



MANAGING OPERATIONS EFFECTIVELY



Safe and efficient operations, sound business practices, and attention to the Laboratory's valuable resources make possible Livermore's technical achievements.

High-quality, cost-effective operations provide essential support to the Laboratory's mission. They facilitate a high level of technical accomplishment while assuring to sponsors sound business practices and compliance with applicable regulations.

SAFETY FIRST

Safety is the most important day-to-day consideration in operations. The Laboratory will provide every employee and the community with a safe and healthy environment in which to work and live. We are committed to accomplishing Laboratory mission objectives while protecting employees, the public, and the environment. To achieve this commitment, all Livermore employees must be accountable for their own safety and that of their coworkers and the general public—and for the protection of the environment. We must be particularly safety conscious at Livermore because we take on many large projects with high-technology systems. To help ensure success in these efforts, we have reorganized Laboratory operations to place a Director's Office-level focus on safety, health, and environment.

• **Integrated Safety Management.** We fully integrate environmental, safety, and health considerations into the research programs and operational culture of the Laboratory. Integrated safety management requires accountability at all levels of the organization, planning and design for safety at the early stages of a project to anticipate potential problems, compliance with laws and other requirements, and excellence in execution. Laboratory researchers are working with safety professionals from the Department of Energy and

the Laboratory to identify hazards and establish "work smart standards" appropriate to the particular work environment. These standards will result in improved safety at lower cost.

ATTENTION TO WORKFORCE NEEDS

The quality of the technical and administrative staff of the Laboratory is the source of Livermore's strength. The Laboratory must adjust to a future in which the workforce is changing rapidly, both demographically and in terms of its approach to the work environment. We strive for a work environment in which all employees can contribute, feel valued, and support the Laboratory. The goal is a diverse employee population with the motivation, innovation, and skills needed for Livermore to excel in its mission.

• **Recruitment and Retention.** Challenging technical programs and world-class research facilities are important attributes of the Laboratory that will help us attract and retain outstanding scientists and engineers. However, we must be more aggressive in selected disciplines where there is significantly increased competition for the best people. We will explore new ways to attract the best people to the Laboratory, and we will provide a wide array of options (i.e., compensation, benefits, work environment, services) to retain employees. We will also strengthen ties to university departments and programs aligned with the Laboratory's research interests, including opening up prestigious new postdoctoral research opportunities.

Many modern office buildings and research facilities, such as the one shown, are situated at the Livermore site. Nearly 7,000 full-time employees work at the Laboratory in 1997.

- **Workforce Vitality.** The Laboratory encourages employees to take seriously their responsibilities for their own career development. In support of career development, we will ensure that the Laboratory's continuing education and training programs continue to be relevant to short- and long-term goals of the Laboratory and employees' needs. We also will provide all employees access to mentoring if they so desire.

- **Performance Motivation.** We will explore ways to supplement the Laboratory's merit-based compensation system with means for rewarding exceptional contributions, such as the new Director's Performance Rewards. We will also continue to improve performance appraisal processes throughout the Laboratory with the goal of empowering and motivating all employees to contribute to their full potential.

- **Development of Leadership Skills.** Livermore's future depends on continual development of leaders who are visionary, skilled in managing and building programs, and sensitive to workforce needs. We are establishing a training program for all Laboratory managers to expand and deepen essential skills in such areas as personnel management, program leadership, finances, safety, and policy implementation.

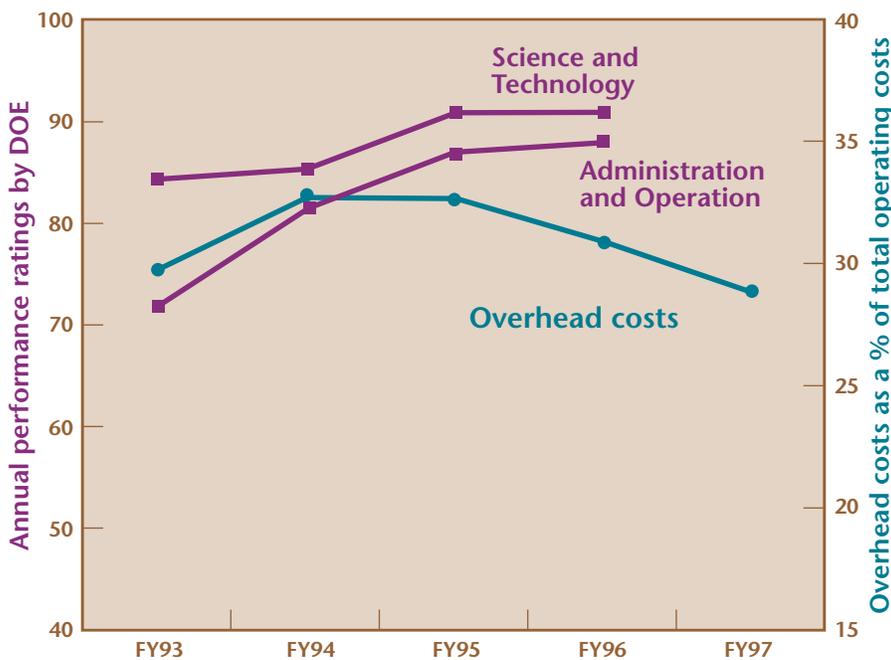
COMMITMENT TO PERFORMANCE-BASED MANAGEMENT

The three University of California laboratories are at the forefront of the Department of Energy's efforts to implement performance-based management. The University of California and the Department of Energy pioneered this management concept, as applied to government-owned institutions, in the 1992 contract for managing and operating the Livermore, Los Alamos, and Lawrence Berkeley national laboratories. Performance-based management involves an annual negotiation of performance objectives and measures, a Laboratory self-assessment against these measures, and evaluations by the Department of Energy and the University. The result is improved performance, better communication of expectations, and a closer working relationship among the Laboratory, the University, and the Department.

A COST-REDUCTION STRATEGY

Although the lowest-cost action is not always the right approach at a research and development laboratory that is pushing the state of technology, cost is an increasingly important consideration. All Laboratory programs greatly benefit from reductions in overhead costs. Concerted cost-cutting efforts have reduced overhead costs from nearly 33% of the operating budget in FY 1995 to about 28% in FY 1997 as our performance ratings improved. We first revised the accounting structure at Livermore to illuminate the true cost of all overhead functions. This information enabled Laboratory management to make informed decisions to reduce costs and revealed areas that need further attention. Next, a cost-cutting task force conducted a comprehensive study of programmatic and operational activities. Task force recommendations led to a number of cost-cutting steps and are guiding plans for future ones. The goal is to further reduce overhead costs

Livermore has significantly improved its performance ratings as the Laboratory has reduced overhead costs.



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to 25% of the Laboratory's budget by 1999. To date, major cost-cutting steps have attained a \$30-million-per-year increase in the buying power of the Laboratory's programs.

- **Centralization and Standardization of Information Systems.** The goal is to have an electronic information system infrastructure that operates flawlessly and transparently across the Laboratory to connect people to information so that they can accomplish the Laboratory's business as efficiently as possible. Increasingly, the Laboratory is using the Internet to reduce the cost and increase the efficiency of internal communications. In addition, we are standardizing desktop computer systems, software, and databases at Livermore, and we are consolidating support activities for desktop systems and computer networks under the leadership of a Chief Information Officer.

- **Matching the Workforce to the Work.** In FY 1996, Livermore undertook a workforce restructuring to reshape the staff profile and assure a mix of skills appropriate for current and near-term future work. The restructuring reduced the staff by more than 500 employees through a voluntary separation program. We are increasing the fraction of the workforce that engages in programmatic work. On a semi-annual basis, we will update the Laboratory's Workforce Plan to project future workforce needs and identify institutional workforce issues that merit attention.

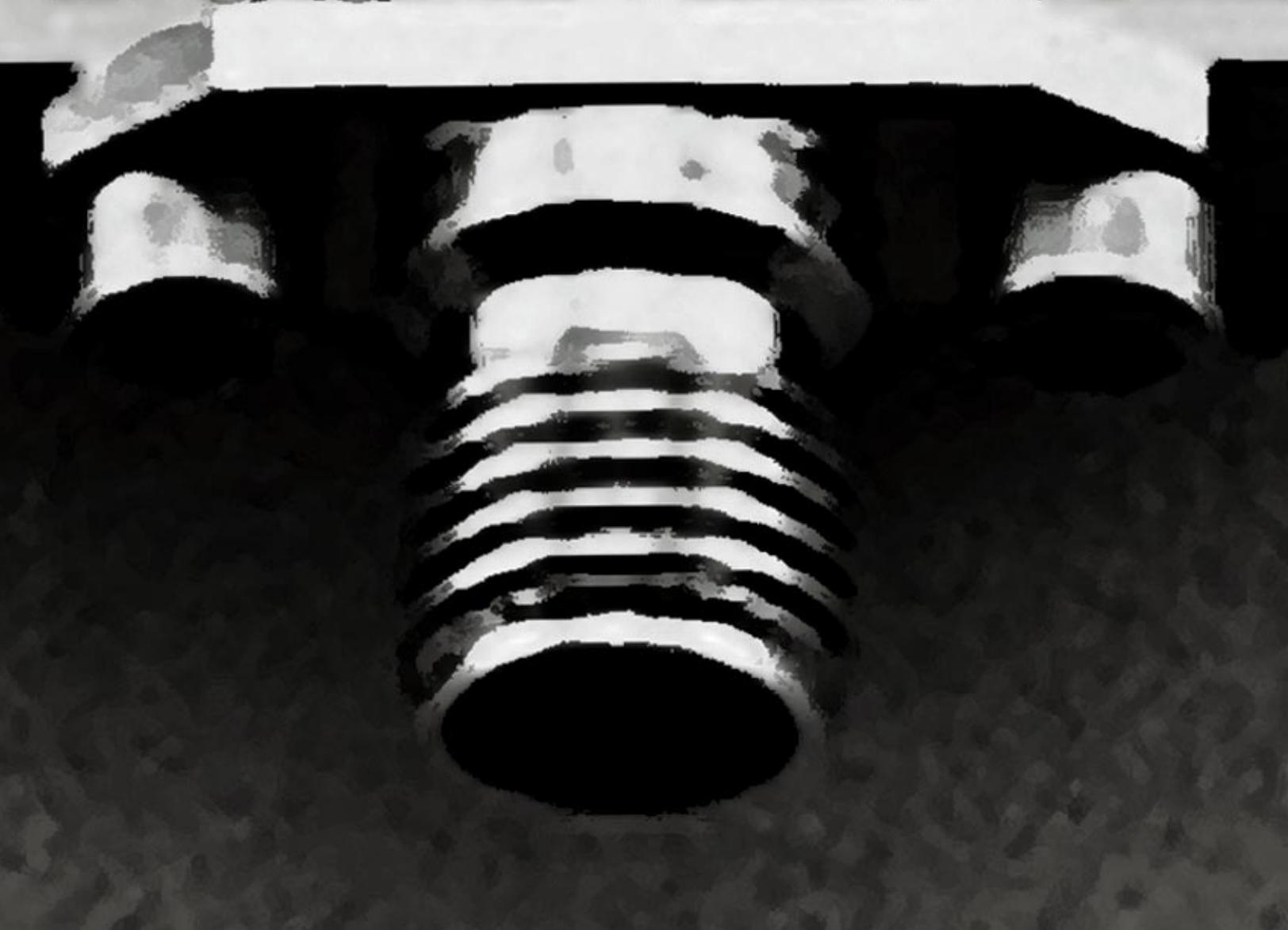
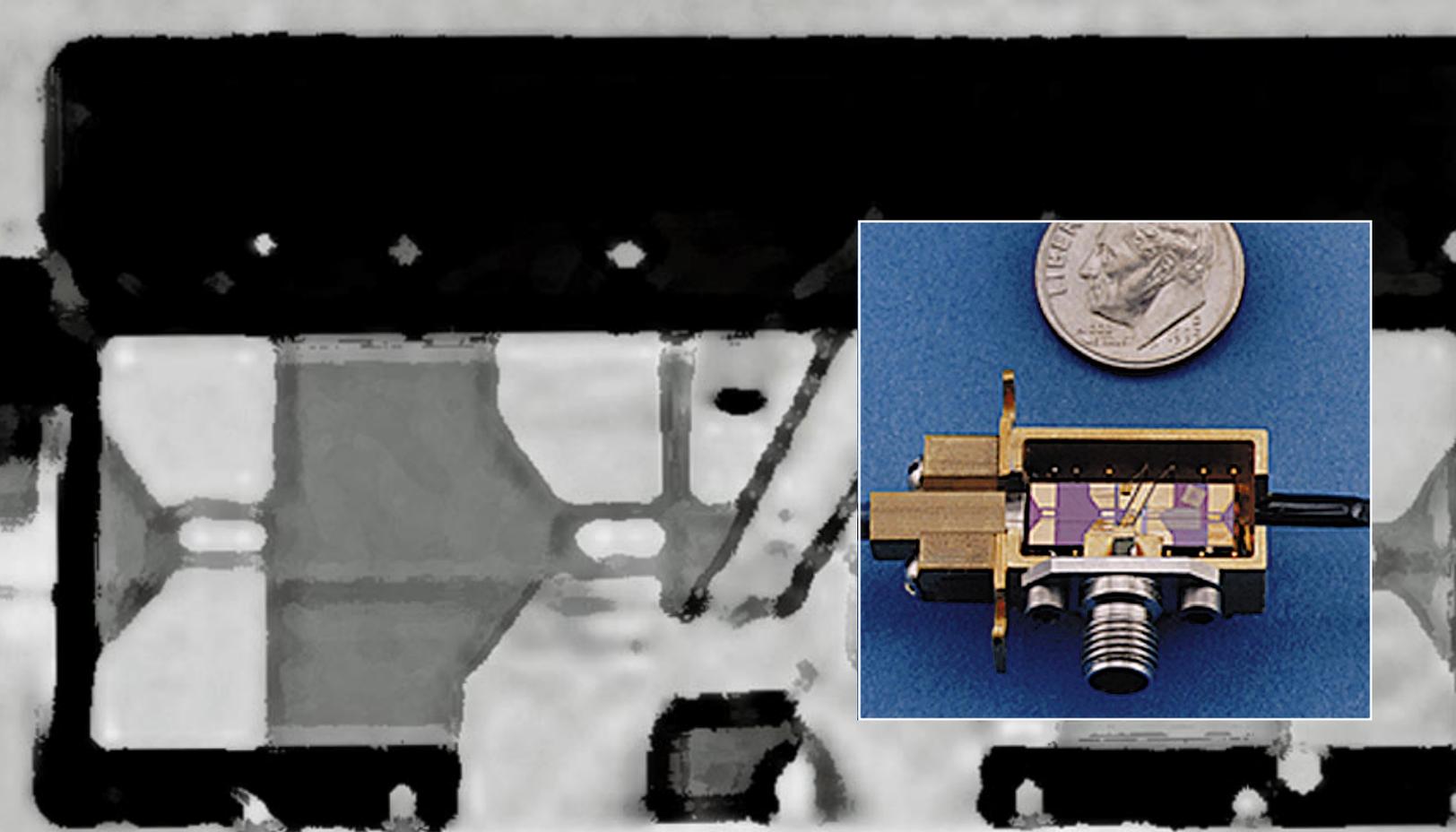
- **Efficient Business Management Practices.** The Laboratory is achieving significant performance improvements through adoption of "best business practices" as a substitute for "federal norms." We are making a significant move toward the commercial norm on the services side of the Laboratory, especially in the business organizations, by taking an aggressive look at cost-versus-benefit tradeoffs. Every operations area—including operations activities within technical organizations—is a candidate for management practices improvement to reduce costs and increase efficiencies. Outsourcing will be an option that is considered in all future business structure decisions. The goal is for the

Laboratory's underlying infrastructure to operate nearly transparently so that technical organizations will be able to obtain needed services quickly and efficiently.

MAINTAINING LABORATORY FACILITIES

We have completed a Comprehensive Site Development Plan that documents the current state of and near-term projections for the Laboratory's facilities and associated infrastructure. Although the Laboratory has some very modern office and research facilities, over half the buildings are more than 30 years old. Laboratory management has identified maintenance of a vital facility infrastructure as a critical factor in ensuring the future success of the Laboratory. Aggressive measures will be taken to rid the Laboratory of unused and substandard facilities, further reducing institutional overhead expenses.

- **Institutional Facilities Manager.** An institutional facilities manager was recently appointed to develop and implement a long-term strategy and an associated set of priorities for managing facility investments. This effort will involve close collaboration with other senior Laboratory managers to meet and balance programmatic requirements and site development goals. The strategy will include the development of initiatives to revitalize core facilities, reduce space (together with consolidating and mothballing or demolishing surplus buildings), and more effectively use existing building maintenance funds through prioritization, outsourcing, and productivity improvements.





INVESTING FOR THE FUTURE

Livermore will maintain its vitality by anticipating and changing to meet evolving national needs.

A vibrant laboratory has strong programs—programs that are both technically challenging and important. We will work with sponsors to anticipate the future needs of the nation, keep them apprised of emerging technical opportunities, and identify those areas where science and technology can enhance security and national well-being. To succeed, we must continue to be an integral and active part of the nation's science and technology infrastructure, participating in the national dialogue on important science issues and broadly recognized as a scientific leader. We also must continue to make internal investments that develop the skills and capabilities needed to meet customers' needs and seize opportunities to benefit the nation.

ENGAGING SPONSORS AND THE TECHNICAL COMMUNITY

We will engage in effective dialogue with sponsors to understand their needs, and we will interact with the broader technical community to understand future opportunities.

• **Understanding Sponsors' Needs.** By participating in the program planning and strategic planning activities of our sponsors, we will provide technical input and gain insights to better align Laboratory program planning with their vision and goals. In addition, Livermore employees will be encouraged to take temporary or rotational assignments at federal offices, departments, and agencies to provide direct technical input and foster effective communication between Washington and the Laboratory.

• **Technical Resource to the Government.** Livermore will continue to serve as a technical resource for the federal government to use in the development of effective public policy. In

particular, with support from Livermore and its other national laboratories, the Department of Energy is uniquely capable of assessing the potential impacts of policy actions and providing technical assessments of policy choices related to energy security, nuclear threat reduction and arms control, and environmental quality. Livermore is also a technical resource for the State of California.

• **Outside-the-Laboratory Review.** The Laboratory benefits greatly from the reviews by the University of California's President's Council on the National Laboratories, which oversees the work performed at the Livermore, Lawrence Berkeley, and Los Alamos national laboratories. We will continue to use external review committees to assess the quality of Livermore's activities, help prioritize research opportunities, exchange information, and facilitate new collaborative relationships.

• **Professional Interactions.** Livermore staff members participate in professional organizations and external advisory committees, which are a source of ideas to shape future programs. Working closely with key professional societies will help us stay at technology's leading edge. The interactions will also provide Livermore scientists and engineers with opportunities to demonstrate leadership in their disciplines and help in recruiting and retaining key personnel.

• **Opening Up the Laboratory.** Our goal is to make the Laboratory more accessible to facility users, partners, and customers. Implementation of Livermore's site reconfiguration plans will make it easier for visitors to work with Laboratory colleagues, providing opportunities for infusion of new ideas and approaches in research projects.

This tiny optical amplifier, winner of a 1996 R&D 100 Award, is a candidate for use in many areas, including network communication, cable TV distribution, and computer interconnections.

• **Improved Communication of Information.**

The Laboratory will make use of rapid advances in communications technology to effectively disseminate technical information to the research community and leaders in the federal government. We are becoming more accessible through open information networks. We are also improving Laboratory communications with the general public and regional audiences. We are using the Internet for institutional publications, which have been redesigned to be useful to a broader audience. We will be highly responsive to information requests and provide more focused material about major Laboratory programs.

FOCUSING LABORATORY INVESTMENTS

The present strengths of Livermore are, in large part, a product of investment choices in the past. To ensure continuing strong programs, we are improving the management of internal investments at the Laboratory so that they are more sharply focused on maintaining institutional vitality and creating capabilities to meet future national needs. Livermore's investments are in three areas: developing future programs, strengthening the scientific and technical base, and maintaining the institutional infrastructure. Funds for these investments come from the Laboratory Directed Research and Development (LDRD) tax and loads levied to operate facilities and support

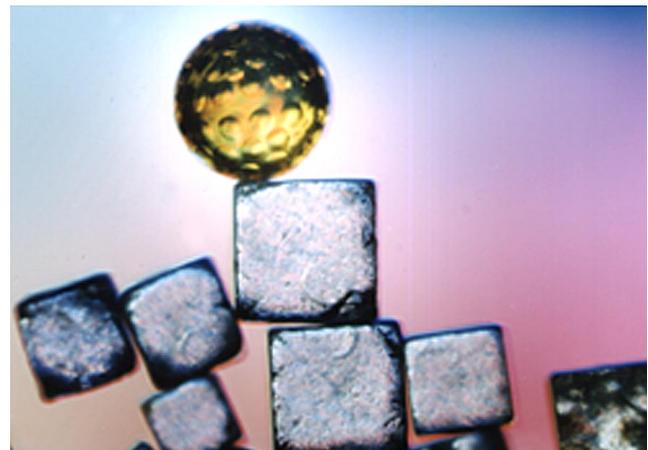
the overhead functions of the Laboratory. As overhead costs continue to be reduced, we will be able to reduce or reallocate the internal loads levied to support overhead functions and facilities. We will continue to clarify all sources of cost at the Laboratory so that program managers can make the best investment decisions. Clarity in understanding costs will also help Laboratory management levy loads in an equitable manner and stimulate effective cross-organizational programs and initiatives.

• **Guidance for Investment Decisions.**

Internal investment decisions will be guided by five strategic councils at the Laboratory, which are focused on national security, energy and environmental sciences, biosciences, science and technology, and operations. Created in 1996, the councils provide guidance for LDRD proposals and participate in the review process to ensure the relevancy of LDRD projects to Laboratory missions. The councils are assisting in the development of new approaches to assess the quality of science and technology at the Laboratory. These quality assessments will be used to guide investment decisions.

• **Weapons-Supporting Research.** We have changed the way we pursue mid- to long-term science and technology development to support weapons program activities. Now national security program managers at the Laboratory assume greater responsibility for balancing resources each year between direct program support and support for their relevant science and technology base.

A target capsule for the National Ignition Facility is shown here above grains of table salt.



Our commitment is to anticipate and meet the nation's needs through the pursuit of innovative science and technology at a great laboratory.

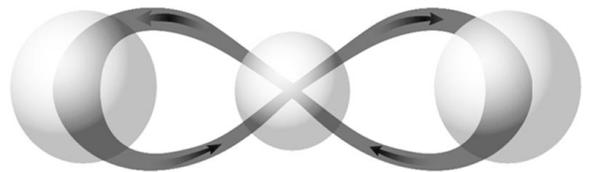
• **Laboratory-Directed Research and Development (LDRD).** Congress established LDRD as a means for the Department of Energy laboratories to directly fund creative, innovative, basic, and applied research activities in areas not immediately supported by sponsors. We fund LDRD at the allowed annual level of 6%. At Livermore, LDRD supports research and development projects that will enhance the Laboratory's core strengths, nurture research efforts that expand the Laboratory's scientific and technical horizons, and create important new capabilities so that the Laboratory can respond promptly and effectively to new missions and national priorities. Most of the LDRD investment goes to either Strategic Initiatives (major multiyear projects) or Exploratory Research (also aligned with the Laboratory's strategic direction and long-term vision, but only involving one to three researchers). Proposals are reviewed by committees of peers, and the Director has final approval. To ensure the program's quality, an external advisory committee reviews the LDRD program periodically.

• **Long-Range Planning.** The planning perspective as presented in this document is three to five years. We will form a long-range planning group to explore on an institution-wide

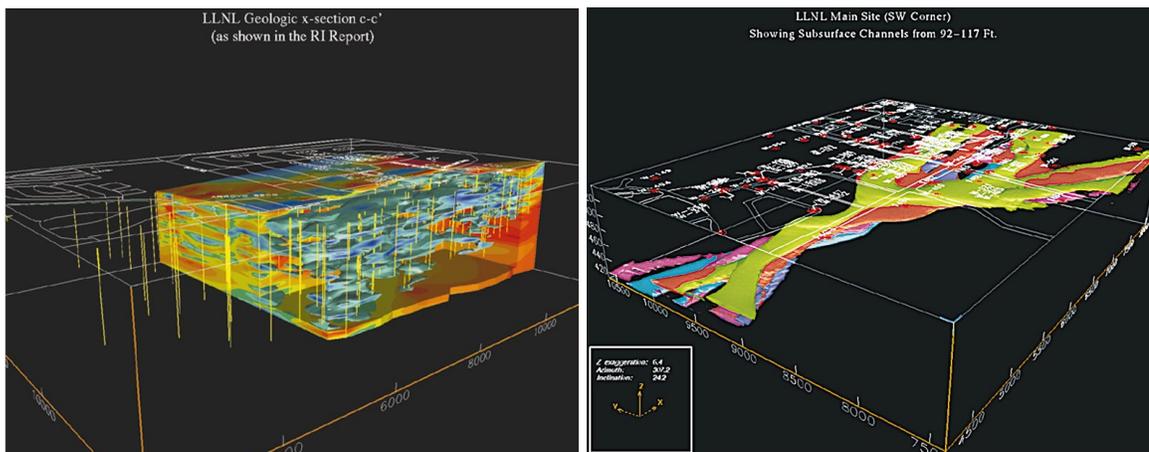
basis the 10- to 25-year technical and programmatic landscape and opportunities for future activities at Livermore.

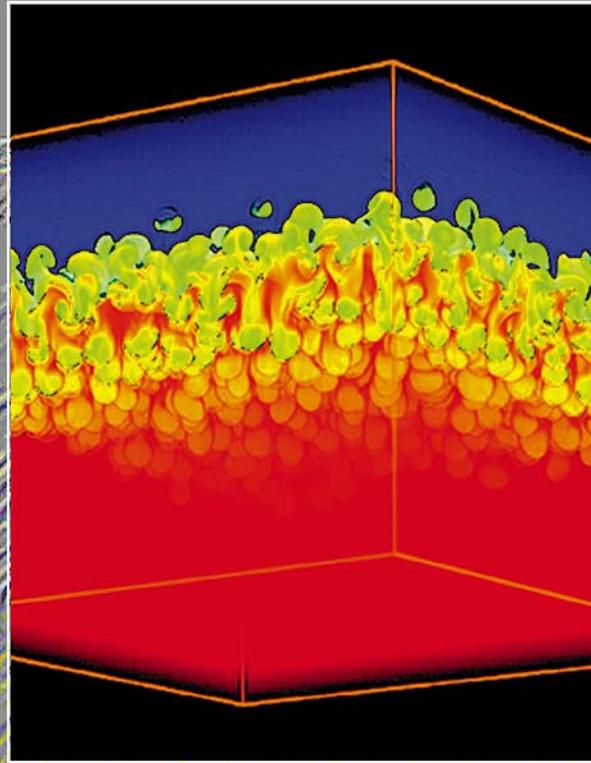
CREATING THE NATION'S FUTURE

In *Creating the Laboratory's Future*, we summarize Livermore's strengths and the direction of programs and initiatives that will contribute to creating the nation's future. Our commitment is to anticipate and meet the nation's needs through the pursuit of innovative science and technology at a great national laboratory.



Visualization of core sample data (left) is one step in developing a 3D simulation (right) for treating groundwater contamination of the Livermore site.





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CORE VALUES

To provide the scientific and technological excellence needed to meet critical national missions, the Laboratory staff is guided by the highest principles:

INTEGRITY

We will continuously earn and uphold the public trust, by

- Maintaining the highest ethical standards in science and technology.
- Supporting a culture of academic freedom.
- Demonstrating personal and institutional responsibility in Laboratory operations.
- Assuring honest, open interactions with all customers and team members—within the Laboratory, in the communities we serve, and with our partners.

COMMITMENT

As a national laboratory, we will help meet the nation's science and technology needs, by

- Focusing the Laboratory's science and technology on national objectives.
- Meeting the goals and requirements of customers.
- Continuously improving productivity and efficiency.

EXCELLENCE

To solve the nation's most challenging technical problems, we will provide the best science, engineering, management, and people, by

- Discovering and implementing creative, innovative, effective solutions to complex problems.
- Attracting and encouraging the best available talent.
- Valuing the diversity and creativity of our workforce.
- Motivating and rewarding employee excellence.
- Managing business, safety, and environmental protection to achieve a high level of accountability in an atmosphere of continuous improvement.

Turbulent mixing of fluids is shown in an image from high-resolution 3D hydrodynamic calculations on a new supercomputer that is part of the Accelerated Strategic Computing Initiative.

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