to use a performance-based management system for Laboratory oversight. The parties agreed to use clear, reasonable and objective performance measures as standards against which the Contractor's overall performance of operations and administration and Science and Technology under the contract will be assessed and evaluated. DOE and UC also agreed that the Contractor would conduct an ongoing self-assessment process, including self-assessments done by the Laboratory, as the principal means by which the Contractor would evaluate compliance with the performance objectives contained in Appendix F.

DOE OAK conducts validations against the Contractor's self-assessment and evaluates the Contractor's performance. Teams responsible for the various functional areas represented in Appendix F have responsibility for validation and evaluation. These teams, with guidance from DOE OAK management, develop an adequate, independent basis for assessing the quality, credibility, and accuracy of the Contractor's self-assessment and for DOE OAK's evaluation of the

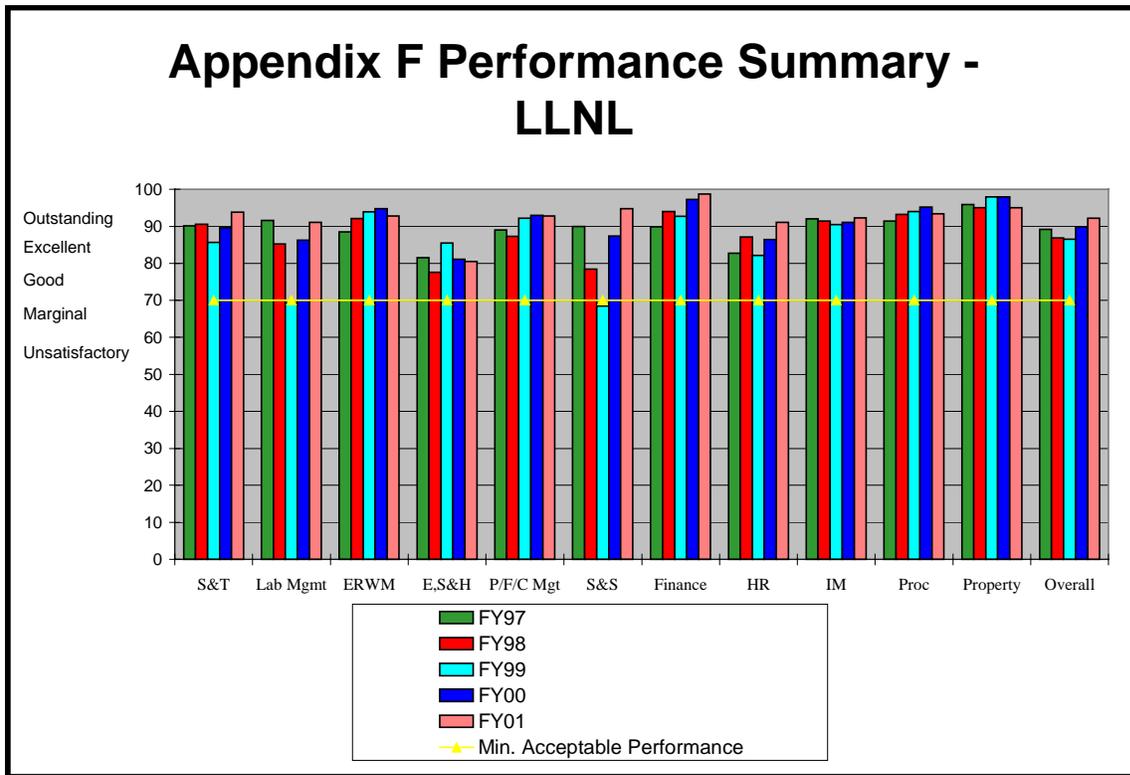
Contractor's performance.

This report fulfills the requirements of the contract (Appendix F), and specifically supports and meets the following contract requirements:

- Provide a summary of the results from the conduct of the DOE OAK validation program and evaluation of performance of work under this contract, as required by Clause H.007.
- Provide a written assessment of the Contractor's performance under the contract based upon the DOE OAK appraisal program and the Contracting Officer's evaluation of the Contractor's self-assessment, as required by Clause H.007.
- Provide the basis for determination of the Senior Management Salary Increase Authorization (SIA) Multiplier, as required by Section III (compensation) paragraphs (f), (6) and (8) of Appendix A and Section C, Part III of Appendix F.
- Provide the basis for determination of the Contractor's Program Performance fee, as required by Clause H.014.

**FY 2001 Appraisal Results in Brief**

Overall Ratings/Trends Summary



DOE rates the overall performance of the LLNL as **Outstanding** for FY 2001.

The overall adjectival rating for LLNL for the FY 2001 performance period is **Outstanding** at 92.2 percent. DOE OAK rates the LLNL FY 2001 Laboratory Management **Outstanding** at 91.1, Science and Technology/programmatic performance **Outstanding** at 93.8 percent and Operations and Administration is rated **Outstanding** at 90.5 percent.

## Overall Ratings/Trends

The FY2001 rating showed a healthy increase from 89.8 percent to 92.2 percent. The Laboratory continues to excel in Operations and Administration (O&A ) performance, receiving Outstanding ratings in nine of the ten functional areas. Particularly noteworthy are the ratings for Financial Management, 98.7 percent, and Property Management, 95 percent. Improvement over FY 2000 performance was demonstrated in Safeguards and Security (87.4 to 94.8 percent), Laboratory Management (86.3 to 91.1 percent), and Human Resources (86.4 percent to 91.1 percent). Other O&A functional areas continued at the Outstanding level of performance level from FY 2000. The increase in the Science and Technology score is due to improvements throughout the laboratory's programmatic efforts.

## Laboratory Management

LLNL's overall performance in Laboratory Management is rated **Outstanding** for FY 2001.

LLNL has continued excellent work in strategic planning, including the Long-term strategy project, laboratory planning councils, and development of the Director's A list (planning milestones) for the year 2002. Institutionalized top down planning is outstanding. The Laboratory's relationships with National Nuclear Security Administration (NNSA) managers at HQ, NNSA OAK and the Livermore Site Office continued to strengthen during the rating period. Particularly noteworthy was the establishment of monthly one-on-one meetings and continuing dialog between the LLNL Director and the OAK Manager to discuss both programmatic and operational matters. Laboratory senior management, under the direction of the Director, continued to provide effective leadership to support and accomplish its DOE/NNSA missions, including support to other NNSA weapons laboratories and plants. Through effective Laboratory leadership, LLNL has had success in the stewardship of assets, including prioritization of costs and reinvestment in infrastructure and mission. In FY 2001, LLNL demonstrated a successful community relations program including support for the Teller Education Center and the Tri-Valley Incubator Facility sited at LLNL. LLNL continues to make community relations a high priority. LLNL Public Affairs was adept at handling politically charged issues and had strong communications with the public. Through laboratory leadership, LLNL has made significant progress in transitioning from a weapons designer to an NNSA integrated team player.

During FY 2001, LLNL demonstrated its commitment to diversity in its management ranks. Ten new selections were made at the executive level with sensitivity towards diversity.

## Science and Technology (S&T)

The overall rating for Science and Technology is **Outstanding** at 93.8 percent, up from last year's rating of Excellent at 89.6 percent, and from FY 1999's rating of 85.7 percent. The Laboratory continued to perform leading edge research, and played a prominent role in the National Stockpile Stewardship Program.

The increase in the score came from improvements throughout the Laboratory's programmatic efforts. Improved performance in the NIF project was particularly significant.

DOE OAK based its programmatic assessment of the Laboratory upon the LLNL self-assessment and peer review of S&T and the UC overlay, as validated by DOE HQ program managers and their OAK counterparts. The assessment of performance for research programs is comprised of a combined evaluation of the following LLNL programs:

- Directed Stockpile Work,
- Campaigns,
- Readiness in Technical Base and Facilities,
- National Ignition Facility,
- Nuclear Nonproliferation, and
- Programs funded from Other Sources.

### Directed Stockpile Work

LLNL's work on the Directed Stockpile Work was **Excellent** for FY 2001. Of particular note were: annual certification of LLNL weapons in the stockpile; certification of the refurbished W87 warhead; the support at Pantex and Kansas City; the support for the Pantex dismantlement activities; and the successful demonstration of pit surveillance capabilities using the superblock facility. The certification of the W87 was the first time a warhead, undergoing a major refurbishment, was certified for return to the stockpile without the use of nuclear testing.

The reason for the slightly lower rating than that assigned by UC in this area was due to several deliverables being late or missed (particularly documentation and reports), and the slow pace of the component characterization work. On the positive side, LLNL was cited by one DSW Program Manager for how well they had transformed from an "autonomous, stand-alone design agency to being a member of a much larger, integrated DOE/NNSA team."

### Campaigns

LLNL's work on the Stockpile Stewardship Program's Campaigns was **Outstanding** for FY 2001. Major accomplishments were: the installation, operation and transition of the ASCI white computer producing significant weapons simulations with availability to all three weapons labs; significant technical input to NIF; progress in design of experiments to support the other Stockpile

Stewardship Campaigns; conducting hydro, subcritical, and lab experiments for weapons certification; and completion of the JASPER gas gun and Contained Firing facilities to enhance experimental capabilities.

LLNL is conducting a robust experimental program involving subcritical experiments at NTS, hydro shots at Site 300, and laboratory-scale experiments. These experiments test weapons components and provide data needed to validate simulation tools used in the weapon certification process.

In providing their assessments of LLNL's work, NNSA Campaign Program Managers were highly complimentary of both the quality of the technical work and the outstanding way in which it was done. Some of the descriptions included the phrases: "strong leadership;" "well focused program;" "outstanding scientific leadership;" "leader in innovative science;" "outstanding, world-class technical work;" and "work was judged to be technically outstanding."

One area cited for improvement was the slow pace of development of the interaction and communication between the NIF Director and the overall NIF user community.

## Readiness in the Technical Base and Facilities

The RTBF program provided the direct funding of a wide variety of experimental, computational, fabrication and special materials handling facilities to conduct the programmatic activities described in the campaigns and DSW. The performance of the RTBF program related to keeping the facilities available for programmatic operations. The LLNL performance was a facility availability of 99.4%, which is an **outstanding** rating.

## National Ignition Facility

### NIF Project

DOE OAK's evaluated rating of the NIF Directorate's overall performance for FY 2001 was **Outstanding**. This rating mirrors the FY 2001 University of California (UC) President's Council on National Laboratories rating assigned to the National Ignition Facility Directorate. The NIF project made substantial progress during FY 2001 including the completion of the Level 1 milestone, completion of "End Conventional Construction" and the Laboratory maintained the project on scope, cost and schedule during the rating period. LLNL successfully demonstrated Line Replaceable Unit (LRU) assembly, transport, and insertion.

### NIF Demonstration Project

NNSA's evaluated rating of the NIF Directorate's overall performance in the area of the NIF Demonstration Project for FY 2001 was **Outstanding**. This rating likewise mirrors the FY 2001 UC President's Council on National Laboratories rating assigned to the National Ignition Facility Directorate. Substantial progress has been made in enabling economic operation of the NIF during this period, including completion of all milestones within budget and resolution of key technical problems such as successful demonstration of the Line Replaceable Units and optics damage control.

## **Nuclear Nonproliferation**

The NAI Directorate remained in the forefront of supporting two of the most important national security missions as evidenced by the **outstanding** work in these divisions related to intelligence and nonproliferation. The work conducted in NAI over the past years in these areas placed LLNL in the unique position to provide enhanced support to the intelligence community, and to counter-proliferation / counter-terrorism organizations dealing with the current international and national terrorism crisis. NAI successes included: developed technology for disposition of plutonium, secured Soviet Union nuclear materials, developed chemical and bio agent remote sensors, assessed numerous cases of alleged nuclear material trafficking/threats, and evaluated foreign nuclear capabilities. NAI made effective and extensive use of matrixing throughout LLNL to bring the most competent individuals spanning all disciplines together to meet the complex challenges of the current threat.

NAI's interaction with the DOE, DOD, Intelligence Community, and the many other organizations involved with national security is expected to increase significantly as a result of war declared on terrorism. It is also expected that there will also be increased collaboration within the DOE laboratory complex, especially with those involved with the current national security crisis.

## ***Other (Office of Science, Work for Others, Technology Transfer, Laboratory Directed Research and Development***

### **Office of Science**

The overall performance rating was **outstanding**. The quality of science was judged to be world-class in a wide range of technology areas, encompassing human genome sequencing, advanced technologies development for medical applications, studies of geophysical and geochemical processes in the earth, fusion energy theory and experimentation, and research in applied mathematics. The relevance of the biosciences research program to national needs was emphasized by the recent media attention to LLNL's role in developing biological technology that can be applied to national security needs. LLNL's global change research program clearly addressed one of the nation's and world's current high priority subjects. The scientific computational research similarly contributed to global climate issues. The LLNL programs in nuclear structure, nuclear data, and proton-nuclear collisions provide relevant input to important DOE/NNSA programs in Stockpile Stewardship and Nuclear Security.

### **Work For Others: DOD**

LLNL scientists did an **outstanding** job in pushing the envelope and developing cutting edge technologies. The majority of Department of Defense (DOD) work was performed within the Nonproliferation, Arms Control, and International Security Directorate and the Physics Advanced Technologies Directorate which contributed significant efforts to DOD projects. LLNL established an outstanding broad base of WFO projects to support DOD mission areas. The DOD WFO projects

continued to enhance LLNL's core capabilities in a variety of areas: advanced instrumentation, spectroscopy, counterproliferation, adaptive optics, microelectromechanical systems, military defense planning, data analysis, lasers, and space communications.

### **Work For Others: Other Federal Agencies**

LLNL's Energy and Environmental (E&E) and Physics Advanced Technologies (PAT) Directorates provided **outstanding** scientific and technical support to a wide diverse set of programs and projects. The Lab aided NASA by modifying unique LLNL spectral modeling capabilities for applications to astrophysics and made these computational tools available to the NASA community. LLNL also aided sponsors in the applications of Optics such as diffractive gratings for light weight space telescopes. The Laboratory also aided the Federal Highway Administration in the use of MicroPower Impulse Radar technology for non-destructive evaluation of cracks, voids, corrosion under highway bridges and pavements.

### **Technology Transfer**

LLNL Industrial Partnering and Commercialization Office (IPAC) performed in an **outstanding** manner in responding to numerous DOE OAK and HQ concerns in an exemplary and professional fashion throughout FY 2001. LLNL developed its partnerships with industry primarily through licenses, CRADAs, industrial work-for-others (WFOs), and procurements for research and development. The Lab received three awards in the annual competition for the R&D 100 Awards in FY 2001 for its efforts in LaserShot Peen Marking System, Gene Recovery Microdissection and Manufacturing Laser Glass by Continuous Melting. In addition, LLNL won a Federal Laboratory Consortium Award for Excellence in Technology Transfer for work on a continuous glucose sensor for diabetes patients.

### **LDRD**

The quality of the technical work (science, technology development, and engineering) in FY 2001 was **outstanding**. Scientific collaborations with academia and other national laboratories were notable as was the support and participation of many post-doctoral candidates in the Laboratory Directed Research and Development (LDRD) program. LLNL continued to invest in science and technology to further develop and enhance skills and capabilities to meet DOE's needs for the future. The LDRD program at LLNL realized scientific and technological breakthroughs including high parallel computing storage, shocked deuterium simulations, and Glucose implantable monitoring devices. The maturity of the program in terms of technical work and the quality of research was outstanding and provided connections to the mission and the resulting awards, publications, and intellectual property.

## **Operations and Administration (O&A)**

The overall rating for Operations and Administration is **Outstanding** at 90.5 percent, up from last year's rating of 89.9 percent. The Laboratory continues to excel in O&A performance, receiving Outstanding ratings in nine of the ten functional areas. Improvement over FY 2000 performance was demonstrated in Safeguards and Security (87.4 to 94.8 percent), and Human Resources (86.4 percent to 91.1 percent). Other O&A functional areas continued at the outstanding level up from FY 2000.

DOE OAK based its assessment of the Laboratory upon the LLNL self-assessment and the UC overlay as well as operational awareness maintained by DOE OAK functional managers throughout the year. The following functional areas are included in Operations and Administration:

- Environmental Restoration and Waste Management
- Environment, Safety and Health
- Facilities Management
- Safeguards and Security
- Financial Management
- Information Management
- Human Resources
- Procurement
- Property Management

### **Environment Restoration/Waste Management**

LLNL's overall performance in Environmental Restoration/Waste Management is rated **Outstanding** for FY 2001.

**Waste Management:** LLNL Hazardous Waste Management (HWM) demonstrated a high level of productivity in managing the throughput of waste at LLNL facilities. This measure was revised in FY 2001 to place emphasis on being able to safely dispose of an amount of waste commensurate with the amount being generated, which LLNL accomplished. LLNL HWM has met and exceeded the treatment and disposal commitments identified in the Accelerated Cleanup Project. LLNL HWM addressed its legacy waste inventory by profiling and disposing of both legacy low level waste and mixed waste.

**EM Program Innovation:** LLNL's ratings were based on implementing laboratory technologies at DOE or other government sites, utilizing other EM technologies at the Laboratory, or cost savings resulting from the use of innovative technologies in the Environmental Restoration and Waste Management Program. LLNL demonstrated accomplishments in cost savings in the dynamic underground stripping technology, re-engineering of waste management operations, renegotiations of agreements eliminating offsite treatment facilities, and implementation of "hydrostratigraphic analysis" and 3D modeling reducing number of wells to be installed. LLNL developed Dynamic Underground Stripping technology deployed at Savannah River, optical detection system for Volatile

Organic Compounds deployed at Edwards Airforce Base, Automatic Sampling/Analysis technology transferred to the Army, Fort Ord, and the bioreactor at LLNL Site 300 for removal of perchlorates from ground water.

**Environmental Restoration:** LLNL has significantly increased the total contaminant mass removed from ground water per total environmental restoration budget through aggressive and proactive management of its remedial actions and optimization activities. The total contaminant mass removed in FY 2001 exceeds mass removed per annum during fiscal years 1996 through 1999, and supports DOE OAK's commitment to protect human health and the environment from past releases of contaminants.

## Environment, Safety and Health

LLNL's overall performance in ES&H is rated **Excellent** for FY 2001.

This rating is consistent with UC's rating in FY 2001. The overall performance is consistent with the FY 2000 overall performance. LLNL received four outstanding ratings in the system outcome measures. The ISMS process measure received a good rating. This rating corresponded with NNSA OAK's validation that ISMS is maintained and implemented at the facility and activity level. NNSA OAK acknowledged the efforts made by LLNL management and staff for accepting the ISMS culture and continuously supporting the implementation and improvement of the system. However, the weaknesses in effectively using the management system to ensure identification of deficiencies and tracking of corrective actions to completion prevented LLNL from achieving a higher rating in the ISMS implementation area. This weakness was also identified in previous year's laboratory's Assurance Review Office (ARO) Roll-up Report. Strong performance occurred in the areas of radiation dose to workers, radiation dose to the public, occupational safety and health findings and violations, and criticality safety. Issues in the ES&H area included the marginal rating in environmental violations, mostly due to the high number of violations received in the waste management area; this measure also received a marginal rating in FY 2000, higher injury and accident rates which increased from FY 2000 and the "best in class" goal, and need to improve quality of safety documentation of safety.

NNSA OAK encourages the Laboratory to continue its effort to maintain ISMS implementation and focus on correcting institutional issues identified in LLNL's internal assessments. OAK also encourages LLNL to review the root cause for the weakness in the environmental violation area, specifically in the waste management function, injury/accidents, and quality of safety documentation to improve performance in these areas.

## Project/Facilities/Construction Management (Excluding NIF)

LLNL's overall performance in Project/Facilities/Construction Management is rated **Outstanding** for FY 2001.

This year, all objectives of Project/Facilities/Construction Management functional areas (Real Property Management, Physical Asset Planning, Project Management, Maintenance Management and Utilities/Energy Conservation) received a rating of outstanding. Performance-based management and

partnering efforts of NNSA OAK and LLNL have proven to be effective in promoting continuous improvement in all areas of facilities and project management.

Real Property Management performance has been outstanding. All ten established milestones for management of real property were completed on time. Notable milestones included the DP 10-Year comprehensive site plan, the annual Facilities Information Management System (FIMS) Quality Assurance Plan and establishing a baseline for substandard/excess space.

Project Management performance was rated outstanding overall and continues to improve. All active line-item projects were managed within or below their total estimated costs, schedule, and technical scope.

Facilities Maintenance Management performance continued at an outstanding level. LLNL's maintenance program included milestones which addressed critical program elements, safety and business systems including the development of the Laboratory Facility Charge (LFC) document, implementation of service agreements between the Facilities Maintenance Management Division and the craft shops to provide pre-approval for reoccurring repairs, establishment a standard Material Procurement Charge (MPC) for the Material Support Group, and improvements to the planning process for Maintenance Reinvestment projects. The LLNL maintenance group also incorporated Integrated Safety Management into Maintenance and Operations and Program work processes. Achievement of these safety and improved business systems milestones was evidence of LLNL Plant Engineering's full commitment to process improvement. LLNL's Facility Maintenance Program overall composite index was again comparable to the "Best-in-Class" among the Energy Facility Contractors Group (EFCOG) benchmarking participants.

Utilities/Energy Conservation performance received a rating of outstanding. Building energy reduction was 20.09% compared to the baseline 1990 levels. Eight energy management tasks were all achieved. Notable goals included completion of facility audits and retrofit projects, initial application of a draft building commissioning procedure, funding proposals for green and distributed power, completion of the migration of databases to allow a new energy use reduction goal, and promotion of energy awareness at the Laboratory, local schools and the general public. LLNL continued its practice of load shedding during peak load days in California. Reliable utility service measure was rated **Outstanding** with an average reliability of 99.9999%.

## **Safeguards and Security**

LLNL's overall performance in Safeguards and Security is rated **Satisfactory** for FY 2001. Satisfactory rating is the highest rating available for S&S and equates to an "Outstanding" overall rating for FY 2001.

Reviews of LLNL Safeguards and Security programs by NNSA OAK and the DOE Office of Independent Oversight and Performance Assurance (OA) during the performance rating period resulted in satisfactory ratings. A review by OA in March 2000 found significant improvements in management and technical implementation of the LLNL cyber security program. Also important to positive review results were the approval of the Site Safeguards and Security Plan by NNSA HQ, the progress on implementation of Integrated Safeguards and Security Management according to Appendix O criteria, and no Material Control and Accountability discrepancies.

## Business Administration

The overall rating for Business Administration was Outstanding. Business Management practices were found to be effective, efficient and support mission requirements.

## Financial Management

LLNL's overall performance in Financial Management is rated Outstanding for FY2001.

The Laboratory earned an outstanding rating in all of the rated areas. LLNL continues to excel in the areas of Financial Stewardship, External Budget Products and Services, and Support of DOE Financial Management System initiatives. Due to LLNL's thorough financial statement analysis, there were no audit findings for FY2000 and OAK received an unqualified opinion on the annual audit for the third consecutive year from the DOE Inspector General.

LLNL successfully controlled costs within the established limits. There were no reportable violations of spending limits and LLNL was quite successful at controlling costs to sub-control levels.

LLNL continued their outstanding performance in their support of DOE system initiatives as evidenced by their participation in the Business Management Information System (BMIS)/Phoenix initiative, a new business and financial system replacing DOE's current financial system. In addition, LLNL continues to be one of the "selected contractors" that DOE approaches to discuss new system initiatives and other financial/accounting requirements.

## Human Resources

LLNL's overall performance in Human Resources is rated **Outstanding** for FY 2001.

The commitment to attracting and retaining a high quality, diverse workforce was evident in the accomplishments under the majority of performance measures. HR has initiated the conversion to PeopleSoft 8, which will expand capabilities even further. As a result of its responsiveness to Appendix O requirements, as well as in culminating previous years' efforts, HR facilitated the work force planning process for laboratory management by providing interactive web-based tools and a critical skill database. HR has undertaken a review of alternative sources of Scientist and Engineer salary data to ensure LLNL's market is accurately assessed against relevant competitors so recruitment and retention issues may be addressed. In addition, significant attention has been given to assessing the responsiveness of LLNL's work life programs to the professional and personal needs of its employees, with valuable feedback received through external networking and from the employee survey conducted earlier in the appraisal period. Finally, in the area of diversity, LLNL's candidate pools are beginning to reflect the efforts in recruitment to improve LLNL's utilization in under-represented groups. The laboratory's current re-organization reflected addressing under representation at the Associate Director levels. The laboratory's commitment to achieve diversity throughout its workforce was modeled at the executive level through the selections made recently.

## Information Management

LLNL's overall performance in Information Management is rated **Outstanding** for FY 2001.

The Laboratory's rating for FY 2001 is in direct relationship to their continuous pursuit towards providing quality information management and technology services in a cost effective and efficient manner. The Laboratory's Records Management, Printing and Reproduction services have consistently exceeded performance thresholds. New systems, improved processes, and benchmarking with private and public sector entities have resulted in substantial cost avoidance and savings. The end product is the reduction of the Laboratory's IT overhead costs and improvement of overall Information Management services.

## Procurement

LLNL's overall performance in Procurement is rated **Outstanding** for FY 2001.

LLNL has a well-developed, comprehensive evaluation program. The methodology, approach and analysis performed by the procurement staff are exemplary and demonstrates 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. Procurement transaction reviews identified some low risk findings which were analyzed and corrected in a timely manner. Information availability continues to be another well-managed area which assists the laboratory procurement staff to issue quality procurements. Generally, the laboratory procurement system practices continue to be outstanding in all aspects.

## Property Management

LLNL's overall performance in Property Management is rated **Outstanding** for FY 2001.

The Laboratory's performance in this area continues at the outstanding level. The overall Personal Property program is mature; thoroughly engrained in the day to day operations of the staff, and refinements are well thought out and implemented transparently to the rest of the organization.

Built on a foundation that is anchored in a strong organizational philosophy of individual accountability, the program routinely produces annual inventory find rates in the 99 percent plus range: in FY 2001 equipment and sensitive items were inventoried at 99.9 and 99.6 percent of acquisition value respectively and precious metals at 100 percent by weight.

The Laboratory's Personal Property Management Program reflects an absolute commitment to performance management. The "critical few" performance measures have been identified and are objectively measured. Change for the sake of improvement is embraced by Business Services management: change for the sake of change is not entertained. A highly competent well-trained staff understand their respective roles in the overall program and how their individual performances contribute to the Laboratory's performance. A well-seasoned and highly respected management team provides the leadership necessary to maintain the Laboratory's Personal Property Management Program as the one to benchmark in the Department.

### **Observations not covered by Appendix F**

The University of California, in conjunction with LLNL and LANL earned a “Pass” rating for the Fiscal Year 2001 Appendix O Assessment. UC and the Laboratories successfully completed most of the milestones established for the year, and these efforts resulted in integrating improvements into the Laboratories and assisted in substantiating the Appendix F Outstanding rating.

Comments from Appendix O are as follows:

For Initiative 1, Management Accountability, UC management strengthened its management and accountability for LLNL and LANL. A Vice President for Laboratory Management (VPLM) was hired to provide leadership, management, and integration of the initiatives for LANL and LLNL. In addition, a Laboratory Senior Management Council (LSMC) was established with the VPLM assuming the chair to enhance communications and to discuss issues and status. UC also developed specific "Expectations" for the VPLM and the Laboratory Directors. Finally, UC demonstrated the VPLM's successful efforts towards communicating and facilitating the Laboratory Directors efforts to integrate operations and achieve long term benefits from Appendix O actions.

For Initiative 2, Safeguards and Security, UC contracted to provide expertise and services in safeguards and security, and awarded a consultant agreement for this work to Aegis Research Corporation. LLNL developed a communications plan for Integrated Safeguards and Security Management (ISSM) and conducted assessments (gap analysis) to identify actions necessary to fully implement ISSM by December 31, 2002. An Action plan based on the gap analysis was prepared by the Laboratory and submitted to NNSA for approval. Aegis began to identify recommendations and best business practices as a result of the baseline assessment of Laboratory security programs.

For Initiative 3, Facility Safety, success areas for LLNL included:

- Determined a graded approach in complying with the AB requirements.
- Established processes and procedures for the nuclear facility managers and technical staff responsible for AB program.
- Completed the DNFSB Recommendation 2000-2 phase I assessments.
- Revised the authorization basis documents for non-nuclear facilities.
- Developed the emergency hazard assessments in accordance with DOE requirements.

There is an issue being addressed that involves the USQ procedures. Significant comments were provided to LLNL as the result of NNSA/OAK's review of USQ procedures submitted on April 10, 2001. A change control request was processed that requires the submittal of the revised USQ procedures by February 28, 2002.

The Office of Emergency Management Oversight (OA-30) recently completed a program status review of the Lawrence Livermore National Laboratory (LLNL) Emergency Preparedness (EP) Program. The team concluded that while improvements were made in upgrading the hazard assessments, increasing EP staffing, and improving the critical initial response tools, significant work remained because similar issues from past assessments continued to be identified. Areas for improvement included: hazard assessment weaknesses; implementing procedures for categorization/classification and protective action formulation; and the corrective action completion

and closure process. OA30 agreed that 2 years would be a reasonable time to fully address their concerns. LLNL has submitted a 2 year plan to address these areas for improvement as part of an Appendix F deliverable.

For Initiative 4, Critical Skills, Knowledge, And Technical Capabilities, UC developed a definition for critical skills, knowledge and technical capabilities, reflecting the criteria developed at the DP Critical Skills Workshop. In addition LLNL developed metrics to track progress in recruiting and retaining critical skills. The Laboratories also performed a gap analysis of current work force projections, identifying critical skill populations and skill gap projections for each of the 13 critical skill categories. Further, the Laboratories developed indicators for training and updated the indicators for tracking progress in recruiting and retaining critical skills. Finally, the Laboratories developed a consolidated plan for recruiting, training, and retaining critical skills to address projected gaps over next five years.

For Initiative 5, Project Management, the initiative included the projectization of NIF Cryogenics and Core Diagnostics at LLNL, which was on schedule. In order to provide expertise and services in Construction Project Management, UC signed a contract with Parsons Infrastructure and Technology Group. Parson's review of the Project Management Systems of LLNL found established programs in place for training and qualification of project managers as well as programs for developing new project managers. Concerning the extent of projectization in the national weapons program, UC provided a written summary of agreed-to results and a plan for proceeding with one additional project at LLNL. Project Management at the Laboratory continued to show improvement as evidenced by monthly status reports and quarterly reviews which showed trained, qualified personnel being assigned to projects, multi-disciplined teams assigned, incorporation of 413.3 and projects being completed within scope, on schedule, and within budget. Finally, LLNL established the requirement for multidisciplinary teams to be assigned to projects through modification of existing procedures. For LLNL the Project Management Procedures Manual was updated in January of 2001 to more specifically address this requirement.

**Performance Area:            LABORATORY MANAGEMENT**

General Assumptions

1. The Gradient for each measure is shown in the attachment and the weighting between Approach/Deployment and Results is A/D=40% and R=60%.
2. For the purposes of this evaluation, DOE input will be obtained from the Deputy Administrator for Defense Programs, NNSA and designees, DOE OAK Manager, and the DOE OAK Assistant Manager for NNSA, and from non-NNSA senior DOE management.
3. Each fiscal year, the DOE and the Laboratory may agree in advance to special emphasis areas for self-assessment under Laboratory Management above and beyond normal reporting.

For FY 2001, the following special emphasis areas will be addressed under Accountability and Commitments:

- S&S
- ISMS Implementation
- NIF re-baselining
- ARGUS milestones in support of NMSSUP

<b>Performance Objective</b>	<b>#1</b>	<b>Executive Leadership</b>
Laboratory leadership, through effective planning, communication and customer relations, ensures a balanced set of priorities that support the Laboratory's mission and the future viability of the institution.		
		<b>(Weight = 30%)</b>

<b>Criteria:</b>	<b>1.1</b>	<b>Institutional Planning, Internal Communication, and Customer Relations</b>
Evaluation of Laboratory senior management's approach, deployment and results for ensuring that the institution is capable of executing its current and future missions.		
		<b>(Weight = 30%)</b>

**Performance Measures: 1.1.a Planning**

Evaluation of Laboratory senior management's approach for strategic, institutional and site planning that aligns Laboratory missions, core competencies, strategic direction, and funding sources (including LDRD) with DOE strategic plans and objectives in an effective and balanced manner. The assessment will focus on achievement of the key objectives contained in the Laboratory's plans and how this information is reviewed with DOE.

**(Weight = 10%)****Performance Narrative:**

During FY 2001, LLNL's performance in the area of planning was **excellent**. The Laboratory's institutionalized top-down strategic planning process focused on assuring the alignment of its mission, core competencies, and strategic direction with the DOE/NNSA mission and objectives. Laboratory management responded to concerns that emerged during FY 2000 in the areas of National Ignition Facility (NIF) rebaselining, implementation of the Integrated Safety Management System (ISMS), and needed improvements to Safeguards and Security operations. The Laboratory continued improving performance across Lab operations.

Approach/Deployment

During FY 2001, LLNL made significant changes to the Laboratory's senior management team with nine Associate-level positions filled in 2001. Four new senior management positions reporting directly to the Director were created in an effort to strengthen the management of Administration and Operation organizations within the Lab. The Laboratory had focused interactions and dialogues with the parties involved in mission critical areas such as the NIF project and the implementation of ISMS.

The five principal elements of LLNL's strategic planning activity included the documented Strategic and Institutional Plans as well as processes to address major institutional issues, long-term directions, and alignment with sponsor needs. The five Strategic Councils and the Office of Policy, Planning, and Special Studies shepherded the planning process. According to the Laboratory, its new management team plans to undertake a new cycle of strategic planning in FY 2002.

Results – Science and Technology Planning

LLNL's Director's A-List, a list of goals to be completed during FY 2001, remained aligned with the Secretary of Energy's Performance Agreement with the President. The list also supported DOE and NNSA Strategic Planning.

OAK commends the Laboratory for the successful implementation of the rebaselined cost and schedule plan for the NIF project. As of September 30, 2001, the NIF conventional facilities were essentially complete. Approximately 50% of the crystals required for optical switches and frequency conversion of the infrared laser light to ultraviolet light were grown.

## Work For Others Program at LLNL

Science and Technology Performance Measure Criteria 4 discusses carrying out work within budget and on schedule, satisfying sponsors, and planning for the orderly completion or continuation of programs. In the evaluation of the effectiveness of programmatic management, consideration may include quality of leadership and effectiveness of the LLNL organization. Although the quality of science and the projects selected maintained mission relevance and are at the Outstanding level; the same cannot be stated for centralized program planning and management of various Work for Others (WFO) projects cross-cutting the Laboratory. LLNL Director's Office needs to provide a central focus or point of contact in their Laboratory's Director's Office for WFO.

There is a need for consistent Lab-wide direction to address WFO issues such as the timely closeout of projects, responses to Congressional or DP HQ inquiries or concerns, and there is no consistent S&T assessment of WFO projects at the program directorate levels. Only two LLNL Program Directorates, NAI and PAT, S&T annual self-assessments and their external peer review committees assessment of WFO projects remains consistently high with enough information to validate and make an informed decision.

Livermore Laboratory Management needs to take a more focused approach at the top institutional level. DOE DP Headquarters has continued to address their concerns with Laboratory Management on the need for central guidance from the top down but for over three years there has been no resolution from the LLNL Director's Office. NNSA OAK made a presentation in July 2000 to LLNL Executive Managers regarding the need for a single point of contact in the Director's Office. To date, no progress has been made in this area. Project management should be emphasized on WFO projects where Best Business Practices are invoked managing the R&D, deliverables, costs, to closure while ensuring that all customers receive satisfaction in a timely manner.

The LLNL Finance Contracts Management Team continued to respond professionally and efficiently to DOE's concerns, proposal package revisions, and requests for financial information on Work for Others projects. The LLNL Contracts Management Team should be commended on their staff's customer service excellence in responding to DOE's inquiries throughout this assessment period.

Laboratory Management and Program Directorate Managers need to become more involved to ensure LLNL employees are also closing out WFO projects in a timely and effective manner. This assessment is rated currently at Excellent; however, Lab management needs to work these issues and partner with OAK to assure institutional standards are established and maintained.

### Results – Operations Planning

The Institutional Plan contained a summary consensus of strategic planning in the O&A arena, consistent with published strategic plans and A Lists of priorities in line O&A organizations. These documents were based in part on DOE's Strategic Plan and addressed management issues and commitments arising from the performance-based management system.

LLNL's sound A&O planning was validated through the sustained performance improvements across A&O functional areas.

<b>Performance Rating (Adjectival): Excellent</b>
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88.00%
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**Performance Measures: 1.1.b Internal Communication (Establishing and Communicating Internal Institutional Performance Expectations)**

Evaluation of Laboratory senior management's effectiveness in establishing performance expectations and communicating them to the Laboratory. The assessment will focus on communication internally among Laboratory senior management and line management and employees that reinforces the Laboratory's performance goals.

**(Weight = 10%)**

**Performance Narrative:**

During FY 2001 LLNL's performance in the area of internal communications was **excellent**. LLNL's leadership continued to effectively communicate and reinforce performance expectations. The Laboratory has mature systems in place to assure performance is monitored and achieved. LLNL's Core Values promote expected behaviors to Lab employees. These Core Values are reiterated in Laboratory policies, procedures and mandatory training and are communicated by line management through various and numerous mechanisms, including, but not limited to, the Lab's list of top institutional priorities (also known as the Director's A List), its DOE-validated ISMS, its extensive Safeguards and Security (S&S) Program, and its comprehensive use of Intranet resources and internal news publications and bulletins. The Laboratory's Director takes a strong, visible leadership role in top institutional priorities, clearly communicating performance expectations to his senior management team and to employees. Mission accomplishment and improved safety, security, workforce diversity, and operational productivity are recurring themes in the Director's institutional priorities that are communicated to Laboratory employees and are reiterated in LLNL strategic documents.

Approach/Deployment

As described in the LLNL/UC Appendix F self-assessment, the Laboratory Director establishes, communicates, and reinforces institution-wide performance expectations through such mechanisms as the Lab's line management chain of command; institutional strategic planning process and documents; institutional Core Values; the Director's and directorate A Lists; a comprehensive results-oriented Performance Based Management system; self-assessment processes at both the institutional and organizational level; institutional policies, procedures and training requirements; and internal site-wide communication vehicles. LLNL's personal accountability and responsibility is central to employee performance at all levels of the organization, and is documented in LLNL policies and procedures and is recorded in the employee's annual performance appraisal.

Results

LLNL's effectiveness in establishing and communicating internal institutional performance expectations is evidenced by their sustained attainment of an overall rating of Excellent in DOE's Annual Performance of Appendix F performance measures over the past eight years. LLNL's rating was downgraded in 1999 due to NIF and security management issues, but Laboratory management has made significant improvements in addressing issues in those areas.

During FY 2001, LLNL's senior management's communication with employees regarding performance expectations placed emphasis on NIF, security, ES&H, diversity, project management, and implementation of the new contract modification.

<b>Performance Rating (Adjectival): Excellent</b>	88.00%
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**Performance Measures: 1.1.c Customer Relations (Communication/Customer Relations)**

Evaluation of Laboratory senior management's effectiveness in communicating programmatic and operational expectations, accomplishments, performance, issues, etc. with their DOE customers in a timely and appropriate manner that assures DOE is primary in the management chain. The assessment will focus on systems and methods for communication among Laboratory and DOE senior management.

**(Weight = 10%)**

**Performance Narrative:**

LLNL's performance in the area of customer relations for FY 2001 is rated **outstanding**. The Laboratory has effective customer communications that are integral to their strategic planning, decision-making, performance assessment, and issues resolution processes.

Approach/Deployment

The Laboratory Director meets personally with senior managers of the DOE/NNSA headquarters, Oakland Operations Office and with the UCOP. The continuing dialogue between LLNL programs and DOE/NNSA sponsors continues to assure alignment of the Lab's strategic direction with that of the DOE/NNSA and accomplishment of program milestones. Mission alignment and accomplishment are evaluated annually through the NNSA/UC S&T self-assessment process that includes peer reviews conducted under the leadership of the University. LLNL also works closely with the DOE/NNSA at both the Headquarters (HQ) and OAK level, and with the UC, to improve DOE-wide and LLNL operational effectiveness and efficiency. Numerous senior management forums exist with the DOE/NNSA and UC to discuss contract matters related to administration and operations (A&O). LLNL's relationships with NNSA managers at HQ, NNSA OAK and the Livermore Site Office continued to strengthen during the rating period. Some of the forums that LLNL and OAK have established to assure good LLNL/OAK communications on important issues are:

- The LLNL Director and the OAK Manager have a monthly one-on-one meeting where both programmatic and operational matters are discussed.
- The Deputy Director (DD)/Strategic Operations (SO), Associate DD/SO, and Associate Directors for Safety, Security and Environmental Protection, Laboratory Services and Administration meet weekly with the OAK Manager, Deputy Manager and the Assistant Manager for NNSA Operations and their deputies to review key programmatic and operational requirements and issues.
- LLNL staff work closely with their OAK counterparts on issues related to the review and comment on proposed regulations, policies and directives, policy applicability and acceptance into the contract, and requirements implementation.
- The NNSA Administrator, other NNSA senior managers and the Directors from the three NNSA national security laboratories have a standing weekly conference call to discuss ongoing program activities. This same team periodically conducts a management retreat.

Results

Some indicators of the effectiveness of LLNL communications and close partnership with the DOE/NNSA are:

- LLNL had a successful review of the NIF Project, as well as an excellent DOE/NNSA mission review that reaffirmed the basic plan for NIF in the context of the SSP. NNSA Administrator John Gordon submitted his certification of the NIF Project to Congress on April 6, 2001, in accordance with the FY 2001 Energy and Water Development Appropriations Bill. The Laboratory continues to work closely with the NNSA to successfully implement the NIF rebaselined cost and schedule plan.
- With the comprehensiveness of OAK's operational awareness program and the close partnership between LLNL peer-level managers, OAK has not required an on-site validation review for the majority of annual LLNL Appendix F A&O self-assessment reports.
- A close working partnership between the DOE/NNSA, UC and LLNL facilitated LLNL's implementation of a fully verified ISMS, meeting DOE's September 2000 complex-wide deadline. The Laboratory continues with refinements and improvements of ISMS in coordination with OAK and UC.

<b>Performance Rating (Adjectival): Outstanding</b>
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<b>95.00%</b>
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**Performance Objective #2 Mission**

Laboratory leadership provides effective oversight to ensure critical mission expectations are being effectively managed.

(Weight = 30%)

**Criteria: 2.1 Mission Support**

Evaluation of Laboratory senior management's approach, deployment and results for ensuring that the institution is effectively managing the Laboratory's critical mission related deliverables.

(Weight = 30%)

**Performance Measures: 2.1.a Support of DOE Missions**

Evaluation of Laboratory senior management's ability to effectively support and accomplish its DOE missions including support of other DOE weapons laboratories and plants, as appropriate.

(Weight = 30%)

NNSA missions  
Non-NNSA DOE mission

**Performance Narrative:**

During FY 2001 LLNL's performance in support of DOE missions was **outstanding**. The Laboratory's mission is well defined. It is responsible for ensuring the performance of weapons systems in the U.S. nuclear stockpile and for bringing into operation and applying significant new capabilities required for nuclear weapons stockpile stewardship. These include, most notably, the NIF and ASCI White. In addition LLNL is involved in other major efforts in nonproliferation, energy and environment, bioscience and biotechnology, and basic science that lay the foundation for future viability of the Lab. Laboratory senior management, under the direction of the Director, provides effective leadership to support and accomplish its DOE/NNSA missions including support of other DOE weapons laboratories and plants. The Laboratory is committed to continued interaction with and support to NNSA in reviewing and revising the Stockpile Stewardship Program based on up-to-date performance results and changing priorities. The Laboratory also effectively uses its capabilities to support the mission of DOE's Office of Science, DoD, and many other work-for-other sponsors. Many of LLNL's projects involve extensive collaborations with other national laboratories, government agencies, universities and U.S. industry.

### Approach/Deployment

- LLNL's Problem Solving Environment –The Laboratory uses a multidisciplinary team approach to its mission accomplishment. The teams draw from a diverse mixture of knowledge, skills and experiences to devise innovative solutions.
- Laboratory Leadership - LLNL's institutionalized top-down strategic planning process ensures that the Laboratory's programs are aligned with DOE/NNSA plans and goals. In addition, the sustained overall support of the Laboratory with continuing major investments attests to LLNL's support of NNSA/DOE missions.

### Results

#### NNSA Mission

- Directed Stockpile Work (DSW) – LLNL plays an important role in the design, planning and execution of the SSP. The Laboratory's performance in this area was excellent in FY 2001. Of particular note were: the support for the directive schedule at Pantex and Kansas City; providing on-site support to both Pantex and Kansas City Plants; the support for the Pantex dismantlement activities; support for Hazards Analysis Reports and weapons response assessments for several activities at Pantex; and the successful demonstration of pit surveillance capabilities using the superbloc facility.
- Campaigns -- LLNL's work on the Stockpile Stewardship Program's Campaigns was outstanding for FY 2001. Of particular note were: the robust program of hydrotests, subcritical experiments, and other experiments at LLNL and at other facilities in the nuclear weapons complex; the work on primary metrics; investigations into fundamental data important to nuclear weapons (including neutron cross sections for plutonium and the equations of state for deuterium and plutonium); the completion and nearly-final check-out of the JASPER gas gun; material aging studies; the High Energy Density Physics workshop; and the successful transition of the ASCI White computer to a production-capable asset available to all three weapons labs.
- NIF -- The National Ignition Facility project made substantial progress during FY 2001 including the completion of the Level 1 milestone, completion of "End Conventional Construction." Substantial progress has been made in enabling economic operation of the NIF during this period. LLNL's NIF performance was rated as outstanding in FY 2001.
- RTBF -- The RTBF program provided the direct funding of a wide variety of experimental, computational, fabrication and special materials handling facilities to conduct the programmatic activities described in the campaigns and DSW. This item measured the performance of the RTBF program in keeping the facilities available for programmatic operations. The LLNL performance was a facility availability of 99.4%, which is an outstanding rating.
- NNSA/NN -- The NAI Directorate remained in the forefront of supporting two of the most important national security missions as evidenced by the outstanding work in these divisions related to intelligence and nonproliferation. These divisions constituted about half of NAI's activities. The work conducted in NAI over the past years in these areas placed LLNL in the unique position to provide enhanced support to the intelligence community, and to

counterproliferation / counterterrorism organizations dealing with the current international and national terrorism crisis. NAI's involvement with the DOE, DOD, IC, and the many other organizations involved with national security is expected to increase significantly as a result of war declared on terrorism. NAI made effective and extensive use of matrixing throughout LLNL to bring the most competent individuals spanning all disciplines together to meet the complex challenges of the current threat. It is expected that there will also be increased collaboration within the DOE laboratory complex, especially with those involved with the current national security crisis.

Non-NNSA DOE Mission

- LLNL makes valuable contributions in other DOE mission areas such as energy security and long-term energy needs, environmental assessment and management, bioscience advances to improve human health and break throughs in fundamental science and technology. LLNL's performance in the area of Non-NNSA missions was outstanding in FY 2001.

<b>Performance Rating (Adjectival): Outstanding</b>	92.00%
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**Performance Objective #3 Mission Assets**

Laboratory leadership effectively manages the critical institutional assets, commitments and priorities that assure program mission accomplishment and continuing institutional viability.

**(Weight = 30%)**

**Criteria: 3.1 Mission Assets**

Evaluation of Laboratory senior management's approach, deployment and results for ensuring the effective management of the Laboratory infrastructure, commitments, and priorities in order to ensure cost effective and efficient delivery of programs to meet the mission and assure the viability of the institution and continuing support of the DOE.

**(Weight = 30%)**

**Performance Measures: 3.1.a Mission Assets (including core competencies and resource allocation)**

Evaluation of Laboratory management systems for making decisions that address stewardship of programmatic and institutional assets. The assessment will include the impact of planning on decision-making, the use of priority setting processes, asset management, resource allocation, etc., with an emphasis on long term management of assets. Additionally, the evaluation will include senior management's efforts to effectively manage funding, staff resources and core competencies consistent with DOE and Laboratory goals. The assessment will focus on performance results that may include improvements in cost effectiveness, such as the ratio of direct to indirect costs, and other productivity or re-engineering indicators with an emphasis on short-term (~1 yr) performance, travel funds management, etc.

**(Weight = 15%)**

**Performance Narrative:**

During FY 2001 LLNL's performance in the area of mission assets was **outstanding**. This measure covers a broad range of areas related to LLNL infrastructure, as agreed with NNSA and UCOP, which address institutional processes to assure the viability of the Laboratory. LLNL's Director is committed to setting institutional priorities to assure that the Laboratory has a strong S&T base with a top quality, diverse workforce and to improve the Lab's infrastructure through effectively managed internal investments. Systems are in place that focus on and reinvest in specific areas, including S&T discipline expertise, diversity, workforce excellence, institutional prioritization and cost saving initiatives, institutional facilities management, and institutional general purpose equipment. Lab efforts in addressing the critical skills shortage is one of the five initiative areas of Appendix O. Excellent progress has been made in defining the critical skill

needs, performance metrics, and performance targets with future plans to work with UC and LANL to improve recruitment.

Approach/Deployment

LLNL’s senior management has identified two central topics critical to stewardship of assets: 1) a strong S&T base and 2) improved infrastructure. The Laboratory continues to take steps to address critical skills shortages in an effort to maintain and augment discipline expertise. In the area of facilities and infrastructure, the Laboratory strives to achieve a balanced facility investment and management strategy.

Results

- **Maintaining Discipline Expertise** -- In response to Appendix O, Initiative 4, Critical Skills, Knowledge and Technical Capabilities, LLNL developed a Critical Skill Recruitment/Retention Activities (CSRA) database, which monitors the skill profiles and demographics of the critical skill population, facilitates the identification of potential “pipeline” personnel, and will aid in targeting “pipeline” recruitment needs. LLNL continues to invest in science and technology to further develop and enhance skills and capabilities to meet DOE’s needs for the future. The LDRD program at LLNL continues to play a vital role in developing new science and technology capabilities that respond to the NNSA/DOE missions and in attracting the most qualified scientists and engineers to the Laboratory.
- **Diversity and Elimination of Racial Profiling** – LLNL has worked to address the problem of racial profiling. The Laboratory Director has a published diversity statement and diversity is also a Core Value. The DOE required Diversity Plan was submitted this past year, and annual reporting against the plan will commence in FY 2002.
- **Workforce Planning and Excellence** -- LLNL’s Human Resources Department has continued to demonstrate Outstanding performance in regard to the work force planning tools and services it provides to laboratory organizations. These are accomplished through providing access to demographic data, studies and interactive workforce planning tools on the web- which in FY 2001 was expanded to a dedicated workforce planning website – and through annual meetings with each of the ten technical directives and four administrative organizations to discuss hiring needs, diversity goals, and recruitment/retention difficulties.
- **Cost Savings and Productivity Improvements** -- LLNL continues to seek ways to reduce overhead costs and redirect savings into programmatic missions.
- **Institutional Facilities Management** – NNSA OAK rated LLNL’s performance in the area of facility operations and maintenance as outstanding for FY 2001. LLNL’s FY 2001 maintenance program included eighteen milestones, which addressed critical program elements, safety and business systems.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>90.00%</b>
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<p><b>Performance Measures: 3.1.b Accountability and Commitments</b></p> <p>Evaluation of Laboratory senior management's efforts to effectively manage commitments and priorities. Evidence that systems are in place and ensure that major commitments are identified, prioritized and met; that management is accountable; that information on status is timely, accurate and complete; and that management uses these systems to take informed action on meeting commitments.</p> <p style="text-align: right;"><b>(Weight = 15%)</b></p>
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**Performance Narrative:**

During FY 2001 LLNL's performance in the area of accountability and commitments was excellent. LLNL has numerous, mature self-assessment programs at both the institutional and organizational level for managing accountability and commitments. Guidance, support, oversight and/or commitment tracking and reporting are done by appropriate organizational elements at the Laboratory, either at the institutional or directorate/department level, based on their administrative/technical expertise and to assure oversight independence, where needed. On an institutional level, the Laboratory maintains an internal audit and review function, oversight functions related to ES&H, nuclear facilities, quality assurance, and institutional training requirements, and centralized administration of the UC/DOE prime contract. LLNL self-assessment of both programmatic and operational results are shared with the NNSA and UC in its annual S&T and A&O Appendix F reports and throughout the year as appropriate. Programmatic and operational oversight is also provided by OAK staff located at LLNL, and there is a close working relationship between the line management of both organizations and with the UC. Special emphasis areas for FY 2001, reported under this measure, include safeguards and security, ISMS implementation, NIF rebaselining implementation, Argus milestones in support of NMSSUP, and DARHT milestones. The Laboratory has improved its level of accountability and commitment in ISMS implementation and Safeguards and Security improvements during FY 2001.

However, OAK continues to have concerns about the consistency of deliverables, particularly in the quality area. For example, while there were several excellent products associated with safety basis infrastructure (procedures, staffing enhancements, AB quality report), overall the facility specific AB products that OAK is reviewing have not significantly improved. Changes to the safety basis do not include evaluating hazard categorization or completing a hazard analyses as required. Information provided to OAK is incomplete in these areas. In addition, the USQ procedures lacked several key aspects of the rule. Finally, there is no consistent Science & Technology assessment of WFO projects at the program directorate level. As previously addressed, only two LLNL Program Directorates submitted Annual Self-assessments. These areas of concern need to be addressed by Laboratory management, the absence of which will continue to diminish the weight of those well written products that are submitted and those improvements that have been achieved.

FY 2001 Special Emphasis areas

- Safeguards & Security -- Reviews of LLNL Safeguards and Security programs by NNSA OAK and the DOE Office of Independent Assessment (OA) during the performance rating

period resulted in Satisfactory ratings. A review by OA in March 2000 found significant improvements in management and technical implementation of the LLNL cyber security program. Also important to positive review results were the approval of the Site Safeguards and Security Plan by NNSA, the implementation of Integrated Safeguards and Security Management according to Appendix O criteria, and aggressive self-assessments in Material Control and Accountability.

- ISMS Implementation -- NNSA OAK validated that LLNL has implemented and maintained ISMS institutionally during the performance year. Efforts were made by LLNL management to ensure that deficiencies identified by the ISMS verification teams were being corrected to complete the implementation of ISMS. NNSA OAK also acknowledges the efforts from the LLNL Directorates and staff in understanding, accepting ISMS cultures, and their continuous support in making improvements to the system. However, NNSA OAK continued to see a weakness in the feedback and improvement function, specifically the ability to track institutional corrective actions to completion and measuring their effectiveness. These deficiencies resulted in a rating of good in the ISMS area. Refer to ES&H measure 1.1.a for more detailed discussion.
- NIF rebaselining – NIF was rated overall outstanding by NNSA/DOE for the FY 2001 performance period. The NNSA Administrator in his certification letter to Congress concluded that: the NIF Project should continue along the approved 192-beam baseline, that Defense Programs should continue the 192-beam NIF with the goal of ignition, that the refurbishment of the Z-machine cannot provide the same capabilities as NIF, and that the NIF Project team is capable of managing the NIF Project so as to assure a high probability of successful execution. This conclusion supports several previous reviews of the NIF project.
- Argus milestones in support of NMSSUP – LLNL completed all five of the Argus milestones ahead of schedule.
- DARHT milestones – LLNL successfully complete the three agreed upon DARHT milestones in support of the Los Alamos National Laboratory project.

#### Approach/Deployment

Several organizations contribute to the Laboratory's efforts toward meeting its commitments:

- The A&O Department conducts internal audits and assessments, coordinates outside audit activities, and provides expert information and guidance on the management of risk and the use of cost-effective controls.
- ARO is the Laboratory's institutional-level ES&H oversight organization. It conducts an internal ES&H appraisal program to ensure that Laboratory policies and practices are in compliance with Laboratory requirements, ES&H regulations, and DOE directives.
- The Office of Contract Management (OCM) communicates and tracks contractual commitments.
- The Laboratory Assurance Office (LAO) is responsible for the Laboratory's Quality Assurance Program. LAO also administers the human reliability programs.
- The Price-Anderson Amendments Act (PAAA) Project Office coordinates the Laboratory response to the new DOE rules being promulgated in response to the PAAA. These rules

apply to LLNL nuclear and radiological facilities and require detailed implementation plans that are subject to enforcement.

- The Laboratory Training Manager’s Office provides training and in particular, deals with DOE-mandated training requirements for ES&H.

Results

Audit and Oversight Department (A&O)

During the FY 2001 appraisal period, the A&O Department continued to successfully provide independent and objective appraisals of Laboratory operations. During FY 2001, the A&O Director and Internal Audit Services (IAS) Manager led an effort to streamline the M&O Contractor Peer Review Manual utilizing current audit standards promulgated by The Institute of Internal Auditors. The manual revisions greatly improved the value of peer reviews being performed in the DOE contractor community.

Assurance Review Office (ARO)

The ARO continued to successfully perform its institutional review of ES&H functions at LLNL. Institutional reviews conducted by the ARO such as the Radiation Protection Program, the Assessments of the Generator Waste Management, the ARO 2001 Annual Report, etc. provided LLNL management and NNSA OAK with roll-up strengths and weaknesses as well as recommendations on paths forwards in the respective ES&H areas. NNSA OAK also noted a Note Worthy Practice in the ARO 2001 Annual Report for the use of the ISMS "mapping" process (refer to ES&H measure 1.1.a for more detail discussion.)

Price Anderson Amendments Act (PAAA) Project Office

During FY 2001, LLNL has been responsive in identifying issues and reporting non-compliance under PAAA within a reasonable amount of time. The Laboratory has revised their procedures, including the Quality Assurance Plan to include radiological facilities in accordance with 10 CFR 830, Subpart A. LLNL has continued to make progress in addressing the findings from the EH-10 conducted reviews.

Office of Contract Management

The Office of Contract Management continues to be very effective in communicating and tracking contractual commitments. In addition, the Director of Contract Management is an active participant in DOE’s efforts to implement Performance Based Management throughout the agency.

Laboratory Training Manager’s Office (LTMO)

During FY 2001 LTMO made several enhancements to the LTRAIN application such as providing employees with the ability to modify their questionnaire via the Web. They also completed an updated Laboratory Training Program Manual.

<b>Performance Rating (Adjectival): Excellent</b>	<b>89.00%</b>
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**Performance Objective #4 Citizenship**

Laboratory leadership addresses community issues in a proactive manner.

**(Weight = 10%)**

**Performance Measures: 4.1.a Community Relations**

Evaluation of Laboratory senior management’s awareness of and response to public concern regarding Laboratory operations. Assessment will focus on senior management’s effectiveness in addressing community issues in a proactive manner.

**(Weight = 10%)**

**Performance Narrative:**

During FY 2001 the Laboratory’s performance under this measure was **outstanding**. LLNL continues to make community relations a high priority. Its outreach efforts are numerous and include the extensive use of participatory forums to assure community concerns are addressed.

Approach/Deployment

After being confronted with highly visible and controversial issues in FY 2000, in FY 2001 the Lab was able to become more proactive with its outreach efforts, creating many opportunities for the public, community, government leaders, and the media to gain an increased awareness of LLNL programs. OAK Office of Public Affairs recommends there be more opportunities created for visibility of the Lab Director by increasing frequency of op-ed articles and media interviews, both print and electronic. Observations have been made by OAK OPA in the following key Community Relations organizations:

Results

**PUBLIC AFFAIRS OFFICE:**

- Media Relations – On a weekly basis PAO issues press releases and hosts media visits to inform the media about new scientific technologies and events at the Lab. Some of these media visits in FY 2001 included a press conference on the “Smart Probe”, Science Day, tour of ASCI White, tour of the Contained Firing Facility, opening of the Tri-Valley Technology Enterprise Center and Science on Saturday lectures.

In August 2001 the LLNL, along with UC, and OAK executed a PAO protocol agreement governing the coordination and release of information. This will help to develop and maintain effective working relationships with DOE/HQ, NNSA/HQ, UC, OAK and LLNL.

- Community Newsletter – this monthly newsletter, developed in FY 2000, continues to be an excellent tool to inform the Tri-Valley community, including local leaders, stakeholders and the general public about the Laboratory’s upcoming events, programs, and ways for the public to get involved in LLNL programs.
- Science 2000 Lecture Series – the Laboratory hosted six lectures in FY 2001. These lectures feature scientists and researchers and are designed to bring science and technology to the community. The lectures continue to be very popular with the LLNL community. The Laboratory plans to extend its science lecture series to the Pleasanton and Tracy communities in FY 2002.
- Science Day – Held on March 21, 2001, this was the first ever Science Day hosted by the Laboratory. Employees, managers, media, and community leaders were invited to hear presentations, tour facilities and examine posters to get a better understanding of the Lab’s work in the area of supercomputing. Science Day was outstanding and informative and OAK OPA recommends that it become an annual event.

**OTHER OBSERVATIONS:**

**ES&H** – primary responsibility for this communications effort falls under environmental community relations (ECR) in the Laboratory’s Environmental Protection Department. The ECR works closely with OAK OPA keeping OAK OPA informed of public participation activities on ES&H issues. The ECR uses numerous forums for public participation including public workshops and meetings to help local communities understand certain issues as well as proposed decisions and solutions related to laboratory operations. The Laboratory also provides and distributes an environmental community letter annually to share information to stakeholders in layman terms on its environmental activities.

**Science Literacy and Educational Outreach** - LLNL’s Science and Technology Education Program (STEP) helps to share the Laboratory’s extensive knowledge and elite research facilities with the community through many educational activities and outreach programs at the K-14 level. The science outreach and educator projects during FY 2001 engaged over 10,000 participants in 14 projects, including Expanding Your Horizons, Fun with Science, Future Scientists and Engineers of America, Science on Saturdays and more. The Laboratory brought Fun With Science to the Oakland Operations Office Annual DOE Day. The exhibit is always very popular with students and teachers and it helps to promote an interest in science to minority and underprivileged students.

**Industrial Economic Impact and Development** - The Industrial Partnerships and Commercialization (IPAC) Office at LLNL helps Laboratory programs and directorates enter into partnerships with industry on behalf of the University of California and the DOE. LLNL has collaborated with the Tri-Valley Business Council, Sandia National Laboratories, Congresswoman Ellen Tauscher, PG&E, the City of Livermore, and various business leaders in the community to establish the Tri-Valley Technology Enterprise Center (TTEC). The TTEC serves as a business incubator providing offices, laboratory space, and administrative and management support to assist emerging companies and pilot operations of established firms in becoming successful and sustainable so that they can eventually generate economic vitality and

community benefits to the region. It will also facilitate technology commercialization and transfer programs at the national labs. LLNL held a grand opening ceremony and tour of the Center on August 24, 2001.

<b>Performance Rating (Adjectival): Outstanding</b>	95.00%
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Attachment

The performance expectation for each performance measure will use the scoring criteria indicated in Table 1 below. Each performance measure indicates the relative weights between the Approach/Deployment criteria and the Results criteria.

Table 1, Appraisal Scoring Guidelines for Laboratory Management

Narrative Rating (Score Range)	Approach/Deployment	Results
Unsatisfactory (59% and Below)	Little Or No Systematic Approach Evident; Anecdotal Information	Little Or No Results In Key Mission And Business Areas.
Marginal (60 to 69%)	Beginning Of A Systematic Approach To The Key Mission And Business Areas. Early Stages Of A Transition From Reacting To Problems To A General Improvement Orientation. Major Gaps Exist In Deployment That Would Inhibit Progress In Achieving The Key Mission And Business Objectives.	Early Stages Of Developing; Some Improvements And/Or Early Good Performance Level In A Few Key Mission And Business Areas.
Good (70 to 79%)	A Sound Systematic Approach, Responsive To The Key Mission And Business Areas. A Fact-Based Improvement Process In Place In Key Areas; More Emphasis Is Placed On Improvement Than On Reaction To Problems. No Major Gaps In Deployment, Though Some Areas May Be In The Very Early Stages Of Deployment.	Improvement Trends And/Or Good Performance Levels Reported For Most Key Mission And Business Areas. No Pattern Of Adverse Trends And/Or Poor Performance Levels In The Key Mission And Business Areas. Some Trends And/Or Current Performance Levels Show Areas Of Strength And/Or Good To Very Good Relative Performance Levels.
Excellent (80 to 89%)	A Sound Systematic Approach, Responsive To The Key Mission And Business Areas. A Fact-Based Improvement Process Is A Key Management Tool; Clear Evidence Of Refinement And Improved Integration As A Result Of Improvement Cycles And Analysis. Approach Is Well Developed, With No Major Gaps; Deployment May Vary In Some Areas.	Current Performance Is Excellent In Most Key Mission And Business Areas. Most Improvement Trends And/Or Current Performance Levels Are Sustained In Most Other Areas. Many To Most Trends And/Or Current Performance Levels Show Areas Of Leadership And Very Good Relative Performance Levels.
Outstanding (90 to 100%)	A Sound Systematic Approach, Fully Responsive To Key Mission And Business Areas. A Very Strong Fact-Based Improvement Process Is A Key Management Tool; Strong Refinement And Integration - Backed By Excellent Analysis. Approach Is Fully Deployed Without Significant Weaknesses Or Gaps In The Key Areas.	Current Performance Is Outstanding In Most Key Mission And Business Areas. Excellent Performance Levels In Most Other Areas. Strong Evidence Of Industry And Benchmark Leadership Demonstrated In Many Areas.

## Science and Technology/Programmatic Performance

The programmatic assessment of the Laboratory is based upon the LLNL self-assessment and peer review of science and technology and the UC overlay, and validated by DOE HQ program managers and their OAK counterparts. The assessment of performance for research programs is comprised of a combined evaluation of the following areas; Directed Stockpile Work (DSW), Campaigns, Readiness in the Technical Base and Facilities (RTBF), National Ignition Facility (NIF), Nuclear Non-Proliferation and Non-NNSA Science and Technology.

**The overall Science and Technology rating is Outstanding for FY 2001.**

LLNL, UC and DOE evaluated the programs against the following four criteria:

### Criteria 1: Quality of science

Review committees will consider recognized indicators of excellence, including impact of scientific contributions, leadership in the scientific community, innovativeness, and sustained achievement. As appropriate, they may also evaluate other performance measures such as publications, citations and awards.

### Criteria 2: Relevance to national needs and agency missions

Committees will consider the impact of Laboratory research and development on the mission needs of the Department of Energy and other agencies funding the programs. Such considerations include national security, energy policy, economic competitiveness, national environment goals, as well as the goals of DOE and other Laboratory funding agencies in advancing fundamental science and strengthening science education. Committees will assess the impact of Laboratory programs on industrial competitiveness and national technology needs. In this assessment, committees will assess characteristics that are not easily measured, including relevance of research programs to national technology needs and effectiveness of outreach to industry. As appropriate, they may consider such performance measures as licenses and patents, collaborative agreements with industry, and the value of commercial spin-offs.

### Criteria 3: Performance in the construction and operation of major research facilities

Quantifiable performance measures include success in meeting construction schedules and cost objectives, facility performance specifications, and user availability goals. Other considerations may include the quality of the science performed, extent of user participation and user satisfaction, operational reliability and efficiency, and effectiveness of planning for future improvements.

**Criteria 4: Programmatic performance and planning**

The review should focus on the achievement of broad programmatic goals, including meeting established technical milestones, carrying out work within budget and on schedule, satisfying the sponsors, providing cost-effective performance, and planning for the orderly completion or continuation of the programs. In assessing the effectiveness of programmatic and strategic planning, the reviewers may consider the ability to execute projects in concert with overall mission objectives, programmatic responsiveness to changes in scope or technical perspective, and strategic responsiveness to new research missions and emerging national needs. In the evaluation of the effectiveness of programmatic management, consideration may include morale, quality of leadership, effectiveness in managing scientific resources (including effectiveness in mobilizing interdisciplinary teams), effectiveness of organization, and efficiency of facility operations.

**Performance Area: DSW – Stockpile Maintenance**

**FY 01 Overall Performance Summary:**

**Performance Measures**

- Support Pantex safety basis authorization to enable surveillance disassembly and inspection cycle work
  - Provide Hazard Assessment Reports (HAR) and weapon response support for Basis of Interim Operations (BIO) upgrades
  - Provide HAR and weapon response support for the W62 Step II
  - Provide support for the W56 and W79 dismantlements
  - Continue DoD and DOE components characterization for disposition
  - Provide technical support on Unreviewed Safety Questions (USQs) and other emergent issues as needed
  
- Establish LLNL permanent party at Kansas City Plant (KCP) to foster collaborations as well as continuous performance improvement

**Overall Performance Rating: Excellent**

**Criteria 1: Quality of science:**

**Rating: Excellent** 88.00%

LLNL supported Pantex for safety basis authorization to enable surveillance disassembly and inspection-cycle work as follows:

- LLNL provided good support for Hazard Assessment Reports (HAR) and weapon response support for Basis of Interim Operations (BIO) upgrades for weapons systems managed by LLNL for Pantex operations.
- LLNL provided good HAR and weapon response support for the W62 Step II seamless safety effort, including a weapon response matrix.
- LLNL participated on a Pantex project team to resolve issues for dismantling difficult W56 units and made efficiency improvement recommendations for the W79 dismantlement program.
- LLNL’s component characterization team worked at a slow pace, due to low priority, to populate the NNSA database for disposition of dismantled weapon parts for those weapons under LLNL purview.
- LLNL provided the TECH-24 briefing to the Defense Nuclear Facilities Safety Board (DNFSB) in support of NNSA.
- LLNL provided support to NNSA concerning an emergent issue involving “Nearby Explosion” weapon response.

LLNL supported Kansas City Plant (KCP) for continuous improvement as follows:

- LLNL made a good-faith effort to place a permanent staff member at KCP to support the Mechanical Safing and Arming Device (MSAD) mission for the W87. (Note: LLNL hired a person for this position. The day before the person was to report for duty, the person resigned. LLNL compensated for this, by providing the required support with frequent travel to Kansas City by current staff.)
- LLNL supported the revised W87 production schedule.
- LLNL engineers supported and implemented a new MSAD acceptance approach at KCP.

LLNL supported the W62 and the W56/79 activities by providing on-site, technically sound and experienced assistance at the Pantex Plant. LLNL’s continued support of the W79 and W56 dismantlement was extremely helpful this past year.

LLNL’s past scientific contributions and innovativeness enabled them to provide outstanding support in assessing weapons response associated with the W62 Step II activities and the W56/79 dismantlements. Without such a high quality of scientific excellence, LLNL would be unable to provide such valuable input to these programs.

LLNL’s work in establishing the scientific basis for the Quantitative Margins and Uncertainties (QMU) effort for weapons certification, and as a fundamental driver of stockpile stewardship, warrants the excellent rating for “quality of science.”

<b>Criteria 2: Relevance to national needs and agency mission</b>
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<b>Rating: Excellent</b> 88.00%
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LLNL work is highly relevant to national needs and agency mission. Their work significantly contributed to achieving our top priority goal of conducting stockpile operations and research, development, & simulation activities safely, and securely, while protecting personnel, facilities, and the environment. With limited resources, they made tough choices in order to support the stockpile and the DSW mission.

The W62 Step II activities and the W56/79 dismantlements are highly relevant to national needs. The LLNL staff working on this program demonstrated their awareness to this relevance by providing fast, technically correct responses to issues.

<b>Criteria 3: Performance in the technical development and operation of major research facilities</b>	
<b>Rating: Excellent</b>	88.00%

LLNL’s work in support of weapons certification (the fundamental driver of stockpile stewardship) relied on a robust program of experimental activities and capabilities. These include: hydrotests at Site 300 (Contained Firing Facility and Flash X-Ray facilities), the Dual-Axis Radiographic Hydrotest (DARHT) facility at LANL, subcritical experiments at the Nevada Test Site (NTS), the Joint Actinide Shock Physics Experimental Research (JASPER) two-stage gas gun at NTS, and special nuclear materials operations at the LLNL Superblock. The successful availability of these capabilities to meet the needs of the Stockpile Stewardship Program demonstrated LLNL’s accomplishments. Additionally, LLNL supported the improvement of capabilities and operations at Pantex and Y-12.

<b>Criteria 4: Programmatic performance and planning</b>	
<b>Rating: Excellent</b>	81.00%

W56/W79 dismantlement goals at Pantex were exceeded for FY 2001, with LLNL support as needed.

Component characterization proceeded at slow pace due to low priority. This was due to a shortage of available personnel at LLNL to perform all of the required work of DSW.

LLNL support for Hazard Assessment Reports (HAR), Basis for Interim Operations (BIO) approvals and W62 (Step 2) was good. LLNL needs to take the initiative to contribute to safe operations while allowing increased flexibility and less stringent operational constraints. HAR/BIO/W62 support was good but not as aggressive as possible in eliminating administrative controls.

The LLNL staff associated with the W62 and W56/79 programs are part of a larger DOE/NNSA team. They continuously function well as part of that team by providing timely inputs to program planning and they’re highly motivated to help maintain programmatic schedules. The only area that can be cited as needing closure is the old W62 Nuclear Explosives Safety Study (NESS) finding related to the boring bar drop. The Lab should work to get this resolved in FY 2002 to enable the W62 Step II to go as smooth as possible.

**Conclusions & Recommendations:**

Discussed in preceding sections.

**Performance Area: DSW – Stockpile Research and Development**

**FY 2001 Overall Performance Summary:**

**Performance Measures**

- Production and Surveillance Delivery Performance
  - Sustain quality while assisting production plants to meet W87 Program Control Document (PCD) Recovery Schedule Publish
  - W87 LEP Final Weapon Development Report and issue Major Assembly Release (MAR)
  - Complete Baselining Technical Work for W80 (final report due in FY 2002)
  - Support W80 Life Extension Program (LEP)
  - Achieve Surveillance delivery performance for pit surveillance on LLNL pits
    - Demonstrate basic process capability by performing a pit surveillance demonstration on an LLNL Wxx pit

<b>Overall Performance Rating: Excellent</b>
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<b>Criteria 1: Quality of science:</b>
<b>Rating: Excellent</b> <span style="float: right;">87.00%</span>

LLNL issued the W87 Alt 342 Final Weapon Development Report and Major Assembly Release. However, this was behind the original scheduled delivery date. The LLNL staff associated with the W87 activities met several unique challenges associated with MSAD production at the KCP. They visited KCP vendors and spent long hours on several occasions to resolve issues while maintaining quality and schedule requirements. LLNL staff were innovative in determining concurrently engineered approaches to process-related issues at the KCP.

The W80 Baselining activity is ongoing and will be complete by the end of FY 2001. Work is proceeding on the surveillance demonstration project.

LLNL provided on-site assistance to Pantex over the course of the year, and utilized its' knowledge and expertise with Y-12 on several materials.

The SLBM (Submarine Launched Ballistic Missile) Warhead Protection Program (SWPP) was completed in FY 2001 and the SWPP Design Review and Acceptance Group (SDRAAG) approval was completed on schedule. The final report is not complete and is behind schedule for finalization and publication. (Note: There is confusion between LLNL and DP-15 over the status of this requirement and the availability of funding to complete it. This needs to be clarified so that both parties agree to what is required and when.)

<b>Criteria 2: Relevance to national needs and agency mission</b>
<b>Rating: Outstanding</b> <span style="float: right;">91.00%</span>

LLNL was instrumental in identifying new approaches and processes to keep the W87 LEP on track. Their contributions showed clear knowledge of DOE/NNSA's mission and objectives associated with the W87 LEP. The impact of laboratory programs is through LLNL's ability to analyze data and identify anomalies obtained during the course of the LEP. The LLNL W87 staff consults with the proper laboratory expertise areas and offers resolution in a manner timely enough to sustain LEP production. This, in turn, supports the US Strategic Command (STRATCOM) and the national need.

LLNL supported the directive schedule with the W80 and SWPP work. LLNL supported the revised directive schedule with the W87 work. This schedule was revised when the original date was missed in FY 2000 for publishing the Final Weapon Development Report and Major Assembly Release.

**Criteria 3: Performance in the technical development and operation of major research facilities**  
**Rating: N/A**

**Criteria 4: Programmatic performance and planning**  
**Rating: Excellent** 88.00%

The W80 LEP information transfer with LANL was not as seamless as stated in the write-up by LLNL.

The most positive conclusion is citing how well LLNL has done to transform from an autonomous, stand-alone design agency to being a member of a much larger, integrated DOE/NNSA team.

**Conclusions & Recommendations:**

Discussed in preceding sections.

**Performance Area: Campaigns – Primary Certification**

**FY 2001 Overall Performance Summary:**

**Performance Measure**

- Develop an integrated resource loaded hydrotest plan to support campaign #1 and Directed Stockpile Work (DSW) certification

**Overall Performance Rating: Outstanding**

**Criteria 1: Quality of science:**  
**Rating: Outstanding** 100.00%

LLNL executed a well-laid out program of research of outstanding quality to support the long term goals of campaign one and the hydrotest program.

The primary metrics project provided a focus for reanalyzing old test data and extracting more information from this irreplaceable source of information. This work was additionally being used to train new design personnel.

Information on plutonium equation of state and other materials properties gathered through the subcritical program changed our understanding of the performance of primary systems.

Of particular significance was the innovative work to measure (n,2n) cross sections in Plutonium to high accuracy. This had an immediate return in understanding uncertainties in underground test data.

LLNL developed innovative approaches to diagnostics for hydrotesting including the development of v-probes to measure particle velocities in subcrit experiments and embedded fibers to measure shock velocities in materials.

Although lacking a radiography facility during the construction of the contained firing facility (CFF), LLNL executed a robust program of hydrotests at B851 and HEAF that included preparatory shots for PIANO subcritical experiment, and shots to support the baselining of the W80. Additionally, preparations during the period led to the subsequent successful demonstration of a high quality radiograph of the “thickest” weapons system in the stockpile.

**Criteria 2: Relevance to national needs and agency mission**  
**Rating: Outstanding** 91.00%

The work that LLNL accomplished in the area of primary certification is among the highest priority work performed by the laboratory. While the primary certification effort was making

excellent progress in the accomplishment of its goals, the program suffered from competition for resources and skilled people drawn off to support other program priorities.

<b>Criteria 3: Performance in the technical development and operation of major research facilities</b>	
<b>Rating: Outstanding</b>	100.00%

LLNL operates the Flash X-Ray (FXR) accelerator, and is in the process of commissioning the associated Contained Firing Facility (CFF). Together, they provide a unique combination for hydrotesting.

<b>Criteria 4: Programmatic performance and planning</b>	
<b>Rating: Outstanding</b>	95.00%

LLNL developed a well-focused program that integrates the goals of primary certification with the strategy to quantify margins and uncertainties of the nuclear weapons physics package. LLNL did an outstanding job of identifying the physical effects that contribute to performance uncertainties and developing a program to understand and reduce those uncertainties.

LLNL provided strong leadership in support of the effort to develop a national hydro program. Their own hydrotest planning was well integrated with requirements to meet the long term goals to develop improved certification tools as well as meeting the requirements to support DSW life extension programs.

**Conclusions & Recommendations:**

Discussed in preceding sections.

## Performance Area: Campaigns – Dynamic Materials Properties

### FY 2001 Overall Performance Summary:

#### Performance Measures

- Perform dynamic experiments on the Joint Actinide Shock Physics Experimental Research (JASPER) facility at the Nevada Test Site (NTS)
- Complete Oboe subcritical experiments necessary to support the Piano experiment

<b>Overall Performance Rating: Outstanding</b>
------------------------------------------------

<b>Criteria 1: Quality of science:</b>	
<b>Rating: Outstanding</b>	95.00%

There were outstanding contributions to the nuclear weapons complex science and technology base in FY 2002 by LLNL. In addition to the activities that LLNL identified, other noteworthy success in FY 2001 include: subcritical experiments at NTS which provided data on ejecta and spall, isentropic compression experiments on high explosives and uranium alloys, measurement of the (n,2n) reactions in plutonium, measurements of the Equation of State (EOS) for plutonium and deuterium, and continued development of proton radiography as an improved experimental capability.

LLNL is using two-stage gas gun technology, along with subcritical experiments to improve the understanding of material properties. Seven JASPER inert calibration experiments have been successfully completed and the program is on schedule to perform the first nuclear material experiment during the third quarter of FY 2002. The Oboe experiments planned for FY 2001 have been performed successfully in preparation for the Piano experiment, and the data generated by these experiments is serving as the basis to improve fundamental models of the dynamic response of materials. In addition, LLNL cited many additional efforts that have contributed significantly to the knowledge and understanding of the physics of materials and their response under dynamic loading.

<b>Criteria 2: Relevance to national needs and agency mission</b>	
<b>Rating: Outstanding</b>	95.00%

The critical activities that LLNL has chosen to highlight demonstrate the need to understand the basic physics of materials in order to predict performance of components and allow the certification of the systems in the stockpile. Overall, the LLNL program is well coordinated with the goals of this campaign, and has continued to develop accurate and predictive models for materials behavior. In addition, the LLNL activities supporting this campaign are integrated with the physics certification campaigns. LLNL's activities in support of this campaign are relevant to national needs and agency mission. LLNL contributes significantly to the stockpile stewardship program.

<b>Criteria 3: Performance in the technical development and operation of major research facilities</b>	
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<b>Rating: Outstanding</b>	95.00%
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Establishing and demonstrating the two-stage gas gun JASPER test capabilities at NTS is indicative of LLNL's ability to successfully operate a test capability in a major facility. LLNL has also successfully operated the High Explosives Applications Facility (HEAF) and has completed the Contained Firing Facility (CFF) at Site 300. In addition, LLNL has conducted subcritical experiments at NTS, as well as conducting experiments on pulsed-power facilities, at high-power laser facilities, and at national synchrotron-radiation facilities.

<b>Criteria 4: Programmatic performance and planning</b>	
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<b>Rating: Outstanding</b>	90.00%
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In order to accomplish the experiments at NTS (subcritical experiments and JASPER shots) a coordinated management effort with exceptional planning is required. The success of these projects and other technical work by LLNL, jointly with SNL and LANL, have demonstrated the first-rate planning and management of the programs. LLNL contributes significantly to the management of this campaign. In addition, LLNL has been very responsive from planning and budget requests from DOE/HQ.

### Conclusions & Recommendations:

In FY 2001, LLNL has provided significant and outstanding technical support to the DP-10 *Dynamic Materials Properties* Campaign. LLNL's contributions were mainly in support of the following campaign's Major Technical Efforts (MTEs): MTE 2.1: Stockpile materials equation of state (EOS), melt and phase transitions; MTE 2.2: Constitutive properties of metals: Strength, spall, ejecta; and MTE 2.3: High explosives (HE) performance and safety; dynamic loading of foams and organics.

At LLNL, support to the Dynamic Materials Properties Campaign is focused on the experimental activities required to accelerate the development of accurate, predictive models of materials properties and behavior. Physics-based model development and code insertion are supported through the closely coordinated ASCI Materials Simulation Program. The principal experimental high-pressure capabilities used at LLNL include diamond anvil cells (DAC) and two-stage light-gas guns to create conditions of static and dynamic high pressure and temperature, respectively.

LLNL contributes significantly to the Dynamic Materials Properties Campaign.

In addition to the Critical Activities that LLNL identified, they demonstrated many successes in the past year. These include the following:

- Determined the pressure-temperature ( $p$ ,  $T$ ) dependence of the large volume collapse transitions in praseodymium up to 900 K at high pressures using a diamond-anvil cell (DAC) apparatus.
- Successfully obtained and analyzed data on ejecta and spall from several U1a sub-critical experiments.
- Perform first isentropic compression experiments (ICE) on high explosives at the SNL's Z-

accelerator.

- Performed ICE experiments on uranium alloys on the Z-accelerator.
- Measured the Hugoniot of water up to 600 GPa on the Omega laser.
- Measured on  $(n, 2n)$  reactions in plutonium. These efforts will significantly decrease the uncertainties and allow improved accuracy in the prediction of primary yield.
- Continued progress in the measurement of the equations-of-state for both Pu and deuterium. Specifically, the work at SNL in the Z-machine have indicated a lower compressibility for deuterium than was previously determined. This information is especially important for an increased understanding of the of the boost process.
- Proton Radiography has proceeded in the past year, and it is believed that protons can give additional information beyond x-rays.
- The selection of three LLNL scientists as Fellows of the American Physical Society.

**Performance Area: Campaigns – Advanced Radiography**

**FY 2001 Overall Performance Summary:**

**Performance Measures**

None

(Performance assessed against low-level measures contained in the Advanced Radiography Campaign Implementation Plan for FY 2001.)

**Overall Performance Rating: Outstanding**

**Criteria 1: Quality of science:**  
**Rating: Outstanding** 100.00%

LLNL’s technical advances in x-ray radiography were very favorably reviewed by the JASON’s committee on Advanced Radiography. LLNL has made a number of important contributions to the national program.

In particular LLNL has been developing an innovative Dielectric Wall Accelerator which will provide a low cost compact accelerator for radiography for subcritical experiments at U1A.

The composite technology that LLNL is applying to confinement vessels will be an enabling technology for future multi-beam radiography.

Experimental Test Accelerator (ETA-II) target and beam research is critical to supporting the development of a 4-pulse capability on DARHT–II. Innovations in target development offer the promise of meeting the requirements for DARHT radiography. The technology applies techniques developed for an LLNL-developed kicker in the DARHT-II machine that is used to produce multiple pulses. LLNL is developing a prototype solid-state kicker with the capability of extracting proton beams from a synchrotron ring in the proposed Advanced Hydrotest Facility (AHF), and this technology will be applied to the Los Alamos Neutron Science Center (LANSCE).

**Criteria 2: Relevance to national needs and agency mission**  
**Rating: Outstanding** 93.00%

LLNL’s work in this area is vital to national needs, however, better communications and cooperation with LANL could ensure that LLNL’s efforts are focused on national program priorities. Furthermore, other program priorities for resources are impacting the ability of the laboratory to contribute to the fullest extent of its capabilities in this area.

**Criteria 3: Performance in the technical development and operation of major research facilities**

<b>Rating: Excellent</b>	89.00%
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ETA II is operated effectively to support critical research in this campaign. Other program priorities, however, put the continuation of funding in a precarious state. (Note: There is a major disagreement between DP-10, LANL, and LLNL over who should be paying for activities at ETA II. This needs to be clarified and resolved so that all parties agree on what the funded activities are and who is providing the funding.)

<b>Criteria 4: Programmatic performance and planning</b>	
<b>Rating: Outstanding</b>	95.00%

LLNL has a small high quality program that is well designed to complement and support the principal focus of this campaign at DARHT and Proton Radiography at LANSCE. LLNL innovations are aimed at high-leverage areas of the program and are critical to meeting national program goals.

**Conclusions & Recommendations:**

Discussed in preceding sections.

**Performance Area: Campaigns – Secondary Certification and Nuclear System Margins**

**FY 2001 Overall Performance Summary:**

**Performance Measure**

- Complete 2D reevaluation of relevant Underground Tests (UGTs)

<b>Overall Performance Rating: Outstanding</b>
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<b>Criteria 1: Quality of science:</b>
<b>Rating: Outstanding</b> 100.00%

LLNL succeeded in the very difficult task of analyzing available UGT data and identifying one particular event suitable for analysis using new computer simulation capabilities. Timely completion of innovative 2-D analyses yielded new interpretation and understanding to overcome difficulties in modeling how primary energy drives the secondary. This has fostered development of more rigorous physics models and helped guide innovative experiments, which are yielding dramatic results.

<b>Criteria 2: Relevance to national needs and agency mission</b>
<b>Rating: Outstanding</b> 100.00%

This campaign team has had major impact on validating NNSA’s “Margins and Uncertainties” approach for weapon assessment and certification. LLNL’s work will lead to improved capabilities for designing NIF experiments and facilitate valid scaling to actual weapon conditions, a crucial objective in NNSA’s mission. LLNL’s presentations on this subject for the High Energy Density Physics (HEDP) workshop were deemed “thorough and convincing”, and external reviewers cited it as “first rate work.”

<b>Criteria 3: Performance in the technical development and operation of major research facilities</b>
<b>Rating: Outstanding</b> 96.00%

LLNL has effectively designed and developed new diagnostics to support Campaign 4 activities involving NIF and the other major HEDP facilities (Omega and Z). These include the highly improved NIF P2XSC, prototype Omega/NIF Charge coupled Device (CCD) camera, promising research on high-efficiency x-ray detectors, and advanced x-ray calibration laboratories. Activities are being conducted in an effective manner that maximizes cooperation and technology transfer to other NNSA facilities and National Laboratories.

<b>Criteria 4: Programmatic performance and planning</b>
<b>Rating: Outstanding</b> 100.00%

All technical milestones were met, including completion of the 2-dimensional analysis of a relevant UGT, and the new results were briefed to DP-10. This milestone was effectively integrated with overall mission objectives such as planning and design of innovative experiments and development of enhance physics codes. As noted by external reviewers, LLNL is to be commended for its outstanding management and team building in closing traditional organizational gaps between secondary physics (A-Division) and primary-related hydrodynamics (B-Division).

**Conclusions & Recommendations:**

Continue to produce outstanding achievements in support of Campaign 4 and provide strong leadership and cooperation with other laboratories toward NNSA goals and objectives.

Continue working with NNSA and LANL to improve overall planning of secondary assessment/certification activities, including those sponsored by DSW, ASCI, and other campaigns.

## Performance Area: Campaigns – Enhanced Surveillance

### FY 2001 Overall Performance Summary:

#### Performance Measures

- Meet established campaign milestones as defined in Implementation Plan, with a focus on the W80 and W87 refurbishment, and Pit and Canned Subassembly (CSA) aging assessments
- Support ongoing Enhanced Surveillance Campaign (ESC) tasks and accelerate implementation of Fabry Perot for TATB and Electrical Safety

<b>Overall Performance Rating: Outstanding</b>
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<b>Criteria 1: Quality of science:</b>
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<b>Rating: Outstanding</b>	94.00%
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Independent review panels selected by the ESC Steering Committee gave LLNL tasks high marks in every MTE for their scientific and technical approach and results. LLNL has shown innovation in the design of their Pu accelerated aging experiments and the design of a laser shock diagnostic. Modeling efforts for pits and CSAs have contributed to a greater degree of understanding of aging behavior and have helped to explain experimental results.

LLNL has made excellent progress in meeting ESC milestones and deliverables in FY 2001. They are teaming with LANL on a project that projects the behavior of plutonium alloys far into the future using accelerated aging. LLNL has completed the fabrication of the alloys and is in the process of characterizing them in the non-aged condition. LLNL has also made advances in modeling plutonium aging behavior. LLNL has made excellent progress in understanding the complex behavior of the set of components and materials that make up the canned subassemblies (CSAs) or the components of nuclear weapon secondaries

<b>Criteria 2: Relevance to national needs and agency mission</b>
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<b>Rating: Outstanding</b>	93.00%
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The lifetime assessment work at LLNL has contributed directly to decision-making on the W87 and the W80 Life Extension Programs (LEPs). The understanding gained this year from aging work on pits, CSAs, and High Explosives (HE) has continued to support the annual assessment of the stockpile. The development and deployment of high-resolution x-ray tomography is a major accomplishment that provides the complex with an advanced non-destructive technique to evaluate pits. The progress on old pit examinations and accelerated aging alloy preparation is contributing to the understanding of pit lifetimes which is critical to future decisions regarding a Modern Pit Facility.

LLNL has made excellent progress in the development of a high-resolution x-ray tomography for pit examinations. They achieved an 8-10 mil resolution in a prototype operating facility for pits and have started the process of installing such a system at Pantex. LLNL has also demonstrated 2 mil resolution in the lab and plans to install this improved capability at Pantex as a “drop in” to

the 8-10 mil resolution system. They have demonstrated this system on two pits subjected to special testing and a W87 Weapon Electrical System (WES). The results illustrate very clearly the promise of this new diagnostic technique to the Stockpile Evaluation Program.

<b>Criteria 3: Performance in the technical development and operation of major research facilities</b>	
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<b>Rating: Outstanding</b>	94.00%
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LLNL has actively pursued the deployment of several unique capabilities in the complex. Their facilities and tools have been leveraged to a great extent to facilitate the program needs for characterizing material properties. LLNL has successfully conducted operations and made measurements using experimental facilities to support the programmatic needs of the campaign.

LLNL has done an outstanding job of installing a number of special tools for metallurgical and chemical examination of plutonium. These metallurgical tools include Positron Annihilation Spectroscopy, Transmission Electron Microscopy, and Precision Resistometry. Conventional metallurgical tools such as Scanning Electron Microscopy, and x-ray diffraction have also been installed. Chemical tools include ICP mass spectroscopy, Glow Discharge Mass Spectrometry and Microprobe analysis. These provide the suite of tools needed for most programmatic applications. There are many other tools that they have moved aggressively to install either at LLNL or at an appropriate production agency to be assured that the Stockpile Evaluation Program is in a position to provide timely and vital information on the state of health of the nuclear weapons stockpile

<b>Criteria 4: Programmatic performance and planning</b>	
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<b>Rating: Outstanding</b>	92.00%
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Based on quarterly program reviews and critical performance measures, LLNL has consistently been able to meet their programmatic commitments. They were able to detect mistakes in their Pu alloy sample preparation early and took appropriate actions to keep the program on track. Their lifetime assessments have provided timely input to the annual assessment of the stockpile and the LEPs. LLNL made effective use of plus-up funds this year for diagnostic techniques including the laser shock diagnostic to obtain Pu spall data.

LLNL has done an excellent job of providing important information to help decide whether key components such as main charge high explosives would need to be replaced for the W87 LEP. Extensive testing on aging behavior for key components involved in the LEP to support design decisions was accomplished. LLNL is carrying on the same process for the W80 LEP. LLNL has also been pursuing a program of experimental and analytical activities designed to allow an estimate of pit lifetimes by the end of 2004. LLNL has also worked to provide an assessment of CSA lifetimes. In HE and initiation, LLNL continues to investigate known stockpile issues, conduct studies that provide "one time" data and analysis required to make lifetime predictions, and develop new or improved analytical and experimental tools to enhance our abilities to resolve performance issues seen during core surveillance. To support this evaluation, an improved diagnostic capability (Fabry-Perot) has been developed to complement the existing test. They have also developed a new test to better evaluate the shock safety of aged LLNL detonators.

They continue to conduct non-destructive chemical "sniffing" of system warhead space in LLNL systems and have now developed an extensive database that helps readily identify systems that exhibit signatures indicative of aging or mistreatment. LLNL also has begun work on the Distributed Accelerometer Inertial Measurement Unit (DAIMU), a Reentry Vehicle (RV) separation measurement diagnostic for the W87/Mk21

**Conclusions & Recommendations:**

LLNL continues to so do an excellent job of meeting ESC milestones and deliverables.

## Performance Area: Campaigns – Advanced Design and Production Technologies

### FY 2001 Overall Performance Summary:

#### Performance Measure

- Meet established campaign milestones as defined in Implementation Plan, with a focus on the W80 and W87 refurbishment, and Pit and CSA aging assessments

<b>Overall Performance Rating: Outstanding</b>
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<b>Criteria 1: Quality of science:</b>
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<b>Rating: Outstanding</b>	95.00%
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LLNL has developed and demonstrated a safer lithium (Li) metal production capability based on the scientific application of an enclosed Bi-polar cell. Production rates (6 kg-Li/wk) could easily replicate current Y-12 production with significantly reduced production area footprint and waste streams.

LLNL is providing scientific leadership in Vicarious Nucleophilic Substitution (VNS) technology for reconstituting production of TATB for insensitive High Explosives (HE) scaled-up manufacturing.

LLNL is providing scientific leadership for developing the technologies and methods for explosive joining of dissimilar metals used in composite weapons parts.

LLNL has provided outstanding scientific applications for high-risk, high payoff science-based manufacturing development/activation for weapons process development, enterprise integration and integrated product and weapons process design.

LLNL has provided outstanding scientific leadership and support to Y-12 to help them meet their production requirements, including the advanced Tomographic E-beam welding diagnostic system at Y-12.

LLNL is a leader in innovative science in support of ADAPT. The research and development in Magnetohydrodynamic purification of metals is highly innovative and holds great potential for use in WR production if it is successful.

LLNL has provided the Y-12 plant with a cost-efficient method to reuse secondary components with the application of the LLNL/Y-12 laser cutter to the W87. This represents a significant investment/savings in parts reuse and in deferring Life Extension Program (LEP) production costs. The Laser Cutter reduces waste due to cutting to near zero and enables enclosure of enriched uranium process lines resulting in reduced cost and exposure to operators.

LLNL has developed precision hemi-shell die-casting technology for pit production/manufacturing to achieve reduced waste and plutonium use.

LLNL has developed extraordinarily small, low mass, high performance MicroCDU technologies for LEP programs. These high voltage (HV) photovoltaic arrays are a breakthrough LLNL technology in nanostructure multilayer materials for potential application in the W80 LEP

**Criteria 2: Relevance to national needs and agency mission**  
**Rating: Outstanding** 95.00%

LLNL’s FY 2001 deliverables under the ADAPT Campaign directly support the goals and objectives of the NNSA and are delineated in the ADAPT FY 2001 Implementation Plan.

LLNL ADAPT contributions are aligned with NNSA mission in all three Major technical Elements—

- Process Development
- Enterprise Integration, and
- Integrated Product and Process Design/Agile Manufacturing

FY 2001 LLNL deliverables were focused on W80 and W87 refurbishment applications and will result in significantly reduced production/manufacturing refurbishment costs and time to completion.

**Criteria 3: Performance in the technical development and operation of major research facilities**  
**Rating: N/A**

**Criteria 4: Programmatic performance and planning**  
**Rating: Outstanding** 95.00%

The LLNL ADAPT program manager (PM) provides continued outstanding program management including milestone tracking/updates upon demand such as stoplight charts for NNSA headquarters (HQ). The LLNL PM manages his people, resources and time constraints with exceptional agility. LLNL’s effort to meet NNSA milestones and provide scientific documentation (both internal and external) is exceptional.

The LLNL PM and his team do an outstanding job of planning the needed work, following the progress of the work and informing the NNSA program manager of status, both on a quarterly basis and when the situation warrants, either the successes to date, or the need to refocus some efforts based on results.

All Implementation Plan tasks were periodically reviewed and updated with the concurrence of the campaign manager.

As with all development efforts, there are opportunities for improvement and LLNL seeks these opportunities and accepts the challenges in a professional manner.

All FY 2001 deliverables as defined in the ADAPT Implementation Plan were provided on time and within budget. Only the Li Metal Processing project was delayed due to Environmental Safety and Health (ES&H) concerns.

**Conclusions & Recommendations:**

LLNL ADAPT activities meet or exceed NNSA expectations. The Management team works well with the NNSA campaign manager. Results of the development work are relevant to the NNSA mission both for the design agencies and the production agencies. NNSA recommends that LLNL continue to provide this high quality support of the ADAPT Campaign.

## Performance Area: Campaigns – Ignition Physics and High-Energy-Density Physics Programs

### FY 2001 Overall Performance Summary:

#### Performance Measures

- Evaluate direct drive physics and verify that direct drive is not precluded on NIF.

<b>Overall Performance Rating: Outstanding</b>
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DOE OAK's evaluated rating of the Campaign 10, Inertial Confinement Fusion, overall performance for FY 2001 is Outstanding. Each of the 4 criteria elements is rated as outstanding. These ratings mirror the FY 2001 the University of California (UC) President's Council on National Laboratories ratings assigned to the Campaign 10 effort. During this performance period the LLNL NIF Directorate fulfilled its critical milestone to evaluate direct drive physics and verify that direct drive is not precluded on NIF.

The overall performance for the FY 2001 Campaign 10 Performance area is **Outstanding**.

<b>Criteria 1: Quality of science:</b>	
<b>Rating: Outstanding</b>	95.00%

LLNL hosted the "Not-to-Preclude Direct Drive" workshop and submitted an outstanding associated report (NIF-0063608) to satisfy the Level 1 ICF milestone. The quality of science, technology and engineering that formed the basis of this effort was outstanding, thus leading to the high credibility of the conclusions.

Overall, the LLNL ICF Program continued to execute outstanding, world-class technical work during the evaluation period. Among the many examples of outstanding ICF Program/Campaign 10-related achievements were the first-ever 3-D modeling of typical hohlraum asymmetry; development of 3D predictive capability for laser-plasma interaction; "cocktail" hohlraums for higher hohlraum/capsule coupling; and EOS measurements important to both SSP and basic science/astrophysics. ICF Program scientists published over 80 technical papers during the evaluation period.

It should also be noted that LLNL as a whole (both DNT and the NIF Directorate) did an outstanding job preparing for the HEDP Workshop held in January 2001. The LLNL talks presented at this meeting were of very high quality, and showed both significant technical depth and insight into what will be required for certification in the future. The chain from weapons need to experiment to diagnostic requirements was clearly shown. This set of talks was a major step forward in planning the program of weapons physics experiments to be executed on NIF, and served as a model for other program elements preparing experiments for NIF and other HEDP facilities. The quantitative connection to certification criteria shown in these talks is a particularly important methodology that needs to be carried elsewhere within the SSP.

**Criteria 2: Relevance to national needs and agency mission****Rating: Outstanding** 95.00%

The relevance of the HEDP/ICF Program was clearly stated in the HEDP Study Report submitted to Congress in April 2001. The report states: "A vital HEDP Program is an essential component of the SSP." The LLNL ICF Program is essential to the success of the national HEDP Program.

**Criteria 3: Performance in the technical development and operation of major research facilities****Rating: Outstanding** 95.00%

LLNL successfully transitioned the ICF Program experimental efforts on Nova to the Omega laser at the University of Rochester. LLNL has done an outstanding job at performing experiments at Omega. The data returned have been of exceptional quality and have been essential to making progress on the ignition and weapons physics goals of the SSP. An example of LLNL's excellent support for development and cooperative use of Omega is implementation of a second VISAR diagnostic.

LLNL also supported transfer and development of the Beamlet backlighter diagnostic for the Z accelerator at Sandia National Laboratory. It is important that LLNL continue adequate support of the Z-Beamlet laser. Effective use of Z is required for success of the HEDP Program.

**Criteria 4: Programmatic performance and planning****Rating: Outstanding** 95.00%

The "Not-to-Preclude Direct Drive" workshop exemplifies the outstanding management and planning performance associated with LLNL ICF Program activities. The process by which the report concluding that NIF does not preclude direct drive was very well managed.

LLNL activities within the national NIF ignition program are well organized and flow from the priorities established by the ignition goal. LLNL also continues to play a lead role in organizing national activities in major areas such as the NIF ignition program, and deserves great credit for their leadership in this area. LLNL weapons physics experiments within the ICF Program are also well planned – they derive from the mission needs of the stewardship program as expressed via the DP campaigns. Important experiments related to the primary certification, secondary certification, and materials campaigns have been executed over the past year. These experiments were developed in collaboration with the weapons program. The coupling between the NIF Directorate and the DNT Directorate has improved markedly in the past year- this was evident at the HEDP Workshop (see paragraph 1 above).

NNSA appointed the first NIF Director on December 15, 2000. This is a major new management position within the national High Energy Density Physics (HEDP) and ICF Programs. In the current evaluation period, the NIF Director led a team that developed a draft governance plan for NIF. This

report was thorough and well done, and demonstrated a good process for involvement of the various user groups who will be performing experiments on NIF.

### **Conclusions & Recommendations:**

Continue to produce outstanding achievements in support of the ICF Program/Campaign 10 and provide strong leadership and cooperation with other laboratories toward NNSA goals and objectives.

The quality of the self-assessment for the NIF Directorate is outstanding. The NIF Programs Review Committee does an excellent job. LLNL and NNSA work in close coordination to ensure these reviews meet the needs of both LLNL and the national community. The self-assessment covered all portions of ICF Program activity. NNSA looks forward to future NPRC assessment of LLNL national ICF Program activities.

As the national role of the NIF Director becomes more established, it is essential that the NIF Director receive feedback from the entire user community on a regular basis. This is addressed well in the draft NIF Governance Plan and should be kept in mind as other planning and management documents are developed.

In the next year the NIF Director will assemble plans for the NIF diagnostic and cryogenic projects, as well as a management plan for NIF itself. Extensive planning for NIF experiments will also be carried out. In putting together these plans it is essential that the NIF Director work closely with and foster communication within the entire user community which has been slow in developing. As stated in the recent HEDP Study report submitted to Congress, "A truly national program to utilize NIF, which builds on the existing user base, is essential." Evaluation of the NIF Director in this national role will thus be a major component of the NNSA evaluation of the LLNL ICF Program in the coming years. In the next evaluation period NNSA will work with the NIF Director to determine more specific roles, responsibilities, and associated performance metrics.

## Performance Area: Campaigns – Advanced Simulation And Modeling

### FY 2001 Overall Performance Summary:

#### Performance Measures

- Three-dimensional (3D) secondary burn prototype simulation
- Initial software development environment extended to the 10-teraOPS (10 x 10<sup>12</sup> Operations Per Second) system - This computer system is known as Accelerated Strategic Computing Initiative-White (ASCI-White)
- Distance-computing environment available for use on the 10-teraOPS ASCI system

<b>Overall Performance Rating: Outstanding</b>
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<b>Criteria 1: Quality of science:</b>
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<b>Rating: Outstanding</b>	93.00%
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#### Perform 3D secondary burn prototype simulation

LLNL successfully completed the Level I milestone for 3D secondary-burn prototype simulation in July. Additionally the Level I milestone for demonstration of validation methodology for early time primary behavior was completed on schedule. Both milestones were reviewed by an external panel of technical experts, the work was judged to be technically outstanding. However, we would like to see accelerated implementation of software quality practices so the codes can be deployed and used with confidence for Directed Stockpile Work (DSW) production computing.

#### Initial software development environment extended to the 10-teraOPS system

ASCI level-1 milestone PS-1.1 was to provide an “Initial software development environment extended to the 10-teraOPS system”. This milestone was reviewed by an external panel of academic and government experts and concluded “We commend the Problem Solving Environment (PSE) team for their demonstrated success resolving compiler problems, shaking down development tools, dealing with machine access issues... ensuring that application codes and tools could function at scale.” LLNL was instrumental in accomplishing this milestone.

#### Distance-computing environment available for use on the 10-teraOPS ASCI system

The ASCI Distance and Distributed Computing and Communications (DisCom2) program completed a critical level-one milestone during FY 2001. An external panel of government and university experts reviewed the milepost and concluded by stating the milestone “passed with flying colors”. As a result we now have a distance-computing environment available for remote use of the ASCI White system stationed at LLNL. The success was highlighted by the implementation of a 2.5 gigabit encrypted network between our 3 national labs.

<p><b>Criteria 2: Relevance to national needs and agency mission</b>  <b>Rating: Outstanding</b> 96.00%</p>
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Perform 3D secondary burn prototype simulation

The ASCI code development efforts at LLNL, including the Materials and Physics Program (M&PM) and the Verification and Validation (V&V) program, are correctly aligned with the NNSA Defense Programs mission.

Initial software development environment extended to the 10-teraOPS system

ASCI is in direct support of the Stockpile Stewardship Program, and this ASCI effort is providing the software computational infrastructure for the ASCI White platform enabling the tri-lab engineers and scientists to effectively use the critical high-end computing resources required to execute ASCI requirements.

Distance-computing environment available for use on the 10-teraOPS ASCI system

ASCI is in direct support of the Stockpile Stewardship Program, and this ASCI effort is providing a secure high-bandwidth geographically distributed network connecting up each of the other two laboratories to the White platform. This will enable all three labs to share the critical high-end computing resources required to execute ASCI requirements.

<p><b>Criteria 3: Performance in the technical development and operation of major research facilities</b>  <b>Rating: Outstanding</b> 95.00%</p>
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Initial software development environment extended to the 10-teraOPS system

The successful operation of any major facility such as the ASCI White platform requires that not only must the hardware be operational but equally important the software infrastructure must be available and operational to support its utilization by the engineers and scientists in meeting SSP demands. LLNL accomplishments in this area are exemplary.

Distance-computing environment available for use on the 10-teraOPS ASCI system

Not only was LLNL’s performance instrumental in accomplishing a successful milestone, but the “passed with flying colors” remark by the external panel of experts can be directly attributed to LLNL’s exemplary efforts.

<p><b>Criteria 4: Programmatic performance and planning</b>  <b>Rating: Outstanding</b> 92.00%</p>
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Perform 3D secondary burn prototype simulation

Program management at LLNL is outstanding. NNSA would like to see risk mitigation strategies developed to minimize technical obstacles in ALE (Arbitrary Lagrangian-Eulerian) code formulations, specifically the extensive user intervention now needed to run the codes. The Level I milestone for secondary-burn simulation was late by ½ year. Additionally, the long-term code development plan should include a schedule for code releases, based upon the degree of physics model validation, to the nuclear weapons designers for DSW production simulations.

Initial software development environment extended to the 10-teraOPS system

Standing up the ASCI White system (12.3 teraOps) was a significant accomplishment demanding significant planning and management. The highly successful result is directly attributable to working closely with the tri-labs and with IBM, the vendor for the ASCI White machine.

Distance-computing environment available for use on the 10-teraOPS ASCI system

LLNL was a key component of a tri-lab effort that demonstrated technical leadership and the ability to both plan and manage a complex technical problem with significant technical challenges. The milestone was not only met within schedule but was “passed with flying colors”.

### **Conclusions & Recommendations:**

Outstanding performance in making the ASCI White platform a key national asset.



outstanding. In addition, we are not aware of an impact on the Stockpile Stewardship program from the non-availability of the RTBF facilities during the rating period.

<b>Criteria 4: Programmatic performance and planning</b> <b>Rating: N/A</b>
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**Conclusions & Recommendations:**

## Performance Area: NIF Project

### FY 2001 Overall Performance Summary:

DOE OAK's evaluated rating of the NIF Directorate's overall performance for FY 2001 is **Outstanding**. Each of the 3 applicable criteria elements is rated as outstanding. These ratings mirror the FY 2001 the University of California (UC) President's Council on National Laboratories ratings assigned to the National Ignition Facility Directorate. The National Ignition Facility project made substantial progress during FY 2001 including the completion of the Level 1 milestone, completion of "End Conventional Construction."

<b>Overall Performance Rating: Outstanding</b>
------------------------------------------------

<b>Criteria 1: Quality of science:</b>	
<b>Rating: Outstanding</b>	100.00%

The NIF Directorate's research and development is primarily the responsibility of the Laser Science and Technology (LS&T) Program. The LS&T Program is directly contributing to several activities in support of the NIF Project which is covered under the NIF Demonstration Program section. Research and development activity accomplishments supporting programs outside of the NIF project include: application of femtosecond laser radiation to exotic material processing applications, advancing the commercialization of "laser hardening" (peening) of structural metals, and lightweight diffractive optics for space application. In addition, LS&T personnel are installing a laser trigger system on Sandia National Laboratory's Z-Machine that will significantly reduce the synchronization jitter between the backlighter and the pinch target event. Another "best in class" work is the integration of several unique features into a working high-energy solid laser for a future weapon system.

<b>Criteria 2: Relevance to national needs and agency mission</b>	
<b>Rating: Outstanding</b>	100.00%

The NIF project supports national security, energy, and scientific missions. It is an essential component of the Stockpile Stewardship Program and NIF is a key experimental facility necessary for benchmarking next generation computer codes as part of the Accelerated Strategic Computing Initiative (ASCI) program. The High Energy Density Physics Workshop in January 2001 concluded that NIF is an essential element of the Stockpile Stewardship Program (SSP) and is extremely important to the future of our nuclear deterrent. The NNSA Administrator in his certification letter to congress concluded that: the NIF Project should continue along the approved 192-beam baseline, that Defense Programs should continue the 192 -beam NIF with the goal of ignition, that the refurbishment of the Z-machine cannot provide the same capabilities as NIF, and that the NIF Project team is capable of managing the NIF Project so as to assure a high probability of successful execution. This conclusion supports several previous reviews of the NIF project.

<b>Criteria 3: Performance in the technical development and operation of major research facilities</b>	
<b>Rating: N/A</b>	

The NIF Directorate has responsibility for both the technical development and the future operation of the NIF and for the operation of existing ICF and LS&T facilities. However, with the decommissioning of Nova and operation of NIF in the outlying years, this criterion is not applicable to the NIF directorate during this evaluation period

<b>Criteria 4: Programmatic performance and planning</b> <b>Rating: Outstanding</b>	95.00%
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The National Ignition Facility project made substantial progress during FY 2001 including the achievement of the Level 1 milestone, completion of “End Conventional Construction.” The Optics Assembly Building is now operational and undergoing the installation of special equipment for the assembly of Line Replaceable Units. Of the FY 2001 NIF Project milestones, NNSA identified 20 major milestones that the NNSA Office of the NIF tracks. At the end of September 2001, 19 of these milestones were completed on or ahead of schedule and one milestone was finished late but within the reporting period.

Consistent with the above accomplishments, the NIF project was evaluated against the established DOE OAK FY 2001 Performance measures as follows:

**Measure 4.1.1.a - Project Monthly Reporting:**

All twelve of the monthly reports due in FY 2001 (September 2000 through August 2001) were received from the NIF Project Office by the required due dates.

Rating: Outstanding

**Measure 4.1.1.b – Earned Value Reporting System in Place:**

The NIF project implemented an earned-value measurement system that is based upon industry standard methods of tracking project performance and which provided the input for the monthly report for the period ending March 31, 2001.

Rating: Outstanding

**Measure 4.1.1.c – Quality and Openness of NIF’s Ongoing and Projected Performance:**

The NIF Project conducts monthly project progress meetings which the Office of the NIF staff attends and which provide an open assessment of the Project’s technical, cost and schedule status, as well as current and potential problems. In addition, NIF Project management has provided outstanding cooperation in setting up and coordinating ONIF facility walkthroughs and reviews. However, opportunities exist for further improvement in informal communications in areas such as ongoing or near-term activities, progress, and concerns and responses.

Rating: Excellent

**Measure 4.1.2.a - Project Inception-to-Date Schedule Performance Index (SPI):**

Per the last available report of August 2001, the earned value measure of the NIF Project-to-Date Schedule Performance Index (SPI) showed a SPI of 0.99.

Rating: Outstanding

**Measure 4.1.3.a - Project Inception-to-Date Cost Performance Index (CPI):**

Per the last available report of August 2001, the earned value measure of the NIF Project-to-Date Schedule Performance Index (CPI) showed a CPI of 1.00.

Rating: Outstanding

Measure 4.1.4 – Total Reportable Case Rate Reduction:

For Fiscal Year 2001, the NIF project's Total Reportable Case Rate was 2.74. This is a 79.6% reduction over the previous fiscal year rate of 13.4 and well below the California State average of 9.5 for CY 98.

Rating: Outstanding

**Conclusions & Recommendations:**

The overall rating for NIF based upon the FY 2001 Performance measures and weightings is "Outstanding".

## Performance Area: NIF Demonstration Project

### FY 2001 Overall Performance Summary:

DOE OAK's evaluated rating of the NIF Directorate's overall performance in the area of the NIF Demonstration Project for FY 2001 is **Outstanding**. Each of the 3 applicable criteria elements is rated as outstanding. These ratings mirror the FY 2001 the University of California (UC) President's Council on National Laboratories ratings assigned to the National Ignition Facility Directorate. Substantial progress has been made in enabling economic operation of the NIF during this period.

<b>Overall Performance Rating: Outstanding</b>
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<b>Criteria 1: Quality of science:</b>
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<b>Rating: Outstanding</b>	100.00%
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Substantial progress has been made in enabling economic operation of the NIF including: extensive redesign within the Final Optics Assembly (FOA) of the component arrangement and the focusing lens itself, redesign of FOA packages to facilitate on-line replacements of components, systematic characterization of the various  $3\omega$  high fluence damage mechanisms that occur in fused silica and KDP frequency conversion crystals, discovery and partial implementation of damage mitigation schemes to stop damage spot growth, enhancement of a statistical model describing the onset and growth of  $3\omega$  damage sites, and demonstration of a cost effective, disposable debris shield.

<b>Criteria 2: Relevance to national needs and agency mission</b>
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<b>Rating: Outstanding</b>	100.00%
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The NIF Directorate's Laser Science & Technology (LS&T) Program's mission is to develop advanced solid-state lasers and optics technologies for applications of national importance. These applications include completing the laser technology and optical component testing for NIF to ensure operational success, developing advanced laser solid-state laser systems and optical components for the Department of Energy and Department of defense, and inventing, developing, and delivering improved concepts and hardware for other government agencies and the U.S. industry. The NIF Demonstration Program directly supports producing future experiments on the NIF. Activities include prototyping NIF components, developing improved damage initiation and laser performance models, and selecting a  $3\omega$  damage mitigation process.

<b>Criteria 3: Performance in the technical development and operation of major research facilities</b>
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<b>Rating: N/A</b>
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The NIF Directorate has responsibility for both the technical development and the future operation of the NIF and for the operation of existing ICF and LS&T facilities. However, with the decommissioning of Nova and operation of NIF in the outlying years, this criterion is not applicable to the NIF directorate during this evaluation period

<b>Criteria 4: Programmatic performance and planning</b> <b>Rating: Outstanding</b>	94.00%
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**Measure 4.2.1 – Communication:**

The mechanism for reporting NIF program demonstration activities was agreed upon in September 2001. The initial report covering the period ending September 2001 will be due 25 working days after the close of the period as agreed.

Rating: Excellent

**Measure 4.2.2 – Schedule Control:**

The NIF Directorate and the Office of the NIF negotiated 30 FY 2001 milestones for the NIF Demonstration Program. At the end of September 2001, 29 milestones were completed on or ahead of schedule and one milestone was finished late resulting in 96.7% completion rate.

Rating: Outstanding

**Measure 4.2.3 – Cost Control:**

The actual funds costed for the evaluation period amounted to \$74,264K with \$80,626K planned resulting in 92.1% cost to plan ratio.

Rating: Excellent

**Conclusions & Recommendations:**

The overall rating for NIF Demonstration Program based upon the FY 2001 Performance measures and weightings is “Outstanding”.

## **Performance Area: Nonproliferation, Arms Control and International Security**

### **FY 2001 Overall Performance Summary:**

The three programmatic areas of NAI performance to be validated during this rating period are:

#### International Assessments Program (Z Division)

This program addresses the need to avoid surprise regarding foreign weapons activities. LLNL expertise in nuclear weapons science and technology is central to this work. Multifaceted analyses incorporating technical, economic, political, and other drivers are conducted in support of the U.S. Intelligence Community (IC) to evaluate foreign weapons programs. (FY 2001 budget: \$22M)

#### Proliferation Detection and Defense Systems Program (Q Division)

This program concentrates on proliferation detection and reversal. The work to develop detection technologies is integrated with critical systems analysis so that advanced technologies are optimized for operational settings. Technologies and analyses to identify, assess, and counter proliferant activities are central to this program. (FY 2001 budget: \$44M)

#### Proliferation Prevention and Arms Control (PPAC)

This program focuses on prevention integrating all the various activities, capabilities, and technologies for nuclear material control which reside at LLNL. It combines treaty verification technology R&D with policy analysis and support for U.S. arms control activities, including the important element of international cooperation, particularly with Russia. (FY 2000 budget: \$71M)

The NAI Directorate is in the forefront of supporting two of the most important national security missions as evidenced by the outstanding work in these divisions related to intelligence and nonproliferation. For this rating period, these divisions constitute approximately one-half of NAI's activities. The NAI Directorate's annual budget for FY 2001 was \$170M with approximately \$88M from the NNSA (principally the Office of Defense Nuclear Nonproliferation) and \$78M from other sponsors, primarily the DoD and the IC. The work conducted in NAI over the past years in these areas has placed LLNL in the unique position to provide enhanced support to the IC, and to counterproliferation/counterterrorism organizations dealing with the current international and national terrorism crisis. Especially noteworthy achievements during this performance period include the Counterproliferation Analysis and Planning System (CAPS), which has emerged as a major asset for the U.S. Strategic Command (STRATCOM) and other DoD elements; the Biological Aerosol Sentry and Information System (BASIS), which will provide near real-time detection of a bioterrorism attack at large public gatherings in order to allow early and effective emergency medical response; and, the Information Operations, Warfare, and Assurance (IOWA) program, which is providing an outstanding information technology capability to the IC. NAI's involvement with the DOE, DOD, IC, and the many other organizations involved with national security is expected to increase significantly as a result of war declared on terrorism. NAI is making effective and extensive use of matrixing throughout LLNL to bring the most competent individuals spanning all disciplines together to meet the complex challenges of the current and future threats. It is expected that there will also be increased collaboration within the DOE laboratory complex, especially with those involved with the current national security crisis. The PPAC Program is a nationally recognized leader for seismic

monitoring of underground tests. The program provides essential technologies and analytic methodologies, especially in radiation detection, to U.S. government negotiators related to arms reduction treaties. Outstanding work has been accomplished in the Material Protection, Control, and Accounting (MPC&A) Program, and in the Second Line of Defense (SLD) Program related to the former Soviet Union aimed at improving the security of their nuclear materials and technologies. A key role is also to advise the State Department on the funding of the Moscow International Science and Technology Center, and to work to lower the risks associated with commercialization of Russian technologies. Important efforts have also been made toward reducing the size of the weapons complex in the closed cities through participation in the Nuclear Cities Initiative.

<b>Overall Performance Rating: Outstanding</b>
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<b>Criteria 1: Quality of science:</b>
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<b>Rating: Outstanding</b>	94.00%
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International Assessments Program (Z Division)

Z Division has noteworthy capability to apply a broad spectrum of scientific expertise to assessments of WMD programs in proliferation-critical regions of the world. The IC has increased utilization of this capability as its own internal expertise has diminished. The very significant work under the Information Operations, Warfare, and Assurance (IOWA) program has enhanced the protection of the U.S. information infrastructures. The work in assessment of foreign nuclear capabilities also continues to utilize LLNL technical nuclear weapons expertise related to weapons design, testing, and development. Extensive expertise with the atomic vapor laser isotope separation (AVLIS) technology has enabled evaluation of this technology's proliferation potential, if transferred from Russia to Iran. Outstanding work has been also accomplished in assessing threats involving nuclear extortions and in providing information on nuclear materials smuggling.

Proliferation Detection and Defense Systems Program (Q Division)

Outstanding work has been accomplished by Q Division in developing technical systems for detecting and reversing proliferation. This is best illustrated by widely adopted use of the Counterproliferation Analysis and Planning System (CAPS) by the military. The Hyperspectral Infrared Imaging Spectrometer (HIRIS) remote sensing program coupled with the Signatures program is proving to be extremely effective in understanding chemical processing facilities from a proliferation potential perspective. The work related to the new initiative to develop a secure air-optic transport and routing network (SATRN) has been outstanding in meeting the challenges of global information security essential to giving the U.S. superiority in this important arena.

Proliferation Prevention and Arms Control (PPAC)

Exceptional work has been accomplished in nuclear explosion monitoring using seismic and hydroacoustic waves capable of locating events to within an area of 1000 square kilometers, and differentiating accurately between nuclear explosions and other seismic events. Novel radiation detectors have been developed for use by international inspection personnel involved with fissile material and warhead dismantlement agreements. The U.S. Plutonium Immobilization Program lead by LLNL has successfully completed prototype testing in preparation for the full scale facility design,

and demonstrated highly automated Pu processing lines for both immobilization and mixed oxide fabrication. The has been excellent success in the MPC&A Program where LLNL has a unique role in working with the Russian Navy and the Murmansk nuclear-powered icebreaker fleet. PPAC has lead the effort to develop the computerized nuclear materials record-keeping and database system to track material within their complex. In support of the SLD Program, noteworthy work has been accomplished to equip high-risk border crossings with radiation detectors. Significant improvements have also been accomplished in enhancing the effectiveness of the detectors.

<b>Criteria 2: Relevance to national needs and agency mission</b>	
<b>Rating: Outstanding</b>	96.00%

International Assessments Program (Z Division)

The work performed by Z Division is directly relevant to the national security needs and DOE's mission to deal effectively with the proliferation of WMD to countries of concern and subnational terrorist groups. Outstanding work relative to the Russian weapons programs, and its relationship to Iran is significant. Analysis of China's nuclear weapons programs has been extraordinary, as have been the analysis of activities at their testing sites. The national need to develop intelligence capabilities to counter the threat posed by biological weapons proliferation is increasingly being supported utilizing expertise in biodetector technologies and data-exploitation tools like BIOBASE, a graphical- information-system based model which allows military field commanders to better assess issues related to force protection in the event of a bioattack.

Proliferation Detection and Defense Systems Program (Q Division)

Key national goals of supporting nuclear nonproliferation objectives, and the verification of international treaties such as the Chemical Weapons Convention are being greatly enhanced by the outstanding work conducted by Q Division in remote sensor development. The Detection Tracking System has been demonstrated to be effective in detecting and tracking ground-delivered nuclear devices.

Proliferation Prevention and Arms Control (PPAC)

The outstanding work of PPAC to contain the threat of nuclear weapons, materials, and expertise leaking out of Russian control, has earned LLNL considerable respect in the national security community. The relevance to national and international needs, and the overall agencies primary mission has been outstanding regarding the accomplishments in working cooperatively with the Russians, the Newly Independent States, and the international community.

<b>Criteria 3: Performance in the technical development and operation of major research facilities</b>	
<b>Rating: N/A</b>	

<b>Criteria 4: Programmatic performance and planning</b> <b>Rating: Outstanding</b>	92.00%
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#### International Assessments Program (Z Division)

Outstanding programmatic performance is being conducted in information operations under the IOWA project, and is expected to increase in this arena. A comprehensive biological weapons assessment capability is being built to meet the terrorist threat posed by subnational groups and nation-states of concern. This capability will include technical analysis of biological weapons programs, dual-use technologies, and the worldwide explosion in biotechnology research.

#### Proliferation Detection and Defense Systems Program (Q Division)

Due to the outstanding programmatic planning of Q Division, significant successes in performance have been achieved in many national security areas. The excellent leadership, and forward-looking approach have continuously enhanced Q Division's ability to apply its capabilities to new challenges utilizing the best technologies available together with outstanding integration of engineering and science both within LLNL and elsewhere.

#### Proliferation Prevention and Arms Control (PPAC)

Overall, PPAC has been performing exceptionally well in integrating all the capabilities throughout LLNL, and with external collaborations continues to make significant accomplishments in containing the nuclear proliferation threat. Important strategic planning has occurred during this period to enhance Russia's future stability, and control of nuclear materials and expertise. PPAC is well positioned to increase its activities in the existing programmatic areas, and to pursue new initiatives critical to continued proliferation prevention and arms control efforts.

### Conclusions & Recommendations:

The NAI Directorate is performing world-class, top-notch, outstanding work in support of national security. In the evaluation of these two very important mission-driven NAI divisions, NNSA recommends that they continue to expand involvement with the overall national and international security community facing the present challenges of fighting the terrorism threats.

### Observations:

Although outside of the Divisions rated in FY 2001, a significant accomplishment was noted in R Division: Thirty-seven cases of alleged illicit nuclear materials trafficking have been assessed, and 9 requests from various federal agencies for nuclear smuggling information have been answered in close coordination with the law enforcement, intelligence, and diplomatic community customers

## Performance Area: Science & Other DOE

### FY 2001 Overall Performance Summary:

The overall performance rating is outstanding, consistent with the outstanding ratings for each of the three performance criteria. The quality of science was judged to be world-class in a wide range of technology areas, encompassing human genome sequencing, developing advanced technologies for medical applications, studies of geophysical and geochemical processes in the earth, fusion energy theory and experimentation, and research in applied mathematics. The relevance of the biosciences research program to national needs has been emphasized by the recent media attention to LLNL's role in developing biological technology that can be applied to national security needs. LLNL's global change research program clearly addresses one of the nation's and world's current high priority subjects. The scientific computational research similarly contributes to global climate issues. The LLNL programs in nuclear structure, nuclear data, and proton-nuclear collisions provide relevant input to important DOE/NNSA programs in Stockpile Stewardship and Nuclear Security. The LLNL medical technology program has developed strategic long-range plans in the area of optical sensors, using multidisciplinary teams, including medical doctors, to achieve the successful development of a number of medical devices. The LLNL geosciences program built on its fundamental research in carbon dioxide sequestration topics, joining with Lawrence Berkeley and Oak Ridge National Laboratories in the Geo-SEQ project, an outstanding example of linking basic and applied research activities. The Virtual National Laboratory for Heavy Ion Fusion, carried out in conjunction with LBNL and PPPL, has demonstrated exceptional planning. The nuclear astrophysics and the relativistic heavy-ion physics groups have highly leveraged the unique resources at LLNL, particularly in computing, for the mutual benefit of Office of Science and National Security programs.

<b>Overall Performance Rating: Outstanding</b>
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<b>Criteria 1: Quality of science:</b>
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<b>Rating: Outstanding</b>	91.00%
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The quality of science is rated as outstanding and extends over a broad range of technologies. As part of the DOE Joint Genome Institute, LLNL contributed to the sequencing of human chromosomes 5, 16, and 19, an accomplishment that was published in Nature magazine in February 2001. The Medical Technology Program has done a notable job developing advanced technologies that are useful in medical applications, including the successful application of laser technology for detection and treatment of many human diseases. LLNL has been the intellectual force behind the development of new algorithms for data products needed by the Atmospheric Radiation Measurement Cloud Parameterization Working Group. The project on Kinetics of Phase Transformations in the Heat Affected Zone of Welds, which involves modeling of reactions in weld heat affected zones by means of real-time synchrotron experiments, was found by its peer review to be world-class, state-of-the-art research that is providing new insights into reactions and mechanisms during welding. The Geosciences program has continued its long-term record of outstanding research and productivity, with the geophysics subprogram focusing on developing experimental and analytical approaches to understanding the material response of geo-materials to elastic and electromagnetic waves, and the geochemistry subprogram focusing on fundamental measurements and modeling to understand geochemical processes in the earth. In the fusion energy sciences program, the theory group has continued to make noteworthy contributions to several leading edge fusion computational efforts, the

LLNL scientific work in the collaboration on DIII-D has been outstanding, and the Laboratory has continued to provide outstanding support during the testing of the ITER Central Solenoid Model Coil. The basic research in applied mathematics at the Center for Applied Scientific Computing (CASC) at LLNL continues its world leadership in areas of nonlinear solver software and the adaptive mesh Overture project, as attested by peer reviews. The Overture software was selected as one of the top 100 DOE-SC accomplishments of the past 25 years. CASC participation in proposals related to the new DOE-SC Scientific Discovery through Advanced Computing (SciDAC) was of extremely high quality and demonstrated leadership in important fields of research. The work on advanced automotive technologies has significantly advanced the state of development of emission sensors for automotive use.

<b>Criteria 2: Relevance to national needs and agency mission</b>	
<b>Rating: Outstanding</b>	93.00%

The relevance to national needs and agency mission is rated as outstanding. The core capabilities and knowledge being developed in the LLNL biosciences research program are key elements in the growing national laboratory and U.S. biotechnology infrastructure that is being used to address DOE mission needs in these areas, and are especially highly relevant for the DOE/NNSA Chemical and Biological National Security Program. The technical advances that the Medical Technology Program has made in the areas of medical lasers and optical biosensors continue to have a significant impact on the economic competitiveness of the health care sector, and also address technical needs of other Federal Agencies such as NIH and DARPA. LLNL's Global Change Research is directly relevant to one of DOE's priority research areas. The intense positron source being developed at LLNL will comprise the only major effort in positron research at a national laboratory in the United States since the demise of the High Flux Beam Reactor at Brookhaven, and will be used to perform the world's first positron holography experiment. The multifaceted fusion science and technology work at LLNL is clearly in support of national needs and is directed toward future energy requirements. The LLNL programs in nuclear structure, nuclear data, and proton-nuclear collisions provide relevant input to important DOE/NNSA programs in Stockpile Stewardship and Nuclear Security. The scientific computational work at CASC has broad impact across combustion research, magnetic fusion, global climate and many other fields, all focused on critical problems in computational science that are important to DOE missions. The advanced automotive emission sensors being developed by LLNL will enable next-generation engines to satisfy diagnostic requirements and emission standards, critical for meeting clean air standards.

<b>Criteria 3: Performance in the technical development and operation of major research facilities</b>	
<b>Rating: N/A</b>	0.00%

Not applicable.

<b>Criteria 4: Programmatic performance and planning</b>	
<b>Rating: Outstanding</b>	93.00%

Programmatic performance and planning are rated as outstanding. By virtue of strong management for its Life Sciences research, LLNL has made substantial contributions to the development of broad research goals and strategies for the DOE Genomes to Life program. LLNL has also attained a high

degree of synergy between the Life Sciences research programs and the needs of the DOE/NNSA Chemical and Biological National Security Program. The Medical Technology Program has done an outstanding job meeting the projected technical milestones within the proposed budget. The development of strategic long-range plans in the area of optical sensors has resulted in successful collaborations with a number of industrial partners. The use of multidisciplinary teams, including medical doctors, to address problems has resulted in the successful development of a number of medical devices. The Geosciences program made strong efforts in meeting changing program requirements during the initiation of the Climate Change Technology Initiative in the Office of Basic Energy Sciences, while preserving its fundamental experimental, analytical, and modeling capabilities. This program built on its fundamental research in carbon dioxide sequestration topics in order to participate with Lawrence Berkeley and Oak Ridge National Laboratories in the Geo-SEQ project through the Office of Fossil Energy. This is an outstanding example of linking basic and applied research activities. The fusion energy theory group has been responsive to changes in program direction and responsive to new program needs, and has also done a fine job working with national interdisciplinary teams. The Virtual National Laboratory (VNL) for Heavy Ion Fusion, carried out in conjunction with LBNL and PPPL, has functioned in a very positive way and has demonstrated exceptional planning. LLNL has responded very positively to changes in Office of Fusion Energy Science management of its Inertial Fusion Energy program and has integrated the technical and engineering parts of the LLNL program into the Virtual Laboratory for Technology. The nuclear astrophysics and the relativistic heavy-ion physics groups have highly leveraged the unique resources at LLNL, particularly in computing, for the mutual benefit of Office of Science and National Security programs.

**Conclusions & Recommendations:**

None.

## Science and Technology/Programmatic Performance

### Performance Area: Work for Others/DOD

#### FY 2001 Overall Performance Summary:

<b>Overall Performance Rating: Outstanding</b>
------------------------------------------------

<b>Criteria 1: Quality of science:</b>	
<b>Rating: Outstanding</b>	95.00%

Scientists have pushed the envelope and developed cutting edge technologies at LLNL. The majority of Department of Defense (DoD) work was performed within the Nonproliferation, Arms Control, and International Security Directorate and the Physics Advanced Technologies Directorate which contributed significant efforts to DoD projects.

LLNL has established an outstanding broad base of Work for Others (WFO) projects to support DoD mission areas. The DoD WFO projects continue to enhance LLNL's core capabilities in a variety of areas: advanced instrumentation, spectroscopy, counterproliferation, adaptive optics, microelectromechanical systems, military defense planning, data analysis, lasers, and space communications. During this reporting period, LLNL received the following DoD awards:

- The **Joint Conflict and Tactical Simulation (JCATS)** team was recognized from the DoD's Defense Modeling and Simulation Office in 2000 with a Modeling and Simulation Award.
- **Counterproliferation Analysis and Planning System (CAPS)** program is a unique planning tool for the armed forces and in April 2001, CAPS was recognized as the best in the country by CINCSTRATCOM Admiral R. Miles at a ceremony at LLNL.

<b>Criteria 2: Relevance to national needs and agency mission</b>	
<b>Rating: Outstanding</b>	94.00%

Several WFO DoD projects are summarized which demonstrate Outstanding mission relevance while enhancing LLNL's core capabilities:

- **JCATS** is an entity-level simulation that can model conflicts from campaign levels to individual fighting in a multi-story building as well as all different types of terrain, weapons and level of fatigue of soldiers. JCATS is now being used by 70 organizations.

- **CAPS** allows end users an analysis of weapons of mass destruction production capabilities and corresponding consequences. New software over the last year has been incorporated and it can now interact with NARAC on dispersion predictions. CAPS is visited by more than 500 military users on a regular basis. During this review period, CAPS achieved a major production goal which was analysis of 18 Weapons of Mass Destruction (WMD) programs around the world for more than 500 WMD sites. The next version, called CAPS II, is expected to be operational within this next year.
- **Joint Biological Remote Early Warning System (JBREWS)** is a network of sensors and communication links to provide early detection of a biological attack in time for U. S. troops to use protective measures. During this period LLNL delivered Release IV of data for this system.
- LLNL supported the Army in developing a high-average power diode pumped solid state heat capacity laser technology for defense missions and it will be used for the **High Energy Laser Strategic Test Facility (HELSTF)**. This laser system was successfully demonstrated this year.
- Under **DARPA**, Phase I of a multi-year project entitled, **Coherent Communications and Imaging Technology**, has brought researchers together from various universities as subcontractors for cutting edge technology development in imaging, targeting, communications, microelectromechanical systems, hardware development and modeling.
- The **Hyperspectral Infrared Imaging Spectrometer (HIRIS)** WFO project has demonstrated the ability to detect and identify industrial effluents from a high altitude.

**Criteria 3: Performance in the technical development and operation of major research facilities**  
**Rating: N/A**

**Criteria 4: Programmatic performance and planning**  
**Rating: Outstanding** 90.00%

Annually, LLNL receives over \$60 million in funding from DoD sponsors. The Laboratory has provided integrated computerized tools and technologies to meet DoD planning, analysis and military protection, and assessment. LLNL’s interface is conducted through the Director’s Office although the individual projects for DoD are managed in each program directorate.

Various project overviews were held at LLNL by DOE Oakland and Headquarters personnel on DoD projects throughout this reporting period. Periodic communications with DoD sponsors were also conducted on a variety of projects. No known deficiencies or DoD sponsor complaints were noted on these projects during periodic oversight activities by the DOE. The program planning efforts on various DoD WFO projects during this reporting period were outstanding.

**Conclusions & Recommendations:**

Overall Evaluation of LLNL's DOD WFO Projects is at the **Outstanding Level**.

## Science and Technology/Programmatic Performance

### Performance Area: Work for Others/Other Federal Agencies

#### FY 2001 Overall Performance Summary:

<b>Overall Performance Rating: Outstanding</b>
------------------------------------------------

<b>Criteria 1: Quality of science:</b>	
<b>Rating: Outstanding</b>	95.00%

LLNL's Energy and Environmental (E&E) and Physics Advanced Technologies (PAT) Directorates provided scientific and technical support to a wide diverse set of programs and projects. These two directorates were validated throughout this reporting period in their quality of science and technology as well as identifying and pursuing programs/projects that are relevant to the DOE mission and in their support of the Work for Others Program for Other federal agencies during this reporting period and are considered at the Outstanding Level.

The relevance of medical technology work to the national needs is obvious since disease is the most fundamental of threats to the well being of citizens of the United States. There are numerous spin-offs from core missions. For example, chemical sensors were first developed for sending chemical degradation products in nuclear weapons and have now been adopted for use in medical devices. LLNL is developing pathogen detection markers for chemical and biological warfare agents, a spin-back to the NAI core mission of LLNL.

Various National Institutes of Health WFO projects at LLNL have enhanced other core competencies. The Center for Accelerator Mass Spectrometry supports research in areas of material sciences, biological and geochemistry sciences.

LLNL has taken the lead in applying for a \$20 million 5-year grant to the National Science Foundation to create a Biophotonics Science and Technology Center. This center would continue to provide support to the Medical Technologies Program (MTP) at LLNL. The MTP has numerous small NIH grants and LLNL has also received a Comprehensive Cancer Center designation from the National Cancer Institute.

The Adaptive Optics Group in PAT support(s) the Lick Observatory which has the only sodium laser guide star currently in operation. Based on experience gained at Lick, a laser will be integrated into the Keck Observatory Adaptive Optics (AO) system. LLNL scientists will play a major role in the National Science Foundation Center for AO at the University of Santa Cruz and are leading the center's effort to organize advanced technology in AO projects including multiple laser beacon systems.

In astrophysics, other LLNL scientists have interacted with specialists in the area of computational plasma spectroscopy as well as spectral modeling activities. PAT researchers continue to receive research support from NASA.

<b>Criteria 2: Relevance to national needs and agency mission</b>
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<b>Rating: Outstanding</b> 95.00%
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To satisfy the mission requirement, the LLNL E&E Directorate is involved in innovative research and cutting edge advancements in a variety of disciplines:

1. Physics discipline which covers skills, knowledge and abilities in accelerator applications; astrophysics, geophysics, seismology, hydrology, geology, climate, oceanography, and atmospheric sciences.
2. Chemistry discipline which covers skills, knowledge and abilities in geochemistry, biochemistry, organic chemistry, agricultural and soil chemistry, atmospheric and environmental analysis, accelerator mass spectrometry for analysis or radionuclides.
3. Life Sciences discipline which covers skills, knowledge, and abilities in environmental sciences, plant science, toxicology, ecology, water resources, marine biology, and zoology.

PAT is involved in innovative research and cutting edge advancements to satisfy their mission requirement in physics, space, defense applications, laser technology, and medical technologies

Several areas of noteworthiness are:

- NASA projects under the WFO program continue to enhance a variety of competencies in advanced instrumentation and detector development, adaptive optics, theory and computational models for analysis of spectral data from satellite missions, observations and data analysis. Recently launched Chandra and x-ray satellites have created a demand for accurate models of the atomic processes that produce complex spectra measured in current observations. NASA has provided funding to LLNL to modify unique LLNL spectral modeling capabilities for applications to astrophysical modeling and to make these computational tools available to the NASA community.
- Applications of Optics such as diffractive gratings for light weight space telescopes for work for others sponsors.
- MicroPower Impulse Radar technology which uses ultra-wideband transmitter/receivers combined with signal and imaging processing software. The HERMES project was developed for the Federal Highway Administration for non-destructive evaluation of cracks, voids, corrosion under highway bridges and pavements.

<b>Criteria 3: Performance in the technical development and operation of major research facilities</b>
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<b>Rating: N/A</b>
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<b>Criteria 4: Programmatic performance and planning</b>
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<b>Rating: Excellent</b>	89.00%
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During this assessment period, the old Earth and Environmental Sciences Directorate merged with the Energy Directorate at LLNL. Those responsible for the merger have done an outstanding job. The potential exists for LLNL E&E to become a national model in research and applied programs that cover energy generation, global climate and carbon cycle, and environmental sciences..

On July 1, 2000, LLNL's laboratory director established the Physics and Advanced Technologies (PAT) Directorate which created a merger of various organizations with personnel with varied disciplines and programmatic responsibilities with a wide group of sponsors and capabilities. On May 22, 2001, an Associate Director was selected for PAT. DOE recognizes that there has been a period of time which PAT did not have a Director and that made it difficult to develop a business strategy that would cover all the programmatic areas transferred. In parallel, excellent Laboratory management actions taken over this last year are indicative of PAT performing at a superb level in moving the programs/projects forward.

However, the development of a long-range vision for PAT and a business strategy with long term funding for core competencies are still needed in creating a functional directorate. During 2001, PAT entered a year of mergers, assimilation, integration of various disciplines, and a new director.

With new leadership established within the Directorate, DOE OAK looks forward to watching the development of this directorate with contains such a variety of disciplines over this next year and applauds the efforts made thus far. Therefore, we have rated this overall area at the Excellent Level.

### **Conclusions & Recommendations:**

The Overall Evaluation is rated at the Outstanding Level. NNSA recommends PAT develop a long range vision and a business strategy in order to enhance and maintain its core competencies within the Directorate.

## Science and Technology/Programmatic Performance

### Performance Area: Work for Others/Tech Transfer Non-Federal Agencies

#### FY 2001 Overall Performance Summary:

<b>Overall Performance Rating: Outstanding</b>
------------------------------------------------

<b>Criteria 1: Quality of science:</b>	
<b>Rating: Outstanding</b>	92.00%

The objective to achieve partnerships is to meet the needs of DOE, NNSA, the Laboratory, and its partners, while complying with the laws governing technology transfer and the policies of DOE. LLNL accomplishes its partnerships with industry primarily through licenses, CRADAs, industrial work-for-others (WFOs), and procurements for research and development.

LLNL received three awards in the annual competition for the **R&D 100 Awards** in FY 2001. These awards recognize technological breakthroughs that forecast significant improvements to people's lives through commercially available products and processes. Entries from government laboratories must be available for order or license to the private sector. FY 2001 technology winners are:

1. LaserShot Peen Marking System. This system will use laser pulses to safely and permanently impress identification markings on metal components. This process is ideally suited for marking parts used in situations where safety is critical – from hip-joint replacements to commercial airliner components. The peen marking system is but one application of LLNL's LaserShot laser peening system. A CRADA with Metal Improvement Company, Inc. is ongoing to develop a range of commercial applications for the technology.
2. Gene Recovery Microdissection (GRM) – a process for producing Chromosome Region-Specific Libraries of Expressed Genes. GRM is a process to accelerate the pace, reduce the cost, and extend the capabilities of such libraries. A notice of availability for licensing was posted in the Department of Commerce's *Commerce Business Daily* during 2001. Several expressions of interest to license have been received and are currently under evaluation at LLNL.
3. Manufacturing Laser Glass by Continuous Melting. A novel continuous melting process used to manufacture meter-sized plates of laser glass at a rate 20-times faster, 5-times cheaper and with 2-3 times better optical quality than with previous one-at-time, "discontinuous" technology processes. It is now possible to construct high-energy, high-peak-power lasers for use in fusion energy development, national defense, and basic physics research. This process is the result of years of collaboration between LLNL and multiple glass vendors. Two of the vendors are currently producing laser glass for the NIF project using this process.

Kurt Petersen, President and co-founder of Cepheid, Inc., LLNL licensee, was elected to the **National Academy of Engineering**, for his “contributions to the research and commercialization of micro-electromechanical systems (MEMS).” Election to the Academy is among the highest professional distinctions accorded an engineer.

In 2001, LLNL won a **Federal Laboratory Consortium Award for Excellence in Technology Transfer**, recognizing “outstanding work transferring federally developed technology from the lab to the marketplace.” LLNL won the award for its collaboration with MiniMed, Inc. of Northridge, California, for work on a continuous glucose sensor for diabetes patients. The collaboration between LLNL and MiniMed began with a DOE small business CRADA in 1995. Subsequent CRADAs resulted in a license to use LLNL technology in 2000. LLNL’s contribution is part of a larger effort to develop sensors for other defense, environmental, and biomedical applications, and efforts at the DOE to apply the benefits of scientific breakthroughs achieved in advancing national security to the field of medicine.

<b>Criteria 2: Relevance to national needs and agency mission</b>	
<b>Rating: Outstanding</b>	92.00%

LLNL’s Industrial partnering and commercialization efforts continue to contribute to the DOE mission and its strategic goals while maintaining LLNL’s skills in a variety of areas such as environmental remediation, laser processing, biotechnology and medical technology programs. Relevance to national needs and agency missions is excellent. LLNL’s partnerships have produced noteworthy advancements in technology transfer to industry. The high quality of the science that forms the basis of these partnerships is demonstrated in many ways. However, the success of our industrial partners in actually bringing products to the commercial marketplace is more significant and are highlighted below:

**Significant Sales Volume** - Several LLNL licensees (NOMOS, Milltronics, and Sentrol) feature products incorporating LLNL technologies on their web sites. Some LLNL licensees have achieved significant sales volumes, indicating that LLNL-developed technologies are in fact being made widely available to the public by means of commercialization. One licensee has already sold more than \$20 million worth of products based on LLNL technology. Two recent licensees have now raised \$95M and \$39M in investment funds respectively. The fact that much of this investment occurred during the recent economic downturn speaks to investors’ view of the quality of these technologies. Details concerning sales figures and other company information are proprietary to the companies and cannot be included in this report.

**Dynamic Underground Stripping/Hydrous Pyrolysis** – This environmental remediation technology has won multiple awards over several years. For FY 2001, Southern California Edison completed clean-up operations at a contaminated site in Visalia, California, and DOE’s Savannah River Site completed a test in which twenty times more solvents were removed from an area than were thought to be present.

The **Handheld Advanced Nucleic Acid Analyzer (HANAA)** is a portable sensor developed to address the emerging need for rapid detection and identification in the field of pathogens. A CRADA has been developed with ETG, a subsidiary of Smiths Group who has been an established supplier of detection instrumentation to defense and security agencies.

In October 2000, during this assessment period, NOMOS Corp. was chosen as the licensee for LLNL's **PEREGRINE** medical radiation dose calculation system. NOMOS received FDA clearance to produce and market the systems and several units have now been installed at medical treatment clinics. The PEREGRINE project was originally funded by LLNL's LDRD Program.

**Micropower Impulse Radar (MIR)** – Two of the licensees utilizing MIR technology have generated significant commercial sales for products such as a security device and devices to measure the levels of both fluids and solids (such as the level of grain in a silo).

**Extreme Ultraviolet Lithography (EUVL)** – In April 2001, members of industry, government and the news media gathered at Sandia National Laboratories/Livermore to mark completion of the first full-scale prototype lithography machine for making computer chips using EUV light.

**Criteria 3: Performance in the technical development and operation of major research facilities**  
**Rating: N/A**

**Criteria 4: Programmatic performance and planning**  
**Rating: Outstanding** 95.00%

DOE OAK has followed LLNL's progress since 1997 while LLNL made improvements in their industrial partnering business processes, responsiveness to customers, improvements to their CRADA database and financial reports, responsiveness to HQ and Congressional inquiries, and finally in their closeout of projects and final reports to OSTI. LLNL has made notable improvements in their Partnerworks database.

The evaluation on industrial partnerships, planning and performance has been raised from excellent to an **Outstanding level**.

**Conclusions & Recommendations:**

LLNL's Industrial Partnering and Commercialization Office (IPAC) has performed in an outstanding manner in responding to numerous DOE OAK and HQ concerns in an exemplary and professional fashion throughout FY 2001.

The IPAC Operations Staff should be commended for their diligence, commitment, and dedication in partnering with DOE Oakland on the numerous reporting requirements needed to respond to Department of Commerce, GAO, and HQ. The overall evaluation is Outstanding.

## Science and Technology/Programmatic Performance

### Performance Area: Laboratory Directed Research and Development

#### FY 2001 Overall Performance Summary:

<b>Overall Performance Rating: Outstanding</b>
------------------------------------------------

<b>Criteria 1: Quality of science:</b>	
<b>Rating: Outstanding</b>	96.00%

The quality of the technical work (science, technology development, and engineering) in FY 2001 was outstanding. Scientific collaborations with academia and other national laboratories were notable as was the support and participation of many post-doctorals in the Laboratory Directed Research and Development (LDRD) program.

LLNL continues to invest in science and technology to further develop and enhance skills and capabilities to meet DOE's needs for the future. The LDRD program at LLNL has realized scientific and technological breakthroughs. A partial listing of successful projects is reported under Criteria 2.

The maturity of the program in terms of technical work and the quality of research was outstanding as illustrated by project connections to the mission and the resulting awards, publications, and intellectual property from previous LDRD projects.

The number of FY 2001 LDRD-related patents filed for LLNL as of September 20, 2001, is 48.3% of the Laboratory's total (42 out of 87).

<b>Criteria 2: Relevance to national needs and agency mission</b>	
<b>Rating: Outstanding</b>	97.00%

There is a very clear connection between the LDRD Program and LLNL's national security mission. Several examples of technologies and capabilities which directly support the mission that otherwise would not have been funded include short pulse laser research, x-ray optics, and the study of opacities and materials microstructure. About 95 percent of LLNL's LDRD funds support national security activities.

The LDRD Program also supports the development of a strategic vision for future programs at LLNL; ensures the technical vitality of the laboratory in R&D; is used as a tool to attract and maintain scientists and engineers; allows LLNL to respond to emerging national needs; and promotes scientific collaborations with academia, and other government laboratories. Several core competencies are being enhanced at LLNL in the following areas: advanced sensors and instrumentation; materials

synthesis and characterization; computing, modeling, and simulation; lasers, optics and beams; nuclear and atomic science and technology; space science technology; biotechnology and health science; energy and environmental technologies. Many LDRD-funded projects realized scientific successes while enhancing core competency areas and are highlighted below:

- **Technology Development for ASCI VIEWS** is an LDRD-funded computer visualization project that has now transferred the terascale browser technology to the ASCI Views for development and implementation. This is the same technology where LLNL scientists won the Gordon Bell Prize in FY 2000. A key element is an innovative wavelet compression technique reducing storage requirements by a factor of 2 and speeds up compression/ decompression by a factor of 10 over current computer storage technology. This technology supports high parallel computing.
- **Weapons Recognition of Excellence Award in 2001** received for First Principles Simulation of Shocked Deuterium which was an LDRD-funded project. LLNL scientists performed first principles quantum calculations of shock propagation in liquid deuterium by utilizing ASCI platforms simulating laser-based shock compression experiments. This type of research enhances core competencies for stockpile stewardship, inertial fusion, and the understanding of planets containing hydrogen.
- **Bright Light Award** in FY 2001 specifically in the development of an implantable device to monitor glucose levels in diabetic patients. The work effort began in FY 1996 as an LDRD Project. Diabetes affects 16 million people in the U. S. and more than 125 million worldwide. This technology enhanced LLNL’s core competencies in Biotechnology and Healthcare and development of advanced sensors.

Additional Directorate Review committees’ comments are highlighted to further qualify the Outstanding level on mission relevance for these LDRD projects based on external peer reviews:

“There is a remarkable overlap of the CMS program elements presented and the important national needs associated with LLNL’s missions. CMS continues to deserve the highest marks for this.” (CMS DRC)

“The impact of LDRD funds was very effectively dramatized by the research presented in a poster session”.

INCCA is an LDRD integrated climate and carbon strategic initiative. “INCCA is a very important, complex, and ambitious undertaking”. “LLNL is one of the few places where such undertaking could even be considered...” “The projects presented were all supported by LDRD and highlight the importance of these funds for developing future directions...”(Energy and Environmental DRC)

Selection and assessment of these projects from distinguished external peer review committees continues to validate that the LDRD projects selected by the Laboratory and approved by DOE Livermore Site Office remains at an outstanding level in science quality and mission relevance as well as pushing the envelope for innovations and cutting edge research and development.

**Criteria 3: Performance in the technical development and operation of major research facilities**  
**Rating: N/A**

**Criteria 4: Programmatic performance and planning****Rating: Outstanding**

95.00%

The LDRD Program at LLNL is a mature, well-managed, and highly structured program. The LDRD proposal solicitation and review processes are robust and clearly communicate the Laboratory's strategic vision and research and development needs. More details on the program planning are summarized below:

Livermore maintained its normal "call for proposals" for FY 2002, performed extensive peer/committee reviews, updated the LDRD FY 2002 documentation, and ensured that the program continued to maintain its strategic relevance to the DOE mission and the quality of proposals received for review was the best in class. LLNL issued its FY 2000 annual report on LDRD, FY 2001 project mid-year reviews were conducted by committee or directorate level personnel with DOE OAK attending all Lab-wide project reviews in FY 2001, and LLNL managers supported DOE in all requests for information and justification when requested. The LLNL LDRD Program maintained its certification on its accumulation of funding for FY 2001 and continues to demonstrate a commitment by the Director's staff and managers in supporting this program while maintaining a mature and a proficient management system for reporting and in responding to DOE OAK and HQ and Congressional inquiries. The annual LLNL LDRD Program Review was conducted successfully in August 2001 and DOE OAK forwarded a letter of recommendation to DP-1 to fund the LDRD program at the six percent (maximum) level allowed by the DOE Order.

Project datasheets on proposed LDRD projects for each fiscal year are reviewed and approved by DOE Oakland (DPOD representatives on site at LLNL annually). Only the best in class are forwarded to DOE for review based on the top ranking of peer/committee reviews.

The self-assessment from LLNL is also based on an external reviews by prestigious committees selected by the Laboratory Director and associate directors called the Directorate Review Committees (DRC). Each directorate establishes a committee of distinguished members from academia and the private sector/industry and each committee visits the Laboratory at least once during the year. The DRC's review all scientific and technical activities of the directorates over a three-year cycle. This year DOE OAK feels an additional validation of LDRD projects was provided by these distinguish committees and reinforces our decisions on the approval of these projects and LLNL's decision to fund these projects as LDRD.

**Conclusions & Recommendations:**

The Overall evaluation of the LLNL LDRD Program is at the Outstanding Level.

**Performance Area: Environmental Restoration and Waste Management**

<b>Performance Objective</b>	<b>#1</b>	<b>Environmental Restoration and Waste Management</b>
<p>The Laboratory will conduct Environmental Management (EM) waste operations in a safe manner that protects human health, the environment and the public and prevents adverse impacts thereon; the Laboratory will develop innovative solutions to advance the Environmental Management Program; and the Laboratory's Environmental Restoration Program will continually strive to improve efficiency and maximize remediation.</p> <p style="text-align: right;"><b>(Weight = 100%)</b></p>		

<b>Criteria:</b>	<b>1.1</b>	<b>Waste Management</b>
<p>The Laboratory's facilities and operations for handling waste will be managed to protect human health and the environment, to maintain compliance with applicable laws and standards and to maximize the efficient use of EM funds. The Laboratory will operate its waste facilities to continually strive to improve efficiency and reduce the waste inventory.</p> <p style="text-align: right;"><b>(Weight = 25%)</b></p>		

<b>Performance Measures:</b>	<b>1.1.a</b>	<b>Waste Management Productivity</b>
<p>The Laboratory will collect data on the volume of waste received and volume of waste shipped offsite plus made "road ready" per fiscal year. The volume of waste received will be compared to the volume of waste shipped to measure program productivity.</p> <p style="text-align: right;"><b>(Weight = 10%)</b></p>		

**Assumptions:**

1. The performance period is for a single fiscal year.
2. Volume of waste received is determined by the date of the approved waste requisitions for the performance year. Volume of waste shipped is determined by actual volumes disposed and waste made "road ready" during the performance year.
3. Waste excluded from this measure are (1) transuranic (TRU) waste, until a transportation corridor to the Waste Isolation Pilot Plant (WIPP) is available and funding is available to develop and implement a waste certification program acceptable to WIPP; (2) mixed waste with FFCAct Site Treatment Plan coverage; and (3) Legacy Waste. Legacy Waste is defined as that waste generated outside the Waste Certification Program and has an HWM Start Date prior to 10/1/98.

4. Waste volumes shall be limited to those funded and tracked by EM-30.
5. “Road Ready” waste volumes are wastes that have an intended disposal site, are certified to that site’s waste acceptance criteria (WAC), and its waste profiles are accepted by that disposal site, but have yet to be shipped due to circumstances beyond the site’s control. The waste profile acceptance requirement may be revisited on a case-by-case basis and is not applicable for TRU waste.
6. Waste identified as “road ready” will be considered disposed. Disposal credit for shipped “road ready” waste volumes is not allowed in subsequent performance period(s).
7. Treated liquids discharged to sewer will be classified as low-level waste (LLW), mixed waste (MW), and hazardous waste (HW) for tracking purposes, as appropriate.
8. Conversion factor of the specific density of water (1.0) will be used to convert the weight of aqueous waste to volumetric measurements.
9. LLW with non-RCRA constituents may be allocated to LLW or MW categories.
10. Toxic Substances Control Act (TSCA), non-hazardous and medical waste volumes will be included with HW inventory.
11. Success Criteria and Waste Type Matrix Elements will be renegotiated to account for any significant programmatic, regulatory, and/or fiscal changes.
12. HWM will have adequate funding and resources to dispose of all waste received.

**Gradients:**

The score for this performance measure will be based on the following matrix:

Success Criteria

Table 1

Non-Rad Waste	Radioactive Waste				
	Unsatisfactory	Marginal	Good	Excellent	Outstanding
Unsatisfactory	Unsatisfactory	Unsatisfactory	Marginal	Marginal	Good
Marginal	Unsatisfactory	Marginal	Marginal	Good	Good
Good	Marginal	Marginal	Good	Good	Excellent
Excellent	Marginal	Good	Good	Excellent	Outstanding
Outstanding	Good	Good	Excellent	Outstanding	Outstanding

The horizontal gradients are associated with waste with a radioactive component. The vertical gradients are associated with waste without a radioactive component. These gradients are derived from the following scale:

Table 2

	Radioactive Waste	Non-Radioactive Waste
Unsatisfactory	TP less than or equal to 0.65	TP less than or equal to 0.8
Marginal	0.65 greater than TP less than or equal to 0.75	0.8 greater than TP less than or equal to 0.85
Good	0.75 greater than TP less than or equal to 0.85	0.85 greater than TP less than or equal to 0.9
Excellent	0.85 greater than TP less than or equal to 0.95	0.9 greater than TP less than or equal to 0.95
Outstanding	TP greater than 0.95	0.95 greater than TP less than or equal to 1.0

Where TP is the Throughput Performance and is calculated by the formula:

$$TP = \frac{\text{Volume of Waste Shipped}}{\text{Volume of Waste Received}}$$

As an example, the throughput performance for radioactive waste and non-radioactive waste was 87% and 96%, respectively. Table 2 would yield gradients for radioactive waste and non-radioactive waste as Excellent and Outstanding, respectively. Using Table 1, the intersection of a radioactive waste Excellent rating on the horizontal axis and a non-radioactive waste Outstanding rating on the vertical axis would result in a final score of Outstanding for this performance measure.

**Performance Narrative:**

The productivity performance measure was revised for this performance period to assess the throughput performance for radioactive wastes and non-radioactive wastes. The new measure rates the laboratory’s performance by the volume of waste safely disposed measured against the volume of waste generated by the laboratory. Due to a shipping moratorium directed by the DOE, LLNL Hazardous Waste Management (HWM) was unable to physically ship their planned shipments in September. However, all work associated with preparing for the shipment was accomplished, thereby making those planned shipments “road ready”.

Based on the success criteria, LLNL’s performance yielded a throughput performance for radioactive waste of outstanding and non-radioactive waste of outstanding, respectively. Based on the gradients, LLNL achieved an outstanding for this measure.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>98.00%</b>
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**Performance Measures: 1.1.b Waste Management Treatment and Disposal**

The Laboratory will reduce low-level and mixed waste inventories through treatment and disposal activities. Treatment and disposal volumes will be tracked and compared to the EM Management Commitments.

**(Weight = 10%)**

**Assumptions:**

1. The performance period is for a single fiscal year. However, treatment/disposal volumes not claimed in the last performance period may be used in the current performance period not to exceed 25% of the performance year EM Commitment.
2. EM Management Commitments obtained from site-specific information  
LLNL: treatment 127 m<sup>3</sup> MW, 75m<sup>3</sup> LLW; disposal 127 m<sup>3</sup> MW, 500 m<sup>3</sup> LLW
3. Waste volumes shall be limited to those funded and tracked by EM-30.
4. Treated liquids discharged to sewer will be classified as low-level waste (LLW) and mixed waste (MW) for tracking purposes, as appropriate.
5. Total aqueous waste inventory received is treated and then disposed.
6. Conversion factor of the specific density of water (1.0) will be used to convert the weight of aqueous waste to volumetric measurements.
7. LLW with non-RCRA constituents may be allocated to LLW or MW categories.
8. Success Criteria and Waste Type Matrix Elements will be renegotiated to account for any significant programmatic, regulatory, and/or fiscal changes.

**Gradients:**

The score for this performance measure will be based on the following table:

Success Criteria	
Rating	Range
Unsatisfactory	less than 65%
Marginal	65-77%
Good	78-89%
Excellent	90-95 %
Outstanding	greater than 95%

The Success Criteria Gradient is calculated using the following formula:

$$\text{Score} = \frac{1}{4} \left[ \frac{\text{Amount LLW Treated}}{\text{LLW EM Treatment Commitment}} + \frac{\text{Amount MW Treated}}{\text{MW EM Treatment Commitment}} + \frac{\text{Amount LLW Disposed}}{\text{LLW EM Disposal Commitment}} + \frac{\text{Amount MW Disposed}}{\text{MW EM Disposal Commitment}} \right] \times 100\%$$

**Basis:**

Each element of the formula is less than or equal to 1.2. That is, the highest individual treatment/disposal versus treatment/disposal commitment ratio that can be attained is 1.2.

The rating of Outstanding or Excellent can be received only if each element of the formula is greater than or equal to 78%.

**Performance Narrative:**

LLNL has made beneficial use of the new Nevada Test Site (NTS) disposal pricing policy by disposing of more than its forecast of approximately 17,000 ft<sup>3</sup>. The pricing policy allows for no cost disposal above the forecasted amount up to 100%, i.e., double the forecasted amount. Although funding appeared tight at the beginning of the fiscal year, LLNL was able to meet its forecast earlier than expected and was able to capitalize upon the “above forecast” free disposal. LLNL also provided waste certification assistance to the Laboratory for Energy-Related Health Research (LEHR) site for disposal at NTS under the LLNL waste certification program allowing LEHR to take advantage of the extra allocation.

LLNL used its onsite tank farms in the Area 514 facilities to treat its aqueous low-level radioactive waste for discharge to sewer. During the fiscal year, the tank farm treated 667 m<sup>3</sup> of aqueous waste, although some of the waste required multiple passes.

LLNL was on target to meet the Environmental Management commitments for treatment and disposal of 127 m<sup>3</sup> of mixed waste. These involve use of the Area 514 tank farms for aqueous mixed waste and offsite commercial facilities such as GTS Duratek in Tennessee and Envirocare in Utah. During the course of the year, Livermore Environmental Program Division (LEPD) refocused attention to the use of mobile characterization units to characterize and certify LLNL’s inventory of TRU waste to Waste Isolation Pilot Plant (WIPP). Because of limited resources, DOE and LLNL renegotiated the metrics to 77 m<sup>3</sup> treatment and 87 m<sup>3</sup> disposed. These numbers were derived from ongoing expected shipments and anticipated waste receipts from onsite waste generators. LLNL was able to treat 75 m<sup>3</sup> and dispose of 85 m<sup>3</sup> of mixed waste.

Applying the gradients and using the assumptions and the formula in the measure, LLNL’s performance was 0.25 x [1.2 + 1.2 + 0.97 + 0.98] = 1.08; which merited an Outstanding for this measure. Although LLNL just missed the revised mixed waste metrics, LLNL performed exceedingly well in disposing of low level waste in a manner which provided for lesser unit costs.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>98.00%</b>
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**Performance Measures: 1.1.c Legacy Waste Management**

The Laboratory will reduce the legacy waste low-level and mixed waste inventories through treatment and disposal activities.

**(Weight = 5%)**

**Assumptions:**

1. The performance period is for a single fiscal year.
2. Legacy waste is waste generated outside the Waste Certification Program and has a HWM start date prior to October 1, 1998. For the purpose of this measure, legacy waste will also include Mixed Waste with STP coverage.
3. Waste volumes shall be limited to those funded and tracked by EM-30.
4. Treated liquids discharged to sewer will be classified as low-level waste (LLW) and mixed waste (MW) for tracking purposes, as appropriate.
5. Conversion factor of the specific density of water (1.0) will be used to convert the weight of aqueous waste to volumetric measurements.
6. LLW with non-RCRA constituents may be allocated to LLW or MW categories.

Success Criteria and Waste Type Matrix Elements will be renegotiated to account for any significant programmatic, regulatory, and/or fiscal changes.

**Gradients:**

The score for this performance measure will be based on the number of points achieved during the performance year:

Success Criteria

Rating	Range
Unsatisfactory	0
Marginal	1 - 10
Good	11 - 24
Excellent	25 - 39
Outstanding	greater than 40

The points system is based on the efforts required to disposition the inventory of legacy waste. Emphasis will be placed on complexity of waste types and volumes disposed.

Each MLLW Profile Completed	4 points
Each LLW Profile Completed	2 points
Every Cubic Meter of MLLW Disposed	1 point
Every Ten Cubic Meter of LLW Disposed	1 point

**Performance Narrative:**

The measure incentivized LLNL to begin disposition of its legacy waste inventory. The measure recognized the greater difficulties for profiling and disposal of mixed wastes, which must take into account individual state Resource Conservation and Recovery Act requirements, as well as any transportation needs. Further, use of commercial facilities required a review by DOE and host state notification.

Although resources were redirected to the TRU waste project, LLNL was able to profile and dispose of both low level wastes and mixed wastes. One new profile was established at NTS and two profiles were approved by a commercial facility, Envirocare of Utah. In addition, mixed scintillation vials were sent to GTS Duratek in Tennessee and stabilized waste were sent to Envirocare where previous profiles were approved.

Based on the points system in the gradient, LLNL received 8 points for MW profiles; 2 points for LLW profile; 24 points for MW shipment; and 1.6 points for LLW shipment. The sum total is 35.6 points which equates to an Excellent rating.

<b>Performance Rating (Adjectival): Excellent</b>	<b>85.00%</b>
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<b>Criteria:</b>	<b>1.2</b>	<b>EM Program Innovation</b>
<p>The Laboratory will develop innovative solutions to advance the Environmental Management Program. The EM Program includes Environmental Restoration, Waste Management, and Technology Development.</p>		
		<b>(Weight = 25%)</b>

<b>Performance Measures:</b>	<b>1.2.a</b>	<b>Advancement of the EM Program</b>
<p>The Laboratory will advance the state of the art technologies by implementing their usage; participate in the corporate advancement of the EM Program by providing solutions or assistance to other DOE/OAK sites; and identify and implement innovative technological solutions or business practices that result in savings.</p>		
		<b>(Weight = 25%)</b>

**Assumptions:**

The performance period will be a single DOE fiscal year. It is recognized that actions may result in cost savings that extend for more than one year. Credit for cost savings (Category 3) may be taken in each year in which cost savings are realized, up to a total of five years. These savings will be prorated for the outyears at a rate of 0.8 (second year), 0.6 (third year), 0.4 (fourth year) and 0.2 (fifth year). Additionally, only operational savings can be carried over into the outyears, capital savings will be taken only in the actual year saved.

In general, accomplishments are expected using existing resources. In some cases, additional funding may be required to undertake specific innovative solutions. With the agreement of both parties, DOE-HQ (EM) may provide additional funds and/or allow the Laboratory to use cost savings realized to meet this performance measure.

**Gradients:**

The degree of innovation achieved will be measured by a point system. Points will be awarded in each of several performance categories, with a total score from all categories being the final score for the performance measure. Projects which receive credit in one performance indicator category may also receive credit for any costs savings realized (Category 3), but may not receive credits in all three categories. The performance indicators and associated award points will be as follows:

Category 1

Advance the state of the art technologies by implementing the usage of Laboratory technologies at DOE or other Government sites, or utilize other EM technologies at the Laboratory.

- 1a- Use of any innovative environmental technology, including one developed by LLNL, at LLNL      1 point each technology
- 1b- Use of LLNL EM developed technology at any DOE site      2 points each technology
- 1c- Use of LLNL EM developed technology at other government sites      1 point each technology
- 1d- Non DOE funded use of LLNL EM developed technology at industrial sites      1 point each new project

Category 2

The Laboratory participates in the corporate advancement of the EM program by providing solutions or assistance on projects at other DOE sites. Projects should result in at least one of the following:

- 2a- Cost savings
  - 2b- Efficiency improvement (i.e., quicker, better quality, etc.)
  - 2c- Liability or risk reduction
  - 2d- Use of laboratory resources and/or facilities to aid others
- (1 point will be awarded for each project that meets one or more of the criteria listed.)

Category 3

Provide cost savings by identifying and/or implementing innovative technological solutions or business practices. Innovative technological solutions or business practices are defined as those that represent a significant change from current solutions or existing practices (technological or regulatory). They can not imply be refinements of existing technological or business practices, nor be cost savings due to a simple reduction in scope of work or deliverables.

LLNL will be awarded 1 point for every \$250,000 saved

LLNL will be awarded 1 point for incorporation of innovative technologies into a Program Baseline System (PBS) with adjusted baseline

<b>Rating</b>	<b>Range</b>
Unsatisfactory	less than 3
Marginal	3-5
Good	6 - 11
Excellent	12 - 17
Outstanding	greater than or equal to 18

**Performance Narrative:**

LLNL earns most of their points from Category 1, implementing the usage of Laboratory technologies at DOE or other Government sites, or utilize other EM technologies at the Laboratory; and Category 3, the cost savings resulting from the use of innovative technologies in the Environmental Restoration and Waste Management programs. The total points of 27.5 are above the requirement of 18 points for outstanding.

Category 1 major technology deployments:

- 1- Use of Savannah River Site’s Purge Water Management System
- 2- Ex-situ Catalytic Reductive Dehalogenation (CRD) deployment at LLNL Livermore Site
- 3- Redesign of LLNL CRD Unit with Stanford for deployment at Edward’s Air Force Base
- 4- Use of Easy-Pumps developed at LLNL throughout Livermore Site at a cost savings over \$61K in FY 2001.
- 5- Dynamic Underground Stripping (DUS) technology developed at LLNL and deployed at Savannah River National Laboratory.
- 6- Improved State Water Resources Control Board’s Leaking Underground Field Tank data base through “GeoTracker”.
- 7- Optical detection systems for Volatile Organic Compounds developed at LLNL and deployed at Edwards Airforce Base
- 8- LLNL developed Automatic Sampling/Analysis technology transferred to Army, Fort Ord.
- 9- Developed and deployed bioreactor at Site 300 for removal of perchlorates from ground water

Category 3 major cost saving accomplishments:

- 1- Implementation of “hydrostratigraphic analysis” and 3D modeling to minimize number of wells needed to be installed (savings over \$800K).
- 2- Waste Management operations re-engineering (savings = \$1.5M to date).
- 3- Renegotiated milestones to eliminate costly facility in Treatment Facility D project area. (savings=\$505K).
- 4- Renegotiated Federal Facility Agreement milestone to eliminate an offsite treatment facility in the General Services Administration Operable Unit at Site 300 (savings=\$270)

The finding of the self assessment conducted by LLNL is concurred by DOE OAK Technical Program Officer. DOE OAK Environmental Restoration and Waste Management Project Managers concur with the points earned by the various cost savings in their programs.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>98.00%</b>
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**Criteria: 1.3 Environmental Restoration**

LLNL will target a percentage increase in the total contaminant mass removed from ground water per total environmental restoration budget as compared to the previous years (baseline).

**(Weight = 25%)**

**Performance Measures: 1.3.a Environmental Restoration**

The Performance Indicator is the ratio of the total contaminant mass removed divided by total DOE-HQ (ER) dollars to the baseline total contaminant mass removed divided by baseline total DOE-HQ (ER) dollars.

**(Weight = 25%)**

**Assumptions:**

1. The baseline is the average of performance ratios for all years prior to the current fiscal year starting in FY 1996. The performance ratio is calculated for each fiscal year by dividing the total contaminant mass removed from ground water at the Livermore Site and Site 300 in that year by the total LLNL DOE-HQ (ER) budget for that same year.
2. At the end of each Fiscal year, the baseline can be renegotiated.
3. Total DOE-HQ (ER) budget is the total DOE-HQ (EM-40) funding to the Environmental Restoration Program.
4. Contaminants will include VOCs (volatile organic compounds) and non-VOCs (e.g., tritium, uranium, hexavalent chrome) where the non-VOC component is converted to VOC equivalents by dividing the concentration or activity by the drinking water maximum contaminant level and multiplying that unitless result by 5 ppb (parts per billion), the nominal MCL (maximum contaminate level) for VOCs.
5. Standard *Force Majeure* items (including but not limited to acts of God, nonreceipt of the President's Target Level Funding, funding rescissions, scope redirection by DOE, discovery of new, high risk site conditions that warrant immediate action and change to the CYWP (Current Year Work Plans), programmatic impediments) will apply and will require special considerations up to and including re-baselining.
6. Performance measuring will begin in FY 1997.

**Gradient:**

<b>Rating:</b>	<b>Range:</b>
Unsatisfactory	The ratio of total contaminant mass removed divided by total DOE-HQ(ER) dollars to the baseline total contaminant mass removed divided by baseline total DOE-HQ(ER) dollars is less than 0.95
Marginal	The ratio of total contaminant mass removed divided by total DOE-HQ (ER) dollars to the baseline total contaminant mass removed divided by baseline total DOE-HQ (ER) dollars is greater than or equal to 0.95 and is less than 1.05.
Good	The ratio of total contaminant mass removed divided by total DOE-HQ (ER) dollars to the baseline total contaminant mass removed divided by baseline total DOE-HQ (ER) dollars is greater than or equal to 1.05 and less than 1.15.
Excellent	The ratio of total contaminant mass removed divided by total ER dollars to the baseline total contaminant mass removed divided by baseline total DOE-HQ (ER) dollars is greater than or equal to 1.15 and less than 1.25.
Outstanding	The ratio of total contaminant mass removed divided by total DOE-HQ (ER) dollars to the baseline total contaminant mass removed divided by baseline total DOE-HQ (ER) dollars is greater than or equal to 1.25.

**Performance Narrative:**

Lawrence Livermore National Laboratory (LLNL) has increased the total contaminant mass removed from ground water per total environmental restoration budget through continued support of its remedial actions, innovative technologies, and optimization activities. The degree of mass removal is determined from the ratio of total contaminant mass removed per total environmental restoration funds for the performance fiscal year to the baseline performance ratio. The baseline performance ratio is the average of performance ratios (mass removed per annual budget) for all fiscal years, starting with Fiscal Year (FY) 1996, and is determined from the following formula:

$$Baseline = \frac{\left(\frac{Mass\ Removed}{Budget}\right)_{FY96} + \left(\frac{Mass\ Removed}{Budget}\right)_{FY97} + \left(\frac{Mass\ Removed}{Budget}\right)_{FY98} + \left(\frac{Mass\ Removed}{Budget}\right)_{FY99} + \left(\frac{Mass\ Removed}{Budget}\right)_{FY00}}{5}$$

The performance indicator is defined as

$$PerformanceIndicator = \frac{\left(\frac{Mass\ Removed}{Budget}\right)_{FY01}}{Baseline}$$

The application of the formulas above using mass removal amounts per annual budget on a fiscal year basis from the tables below results in an performance indicator score of 1.31, which correlates to an adjectival rating of “**Outstanding.**” This performance indicator score is slightly lower (1/100), attributed to arithmetical round-off factors, than that reported by LLNL in its self-assessment; however, this score difference does not affect the result for the performance measure.

Baseline Performance Ratio Data

Fiscal Year	Mass Removed (kg VOCs)	Annual Budget (\$M)	Performance Ratio (mass/budget)
1996	42.43	25.5	1.66
1997	101.61	23.1	4.40
1998	119.30	21.3	5.60
1999	155.00	22.0	7.05
2000	181.26	22.2	8.15

FY 2001 Performance Data

Quarter	Mass Removed (kg VOCs)
Oct-Dec 00	40.88
Jan-Mar 01	40.18
Apr-Jun 01	42.74
Jul-Sep 01	32.32

It should also be noted that the mass of contaminants removed in FY 2001 using ground water extraction and treatment systems was 156.12 kilograms (kg). This contaminant mass removal amount is lower than that reported in FY 2000, but higher than those reported in the previous fiscal years (96-99). The reduction in mass removal between fiscal years 2000 and 2001 was hampered by technical difficulties associated with contaminant mass removal in the source areas at the Livermore Site using new, innovative technologies, such as electro-osmosis. Nonetheless, performance remains at an outstanding level and was the direct result of LLNL conducting the following activities:

- Systematic remediation practices to aggressively address contaminated source areas, yielding greater ground water contaminant mass removal;
- Optimization of wellfields to maximize mass removal; and
- Use of mobile, cost-effective treatment units to expeditiously target areas with high ground water contaminant concentrations.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>95.00%</b>
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<b>Criteria:</b>	<b>1.4</b>	<b>Cost and Schedule Variances</b>
<p>The Laboratory's Environmental Management Program will be managed to improve project/program performance. The Laboratory measures its performance of projects/programs against schedule and cost baselines.</p>		
<b>(Weight = 25%)</b>		

<b>Performance Measures:</b>	<b>1.4.a</b>	<b>EM Projects</b>
<p>This measure will track the Laboratory's performance in executing EM-funded Environmental projects in accordance with an approved project cost baseline and the Laboratory's performance in executing Environmental projects in accordance with an approved overall schedule.</p>		
<b>(Weight = 15%)</b>		

**Assumptions:**

1. Cumulative percent cost variance (%CV) and cumulative percent schedule variance (%SV) will be obtained from the September Project Tracking System (PTS). The Cumulative CV and SV values will be for the fiscal year being evaluated.
2. Baseline change proposals are reviewed and, if determined to be acceptable, approved by DOE/OAK within 30 days of receipt.
3. If the Management Analysis and Reporting System (MARS) Report contains an accounting error, CV and SV values provided by LLNL and verified by the respective DOE project manager may be used.
4. Includes the following DOE-EM funded activities by Project Baseline Summary (PBS): 001 (Main Site Remediation), 002 (Site 300 Remedial Action), 026 (General Plant Projects), 027 (Decontamination and Waste Treatment).

**Gradients:**

<b>Gradient Rating</b>	<b>Range</b>
Unsatisfactory	(CV+SV) less than or equal to -8%
Marginal	greater than -8% (CV + SV) less than or equal to -5%
Good	greater than -5% (CV+SV) or less or equal to 0%
Excellent	(CV+SV) greater than 0% and less than or equal to 5%
Outstanding	(CV+SV) greater 5 %

**I. (A) Cost.** The cost component of this measure will track LLNL’s performance in executing projects in accordance with an approved project cost baseline.

$$\% \text{ CV} = \frac{(\text{Annual BCWP} - \text{Annual ACWP}) \times 100}{\text{Annual BCWP}}$$

Given:

- CV = Cost Variance
- BCWP = Budgeted Cost of Work Performed
- ACWP = Actual Cost of Work Performed

**(B) Schedule.** The schedule component of this measure will track LLNL’s performance in executing projects in accordance with an approved overall schedule.

$$\% \text{ SV} = \frac{(\text{Annual BCWP} - \text{Annual BCWS}) \times 100}{\text{Annual BCWS}}$$

Given:

- SV = Schedule Variance
- BCWS = Budgeted Cost of Work Scheduled
- BCWP = *Budgeted Cost of Work Performed*

**Performance Narrative:**

The cost and schedule variance rating for LLNL’s EM funded activities is Good for FY 2001. This score was developed by using the combined BCWP, ACWP and BCWS for PBS 001 (Livermore Site Remediation); PBS 002 (Site 300 Remedial Action) PBS 026 (General Plant Projects) and PBS 027 (Decontamination and Waste Treatment). See table below:

BCWP	ACWP	BCWS	% Cost Variance = $\frac{(BCWP - ACWP) \times 100}{\text{Annual BCWP}}$	% Schedule Variance = $\frac{(BCWP - BCWS) \times 100}{\text{Annual BCWS}}$	% CV+% SV
\$25,107	\$24,212	\$26,372	3.56%	-4.80%	<b>-1.23%</b>

NOTE: PBS OK041 was not used in this assessment because it is an OAK project.

<b>Performance Rating (Adjectival): Good</b>	<b>79.00%</b>
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**Performance Measures: 1.4.b EM Level of Effort Programs**

The cost measure will track LLNL’s performance in executing level of effort (LOE) activities in accordance with an approved cost baseline.

**(Weight = 10%)**

**Assumptions:**

1. Cumulative percent cost variance (%CV) will be obtained from the September Project Tracking System (PTS). The Cumulative CV value will be for the fiscal year being evaluated.
2. If the Management Analysis and Reporting System (MARS) Report contains an accounting error, the CV value provided by LLNL and verified by the respective DOE program manager may be used.
3. Baseline change proposals are reviewed and, if determined to be acceptable, approved by DOE/OAK within 30 days of receipt.
4. Includes the following DOE-EM funded activities by Project Baseline Summary (PBS): 021 (Base Program)

**Gradient:**

Gradient Rating	Range
Unsatisfactory	CV greater than 10% or CV less than 0%
Marginal	CV greater than 8% and less than or equal to 10%
Good	CV greater than 5% and less than or equal to 8%
Excellent	CV greater than 2% and less than or equal to 5%
Outstanding	CV greater than or equal to 0 and less than or equal to 2 %

The cost measure will track LLNL’s performance in executing LOE activities in accordance with an approved cost baseline.

$$\% \text{ CV} = \frac{(\text{Annual BCWP} - \text{Annual ACWP}) \times 100}{\text{Annual BCWP}}$$

Given:

- CV = Cost Variance
- BCWP = Budgeted Cost of Work Performed
- ACWP = Actual Cost of Work Performed

**Performance Narrative:**

LLNL HWM has managed their program in a fiscally responsible manner. LLNL successfully worked with DOE to fund the TRU waste project. This involved coordinating scope priority for the year and using documented change controls to reestablish the baseline. LLNL also worked with DOE OAK to transfer funds for disposal at NTS through the use of DOE interoffice work orders. Similarly, LLNL transferred funds to DOE OAK for subcontractor work using a DOE contract mechanism, thereby reducing overhead and maximizing use of available funding. For the fiscal year, the calculation of cost variance is  $(\$21956K - \$21201K) / \$21956K = 3.4\%$

Based on the gradient calculations, LLNL merited an excellent rating. Due to LLNL's willingness to work with OAK subcontract where feasible, DOE was able "stretch" the operating dollar.

<b>Performance Rating (Adjectival): Excellent</b>	89.00%
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**Performance Area: Environment, Safety And Health**

**Preamble**

The Laboratory's goal is to accomplish its mission cost-effectively while striving for an injury-free workplace, minimizing waste streams and avoiding adverse impacts to the environment from its operations.

The following Performance Objective, Criteria and Measures are linked to the Guiding Principles and Key Functions of Integrated Safety Management. They include process oriented measures that are intended to assess key elements of the Laboratory's integrated safety management system. They also include total system outcome measures which are intended to be key indicators of the performance of the Laboratory's integrated safety management system as a whole.

Performance Period: Unless otherwise specified in the measures, the performance period is October 1, 2000 through September 2001.

The annual report will report on data as of June 30. Data for the July-September quarter will be addressed on an exception basis only. Performance for that quarter will be reported only if it is available and significantly contributes to a change in the score in either a positive or negative manner. The July – September data will be submitted in accordance with the Performance Based Management Steering Committee Guidance.

**Performance Objective #1 Do work safely**

The Laboratory systematically integrates ES&H into management and work practice at all levels so that missions are accomplished while protecting the worker, the public and the environment.  
**(Weight = 100%)**

<b>Criteria:</b>	<b>1.1</b>	<b>Integrated Safety Management System</b>
<p>Define the scope of work. (ISMS Core Function 1, Principles 1, 2, and 4, LLNL's guiding principle)</p> <ul style="list-style-type: none"> <li>• Line Management is responsible for safety.</li> <li>• Clear roles and responsibilities are established and maintained.</li> <li>• Resource allocations are balanced, making ES&amp;H a priority in project planning and execution.</li> <li>• Workers, supervisors, and managers are directly responsible for ensuring their own safety and promoting a safe, healthful, and environmentally sound workplace and community.</li> </ul> <p>Identify and analyze the hazards associated with the work. (ISMS Core Function 2, Principle 5)</p> <ul style="list-style-type: none"> <li>• Safety standards and requirements are identified.</li> </ul> <p>Develop and implement hazard controls. (ISMS Core Function 3, Principle 6)</p> <ul style="list-style-type: none"> <li>• Hazard controls are tailored to the work being performed.</li> </ul> <p>Perform the work within the controls. (ISMS Core Function 4, Principles 3 and 7)</p> <ul style="list-style-type: none"> <li>• Personnel possess competence commensurate with responsibilities.</li> <li>• Operations are authorized before work begins.</li> </ul> <p>Provide feedback and continuous improvements (ISMS Core Function 5)</p>		
		<b>(Weight = 40%)</b>

<b>Performance Measures:</b>	<b>1.1.a</b>	<b>Process Performance Measure</b>
<p>LLNL's Integrated Safety Management System (ISMS) is implemented institutionally, and continues to be maintained and effective.</p>		
		<b>(Weight = 40%)</b>

**Assumptions:**

- The goal of this process performance measure is to measure how well ISMS is implemented and maintained, and whether it is effective; to provide one institutional-level report; to provide a balanced view of ISMS implementation, including information on all the functions and principles; to support and strengthen LLNL's Self-Assessment Program; and to measure timeliness of corrective actions.
- LLNL passed the ISMS Verification by September 30, 2000.
- Milestones of the corrective actions from the institutional gap analysis are accomplished as scheduled (unless a new due date is accepted by DOE prior to the original due date.)

- LLNL's self-assessment program described in ES&H Manual, Volume 2, Part 5, *Directorate ES&H Self-Assessment Program*, (Supplement 2.04) requires each directorate to evaluate how well the ISMS functions and principles are being implemented. The results from the Directorate's ISMS evaluation are included in their Self-Assessment reports starting in May, 2001. FY01 is the first year to pilot this approach.
- The directorate's evaluation of ISMS must:
  - Follow a consistent evaluation scheme which enables an institutional roll-up.
  - Include conclusions of the directorate's implementation for the ISMS Core Functions and Guiding Principles in each of the five areas as grouped under the criteria.
  - Include descriptions and lists of activities supporting the conclusions.
- By November 30, 2000, LLNL will issue a work activity and/or operation evaluation criteria and scoring scheme to be used by the Directorates.
- The Directorates will provide to the ARO the annual self-assessment reports containing the results of their ISMS evaluations. By June 30, 2001, the ARO will complete their evaluation of the directorates self-assessment reports to validate that they meet the requirements of the ES&H Manual Supplement 2.04, and that the documentation supporting the Directorates' ISMS evaluation exists. The ARO will prepare one institutional self-assessment report for LLNL. The evaluation will include results from directorate Self-Assessment Reports, ARO's independent reviews conducted during the performance period, results from external reviews, and results from the ARO's verification that directorate Self-Assessments met the requirements of the ES&H Manual Supplement 2.04.
- The ARO institutional self-assessment report for LLNL includes the rollup of the Directorates' ISMS evaluations, a formulation of institutional issues, analysis of root causes, and identification of potential areas for improvement. The institutional report will include conclusions of LLNL's evaluation of its institutional implementation of ISMS Core Functions and Guiding Principles in each of the five areas as grouped under the criteria.
- External reviews are defined for this performance measure as regulatory inspections, DOE HQ external reviews, DOE ISMS Verifications, DOE/OAK "for cause" reviews and annual ES&H assessments, and DNFSB reviews transmitted to LLNL
- Internal reviews are defined for this performance measure as reviews conducted by LLNL (for example, Directorate self-assessments, ARO independent reviews, etc.)
- Issues and Major Issues are deficiencies identified by DOE/OAK that are systematic in nature. Corrective actions for issues are formally requested from LLNL by the OAK Site Office Division Directors and for major issues by the OAK Assistant Manager.
- Major findings (Action Level 1 findings) are findings identified by DOE/OAK that represent a clear hazard or an ES&H program deficiency. Major findings must be discussed with LLNL Directorate and Facility Management level, and the corrective actions of major findings are formally requested.
- Closure rates included in the gradients of this measure are for corrective action plan milestones (that fall within the performance period) of deficiencies resulting from external reviews and of DOE's issues, major issues, and major findings. The corrective actions are considered closed when LLNL submits formal notification to OAK, unless the OAK validation process finds that the corrective action was not completed. These items are tracked

under the LLNL DefTrack system and other appropriate LLNL corrective actions tracking systems.

- On a quarterly basis, LLNL and DOE will meet to verify that the corrective action plans include all of the DOE identified deficiencies and issues.

**Gradients:**

Unsatisfactory	Major gaps still exist in implementing the Guiding Principles and Core Functions of ISM.
	Closure rate of deficiencies resulting from external reviews and of DOE’s issues, major issues, and major findings is less than 60%.
Marginal	Some effort is demonstrated, however results fall short of the expectation for the “good” gradient.
	Closure rate of deficiencies resulting from external reviews and of DOE’s issues, major issues, and major findings is less than 75%.
Good	The Directorates demonstrate that they have implemented and maintained the ISM Guiding Principles and Core Functions into their research and operations.
	Closure rate of deficiencies resulting from external reviews and of DOE’s issues, major issues, and major findings is less than 85%.
	Achievement of the “Good” gradient is based upon the results of the DOE operational awareness activities and other independent evaluations of the implementation of ISMS, and a review and validation of the performance data submitted by LLNL
Excellent	All of the criteria for “Good” are met
	Processes are in place to correct institutional issues/weaknesses (issues identified by external, DOE operational awareness activities, and internal reviews; and the corrective actions produce the intended or expected results.
	Closure rate of deficiencies resulting from external reviews and of DOE’s issues, major issues, and major findings is less than 95%.
	Achievement of the “Excellent” gradient is based upon the results of the DOE operational awareness activities and other independent evaluations of the implementation of ISMS, and a review and validation of the performance data submitted by LLNL.
Outstanding	All of the criteria for “Excellent” are met
	The Laboratory uses lessons learned, results of internal and external reviews, peer reviews, and benchmarking with best management practices within the DOE Laboratories or private industry to improve the ES&H system and processes to achieve sustainable safety performance.
	Closure rate of deficiencies resulting from external reviews and of DOE’s issues, major issues, and major findings is 95% or more.
	Achievement of the “Outstanding” gradient is based upon the results of the DOE operational awareness activities and other independent evaluations of the implementation of ISMS, and a review and validation of the performance data submitted by LLNL

### Performance Narrative:

In September 2000, a verification team appointed by the NNSA OAK Manager, validated that LLNL had implemented its Integrated Safety Management System (ISMS) institutionally. However, the verification team identified several issues that LLNL must correct to ensure implementation of ISMS. Beginning in FY 2001, NNSA OAK consolidated all of the process measures into one ISMS measure. The goal of the ISMS measure was to assess how well LLNL maintained ISMS implementation institutionally, and whether or not the system was effective. The ISMS measure consolidated all of the issues identified by the verification team to ensure completion of ISMS implementation at LLNL. The passing gradients of this measure were based on three major items: 1) Whether LLNL self-assessment activities demonstrated and documented that ISMS is implemented and maintained down to the activity level; 2) Whether closure rates of high priority deficiencies are completed at a certain level; and 3) Results of OAK operational awareness activities and other independent DOE reviews of ISMS implementation at LLNL.

Since FY 2001 was the first year ISMS had been implemented institutionally at LLNL, NNSA OAK felt that it was important to create a path forward toward maintaining the success and effectiveness of the ISMS implementation. As reflected in the assumptions of this performance measure, NNSA OAK and LLNL agreed that the following criteria were critical for the FY 2001 ISMS performance measure:

- Ability to timely correct deficiencies identified by the verification teams.
- Ability to timely correct institutional gaps identified by LLNL during verification activities.
- Ability to develop a consistent approach for the Directorates on their self-evaluation of the ISMS implementation which enabled institutional rollup.
- Sufficient documentation provided to justify self-assessment results.

The LLNL Self-Assessment Report rated this performance measure as excellent, justified by the conclusion that ISMS has been implemented by all Directorates, that LLNL has a robust self-assessment program, and that the deficiencies closure rates was 91 percent. OAK validation and evaluation of LLNL ISMS implementation status, however, could not justify the self-assessment rating of excellent. NNSA OAK assigned a **Good** rating to this performance measure. OAK's evaluation are summarized below:

#### Item #1: NNSA OAK Validation of LLNL Self-Assessment Result that ISMS Implementation is Maintained

Per the requirement of the assumptions, LLNL developed an extensive set of ISMS self-assessment criteria to be used by the Directorates in their self-evaluation of ISMS. These criteria were developed with questions specific to the LLNL ISMS Description. NNSA OAK found that two key items from the LLNL ISMS Description not included in the Directorate review criteria:

- 6.3.1.1(1) Organization authorizing the work activity has defined the work elements to be performed
- 6.7.1.1(1) The individual supervising the work is responsible for monitoring the work activity to ensure that procedures and safety documents are followed

LLNL also issued a scoring scheme, approved by the LLNL ES&H Working Group, to be used by the Directorates along with the review criteria. The scoring scheme utilized the “stoplight” colors of green, yellow, or red to report the result of the Directorates’ review for each sub-criterion. Three Directorates rated themselves Outstanding; five rated Excellent; two rated Good; and one rated Good to Marginal. The Self-Assessment Report provided a summary Figure (Figure 1.1.a-1) summarizing the results of the Directorates’ ISMS evaluation. NNSA OAK reviewed the Directorate Self-Assessment Reports (required per the LLNL ES&H Manual, Volume 2, Part 5), for the justification of the color scheme assigned by the Directorates. Our review found that two Directorates (BBR and Chemistry) did not include the results of their ISMS criteria evaluation in their reports. Other Directorates either provided no justification for the color scheme assigned to the criteria, or provided very little information to justify the results. Overall, OAK found no justification for the Directorate’s self-assessment overall score.

The Assurance Review Office (ARO), as required under the assumptions of this performance measure, prepared an Institutional Self-Assessment Report. This report rolled up the results identified in the Directorate’s Self-Assessment Reports, as well as results of internal and external reviews. As in previous years, the ARO had done an excellent job in the roll-up report by providing LLNL management and NNSA OAK institutional rolled-up strengths and weaknesses as well as recommendations on the path forward. The ARO report identified three institutional ES&H issues; all three issues were identified in previous year ARO roll-up report:

- There is continued need for some Laboratory organizations to address enforcement of accountability and the understanding of ES&H roles and responsibilities.
- Management systems are not effectively used to ensure identification of problems, the tracking of corrective actions, and their timely completion.
- Current management systems do not ensure an adequate level of adherence to authorization basis requirements by the LLNL nuclear facilities.

OAK noted a Note Worthy Practice in the ARO Report for the use of ISMS “mapping” process. Almost 150 deficiencies/Findings from DOE external reviews, occurrence reports, PAAA Reports, Directorate’s roll-up concerns, etc., were grouped into 8 categories using a template developed by the US DOE Office of Oversight Environment, and Health (EH). These categories aligned directly with the ISMS Core Functions and Guiding Principles. The mapping results indicated weaknesses in the area of competency (13%), standards identification and analyzing of hazards (26%), work within controls (31%), and feedback and improvements (17%). NNSA OAK recommends the Directorates apply this mapping process to the facility and activity levels by grouping the deficiencies resulting from the Directorates’ self-assessment program.

The ARO Report also identified an overall improvement in line management and employee involvement in their operations. NNSA OAK encourages LLNL to continue maintaining performance in the area of strengths, and formulate the corrective actions for the area of weaknesses identified in the ARO roll-up report.

NNSA OAK’s validation of Item #1 concluded that the Directorates demonstrated that they have implemented and maintained ISMS.

Item #2: OAK Validation of Deficiencies Closure Rate

NNSA OAK and ARO held several meetings to discuss which corrective actions would be tracked under the gradients of this measure. As the result of these meetings, the ARO prepared a comprehensive list of corrective action milestones, grouped by external review, and provided regular update to report on the status of these milestones. The LLNL Self-Assessment Report (dated September 20, 2001, updated October 19, 2001) reported a completion rate 91 percent for the corrective action of deficiencies. During the August-September timeframe, NNSA OAK began to conduct validation/verification of completed corrective actions based upon the July 23, 2001 ARO status report. Following are OAK's conclusions of the validation of the corrective action milestones:

- Several corrective actions milestones were completed, however, they were not timely. Some corrective actions were overdue.
- 18% of the corrective actions milestones (10 of 55) from the ISMS verifications still have the correction date of "To Be Determined (TBD)". The lack of an NNSA point of contact was given as the reason for the Laboratory not being able to propose a completion date. However, NNSA OAK felt that with the exception of the actions involving non-nuclear safety issues, LLNL should pursue correcting the deficiencies due to the criticality of the issues.
- OAK's validation effort during the August-September, 2001 timeframe found that the documentation for completed milestones either did not exist or was insufficient. This finding aligned with the institutional deficiency identified in the ARO Report above.
- During the validation of corrective actions, OAK staff interviewed several Assurance Managers and found that many of them viewed that the institutional corrective actions for deficiencies resulting from ISMS verifications and/or institutional gap analysis when not assigned to their Directorates meant that the corrective actions did not pertain to their operations, and thus no action was taken. Many of the institutional corrective actions would result in modification of policies, and OAK felt that the Directorate should maintain awareness of the changes so that they could make changes to the Directorates' policies as appropriate.
- The Excellent gradient required "processes are in place to correct institutional issues/weaknesses (issues identified by external and internal reviews, and DOE operational awareness activities) and the corrective actions produce the intended or expected results." OAK judges that this requirement was not met by LLNL because LLNL has not demonstrated that the institutional corrective actions produce the intended results. It appeared that LLNL is heading in the right direction. The LLNL Self-Assessment Report listed several working groups which involved both LLNL management and employees formed to identify institutional issues, however, as pointed out by NNSA in previous year's evaluation, there was not a consolidated process in place to track the completion and effectiveness of all corrective actions for institutional issues. This observation aligned with the institutional weakness identified in the ARO Report for two consecutive years.

NNSA OAK's validation of Item #2 concluded that as of the revised date of the LLNL Self-Assessment Report (October 19, 2001), LLNL has all of the paper documentation in place to justify the 91 percent reported completion rate. However, the requirement to demonstrate that the corrective actions achieved the intended results under the excellent gradient was not met.

Item #3: Results of OAK Operational Awareness Activities and DOE External Reviews

NNSA OAK operational awareness (OA) activities in ES&H areas were conducted by OAK management (Managers, Deputy Managers, Division Directors, Operations Team Leads), and ES&H professionals (Facility Representatives, Functional Area Managers). OAK OA activities consist of facility walkthroughs, observations of work, documents review, working meeting with LLNL counterparts. The results of OAK OA activities were reported in the Functional Information for Safety, Health and Environment (FISHE) database. During the July-August 2001 timeframe, OAK also formed a field team of ES&H professional to conduct spot check of ISMS implementation at the facility/activity levels. The field team selected operations in five Directorates for their review. Following are the results of OAK OA activities during the performance period:

- The ISMS field team, as the results of reviewing five directorates, concluded that ISMS is implemented down to the supervisor and employee levels.
- Evaluation of the OAK FISHE database entries identified that the most often cited deficiencies occurred in Core Function 2 (Hazard Controls Tailored to the Work Being Performed).
- The field team identified two institutional level weaknesses under the Core Function 5 (Feedback and Improvement): 1) The Feedback and Improvement function appeared to be too narrowly focused on Directorate-specific issues, while institutional corrective actions are not reviewed and followed-up by line management; and 2) The ISMS Self-Assessment Criteria developed for use by the Directorates did not include some key items under the LLNL ISMS Description (see discussion under Item #1 above.)

Based on the results of NNSA OAK’s evaluation above, NNSA OAK concluded that overall, LLNL demonstrated that all of the requirements under the good gradients were met. A **Good** rating is assigned to this measure

<b>Performance Rating (Adjectival): Good</b>	75.00%
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Issue:		Points Earned:
Any individual exceeds the 10 CFR 835 dose limits through normal operations (i.e., not an accidental dose)		-25
All individual doses are below 10 CFR 835 dose limits.		20
Any radiation worker whose Cumulative Total Effective Dose Equivalent (in rem) exceeds their age (in years) is in an aggressive dose management program.		10
Operations conducted during the performance period do not cause a worker's Cumulative Total Effective Dose Equivalent (in rem) to exceed their age.		10
Individual ALARA goals are established for any worker likely to exceed:	5 rem/y	-10
	2 rem/y	-5
	1 rem/y	10
	0.5 rem/y	15
	0.1 rem/y	20
The number of individuals exceeding their ALARA goal without the prior review and concurrence of line management does not exceed:	5	10
	3	15
	0	20
The number of individuals exceeding an LLNL dose of 10 rem in 5 years does not exceed:	5	10
	3	15
	0	20
Collective dose (in person-rem) is less than:	21.6	10
	18	15
	15	20

**Performance Narrative:**

LLNL continued to maintain occupational exposures to the workers at a very low level. The site control level of 15 REMs was established in 1994. LLNL had been able to maintain the total person-rem below that number while still completing programmatic activities. LLNL had established ALARA goals for those workers who require them and no worker exceeded their goal without prior review and approval by management. The Cumulative Total Effective Dose Equivalent for any individual did not exceed their age and no worker had received more than 10 REM in the past five years.

<b>Results</b>	<b>Points Earned</b>
All individual doses were below 10 CFR 835 dose limits.	20
No radiation worker whose Cumulative Total Effective Dose Equivalent (in rem) exceeds their age (in years) was in an aggressive dose management program.	10
Operations conducted during the performance period did not cause any worker's Cumulative Total Effective Dose Equivalent (in rem) to exceed his/her age.	10
Individual ALARA goals were established for any worker likely to exceed 0.1 rem/y	20
None of the individuals exceeding their ALARA goal without the prior review and concurrence of line management	20
None of the individuals exceeding an LLNL dose of 10 rem in 5 years	20
Collective dose (in person-rem) was 12.671	20
<b>Total Points Earned</b>	<b>120</b>

For the total points earned of 120, the performance for this measure is graded as **Outstanding**.

<b>Performance Rating (Adjectival): Outstanding</b>	95.00%
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**Performance Measures: 1.2.b Radiation Protection of the Public**

Radiation doses to the maximally exposed individual (member of the Public) and radiological emissions to the environment, from all Laboratory activities, will be managed to assure that applicable radiation dose limits are not exceeded and that radiological emissions are as low as reasonably achievable.

**(Weight = 5%)**

**Assumptions:**

- Radiation doses and radiological emissions reported will be those reported in the most recent Laboratory radionuclide-NESHAPs Report and environmental report, with discussion of impacts to these radiation doses and radiological emissions based on ongoing monitoring results.
- The Laboratory will establish the primary pathway(s), radionuclide(s), and source(s) of interest, for both the Livermore site and Site 300, to be included in the discussion of impacts to the radiation dose and radiological emissions. The primary pathway(s), radionuclide(s), and source(s) of interest established will be based on the information reported in the most recent radionuclide-NESHAPs report and environmental Report.
- Any actual or anticipated significant change in workloads that would affect radiation doses or radiological emissions (interpreted to be an increase or decrease of 0.1 mrem/y or more) during the period for which the dose is calculated will be brought to the attention of UC and DOE and appropriate adjustments in the performance measure will be made.

**Gradients:**

Unsatisfactory	Radiation doses to the maximally exposed individual (member of the public) for the Livermore Site and Site 300 are treated individually and one or both of the doses is greater than 100 mrem/y (greater than 10 mrem/y for the air pathway).
Marginal	Radiation doses to the maximally exposed individual (member of the public) for the Livermore Site and Site 300 are treated individually and one or both of the doses is greater than 10 mrem/y and less than or equal to 100 mrem/y (less than 10 mrem/y for the air pathway).
Good	Radiation doses to the maximally exposed individual (member of the public) for the Livermore site and Site 300 are treated individually and one or both of the doses is greater than 1.0 mrem/y and less than or equal to 10 mrem/y (10 mrem/y for the air pathway).
Excellent	Radiation doses to the maximally exposed individual (member of the public) for the Livermore site and Site 300 are treated individually and one or both of the doses is greater than 0.2 mrem/y and less than or equal to 1.0 mrem/y ( <u>less than 1.0 mrem/y for the air pathway</u> ).

Outstanding      Radiation doses to the maximally exposed individual (member of the public) for the Livermore site and Site 300 are treated individually and both of the doses are less than or equal to 0.2 mrem/y (less than 0.2 mrem/y for the air pathway).

**Performance Narrative:**

LLNL continued to manage radiological emissions to a small fraction of regulatory limits. The calculated dose to the Maximally Exposed Individual (MEI) in 2000 using EPA-approved computer models was 0.038 mrem at the Livermore site and 0.019 mrem at Site 300, well under the Site Control Limit of 1 mrem and the performance measure gradient criteria of 0.2 mrem for an outstanding rating. Atmospheric emissions were reduced from 1999, principally due to a decrease in HTO emissions from the Tritium Facility. There were no unplanned radiological emissions in 2000.

Based on the above results, the performance of this measure is graded as **Outstanding**

<b>Performance Rating (Adjectival): Outstanding</b>	95.00%
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**Performance Measures: 1.2.c Exposure to Chemical, Physical and Biological Agents**

The Laboratory evaluates operations and prevents employee exposures to "industrial hygiene-type" hazards. The Laboratory continuously improves an electronic database for workplace descriptions and exposure data including, but not limited to, data management requirements of 10 CFR 850 (Chronic Beryllium Disease Prevention Program).

**(Weight = 8%)**

**Assumptions:**

- "Action level" is defined as one-half of 8-hour TWA, STEL and Ceiling for the OSHA PEL, ACGIH TLV®, unless a different action level is specified by OSHA.
- Data for this measure is reported as the number of occurrences or exceedances versus the number of measurements reported.
- Some variability is expected which may not be indicative of a trend. Changes in operational levels or volumes shall be considered fully.
- Applicable exposures above the OSHA PELs resulting from an accident will be evaluated by the local DOE office and the Laboratory and may be addressed separately.
- An exposure evaluation shall be defined as a set of results consisting of "one or more measurements associated with an operation which give a value that can be compared with a standard."
- Exposure measurements will be corrected by the protection factor of the personal protective equipment in use.
- An exceedance is one or more high results (measurements above the current tiered approach of action level, TLV, and then PEL) associated with an operation. When no standard has been developed for a stressor, another published occupational health standard will be agreed upon and utilized.
- Types of hazards for which the measurements would be considered are: indoor air quality, noise, radio frequency, chemicals, gases, particulates and fibers. Note: swipes and drinking water samples are not included in the number of exposure measurements.
- An operation is an activity comprised of one or more tasks performed at a single location that generate a hazard(s). "Hazard" includes all stressors associated with an operation; i.e., noise, lead, etc. Note: Once monitoring results for an operation are received, all subsequent work done and the monitoring for it will be considered a separate operation. Any significant process changes constitute a new operation.
- Substance-specific sampling as required by 29 CFR 1910 will be conducted.
- During the annual DOE evaluation of the Self-Assessment, LLNL will provide documentation that all exposures above the Action Level were followed up by an industrial hygienist and that corrective measures were implemented when appropriate.
- Active development means: project team of ES&H professionals and software developers is following a plan of action and milestones has been developed and goals are being met. The "database" is the database that meets the requirements of 10 CFR 850, and is limited to information on current workers.

**Gradients:**

Points for the exposure/measurement ratio and database are determined in the table below. The final performance measure grade is determined based on the sum of the points earned as shown below:

- Unsatisfactory Total score 2 points or less.
- Marginal Total score of 3-4 points or if there is no progress (no data collected, no development, no field testing, no implementation) in the IH database.
- Good Total score of 5-6 points
- Excellent Total score of 7-8 points
- Outstanding Total score of 9-10 points.

Points Earned	IH exposure data	Status of database is:
0	Ratio of exposures to measurements above the OSHA PEL exceeds 0.15; or no follow-up to any over exposure	data is collected but not being organized
2	Ratio of exposures to measurements above the OSHA PEL exceeds 0.1	in development
3	Ratio of exposures to measurements above the OSHA PEL is 0.1 or less	being field tested (“beta test”)
4	Ratio of exposures to measurements above the ACGIH TLV® is 0.05 or less	Implemented and in use by the IH staff
5	Ratio of exposures to measurements above the action level is 0.05 or less	Database implemented and links health outcomes to industrial hygiene measurements

**Performance Narrative:**

The gradients of this performance measure are based on two outcomes: 1) the chemical, physical agent and biological agent ratio of exposures to measurements; and 2) the development and implementation status of a database that meet the requirements of 10 CFR 850.

Ratio of exposures to measurements:

During the performance period, LLNL took 119 personal sampling measurements covering the chemical, physical agents and biological agents. Of those, 4 unprotected beryllium exposures above the beryllium action level were found resulting in a ratio of exposures to measurements of 0.03. OAK reviewed the LLNL data and confirmed the LLNL Self-Assessment score of 5 for this task.

IH Database Development

The LLNL Self-Assessment assigned 4 points to this task, and justified this score by the implementation and reporting capability of the database (STAR2). However, as a result of the field validation, OAK found that even though LLNL has made significant stride in making the database accessible, the IH Ad Hoc reporting tool is a basic tool for extracting data from Star 2. It contains no readily usable standard reports, column headings on report are cryptic and confusing, and the current report format requires sophisticated Excel knowledge and manipulation of data to prepare useful reports. Standard reports are still being developed. There is no significant documentation for the tool. It can be used to analyze data but given that the tool was recently issued and some of the IH are not fully versed in its use, OAK considers it a Beta-test. Based on this finding, OAK did not validate the self-assessment score of 4 points for this task, but assigned 3 points to the task.

The total performance points of this measure is 8 points. A performance rating of **Excellent** is assigned to this measure.

<b>Performance Rating (Adjectival): Excellent</b>	85.00%
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**Performance Measures: 1.2.d Injury and Illness Prevention**

Laboratory-wide Total Recordable Case frequency rate and Lost Workday Case frequency rate for all accidents and injuries are reduced to acceptable levels.

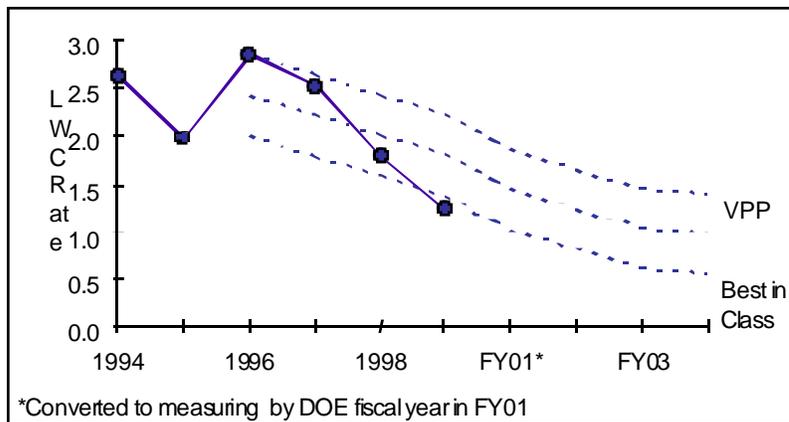
**(Weight = 8%)**

**Assumptions:**

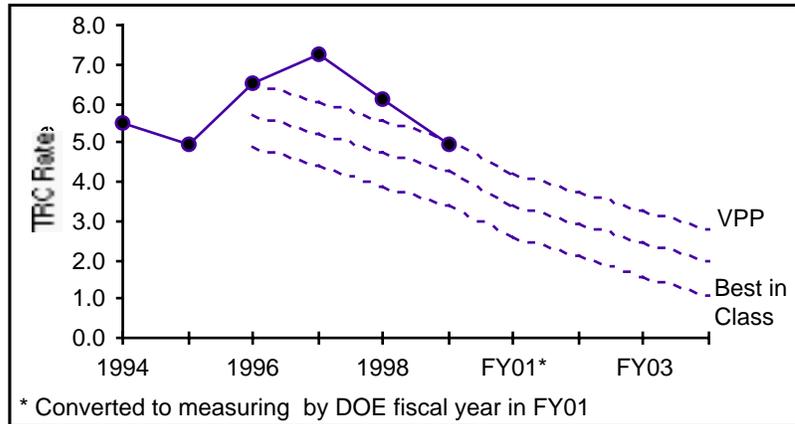
- Injury/illness case data include OSHA total recordable case (TRC) frequency rate and OSHA lost workday case (LWC) frequency rate. Total Recordable Case (TRC) rate is defined as the rate of recordable injury/illness cases per 200,000 hours worked. Lost Workday Case (LWC) Frequency is defined as the rate of lost and restricted workday cases per 200,000 hours worked.
- The LLNL TRC and LWC rates will include LLNL UC employees and subcontract employees according to criteria in the agreement letter dated May 4, 2000 from George Campbell to Phil Hill.
- Subcontractors are excluded if they are “servicing” the Laboratory (e.g., copy machine vendors or transient construction workers covered under 29 CFR 1926).
- In 1997, LLNL, UC and DOE agreed to 5-year goals that were based on the Laboratory’s 1996 illness and injury rates for all employees (including LLNL security and plant services). A 1999 UC benchmarking report validated this goal for LWC frequency and the goal was extended to the year 2003 based on the “Best in Class” companies.

Progress toward reduction goals are evaluated using the long term goals in the following charts and the rates in the Table below:

Lost Workday Case (LWC) Rate Goal



Total Recordable Case (TRC) Rate Goal



Points	Total Recordable Case (TRC) Rate	Lost Workday Case (LWC) Rate
0	If equal to or greater than ( $\geq$ ) 4.21	If equal to or greater than ( $\geq$ ) 1.87
1	If less than 4.21 and equal to or greater than ( $\geq$ ) 3.39	If less than 1.87 and equal to or greater than ( $\geq$ ) 1.45
2	If less than 3.39 and equal to or greater than ( $\geq$ ) 2.56	If less than 1.45 and equal to or greater than ( $\geq$ ) 1.03
3	If less than 2.56	If less than 1.03

**Gradients:**

- Unsatisfactory No results are demonstrated and no effort has been expended.
- Marginal Performance falls short of the good gradient, however, some effort has been demonstrated.
- Good The Total Recordable Case (TRC) and Lost Workday Case (LWC) are compared to the chart and points applied. The point sum for the two rates is 2 or 3.
- Excellent The Total Recordable Case (TRC) and Lost Workday Case (LWC) are compared to the chart and points applied. The point sum for the two rates is 4 or 5.
- Outstanding The Total Recordable Case (TRC) and Lost Workday Case (LWC) are compared to the chart and points applied. The point sum for the two rates is 6.

**Performance Narrative:**

This performance measure tracks LLNL’s progress toward meeting the five-year reduction goal of injury/illness rates agreed to between DOE and LLNL. These goals were set based on a benchmarking report issued by UC in 1999. The gradients of this measure are based on the sum of scores given to the total recordable frequency rate (TRC) and the lost workday frequency rate

(LWC) in accordance with their performance. The performance period of this measure is based on injury/illness results during FY 2001.

Starting FY2001, the injury/illness rates for the subcontractors, including service and construction subcontractors, were incorporated into the gradients of this measure. LLNL and OAK agreed to track seven GSE Labor only subcontractors estimated to capture 97 percent of estimated effort hours subcontracted by LLNL. The seven subcontractors are: Eurest (Cafeteria), GSE Construction (Decontamination and Waste Treatment Facility), Hensel Phelps (NIF Construction), Jacobs Facilities Inc., (NIF construction management and integration contractor), Johnson Controls (Supplemental Labor NIF Augmentation), Neilson-Dillingham Builders (CFF and NIF), and Safety Kleen (waste management). These subcontractors were required to submit their injury experience at LLNL and their effort hours directly to LLNL for the TRC and LWC rates calculation.

For FY 2001, the results of the injury/illness rates and their associated scores are as follow:

	<b>RATE</b>	<b>SCORE</b>
LWC (Lost Workday Cases)	1.24	2
TRC (Total Recordable Cases)	3.92	1
<b>Total Score</b>		<b>3</b>

The total score of 3 points put the performance of this measure in the **good** category.

<b>Performance Rating (Adjectival): Good</b>	73.00%
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**Performance Measures: 1.2.e Occupational Safety and Health Findings and Violations**

Hazards are recognized during Occupational Safety and Health assessments, and serious and imminent danger situations are appropriately mitigated.

**(Weight = 4%)**

**Assumptions:**

- Imminent Danger situations and Serious violations are as defined by the OSHA Field Inspection Reference Manual and by Section 13(a) of the Occupational Safety and Health Act.
- The performance measure allows time for dialogue, on a case-by-case basis, to determine whether a violation is to be classed as "serious."
- Subcontractor operations are included if the subcontractor is performing part of the Laboratory's operations.
- Imminent danger situations and serious violations (DefTrack 1As or 1Bs) that are mitigated but not permanently corrected within the given timeframe are then reclassified as lower priority deficiencies. These lower priority deficiencies are also tracked in DefTrack, until they are completed.

**Gradient:**

Unsatisfactory	No results are demonstrated and no effort has been expended.
Marginal	Performance falls short of the good gradient, however, some effort has been demonstrated.
Good	Imminent danger situations (priority 1A items in DefTrack) are mitigated or corrected immediately upon discovery.  All serious violations (priority 1B items in DefTrack) are mitigated or corrected within five working days or an agreed-upon schedule.
Excellent	Eighty percent of the deficiency items that originated from mitigated DefTrack 1A or 1B items are permanently corrected and closed-out within 60 days or within a revised schedule approved by DOE/OAK.
Outstanding	Ninety percent of the deficiency items that originated from mitigated DefTrack 1A or 1B items are permanently corrected and closed-out within 60 days or within a revised schedule approved by DOE/OAK.

**Performance Narrative:**

For FY2001, LLNL identified no imminent danger situations (1A) and 46 serious violations (1B) based on the DefTrack roll-up between 10/1/2000 and 9/30/2001. All 46 1B items were corrected

within five working days. Among them, six 1Bs were mitigated and reopened as priority 2 items. Of these six downgraded items, two were corrected within 60 days as required while the other four are still open and expected to be corrected in 60 days. In addition to the DefTrack items, a team of LLNL safety personnel reviewed all occurrence reports (ORs) and the inspection reports (IRs) of the construction subcontractors collected during FY 2001 to identify items that meet the 1A and 1B definitions. As a result, one OR and fourteen IRs were identified as 1B items. All OR and IR items were corrected within five working days. DOE OAK randomly validated the LLNL's self-assessment results and there was no discrepancy noted during the validation.

Furthermore, in FY 2000, DOE OAK raised a concern about the DefTrack Priority Code List since it's 1A and 1B items are not clearly defined. During FY 2001, DOE OAK and LLNL safety personnel met several times to discuss how the Priority Code can be improved. After the efforts from both sides, an agreed version has been developed and is in the process of being reviewed by the LLNL ES&H Working Group.

DOE OAK rate this measure as **Outstanding** for this performance period.

<b>Performance Rating (Adjectival): Outstanding</b>	95.00%
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**Performance Measures: 1.2.f Waste Reduction and Recycling**

The Laboratory continues to progress towards meeting the DOE pollution prevention goal for the year 2005.

**(Weight = 5%)**

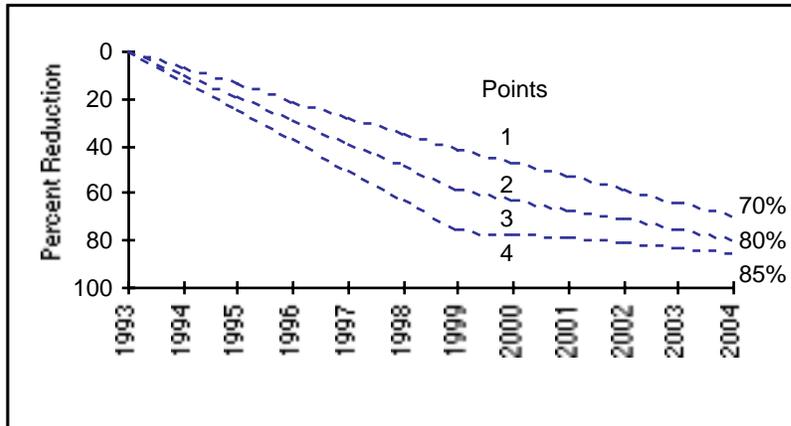
**Assumptions:**

- DOE's draft pollution prevention goals by waste type are defined as follows:
  - Reduce by 75% the generation of low level radioactive, low-level mixed, and hazardous wastes from routine operations; and
  - Divert 66.7% of the non-hazardous waste generated from routine operations.

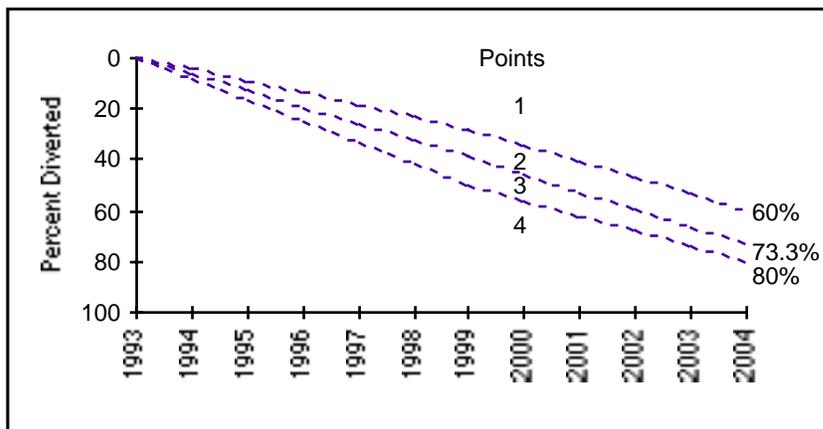
$$\text{Percent diverted} = \frac{\text{amount recycled}}{\text{amount recycled} + \text{amount landfilled}}$$

- Waste generation will be measured in the same way that it has been measured in previous years. 1993 waste generation quantities (adjusted on May 8, 1998) will be used as a baseline for measuring waste reductions.
- Source reduction, recycling, reuse, on-site treatment, and decay in place are considered to be methods of waste minimization and will be incorporated in the determination of waste generation.
- Cleanup and stabilization waste, including wastes from environmental restoration and deactivation and decommissioning of major facilities, secondary wastes from stabilization of nuclear and nonnuclear materials, legacy wastes, construction debris, and USEC (Building 490 AVLIS) wastes, will not be included in the calculations for meeting the waste reduction goals.
- For routine hazardous, low level radioactive, and low level mixed wastes at LLNL, the observed generation rates can be adjusted for changes in workload or operating budgets of directorates that generate each type of waste. Secondary hazardous wastes from decay in place of mixed waste will be counted as hazardous waste. Secondary waste from successful treatment of the hazardous constituents(s) of low level mixed wastes will be counted as low level radioactive waste.
- For evaluation of low level mixed waste reduction performance, it is assumed that LLNL will start-up new mixed waste treatment operations resulting in reduced low-level mixed waste before March 2001. Prior to start-up of these treatment operations in March 2001, mixed waste reduction performance will be evaluated using the 50% reduction goal.
- If LLNL routine waste reductions fall into the "3 or 4 point" field on the charts below, the new goal will be to maintain waste generations within the "3 or 4 point" field, respectively. This new goal does not affect the gradients.

Mixed, Radioactive, Hazardous Waste



Nonhazardous Waste Streams



**Gradients:**

- Unsatisfactory No results are demonstrated and no effort has been expended.
- Marginal Performance falls short of the good gradient, however, some effort has been demonstrated.
- Good A reduction in generation of each waste type is calculated and scored (1 to 4 points) then summed. The sum for the four waste types is 7, 8 or 9 points.
- Excellent A reduction in generation of each waste type is calculated and scored (1 to 4 points) then summed. The sum for the four waste types is greater than 9 points but less than 12.
- Outstanding A reduction in generation of each waste type is calculated and scored (1 to 4 points) then summed. The sum for the four waste types is 12 points or more.  
An annual increase in the types and amounts of wastes and materials recycled and/or reused onsite or offsite (after adjustment for source reduction).

**Performance Narrative:**

During FY 2001, compared to the baseline, LLNL reported reduced routine waste generation of low level radioactive waste by 72 percent, low level mixed waste by 43 percent, hazardous waste by 66 percent, and nonhazardous waste diversion by 63 percent. The quantities of waste generated for hazardous, low level radioactive, and low level mixed waste have slightly increased based on the FY 2000 waste generation level. However, LLNL continues to make some progress towards meeting the DOE pollution prevention goals for 2005. NNSA OAK validated the LLNL self rating of **Excellent** for the FY2001 rating period.

Extensive detail was provided in the Self Assessment Report to support the nonhazardous waste recycled and diverted from landfill for FY 2001. Operational awareness activities during FY 2001 conducted by NNSA OAK indicated that LLNL continued to make good progress in identifying and pursuing pollution prevention opportunities in sources of hazardous waste and nonroutine waste. However, more aggressive evaluation and implementation of pollution prevention opportunities needed to take place at sources of radioactive and mixed waste generation. In addition, LLNL should evaluate the use of a waste generator set-aside fee to fund pollution prevention opportunities across the site similar to that of LANL. Implementation of this type of funding program at the site may become a requirement in order to continue to receive additional return on investment (ROI) funding from DOE HQ.

<b>Performance Rating (Adjectival): Excellent</b>	83.00%
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<p><b>Performance Measures: 1.2.g Environmental Violations</b></p> <p>The rate of validated environmental violations from inspections and reporting requirements from regulatory agencies is kept low.</p> <p style="text-align: right;"><b>(Weight = 5%)</b></p>
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**Assumptions:**

- Changes in regulatory procedures that increase or decrease the level of inspections or inspection result shall be brought to the attention of UC and DOE/NNSA-OAK as soon as possible, and adjustments made to the gradients, as appropriate.
- LLNL experienced a change in regulatory procedures and inspections for hazardous material vehicles in 1996. DOE, UC and LLNL have agreed to calculate the gradients based on only the lowest three year average of 1996 and more recent years.
- All uncontested violations and non-compliances from inspections and reporting requirements issued by Federal, State or local government regulatory agencies will be counted. Contested violations will be discussed but not counted until they are validated. "Validated" means the Laboratory and DOE agree that it is a violation. Previously contested violations that are validated will be listed by the date of the NOV.
- Violations from releases are addressed in 1.2.h Environmental Releases.
- Data will be normalized to a rate based on the number of uncontested violations per the number of environmental inspections that the Laboratory experiences. The trending will be done on this normalized rate.
- Inspections are defined as follows:
  - An onsite visit initiated by a regulatory agency whose representative has enforcement authority at LLNL. A visit is not counted as an inspection if it is solely to attend a meeting that would not normally result in an enforcement action.
  - Multi-day inspections or sampling events by an agency that are considered one inspection by that agency are counted as one inspection in this performance measure unless a different count is agreed to between DOE and LLNL.
  - If LLNL initiates a visit that results in NOV then both the NOV and the inspection will be used to calculate the ratio. If NOV is not issued, the inspection is still included in the ratio provided LLNL and DOE both agree that the visit was an inspection.
- Every effort will be made by LLNL to update the applicable final Appendix F Self-assessment Report and by DOE/NNSA-OAK to update the DOE/NNSA-OAK Appendix F Evaluation Report to reflect violations validate outside of the performance period or to reflect a new NOV received after the performance period but before these reports are completed. Violations in NOVs or inspection reports received after the Self-Assessment and evaluations are completed will be counted the following year. If the NOV or inspection report is received more than two years after the date of inspection it will be discussed in the report, but not included in the performance measure gradients.

- For the purpose of this performance measure if not all subitems under the violation are contested, the decision whether or not the violations should be counted under the gradient will be made on a case-by-case basis by DOE/NNSA-OAK and LLNL.

**Gradients:**

Unsatisfactory	No results are demonstrated and no effort has been expended.
Marginal	Performance falls short of the good gradient, however, some effort has been demonstrated.
Good	The rate of violations per inspection is within 20% of the three year average.
Excellent	The rate of violations per inspection less than the three year average.
Outstanding	The Laboratory receives no violations during the year.

**Performance Narrative:**

For FY 2001, the performance period of this measure continued to align with the DOE Fiscal Year. The gradients for this measure are based on the ratio of validated environmental violations from the number of regulatory inspections. The three-year running average ratio for FY 2001 is calculated as follow:

- FY 1998: 7 violations/26 inspections in = 0.27
  - FY 1999: 7 violations/25 inspections in = 0.28
  - FY 2000: 11 violations/21 inspections in = 0.52
- Three-year running average: = 0.36

Using the 0.36 ratio as the three-year running average, the following gradients were used to evaluate the performance in this measure in FY 2001:

- Outstanding: The Laboratory receives no violations during the year.
- Excellent: The rate of violations per inspection is less than 0.36
- Good: The rate of violations per inspection is less than or equal to 0.41

During the FY 2001 performance period, the 7 regulatory agencies conducted a total of 14 inspections at the LLNL Main Site and Site 300. LLNL received 9 validated violations from these inspections, 6 from the Department of Toxic Substances Control (DTSC) and 3 from the California Highway Patrol (CHP).

Inspections by the DTSC generally were conducted in two phases, the field inspection and record inspection. Results of the field inspection phase generally was given to LLNL during the outbriefing or soon after. However, it could take DTSC several months to complete the record review phase and issue the inspection report. Very often, the inspection reports, in which new violations were alleged, would be received for inspections occurred during the previous performance year. For example, in June 22, 2001 DTSC issued an inspection report for an inspection conducted during March 2000; this report alleged 6 new violations all of which were validated. The administrative areas such training, record keeping, etc., of the hazardous waste

management function continued to receive deficiency notices by the DTSC. The delay in issuing inspection reports by the DTSC created some problem for NNSA OAK and LLNL in how to reflect the number of validated violations in this performance measure. NNSA OAK felt that all new violations received during the performance year should be counted because 1) the gradients of this measure were calculated based on the previous three year performance, and 2) deficiencies such as those on the administrative area of the waste management function need to be reflected in the Appendix F process. In August 2001, this performance measure was modified to document the following agreements between NNSA OAK and LLNL:

- Validated violations received from inspections conducted outside of the performance period will be counted during the current performance year. However, if the inspection reports were not received two years after the inspection, any new violations received would be discussed in the self-assessment report, but not counted under the gradients.
- If not all sub-items under a violation being contested, the decision whether or not to include the violation under the gradient would be determined by NNSA OAK and LLNL on a case by case basis.

During FY 2001, as mentioned before, 6 violations were received from DTSC for an inspection during March 2000. The ratio of violations per inspections for FY 2001 was calculated as follow:

# Inspection from FY 2001	# Violation from FY 2001	# Inspection from FY 2000	# Violation from FY 2000	Ratio of Total Violation per Total Inspection
14	9	1	6	1.0

The ratio of total violations per total inspection of 1.0 put this performance measure in the **Marginal** rating.

<b>Performance Rating (Adjectival): Marginal</b>	62.00%
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**Performance Measures: 12.h Environmental Releases**

The Laboratory controls and reduces the number of occurrences of environmental releases and the number of releases that result in violations.

**(Weight = 5%)**

**Assumptions:**

- Releases to be counted in this performance measure are defined as follows:
- Releases to the environment that exceed federal, state, or local environmental regulatory requirements or permitted levels that must be officially reported to that regulatory agency other than as a courtesy notice.
- Releases counted in this performance measure may be identified by LLNL or may result from regulatory inspection or monitoring.
- Tracking and trending will not include reports of excursions that do not exceed regulatory requirements because these excursions are within compliance limits.
- Not counted in this performance measure are:
  - releases of domestic water (i.e., drinking water, uncontaminated fire suppression water, swimming pool water, irrigation water, or non-contact or proven uncontaminated cooling water). If such a release is reported to an environmental regulatory agency, it will be mentioned in the text of the reports for the measure.
  - unauthorized releases to the environment on LLNL sites but not associated with LLNL activities (leaking gas tank of a personal vehicle, etc.) will not be counted unless agreed to by both LLNL and DOE.
  - discoveries of past spills will not be counted since they do not reflect current performance.
  - until regulatory agencies establish and include numeric discharge limits in storm water permits, stormwater discharge (NPDES permit) exceedances will not be counted unless a violation notice is issued. Accidental releases to stormwater, considered "substantial" by DOE and LLNL but not resulting in an NOV will be included in the discussion but not in the gradients.
- The discussion will note which releases resulted in a notice of violation from a regulatory agency.

**Gradient:**

Unsatisfactory No results are demonstrated and no effort has been expended.

Marginal Performance falls short of the good gradient, however, some effort has been demonstrated.

Good	The number of occurrences of environmental releases is within 20% of the three year running average.
Excellent	The number of occurrences of environmental releases is less than the three year running average.
Outstanding	The number of occurrences of environmental releases is less than 50% of the three year running average.

**Performance Narrative:**

The gradients of this measure were based on a three-year running average of the number of releases. Beginning in FY 2001, the performance period of this measure was changed to DOE fiscal year rather than the calendar year as in previous years. LLNL and NNSA OAK staff agreed that the number of reportable releases in the previous three fiscal years for the calculation of the running average was eight in FY 1998, zero in FY 1999, and three in FY 2000. Based on these numbers, the three-year running average of 3.67  $((8+0+3)/3=3.67)$  was used to calculate the corresponding number of releases for each gradient level for FY 2001 as follow:

- Good (equal to or above the 3-year average, but within 20 percent) = 4 releases
- Excellent (less than the 3-year running average) = 2 or 3 releases
- Outstanding (less than 50 percent of 3-year average) = 0 or 1 releases

LLNL maintained excellent records with detailed documentation and information on all releases. These records were shared with OAK on a regular basis to determine which releases were countable under the gradients of this measure. A total of approximately 46 releases were documented and reported; OAK reviewed the record and validated that of the 46 releases, only three were countable in this measure during FY 2001. As detailed in the LLNL FY 2001 Self-Assessment report, the releases were two sanitary sewer discharge limit violations, and one release to an unlined underground fuel tank pit (although subsequent investigation did not identify a source for the leak). Though neither of the sanitary sewer releases created a significant hazard to the operation of the Livermore Water Reclamation Plant (LWRP), both resulted in the issuance of Notices of Violation (NOVs) by the LWRP. LLNL continues to perform very well in self-reporting and documenting releases.

Due to the change in the performance period from previous calendar's year to DOE fiscal year beginning in FY 2001, releases during the 9 month period between January 1, 2000 through September 30, 2000 were not counted in the rating of this year's performance. During this period, there were three environmental releases which met the reportable criteria of this performance measure. However, these releases were discussed in the Self-Assessment Report, and, as agreed to between LLNL and NNSA OAK, they were included in the calculation of the three-year running average used in the FY 2001 gradients.

There was no indication in FY 2001 of a degradation in performance, and LLNL continued to act promptly and aggressively in response to all releases.

Three releases during the FY 2001 performance period put this measure in the **Excellent** rating.

<b>Performance Rating (Adjectival): Excellent</b>	<b>85.00%</b>
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**Performance Measures: 1.2.i Criticality Safety**

The Laboratory manages an effective nuclear criticality safety program. **(Weight = 5%)**

**Assumptions:**

- Criticality safety infractions are defined in the ES&H Manual, Chapter 31 (Criticality).
- A criticality accident (severity index Level 1) will result in an "Unsatisfactory" grade.
- Training is based upon individuals identified as requiring HS3100 in the LTRAIN system. Status of training compliance shall be sampled at the beginning, mid-point and end of the performance period and the average of the three samples used to determine the score.
- Mandatory facility criticality safety audits are limited to the following LLNL facilities for this measure: Building 332, and other LLNL facilities as agreed in writing by DOE-OAK and LLNL at the beginning of the fiscal year.
- For purposes of trending similar criticality safety infractions, data may be drawn from the preceding 12 months as long as the interval between similar infractions is no longer than 12 months.
- Similar infractions are defined as two or more infractions involving the same criticality safety parameter(s) on the LLNL site where the cause of the subsequent infraction(s) is clearly the same as the cause of the prior occurrence and there was reasonable time for the corrective action(s) to have effectively precluded the subsequent occurrence(s). Multiple infractions discovered as one "event" can only be counted as one infraction for the purposes of this measure.

**Gradients:**

The grade will be determined by the points assigned based on the issues shown in the table below.

Unsatisfactory	No results were demonstrated or a criticality accident (severity index Level 1) occurred.
Marginal	Effort has been expended but the score resulted in assigning less than 5 points.
Good	Issues were scored that resulted in assigning 5 to 8 points.
Excellent	Issues were scored that resulted in assigning 9 to 13 points.
Outstanding	Issues were scored that resulted in assigning 14 to 18 points.

Issue	3 points	2 points	1 point
Highest severity index of criticality safety infractions.	4	3	2
Recovery and corrective action plans for correcting criticality safety infractions in place within:	30 days	31 - 60 days	61 - 90 days
Training compliance (% of LLNL personnel completing HS3100 or equivalent when required by job assignment).	95%	94% - 90%	89% - 85%
Number of LLNL employees serving on ANS 8.XX standard working groups.	2	1	No points for zero
LLNL CSG performs and documents mandatory facility criticality safety audit within (X) months of previous audit.	13 months	18 months*	24 months*
Number of similar infractions that occur in a 12 month period.	0	1	2
*With written DOE/OAK approval.			

### Performance Narrative:

DOE OAK concurs with the Laboratory's self-assessment that the Lawrence Livermore National Laboratory's criticality safety program is **outstanding**. This evaluation is based on the results of six elements.

Two of the elements focus on the severity of criticality safety infractions and repeat criticality safety infractions (failure of lessons learned). One was a minor mass infraction involving sealed Plutonium sources in a hazardous waste facility which exceeded a 55 gallon drum mass limit. The other infraction, more serious (but still level 4 – the lowest level), involved operators who placed six items in storage locations in the Plutonium Facility Vault.

In the case of the plutonium sealed sources (which occurred October 5, 2000), the operators corrected the problem immediately upon discovery by removing one of the sources and placing it in a separate drum. While this removed the overmass condition, it was in violation of LLNL infraction procedures, which clearly state that upon discovery of an infraction, operators are to cease all activities, isolate the location and notify criticality safety. An analysis by criticality safety showed that the condition of the material was safe and stable. They did recommend retraining of HWM personnel on response to criticality safety infractions.

In the case of the incorrectly stored items in the Pu Facility vault, the items were evaluated and found to be acceptable for storage where they had been placed. Additionally, operator/facility response to the infraction was well executed. Operators received refresher training on the use of criticality controls that are unique to the vaults (it was a minor difference between the criticality controls for the facility process areas and those of the vaults that was a contributor to the infraction.)

There were no repeat infractions during the reporting period.

LLNL has been effective in ensuring that the proper personnel receive nuclear criticality safety training.

LLNL has also been involved in the development and maintenance of national consensus standards related to nuclear criticality safety. This work benefits not only the Laboratory, but organizations anywhere in the nation that work with significant quantities of fissionable material.

LLNL scored 3 points on five of the above six measures. LLNL missed the deadline for completion of its audit report for Building 332 (the target is 13 months) by just a few days. They received 2 points for this measure. LLNL earned a total of 17 points for performance measure 1.2.i.

DOE OAK rates the LLNL Nuclear Criticality Safety Program as **Outstanding**

<b>Performance Rating (Adjectival): Outstanding</b>	<b>95.00%</b>
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**Performance Measures: 1.2.j Nuclear Safety**

The Laboratory manages an effective nuclear safety program.

**(Weight = 10%)**

**Assumptions:**

- This performance measure applies to LLNL nuclear facilities designated as Category 2 or Category 3 as of October 1, 2000.
- The Laboratory submits Technical Safety Requirements (TSRs) consistent with DOE Orders.
- A TSR violation consists of any of the following:
  - Exceeding a safety limit;
  - Failure to take the actions required within the required time limit following:
    - (1) exceeding a Limiting Control Setting (LCS),
    - (2) failure to meet Limiting Conditions for Operation (LCO), or
    - (3) failure to successfully meet a Surveillance Requirement.
 Note the violation relates to failure to comply with an action statement;
  - Failure to complete surveillance requirements within the required time limit;
  - Failure to comply with an Administrative Control requirement (e.g., Failure to comply with an authorization basis commitment as defined in authorization basis documents).
- Repeat TSR violations are where the cause of the subsequent violation (s) is clearly the same as the cause of the prior occurrence and there was reasonable time for the corrective action(s) to have effectively precluded the subsequent occurrence(s). Only TSR violations during FY01 are included in this analysis.
- The Laboratory submits the annual Unreviewed Safety Question summary for all LLNL nuclear facilities in accordance with DOE Order 5480.21 due during the performance period.
- Potential inadequacies in the safety analysis (PISA) includes discrepant as-found conditions (e.g., degradation of equipment), operational events, and receipt of new information. Potential inadequacies do not include new activities or planned modifications to TSRs.
- Discovery of a potential inadequacy is defined as the point in time immediately following discovery of the condition (by DOE or LLNL) or discovery of new information. Discovery notification by DOE to the LLNL shall be formalized. Discovery by DOE begins with the date of the letter from DOE formally identifying a specific PISA. Discovery by LLNL begins when the Laboratory formally notifies DOE by either an occurrence report or a formal letter. Note that for the Authorization Basis Baseline Review as defined in the LLNL Authorization Basis Corrective Action Plan, date of discovery begins the day the report is issued. Imminent danger discoveries during the Review shall be addressed immediately. Technical hires in the LLNL Authorization Basis Support Group must have education or experience in safety analysis. Technical hires meet the performance measure upon LLNL receipt of an acceptance of an offer of employment for new hires (external hires); acceptance of an internal transfer or assigned matrix position within LLNL (internal hires). Full-time Equivalents represent a

staffing level that may be satisfied through part time assignments. Subcontractor hires will not be credited toward internal or external hires.

HWM SAR/TSR submittal for FY2001. Upgrade or DWTF SAR/TSR submittal addresses the following:

- DWTF SAR/TSRs submittal meets the format of DOE-STD-3009.
- DWTF SAR/TSRs meet the requirements in DOE Orders 5480.23, 5480.22, 5480.21 and DOE-STD-1027 with exceptions per WSS.
- B-696 SAR/TSRs submittal follows the methodology of DOE-STD-3009.
- B-696 SAR/TSRs meet the requirements in DOE Orders 5480.23, 5480.22, 5480.21 and DOE-STD-1027.
- Critical assumptions are clearly identified (tabular) and are preserved with TSRs for design basis accident and accident analysis in the draft submittal.
- In the event that both DWTF and B-696 SAR/TSRs are submitted, internal and external hazards and control identification are completed and incorporated into submittal in the draft submittal. Hazards analysis is applicable to hazards that are common for both facilities.
- On-site transportation accidents within either DWTF or HWM facilities are identified, analyzed and controlled in the draft submittal.
- Final SAR/TSR submittal shall disposition all DOE Review Comments generated from DOE review of the draft submittal.
- Complete DOE Review Comments shall be provided to LLNL within 63 calendar days after submittal of draft SAR/TSRs to DOE. A comment resolution process shall be employed by DOE/OAK and LLNL to disposition comments within 21 calendar days which have been addressed but not agreed to during the facility review and comment period. Laboratory shall allow time for the comment review/disposition process in determining overall schedule for submittal of Final SAR/TSRs
- HWM SAR/TSRs scope includes B-612/B-514/B-625 complex but not B-233CSU.
  - DWTF SAR/TSRs scope includes B-693, B-694, B-695, and B-612.
  - DWTF SAR/TSRs with B-696 scope includes B-693, B-694, B-695, B-696 and B-612.
- Note the DOE requests only one set of documentation that comprises the SAR/TARs for B696, so the documents may be provided as a separate submittal or as part of the DWTF SAR/TARs (includes B696).
- All B-332 authorization basis modifications and USQs (screenings and determinations) in FY 2001 shall have the technical bases completed, and available within five working days of a DOE request. For each such situation associated with authorization basis modifications in which the information is not available within 5 days of the DOE request, two points shall be deducted from the number of points otherwise earned for the initial occurrence. For each such situation associated with unreviewed safety question(s) in which the information is not available within 5 days of the DOE request, one point shall be deducted from the number of points otherwise earned for the initial occurrence. Each subsequent occurrence (authorization basis modification and unreviewed safety question(s)) shall involve the deduction of an additional point. The total number of points deducted for this criterion shall not be greater than 5.

**Gradients:**

The grade will be determined by the points assigned based on the issues shown in the table below.

- Unsatisfactory Issues were scored that resulted in assigning less than or equal to 8 points.
- Marginal Issues were scored that resulted in assigning more than 8 points but less than or equal to 16 points.
- Good Issues were scored that resulted in assigning more than 16 points but less than or equal to 27 points.
- Excellent Issues were scored that resulted in assigning more than 27 points but less than or equal to 35 points
- Outstanding Issues were scored that resulted in assigning more than 35 points.

Metric	Points		
<p>The LLNL will recreate the Building 332 safety basis library containing references, calculations, and assumptions, for credible scenarios described in facility-specific authorization basis documentation for retrieval at DOE request within 5 working days.</p> <p>The products developed shall cover the hazards, accidents, consequences and probabilities, but not the TSRs/controls at this time.</p> <p>Credible accident scenarios for this metric are:</p> <ul style="list-style-type: none"> <li>• Radioactive Material Spill</li> <li>• Waste Drum</li> <li>• Evaluation-Basis Fire</li> <li>• Inadvertent Criticality</li> <li>• Uncontrolled Oxidation of Lathe Turnings</li> <li>• Chemical Release</li> <li>• Hydrogen Explosion</li> <li>• Solvent Explosion.</li> </ul>	<p>Availability of full doc-umentation for - five credible accident scenarios by 9/15/01, and plan for the TSRs &amp; remaining portions for the SAR as they are changed by 9/15/01 = 5 points</p>	<p>Availability of full doc-umentation for at least -three credible accident scenarios by 9/15/01 and plan for the TSRs &amp; remaining portions of the SAR as they are changed by 9/15/01 = 3 points</p>	<p>Lack of availability of full doc-umentation for at least three credible accident scenarios by 9/15/01 and/or failure to develop a plan for the TSRs &amp; remaining portions of the SAR as they are changed by 9/15/01 = 0 points</p>
<p>Repeat TSR violations at LLNL.</p>	<p>0 repeats = 6 point</p>	<p>2 repeats = 3 points</p>	<p>More than 2 repeats = 0 point</p>
<p>Number of LLNL facility PISAs identified by external groups to the Laboratory (i.e., DOE or DNFSB) and later confirmed to be positive.</p>	<p>0 PISAs = 5 points</p>	<p>3 PISAs = 2 points</p>	<p>More than 3 PISAs = 0 points</p>
<p>The average (X) number of working days from discovery of nuclear facility PISA to submittal of the USQ determination to DOE.</p>	<p>If X is 10 working days or less = 4 points</p>	<p>If X is more than 10 working days but less than or equal to 20 days = 2 points</p>	<p>If X is more than 20 working days = 0 points</p>
<p>Submittal of Final HWM SAR/TSR 2001 upgrade or Final DWTF SAR/TSR(with or without B696)</p>	<p>Submittal by 8/1/01 = 4 points</p>	<p>Submittal by 9/15/01 = 2 points</p>	<p>Submittal after 9/15/01 = 0 points</p>

Metric	Points		
Submittal of Final DWTF SAR/TSR with B696 or Final B696 SAR/TSR	Submittal by 8/1/01 = 3 points	Submittal by 9/15/01 = 2 points	Submittal after 9/15/01 = 0 points
Submittal of individual nuclear facility USQ procedures for DOE review and approval meeting the requirements of WSS	All 8 nuclear facility USQ procedures submitted by 8/31/01 = 3 points	4-7 facility USQ procedures submitted by 8/31/01 = 1 point	<4 facility USQ procedures submitted after 8/31/01 = 0 points
Implementation of a nuclear facilities issues and commitment tracking system in accordance with Section 2.12 of the LLNL Nuclear Facilities Authorization Basis Corrective Action Plan.	On or before 12/1/2000 = 2 points	On or before 12/31/2000 = 1 point	After 1/1/2001 = 0 points
Creation and staffing of the AB Support Group.	More than or equal to 3 internal hire FTEs with More than or equal to 4 external hire FTEs by 12/31/00 = 7 points	More than or equal to 2 internal hire FTEs with more than or equal to 3 external hire FTEs by 12/31/00 = 5 points	less than 2 internal hire FTEs with less than 3 new external hires after 12/31/00 = 0 points
Complete and submit report to DOE on Authorization Basis baseline review	Complete HWM/DWTF portion before 2/1/01-balance before 4/1/01 = 4 points	Complete HWM/DWTF portion before 3/1/01-balance before 5/31/01 = 2 points	Complete HWM/DWTF portion on or after 3/1/01 and balance on or after 5/1/01 = 0 points

**Performance Narrative:**

NNSA OAK evaluated LLNL’s performance of this measure using several different methods including:

- Review of the input from LLNL summarized in UCRL-AR-113722-01, “Contract 48, Appendix F, FY 2001 Environment, Safety and Health Self-Assessment”, pp 99-107, October 19, 2001; and
- Independent verification by the OAK AMNS Nuclear Safety Team and Facility Representatives.

**GENERAL DISCUSSION**

This particular performance measure was broadened during FY 2001 to encompass all eight nuclear facilities for evaluation of nuclear safety performance at the LLNL site. During the performance period, the Nuclear Safety Rule, 10 CFR 830, Subpart B was issued, codifying many of the primary DOE nuclear safety requirements. Time requirements reflected in the rule were not always consistent with those metrics negotiated in Appendix F. In response to OAK concerns associated with the Lab’s nuclear safety program, the Laboratory focused much of their efforts on completion of the Authorization Basis Corrective Action Plan (AB-CAP). Three of the Appendix F metrics were derived from the AB-CAP.

During FY 2001, significant progress was demonstrated in deliverables associated with longer term metrics (repetitive TSR violations, timeliness of submittal of Unreviewed Safety Question Determinations (USQD), Potential Inadequacy to the Safety Analysis (PISA) self-identification), AB-CAP commitments (commitment tracking, staffing of safety analysts) and authorization basis improvements (technical basis supporting the B-332 Safety Analysis Report (SAR) and the AB baseline review). Products that did not demonstrate progress were the USQ procedure submittal, the delay to the Hazardous Waste Management (HWM) SAR/TSR submittal and the quality of the B-696 SAR/TSRs.

### **SAR/SAR UPDATES**

The Laboratory was responsible for reconstituting the technical basis and references that support five of the B-332 accident scenarios. This exercise is invaluable to enable the safety analysts to understand the basis for assumptions and calculations within the Safety Analysis Report. OAK followed up with sampling of documents referenced within the current B-332 SAR and SAR 2000. No discrepancies were identified. OAK will continue to evaluate this measure.

The submittal of the HWM SAR/TSR or the DWTF SAR did not occur within the time periods stipulated within the performance metric. As a result, no points were awarded for this metric.

The initial B-696 SAR/TSR was submitted to OAK in early June 2001. Three significant concerns were expressed by OAK in a letter to the Laboratory dated August 29, 2001 from J. Davis to D. Fisher. OAK concerns applicable to the performance metric dealt with the SAR's technical basis for withstanding natural phenomenon events, adequacy of the TSRs for the 55-gallon TRU package and other containers, and lack of inclusion of some activities in the hazards analysis (e.g., welding, low-level waste sampling and routine use of solvents). These concerns caused delay to the OAK review process which was to last a maximum of 63 calendar days. OAK did not meet the comment period assumption as noted in the assumptions for the performance measure. However, all three points for the measure were not awarded to the Laboratory since the initial submittal date and the 63 days for OAK comments would have been past the August 1, 2001 final submittal date. OAK and the Lab agreed upon awarding the Laboratory 2 points for this measure.

Three metrics were derived from the Lab's AB-CAP. An issues tracking system was successfully established and has continued to be used by the Laboratory to track on-going and upcoming authorization basis actions. More significant is the continued acquisition of competent nuclear safety analysts to the Laboratory's authorization basis group. In a time period when limited resources have been available to the Laboratory, it has successfully attracted well-qualified and knowledgeable candidates. The most notable accomplishment by the Laboratory in the nuclear safety area was the AB baseline review. This was a candid, rigorous self-assessment of the Laboratory's authorization basis documents to evaluate adherence to key DOE requirements and standards. The Laboratory did an outstanding job of accurately reflecting issues and identifying improvements for safety basis documentation. This document was one of the best self-assessments performed by the Laboratory.

### **TSRS**

The Laboratory had two TSR violations during FY 2001. The two violations were not related or repetitive. This indicates to OAK continued maturing of monitoring of nuclear safety controls within B-332. Both violations were self identified and reported. For the degree of activity and complexity of the nuclear facilities at LLNL the number of violations in FY 2001 was very small indicating strong adherence to TSRS.

## USQS

Two metrics of the performance measure involved USQs. The Laboratory continued to improve the timeliness in completing USQDs upon discovery of potential inadequacies. The USQ procedure submittal did not progress to the same degree. Under the Appendix F performance metric and DOE Order 5480.21, the Laboratory was responsible to submit USQ procedures to DOE for review and approval. With the issuance of 10 CFR 830, the submittal date was accelerated to April 10, 2001 by Law. The Laboratory submitted three USQ procedures meeting the submittal date requirements of the rule. However, several issues were identified with the quality of the submittals. Those were discussed in a letter from Hooper to Anastasio dated June 22, 2001. The issues indicated lack of adherence to the rule. As a result, OAK implemented compensatory measures with the existing USQ processes and negotiated a new submittal date (February 28, 2002) for the revised procedures. Many other activities were occurring just prior to the submittal date that could have detracted the Laboratory from submitting a viable product. In addition, the Headquarters workshop on the rule implementation indicated no changes from DOE Order 5480.21 had occurred with issuance of the rule. These events indicated to the Lab that their existing procedures would be acceptable under the rule. Weekly working sessions with the Lab to resolve comments indicate increased understanding of the USQ portion of the rule and are addressing OAK's concerns. Also, the rule provides for USQ procedures to be submitted and compensatory measures to be put into place in the interim. As a result, in OAK's opinion, the Lab met the submittal date requirements associated with the metric.

OAK reviewed the UC LLNL ES&H Self Assessment and concurs with the overall rating of Excellent with a 30 point score. The percentage evaluation by OAK would be slightly lower than that recommended by UC due to quality of the USQ procedure submittal and total points earned relative to the range of the "excellent" rating. As a result OAK would rate the Laboratory at 83%. Attached is the FY 2001 Nuclear Safety performance measure, 1.2.j.

As a result, NNSA OAK concurred with the Laboratory's Self Assessment for the **30 points** being earned, and assigned an **Excellent** rating with a numerical score of **83%** for the nuclear safety performance measure during this performance period. There have been significant accomplishments in the areas of the AB-CAP items and TSRs. Opportunities for improvement exist with the quality of USQ procedures and SAR submittals and will be challenging milestones for the Laboratory during FY 2002 with further implementation of the Nuclear Safety Rule.

Metric	Points		
<p>The LLNL will recreate the Building 332 safety basis library containing references, calculations, and assumptions, for credible scenarios described in facility-specific authorization basis documentation for retrieval at DOE request within 5 working days.</p> <p>The products developed shall cover the hazards, accidents, consequences and probabilities, but not the TSRs/controls at this time.</p> <p>Credible accident scenarios for this metric are:</p> <ul style="list-style-type: none"> <li>• Radioactive Material Spill</li> <li>• Waste Drum</li> <li>• Evaluation-Basis Fire</li> <li>• Inadvertent Criticality</li> <li>• Uncontrolled Oxidation of Lathe Turnings</li> <li>• Chemical Release</li> <li>• Hydrogen Explosion</li> <li>• Solvent Explosion.</li> </ul>	<p>Availability of full documentation for five (5) credible accident scenarios by 9/15/01, and plan for the TSRs &amp; remaining portions for the SAR as they are changed by 9/15/01 = 5 points</p>	<p>Availability of full documentation for at least three (3) credible accident scenarios by 9/15/01 and plan for the TSRs &amp; remaining portions of the SAR as they are changed by 9/15/01 = 3 points</p>	<p>Lack of availability of full documentation for at least three (3) credible accident scenarios by 9/15/01 and/or failure to develop a plan for the TSRs &amp; remaining portions of the SAR as they are changed by 9/15/01 = 0 points</p>
<p>Repeat TSR violations at LLNL.</p>	<p>0 repeats = 6 point</p>	<p>2 repeats = 3 points</p>	<p>More than 2 repeats = 0 point</p>
<p>Number of LLNL facility PISAs identified by external groups to the Laboratory (i.e., DOE or DNFSB) and later confirmed to be positive.</p>	<p>0 PISAs = 5 points</p>	<p>3 PISAs = 2 points</p>	<p>More than 3 PISAs = 0 points</p>
<p>The average (X) number of working days from discovery of nuclear facility PISA to submittal of the USQ determination to DOE.</p>	<p>If X is 10 working days or less = 4 points</p>	<p>If X is more than 10 working days but less than or equal to 20 days = 2 points</p>	<p>If X is more than 20 working days = 0 points</p>
<p>Submittal of Final HWM SAR/TSR 2001 upgrade <u>or</u> Final DWTF SAR/TSR (with or without B696)</p>	<p>Submittal by 8/1/01 = 4 points</p>	<p>Submittal by 9/15/01 = 2 points</p>	<p>Submittal after 9/15/01 = 0 points</p>
<p>Submittal of Final DWTF SAR/TSR with B696 <u>or</u> Final B696 SAR/TSR</p>	<p>Submittal by 8/1/01 = 3 points</p>	<p>Submittal by 9/15/01 = 2 points</p>	<p>Submittal after 9/15/01 = 0 points</p>
<p>Submittal of individual nuclear facility USQ procedures for DOE review and approval meeting the requirements of WSS</p>	<p>All 8 nuclear facility USQ procedures submitted by 8/31/01=</p>	<p>4-7 facility USQ procedures submitted by 8/31/01 = 1 point</p>	<p>&lt;4 facility USQ procedures submitted after 8/31/01 = 0 points</p>

Metric	Points		
	3 points		
Implementation of a nuclear facilities issues and commitment tracking system in accordance with Section 2.12 of the LLNL Nuclear Facilities Authorization Basis Corrective Action Plan.	On or before 12/1/2000 = 2 points	On or before 12/31/2000 = 1 point	After 1/1/2001 = 0 points
Creation and staffing of the AB Support Group.	More than or equal to 3 internal hire FTEs with More than or equal to 4 external hire FTEs by 12/31/00 = 7 points	More than or equal to 2 internal hire FTEs with more than or equal to 3 external hire FTEs by 12/31/00 = 5 points	less than 2 internal hire FTEs with less than 3 new external hires after 12/31/00 = 0 points
Complete and submit report to DOE on Authorization Basis quality baseline review	Complete HWM/DWTF portion before 2/1/01-balance before 4/1/01 = 4 points	Complete HWM/DWTF portion before 3/1/01-balance before 5/31/01 = 2 points	Complete HWM/DWTF portion on or after 3/1/01 and balance on or after 5/31/01 = 0 points

<b>Performance Rating (Adjectival): Excellent</b>	<b>83.00%</b>
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**Performance Area:            Projects/Facilities/Construction Management**

The University of California, in partnership with the Department of Energy, shall plan, acquire, operate, maintain, lease, and dispose of physical assets as valuable national resources. The management of physical assets from acquisition through operations and disposition shall be an integrated and seamless process linking the various life cycle phases. Stewardship of these physical assets during all phases of their life cycle shall be accomplished in a safe and cost-effective manner to meet the DOE mission and to ensure protection of workers, the public and the environment. This management of physical assets shall incorporate industry standards, a graded approach and these performance objectives.

General Note: Plans, lists, and milestones made a matter of record in the first month of the fiscal year may be revised during the year by mutual agreement between the Laboratory and DOE Facility Functional Managers.

<b>Performance Objective</b>	<b>#1</b>	<b>Real Property Management</b>
The Laboratory will effectively manage Real Property.		
		<b>(Weight = 2%)</b>

<b>Criteria:</b>	<b>1.1</b>	<b>Real Property Management</b>
Real property is effectively managed consistent with mission, requirements, and DOE direction.		
		<b>(Weight = 2%)</b>

<b>Performance Measures:</b>	<b>1.1.a</b>	<b>Program Implementation</b>
Number of completed milestones/milestones scheduled for completion.		
		<b>(Weight = 2%)</b>

**Assumptions:**

Intent is to measure the effectiveness, completeness, and timeliness of implementation of Real Property management actions. Milestones will be established in partnership with DOE and made a matter of record in the first month of the fiscal year. Milestones may be established for Facilities Information Management System completeness, office space utilization, substandard building space conversion, real property leases, etc.

**Gradients:**

Unsatisfactory	less than 0.60
Marginal	0.60
Good	0.70
Excellent	0.80
Outstanding	0.90

**Performance Narrative:**

All established milestones for Lawrence Livermore National Laboratory (LLNL) concerning management or improvement of real property were completed on a timely basis for FY 2001. The milestones included input to the first annual DP Ten Year Comprehensive Site Plan, production of the annual Facilities Information Management System (FIMS) Quality Assurance Plan along with verification of the LLNL portion of the FIMS database, establishing a baseline for substandard/excess space along with planned reductions, completing the annual Facilities Assessment and Ranking System, listing and prioritizing of building demolitions, as well as developing the procedures and guiding principles to support the development of a comprehensive Laboratory Facilities Charge. The completion of all established milestones justifies a rating of **outstanding**.

In the area of FIMS, validation of the data has shown almost 100% population and corresponding accuracy. Updating of FIMS is an ongoing project and LLNL has been helpful in providing expertise in the development and refining of the DOE FIMS program.

Space Planning has been working directly with the Institutional Facility Manager and the individual program managers to resolve space planning problems on the site. Crowding is a serious and continuing concern, as well as the rehabilitation or demolition of substandard excess space. For FY 2001 there was 10,634 sq. ft. of space rehabilitated and 81,580 total square feet of excess or substandard inventory reduced.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>98.00%</b>
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**Performance Objective #2 Physical Assets Planning**

The Comprehensive Integrated Planning Process should reflect current and future Laboratory needs.

**(Weight = 8%)**

**Criteria: 2.1 Comprehensive Integrated Planning Process**

The Laboratory develops, documents, and maintains a comprehensive integrated planning process that is aligned with DOE mission needs.

**(Weight = 8%)**

**Performance Measures: 2.1.a Effectiveness of Planning Process**

Assess how the planning process is implemented to achieve maximum effectiveness in anticipating and articulating DOE and Laboratory needs.

**(Weight = 8%)**

**Assumptions:**

The Laboratory will work with DOE counterparts in a cooperative effort to continuously evaluate the effectiveness of the comprehensive integrated planning process through the development of Laboratory specific planning elements/milestones. Site specific planning elements/milestones will be made a matter of record in the first month of the fiscal year.

**Gradients:**

Unsatisfactory	less than 0.60
Marginal	0.60
Good	0.70
Excellent	0.80
Outstanding	0.90

**Performance Narrative:**

Lawrence Livermore National Laboratory's (LLNL) execution of Comprehensive Integrated Planning (CIP) has been rated by NNSA OAK as **92.5, outstanding**, for FY 2001. All scheduled milestones were completed on time with one change. The update of the Comprehensive Site Plan has been officially moved to the first quarter of FY 2002. LLNL's Space and Site Planning Division (S&SP) completed a two-year pilot project titled "Scenario Planning." Last year, the Scenario Planning effort was identified as a Noteworthy Practice. That designation extends to the FY 2001 accomplishments. The process of developing strategies based on scenario planning should have a direct effect on how S&SP conducts its planning activities in the near future. LLNL continues to successfully address any challenges presented to them during the year.

The annual work plan was submitted to NNSA on a timely basis. Ten activities were originally identified to be completed within a specific quarter. One activity, the update of the Site 200 Comprehensive Site Plan, was agreed to be deferred (July 2001) to FY 2002 to allow LLNL adequate time to determine the effectiveness and action of combining existing planning documents. The activities planned were designed under a performance-based premise. That is, activities were designed to improve existing or establish new planning processes. A new effort for LLNL is the development of Sector Plans. These plans provide programmatic, infrastructure and land use information within a specified area rather than just programmatic information. This should allow planners and Programs to understand what are the capabilities, its condition in any given area/sector of Site 200 or Site 300, and possibilities for development and/or redevelopment. Additional sector plans will be completed next fiscal year. Other activities identified in the work plan include: improvements to the Facility Review Board process; updating Plant Engineering's landscape standards and specifications to be consistent with the Landscape Architecture Master Plan); identifying on-site trees of distinction; and, revising the site-wide sign policy and implementation guidelines. All activities were completed as scheduled.

Throughout the year, S&SP and NNSA met on a monthly basis to discuss LLNL activities as they relate to space and site planning, real estate and general infrastructure as well as to review the execution of the FY 2001 work plan. These meetings raise the NNSA level of operational awareness of LLNL as well as maintain the assurance that physical asset stewardship is at the appropriate level. Some activities pursued by S&SP that were related to site planning but may not be reflected on the work plan include: adaptive reuse; the update of the Partnering Agreement between NNSA and LLNL Facilities Management; restriping and reconfiguring the lanes on East Avenue, adding bus shelters at the Sandia Livermore parking lot (used by LLNL employees); Site 300 turn lane project (local government project); drainage retention project (man-made lake at LLNL); disposition of AVLIS facilities; "Mount NIF" location, creation and elimination; University of California, Davis, Edward Teller Educational Center; exporting of the LLNL developed Facility Assessment and Ranking System (FAaRS); proposal for the new emergency operations center; establishment of the Tri-Valley incubator; and, the relocation of security posts following the September 11, 2001 attack. The level of involvement by S&SP, identified in the work plans and in operational awareness activities, indicate their importance towards the stewardship of physical assets and land use at LLNL. It also supports HQ's perception that LLNL possesses one of the finest, if not the finest, planning groups in DOE/NNSA.

The evaluation of Comprehensive Integrated Planning for FY 2000 is subjective in nature and should continue to be so in the future. Planning is a long-term process and is therefore reviewed more by the effectiveness of its processes and less so than by objective, short-term, activities.

<b>Performance Rating (Adjectival): Outstanding</b>	92.50%
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**Performance Objective #3 Project Management**

The Laboratory will complete construction projects within approved budgets, schedules and scopes.

**(Weight = 65%)**

**Criteria: 3.1 Construction Project Performance**

Construction projects greater than \$500K (regardless of type of funds) achieve project performance objectives.

**(Weight = 50%)**

**Performance Measures: 3.1.a Work Performed**

Number of objectives completed/number of objectives planned for completion.

**(Weight = 50%)**

**Assumptions:**

The intent is to measure actual progress against that planned for the fiscal year and for the Laboratory to execute projects and cost project funds in a timely manner. An objective list for all active projects will be negotiated with DOE and made a matter of record in the first month of the fiscal year. Only meaningful objectives will be listed, but each active project will have at least one objective per year. By mutual agreement between the Laboratory and DOE, objectives may be weighted for project significance, for project size/cost, for late/early completion, for improved/diminished scope, etc. Negotiated objectives are not to be interpreted as baseline change approval.

**Gradients:**

Unsatisfactory	less than 0.70
Marginal	0.70
Good	0.80
Excellent	0.90
Outstanding	1.00

**Performance Narrative:**

Fifteen milestones were used to measure the performance against baselines for construction projects greater than \$500,000. Milestone list for FY 2001:

	<b>Date of Completion</b>
<b>Decontaminated Waste Treatment Facility (DWTF)</b>	
• B-284 Design-Build Package to Procurement	01/01
• Beneficial Occupancy of B-695	04/01
<b>Site 300 Contained Firing Facility (CFF)</b>	
• Submit Facility Safety Plan	12/00
• Begin Firing Chamber Qualification Testing	03/01
• Submit Critical Decision for Approval Package to DOE/OAK	07/01
<b>Roofs, Phase II</b>	
• Package 3 – Start Design	10/00
• Package 3 – Start Construction	12/00
• Package 2 – Complete Construction	02/01
<b>Isotope Sciences Facility (ISF)</b>	
• Start Construction of B-154 HVAC	12/00
• Start Title I Design for B-151 Seismic Upgrade	03/01
• Start Title Design for B-151 HVAC	06/01
• Start Construction of B-151 Office Addition	06/01
<b>Terascale Simulation Facility (TSF)</b>	
• Milestones for this project were never established because BCP #TSF0004 had not been approved yet	NA
<b>Sensitive Compartmented Information Facility (SCIF)</b>	
• Start of Title I Design	1/01
• Complete Title I	4/01
<b>B 332 Fire Protection Upgrade</b>	
• Complete Activation	4/01

NOTE: There were no Operating Funded projects during FY 2001.

Project milestones completed on schedule / Project milestones scheduled for completion = 15/15 = 1.00. Thus, LLNL's performance in this area for FY 2001 is **outstanding**; LLNL also had a rating of **outstanding** last year compared to a rating of **excellent** for FY 1999. This is the result of LLNL's diligent efforts and hard work.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>94.00%</b>
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<b>Criteria:</b>	<b>3.2</b>	<b>Construction Project Cost</b>
Line-Item projects (including any project \$5000K and over regardless of type of funds) meet cost baselines.		
		<b>(Weight = 15%)</b>

<b>Performance Measures:</b>	<b>3.2.a</b>	<b>Total Estimated Cost (TEC)</b>
Estimated cost at completion for all active projects/performance measure baseline TEC for all active projects.		
		<b>(Weight = 15%)</b>

**Assumptions:**

The intent is to measure Laboratory performance in executing projects within the approved TEC. The performance measure baseline is the original approved baseline adjusted for allowed cost or work scope changes. DOE determines whether changes are allowed. The method of calculating estimated cost at completion, including or excluding contingency, will be made a matter of record in the first month of the fiscal year. Contingency and cost reductions will be reflected in the estimated cost at completion. Disposition of pending Baseline Change Proposals, for the purposes of this measure, will be made by mutual agreement. By mutual agreement, projects may be weighted for significance.

**Gradients:**

Unsatisfactory	greater than 1.01
Marginal	1.01
Good	1.00
Excellent	0.99
Outstanding	0.98

**Performance Narrative:**

Six Line Item projects were rated for FY 2001. The baseline estimated cost, the actual/estimated cost at completion and the performance measure baseline TEC for all active projects were as follows:

<u>Project</u>	<u>Baseline TEC</u>	<u>Actual/Estimated</u>	<u>Performance TEC</u>
DWTF	\$62,360,000	\$62,360,000	\$63,440,000
Roofs, Phase II	22,100,000	19,900,000	22,100,000
S 300 CFF	49,700,000	49,700,000	49,700,000
TSF	88,900,000	88,900,000	88,900,000
ISF	17,370,000	17,370,000	17,370,000
SCIF	<u>24,600,000</u>	<u>24,600,000</u>	<u>24,600,000</u>
<b>Totals:</b>	<b>\$265,530,000</b>	<b>\$262,830,000</b>	<b>\$266,110,000</b>

## NOTE:

**DWTF:** A change order to construct separate rooms with minimum volume for equipment with additional environmental controls and a separate HEPA exhaust system was contained in BCP 01002 dated January 2001. The total cost for the change (PM, Design, CM&I, Construction, Permits) was \$1,580,000. DOE-EFM concurred with LLNL on June 15, 2001 that the proposed Performance Measure Baseline should be increased by \$1,580,000 to \$64,940,000. However, of that amount, LLNL is getting credit for \$63,440,000 as the Performance TEC for rating purposes because \$500,000 was saved as a result of deleting a separate facility for high level radioactive waste.

**Roofs, Phase II:** Alternate roofing (coating) instead of replacing the roof on B251 resulted in a savings of \$1,200,000 below the project budget. The savings allowed scope to be added on three other buildings. BCP no. 5 documents the changes. The scope increase on B241, B141, B321 and B121 totals \$2,200,000. EFM approved LLNL's request to increase the Performance Measure Baseline by \$2,200,000 on July 23, 2001.

Estimated cost at completion for all active projects / Performance baseline TEC for all active projects =  $\$262,830,000 / \$266,110,000 = 0.988$ .

LLNL achieved a rating of **excellent** for FY 2001, the same as the FY 2000 rating.

<b>Performance Rating (Adjectival): Excellent</b>
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84.00%
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**Performance Objective #4 Maintenance**

The Laboratory will maintain capital assets to ensure reliable operations in a safe and cost-effective manner.

**(Weight = 16%)**

**Criteria: 4.1 Facility Management**

Facility operations and maintenance are effectively managed consistent with mission, risks, and costs.

**(Weight = 8%)**

**Performance Measures: 4.1.a Program Implementation**

Sum of completion percentages for all milestones worked/milestones scheduled for completion.

**(Weight = 8%)**

**Assumptions:**

Intent is to measure the effectiveness and timeliness of the Laboratory's facility maintenance program. A list of mutually agreed milestones will be made a matter of record in the first month of the fiscal year. For multiple-facility milestones, completion percentage will be an average of the completion percentages for each facility included in the milestone. If no milestones are selected for the fiscal year, the weight of Performance Measure 4.1.a will be added to Performance Measure 4.2.a.

**Gradients:**

Unsatisfactory	less than 60%
Marginal	60%
Good	70%
Excellent	80%
Outstanding	90%

**Performance Narrative:**

DOE OAK rates LLNL’s performance in the area of facility operations and maintenance as **outstanding** for FY 2001. LLNL’s FY 2001 maintenance program included eighteen milestones, which addressed critical program elements, safety and business systems. Of 18 original milestones, one was deleted by DOE OAK based on LLNL’s justification and 17 were completed as scheduled for a performance ratio of 1.00. Milestone list for FY 2001:

1. Update Maintenance Implementation Plan (MIP) for non-reactor Nuclear Facilities. 4<sup>th</sup> Quarter completion
2. Implementation of SME, Update PM2S Manual for Configuration Management and reissue. 4<sup>th</sup> Quarter completion
3. Develop LFC Guide Document in conjunction with Space & Site Planning. 3<sup>rd</sup> Quarter completion
4. Develop Annual Maintenance Executive Summary Plan for FY 2000. 2<sup>nd</sup> Quarter completion
5. Develop one area/program specific maintenance plan. 2<sup>nd</sup> Quarter completion
6. Implement Service Agreements for FMMD business processes. 1<sup>st</sup> Quarter completion
7. Expand services provided within the Windowing Program. 1<sup>st</sup> Quarter completion
8. Establish a standard Material Procurement Charge for the Material Support Group and propose to Finance for implementation. 4<sup>th</sup> Quarter completion
9. Determine utilization rates for Maintenance/Operations Construction. 4<sup>th</sup> Quarter completion.
10. Determine annual costs to maintain and repair Maintenance/Operations Construction. 4<sup>th</sup> Quarter completion
11. Continue the process of updating preventive maintenance task codes. 3<sup>rd</sup> Quarter completion
12. Implement a Web based Job Order lookup process. 1<sup>st</sup> Quarter completion
13. Improve planning process for Maintenance Reinvestment projects. 2<sup>nd</sup> Quarter completion
14. Implement an Organizational Facility Charge system to recover facility operating costs through a distributed recharge. 1<sup>st</sup> Quarter completion
15. Automate current method used to track operating and project budgets. 4<sup>th</sup> Quarter completion
16. Strengthen the accountability of service contractors to be commensurate with LLNL and construction contractor safety requirements. 4<sup>th</sup> Quarter completion
17. Reduce maintenance efforts in facilities that have been mothballed or returned to the Institution for decommissioning and demolition. 4<sup>th</sup> Quarter completion
18. Implement a recharge rate for Maintenance/Operations Construction. Deleted from Milestones list based on approval DOE OAK.

Achievement of these safety and improved business systems milestones is evidence of LLNL Plant Engineering’s commitment to continued process improvement. Considering FY 2001 milestone selection and overall effectiveness, a rating of 95% is justified for this performance measure.

<b>Performance Rating (Adjectival): Outstanding</b>	95.00%
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<b>Criteria:</b>	<b>4.2</b>	<b>Maintenance Program</b>
The facility maintenance program is effectively managed and performed.		
		<b>(Weight = 8%)</b>

<b>Performance Measures:</b>	<b>4.2.a</b>	<b>Maintenance Index</b>
Performance index based on selected Maintenance Performance Indicators.		
		<b>(Weight = 8%)</b>

**Assumption:**

A composite index will be calculated using a weighted average for selected performance indicators. The list of performance indicators, and the calculation algorithm will be made a matter of record in the first month of the fiscal year. Performance gradient calculations will consider Best-in-Class for comparable Energy Facility Contractors Group (EFCOG) benchmarking participants and the EFCOG average for comparable activities/sites.

**Gradients:**

Unsatisfactory	less than 0.60
Marginal	0.60
Good	0.70
Excellent	0.80
Outstanding	0.90

**Performance Narrative:**

LLNL’s overall maintenance performance is **outstanding** comparable to the “Best-in-Class” among the EFCOG benchmarking participants for the selected performance indicators. The Maintenance Performance composite index score rates LLNL performance compared to the Energy Facility Contractors Group (EFCOG) benchmarking participants for the selected performance indicators. LLNL’s Facility Maintenance Program composite index score was .97 for FY 2001 for the following Maintenance Index Performance Element Indicators:

1. Safety: Number of lost workdays/Total Maintenance Employee Hours Worked
2. Maintenance Caused Operational Incidents: Total # of Maintenance Caused Operational Incidents/Total # of Occurrence Reports

3. PMs Completed on Schedule: Number of PMs Completed by Completion Date/Total Number of PMs Scheduled
4. Plant Stewardship: Total Estimated Mission Essential Maintenance and Repair Backlog/Replacement Plant Value
5. Plant Reinvestment, track and trend for information only: Total Reinvestment to Maintenance Backlog (\$)/Replacement Plant Value (\$)

Note: The composite index score is based on the summation of weighted performance element indicators (PEI) which compare LLNL performance to EFCOG average and best benchmark data using the following algorithm:

$$\begin{aligned} \text{SCORE} &= \text{Sum}(\text{Weight} * \text{PEI}) \\ \text{PEI} &= [0.3\{(\text{LLNL}-\text{AVE}) / (\text{BEST}-\text{AVE})\}] + 0.7 \\ \text{Ave.} &= \text{EFCOG Average Value (1999)} \\ \text{Best} &= \text{EFCOG Best Value (1999)} \end{aligned}$$

Again this year, of particular note is LLNL's Occurrence Report benchmark performance. This benchmark measures the total safety incidents that affect operations and result in unplanned shutdowns attributed in maintenance activities. LLNL's score of zero matched EFCOG's best value and was a direct result of LLNL Plant Engineering's continued commitment to integrated safety management. LLNL Plant Engineering also continues to contribute to the success of the EFCOG Maintenance Working Group by providing leadership, presenting improved management processes and supporting benchmarking activities. LLNL's maintenance performance warrants an overall rating of 95% for this performance measure.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>95.00%</b>
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**Performance Objective #5 Utilities/Energy Conservation**  
 The Laboratory will maintain a reliable utility system and conserve energy.  
**(Weight = 9%)**

**Criteria: 5.1 Reliable Utility Service**  
 Maintain reliable utility service.  
**(Weight = 4%)**

**Performance Measures: 5.1.a Electric Service**  
 Total number of customer hours of electric service less the number of customer hours of unplanned outages/total customer hours.  
**(Weight = 4%)**

**Assumptions**

Unplanned outages that are caused by occurrences outside the boundary of the Laboratory's utility system may be excluded. A 12-month running average will be reported.

**Gradients:**

Unsatisfactory	less than 99.974%
Marginal	99.974%
Good	99.982%
Excellent	99.990%
Outstanding	99.995%

**Performance Narrative:**

The LLNL self-assessment reports that the lab has achieved near perfection in electric service reliability. Perfection, i.e., 100% reliability, was achieved for the month of July 2001, bringing the running average for the previous 12-month period to 99.9999% reliability. This level of reliability is a result of outstanding planning and implementation of reliability upgrades to the

LLNL electric power distribution and control systems, and outstanding achievements by the LLNL electric service operations and maintenance staff.

<b>Performance Rating (Adjectival): Outstanding</b>	98.00%
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<b>Criteria:</b>	<b>5.2</b>	<b>Energy Consumption</b>
Effectively manage energy usage.		
		<b>(Weight = 2%)</b>

<b>Performance Measures:</b>	<b>5.2.a</b>	<b>Building Energy</b>
The reduction in energy usage from FY90 levels in BTUs per gross square feet of building expressed as a percent of FY90 energy usage.		
		<b>(Weight = 2%)</b>

**Assumption:**

Current year reduction goals interpolated from the DOE goal of a 20% reduction from FY90 levels by FY2005. Utility loads associated with experimental or industrial processes may be excluded from this measure by mutual agreement.

**Gradients:**

Unsatisfactory	less than 13.4%
Marginal	13.4%
Good	14.7%
Excellent	16.0%
Outstanding	17.3%

**Performance Narrative:**

Starting in FY 2001, LLNL switched to a new “Laboratory and Industrial” energy reduction goal (above) specified in Executive Order 13123. Also, starting in FY 2001 the Laboratory included in its computation previously excluded energy use in USEC/AVLIS facilities and 40% of LCW (low conductivity water) energy use. Following these changes, LLNL’s energy use reduction in FY 2001 was 20.09% below that for FY 1990. Although this exceeds the 2005 goal, it will be challenging to maintain this level, first, because the most productive energy projects have already been completed and, second, because energy intensities are increasing in many buildings.

<b>Performance Rating (Adjectival):</b>	<b>Outstanding</b>	<b>95.00%</b>
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<b>Criteria:</b>	<b>5.3</b>	<b>Energy Management</b>
Energy initiatives are managed consistent with a comprehensive energy management plan.		
<b>(Weight = 3%)</b>		

<b>Performance Measures:</b>	<b>5.3.a</b>	<b>Energy Goals</b>
Energy goals accomplished/goals scheduled to be accomplished in accordance with the plan.		
<b>(Weight = 3%)</b>		

**Assumption:**

The energy management plan will be made a matter of record in the first month of the fiscal year.

**Gradients:**

Unsatisfactory	less than 0.60
Marginal	0.60
Good	0.70
Excellent	0.80
Outstanding	0.90

**Performance Narrative:**

All eight LLNL Energy Management Plan FY 2001 goals were accomplished. These included completion of facility audits and retrofit projects, completion and initial application of a draft building commissioning procedure, funding proposals for green and distributed power and other retrofit projects, completion of the migration of databases to allow a new energy use reduction goal, and promotion of energy awareness at the Laboratory, local schools and the general public.

<b>Performance Rating (Adjectival):</b>	<b>Outstanding</b>	95.00%
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**Performance Area: FINANCIAL MANAGEMENT**

Lawrence Livermore National Laboratory (LLNL) will pilot the Financial Management Performance Assessment Plan (FMPAM) for Fiscal Year 2001. The Financial Management organization will finalize its final assessment plan with DOE and UC by October 1, 2000. This plan will cover performance thresholds, performance ranges, specific scoring criteria, and frequency of reporting.

In this Model, points are used to determine the score for each activity. Weights and the corresponding points are shown below at the Objective, Criteria, and Performance Measure Levels. Attachment A summarizes the activities to be measured, performance ranges, and point value for each activity. The final rating will be based on the total activity points earned. The rating percentage will be calculated as a ratio of total points earned to total points possible (where a total weight of 100% is equal to 500 points).

General Note Regarding Gradients

All performance measures are rated as composites of numerous submeasures described in the protocol document. Points are earned for each submeasure. The submeasure points earned are totaled for each associated performance measure. The resulting performance measure score will be calculated as a percentage of total points possible. The following table illustrates the appropriate adjectival rating associated with percentage of points earned.

<u>Percent of Points Earned</u>	<u>Rating</u>
90 – 100%	Outstanding
80 – 89%	Excellent
70 – 79%	Good
60 – 69%	Marginal
59% or less	Unsatisfactory

<p><b>Performance Objective #1 Effective Accounting Practices</b></p> <p>The Controller's Organization shall ensure the accounting practices are effective, efficient, and according to generally accepted standards and principles.</p> <p style="text-align: right;"><b>(Weight = 12% / Total Points = 60)</b></p>
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<p><b>Criteria: 1.1 Cash Management</b></p> <p>The Controller's Organization shall have effective processes to disburse and collect government funds.</p> <p style="text-align: right;"><b>(Weight = 2% / Total Points = 10)</b></p>
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<p><b>Performance Measures: 1.1.a Effectiveness of Disbursements</b></p> <p>The improvement trends for payment processes to vendors and employees will be measured.  <b>(Weight = 1% / Total Points = 5)</b></p>
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**Performance Narrative:**

LLNL continues to ensure effective processes are in place for making disbursements to employees and vendors. A new FY 2001 performance measure involves improving the percentage of payments made to vendors via electronic funds transfer. The LLNL accounts payable organization was able to increase the percentage of employees and vendors utilizing electronic funds transfer by 43% over FY 2000 (1,458 versus 1,017) and 140% (1,473 versus 573) respectively.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	<p>90.60%</p>
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<p><b>Performance Measures: 1.1.b Effectiveness of Collections</b></p> <p>The improvement trends for collection of accounts receivable will be measured.  <b>(Weight = 1% / Total Points = 5)</b></p>
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**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

LLNL continues to be extremely effective in collecting accounts receivable for both federal and non-federal customers before the debts become delinquent; a cumulative average of 90% of debts were collected before delinquency in FY 2001. As of September 30, 2001, the laboratory had no federal or non-federal delinquent debts greater than 160 days old that had not been collected, did not have formal written payment agreements in place or had not been referred to OAK. As a result, the laboratory is meeting all DOE and Debt Collection Act requirements.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	<p>99.90%</p>
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<b>Criteria:</b>	<b>1.2</b>	<b>Account Management</b>
Ensure that the Controller's Organization effectively manages high risk accounts. (Weight = 8% / Total Points = 40)		

<b>Performance Measures:</b>	<b>1.2.a</b>	<b>Work For Others (WFO) Accounts - Use of UC Bridge Funding</b>
The Controller's Organization shall demonstrate effective management of UC financing of WFO. (Weight = 2.4% / Total Points = 12)		

**Performance Narrative:**

Management of the UC-funded account for overrun projects has been outstanding. The cumulative average of projects using bridge funding was 2.25 months in FY 2001 and 2.24 months in FY 2000. A longstanding project that has been UC funded for over five years should be closed out in FY 2002. Because the laboratory is effectively managing UC funded projects, total UC bridge funding to total WFO invoices is lower compared to last year; cumulative percentage is 1.24% in FY 2001 compared to 1.92% in FY 2000. Additionally, bridge funded reports are always submitted to DOE/OAK timely.

<b>Performance Rating (Adjectival):</b>	<b>Outstanding</b>	97.30%
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**Performance Measures: 1.2.b High Risk Account Reconciliations**

The Controller's Organization shall demonstrate effective accounting processes/results for high-risk account reconciliations.

**(Weight = 3.2% / Total Points = 16)**

**Performance Narrative:**

LLNL continues to be outstanding in reconciling and resolving vendor and payroll banking accounts. Reconciliation of vendor and payroll accounts is to be performed within 20 days after receipt of statement from financial institution. Controllable reconciling items greater than 60 days will not exceed 25%. The laboratory has far exceeded these performance standards as shown below:

**PAYROLL**

	# Days Reconciled	% of Reconciling Items > 60 Days
FY 2001	4.6	11.6%
FY 2000	11.2	17.42

**VENDOR**

	# Days Reconciled	% of Reconciling Items > 60 Days
FY 2001	2.2	4.0%
FY 2000	3.1	7.03%

In addition to the above, LLNL has been extremely proactive in ensuring that the banking agreement terms are being followed. For example, LLNL reviews monthly bank statements against the contractual schedule of bank services and charges to ensure that on those charges allowed are paid. All exceptions to billed items are being provided to DOE/OAK routinely.

**Performance Rating (Adjectival): Outstanding** 100.00%

<p><b>Performance Measures: 1.2.c Asset Management</b></p> <p>The Controller's Organization shall demonstrate effective accounting processes/results for asset management.</p> <p style="text-align: right;"><b>(Weight = 2.4% / Total Points = 12)</b></p>
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**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each.

**Performance Narrative:**

The Laboratory has effective accounting processes in place to ensure satisfactory management of assets/construction projects. Construction projects are closed and surplus assets are disposed of or written down according to DOE requirements. LLNL continues to report all operating and GPP funding determinations to DOE/OAK timely and accurately. All GPP funding determinations made by the laboratory in FY 2001 met the criteria outlined in the DOE Accounting Handbook and GPP Order.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	<p>100.00%</p>
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<b>Criteria:</b>	<b>1.3</b>	<b>Cost Effective</b>
Cycle times and/or costs of identified accounting processes shall be reduced. (Weight = 2% / Total Points = 10)		

<b>Performance Measures:</b>	<b>1.3.a</b>	<b>Demonstrated Cost Effectiveness of Accounting Processes</b>
Improvement trends for identified accounting processes shall be evaluated. (Weight = 2% / Total Points = 10)		

**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

Through Laboratory financial systems improvements, LLNL is meeting workload requirements and maintaining or improving other accounting processes. LLNL reduced the cost per transaction to process an invoice line in FY 2001 to \$5.82 from \$6.41 in FY 2000. The cumulative cost to process a payroll transaction slightly increased in FY 2001 to \$89.59 from \$88.92 in FY 2000. LLNL indicates that there will be minimal opportunity for significant cost reductions in the future. The cumulative accounts receivable cost per transaction for FY 2001 remained fairly stable at \$83.21.

<b>Performance Rating (Adjectival):</b>	<b>Outstanding</b>	97.80%
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<p><b>Performance Objective #2 Financial Stewardship</b></p> <p>The Controller's Organization practices provide for financial stewardship, including compliance, data integrity and reporting.</p> <p style="text-align: right;"><b>(Weight = 30% / Total Points = 150)</b></p>
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<p><b>Criteria: 2.1 Financial Compliance</b></p> <p>The Controller's Organization shall demonstrate stewardship and compliance with DOE and federal accounting standards and policies.</p> <p style="text-align: right;"><b>(Weight = 15% / Total Points = 75)</b></p>
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<p><b>Performance Measures: 2.1.a Audit Results and Resolution</b></p> <p>The Controller's Organization will be measured on the audit results and resolution of audit findings.</p> <p style="text-align: right;"><b>(Weight = 1.8% / Total Points = 9)</b></p>
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**Performance Narrative:**

Based on our review of LLNL's CO's Action Tracking System, we concur with the Laboratory's assessment that aggressive targets for resolving audit findings were set and that the resolution of these findings were completed. We have rated this performance measure as **outstanding** as demonstrated in the following paragraphs.

During the period ending, September 30, 2001, twelve audits have been completed. The audits were Bank Account Administration and Reconciliation, Cash Controls in Health Services, Conference Administration, Cost Liens Adjustments Sub-Ledger (CLASS), Consolidated Financial Statements, Cost Allowability, Energy Program Administration, Internal Control Assessment, National Security Administration, Research and Development, Travel, and Unclassified Information Systems. These audits identified five Financial Management efficiency improvements. All financial efficiency findings have been resolved.

During FY 2001, the research and development audit performed by the OIG alleged that the Laboratory performed research and development that was not authorized by DOE or appropriately charged for fiscal years 1998 – 2000. The Laboratory and DOE/OAK disagree with the OIG opinion. LLNL is currently awaiting instruction from DOE/OAK for resolution of this finding.

Aggressive target dates were set for all audit findings and all target resolution dates were met. LLNL Finance ensures that corrective actions related to audit recommendations receive management support and immediate attention. All open financial audit findings are incorporated into the CO's Action Tracking System. The system provides a central location for tracking all financial audit findings, providing increased visibility for these findings. CO's Action Tracking System reports are readily available to management for follow-up on open findings, agreed upon resolution dates, and other pertinent information.

<b>Performance Rating (Adjectival): Outstanding</b>	100.00%
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**Performance Measures: 2.1.b Internal Controls and Compliance on Subject Areas**

The Controller's Organization will be measured on the adequacy of their internal controls environment.

**(Weight = 3.6% / Total Points = 18)**

**Performance Narrative:**

DOE OAK's rating of this performance measure was based on validation of the Laboratory's documentation that supported an **outstanding** rating by conforming to gradients necessary for a higher rating.

The Controller's Organization continued its strong commitment to maintaining effective systems and improving systems for identifying, reviewing, and correcting Financial Management internal control/compliance processes.

In FY 2001, the Controller's Organization along with other LLNL organizations participated in a comprehensive risk assessment system conducted by LLNL's Internal Audit Services (IAS) to prioritize risk areas for review. The Controller used the results of this process along with inputs from DOE and IAS to identify four high-risk Financial Management areas for self-assessment. These areas included Accounts Receivable Collections, Costs, Liens, and Adjustments Sub-System (CLASS), Sub-Cashiering Stations Cash Controls, and Time Reporting. The self-assessments did not disclose any significant risks or serious deficiencies. A brief summary of LLNL's assessment methodology and results follow.

**Accounts Receivable Collections**

The objectives of the Accounts Receivable Collections Self-Assessment were to examine the accounts receivable collections process and controls, identify significant risks, and implement corrective action for any identified risks. The scope of the work involved the adequacy of collection activities for debts resulting from Work for Other projects and miscellaneous debts with the public and employees.

Based on our review of documentation such as the Laboratory's written analysis and LLNL's demonstrated adherence to policies and procedures related to accounts receivables, we concur with LLNL's conclusion that overall there were sufficient desk procedures and controls for accounts receivable collections and that the documentation for the collection actions were adequate.

To meet these objectives, our validation of this self assessment indicated that Finance performed interviews with members of the Revenue Accounting Team involved in debt collections in order to gain an understanding of the process and controls in place; reviewed the DOE Accounting Handbook and LLNL Financial Policies and Procedures to determine if processes and controls currently in place are in compliance; chartered 13 months of collection activities to obtain information useful in identifying trends/improvements/areas of concern; and, obtained sample documentation representing the collection process.

The self-assessment did not uncover any significant risks in the process or controls. However, there were three process improvement recommendations such as, (1) the rate of interest charged on delinquent debt should be recomputed to the Treasury Value of Funds Rate that is set effective January 1, of each year; (2) dunning letters should include a paragraph that explains the charges and the debtor's rights; and, (3) that all communication via telephone/fax etc., to delinquent customers be entered into the accounts receivable system to generate a log so that contact history is accurately recorded. These recommendations were implemented within a month of the review.

#### Costs, Liens, and Adjustments Sub-System (CLASS)

The objectives of the self-assessment were to follow-up on the audit performed by Internal Audit Services in April, FY 2001, review controls, identify any significant risks, and propose and implement corrective actions for any identified risks.

The CLASS is a sub-system of the Account Management System (AMS). AMS validates account status, associated account controls, and authorized signers for various financial transactions related to General Ledger (G/L) accounts. CLASS produces a G/L front end load feeder file for the detail cost transfers, produces a liens transfer file that is processed in Procurement and Receiving Information System (PARIS), produces an Effort file that updates Effort tables, and produces an accrual file for G/L processing. The CLASS/AMS uses the Web ID/Password authentication process.

Our validation of this self-assessment included a review of Internal Audit Report No. 00-12, CLASS, and documentation supporting the Laboratory's written analysis of this area. We concur with the Laboratory's conclusion that the balance between risks and controls, both system and manual, provided reasonable assurance that data forwarded to the G/L, PARIS, and Effort Systems were accurate, reliable, and timely.

However, the audit report noted that improvements were needed in the Institutional Web ID/Password. The Administrative Information Systems (AIS) Department and the Laboratory's Computer Security Operations (CSO) agreed to lead an effort to enhance the automated Web/ID/Password authentication process, including notification when passwords should be changed and a three failed attempts log in control for the CLASS/AMS and related Laboratory business systems.

The audit report also suggested that minor system improvements such as managing the CLASS access lists, and formalizing procedures for approving the CLASS memos, could be made to CLASS to add value at minimal cost. These suggestions have been implemented. In addition to relying on internal audit work, LLNL's Finance Department also interviewed several employees that work with CLASS to ascertain that there were no significant risks. The self-assessment review did not disclose any issues requiring management attention.

#### Sub-cashiering Stations Cash Controls

The objectives of the Sub-Cashiering Stations Cash Controls Self-Assessment were to follow-up on the status of audit recommendations from the Health Services audit performed by Internal Audit Services in March, FY 2001, identify any significant risks, and propose and implement corrective actions for any identified risks.

Based on our review of LLNL's documentation, we concur with the Laboratory's conclusion that internal controls related to currency and checks received at LLNL were determined to be adequate. The self-assessment did not identify any risks that required management attention.

To validate these results we reviewed Internal Audit Report No. 01-12, Cash Controls in Health Services, March 2001 and additional work performed by Finance. The internal audit report disclosed that the controls over the Health Services Department’s cash practices were effective. However, three opportunities were identified for strengthening cash handling practices. These included improving cash handling and recording practices, cash receipts reconciliation practices, and complying with UC Business and Finance Bulletin BUS 49. Based on Finance Department’s self-assessment follow up documentation these recommendations have been implemented.

In addition to relying on internal audit work, the Finance review included several additional steps, such as surveys to determine adherence to LLNL’s Financial Policy and Procedure 8.1e “Sub-Cashiering Stations,” conducting interviews based on the survey results, judgmentally sampling 10 sub-cashiering stations, and verifying cash receipts to revenue reports, receipt logs and account receivable deposit confirmation report. There were several instances where individuals did not follow the proper procedures noted in the financial policies and procedures. These included a failure to obtain supervisory approval for voided cash receipts, failure to endorse checks, failure to keep checks in a locked repository, and some of the currency collected from the HOME campaign not collected in accordance with the sub-cashiering policy. Except for the last item, no further action was deemed necessary. For the last item, it was recommended that future funds for HOME be handled outside of LLNL’s accounting systems.

Time Reporting

The objectives of the Time Reporting Self-Assessment were to examine the time reporting process to assure adequate controls are in place, identify any significant risks, and propose implement corrective actions for any identified risks.

Our review of Laboratory’s written analysis of this area and interview with Laboratory personnel indicated that the time reporting has adequate internal controls and system controls which assure the accuracy and timeliness of reporting employee time.

The time reporting system, Laboratory Institutional Time Entry (LITE), protects time reporting data from unauthorized change and generates a record of any change made. The self-assessment did not uncover any significant risks in the process or controls. However two issues were identified. These included the inability to make on-line time card corrections and the lack of a comprehensive adjustment audit trail. The functionality of LITE has been improved to eliminate both issues as demonstrated below.

Based on interviews of LITE programmers and real time testing of corrections in the time reporting process, the Laboratory’s self-assessment included the recommendation to implement an electronic means to provide time reporting adjustments. The adjustment phase of LITE provides point-of-entry validations, mandated on-line attestations of changes to the timecard, complete approval and authorization process, and a comprehensive audit trail. This incorporates the same functionality as LITE’s original time entry and streamlines the adjustment process by virtually eliminating paper timecards. It provides enhanced internal controls by providing a comprehensive audit trail, a mandated approval and authorization process, and point-of-entry payroll and effort validations. LITE stores the attestations internally and eliminates the amount of paper to be stored. The LITE adjustments were successfully implemented in September of FY 2001.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>95.00%</b>
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**Performance Measures: 2.1.c Cost Accounting Practices**  
 The Controller's Organization compliance with Cost Accounting Standards will be measured.  
**(Weight = 4.8% / Total Points = 24)**

**Performance Narrative:**

LLNL continues to meet the requirements of the Federal Cost Accounting Standards in all areas measured by this evaluation and has therefore helped support an overall excellent rating in Financial Management.

Provisional indirect rate changes were submitted in the format agreed to when revised estimates were required in a timely manner. When detailed reviews were performed by OAK on the changes, data was accurate, timely and well supported. OAK also reviewed the final rates this year to ensure the rates were accurate and compliant with CAS. In that review, year-end variances were also determined to be properly disposed of with the exception of the payroll burden. This condition of the payroll burden was cited in several reviews over the last two years. In FY 2000 the improperly disposed of year-end variance was almost one million dollars and has increased to two million dollars in FY 2001. This worsening condition is a material noncompliance with CAS and needs to be corrected within FY 2002. Failure to correct this condition will have an adverse impact on this submeasure in FY 2002.

This year there were many issues that required CAS change proposals, including an idle labor due to the September 11, 2001 incident, Consolidated Fire Dispatch Center, and a Self-Constructed Asset policy change. In addition, proposals were submitted for Capitalization Determination of the UK Shot Rate Enhancement and a change to the National Security Office Program Management Charge. All the proposals met the agreed upon Protocol for Disclosure of Proposed Changes in Cost Accounting Practices. In addition, the initial submissions of the proposals substantially met the CAS standards. OAK thoroughly reviewed the proposals. On the occasions where OAK required modification to the proposals, agreement was reached resulting in a successful enhancement to LLNL's cost distribution system.

In FY 2000, OAK performed a thorough review of the Cost Accounting Standards Disclosure Statement (DS). Several revisions were required to be made in the FY 2001 DS resulting from that review. OAK reviewed the revisions to ensure that the DS clearly described the agreed to changes. Based on that review LLNL properly revised the DS. OAK believes that the DS submitted by LLNL in 2001 meets the requirements of this measure.

**Performance Rating (Adjectival): Outstanding** 100.00%

<p><b>Performance Measures: 2.1.d Accuracy of DOE Financial Statements</b></p> <p>Demonstrate effective accounting processes/results for accuracy of DOE financial statements.  <b>(Weight = 4.8% / Total Points = 24)</b></p>
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**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

There were no audit findings as a result of the FY 2000 financial statement audit at LLNL. In addition to ensuring adequate internal controls are in place and financial accounts are monitored and reconciled, the Laboratory Finance Department aggressively reviews financial data for data integrity issues and runs DOE combination and balancing as well as other financial statement edits monthly and prior to year-end closing. The Laboratory's financial statement analysis is thorough and addresses all DOE and Federal Accounting Standard requirements. Managerial cost data was provided on time and error free. LLNL's outstanding efforts in the financial statement audit greatly contributed this office receiving an unqualified opinion on the annual audit three years in a row.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	<p>100.00%</p>
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<b>Criteria:</b>	<b>2.2</b>	<b>Financial Reporting</b>
The Controller's Organization will demonstrate effective reporting of financial information. (Weight = 10% / Total Points = 50)		

<b>Performance Measures:</b>	<b>2.2.a</b>	<b>Internal Financial Management Reporting</b>
The Controller's Organization will be measured on the reporting of financial information to internal customers. (Weight = 3% / Total Points = 15)		

**Performance Narrative:**

The laboratory ensures valuable financial reporting tools are provided to the appropriate internal organizations. The reports are reviewed for accuracy and monitored to ensure that they are either distributed or made available on the Laboratory web site. The reports were made available to users timely over 98% of the time in FY 2001.

<b>Performance Rating (Adjectival):</b>	<b>Outstanding</b>	100.00%
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<p><b>Performance Measures: 2.2.b DOE External Laboratory Reporting</b></p> <p>The Controller's Organization will be measured on the reporting of financial information to DOE and other external customers.</p> <p style="text-align: right;"><b>(Weight = 7% / Total Points = 35)</b></p>
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**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

The monthly financial MARS data was submitted by the due date 100% of the time. LLNL always supports any new DOE requirements and MARS changes. LLNL timely submitted the Budget and Reporting (B&R) recast data timely, which included a major recast of the largest funding sponsor at the laboratory (Defense Programs). The recast was completed in the first month of calendar year 2001 in accordance with direction from DOE DP managers. New B&R requirements were also implemented for recording Federal Administrative Charges and began reporting OPI codes on all revenue and expenses transactions effective FY 2001. In addition, LLNL successfully completed the switch of the Safeguards and Security program from a primarily overhead program to a direct funded program. This change also involved changes to the costs applied to WFO customers.

All responses to DOE ad hoc requests were provided timely.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	<p>100.00%</p>
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<b>Criteria:</b>	<b>2.3</b>	<b>Standards and Principles</b>
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The Controller's Organization shall have documented, effective internal controls and policies and procedures.

(Weight = 5% / Total Points = 25)

<b>Performance Measures:</b>	<b>2.3.a</b>	<b>Financial Controls</b>
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The Controller's Organization shall demonstrate the effectiveness of internal controls in primary accounting processes as identified with DOE.

(Weight = 4% / Total Points = 20)

**Performance Narrative:**

The areas identified for self-assessment included the following: Licensing/Royalty Collection and Distribution; WFO Account Management; UCDRD Account Management; and, Change of Station (COS) Accounting. The agreed upon objectives for these self assessments consisted of adequate separation/segregation of duties, existence of policies and procedures, existence of alert mechanisms to identify problems, and adequate computer security – applications and network/desktop.

Based on interviews, demonstrations of accounting processes, and review of appropriate documentation such as LLNL financial policies and procedures, we determined that LLNL has met the objectives that demonstrate the effectiveness of internal controls in primary accounting processes and merit an outstanding rating as demonstrated below.

**Licensing/Royalty Collection and Distribution**

The LLNL Industrial Partnerships and Commercialization (IP&C) Office initiates the appropriate terms and conditions of licensing agreements and is the primary landlord of the original licensing documents. Based on the contract information forwarded by IPAC, LLNL's Finance Department has the responsibility to properly manage all revenues and related disbursements including collecting, recording, reporting, and disbursing of revenues resulting from authorized LLNL licensing activities.

In addition to separation of duties at the organizational level, receipt and deposit of royalty income are performed by separate personnel within the Finance Department. While disbursements of royalty income are requested by IPAC, checks are prepared and mailed by Finance personnel. Additionally, a group in Finance separate from the collections and disbursements groups performs the bank reconciliations related to deposits and withdrawals of royalty income and licensing fees.

Financial policies and procedures governing royalty/licensing transactions are included in LLNL's Financial Policy and Procedure 17.2 entitled "Licensing Revenues and Disbursements" and 17.2a "Royalty and License Revenues and Disbursements."

Alert mechanisms to identify problems include an open listing of accounts receivable (royalty income and licensing fees to be collected) prepared by Finance and used by IPAC to ensure appropriate collection and deposit of royalties and licensing fees. Another alert is the check register prepared by Finance and reviewed by IPAC to ensure proper disbursements of royalties and fees.

Automated financial records are shared by Finance and IPAC through a secure computer system. Access to the records is protected through various levels of validation procedures and passwords.

### **WFO Account Management**

Reimbursable Work For Others (WFO) provides for the use of LLNL facilities and resources to perform Work For Other DOE and non-DOE entities. Upon DOE approval of a WFO project, the performing Laboratory organization opens a WFO account to charge the necessary costs to be reimbursed by those organizations sponsoring the work. WFO financial transactions are tracked and monitored through the Revenue Management Revenue System (RMS), managed by the Finance Department's WFO Services Division.

The RMS ensures internal processing controls such as separation of duties in accounting for WFO projects through the use of custom system edits such as on-line user validation and password protection. The RMS interfaces with the Account Management System (AMS), managed by the Finance Accounting Services Division. The AMS provides users the capability to manage all account related activities, such as account opening and closing and account signature responsibilities through business rules which provide additional assurance that only users with appropriate responsibility, delegated authority and a business need could access and perform tasks in RMS. The RMS also validates that there is approved sponsor funding in place before allowing a WFO account to be opened. Until funding is approved by DOE, and a WFO general ledger cost account is opened, a new WFO project cannot begin.

The following LLNL financial policies and procedures provide guidance for WFO account management:

- 5.9 Revenue Management System
- 5.10 Account Management System
- 6.1 Account Openings, Closings and Controls
- 6.1a Non-Department of Energy Funded Work Account Closing
- 6.2 Signature Responsibility
- 6.3 Financial Recording and Reporting
- 6.4 Financial Management Training
- 14.0 Reimbursable/Work for Others - Department of Energy
- 15.1 Reimbursable/Work for Others - Federal
- 15.2 Reimbursable/Work for Others - Non-Federal
- 16.1 Grants
- 20.3b Reimbursable/Work for Others Classification of Costs
- 20.7 University of California Funding of Project Overruns

The alert mechanism in place for WFO accounts includes notifications that accounts can be opened, that funding is expiring and account closure should be considered, and that WFO reports on project funding and cost status are available. These notifications consist of e-mail messages automatically created in the RMS and sent to Resource Analysts and WFO Specialists for potential action.

The first level of computer security is the personal password of each desktop user. Additional measures include taking mandatory training classes before log-on authority is granted.

**UCDRD Account Management**

University of California - Directed Research and Development (UCDRD) funding is provided to the Laboratory from the University of California (UC) Performance Management fee for research and research-related activities, either inside or outside the Laboratory. Under no circumstances are UCDRD funds used for augmentation of funds furnished by the federal government. UCDRD funds are also managed through the RMS.

The RMS managed by the Finance Department’s WFO Services Division also ensures internal processing controls, such as separation of duties in accounting for UCDRD projects through the use of custom system edits, as well as business rules incorporated through the AMS. By employing on line validation and password protection along with AMS business rules such as signature responsibility levels, the Laboratory provides assurance that only users with appropriate responsibility, delegated authority and a business need could access and perform tasks in RMS. The RMS also validates that there is approved sponsor funding in place before allowing a UCDRD account to be opened. Until funding is approved by DOE and a UCDRD general ledger cost account is opened, a new UCDRD project cannot begin.

UCDRD account management guidance is incorporated from the following LLNL policies and procedures:

- 5.10 Account Management System
  - 6.1 Account Openings, Closings and Controls
    - 6.1a Non-Department of Energy Funded Work Account Closing
  - 6.2 Signature Responsibility
  - 6.3 Financial Recording and Reporting
  - 6.4 Financial Management Training
- 19.3 University of California - Directed Research and Development

The alert mechanism in place for UCDRD accounts include notifications that accounts can be opened, that funding is expiring and account closure should be considered, and that UCDRD reports on project funding and cost status are available. These notifications are automatically created in the RMS as e-mail messages and sent to Resource Analysts and WFO Specialists for potential action.

The first level of computer security is the personal password of each desktop user. Additional measures include taking mandatory training classes before log on authority is granted.

<b>Performance Rating (Adjectival): Outstanding</b>	95.00%
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<p><b>Performance Measures: 2.3.b Financial Policies and Procedures</b></p> <p>The consistency, accuracy, completeness, and currency of financial policies and procedures will be measured.</p> <p style="text-align: right;"><b>(Weight = 1% / Total Points = 5)</b></p>
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**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

LLNL has 110 financial policies that are closely monitored and maintained. A Laboratory Policy Coordinator is assigned to identify any internal or external changes made that affect the policies and procedures and ensures that procedures are revised as required. In FY 2001, five new policies were developed and 52 policies were revised. These policies and procedures are made available on the Laboratory web site and are also available to DOE/OAK.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	<p>100.00%</p>
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<p><b>Performance Objective #3 External Budget Products and Services</b></p> <p>The Controller's Organization provides quality and appropriate budget formulation and execution products and services to external customers in support of their financial management systems, policies, and procedures.</p> <p style="text-align: right;"><b>(Weight = 20% / Total Points = 100)</b></p>
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<p><b>Criteria: 3.1 Budget Formulation and Validation</b></p> <p>The Controller's Organization shall provide budget formulation products and services that facilitate effective financial management and stewardship of resources.</p> <p style="text-align: right;"><b>(Weight = 5% / Total Points = 25)</b></p>
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<p><b>Performance Measures: 3.1.a DOE Budget Submission</b></p> <p>The Laboratory's DOE budget submission will be measured for proactiveness, timeliness, accuracy, completeness, and customer satisfaction</p> <p style="text-align: right;"><b>(Weight = 1.6% / Total Points = 8)</b></p>
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**Performance Narrative:**

The LLNL satisfactorily responded to all DOE Field Budget Submission requirements. Budget formulation during the FY 2001 timeperiod (the FY 2003 budget submission) got off to a late start due to the change in federal administrations. Additional changes related to the requirements of the newly created NNSA (National Nuclear Security Administration) also complicated the FY 2003 budget formulation process. Despite an atmosphere of often late and/or confusing guidance, LLNL provided quality submissions as requested and on time. The LLNL Budget staff took the initiative in advance of the DOE budget call to start its internal formulation, to update its automation systems and to provide training to the field elements. LLNL accomplished this level of success despite the turnover of several key Budget Office personnel. This success reflects well on both the established LLNL budget formulation system and on the new and remaining personnel. LLNL was fully responsive to the changing nature of this dramatic and dynamic formulation process. The OAK Budget staff maintained a working knowledge of the Laboratory budget activities through on-going operational awareness interactions.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	<p>100.00%</p>
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<p><b>Performance Measures: 3.1.b Field Budget Validation</b></p> <p>The Laboratory’s field budget validation activities will be measured for proactiveness, timeliness, accuracy, completeness, and customer satisfaction.</p> <p style="text-align: right;"><b>(Weight = 3.4% / Total Points =17)</b></p>
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**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

LLNL conducted budget validation on two fronts. First, the LLNL Budget staff worked closely with the Laboratory program managers to create reasonable and supportable budget requests. Secondly, the LLNL Budget staff worked with the OAK budget liaison to conduct a formal, annual budget validation review of selected areas. The LLNL Budget Formulation process includes a number of checks and balances to assure that estimates are created that are fully loaded and properly escalated. The automated tools created by LLNL aid these program managers in properly pricing out the costs of FTEs and other budget elements. The Budget staff then works with the program managers as the formulation process continues. Using the tools available to narrow their scope to areas of concern, the Budget staff reviews the estimates. Any questions are worked out between the budget and program offices prior to submission to DOE. Once submitted, LLNL and OAK jointly reviewed several programs to review the underlying assumptions, processes and supporting documentation that went into the creation of the budget requests. The OAK Validation Report, currently in draft as of this appraisal, states the OAK satisfaction with the quality of the LLNL budget formulation.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	<p>100.00%</p>
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**Criteria: 3.2 Budget Execution and Cost Management**

The Controller's Organization shall provide budget execution products and services that facilitate effective financial management and stewardship of resources.

**(Weight = 15% / Total Points = 75)**

**Performance Measures: 3.2.a Control of Funds**

The Laboratory's costs and commitments are controlled within established limits.

**(Weight = 8% / Total Points = 40)**

**Performance Narrative:**

LLNL successfully controlled costs within the established control limits as set in the UC/DOE contract. Each month throughout the year, recorded costs were within each Obligation Control Level (OCL). For the operating programs, these control levels are established at the macro level by the DOE budget request and the Congressional appropriation process. Dollar thresholds then flow down through the DOE program management process to assure that no funding violations occur. In addition, each individual construction line item and individual Work for Others order is its own OCL.

At year-end, the sum of costs plus commitments (liens) is compared to the available funding with in each OCL. LLNL successfully controlled costs plus commitments within the control levels, including a spread of the distributed budget (overhead) commitments across the funded programs.

At a more micro level, LLNL has worked with OAK to control costs at the B&R reporting level. The reporting level is a subset of the mandated Obligation Control Levels. Funds are provided to the Laboratory on a series of contract modifications throughout the year at this lowest level of control. LLNL was able to average 95.8% of individual B&Rs controlled successfully. (Average of the monthly success rates). The table below shows that LLNL was even more successful during the later months of the year, once the funding picture became clear.

Month	Percentage of Costs within Funding by Lowest Level of B&R
October 2000	93.9%
November 2000	88.5%
December 2000	89.9%
January 2001	92.8%
February 2001	96.9%
March 2001	96.7%
April 2001	97.4%
May 2001	97.2%
June 2001	97.6%
July 2001	98.7%

Fiscal Year 2001 Performance

August 2001	99.6%
September 2001	100.0%

<b>Performance Rating (Adjectival): Outstanding</b>	100.00%
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**Performance Measures: 3.2.b**

The Controller's Organization's reporting of budget execution and cost management to DOE will be measured.

(Weight = 7% / Total Points = 35)

**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

LLNL demonstrated an outstanding level of reporting and responsiveness in the area of budget execution and cost management during FY 2001. Reports have been submitted in a timely, accurate, and complete manner.

For example, a complete and usable FY 2000 Functional Cost Report was submitted on time to OAK. The level of quality was borne out when, in February, LLNL was selected by the Functional Support Cost Peer Review Team to have its FY 2000 report reviewed. It was determined at the conclusion of this review that "LLNL complied with the FSCR guidelines and definitions resulting in an acceptable accuracy of the data."

LLNL submitted a timely, accurate, and complete FY 2000 Uncosted Balances Submission Report to DOE.

While no DOE Defense Programs Financial Variance Reporting System (FIVRS) Cost Report was requested in FY 2001, the FTE (Full Time Equivalents, a personnel usage report) section of the FIVRS did continue. This report is of great use to the HQ Defense Programs staff in responding to Congressional requests. Each quarter, the FIVRS staffing report was complete, timely and accurate based on DOE's established due dates and guidance. The FY 2001 and FY 2002 estimated FTE average levels were based on the latest planning data in LLNL's institutional planning systems and DOE budget submissions.

LLNL prepared timely, accurate, and complete ad hoc budget execution and cost management reports during FY 2001. Each fiscal year, there are a number of one-time requests for information that arise. LLNL continued to respond in a timely and successful manner to such requests as: the Travel Ceiling Survey, the Employment Distribution by Program request, the Call for Safeguards and Security billed to Work for Others customers, and the request for impacts of potential rises in the cost of power. LLNL was quite responsive and helpful to DOE in this area.

LLNL's Functional Cost Report was timely accurate and complete in FY 2001. The formal report was submitted on the deadline date, though advanced copies were sent electronically before the due date. OAK reviewed the data provided and confirmed the accuracy two levels below the reporting categories. The report was found to be accurate with only one minor error that had little effect on the results. As a confirmation to the accuracy of the report, a peer review was

performed on the prior year data and the report was found to comply with FSCR guidelines. All the data was received and all the reporting requirements were met including a new requirement to report direct and indirect subcategories. Therefore, LLNL meets the requirements of this measure

<b>Performance Rating (Adjectival): Outstanding</b>	100.00%
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**Performance Objective #4 Effective Decision Support**

The Controller's Organization provides appropriate business information and intelligence, expertise, analysis, and reports that enables effective internal and external decision making processes and outcomes.

**(Weight = 18% / Total Points = 90)**

**Criteria: 4.1 Internal Planning, Reporting, and Analyses**

The Controller's Organization shall provide effective planning, reporting, and analytical decision support to its internal customers.

**(Weight = 18% / Total Points = 90)**

**Performance Measures: 4.1.a Operating Plan Development**

The Controller's Organization Operating Plan development activities will be measured.

**(Weight = 9% / Total Points = 45)**

**Performance Narrative:**

LLNL took several proactive steps in meeting this performance measure in order to prepare timely, accurate, and complete operating plans. There is a monitoring system in place to review the operating plan. LLNL fully met the intent of this measure.

LLNL took significant steps to improve the calculation speed for updating plans, to add planning data to the institutional reporting system for better analysis and to develop additional tools for analyzing plans and identifying areas to review. An example of those tools is the G&A/Program Management Charge (PMC) collection base analytical tool.

The Laboratory's operating plan was updated timely in all 12 months which allows for its use to support Laboratory decisions such as hiring plans, rate estimates, and distributed budget formulation.

The Laboratory's operating plan was mathematically accurate and complete in each of the 12 months. All of the 12 monthly operating plans are considered complete and no significant mathematical errors or omissions were found that required them to be reloaded to institutional information systems.

LLNL completed three scheduled reviews of the operating plan, held at the five, eight, and ten-month intervals. At these times the plans were compared to actual data and costs were projected

as of year-end. Significant deltas were discussed with the directorates and changes were facilitated for plans, budgets, and rates as necessary.

<b>Performance Rating (Adjectival): Outstanding</b>	100.00%
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**Performance Measures: 4.1.b Institutional Distributed Budget and Rate Management**

The Controller's Organization institutional distributed budget and rate management activities will be measured.

**(Weight = 9% / Total Points = 45)**

**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

LLNL took several proactive steps in meeting this performance measure and met LLNL management's customer satisfaction expectations.

LLNL Controller's Organization continuously ensured that accurate, up-to-date distributed budget/rate information was provided to the LLNL programs through the Organization Rates and Rules System (CORRS). In addition, periodic meetings with the Deputy Directors were held to discuss current distributed budget issues requiring institutional resolution and monthly execution reports were provided to keep LLNL Senior Resource Managers apprised of institutional distributed budget issues and status. Monthly Institutional Budget Collection Review meetings were conducted, and quality assurance checks were applied to collection estimates.

Institutional distributed budgets and costs were monitored regularly to ensure proper budget execution. Budget Office analysts estimated the largest FY 2001 institutional budget collection area (G&A) without significant mathematical errors. In addition, FY 2001 institutional collections for LDRD and IGPE were estimated using historical data. Collection estimates were reviewed and evaluated throughout the fiscal year. Finally, the Budget Office continuously evaluated and adjusted organizational and institutional expectations during FY 2001.

LLNL met the needs of the Laboratory management. To cultivate customer satisfaction, care is taken to ensure that institutional information provided to LLNL management is timely, accurate, and complete.

**Performance Rating (Adjectival): Outstanding** 100.00%

<p><b>Performance Objective #5 Effective Financial Management Systems</b></p> <p>The Controller's Organization will provide proactive leadership in improving financial information systems and decision support tools, in support of DOE and Laboratory initiatives.  <b>(Weight = 10% / Total Points = 50)</b></p>
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<p><b>Criteria: 5.1 Effective Internal Systems</b></p> <p>The Controller's Organization will provide proactive leadership in improving financial information systems and decision support tools.  <b>(Weight = 5% / Total Points = 25)</b></p>
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<p><b>Performance Measures: 5.1.a Evolving to Meet Technology Advances</b></p> <p>The Controller's Organization will demonstrate the effectiveness of the Laboratory's financial information systems and decision support tools in support of internal customer's needs.  <b>(Weight = 5% / Total Point = 25)</b></p>
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**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

LLNL has been successful in implementing effective financial systems and decision support tools that support financial, strategic planning, and customer needs. In FY 2001, LLNL completed several of these system projects. Examples include the RMS Enhancements project which automated internal and manual processes including a reconciliation of general ledger costs to RMS billed project close-out, and the LITE Adjustments Process which provides a tool for the Laboratory to electronically process adjustments to time reporting while still maintaining internal controls.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	<p>100.00%</p>
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<b>Criteria:</b>	<b>5.2</b>	<b>Support for DOE Initiatives</b>
<p>The Controller's Organization shall provide support to DOE initiatives related to relevant DOE Councils and major financial information systems.</p> <p style="text-align: right;"><b>(Weight =5% / Total Points = 25)</b></p>		

<b>Performance Measures:</b>	<b>5.2.a</b>	<b>Effectiveness of Support of DOE Initiatives</b>
<p>The Controller's Organization shall demonstrate the effectiveness of the Laboratory's support to DOE management and information systems initiatives.</p> <p style="text-align: right;"><b>(Weight = 5% / Total Points = 25)</b></p>		

**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

LLNL has been outstanding by supporting all DOE information system initiatives. The annual FMS plan was submitted early and identifies system priorities based on internal and external needs, priorities and budget. The Laboratory stays current on all DOE events, specifically DOE's Business Management Information System (BMIS)/Phoenix business/financial system initiative. This is a new business and financial system that is replacing DOE's legacy Departmental Integrated Standardized Core Accounting System (DISCAS). LLNL participates in BMIS/Phoenix working groups and conference calls with Headquarters as well as participates in the Financial Management Systems Improvement Council (FMSIC). Additionally, the laboratory is a major contributor to the efforts of the DOE Budget Results Committee (BRC). The laboratory continues to pilot the Institutional General Purpose Equipment (IGPE) project in addition to proposing new ideas for an Institutional General Plant Project (IGPP) pilot project. LLNL's suggestions regarding reporting requirements in the area of uncosted obligations have been adopted for use complex-wide. LLNL continues to be one of the "selected contractors" that DOE approaches to discuss new system initiatives or other financial/accounting requirements.

<b>Performance Rating (Adjectival):</b>	<b>Outstanding</b>	100.00%
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**Performance Objective #6 Organizational Vitality**

The Controller's Organization shall manage the organization in a manner that ensures effective results and the workforce is qualified and effective.

(Weight = 10% / Total Points = 50)

**Criteria: 6.1 Organizational Management**

The Controller's Organization shall develop and maintain an effective Organization Management structure in support of Laboratory and DOE requirements.

(Weight = 5% / Total Points = 25)

**Performance Measures: 6.1.a Organization Management**

The effectiveness of the Controller's Organization and processes shall be evaluated.

(Weight = 5% / Total Points = 25)

**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

Organizational Vitality is divided into two major sections of Organizational Management (6.1) with 8 submeasures and Work Force Management (6.2) with twelve submeasures. We performed a risk analysis to decide where to concentrate our review. Reviews in prior years and a comprehensive review in FY 2000 revealed LLNL's evaluations to be well supported, accurate and complete with only two exceptions. While we reviewed all the measures self evaluation for content and clarity, and accuracy, we concentrated on those measures that were not documented in FY 2000.

Accordingly, we concentrated on 6.1.a.6 "Succession Planning Program" and 6.1.a.7 "Laboratory Management's satisfaction with Controllers Organization". The results are as follows:

6.1.a.6 Succession Planning Program. LLNL is required to demonstrate that it has an adequate succession planning program. While there is some anecdotal evidence that succession planning is discussed in an informal way, there is no documentation supporting the statement. OAK believes that if succession planning is to meet the status of a program as the measure indicates, it is inherent that the program be systematic and documented. Our review indicates that there is no

systematic or documented program and therefore LLNL does not meet this measure. This was also the case in FY 2000 and discussions were held on the importance of setting up a program and documenting the fact. OAK discussed the lack of verifiability of this submeasure with LLNL management. Based on those discussions, we recommend that this measure be removed because this measure is expected to continue to be a problem in obtaining objective documentation.

6.1.a.7 Laboratory Management's Satisfaction with Controllers Organization. LLNL is required to demonstrate that Laboratory Management is satisfied with the Controllers Organization. While LLNL's self evaluation indicates that Laboratory Management is satisfied with the Controllers Organization, there was nothing to document the fact. We requested documentation but none is forthcoming. Therefore, as with FY 2000, LLNL cannot demonstrate the fact. As such, LLNL does not meet this measure. OAK discussed the lack of verifiability of this submeasure with LLNL management.

<b>Performance Rating (Adjectival):</b> <b>Excellent</b>	85.20%
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<b>Criteria:</b>	<b>6.2</b>	<b>Workforce Development</b>
The Controller's Organization shall develop and maintain an effective workforce.		
<b>(Weight = 5% / Total Points = 25)</b>		

<b>Performance Measures:</b>	<b>6.2.a</b>	<b>Work Force Management</b>
The effectiveness of the Controller's Organization workforce and the ability to address workforce expectations shall be evaluated.		
<b>(Weight =5% / Total Points = 25)</b>		

**Basis for Rating**

The FMPAM protocol provides the activities to be measured, performance ranges (gradients), and point value for each activity.

**Performance Narrative:**

See 6.1a above.

<b>Performance Rating (Adjectival):</b> <b>Outstanding</b>	100.00%
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**Performance Area: Human Resources**

<b>Performance Objective #1</b>	<b>Effectiveness of HR Operations</b>
Human resources programs, systems and processes support the Laboratory's programmatic and business needs.	
<b>(Weight = 100%)</b>	

<b>Criteria:</b>	<b>1.1 Compensation Programs</b>
Compensation programs support the objectives of the institution and are administered in a manner that takes into account market considerations and internal equity.	
<b>(Weight = 18%)</b>	

<b>Performance Measures:</b>	<b>1.1.a Salary Program Evaluation</b>
The salary program will (a) comport with the eight Compensation Standards identified in Contract 48, Appendix A, or (b) the Laboratory will undertake a major project to demonstrate improvement relative to the Compensation Standards identified in Contract 48, Appendix A.	
<b>(Weight = 18%)</b>	

**Assumptions:**

Appendix A Compensation Standards:

1. philosophy and strategy for all pay delivery programs;
2. method for establishing the internal value of jobs;
3. method for relating the internal value of jobs to the external market;
4. system that links individual and/or group performance to compensation decisions;
5. method for planning and monitoring the expenditure of funds;
6. method for ensuring compliance with applicable laws;
7. system for communicating the program to employees; and
8. system for internal controls and self assessment.

Should the Laboratory and DOE agree that efforts on any standard(s) have reached a point where further improvements are no longer cost effective, that standard will not be counted in the assessment/scoring of this PM, so long as the optimal state is maintained. In addition, progress on multi-year projects will be considered improvements for purposes of this PM.

N.B. "Improvement" means changes that further the institution's goals relative to the eight standards identified above.

**Gradients:**

- Unsatisfactory Little or no effort has been demonstrated towards achievement of the performance measure.
- Marginal Some effort is demonstrated however results fall short of the expectations for the "good" gradient.
- Good Laboratory's salary program contains compensation systems, processes and practices that address all eight standards.
- Excellent Improvement in compensation administration as demonstrated in the performance of the compensation systems, processes and/or practices of four of the standards.
- Outstanding Improvement in compensation administration as demonstrated in the performance of the compensation systems, processes and/or practices of seven standards. Or, significant improvements demonstrated in one or two systems, processes and/or practices of the standards.

or,

(b) Assumptions

For FY2001, and beyond, LLNL will focus on at least one major, multi-year project addressing one of the standards. It is understood that project plans are subject to change based on available resources or change in Laboratory or DOE direction impacting a phase of the project.

**Gradients:**

- Unsatisfactory Little or no effort has been demonstrated towards achievement of the performance measure.
- Marginal Some effort is demonstrated however results fall short of the expectations for the "good" gradient.
- Good For this major project (s), a plan is developed identifying necessary actions, notes which of the eight standards are expected to be impacted and provides project timelines.
- Excellent In addition, completion of milestones identified in year one under the project plan, and description of the improvements relative to the affected Standards

Outstanding In addition, completion of milestones identified in year one under the project plan are completed ahead of the plan's timelines, and description of the improvements relative to the affected Standards.

**Performance Narrative:**

LLNL is required through this measure to demonstrate continuous improvement relative to the compensation standards identified by the contract. For FY 2001, LLNL initiated an effort related to Standard 3, “ Method for relating the internal value of jobs to the external market”. Given the Laboratory’s concerns over the accuracy and timeliness of S&E salary survey data they have received through the Hewitt Survey, LLNL began reviewing alternative surveys, identified two (SC/ChiPS and “S-cubed”) as viable sources of secondary data, and initiated the process to gain acceptance and subsequently report into each of these. An aggressive project plan required completion of all milestones within a seven-month period, from application to participate in each survey to analysis of published survey data. The milestones for participation in the SC/ChiPS survey were timely achieved, however, those for the “S-Cubed” survey were completed more than a month ahead of schedule, therefore achieving an early completion for the entire project.

As a result of this effort, LLNL now has two secondary sources of reliable survey data with which they can validate the data provided by the primary survey, Hewitt. And, should Hewitt be discontinued, LLNL will have had experience with the other surveys, which should facilitate a smooth transition.

<b>Performance Rating (Adjectival): Outstanding</b>	95.00%
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<b>Criteria:</b>	<b>1.2</b>	<b>Employment of Minorities and Women</b>
<p>The Laboratory undertakes good-faith recruitment efforts to improve the representation of minorities and/or women in the workforce.</p> <p style="text-align: right;"><b>(Weight = 22%)</b></p>		

<b>Performance Measures:</b>	<b>1.2.a</b>	<b>Employment of Minorities and Women.</b>
<p>An assessment of planning and implementation of good faith efforts designed to improve recruitment, outreach, and selection of minorities and women in high priority underutilized job groups.</p> <p style="text-align: right;"><b>(Weight = 22%)</b></p>		

**Assumptions:**

“High priority” underutilized groups will be selected at the beginning of the assessment period by each laboratory. The following factors may be utilized for the designation of “high priority” job groups underutilization levels, availability levels, projected placement opportunities and typical size and diversity of candidate pools.

The Laboratory will provide a results oriented plan(s) with a purpose of improving organizational performance in recruitment and selection of minorities and women in the selected “high priority” job groups. The plan(s) will display the specific actions that will be targeted for achievement during the assessment period and assigned responsibilities for those actions. The plan(s) shall incorporate, at a minimum, “good faith” efforts designed to improve the following:

- coupling of outreach and recruitment efforts in “high priority” job groups
- systematic effort to measure and report outcomes and impact of the outreach and recruitment process
- diversity and viability of candidate pools
- efforts to educate and sensitize the workforce to diversity awareness
- integration of diversity issues in Laboratory operations and the daily fabric of Laboratory life
- active top management support of diversity considerations, including affirmative action and educational outreach efforts
- representation of minorities and women as defined in the Laboratory’s Affirmative Action Program

The plan will include baseline data reflecting the factors utilized in the designation of the high priority job groups.

Assessment Period The assessment period for LLNL will be from July 1 to June 30.

Targeting of High Priority Underutilized Groups High priority underutilized groups for the Laboratory will be selected and included in the Recruitment/Outreach Plan, due to DOE-OAK by July 31. The following factors may be utilized for the designation of high priority areas

underutilization levels, availability levels, projected placement opportunities, past hiring practices and typical size and diversity of candidate pools.

Candidate Candidates are individuals who have demonstrated an interest in LLNL employment by submitting a resume to LLNL’s RESUMIX system, and are identified as meeting the essential skills, knowledge, and abilities of a posted position through RESUMIX screening and the assessment of the HR employment representative. LLNL employees who apply for a posted position are candidates, whether or not they are identified through RESUMIX screening as qualified.

Applicant Applicants are external candidates who have been selected for an interview for a specific position. LLNL employee candidates are also applicants, whether or not they are selected for an interview.

**Gradients:**

- Unsatisfactory Little or no effort has been demonstrated towards achievement of the performance measure.
- Marginal Some effort is demonstrated however results fall short of the expectations for the “good” gradient.
- Good
  - Plan(s) Development -- The Laboratory develops a “results-oriented plan(s)” that clearly communicates the Laboratory’s commitment and investment in carrying out its “good faith” efforts to develop strategies and actions to improve employment and retention of women and minorities in “high priority” underutilized job groups. The plan(s) must incorporate, at a minimum, “good faith” efforts and baseline data as outlined above.
  - Plan Execution - Specific actions identified in the plan were carried out substantially in the manner and time frames identified in the plan. The Laboratory will summarize how the plan(s) was executed relative to the specific actions taken to improvement recruitment, selection and retention of women and minorities. The summary should include a narrative describing the efforts taken, and any significant outcomes or events resulting from the process. The summary should also include statistical analyses assessing the plan’s effect on the representation of minorities in candidate pools, interviews, offers, placements, and attrition in the specified job groups.
- Excellent Women or minority qualified candidates for high priority underutilized job groups are represented at levels approximately equal to their availability for the majority of high priority job groups. If not, a qualitative assessment of candidate skills, knowledge, and abilities will be conducted.
- Outstanding In addition to the criteria for Excellent, women or minority placements in one or more of the High Priority Job Groups equal availability or full utilization is achieved in 50% of the high priority job groups. If not, a qualitative assessment of candidate skills, knowledge, and abilities will be conducted.

**Performance Narrative:**

For FY2001, LLNL identified three High Priority Job Groups (HPJGs) as those in which potential existed to make progress toward full utilization for women and/or minorities. These consisted of Physicists, Computer Scientists, and Engineering/Science Technicians. A Recruitment Outreach Plan (ROP) was developed to outline the “good faith efforts” the Laboratory would undertake relative to these job groups, and it was provided to DOE within the timeframes under the measure. Execution of the ROP was reviewed relative to each of the HPJG’s and new or enhanced strategies were identified to improve future recruitment efforts.

The Computer Scientist HPJG increased its population from 7/1/00-6/30/01, between 468 to 482, with two of the new-hires Hispanic and two African American. This contributed to the increase in overall utilization of minorities from 83.8% to 85.5%. The utilization of women decreased slightly overall during the appraisal period, by two women, although there were women hired. The review of hiring within the Computation directorate for the appraisal period resulted in 37 new-hires – 7 women, 1 African American, 1 Hispanic. At the candidate level the Asians were the only group meeting availability, however the Laboratory had already achieved full utilization for Asians in this HPJG. The African American and Hispanic candidates constituted the successes, in that, despite their low level of representation, they were sustained through the various stages. This reflects well on Computation’s recruitment of a high caliber of minority candidates.

The Engineering/Science Technicians saw an increase of 22 in its population this appraisal period. Gains in utilization were most apparent for African Americans, Asians and Hispanics, while women actually declined in utilization but increased in number. In terms of specific directorate hiring, within the Deputy Director of Operations organization there actually were no hires in this HPJG. Of the 20 qualified candidates, only 1 individual, a white male, progressed even to the interview stage. With the exception of American Indians, all the minority groups, and women, were represented lower than availability. In addition, American Indians were already fully utilized for the job group. The difficulties in making progress in this group is attributed to the severely limited number of potential applicants available with Nuclear Science and Criticality experience.

The Physicist HPJG actually experienced an overall decrease in population of 27 during the appraisal period, although it sustained levels of utilization above 76.8% for each category, with Asians exceeding full utilization, American Indians at 96% and Hispanics at 90%. In the hiring done by Deputy Director of Operations Organization, the representation under each of the categories exceeded availability at the qualified candidate stage, with the exception of Asians. This, again, reflects well on the organization’s recruitment strategies to improve utilization. Unfortunately, however, only one minority advanced to the interview stage, and no women advanced.

The Laboratory’s performance under this measure supports a rating of Excellent below midpoint. The HPJGs were identified and the Recruitment Outreach Plan was developed and executed. The efforts at the directorate level indicate that recruitment efforts are positively impacting the diversity of candidate pools, and in all the HPJG’s there was evidence that at least one category achieved representation approximately equal to availability. This was most apparent in the Physicist HPJG.

<b>Performance Rating (Adjectival): Excellent</b>	82.00%
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<b>Criteria:</b>	<b>1.3</b>	<b>HR Systems and Processes</b>
Human resources systems and processes optimize the delivery of services with respect to quality and life-cycle costs.		
		<b>(Weight = 18%)</b>

<b>Performance Measures:</b>	<b>1.3.a</b>	
The Laboratory identifies HR systems and process improvements, and describes implementation results.		
		<b>(Weight = 18%)</b>

**Assumptions:**

The laboratory will use a variety of approaches for identifying HR systems and processes for improvement. These approaches may include customer feedback surveys, cost-benefit analysis, work flow analysis, process mapping and/or benchmarking, etc. The purpose is to improve existing systems and processes, or implement new initiatives. Results may include accomplishments made in multi-year projects.

The Lab will discuss with DOE OAK the systems/processes identified for review. The self-assessment will include a statement of status of the system prior to the improvement, and baseline data against which results will be measured.

**Gradients:**

- Unsatisfactory Little or no effort has been demonstrated towards achievement of the performance measure.
- Marginal Some effort is demonstrated however results fall short of the expectations for the “good” gradient.
- Good Identify one or two major systems or processes for review; action is initiated; and there is measurable progress or action taken.
- Excellent As the result of the above, improvements are achieved to streamline, outsource, enhance, or eliminate systems/processes identified for review.
- Outstanding In addition, significant improvements are achieved, such as completion ahead of schedule, or conclusion of unusually complex projects.

**Performance Narrative:**

In February 2000, LLNL and DOE-OAK discussed the systems/processes LLNL identified for improvement under this measure for FY 2001. As a result of actions taken, the Laboratory has streamlined and enhanced the following systems:

- Information system capabilities have been expanded through the consolidation of legacy systems, which has provided them with the capabilities for employees and directorates to obtain on-line, self-service access to individual personnel data.
- A workforce planning website was established which provides demographic data and institutional studies to internal and external customers, as well as providing interactive workforce planning tools for managers in monitoring critical skills and assessing the potential impact of funding or organizational decisions.
- Implemented Resume Express, which facilitates the tracking of resumes from a variety of sources directly to the hiring manager, eliminating the previous process in which resumes were pooled, scanned and distributed to all hiring managers on a skills-match basis.
- In response to Appendix O, Initiative 4, Critical Skills, Knowledge and Technical Capabilities, LLNL developed a Critical Skill Recruitment/Retention Activities (CSRA) database, which monitors the skill profiles and demographics of the critical skill population, facilitates the identification of potential “pipeline” personnel, and will aid in targeting “pipeline” recruitment needs.
- Conversion to the PeopleSoft 8 platform was initiated as a multi-year project in FY 2001. PeopleSoft 8 will provide a web-based application for on-line personnel transactions, reporting, and querying of HR/Payroll information, as well as employee self-service access. LLNL completed the conversion planning, testing and implementation in FY 2001, and will move to developing the specific applications in FY 2002.

The Laboratory warrants an Outstanding for this measure, given the complexity involved in the consolidation of its legacy Human Resource information systems, which involved the elimination of two hardware platforms, migration of old systems onto three systems, and the integration of these systems through database links. In undertaking this effort, LLNL has established a single platform for all Human Resource information, and has created the capability to provide greater access and services to its customers.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>95.00%</b>
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<b>Criteria:</b>	<b>1.4</b>	<b>Work Life Quality</b>
The Laboratory supports Work Life Quality Improvement.		
		<b>(Weight = 10%)</b>

<b>Performance Measures:</b>	<b>1.4.a</b>	<b>Work Life Quality</b>
The Laboratory develops initiatives to improve worklife quality for its employees.		
		<b>(Weight = 10%)</b>

**Assumptions:**

Definition of Work/Life "Strategic enabling of employees to better balance their work and life issues.

The Laboratory will assess the status of current programs, policies and practices that support worklife balance against practices of other major employers, identify and, subject to available resources, implement enhancements that further its goal of improving worklife quality.

**Gradients:**

- Unsatisfactory Little or no effort has been demonstrated towards achievement of the performance measure.
- Marginal Some effort is demonstrated however results fall short of the expectations for the "good" gradient.
- Good Currently available worklife programs have been reviewed and assessed in terms of their relative support to the Laboratory's Strategic HR goals. Specific findings/recommendations are presented to senior management.
- Excellent A Laboratory strategy and action plan is developed.
- Outstanding The Laboratory implements at least one new Work Life Quality initiative

**Performance Narrative:**

The Laboratory is required under this measure to determine the extent to which it can better meet employees' needs in balancing work and life issues. In response to this, LLNL utilized a variety of approaches to obtain input on current programs. Through networking with UC and other external organizations, they were able to determine the degree to which programs kept pace with those offered by other employers. As a result, they identified back-up childcare services as a program they should pursue to offer to employees, and were able to obtain a model for

developing an integrated communications tool, the “Worklife Web Guide”, which describes LLNL worklife services and resources. In addition to external comparison, a recruitment and retention group specifically assessed the current worklife services and issues, including food services. As a result, the services, programs, and resources were inventoried, and a matrix was submitted to senior management as an action plan for the implementation of new or enhanced services and policies. Other means of input to LLNL’s assessment included feedback from parents utilizing childcare services, an internal survey of new hires – which led to the production of a recruitment video on recreational and employee services – and, most significantly, the specific employee feedback in response to the worklife questions on the recent employee survey.

A significant addition to LLNL’s cadre of worklife programs was that of the Catastrophic Leave Donation Program. Implemented in January 2001, this program allows employees to donate vacation leave to fellow employees who have depleted their leave balances due to illness or caring for a sick family member.

LLNL’s performance under this measure meets the Outstanding gradient. In addition to assessing current and potential programs from several perspectives, and identifying the means by which LLNL can further meet its goal of integrating the professional and personal demands of employees, several improvements and initiatives were actually implemented during the appraisal period.

<b>Performance Rating (Adjectival): Outstanding</b>	95.00%
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<b>Criteria:</b>	<b>1.6</b>	<b>Workforce Excellence</b>
HR contributes to the Laboratory's workforce excellence.		
		<b>(Weight = 27%)</b>

<b>Performance Measures:</b>	<b>1.6.a</b>	<b>Workforce Planning</b>
HR contributes to the Laboratory's Workforce Planning and/or Staffing Efforts.		
		<b>(Weight = 18%)</b>

**Assumptions:**

The following definitions apply:

"replacement projections" = studies that analyze demographic factors that have affected retention historically and projection of the effect of these factors on replacement or adjustment of skill levels.

"fragile skills" = those skills required to maintain integrity of the nuclear stockpile; refers only to Stockpile Stewardship program employees as represented in the skillbase. This is re-defined and re-evaluated annually with Stockpile Stewardship program management and line managers working for the program.

"hot skills" = those skills at a high level of market demand that can vary over time.

The following assumptions apply:

HR will compile and post quarterly summary demographics (hires, terminations and census) for each Directorate on the HR Workforce Planning web site.

HR will provide annual demographic studies, replacement projections and gap analysis. Within the Stockpile Stewardship program, fragile skill gap analyses will be provided to Stockpile Stewardship managers and interested institutional committees.

HR will meet annually with Directorate/Department/Program representatives to discuss projected hiring needs, potential recruitment sources/venues, and organizational ethnic and gender goals. Areas of skill loss, particularly in "hot skill" areas or specialized job categories will be discussed and potential retention initiatives will be explored. The collected results of these meetings will form the basis of the next year's integrated Institutional Recruitment Plan.

**Gradients:**

Unsatisfactory	Little or no effort has been demonstrated towards achievement of the performance measure.
Marginal	Some effort is demonstrated however results fall short of the expectations for the “good” gradient.
Good	For 6/10 technical directorates and 2/4 major administrative organizations, each of the above assumptions are met.
Excellent	For 8/10 technical directorates and 3/4 major administrative organizations, each of the above assumptions is met. The priority of "fragile or hot skills" determined through prior year performance of the above assumptions, is reflected in the Institutional Recruitment Plan through the identification of diverse, viable recruitment and retention initiatives.
Outstanding	In addition, Workforce planning tools (such as implementation of skills database, documented processes and procedures, capabilities and resources on the Web, etc.) and capabilities (such as expanded, integrated recruitment efforts, including campus, Web, and industrial, etc.) for ongoing improvement are developed by HR, or, for 10/10 technical directorates and 4/4 major administrative organizations, each of the above assumptions are met, or, Improvement is demonstrated in the recruitment/retention of "fragile or hotskills" (identified in the previous year) through implementation of the Institutional Recruitment Plan and retention initiatives.

**Performance Narrative:**

In the fourth year of this measure, LLNL’s Human Resources Department has continued to demonstrate Outstanding performance in regard to the work force planning tools and services it provides to laboratory organizations. These are accomplished through providing access to demographic data, studies and interactive workforce planning tools on the web-which in FY 2001 was expanded to a dedicated workforce planning website and through annual meetings with each of the ten technical directives and four administrative organizations to discuss hiring needs, diversity goals, and recruitment/retention difficulties.

In FY 2001, in response to the requirements of Appendix O, Initiative 4, *Critical Skills, Knowledge and Technical Capabilities*, Human Resources further enhanced its contribution to meeting the workforce planning needs of the Laboratory. Extensive effort was applied to working with directorate management to define critical skills, apply that definition to a heavily matrixed population and its “pipeline”, analyze the population’s demographics against programmatic requirements to determine future needs, and develop the recruitment and retention strategies necessary to ensure future needs are met. This effort resulted in the establishment of a Critical Skills Recruitment/Retention Activities (CSRA) database, discussed under POCM 1.3.a. This database provides a “real-time” profile of the critical skill population and its needs, and insight into the need for expanded recruitment strategies, which will prove beneficial to both the

critical skill hiring and general recruitment needs. In addition to these, Human Resources initiated several other strategies for more effective recruitment, including the development of an employer brand, “Think BIG”, identification of ten additional campuses to consider as viable recruitment sources, increased participation in recruitment events for experienced professionals, hosting an LLNL job fair, expanded internet advertising and subscriptions to resume databases, collaboration with UC and other UC laboratories, and creation of a Recruiters Toolkit web site.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>95.00%</b>
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**Performance Measures: 1.6.b Performance Management**

Employees are appraised on an annual basis, against pre-established, job-related performance criteria and that they have current executed development plans that meet Laboratory guidelines.  
**(Weight = 9%)**

**Assumptions:**

Evaluation of the PAs will be of the percentage completed and quality of annual PAs for employees against pre-established, job-related performance criteria. Percent completed determined by dividing the number of completed performance appraisals by the eligible population. A 2% random sample of the covered population will be drawn to review Individual Development Plans (IDPs) for acceptability execution. A PA or IDP will not be counted as completed unless it has the elements set forth in the Laboratory guidelines.

In case the employee does not want an IDP, and signs this statement, it will be counted as current for purposes of this PM. 600, 700, 800, and 900 series employees are not included in the random sample drawn for IDP review. September (or the latest available) data will be used for FY 2001.

**Gradients:**

- Unsatisfactory Little or no effort has been demonstrated towards achievement of the performance measure.
- Marginal Some effort is demonstrated however results fall short of the expectations for the “good” gradient.
- Good For PAs, 95% completion rate. From the 2% random sample of IDPs, 75% or greater but less than 80% completion rate, and the IDPs contain all the elements and meet the standards set forth in Laboratory guidance.
- Excellent For PAs, 96% completion rate. From the 2% random sample of IDPs, 80% or greater but less than 85% completion rate, and the IDPs contain all the elements and meet the standards set forth in Laboratory guidance.
- Outstanding For PAs, 97% completion rate. From the 2% random sample of IDPs 85% or greater % completion rate, and the IDPs contain all the elements and meet the standards set forth in Laboratory guidance.

**Performance Narrative:**

LLNL's performance for the sixth year under this measure reflects a slight decrease in the completion of performance appraisals and Individual Development Plans (IDPs) over previous years, but increased quality of IDPs.

	<u>Appraisals Completed</u>	<u>IDPs Completed</u>	<u>Quality IDPs</u>
FY1999	97.3%	96.1%	82.8%
FY2000	97.0%	96.1%	80.9%
FY2001	96.0%	95.8%	87.7%

A rating of Excellent is based on achieving the 96% completion rate for performance appraisals. Although the 87.7% completion rate for IDPs meets the Outstanding gradient, it cannot be assigned if the performance appraisals do not also meet the Outstanding requirements.

<b>Performance Rating (Adjectival): Excellent</b>	<b>85.00%</b>
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<b>Criteria:</b>	<b>1.7</b>	<b>Employee Relations</b>
The Laboratory has an effective employee relations program.		<b>(Weight = 5%)</b>

<b>Performance Measures:</b>	<b>1.7.a</b>
The Laboratory has an effective approach in addressing employee relation concerns.	
<b>(Weight = 5%)</b>	

**Assumptions:**

The Laboratory will report numbers of external complaints, formal internal complaints, and informal complaints.

It will provide a narrative of the processes and efforts to review the internal complaints for potential management actions as follows:

Informal: a summary will be provided of the issues discussed with Directorate managers, including those discussed by the Ombuds with Directorate staff.

Formal: a summary and analysis of formal actions will be reviewed with laboratory Senior Management.

Narrative will include any actions taken (e.g. policy clarification, changes in process) resulting from such discussions.

Four years of formal data will be provided for a comparison of activity over the years. Possible impact of any DOE, UC, or laboratory actions/issues on the data will be identified and discussed.

External complaints are agency filings and lawsuits. Multiple filings on the same issue by the same individual will count as 1; actions filed by non-or former employees will not count against this performance measure. The narrative summary will address any DOE, UC or Laboratory actions/issues that may be reflected in the data.

**Gradients:**

Unsatisfactory	Little or no effort has been demonstrated towards achievement of the performance measure.
Marginal	Some effort is demonstrated however results fall short of the expectations for the “good” gradient.
Good	Systems are in place to respond to both formal and informal complaints. Data are presented and a narrative summary is provided identifying issues raised by the data.
Excellent	<p>In addition, the informal system is reviewed annually to determine whether employees are making use of it; informal cases are compiled on a quarterly basis; and data are reviewed to determine if there are any common themes.</p> <p>With respect to the formal complaint process, analyses are completed comparing data from the previous year and the current year including the total number of formal complaints by Directorate as a percent of total employee population, and indicating any change from the previous year. The analyses will interpret the data, and draw and discuss conclusions, along with possible resolution approaches.</p>
Outstanding	<p>(Current year is defined as the latest year for which data is available.)</p> <p>In addition, whenever common themes are identified in the informal complaint process, this information is shared with Directorate management along with potential resolution options. Management takes appropriate action to address common themes/issues.</p> <p>With respect to the formal complaint processes, management is kept apprised of institution-wide issues. Managers and Supervisors are trained to ensure development of effective complaint resolution skills. Any new issues raised by the analyses will be evaluated for management action the following year.</p>

**Performance Narrative:**

LLNL’s performance during FY 2001 continues to demonstrate the effectiveness of its informal complaint process, which falls under the preview of the Laboratory Ombuds Program. This program is firmly established at LLNL, with 2001 survey feedback indicating a high level of confidence and satisfaction by employees. LLNL also attributes an increased number of cases and a corresponding decrease in administrative reviews to increased confidence in the informal resolution of cases.

LLNL Ombuds conduct on-going assessments of the issues raised within each Directorate. They meet with Directorate management on a monthly basis, and meet monthly as an Ombuds Council to identify potential trends directorate-wide or lab-wide. It was concluded in FY 2001 that the increase in complaints concerning supervisory relations and co-worker relations were individual issues that had been sufficiently resolved by Directorate management, and did not constitute lab-wide issues requiring management action.

In the formal complaint process, analysis reflected decreases of 23.5% in administrative reviews and 63.6% in formal external complaints. The issues raised over the past four years were presented to senior management and were conferred upon by staff relations and Human Resources consultants to ascertain whether common themes required management action. Performance appraisals, ranking, and salary again arose as the primary issue under administrative reviews, and no trends were evident in the external complaints. To further address the issue of performance appraisals, it was management's decision that additional supervisory and employee training would be provided in FY 2002, and that communications should be enhanced. This training was attributed with the 56% decrease in these complaints over FY 2001.

LLNL's self-assessment of this measure supports a rating of Outstanding. For both the informal and formal complaints the processes are established and utilized. Data has been analyzed for trends, and shared with senior management. In response to the trends of formal complaints based on performance appraisals, management action has been taken to educate both supervisors and employees and to improve communications on the appraisal process.

<b>Performance Rating (Adjectival): Outstanding</b>	92.00%
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**Performance Area: Information Management**

<b>Performance Objective #1</b>	<b>Information Management Program</b>
<p>The Laboratory manages information resources on a corporate basis to improve the quality of its products, to add value to scientific programs and customer services, and to improve the Laboratory's work processes.</p> <p style="text-align: right;"><b>(Weight = 100%)</b></p> <p>(Note: each measure below is applied to specific focus areas.)</p>	

<b>Criteria:</b>	<b>1.1 Operational Effectiveness</b>
<p>The IM program provides cost-effective products and improved services.</p> <p style="text-align: right;"><b>(Weight = 30%)</b></p>	

<b>Performance Measures:</b>	<b>1.1.a Operational Effectiveness</b>
<p>Evaluation of measurable improvements and cost-effective delivery of products and services.</p> <p style="text-align: right;"><b>(Weight = 30%)</b></p>	

**Assumptions:**

Measurement deliverable - metrics indicating the information management program's accomplishments which have resulted in measurable improvements in the provision of cost-effective products and services. Additional description may be accomplished through reference to accessible work products or other existing Laboratory documentation.

The agreed to Information Management areas to be addressed by this Performance Measure:

- Computation/Systems and Network Department - Desktop support (Weight = 15%)
  - Cost savings from site-wide licensing
  - ROI from infrastructure investment
- Telecommunications Systems Department (Weight = 15%)
  - System Reliability Index (with Industry Standards)
  - Service Order Response Times (with Industry Standards)
  - Productivity
  - Efficiency (with Industry Standards)

**Gradients:**

Unsatisfactory	No results are demonstrated and little or no effort has been expended in establishing effective processes towards achievement of the performance measure.
Marginal	Results fall short of the expectations for the “good” gradient however some effort has been made to establish effective processes
Good	Examples that demonstrate measurable improvement and cost-effective, IM services and products.
Excellent	Demonstrated results that contribute to institutional cost-efficiencies, savings, and improved operations.
Outstanding	External recognition of operational effectiveness or benchmarking that indicates best-in-class performance.

**Performance Narrative:**

IM continues to do an outstanding job reducing cost while enhancing Information Technology Capital investment opportunities. The Laboratory persistently provides cost-effective delivery of products and services, achieving savings this year of approximately \$25.9M in its Systems and Network Department. The Telecommunications Systems Department, time and again, has operated in a competent and well-organized manner, exceeding industry standards while providing reliable and quality telecommunications services.

LLNL focused on Enterprise Agreements and in doing so, realized significant cost savings and avoidance in FY 2001. The agreed to areas to be measured resulted in:

- The new Enterprise Software Agreement with Novadigm for its Radia product provided the laboratory with the ability to automate remote distribution of software to the desktop. This greatly enhanced management and support of the desktop. Also, the new Microsoft Enterprise Agreement for the Windows Operating System, office professional software and the client access license facilitated version control and pre-planned upgrading across the institution. LLNL saw significant programmatic cost savings over the traditional methods of procurement. Clearly the most cost effective way to deliver and manage software across the institution site is through site and enterprise licensing. Cost savings and avoidance accrued by the laboratory in FY 2001 through site licensing is estimated at \$14.4M, while cost savings to enterprise software licensing is estimated at \$3.8M.
- SND initiated and managed several volume purchase and services agreements that provided hardware repair and software update services for LLNL workstations. In particular, a new desktop acquisition process was developed, Desktop Acquisition Process (DAP) that allows users an opportunity to select a standard configurations from the web. The computer will be loaded with the Laboratory’s newly developed Common Operating Environment (COE) image as well as images of all site-licensed software. This practice has facilitated a more streamlined desktop computer acquisition process. ROI cost avoidance from these activities is estimated to be at least \$7.7M.

OAK, UC and LLNL agreed to use the “Gauge Model” balanced score card methodology for assessing and enhancing the quality and effectiveness of their telecommunications products and services. Although more than fifty parameters were used in the computation, the following were selected: Primary System Reliability, Service Order Response Time, & Productivity and Efficiency.

LLNL’s Telecommunications Switch and Parameter System had a reliability factor of 99.9% for the telephone switch, which was out of service for less than 1 minute. The Octel Voicemail System was out of service for less than 53 minutes, giving them a reliability factor of 99.9%, exceeding industry standards. LLNL’s average telecommunications systems order response interval was 14.4 business days, on an average based of 204 orders per week that is below industry standards of 15 days. LLNL’s productivity and efficiency was 209 lines per employee that was relatively comparable to industry standards of 200.

LLNL’s Telecommunications Systems, Systems and Network Department’s operational effectiveness were outstanding and exceeded the required performance objectives established between OAK, UC and LLNL during this rating period. As a result of their streamlining processes and enterprise acquisitions, LLNL realized a \$25.9 million dollar cost avoidance and savings.

<b>Performance Rating (Adjectival): Outstanding</b>	93.00%
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<b>Criteria:</b>	<b>1.2</b>	<b>Customer Focus</b>
IM products and services meet customer requirements.		
<b>(Weight = 30%)</b>		

<b>Performance Measures:</b>	<b>1.2.a</b>	<b>Level of Customer Service</b>
Evaluation of customer service reviews and implementation of activities toward improvement.		
<b>(Weight = 30%)</b>		

**Assumptions:**

Measurement deliverable: results of the customer service metrics.

The agreed to Information Management areas to be addressed by this Performance Measure:

- Computation/AIS - Integrated Help Desk (Weight = 30%)
  - Percent of Action Requests Resolved by CSC
  - Percent of Action Requests Resolved by AIS
  - IC Ratio of Closed Trouble Tickets/Problem Reports
  - IC Trouble Ticket History by Problem Area

**Gradients:**

Unsatisfactory	No results are demonstrated and little or no effort has been expended in establishing effective processes towards achievement of the performance measure.
Marginal	Results fall short of the expectations for the “good” gradient however some effort has been made to establish effective processes.
Good	A systematic approach to the measurement of customer service. Evidence of meeting commitments to customer’s requirements.
Excellent	Cost effective and/or innovative approaches to measuring customer service, customer involvement throughout life cycle of information management activities, and evidence of improvement in customer service.
Outstanding	Sustained high level of customer service.

**Performance Narrative:**

The IM organizations agreed to meet the objectives for customer service by putting intuitive approaches in place that garner customer involvement while improving overall customer satisfaction. In all cases, rewarding and relevant approaches were used.

The Institutional Portal Pilot project began in FY 2000. Requirement information was collected from 100 volunteer participants representing all of the laboratory directorates. The participants provided input to portal design and content. The pilot project demonstrated that the technology worked and that laboratory users were ready to use it. The portal was given high marks and 89% of pilot participants stated that they would use it if it were available. The successful results of the pilot prompted motivation to incorporate an institutional portal proposal for FY 2001. The proposal was funded and a production portal is scheduled for implementation throughout the laboratory in October 2001.

The Data Warehouse training and education survey used in FY 2000 was redesigned to meet the needs of the FY 2001 training process. The Data Warehouse instructors in the May and June classes used a new survey developed by the Laboratory Training Center. Results from the survey showed the satisfaction level to be 72%. At that point, based on the input received in the survey, instructors modified the class materials. As a result, the customer satisfaction level rose following the June class to 92%.

LLNL has established an Institutional IT User Group that will be directly involved in the Information Architecture Stewardship process. The group provides a specific point of interaction between LLNL staff and management; fosters the exchange of ideas and coordinates technical watch activities. The group is currently in the formative stages.

The Central Helpdesk staff worked in conjunction with the SND training center to create a class for new LLNL employees, introducing them to the computing resources available at the Laboratory.

The implementation of the Vantive helpdesk tool continued during FY 2001. There has been a continued increase in the number of users, by support group, since the pilot implementation of the Data Warehouse in FY 1998. The most important aspect of this year's implementation was the development of the INSERTS process. This process allows all Vantive support groups to send service requests effectively throughout the AIS infrastructure via Vantive.

The SND Helpdesk continued to improve customer service by installing an automatic call distribution (ACD) system, allowing the helpdesk the ability to measure how well and how quickly service is provided to customers. Statistics gathered by the ACD system are noted in the table below.

	FY2000	FY 2001	Change in FY01
Average call wait before answer	42 secs	35 secs	19% decrease
Average abandonment rate	25.4%	24.9%	.5% decrease
Average daily incoming calls	65	66	1% increase

The Metrics Working Group was created to determine what common metrics SND needs to collect in each of the Computer Support Units (CSU) and has made that information available to the client liaisons in the CSUs. The Metrics Working group is also looking for a common solution for a call tracking system that can be deployed across the Laboratory. One of the needs the Helpdesk is planning to undertake is the ability for a customer to look up their job request on the web to see what progress has been made in servicing their problem.

The customer response mechanisms introduced in the IM departments resulted in feedback that was subsequently used to adjust activities and create better plans. Several improvements were realized including more cost effective products and services.

<b>Performance Rating (Adjectival): Outstanding</b>	92.00%
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<b>Criteria:</b>	<b>1.3</b>	<b>IM Stewardship</b>
The IM program manages compliance to requirements and negotiated commitments.		
<b>(Weight = 20%)</b>		

<b>Performance Measures:</b>	<b>1.3.a</b>	<b>Effective Management of Compliance and Commitments</b>
Evaluation of effectiveness of compliance management for contractual, legal and regulatory requirements, operational practices and internal controls.		
<b>(Weight = 20%)</b>		

**Assumptions:**

Measurement Deliverable:

Metrics demonstrating compliance with requirements of law, regulations, and applicable DOE directives.

The agreed to Information Management areas to be addressed by this Performance Measure:

- TID – Printing and Reproduction (Weight = 10%)
  - Percent of Total TID Print Jobs Vended to GPO
  - Percent of Total In-house Printing on Recycled Paper
  - Percent of Total In-house Printing Printed Two-sided
- BSD – Records Management (Weight = 10%)
  - Records and Archives Management Gauge Model
  - Records Schedule Compliance

**Gradients:**

- Unsatisfactory No results are demonstrated and little or no effort has been expended in establishing effective processes towards achievement of the performance measure.
- Marginal Results fall short of the expectations for the “good” gradient however some effort has been made to establish effective processes.
- Good Management techniques are employed to assess the effectiveness in support of programmatic and institutional information management needs including internal process controls.

Objective evidence demonstrates progress in identifying and correcting performance and compliance issues. Previous deficiencies have been corrected or have corrective action plans in place.

- |             |                                                                                                                                                                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Excellent   | There is a sound, systematic approach responsive to the overall purpose of managing assessment processes and implementing corrective actions. Deficiencies in compliance and performance are self-identified and all corrective actions are completed or planned. |
| Outstanding | The Laboratory has institutionalized an evaluation process that effectively identifies performance and compliance issues and corrects weaknesses. Compliance and performance deficiencies are identified and corrected on schedule.                               |

**Performance Narrative:**

The Business Services Department and the Technical Information Department agreed to initiate internal controls and operational practices at LLNL that were committed to an institutionalized evaluation process in the area of effective compliance management. For FY 2001, it was agreed that the Records and Archives Management Performance Assessment Model (RAMPAM) would be used to measure LLNL’s ability to meet the requirements. It successfully identified performance and compliance issues and allowed for weaknesses to be corrected.

The Records and Archives Management Performance Assessment Model (RAMPAM) monitors and measures the effectiveness of the Laboratory’s compliance with requirements of law, regulation and directives, which are applicable to the institutional records management program. The model is comprised of four primary areas; product goodness, self-assessment, customer alignment, and cost effectiveness. The Application of the Schedule, which involves correct identification, schedule goodness, disposition and retention, was validated at the 99 percent level. File retrieval met customer expectation metrics 100 percent of the time, and accuracy of the Archival Information Systems and Controls was validated at the 100 percent level. The Laboratory exceeded all established minimum performance thresholds in the Records and Archives Management area with no shortfalls. As of September 30, 2001, Records and Archives achieved an “Outstanding” RAMPAM rating with a total score of 498 points out of 500 points available.

The Technical Information Department (TID) did an outstanding job in vending out jobs to the Government Printing Office (GPO). LLNL established twelve individual contracts with GPO to support their printing requirements. TID vended 34% of 2,140 total jobs to GPO vendors. The remainder of the jobs were in-house because they were time critical or contained sensitive/classified materials.

In the area of printing or copying double-sided using recycled paper, TID did exceptional work. TID’s Print Plant recycled paper purchases amount to 93% of total paper purchased. In addition, they use 30% post-consumer paper, which is in compliance with Section 101 of Executive Order 13101 of September 14, 1998. TID experimented with both 40% and 50% post consumable papers, but discovered they produced too much residual dust during the printing cycle, which affects the efficient operation of the high-speed copiers.

TID's two-sided copies were printed by the TID Print Plant. Of the 6,203,968 units printed, 87% or 5,417,691, of those units were printed two-sided. The high percentage of two-sided printing increases in-house two-sided printing by 7% over the previous year.

LLNL continues to be in compliance with the laws, regulations and applicable DOE directives.

<b>Performance Rating (Adjectival): Outstanding</b>	92.00%
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<b>Criteria:</b>	<b>1.4 Strategic and Tactical Planning</b>
IM plans and practices are aligned with Laboratory strategic and tactical requirements.	
<b>(Weight = 20%)</b>	

<b>Performance Measures:</b>	<b>1.4.a Planning Initiatives</b>
Evaluation of evidence that Information Management is aligned with the Laboratory’s missions.	
<b>(Weight = 20%)</b>	

**Assumptions:**

Measurement deliverable: IM plans or descriptions of IM initiatives that support the mission and plans of the Laboratory. Reference may be made to accessible work products or other existing Laboratory documentation.

The agreed to Information Management areas to be addressed by this Performance Measure:

- CIO Information Architecture (Weight = 20%)  
 Use a narrative format to perform an examination and assessment of critical CIO/IA standards and technology developments, coupled with a review of future strategic IA directions.

**Gradients:**

Unsatisfactory	No results are demonstrated and little or no effort has been expended in establishing effective processes towards achievement of the performance measure.
Marginal	Results fall short of the expectations for the “good” gradient however some effort has been made to establish effective processes
Good	Evidence of a planning process exists that drives IM practices to align with the Laboratory’s missions.
Excellent	Objective evidence has been provided to demonstrate that IM activities provide effective support for the Laboratory’s missions.
Outstanding	Evidence that the IM planning process can adapt to changing conditions, employs sophisticated methods or planning tools, and has received external recognition or benchmarking that indicates best-in-class performance.

**Performance Narrative:**

LLNL is evaluating methodology for more streamlined information technology integration throughout the Laboratory. In doing so, LLNL agreed to align the IM strategic plans and fuse them with the Laboratory's program missions through high level planning groups.

The CIO established working groups, with broad directorate representation, to develop the labs strategic direction for computing and information management. Work has begun in the development of an integrated laboratory strategy that aligns the mission, core competencies and strategic direction of the LLNL with NNSA's objectives. The Laboratory's IM organization plans are integrated with their program missions and strategic planning through two high-level planning groups: the Council for Strategic Operations and the former Institutional Business Council. An Information Architecture Advisory Board (IAAB), comprised of senior and directorate level managers, was formed to provide programmatic interface and oversight of the IA information technology activities.

In FY 2001, the Information Architecture (IA) project office became fully functional and worked to:

- Facilitate and coordinate the programmatic planning and deployment of the institutional information technology infrastructure.
- Balance the business demand side for IA resources with compliance and budgetary constraints.
- Manage the high level deployments of the platforms, tools, skills and hardware/software associated with the IA.

IA project successes & future slated projects include:

- Institutional Web Services – was designed and established institutional portal that was deployed lab-wide.
- Desktop Computing Services – Defined the LLNL Core Operating Environment (COE), which will be installed on system images and managed using automated software distribution.
- Benchmarked desktop experiences and defined the common metrics to be collected across all desktop support units.

The CIO, in a second intense year, continued the implementation of the new security architecture for LLNL. The established working groups recommended and are developing IM strategic direction for the Laboratory. The groups addressed issues in hardware and software standards, desktop support and standards, computer security and enterprise architecture.

<b>Performance Rating (Adjectival): Outstanding</b>	<b>92.00%</b>
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**Performance Area: Procurement**

<b>Performance Objective</b>	<b>#1</b>	<b>Management of Internal Business Processes</b>
<p>The Laboratory shall have systems in place to ensure Procurement programs operate in accordance with policies and procedures approved by DOE and the requirements contained in Prime Contract Clause I.102, Contractor Purchasing System.</p>		
<b>(Weight = 65%)</b>		

<b>Criteria:</b>	<b>1.1</b>	<b>System Evaluation</b>
<p>The Laboratory conducts, documents, and reports, the results of a successful assessment of its purchasing system against established evaluation criteria.</p>		
<b>(Weight = 30%)</b>		

<b>Performance Measures:</b>	<b>1.1.a</b>	<b>Assessing System Operations</b>
<p>The Laboratory shall have a risk-based system evaluation plan (protocol) approved by DOE and UC no later than October 1, 2000. The procurement system shall be assessed against system evaluation criteria as identified in the plan. In addition, an aggressive, cost effective management plan for resolution of system deficiencies and opportunities for process improvement shall be developed. Management of the results of the system assessment shall be evaluated. System deficiencies will include those identified by the Laboratory, internal Laboratory organizations, and external organizations.</p>		
<b>(Weight = 30%)</b>		

**Assumptions:**

The Procurement organization will provide in their annual self-assessment report, for information purposes only, the number and a brief description of critical processes reengineered/redesigned/revalidated. Such input will not be part of the rating process and will be used for Balanced Scorecard reporting purposes.

**Gradients:**

Unsatisfactory There is not an approach to the primary purpose of the system evaluation and there are major gaps in deployment of the assessment process. Cost benefit

	analyses and risk assessments are not accomplished and opportunities for improvement are not addressed. Leadership involvement is not evident.
Marginal	There is a basic approach to the primary purpose of the system evaluation. Cost benefit analyses and risk assessments are applied to some deficiencies and opportunities for improvement are generally addressed. Remedial actions are pursued and leadership involvement is evident in some cases.
Good	There is a sound, systematic approach, responsive to the primary purpose of the system evaluation. Cost benefit analyses and risk assessments are good when addressing deficiencies and/or opportunities for improvement. Remedial actions are appropriate and demonstrate responsible leadership in many to most cases.
Excellent	The requirements for a “Good” rating are met. In addition, the approach is responsive to the overall purpose of the system evaluation and cost benefit analyses and risk assessments are good to excellent when addressing deficiencies and/or opportunities for improvement. Remedial actions are sound and demonstrate responsible leadership in most cases.
Outstanding	The requirements for an “Excellent” rating are met. In addition, the approach is fully responsive to all the requirements of the system evaluation and cost benefit analyses and risk assessments are excellent when addressing deficiencies and/or opportunities for improvement. Remedial actions are sound and demonstrate strong leadership in most cases.

### **Performance Narrative:**

LLNL has a comprehensive system evaluation program that meets the risk-based procurement system evaluation plan approved by DOE. The system evaluation for FY 2001 is based on reviews of transactions completed by Procurement and Materiel (P&M) procurement staff and by the Laboratory’s Technical Release Representatives (TRRs) under P&M’s cognizance. The reviews were conducted in accordance with P&M’s established self-assessment criteria to ensure compliance with the requirements of the Prime Contract, approved P&M procurement procedures, and acceptable business practices. All system evaluation activity was performed and completed as scheduled under the direction and supervision of P&M Management. The transaction reviews were performed on purchase orders, subcontracts, and procurement charge card, and release transactions.

During FY 2001, a total of 4,747 purchase orders and subcontracts were awarded. Of this total, P&M performed 1,433 random and judgmental reviews, or approximately 30 percent of the transactions. For each review, P&M management performed root cause analyses for all findings. A risk assessment of the findings and cost benefit analysis for all corrective actions was performed. However, in spite of the deficiencies discovered in the purchase order and subcontract transactions, it was determined that the risks and costs to mitigate were low. The results indicated that some deficiencies were noted in training, specifically in the areas of work statements, sole source determinations, price reasonableness, and warranty provisions. Adherence to certain procurement procedures was another area that needed some improvement. The Delegations of Authority for three procurement specialists were suspended for thirty days because of unacceptable files.

Also during FY 2001, TRRs processed a total of 69,598 procurement card (UniCard) transactions and 6,300 blanket agreement release transactions. Of these total transactions, 869 random

reviews, and 40 special reviews were performed of procurement card and blanket agreement release transactions. For each review, P&M management performed root cause analyses for all findings. A risk assessment of the findings and cost benefit analysis of the corrective actions was performed. Twelve critical errors were found in the UniCard reviews. Six of the errors were a result of failures to obtain appropriate approvals; five were due to the purchase of a prohibited item; and one was due to a split requirement. P&M's UniCard assessment results indicated that the risk and cost to mitigate were low, and that it was cost beneficial for P&M to take the identified corrective actions. Corrective action plans were developed and implemented. Appropriate measures were taken to improve the performance of TRRs whose files had critical errors. In some cases, written warnings were issued to the TRRs and their supervisors. In other instances, additional training was required or suspension of TRR privileges was also taken, and procedures were changed to enable TRRs on-line access to blanket agreements and price lists.

The DOE Office of Inspector General (OIG) also conducted a review of the Laboratory's procurement card transactions. The OIG review recommended a few minor changes to the Laboratory's procurement procedures, which have been addressed and completed.

In general, the Laboratory purchase orders and subcontracts, procurement charge card and release transactions are being performed at an acceptable and operational efficiency level.

In accordance with the Balanced Scorecard, the Laboratory reengineered/redesigned some critical procurement systems this year. "ShipIt" was developed as a new on-line shipping request application form. It eliminated an eight-part paper shipping document for non-classified shipments and automated the shipping request, approval, and tracking process. The TRR policy manual was streamlined and converted to an on-line document to facilitate access to various web-sites and improve ease of access to the TRR community. Upgrades were made to the Procurement and Receiving Information System (PARIS) to provide better service. Finally, P&M reengineered and streamlined the process for review of invoices for educational institutions used by the Subcontract Administration Support Section after a careful risk assessment was conducted.

Also during the performance period, the P&M Manager requested an independent peer review of P&M's Balanced Scorecard, which is aligned with Appendix F performance objectives. The peer review was conducted by Procurement Evaluation and Reengineering Team (PERT), which included representatives from DOE and DOE contractor organizations. The review findings were positive. The PERT team concluded that P&M's "organizational structure is aligned to support the goals and objectives using a variety of data gathering techniques, customer surveys, forecasting, and trend analysis. The Balanced Scorecard is used effectively."

<b>Performance Rating (Adjectival): Outstanding</b>	<b>98.00%</b>
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<b>Criteria:</b>	<b>1.2 Pursuing Best Practices</b>
<p>The Laboratory compares its operational effectiveness to benchmarking data and industry standards and establishes goals and gradients accordingly.</p> <p style="text-align: right;"><b>(Weight = 20%)</b></p>	

<b>Performance Measures:</b>	<b>1.2.a Measuring Effectiveness</b>
<p>The Laboratory will be measured against benchmarks and industry standards for cycle time and utilization of alternative procurement approaches/techniques [e.g. Purchasing Cards, Verbal Orders, Just-in-Time (JIT) Contracts, Material Release System (MRS), Electronic Data Interchange (EDI), Blanket Orders, Leveraged Buys, Stores, and Low Value Purchases].</p> <p style="text-align: right;"><b>(Weight = 20%)</b></p>	

**Assumptions:**

The Procurement organization will provide in its annual self-assessment report, for information purposes only, cycle time results in two categories; less than \$100,000 and \$100,000 or more. Such input will not be part of the rating process and will be used for Balanced Scorecard reporting purposes.

The following formula shall be applied to measure the utilization of alternative procurement approaches/techniques:

Utilization of Alternative Procurement Approaches/Techniques =

$$\frac{\text{Number of Transactions Placed Outside of Procurement}}{\text{Total Number of Transactions}}$$

**Gradients:**

Cycle Time

- Unsatisfactory > 16.9 Days
- Marginal 16.0 – 16.9 Days
- Good 15.0 – 15.9 Days
- Excellent 13.0 – 14.9 Days
- Outstanding < 13.0 Days

Alternative Procurement Approaches

- Unsatisfactory < 80.0%
- Marginal 80.0% – 84.9%
- Good 85.0% – 89.9%
- Excellent 90.0% – 92.9%
- Outstanding ≥ 93.0%

**Performance Narrative:**

Result 14.4 Days

LLNL’s cycle time slipped from 12.98 days in FY 2000 to 14.4 days in FY 2001. Although this result is higher than the CAPS DOE Contractor benchmark of 9.7 days, it accurately reflects the average cycle time for processing more complex, large dollar procurements. Cycle time data exclude blanket and master agreements, zero dollar purchase orders and subcontracts. The average cycle time also reflects an increase in the number of transactions in FY 2001 (4,747) vs. in FY 2000 (4,136). Integrated Safety Management compliance requirements also factored into the increased cycle times.

Alternative Procurement Approaches

Result 94.7%

LLNL exceeded the established goal for Outstanding. The Laboratory continues to increase the number of low value, high volume procurement transactions placed outside of Procurement by strengthening its Distributed Procurement Program. Although transactions issued by TRRs have steadily increased since FY 1999, the number of procurements issued outside of P&M may be reaching a steady state. P&M systems have been designed to facilitate orders placed by TRRs, thereby increasing the number of alternative procurements at a lower cost.

In support of the Balanced Scorecard, the Laboratory achieved the following average cycle time results:

- Supplies & Services < \$100K, 13.2 days
- Supplies & Services > \$100K, 28.3 days

<b>Performance Rating (Adjectival): Excellent</b>	<b>88.00%</b>
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<b>Criteria:</b>	<b>1.3</b>	<b>Supplier Performance</b>
<p>The Laboratory shall manage its suppliers in such a manner as to ensure that the goods and services provided meet the Laboratory's requirements.</p> <p style="text-align: right;"><b>(Weight = 15%)</b></p>		

<b>Performance Measures:</b>	<b>1.3.a</b>	<b>Measuring Supplier Performance</b>
<p>The Laboratory shall measure the performance of its key suppliers. Supplier performance will be measured against goals and gradients agreed to below.</p> <p style="text-align: right;"><b>(Weight = 15%)</b></p>		

**Gradients:**

Measuring Key Suppliers of Commodities and Services

Unsatisfactory	< 76.0%
Marginal	76.0% – 78.9%
Good	79.0% – 81.9%
Excellent	82.0% – 84.9%
Outstanding	≥ 85.0%

**Performance Narrative:**

Result            93.2 %

LLNL's key suppliers of commodities and services were reduced from 68 to 59 at the beginning of the fiscal year. Their performance was measured and graded during the first quarter. The grading was based on completed surveys from end-users, subcontract administration support staff, accounts payable, Material Distribution Division, and property management staff. Improvement Agreements were established with key suppliers receiving a "C" grade or lower. Two of these suppliers were re-graded in April. Four of the six suppliers with initial "C" grades were not re-graded due to mergers or loss of Laboratory business.

<b>Performance Rating (Adjectival):</b> <b>Outstanding</b>	<b>97.00%</b>
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<b>Criteria:</b>	<b>1.4</b>	<b>Socioeconomic Subcontracting</b>
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The Laboratory shall support and promote socioeconomic subcontracting programs.

**(Weight = 0%)**

<b>Performance Measures:</b>	<b>1.4.a</b>	<b>Meeting Socioeconomic Commitments</b>
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The Procurement organization will provide in their annual self-assessment report, for information purposes only, the percentage of actual subcontract dollar obligations (not subcontract face value) in the following five categories: Small Business, Small Disadvantaged Business, Veteran-Owned Small Business, Women-Owned Small Business and HUBZone Awards. Self-assessment reports will describe annual activities in support of the socioeconomic program. Such input will not be part of the rating process and will be used for Balanced Scorecard reporting purposes.

**(Weight = 0%)**

**Assumptions:**

Obligations qualifying in more than one category may be counted in more than one category, e.g., Small Business and Small Disadvantaged Business. Lower tier subcontracts cannot be counted toward the primary goal, but may be goaled and reported separately.

The purchasing base for purposes of this measure is all obligations incurred during the fiscal year period, excluding: (1) Subcontracts with foreign corporations which will be performed entirely outside of the United States; (2) Utilities (gas, sewer, water, steam, electricity and regulated telecommunications services); (3) Federal Supply Schedule Orders when all terms of the GSA contract apply; (4) GSA Orders when all terms of the GSA contract apply; (5) Agreements with DOE management and operating contractors and University campuses; (6) Federal government and DOE mandatory sources of supply; Federal prison industries, industries of the blind and handicapped; and (7) Procurement card purchases.

**Gradients:**

In that this Performance Measure has zero weight, there is no gradient.

**Performance Narrative:**

DOE mandated the socioeconomic goals for FY 2001. The Laboratory results are provided for information purposes only and are based on a consolidated socioeconomic purchasing base of \$423,235,849 for FY 2001.

<u>Category</u>	<u>Goals</u>	<u>Actuals</u>	<u>Actual Dollars</u>
Small Business	46.0 percent	39.9 percent	\$168,927,591
Small Disadvantaged Business & 8(a) Awards	12.0 percent	10.6 percent	\$ 44,784,825
Women-Owned Small Business	5.6 percent	5.9 percent	\$ 25,089,056
HUBZone Awards	0 percent	0 percent	\$ 10,871
Veteran Owned Small Business	0 percent	0 percent	\$ - 0-

The Laboratory increased the percentage of dollars awarded to Small Businesses compared to FY 2000, but was unable to meet the mandatory goals. However, this is the third year the Laboratory exceeded its Woman-Owned Small Business goal. The Laboratory increased its exposure to as many Women-Owned Businesses as possible and also increased its participation in four more women’s organizations. Additionally, the Acting Manager of the Business Affirmative Action Office, Janet Adams, was nominated for the “Corporate Coordinator of the Year” award issued by the Northern California Supplier Development Council in honor of her dedication and outstanding achievement in providing opportunities to minority businesses. Achievements were commendable, and directly related to the Laboratory’s outreach efforts.

<b>Performance Rating (Adjectival):</b>	0.00%
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**Performance Objective #2 Customer Satisfaction**

The Laboratory shall periodically assess the degree of satisfaction with Procurement’s ability to meet customer needs in terms of timeliness, quality, and communications.

**(Weight = 10%)**

**Criteria: 2.1 Customer Feedback**

As a continuous indicator of overall customer satisfaction, the Procurement function shall survey the needs and satisfaction of its Laboratory customers relative to its purchasing systems and methods.

**(Weight = 10%)**

**Performance Measures: 2.1.a Customer Satisfaction Rating**

A customer satisfaction rating for the Procurement function shall be created from the results of transactional surveys. The satisfaction rating is to be tracked and trended. The Parties will coordinate on the acceptability of the surveying process and contents.

**(Weight =10%)**

**Assumptions:**

Included in the evaluation will be a summary describing the activities that support the score achieved. Consideration will be given to activities/efforts taken to improve customer satisfaction.

The following formula shall be applied to measure customer satisfaction using transactional surveys:

$$\text{Customer Satisfaction Rating} = \frac{\text{Number of Satisfied Customers}}{\text{Total Number of Customers Surveyed}}$$

**Gradients:**

- Unsatisfactory < 60% of customers surveyed are satisfied.
- Marginal 60% - 69.9% of customers surveyed are satisfied.
- Good 70% - 79.9% of customers surveyed are satisfied.
- Excellent 80% - 89.9% of customers surveyed are satisfied.

Outstanding ≥ 90% of customers surveyed are satisfied.

**Performance Narrative:**

Result 90.5%

LLNL exceeded the established goal for Outstanding. The results of the Customer Satisfaction survey were based on transactional surveys conducted with internal customers. The results reflect P&M's focus on decentralizing procurements by co-locating procurement representatives with technical personnel. Respondents indicated overall satisfaction with the manner in which procurements were processed. The rating is due to P&M pursuing performance improvements and emphasizing customer satisfaction.

<b>Performance Rating (Adjectival): Outstanding</b>	90.00%
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**Performance Objective #3 Learning and Growth**

The Laboratory shall ensure that information and feedback mechanisms are available to procurement employees to enhance continued successful procurement operations.  
**(Weight = 15%)**

**Criteria: 3.1 Employee Feedback**

The Laboratory shall foster improvement of processes and performance by assessing and pursuing improvements in employee satisfaction.  
**(Weight = 5%)**

**Performance Measures: 3.1.a Employee Satisfaction Rating**

A Procurement employee satisfaction rating shall be created from the results of an employee survey. The satisfaction rating is to be tracked and trended. The Parties will coordinate on the acceptability of the surveying process and contents.  
**(Weight = 5%)**

**Assumptions:**

Included in the evaluation will be a summary describing the activities that support the employee satisfaction rating achieved. Consideration will be given to activities/efforts taken to improve employee satisfaction.

The following formula shall be applied to measure employee satisfaction:

$$\text{Employee Satisfaction Rating} = \frac{\text{Number of Satisfied Employees}}{\text{Total Number of Employees Surveyed}}$$

The Procurement organization will provide in their annual self-assessment report, for information purposes only, percent of employees aligned. Such input will not be part of the rating process and will be used for Balanced Scorecard reporting purposes.

**Gradients:**

- Unsatisfactory < 50% of employees surveyed are satisfied.
- Marginal 50% - 59.9% of employees surveyed are satisfied.

- Good            60% - 69.9% of employees surveyed are satisfied.
- Excellent     70% - 79.9% of employees surveyed are satisfied.
- Outstanding ≥ 80% of employees surveyed are satisfied.

**Performance Narrative:**

During FY 2001, P&M considered the number of surveys conducted by the Laboratory and concluded that the results of one more employee survey (P&M's) would not change employee concerns/responses that had been previously submitted during the year. Therefore, instead of conducting the employee survey in accordance with this performance measure, P&M management decided not to conduct the annual P&M employee survey, but rather to focus on employee results previously provided. Since August 2000, P&M Management has concentrated on analyzing the survey responses to understand employee concerns and improve employee satisfaction. However, DOE was not notified of this decision until the fourth quarter of the fiscal year. As a result, P&M is being given credit for analyzing employee concerns, strengthening and improving employee/employer relationships, and developing a course of action for implementing changes.

In accordance with Balanced Scorecard, the P&M's objective is the alignment of at least 90 percent of its employees under this performance measure. P&M measured the alignment of its employees during the year and determined that over 95 percent of P&M's employees were properly aligned to their Balance Scorecard objectives.

<b>Performance Rating (Adjectival):</b> <b>Good</b>	70.00%
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<b>Criteria:</b>	<b>3.2</b>	<b>Information Availability</b>
<p>The Laboratory shall make readily available to its employees current information important to the successful performance of their procurement related functions.</p> <p style="text-align: right;"><b>(Weight = 10%)</b></p>		

<b>Performance Measures:</b>	<b>3.2.a</b>	<b>Measuring Availability of Information</b>
<p>The Laboratory will track and trend the level of information available to Procurement employees.</p> <p style="text-align: right;"><b>(Weight = 10%)</b></p>		

**Assumptions:**

Information is considered available if it is current or requires only minor revision and the information is in compliance with Prime Contract requirements.

The following formula shall be applied to measure the level of information availability:

$$\text{Level of Information Availability} = \frac{\text{Number of Information Items Available}}{\text{Number of Information Items Needed}}$$

**Gradients:**

Unsatisfactory	< 85.0%
Marginal	85.0% – 87.9%
Good	88.0% – 90.9%
Excellent	91.0% – 93.9%
Outstanding	≥ 94.0%

**Performance Narrative:**

Result            96.2%

LLNL exceeded the established goal of required information items available to the staff. The Laboratory continues its superiority and leadership in addressing information availability and total information requirements needed for the staff to perform their functions. This helps to improve expertise among the P&M staff and increases the number of quality procurements consistent with best business practices.

<b>Performance Rating (Adjectival):</b> <b>Outstanding</b>	98.00%
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**Performance Objective #4 Managing Financial Aspects**

The Laboratory shall ensure optimum cost efficiency of purchasing operations.  
**(Weight = 10%)**

**Criteria: 4.1 Process Cost**

The Laboratory compares its operating costs as a percentage of total procurement dollars obligated to benchmarking data and industry standards and establishes goals and gradients accordingly.  
**(Weight = 10%)**

**Performance Measures: 4.1.a Cost to Spend Ratio**

Operating costs as a percentage of total procurement dollars obligated will be computed. The Laboratory's operating costs (labor plus overhead) shall be divided by purchasing obligations.  
**(Weight = 10%)**

**Assumptions:**

The following formula shall be applied to measure the cost to spend ratio:

$$\text{Cost to Spend Ratio} = \frac{\text{Purchasing Organization Cost}}{\text{Total Purchasing Obligations}}$$

**Gradients:**

- Unsatisfactory > 2.50%
- Marginal 2.21% – 2.50%
- Good 1.96% – 2.20%
- Excellent 1.70% – 1.95%
- Outstanding < 1.70%

**Performance Narrative:**

Result            1.28%

LLNL exceeded the established goal for Outstanding. The results compare favorably against the CAPS DOE Contractor benchmark of 2.3 percent. This is directly attributed to the Procurement Manager managing his resources effectively and efficiently.

<b>Performance Rating (Adjectival): Outstanding</b>	95.00%
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**Performance Area: Property**

Property Management will employ the Property Performance Assessment Model (PPAM) for Fiscal Year 2001. The Property Management organization will finalize its final assessment plan with DOE and UC by October 1, 2000. This plan will cover performance thresholds, performance ranges (gradients), specific scoring criteria, and frequency of reporting.

In this Model, points are used to determine the score for each activity. Weights and the corresponding points are shown below at the Objective, Criteria, and Performance Measure levels. At the Basis for Rating level, the total possible points for each activity are shown. Overall ratings will be based on the following (where a total weight of 100% is equal to 500 points):

- < 352 Unsatisfactory
- >= 352 Marginal
- >= 400 Good
- >= 450 Excellent
- >= 475 Outstanding

The Adjectival Rating and Contractual Score will be assigned using the following scoring table:

**Property Management  
Scoring Table**

PPAM Points Earned	Translation to Appendix F Contractual Scoring	Adjectival Rating
304-319	52	<b>Unsatisfactory</b>
320-335	55	
336-351	58	
352-367	62	<b>Marginal</b>
368-383	65	
384-399	68	
400-416	72	<b>Good</b>
417-432	75	
433-449	78	
450-459	82	<b>Excellent</b>
460-468	85	
469-474	88	
475-483	92	<b>Outstanding</b>
484-492	95	
493-500	98	

<b>Performance Objective #1</b>	<b>Accountability for Equipment, Sensitive Property, and Precious Metals</b>
The Laboratory shall ensure accountability for equipment and sensitive personal property and precious metals.	
<b>(Weight = 50% / Total Points = 250)</b>	

<b>Criteria: 1.1</b>	<b>Accountability for Equipment, Sensitive Property, and Precious Metals</b>
The Laboratory shall conduct successful personal property and precious metal inventories as established in its inventory planning.	
<b>(Weight = 35% / Total Points = 175)</b>	

<b>Performance Measures: 1.1.a</b>	<b>Property and Precious Metals Accounted For</b>
The percentage of personal property and precious metals accounted for, as described in the approved inventory plans, will be measured.	
<b>(Weight = 35% / Total Points = 175)</b>	

**Basis for Rating**

Exhibit I provides the activities to be measured, point value for each activity, and performance ranges (gradients).

**Performance Narrative:**

During FY 2001, the LLNL conducted a statistical sample inventory of sensitive and equipment items. The results of the FY 2001 inventory were **Outstanding** at 99.9 percent for equipment, and 99.6 percent for sensitive by acquisition value. From an equipment sample population of 3,060 items (valued at \$310,434,695) 3,033 items (valued at \$310,169,220) were located. From a sensitive property sample population of 1,644 items (valued at \$2,698,168), 1,640 items (valued at 2,688,183) were located. No capital equipment items (valued at \$25,000 or greater) were unaccounted-for during the inventory. A subsequent sample validation conducted by the LLNL Property Management organization resulted in 100 percent of the items being located. The Oakland Operations Office (OAK) Property Administrator participated during the inventory validation process.

The FY 2001 precious metals inventory resulted in 100 percent of the 794,738 grams being accounted-for without unexplained loss.

<b>Performance Rating (Adjectival): Outstanding</b>	175	100.00%
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<b>Criteria:</b>	<b>1.2</b>	<b>Identification of Items Subject to Inventory</b>
<p>The Laboratory will ensure personal property items that are subject to inventory are accurately identified.</p> <p style="text-align: right;"><b>(Weight = 15% / Total Points = 75)</b></p>		

<b>Performance Measures:</b>	<b>1.2.a</b>	<b>Accuracy of Identification</b>
<p>The percentage of items accurately identified in the property database will be measured.</p> <p style="text-align: right;"><b>(Weight = 15% / Total Points = 75)</b></p>		

**Basis for Rating**

Exhibit I provides the activities to be measured, point value for each activity, and performance ranges (gradients).

**Performance Narrative:**

There are four distinct elements to this measure: percent of property recorded via electronic purchasing/receiving system, property tagged when received, tagging requests completed within five days, and the percent of property correctly identified in the database. These elements are critical to the initial phase of an “acquisition-to-disposition” property management program.

During FY 2001, 98.0 percent of personal property items received were recorded via the electronic purchasing system. In addition, personal property tagged when received was at 99.3 percent for FY 2001. These are two critical elements in initiating accountability in terms of the initial identification and marking government property.

In cases where property is not tagged by the receiving organization, it is important to identify and tag the item as soon as feasible after it is delivered. The LLNL performance goal for this measure is to tag these items within five days after notification of receipt. LLNL achieved 92.2 percent for items tagged in the field within five days of notification. Another critical element of ensuring database accuracy is to perform sample validation from floor to record. During FY 2001 LLNL achieved 99.9 percent accuracy for this element.

<b>Performance Rating (Adjectival):</b> <b>Excellent</b>	69	85.00%
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<p><b>Performance Objective #2 Stewardship Over Personal Property</b></p> <p>The Laboratory shall ensure that both stewardship and custodianship for personal property is maintained.</p> <p style="text-align: right;"><b>(Weight = 20% / Total Points = 100)</b></p>
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<p><b>Criteria: 2.1 Organizational Stewardship and Individual Accountability</b></p> <p>The Laboratory will ensure organizational and individual accountability (stewardship and custodianship, respectively) for property.</p> <p style="text-align: right;"><b>(Weight = 20% / Total Points = 100)</b></p>
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<p><b>Performance Measures: 2.1.a Timeliness of Assignment</b></p> <p>The accountable individual is identified for equipment and sensitive property, and the timeliness of such identification is measured.</p> <p style="text-align: right;"><b>(Weight = 20% / Total Points = 100)</b></p>
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**Basis for Rating**

Exhibit I provides the activities to be measured, point value for each activity, and performance ranges (gradients).

**Performance Narrative:**

It is generally recognized that the philosophy of individual accountability is the underlying principle of an effective personal property management control and protection program. In order to achieve individual accountability for personal property, it is first important to accurately and expeditiously assign property items to custodians.

During FY 2001, LLNL achieved 100 percent for property released to the responsible property center within five days of receipt. LLNL was able to achieve 100 percent for sensitive property accurately assigned to custodians and 100 percent for equipment assigned. The Laboratory was able to assign 100 percent of personal property received to the initial custodian within 60 days.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	100	100.00%
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**Performance Objective #3 Vehicle Utilization**

The Laboratory shall have a program to manage its vehicle fleet.

(Weight = 5% / Total Points = 25)

**Criteria: 3.1 Fleet Management**

The Laboratory shall manage its fleet to ensure appropriate vehicle utilization.

(Weight =5% / Total Points = 25)

**Performance Measures: 3.1.a Vehicle Utilization**

The Laboratory shall measure the percentage of total eligible vehicles meeting local utilization criteria.

(Weight = 5% / Total Points = 25)

**Basis for Rating**

Exhibit I provides the activities to be measured, point value for each activity, and performance ranges (gradients).

**Performance Narrative:**

The LLNL motor vehicle fleet is categorized into four vehicle classifications. Each vehicle classification has an individually assigned utilization criterion, which was established in accordance with the recommendations outlined in a 1993 independent motor vehicle study conducted at the Laboratory.

During FY 2001, LLNL was able to achieve 188.3 percent utilization for on-site discretionary vehicles. In addition, during FY 2001 thirty-three vehicles were reclassified from on-site discretionary to off-site discretionary. Off-site discretionary vehicles achieved 132.7 percent utilization, while the non-discretionary vehicles achieved 126.9 percent. Non-discretionary vehicles such as water trucks achieved 221.7 percent utilization for the year.

Based on measurement of vehicle utilization against the established criteria, institutional motor vehicle utilization at LLNL earned a rating of “**Outstanding**” for FY 2001.

<b>Performance Rating (Adjectival): Outstanding</b>	25	98.00%
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<b>Performance Objective #4</b>	<b>Information to Improve/Maintain Processes (Systems Evaluation)</b>
<p>The Laboratory ensures that Property Management programs are consistent with policies and procedures approved by DOE.</p> <p style="text-align: right;"><b>(Weight = 10% / Total Points = 50)</b></p>	

<b>Criteria:</b>	<b>4.1</b>	<b>Self-Assessment of Policies and Procedures</b>
<p>The Laboratory shall plan, conduct, document, and report annually, the results of a successful property management system evaluation.</p> <p style="text-align: right;"><b>(Weight = 10% / Total Points = 50)</b></p>		

<b>Performance Measures:</b>	<b>4.1.a</b>	<b>Assessing Support Processes</b>
<p>The property processes shall be measured against identified system evaluation criteria established in the plan.</p> <p style="text-align: right;"><b>(Weight = 10% / Total Points = 50)</b></p>		

**Basis for Rating**

Exhibit I provides the activities to be measured, point value for each activity, and performance ranges (gradients).

**Performance Narrative:**

During FY 2001, the LLNL Property and Fleet Management Division conducted an assessment of support processes in order to assess compliance with DOE-approved policies and procedures. This process is an important compliment to OAK's operational awareness program. Areas addressed in the assessment include: subcontractor-held property controls, personal property loans and borrows, walkthroughs, excess transfers, property storage, credit card review, fleet management activities, and precious metals management. The assessment is conducted utilizing the PPAM self-assessment plan/worksheet which outlines mutually agreed to activities for assessment and associated performance ranges. Based on the level of performance, the Laboratory is granted a number points for each activity. A total of 50 points are allotted for the entire assessment.

During FY 2001, two forklifts were acquired from excess sources without the appropriate prior approval, which resulted in four points being deducted. Subsequent corrective actions were taken to prevent reoccurrence.

The LLNL Nonproliferation, Arms Control and International Security Directorate (NAI) conducted a review of the LLNL High Risk property review and disposition process and determined the system to be in compliance with Laboratory policy.

For FY 2001, LLNL earned 46 points out of the possible 50 points total. This area is assigned a rating of **Excellent**.

<b>Performance Rating (Adjectival):</b> <b>Excellent</b>	46	85.00%
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<p><b>Performance Objective #5 Customer Alignment</b></p> <p>The Laboratory shall ensure that there is a property management program for identifying and evaluating customer needs and for building and maintaining positive customer relations.</p> <p style="text-align: right;"><b>(Weight = 5% / Total Points = 25)</b></p>
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<p><b>Criteria: 5.1 Monitoring Customer Alignment</b></p> <p>The Property Management organization shall ensure that the property management programs are responsive to customer expectations.</p> <p style="text-align: right;"><b>(Weight = 5% / Total Points = 25)</b></p>
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<p><b>Performance Measures: 5.1.a Aligning Customer Expectations</b></p> <p>The Laboratory will have processes in place to monitor customer expectations of property management tools and products with regard to ease of use, timeliness, accuracy, and certainty.</p> <p style="text-align: right;"><b>(Weight = 5% / Total Points = 25)</b></p>
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**Basis for Rating**

Exhibit I provides the activities to be measured, point value for each activity, and performance ranges (gradients).

**Performance Narrative:**

During FY 2001, LLNL again utilized the customer satisfaction plan format which outlines the areas of customer satisfaction to be assessed during the year. Areas such as: compliance, timeliness, accuracy, reliability, ease of use, training, accessibility, and awareness were addressed via customer surveys, focus groups, and process action teams. Customers identified include DOE, LLNL Associate Director (AD) Property Representatives, Property Center Representatives, Property Custodians, and general Laboratory employees. Surveys reflected continued high levels of satisfaction. LLNL also surveyed subcontractors utilizing the self-evaluation questionnaire and certification form. Opportunities for improvement resulting from subcontractor customer feed back were identified and are to be addressed by February 2002.

<p><b>Performance Rating (Adjectival): Outstanding</b></p>	25	100.00%
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**Performance Objective #6 Balancing Performance and Cost**

The Laboratory ensures that property is managed appropriately to balance performance and cost.  
**(Weight = 5% / Total Points = 25)**

**Criteria: 6.1 Balancing Performance/Cost Ratios**

The Laboratory shall ensure that property processes/products are provided in the most cost efficient manner while maintaining desired levels of performance.  
**(Weight = 5% / Total Points = 25)**

**Performance Measures: 6.1.a Measuring Cost Efficiency/Effectiveness**

The Laboratory shall measure its ability to effectively balance property management costs and performance.  
**(Weight = 5% / Total Points = 25)**

**Assumptions:**

Where properly justified and approved by DOE, the Laboratory may elect to establish a measure that extends over two evaluation periods. The first year the Laboratory will submit a plan outlining the approach to be employed in establishing an appropriate baseline and developing the gradients for the following evaluation period. Approach and deployment of the plan will be evaluated the first year. The final milestone of the plan will be to develop gradients for results desired by the end of the second year. These gradients will be the basis for evaluation in the second evaluation period.

**Basis for Rating**

Exhibit I provides the activities to be measured, point value for each activity, and performance ranges (gradients). The matrix provided below will be used to score the selected activities.

Cost Vs Baseline Plan Developed Each Year	Performance Level			
	Higher Gradient or Outstanding	Same Gradient	Lower Performance and Not Less Than Good	Lower Performance and/or Less Than Good
Less Cost	Outstanding	Excellent	Good	Marginal
Same Cost	Excellent	Good	Marginal	Unsatisfactory
More Cost	Good	Marginal	Unsatisfactory	Unsatisfactory
More Cost/Major Change in Requirements	<b>Renegotiate Performance Gradients for Critical Activities</b>			

**Performance Narrative:**

During FY 2001, LLNL targeted stewardship and fleet management functions for potential cost reductions and increased efficiency. In the area of stewardship, the Annual Custodian Report was automated utilizing existing e-mail capabilities within the Sunflower Property Management database which will save an estimated 442 hours annually. Costs were reduced while stewardship performance remained at the outstanding level.

During FY 2001, the LLNL Property Management organizational structure was “flattened,” as the Property Support Group and Property Control groups were merged and the Property and Fleet Management Division Leader position eliminated. The Property Management function now reports directly to the Business Services Department Deputy. This has resulted in a cost savings of \$155,000, while overall property management performance has remained at the outstanding level.

In the area of Fleet Management, LLNL worked with the General Services Administration (GSA) to reengineer the process for receiving new vehicles on-site. New vehicles are now prepped on-site at LLNL as opposed to at a car dealership. This has resulted in cost savings of \$10,980 associated with eliminating GSA new vehicle transportation costs, and a reduction of 122 hours associated with new/old vehicle exchange. Performance in this area remained good during FY 2001.

In addition, LLNL and GSA are working together to improve the billing process for on-site maintenance. Although this action was not completed during the fiscal year, the efforts continue.

The Laboratory is recognized for the significant efforts to address cost reductions through increased efficiencies and innovations, while maintaining high levels of performance.

<b>Performance Rating (Adjectival): Outstanding</b>	23	98.00%
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**Performance Objective #7 Organizational Vitality**

The Laboratory shall ensure that there is a program for achieving and maintaining organizational vitality in the property management organization.

**(Weight = 5% / Total Points = 25)**

**Criteria: 7.1 Evaluation of Organizational Agility and Employee Alignment**

The Laboratory will foster organizational agility and employee alignment in its property management organization.

**(Weight =5% / Total Points = 25)**

**Performance Measures: 7.1.a Measuring Organizational Agility and Employee Alignment**

The Laboratory will have a process in place to measure organizational vitality as well as to understand and address workforce expectations.

**(Weight = 5% / Total Points = 25)**

**Assumptions:**

Organizational vitality is the alignment of organizational performance goals and workforce skills (both current and future). The Laboratory will develop scoresheets to evaluate elements determined necessary to ensure its workforce is ready for current and future operations and projected challenges. Elements to be evaluated and scored will be submitted to and approved by DOE as part of the annual Personal Property Assessment Model (PPAM) finalization process.

**Basis for Rating**

Exhibit I provides the activities to be measured, point value for each activity, and performance ranges (gradients).

**Performance Narrative:**

The FY 2001 LLNL evaluation of organizational agility and workplace environment addressed employee learning and growth, organizational climate, and environmental safety and health. Positive scores were achieved in all areas.

Employee development and competencies were assessed as was adherence to training plans. Employee safety, morale, teamwork, values, vision, diversity are all continuously monitored as part of the overall program.

<b>Performance Rating (Adjectival): Outstanding</b>	25	100.00%
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## EXHIBIT I

## LLNL PROPERTY SUB-GAUGES – FY 2001

Measured Activities/Sub-Gauges Activity/Support Process	Gradient 60/70/80/90/100	Value of Activity
PRODUCT GOODNESS		
1.1.a Property and Precious Metals Accounted For		
1.1.a.1 % Sensitive inventory items accounted for by acquisition value.	<98.0/98.0/98.7/99.2/99.5	72
1.1.a.2 % Equipment inventory items accounted for by acquisition value.	<98.0/98.0/98.7/99.2/99.5	73
1.1.a.3 % Precious metals accounted for by weight in grams	<98.0/98.0/99.0/99.6/99.8	30
1.2.a Accuracy of Identification		
1.2.a.1 % Property items recorded via electronic purchasing/receiving system	<85.0/85.0/90.0/95.5/98.0	19
1.2.a.2 % Property tagged when received	<85.0/85.0/90.0/95.5/98.0	18
1.2.a.3 % Tagging requests completed within 5 days	<85.0/85.0/90.0/95.5/98.0	19
1.2.a.4 % Property identified in database during floor-to-database sampling	<85.0/85.0/90.0/95.5/98.0	19
2.1.a Timeliness of Assignment		
2.1.a.1 % Property released to property center within 5 days of receipt	<85.0/85.0/90.0/95.5/98.0	50
2.1.a.2 % Accurate custodian assignments for sensitive property by statistical sampling	<90.0/90.0/95.0/97.7/99.0	15
2.1.a.3 % Accurate custodian assignments for equipment by statistical sampling	<90.0/90.0/95.0/97.7/99.0	10
2.1.a.4 % initial custodians assigned within 60 days	<90.0/90.0/95.0/97.7/99.0	25
3.1.a Vehicle Utilization		
% Vehicle utilization for each vehicle classification:		
3.1.a.1 - Onsite Discretionary	<85.0/85.0/90.0/95.5/98.0	10
3.1.a.2 - Offsite Discretionary	<85.0/85.0/90.0/95.5/98.0	3
3.1.a.3 - Non-discretionary operational	<85.0/85.0/90.0/95.5/98.0	10
3.1.a.4 - Non-discretionary seasonal	<85.0/85.0/90.0/95.5/98.0	2
PROCESS GOODNESS		
4.1.a Assessing Support Processes		
4.1.a.1 Property Management High Risk	Scoresheet	17
4.1.a.2 Fleet Management	Scoresheet	17
4.1.a.3 Precious Metals	Scoresheet	16

Measured Activities/Sub-Gauges Activity/Support Process	Gradient 60/70/80/90/100	Value of Activity
5.1.a Aligning Customer Expectations		
5.1.a.1 Were the methods to determine customer satisfaction accomplished as outlined in the plan? Ease of Use • Timeliness • Accuracy • Certainty • Reliability	Plan/Scoresheet	25
6.1.a Measuring Cost Efficiency/Effectiveness		
6.1.a.1 Stewardship and Fleet Management	Scoresheet	25
WORKPLACE GOODNESS		
7.1.a Measuring Organizational Agility and Employee Alignment		
7.1.a.1 Learning and Growth	Scoresheet	12
7.1.a.2 Organizational Climate	Scoresheet	2
7.1.a.3 Environment, Safety, and Health	Scoresheet	11

## Report Methodology

### APPENDIX F - OBJECTIVE STANDARDS OF PERFORMANCE

This report provides the Contracting Officer's Fiscal Year 2001 evaluation and validation of the Contractor's self-assessment of performance in its management and operation of LLNL for the DOE under the contract. In this contract, the University and DOE have agreed to use a performance-based management system for Laboratory oversight. These standards are used for the appraisal and evaluation of work under this contract and is supported by a system that includes: (1) the utilization of self-assessment and integrated oversight methodologies, systems, and processes to enhance operational efficiency and performance effectiveness; (2) the use of peer review and self-assessment in the appraisal and evaluation of science and technology/programmatic performance; and, (3) such other administrative processes and procedures as the Parties may mutually agree to, from time to time, as they deem necessary to effect the intent of Clause 2.6 and Appendix F to this contract. Self-assessments are the principal means by which the Contractor evaluates compliance with the performance objective described in Appendix F. DOE OAK validates against the self-assessment and evaluates the Contractor's performance. The validation effort is conducted by teams responsible for the various functional areas represented in Appendix F. These teams, with guidance from DOE OAK management, are responsible for developing an adequate, independent basis for assessing the quality, credibility, and accuracy of the Contractor's self-assessment; and a basis for DOE OAK's evaluation of the Contractor's performance.

This report meets the following contract requirements:

- Provide a summary of the results from the conduct of the DOE OAK validation program and evaluation of performance of work under this contract as required by Clause H.007
- Provide a written assessment of the Contractor's performance under the contract based upon the DOE OAK appraisal program and the Contracting Officer's evaluation of the Contractor's self-assessment as required by Clause H.007.
- Provide the basis for determination of the Senior Management Salary Increase Authorization (SIA) Multiplier as required by Section III, paragraph (f), (6) and (8) of Appendix A and Section C, Part III of Appendix F.
- Provide the basis for determination of the Contractor's Program Performance Fee, as required by Clause H.014.

## 1. Appendix F Components of Laboratory Evaluation Process

The first component of the performance evaluation process is the evaluation of Science and Technology/Programmatic performance. The University of California President's Council on the National Laboratories performs a peer review and evaluates the quality of science and technology at the Laboratory. The Council prepares a report that the University's Laboratory Affairs Office uses to develop an adjectival and numeric rating for the evaluation of Science and Technology at the Laboratory. DOE Headquarters (DOE HQ) program managers and their DOE OAK counterparts validate the Science and Technology self-assessment.

The second component of the performance evaluation process is the annual Contractor self-assessment of the operations and administrative systems at LLNL included in Section B of Appendix F. The results of this self-assessment and proposed corrective action plans are then presented to the University of California, Laboratory Administration Office (UCLAO) by the Laboratory. This becomes the foundation for the Contractors self-assessment.

UCLAO management also evaluates the administrative systems for the Laboratory using the self-assessments and corrective action plans provided by the Laboratory and the established Appendix F performance measures. UCLAO establishes an aggregate "rating" for the Laboratory based on the evaluation of each functional area and combines this result with the ratings for Science and Technology for a total adjectival and numeric rating.

DOE OAK reviews and validates Contractor performance using the established Appendix F performance objectives, the UCLAO rating of the Laboratory self-assessment and corrective action plans. This effort is accomplished by teams reflecting expertise in the various functional disciplines required by the Appendix F administrative and operational systems. All teams have the opportunity to observe the Laboratory's independent evaluation of its self-assessment. This report is the product of their review and validation of the Contractor's performance. The primary objective of this report is to provide the annual Contracting Officer's written assessment of the Contractor's performance under the contract. This report also documents the DOE determination of the Senior Management Salary Increase Authorization (SIA) Multiplier and the amount of earned Program Performance Fee in accordance with Contract terms.

## 2. Self-Assessment Period

Designed to capture performance for Fiscal Year 2001, the self-assessment period for the Laboratory is October 1, 2000 through September 30, 2001, 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 Laboratory provided its self-assessment to UC on September 30, 2001. The Contractor provides the self-assessment of LLNL and proposed rating to DOE OAK on November 5, 2001.

The Contractor and DOE agreed to use the following table for adjectival graded and numeric scoring:

**DOE-UC Rating Adjectives**

Percentage Range	Adjectival Description	Definition
100-90 %	Outstanding	Significantly exceeds the standard of performance; achieves noteworthy results; accomplishes very difficult tasks in a timely manner
89-80 %	Excellent	Exceeds the standard of performance; although there may be room for improvement in some elements, better performance in all other elements offset this
79 - 70 %	Good	Meets the standard of performance; assigned tasks are carried out in an acceptable manner - timely, efficiently, and economically. Deficiencies do not substantively affect performance.
69- 60 %	Marginal	Below the standard of performance; deficiencies are such that management attention and corrective action are required.
< 60 %	Unsatisfactory	Significantly below the standard of performance; deficiencies are serious, and may affect overall results, immediate senior management attention, and prompt corrective action is required.

### 3. Appendix F Appraisal Component Methodology

The DOE OAK Functional Teams validate the Contractor's self-assessment on quality, accuracy, and credibility, and consider other sources of information, reviews, or tests. From this process the teams recommend a numeric and adjectival rating of the Contractor's performance. For Science & Technology the methodology is the same with a heavy reliance on assessment from DOE HQ program offices.

(i) Performance Objectives

The Parties establish the weights to be assigned at the performance objective and criteria level within the functional teams.

(ii) Performance Objectives Not Accomplishable During the Rating Period

The methodology used by DOE OAK is to assess these performance objectives where there is enough information available to render an assessment of Contractor performance. In cases where a performance assessment can not be made, it is decided to not rate the performance objective. In such cases the performance objective's weight is maintained, if feasible, by reassigning the performance criteria weights within that performance objective. If that is not possible the weight of the objective is added proportionately to other performance objectives in the functional area.

(iii) Sources of Information

The initial source of information about performance was obtained from the Contractor self-assessment and evaluation. Sources of information used by DOE to validate the credibility and conclusions of the self-assessment and the review of the self-assessment included, but were not limited to:

- Functional appraisals conducted by line and functional managers with input from Headquarters, as appropriate.
- Assessment Management Plans for Operational oversight of the Contractor that include in their scope Appendix F performance objectives.
- Daily operational awareness activities, including interactions, walk-throughs, management meetings or other modes of formal and informal contact with the Contractor.
- External and internal audits and evaluations, such as GAO/OIG reviews, ES&H assessments, Inspections and

Evaluations, etc.

- Review and validation efforts of Appendix F measures during the two-week performance assessment review of the Contractor.

(iv) **Factual Accuracy Check**

A draft of the performance narrative of this report is provided to UC on November 19, 2001, to check the factual accuracy of its contents. The University returned its comments on November 21, 2001.

## PERFORMANCE APPRAISAL SCORING

Column 1: **POINTS** - represents the total points allocated for the entire functional area. For example, the functional area of ERWM is allocated 40 points of the 400 point total for all of the operations/administration section. This is the first tier for the weightings of each functional area; all other weightings within a functional area are sub-ordinate to this overall weight [or points available.] All functional areas are not equal to each other; they are weighted using a hierarchical method.

While column 1 (points) represents the total points available for that functional area, the total points available are further broken down [or allocated] by performance objective(s), and within each objective, by criteria and the actual performance measure(s).

Column 2: **SCORE** - represents the total points received, through the DOE evaluation process, for each functional area for the fiscal year. For example, if a functional area has 85 points available, the DOE evaluation would result in a numeric score of 85 or less. Thus, it represents the final scoring for the functional area. The summation of column 2 results in the overall score for the functional areas.

Column 3: **PERCENT** - represents the numeric score, expressed as a percentage of total points available. In the above example of a functional area with 85 points, if the functional area received 80 points, this would equate to 94 percent.

## Unique Methodology For Property Management Scores

DOE OAK has used specific, unique methodology only applicable to the property management performance area in calculating the overall score, percent and adjectival rating for the FY 1999 performance. The Parties agree upon the use of a rating table designed to identify a range of **(PPAM)** points earned and the translation of such points to a numeric scoring for the purposes of the Appendix F performance rating for FY 2001. (See Property Scoring Table).

**FY 2001 Appendix F  
Property Scoring Table**

PPAM Points Earned	Translation to Appendix F Contractual Scoring	Adjectival Rating
493-500	98	<b>Outstanding</b>
484-492	95	
475-483	92	
469-474	88	<b>Excellent</b>
460-468	85	
450-459	82	
433-449	78	<b>Good</b>
417-432	75	
400-416	72	
384-399	68	<b>Marginal</b>
368-383	65	
352-367	62	
336-351	58	<b>Unsatisfactory</b>
320-335	55	
304-319	52	

Using the PPAM model, Property Management could earn from 0 up to 500 points in their performance. If the Contractor earns 480 points (performance in the range of 475 - 483) falls into the category of 92 percent for an outstanding adjectival rating. (Even though mathematically, the total scores for each element adds up to 14.4 out of a possible 15 points, or 96%).

Senior Management Salary Increase Authorizations Multiplier - The total points earned for in the performance in Science and Technology and Operations and Administration are used to determine the SIA. Using the table (in Section C, Part III of Appendix F). The total points earned correspond to the agreed numeric equivalent. The numeric equivalent is used as a multiplier of each Senior Management merit pool.

Appendix B - Laboratory Management and Science Technology Scores

FUNCTIONAL AREA	POINTS POSSIBLE	SCORE	PERCENT	ADJECTIVAL RATING
<b>LABORATORY MANAGEMENT</b>	100.0	91.1	91.1%	Outstanding
<b>TOTAL</b>	100.0	91.1	91.1%	Outstanding
<b>SCIENCE AND TECHNOLOGY</b>				
Directed Stockpile Work	60.0	52.5	87.5%	Excellent
Stockpile Maintenance	24.0	20.6	86.0%	Excellent
Stockpile Research & Development	36.0	31.9	88.5%	Excellent
Campaigns	140.0	132.9	94.9%	Outstanding
Primary Certification	10.0	9.7	96.7%	Outstanding
Dynamic Materials Properties	12.0	11.6	93.3%	Outstanding
Advanced Radiography	3.0	2.9	96.0%	Outstanding
Secondary Certification and Nuclear System Margins	16.0	15.9	99.5%	Outstanding
Enhanced Surveillance	15.0	14.0	93.1%	Outstanding
Advanced Design and Production Technologies	3.0	2.9	95.0%	Outstanding
Ignition Physics and High-Energy-Density Physics Program	17.0	16.2	95.0%	Outstanding
Advanced Simulation and Modeling	64.0	59.9	93.5%	Outstanding

Appendix B - Laboratory Management and Science Technology Scores

Readiness in the Technical Base and Facilities	20.0	19.9	99.4%	Outstanding
National Ignition Facility	100.0	96.4	96.4%	Outstanding
NIF Project	73.0	70.0	95.9%	Outstanding
NIF Demonstration Project	27.0	26.4	97.8%	Outstanding
Nuclear Non-Proliferation	50.0	46.8	93.6%	Outstanding
Other	130.0	120.6	92.8%	Outstanding
Office of Science	45.0	41.6	92.3%	Outstanding
Work For Others/DOD	49.0	45.6	93.0%	Outstanding
Work For Others/Other Federal Agencies	12.0	11.2	93.0%	Outstanding
Tech Transfer Non-Federal Agencies	24.0	22.3	93.0%	Outstanding
Laboratory Directed Research and Development	0.0	0.0	0.0%	Outstanding
<b>TOTAL</b>	<b>500</b>	<b>469.1</b>	<b>93.8%</b>	<b>Outstanding</b>

Appendix C - Operational and Administrative System Scores Summary

FUNCTIONAL AREA	POINTS POSSIBLE	SCORE	PERCENT	ADJECTIVAL RATING
<b>OPERATIONS AND ADMINISTRATION</b>				
ENVIRONMENT RESTORATION & WASTE MANAGEMENT	40.0	37.1	92.9%	Outstanding
ENVIRONMENT, SAFETY & HEALTH	100.0	80.5	80.5%	Excellent
PROJECT/FACILITIES/CONSTRUCTION MGT.	85.0	78.9	92.8%	Outstanding
SAFEGUARDS AND SECURITY	100.0	94.8	94.8%	Outstanding
FINANCIAL MANAGEMENT	15.0	14.8	98.7%	Outstanding
HUMAN RESOURCES	15.0	13.7	91.1%	Outstanding
INFORMATION MANAGEMENT	15.0	13.8	92.3%	Outstanding
PROCUREMENT	15.0	14.0	93.4%	Outstanding
PROPERTY MANAGEMENT	15.0	14.3	95.0%	Outstanding
<b>TOTAL</b>	<b>400</b>	<b>361.8</b>	<b>90.5%</b>	<b>Outstanding</b>

**Appendix D**  
**Computation of**  
**Salary Increase Authorization**  
**Multiplier**

Appendix F Element of Laboratory Performance

Performance Area	Rating	%	x	Pts	=	Score
<b>Science &amp; Technology</b>						
Directed Stockpile Work	Excellent	87.5%	x	60	=	52.5
Campaigns	Outstanding	94.9%	x	140	=	132.9
Readiness in the Technical Base and Facilities	Outstanding	99.4%	x	20	=	19.9
National Ignition Facility	Outstanding	96.4%	x	100	=	96.4
Non-Nuclear Proliferation	Outstanding	93.6%	x	50	=	46.8
Other	Outstanding	92.8%	x	130	=	120.6
<b>Total Science &amp; Technology</b>	<b>Outstanding</b>	<b>93.8%</b>	<b>x</b>	<b>500</b>	<b>=</b>	<b>469.1</b>
<b>Laboratory Management</b>	<b>Outstanding</b>	<b>91.1%</b>	<b>x</b>	<b>100</b>	<b>=</b>	<b>91.1</b>
<b>Operations and Administration</b>						
Environment Restoration & Waste Mgmt	Outstanding	92.9%	x	40	=	37.1
Environment, Safety and Health	Excellent	80.5%	x	100	=	80.5
Project/Facilities/Construction Mgt.	Outstanding	92.8%	x	85	=	78.9
Safeguards and Security	Outstanding	94.8%	x	100	=	94.8
Financial Management	Outstanding	98.7%	x	15	=	14.8
Human Resources	Outstanding	91.1%	x	15	=	13.7
Information Management	Outstanding	92.3%	x	15	=	13.8
Procurement	Outstanding	93.4%	x	15	=	14.0
Property Management	Outstanding	95.0%	x	15	=	14.3
<b>Total Operations and Administration</b>	<b>Outstanding</b>	<b>90.5%</b>	<b>x</b>	<b>400</b>	<b>=</b>	<b>361.8</b>
<b>Overall Total</b>	<b>Outstanding</b>					<b>922</b>

Salary Increase Authorization Multiplier (from Appendix F)

FY 2001 Salary Increase Fund for UC Laboratories

Executive Merit Pool  
 (Based on Scientists & Engineers) 5.00%

Executive Merit Pool (Appendix A & F) 5.00% x 1.50 = 7.50%