

University of California Regents' Meeting
Update on Department of Energy Laboratories
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Good morning, Mr. Chairman. As context for my report today, the Los Alamos and Lawrence Livermore National Laboratories have four principal missions. The first is to perform the research and to develop the technologies to verify compliance with international treaties that preclude nuclear testing and that mandate the reduction of nuclear weapons. The Labs also ensure the reliability, safety, and security of the U.S. nuclear stockpile. The second mission involves nonproliferation of weapons of mass destruction. The Labs monitor the attempts of other nations to develop and test nuclear weapons and advise the U.S. Government about such developments. The third is to conduct energy-related research to develop diverse energy sources in order to improve the nation's energy security. The fourth and last mission is to conduct the applied research to support these missions as well as to conduct basic research that advances knowledge in all scientific disciplines.

At the May Regents' meeting, I described the impact on Livermore of a \$280 million funding shortfall this fiscal year. The minutes of the May Lab Oversight Committee meeting contain all the details. Lawrence Livermore National Laboratory Director George Miller is working hard to improve employee morale and focus the attention of the Lab on its mission following budget cuts and staff reductions. Livermore is nine months into its new contract with the National Nuclear Security Administration (NNSA). Lawrence Livermore National Security, LLC is the contract manager. During that time, the Lab has improved operational efficiencies by reducing employee absences by 60 percent as a result of reductions in safety incidents, reducing purchasing costs by \$7 million and setting a goal for \$20 million in savings next year, and by reducing its overhead costs below those in fiscal year 2007.

Los Alamos National Laboratory has now completed two years under its new contract with NNSA. Los Alamos National Security, LLC is the contract manager. Los Alamos has improved its safety record by reducing on-the-job injuries by 50 percent. It has improved security by reducing by 66 percent "classified removable

electronic media” (such as CDs and memory sticks), by reducing classified parts by 40 percent, by eliminating five Vault-Type Rooms and six classified media libraries, and by consolidating accountable classified documents in a single location where they can be better controlled. The Lab has also improved operational efficiencies, with \$22 million in cost savings and cost avoidance.

Since the May Regents’ meeting, Livermore was awarded three R&D 100 Awards, and Los Alamos received two of these awards. The awards are given annually to recognize the top 100 technological developments in the United States. Each Lab has now received more than one hundred R&D 100 Awards.

For the third year in a row, Livermore and IBM scientists won the Gordon Bell Prize for a materials research supercomputer simulation. The Lab has won the prize each of the past three years. The National Ignition Facility is now 97 percent complete and is on schedule for completion in March 2009. Los Alamos’ Roadrunner supercomputer has now broken the petaflop barrier (1000 trillion calculations per second) and thus displaced

Livermore's Blue Gene/L supercomputer as the fastest supercomputer in the world. Livermore has received approval to proceed with its next generation supercomputer, called Sequoia, which will leapfrog the Los Alamos supercomputer and become the fastest computer in the world. These supercomputers make possible the simulation of global climate change, nuclear fission and fusion, and earthquake mechanics at a level of resolution never before possible. Very importantly, Los Alamos provided technical support at the Six Party talks in Beijing that brought about the elimination of some of North Korea's nuclear weapons capability.

At the May Regents' meeting, I described the DOE Security Audit at Livermore in as much detail as possible in an unclassified setting. Since that time, Livermore has made pronounced security improvements and has worked closely with the NNSA in implementing the corrective actions. Also since the last meeting, Representatives Dingell and Stupak have asked the General Accounting Office to review security at Livermore. I will provide an update at a future meeting. Livermore has now reduced its

inventory of Special Nuclear Materials by approximately 25 percent and has met the time schedule set by NNSA for accomplishing this goal.

A recent newspaper article described beryllium use at Livermore. NNSA challenged the Lab's methodology for sampling beryllium's presence during the retrofit of a building containing the engineering shops. The Lab has taken aggressive action to clean-up the facilities and to monitor a small number of employees and subcontractors who were exposed to the beryllium.

Finally, much of the science and technology at the Labs has a dual use. I would like to highlight two technologies being developed by U.S. companies that have licensed technology from the Labs. Los Alamos has developed a nanostructuring technology that greatly strengthens metals. It has the potential to revolutionize the construction of aircraft, automobiles and trucks, making them lighter, stronger and more fuel efficient. It also has medical applications, which will improve stents for coronary arteries, as well as hip and knee implants. Livermore has developed a new

Proton Therapy System for irradiating cancerous tumors. The current proton therapy technology requires a three-story building the size of a football field and costs \$200 million. The new Livermore technology is small enough to fit into a small room and costs \$20 million. This advance will make proton therapy technology more widely available in American hospitals. Its medical benefit is that it can more precisely target tumors without harming the healthy tissue surrounding the tumor.

Thank you, Mr. Chairman. I would be pleased to answer any questions.