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The Community Newsletter of Lawrence Livermore National Laboratory

Spring 2008

Complex Transformation: smaller, safer, more secure



At the podium, Laboratory Director George Miller addresses the crowd during the Livermore public hearing on the NNSA Complex Transformation plan at the Robert Livermore Community Center.

Public hearings on the National Nuclear Security Administration's plans to consolidate the nuclear weapons complex attracted approximately 200 people scattered over three separate meetings in Tracy and Livermore in March.

NNSA held the meetings to take public comment on its preferred alternative to Complex Transformation, its vision for a weapons complex that will be smaller, safer, more secure and less expensive.

Approximately 100 individuals, including Lab Director and Lawrence Livermore National Security President George Miller, spoke at the hearings. Many of the attendees were from out of town.

Miller and approximately 20 members of the community, including city council

members, business leaders, employees and local residents, spoke in support of the Laboratory and NNSA at the Livermore public meetings.

"It has been clear for some time that the nation has needed a blueprint for the future of the nation's nuclear weapons complex that takes into account the circumstances that have changed since the end of the Cold War," Miller said. The preferred alternative addresses the need to consolidate special nuclear materials at fewer sites, to shrink the complex and to replace outdated facilities and processes with modern equivalents that are more cost effective and environmentally responsible."

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LLNS' giving program: helping out communities

Lawrence Livermore National Security, LLC (LLNS) has announced the formation of a community gift program for non-profit organizations serving Alameda, Contra Costa and San Joaquin counties.

The new program will provide up to \$100,000 in funding to support organizations addressing science, technology, engineering and/or mathematics (STEM) education, community-service and philanthropic needs in communities having a large population of LLNL employees. More than 140 applications were submitted; recipients will be announced this spring.

Non-profit California educational institutions, IRS-qualified 501(c)(3) organizations and government agencies in the tri-county area were eligible to apply. Gifts will be awarded in amounts from \$1,000 to \$20,000.

The new program expands upon LLNS' community giving, which already has benefited the greater Bay Area.

LLNS has awarded gifts of \$25,000 each to the Livermore Valley Joint

Unified School District, the Tracy Unified School District and California Mathematics, Engineering, Science Achievement (MESA), as well as gifts of \$10,000 each to Livermore and Tracy performing arts and the Valley Children's Museum.

In December 2007, LLNS matched \$1 million in employee donations to the Lab's HOME Campaign (Helping Others More Effectively). The HOME Campaign benefits non-profit agencies in the Tri-Valley, San Joaquin Valley and greater Bay Area. Since 1997, HOME has raised more than \$1 million annually through employee donations that go directly to agencies selected by the employees.

This year, LLNL employees pledged \$1.4 million to the HOME Campaign, benefiting 446 agencies. Adding the \$1 million LLNS match brought the total contribution to \$2.4 million.

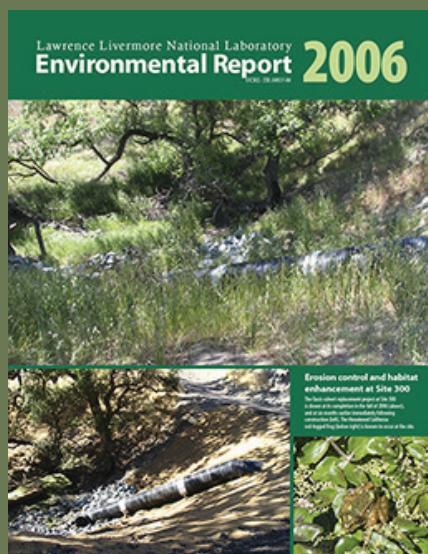
"LLNS is committed to being a good neighbor in our local communities, and is proud of the generous support of employees to those in need," said George Miller, LLNS president and LLNL director.



Susan Houghton (center) of LLNL's Public Affairs Office presents a check on behalf of LLNS to the Livermore Valley Joint Unified School District. From left are Tom McLaughlin, school board trustee; Anne White, trustee; Brenda Miller, district superintendent; Houghton; Bill Morrison, trustee; Bill Dunlop, board president; and Kate Runyon, trustee.

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Annual report finds no adverse impacts to environment



The LLNL Environmental Report for 2006 is available on the Web.

Environmental monitoring of operations at Lawrence Livermore National Laboratory in 2006 indicates no adverse impact to public health or the environment from Lab operations. The findings are presented in the *Lawrence Livermore National Laboratory Environmental Report 2006*.

The report demonstrates LLNL's continuing commitment to providing responsible stewardship of the environmental resources in its care and the integration of environmental stewardship into strategic planning and decision making through the Lab's Environmental Management System.

The report assesses the impact of LLNL operations on the environment, summarizes regulatory compliance and records results of environmental monitoring for the main Laboratory site, and for Site 300, the

Laboratory's experimental test facility near Tracy. Environmental samples were taken from air, water, vegetation, wine, soil and wastewater on site and in surrounding communities.

In addition to environmental monitoring, the report documents the substantial actions the Laboratory has taken to comply with federal, state and local environmental laws, including the Clean Air Act, Clean Water Act, Resource Conservation and Recovery Act, and National Environmental Policy Act, among others.

The complete *Lawrence Livermore National Laboratory Environmental Report 2006* may be accessed on the Web at <http://www.llnl.gov/saer/>. It also is available in the environmental repositories of the Livermore and Tracy public libraries.

Teacher Research Academies through Teller Education Center boost science skills

Science teachers can gain new concepts and technologies to bring to their classrooms when they participate in the Teacher Research Academy (TRA) offered through the Edward Teller Education Center of the UC Davis School of Education and Lawrence Livermore National Laboratory.

The TRA offers middle and high school science teachers a unique professional development continuum that allows them to progress from novice to mastery in various scientific disciplines. Teachers who complete the TRA will take new science and technology skills to use with their students, and they will be better able to guide their students through the process of scientific inquiry and investigative research.

The TRA is offered during the summer months and provides workshops in three content areas: biotechnology, energy technology and the environment, and fusion-astrophysics. Each of these content areas is directly derived from the cutting-edge science conducted at LLNL. Teachers participating in the TRA workshops have an opportunity to see this science in the laboratory and meet the scientists performing the work. This experience provides teachers with a context to discuss



Teachers discuss a DNA lesson during a biotechnology workshop at LLNL's Teacher Research Academy last summer.

with students how this science is used to solve real, large-scale problems. Teachers who complete the workshops are able to further refine their research skills through internships with mentoring scientists at LLNL.

The TRA program is taught by master teachers and the curriculum is aligned with the California content standards. Teachers completing the program can anticipate which standards they will enhance by incorporating this new content knowledge and skills into their teaching practice. Through a partnership with

California State University (CSU) East Bay, and the Department of Teacher Education, participating teachers may earn 10 quarter units of graduate credit toward a masters of science in education, curriculum option. Additionally, teachers interested in continuing education units may elect to earn up to nine semester credits through CSU Chico Extension.

The 2008 summer workshop schedule is available on the Web at <http://etec.ucdavis.edu>. For more information, contact Richard Farnsworth, LLNL Science Education Program, (925) 422-5059.

Tri-Valley students shine in annual science and engineering fair



In early March, 245 science-minded students in grades 7 through 12 from Danville, Dublin, Livermore, Pleasanton and San Ramon gathered at the Robert Livermore Community Center, to compete for cash and other prizes and exhibit their projects in the 12th annual Tri-Valley Science and Engineering Fair, sponsored by the Lab.

More than 100 local scientists and engineers, most representing the Lab, deliberated over this year's 190 project entries after interviewing the students. Awards were later distributed to winning students.

Nadine Horner has served as the Tri-Valley Science and Engineering Fair director for three years. "This event brings together the community, local school districts, teachers and the Lab. It is very exciting," she said.

Sweepstakes winners in the senior division category are: Harikrishna Rallapalli, from Amador Valley High School, for his project, "Low-Cost Total Internal Reflection Microscopy," and Dmitry Kislyuk, California High School, for his project, "Modeling Evolution: Exploring Computational Biology and Biomodeling."

Also winning in the junior division were Kevin Johnston from Livermore Valley Charter School, for his project, "Suburban Skyglow: Using Astrophotography to Analyze Light Pollution," and Uzair Mohammad from Livermore Valley Charter School, for the project, "Generation Nation."

Senior division sweepstakes winners will go on to compete in the Intel International Science and Engineering Fair, May 11-17, in Atlanta. Junior Division winners are eligible to compete at the State Science Fair in Los Angeles.

"This event brings together the community, local school districts, teachers and the Lab.

It is very exciting."

— Nadine Horner, fair director

Photos by Jacqueline McBride, LLNL



Uzair Mohammad, from Livermore Valley Charter School, talks with Steve Mattos, science fair judge from Intel.



Brian Cox, from Pine Valley Middle School in San Ramon, talks about his project, "Is it a Drag?"



Kevin Johnston, an eighth grade student from Livermore Valley Charter School, discusses his project with Wolfgang Stoef of LLNL.

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Under the preferred alternative, LLNL would be a center of excellence for nuclear design and engineering; a center of excellence for high explosive research and development, with the High Explosives Applications Facility; a science magnet in high-energy-density physics, with the National Ignition Facility; and a platform host site for the Sequoia petascale supercomputer. In addition, most of the Lab's special nuclear materials would be removed and consolidated at a more central site.

"I welcome the plans for their consolidation," said Livermore City Councilmember Marj Leider. "I think they are being very wise."

But Leider and fellow City Councilmember Jeff Williams both raised concerns over how

NNSA's planned reductions to Lab programs and its employees might impact the Laboratory's ability to help the community.

"I'm supportive of the NNSA's preferred alternative, but I'm also concerned about the impact of changes on our community," explained Williams, a retired LLNL mechanical engineer. "Lawrence Livermore and Sandia were highly influential in the growth of Livermore. A center of excellence sounds good, but only if it is sustained by government support."

Sandee Wiedemann, a board member of Shepherd's Gate, which helps the homeless, thanked the Laboratory, for "all the support from the employees because the work at Shepherd's Gate wouldn't go on



without community support. And I'm grateful for the unique work they've done here in making protections for our country."

The official public comment period for the Complex Transformation proposal ended April 10. The NNSA is expected to issue a final document on the preferred alternative later this year.

For more information on Complex Transformation, see the NNSA Website <http://www.nnsa.doe.gov/complextransformation.htm>.

TAKE A TOUR OF THE LAB

Tours offer visitors a view into the world of science

Tours of the main site of Lawrence Livermore National Laboratory offer visitors a view into some of the Lab's exciting state-of-the-art research programs and facilities.

Tour stops may include:

- National Ignition Facility: the world's largest and most energetic laser
- National Atmospheric Release Advisory Center: used for a national or international emergency response event
- Terascale Simulation Facility: home of the world's fastest supercomputer



The National Ignition Facility, which houses the world's largest laser, is a favorite community tour stop.

Main site tours start and conclude at the Laboratory's Discovery Center off Greenville Road in Livermore. They are conducted on Tuesdays, excluding holidays, at 9 a.m. and last 2 to 2.5 hours. To sign up for a main site tour, go to the Web at https://www.llnl.gov/pao/community_tour_request.html or call Community & External Relations at (925) 422-4599.

Tour participants must be at least 18 years old. U.S. citizens need to register two weeks in advance. Non-U.S. citizens must register 60 days in advance. Tours by non-U.S. citizens are subject to approval of the U.S. Department of Energy.

Discover LLNL is a publication of the Public Affairs Office at Lawrence Livermore National Laboratory. For more information, please contact Linda Lucchetti, lucchetti1@llnl.gov, or call (925) 422-5815.

Lawrence Livermore National Laboratory is managed by Lawrence Livermore National Security, LLC for the U.S. Department of Energy's National Nuclear Security Administration.