The Regents of the University of California

COMMITTEE ON OVERSIGHT OF THE DEPARTMENT OF ENERGY LABORATORIES
March 18, 2009

The Committee on Oversight of the Department of Energy Laboratories met on the above date at the Commons, Riverside Campus.

Members present: Regents Gould, Marcus, Pattiz, Shewmake, and Varner; Ex officio members Blum and Yudof; Advisory member Croughan

In attendance: Regents Bass, Cole, De La Peña, Johnson, Kozberg, Lozano, Makarechian, Reiss, Ruiz, Schilling, and Scorza, Regents-designate Bernal, Nunn Gorman, and Stovitz, Faculty Representative Powell, Secretary and Chief of Staff Griffiths, Associate Secretary Shaw, General Counsel Robinson, Chief Investment Officer Berggren, Chief Compliance and Audit Officer Vacca, Interim Provost Pitts, Executive Vice Presidents Darling and Lapp, Senior Vice President Stobo, Vice Presidents Dooley and Sakaki, Chancellors Birgeneau, Bishop, Blumenthal, Fox, Kang, Vanderhoef, White, and Yang, and Recording Secretary Smith

The meeting convened at 2:30 p.m. with Committee Chair Pattiz presiding.

1. **APPROVAL OF MINUTES OF PREVIOUS MEETING**

Upon motion duly made and seconded, the minutes of the meeting of September 17, 2008 were approved.

2. **UPDATE ON THE DEPARTMENT OF ENERGY LABORATORIES**

Committee Chair Pattiz recalled that former Lawrence Berkeley National Laboratory (LBNL) Director Steven Chu had been appointed Secretary of the Department of Energy (DOE) in the Obama administration. This is a concrete demonstration of the faith that the President of the United States has in Mr. Chu's leadership and a clear acknowledgement of the contributions of LBNL in the areas of energy and security.

Executive Vice President Darling reported that the DOE recently completed its annual performance review of all three laboratories. The Berkeley laboratory received an outstanding rating for its science and a good rating for its operations. This is a tribute to Mr. Chu and the dedication and commitment he put forth to ensure the quality of the laboratory. The Office of the President also received high marks for its oversight of the laboratory. The DOE contract has a provision that favorable performance evaluations allow the contract to be extended to a potential total of 20 years, or to 2024. The laboratory obtained the maximum extension that it was able to receive for this review, which was an additional four years, extending the contract through 2014. A separate

review of LBNL's safety programs was also undertaken, conducted by an independent unit within the DOE that is known for its aggressive reviews. This review revealed strong safety practices at LBNL, recognized that real improvement had been made, and asked that the commitment be sustained and extended to the divisions that were not reviewed. Within an eight-year period, the number of safety incidents dropped dramatically, and now is very close to the DOE's standards, which continue to be raised and thereby become more difficult to achieve.

Mr. Darling informed the Regents of several scientific initiatives at LBNL. The laboratory has recently installed the world's most powerful microscope, which is able to produce images smaller than a single hydrogen atom. The microscope will further an understanding of how materials form, grow, and respond to external factors, with the goal to develop more efficient cars, stronger buildings, and better sources of energy using this knowledge. Scientists at the joint Energy Biosciences Institute have engineered bacteria that can be used to perform a number of functions, including accumulating uranium to clean repositories of radioactive materials and producing anti-malarial drugs. In addition, these same bacteria are being engineered to develop biofuels for cars, trucks, and jets, which is important because transportation is one of the largest consumers of fuels. The effort is to move away from corn, which requires tremendous amounts of water and fertilizer and raises the price of food worldwide, toward the use of cellulose from plant wastes to generate fuels. Another proposal being explored by LBNL is improving energy efficiency by reroofing and repaving urban areas to reflect light; in this way, scientists believe the amount of energy consumed worldwide can be reduced on a level equivalent to taking 600 million cars off the road for 18 years.

Committee Chair Pattiz then spoke about developments at the Lawrence Livermore National Laboratory (LLNL) and the Los Alamos National Laboratory (LANL) LLCs. He called attention to a recent *New York Times* column that described the National Ignition Facility (NIF) project, which is very close to achieving ignition, and the Laser Inertial Fusion-Fission Energy (LIFE) project, which will create new sources of energy from nuclear waste. Committee Chair Pattiz requested that the article be provided to Regents. He recommended that Regents participate in the briefings provided by the laboratories on a regular basis.

Committee Chair Pattiz stated that both LLNL and LANL exhibit an outstanding performance in science, from basic research to highly applied programmatic work, with the goal to address the nation's current and emerging needs. Nuclear stockpile stewardship is a very important role for the laboratories, which constitutes the bulk of the funds provided by DOE. He observed that the laboratories' scientists and engineers continue to garner national recognition, noting that, as is the case with the University, the recruitment and retention of outstanding staff is critical to the ability of the laboratories to achieve their missions.

The University continues to receive positive feedback from DOE leaders about the laboratory directors, who are recognized throughout the world as the best in their fields. The DOE recognizes and appreciates the directors' visions for the laboratories and their

focus on meeting national and international security and energy challenges. In January, the laboratory directors were able to provide President Obama with scientifically based assurance that the nuclear weapon stockpile is safe and reliable, and that the stewardship program has been conducted effectively.

Committee Chair Pattiz stated that at a future Regents' meeting Vice President Beckwith will give a presentation on how the fees the University receives in exchange for the services it provides to the laboratories are being used to enhance research efforts and collaboration between the campuses and laboratories.

The University has received the results of the National Nuclear Security Administration's annual evaluation of both LANL and LLNL. Mr. Darling reported this was the first year that LANL was eligible to receive a one-year contract extension; its performance was sufficiently high to receive an extension of its contract to eight years. LLNL will be eligible at the end of this fiscal year to receive a contract extension. The total fees earned on both contracts were in line with expectations and, as a result, the University will be able to fully fund the campus-laboratory research collaboration program that Regents approved the prior year. Both laboratories were recognized for outstanding science and have made significant improvements in operational areas, but improvement is still needed in the latter. Mr. Darling also reported that LLNL was ahead of schedule in its work to ship out radioactive materials from Livermore. On a negative note, a newspaper article recently indicated that 100 LLNL employees intend to sue the laboratory alleging age discrimination in the recent involuntary lay-off program that took place last year due to significant budget reductions.

Regarding the scientific work at LANL, Mr. Darling recalled that the laboratory's Roadrunner supercomputer is the fastest supercomputer in the world, with a sustained speed of one million billion operations per second. LANL has developed a very promising non-invasive test, a breathalyzer, to measure the blood sugar levels for diabetics that could potentially eliminate more painful methods of testing. He also noted that John Phillips, an astronaut who earned his master's and doctorate degrees at UCLA and who worked as a postdoctoral fellow and physicist at LANL for 10 years, is currently aboard the space shuttle mission launched a few days prior.

At LLNL, the National Ignition Facility has achieved a signature milestone by delivering to the target chamber laser light from all 192 laser beams, and thus is far along in its goal of having first ignition in March 2010. LLNL has ordered the next generation supercomputer that will be 20 times faster than the Roadrunner at LANL, at 20-petaFLOPs per second. This computer will be used for a variety of simulations in nuclear weapons physics and climate modeling. LLNL is also developing proton therapy systems, which can be used to irradiate cancer by targeting tumors more precisely than other radiation methods without damaging surrounding healthy tissue. The principle limitations are the size and cost of existing systems, which are as large as a football field and cost $200 million. LLNL has developed a technique to shrink the device, enabling it to be placed inside a normal hospital room and reducing the cost to $20 million. A company has licensed the technology from the laboratory and is developing the systems.

Regent Gould pointed out the market potential of the technology developed at the laboratories, particularly the diabetes technology, and inquired about how such technology is licensed and made profitable. Mr. Darling stated that any inventions that were developed prior to the new contract to operate LLNL one and a half years ago are University of California intellectual property; any technology developed subsequent to that is owned by the limited liability company. Regent Gould asked how the University would share in the benefit of the new invention. Committee Chair Pattiz stated that it was his belief that since the University is a partner in the limited liability corporation, the University shares in the profits in proportion to its participation in the corporation. Mr. Darling clarified that the federal legislation adopted in the early 1980s gives the rights to inventions to the contractor that performs the research funded by the federal government. The government retains a "march-in right" if the technology is not getting to the marketplace and can either order that it be done or take over the responsibility itself to ensure that a valuable technology gets into the marketplace.

The meeting adjourned at 2:50 p.m.

Attest:

Secretary and Chief of Staff