The Dirty Dozen
University of California

President: Robert Dynes
Website: http://www.universityofcalifornia.edu/

Overview

The University of California runs two national laboratories in collaboration with the Department of Energy and the Department of Defense. They are Los Alamos National Laboratory in New Mexico and Lawrence Livermore National Laboratory in California. The duties of the two labs vary but both have a role in weapons and non-weapons related nuclear activities. Due to their involvement in this type of research the role of the laboratories was threatened when the United Nations ratified the Comprehensive Test Ban Treaty. This treaty outlaws all nuclear testing, halts the modernization of nuclear weapons, and would inevitably lead to disarmament. The United States Senate has thus far failed to ratify the treaty through Congress, signaling to the international community that the United States has no interest in the elimination of nuclear weapons.

In 1992, the President George Bush followed the Soviet and French moratoriums on nuclear testing and initiated a suspension of U.S. nuclear testing. With no way to test their designs, national nuclear weapons laboratories, like Los Alamos National Laboratory and Lawrence Livermore National Laboratory faced a sudden cut back in the demand for their services. In the face of this challenge, the DOE, the facilities, and their congressional supporters devised the Stockpile Stewardship Program. This program created a way for the laboratories to stay in operation without cutbacks to their funding or employees. The reality of this program was to maintain the vitality of this large, government created enterprise. The DOE legitimized this program to the public by stressing the need to monitor the existing nuclear arsenal in order to predict age-related problems. In addition, the labs have expanded the program into a funding source that has been used to design new kinds of nuclear weapons (without testing) while rapidly reconstituting the already large arsenal. In effect, the United States is continuing the nuclear arms race virtually by itself with a blatant disregard for the international community’s efforts to end this dangerous pattern.

Los Alamos National Laboratory (LANL) is located in New Mexico and is the DOE weapons laboratory with the largest number of defense facilities and weapons-related activities. It is the foremost site for the government's ongoing research and development on the measures necessary for certifying the safety and reliability of nuclear weapons without the use of nuclear testing. The Applied Physics (X) Division is responsible for nuclear weapons design as well as having a lead role
in assessing the safety, reliability, and performance of the nuclear weapons in the nation’s nuclear stockpile. The X-Division works closely with several government agencies including the Departments of Energy and Defense, the intelligence community, other DOE labs, and the United Kingdom's atomic weapons establishment. In addition, they provide operational assistance in response to nuclear emergencies, and advice to government agencies about treaty negotiations and foreign interactions. The expertise of the X-Division includes the physics design and assessment of nuclear and non-nuclear weapons, and the analysis of the output and effects of nuclear weapons.

- The Dual Axis Radiographic Hydrotest Facility (DARHT) is a facility near the Los Alamos National Laboratory. The DARHT serves to test the first stage of a thermonuclear weapon. The mockups are imploded while photographs and x-rays are taken rapidly. This allows the scientists to see inside the explosion.

- The Accelerated Strategic Computing Initiative is a tri-laboratory project involving the LANL, LLNL, and Sandia National Laboratory that will create modeling and simulation capabilities for both the stockpile of nuclear weapons as well as aiding to design new ones.

- The Weapon Design Technologies (NIS-9) section of the Los Alamos lab analyzes the threat posed by foreign weapons of mass destruction to the United States or its allies. It uses resources available throughout the LANL to support national agencies concerned with the proliferation of technologies that could be used to produce weapons of a nuclear, chemical, or biological nature.

- The Accelerator Production of Tritium Project (APT) is a project between multiple laboratories and some industry members to design and develop an accelerator to produce the tritium needed to maintain the nuclear stockpile.

LANL is the site of Area G, a solid radioactive waste dumping ground. It has received 10.7 million cubic feet of radioactive waste since its establishment in 1952. The site has grown from its original size of 5 acres, to 37 acres in 1976, to its current size of 63 acres. LANL seeks to more than double its size in the near future by adding another 70 acres. The waste is buried in dozens of shallow pits or one of the roughly 200 shafts drilled into the ground. According to the Los Alamos Study Group, "Most LANL radioactive waste, and virtually all plutonium waste, comes from its nuclear weapons programs..." Area G is not subject to formal inspection or regulation by the State of New Mexico, the Nuclear Regulatory Commission, the EPA, the Pueblos, or any other outside agency.

**Lawrence Livermore National Laboratory** was established in 1952 to design and develop nuclear weapons. Scientists at LLNL are responsible for four out of nine nuclear weapons systems in the United States’ stockpile. There are several different programs that are run at the Lawrence Livermore National Laboratory. The Ground-based Nuclear Explosion Monitoring Program is an effort in monitoring the Comprehensive Test Ban Treaty. Even though the United States has not signed this treaty, we still have a standing mission to monitor nuclear weapons testing and proliferation. Through this program, scientists are able to detect, identify, and locate small nuclear explosions while also being able to decipher between nuclear explosions and any number of small non-nuclear explosions.

Construction of the world’s largest laser installation, the National Ignition Facility (NIF), is underway at the Lawrence Livermore National Laboratory. The NIF’s intended use is to produce contained thermonuclear explosions to provide data for the advance of nuclear weapons science. According to LLNL and the DOE, the National Ignition Facility will preserve the U.S.’s ability to
maintain, test, modify, design and produce nuclear weapons. NIF is used both to train weapons
designers in nuclear weapons science and for nuclear weapons effects testing. Replacement of
underground testing will be a result of this new laboratory, demonstrating a continued
commitment to nuclear weapons as core instruments of national policy.

There are some problems with this new facility.

According to the Natural Resources Defense Council, no laser facility has successfully produced
significant amounts of energy through Inertial Confinement Fusion (the approach utilized by the
NIF). This brings into question the necessity of an extremely expensive project whose main goal is
not proven to be effective. The NIF project has also suffered from significant cost overruns and
schedule delays, announced by the Secretary of Energy in 1999. The NRDC estimates the
construction costs of NIF to be between $5.3 to $8.5 billion before any cost overruns are added. The
annual operating costs are estimated to be between $100 to $200 million a year.

Lawrence Livermore is also heavily involved in establishing an underground nuclear waste
repository for the permanent disposal of nuclear waste. The potential place for such a facility is
Yucca Mountain, 100 miles north of Las Vegas on the edge of the Nevada Test Site. The Nuclear
Waste Policy Act of 1982 demanded the U.S. Department of Energy to establish such a site.
Amendments to this Act in 1987 required that the Yucca Mountain site be the only site in
consideration for the underground repository. The work that LLNL is doing at Yucca Mountain is
development work based upon predictive models and accelerated age testing of materials, systems,
and geological effects. These tests are necessary because little is known about the long range effects
of depositing spent nuclear fuel and other high-level waste into rock formations. It is questionable
whether rock formations are stable enough to contain radioactive gasses, liquids, and particles from
escaping after thousands of years. The Yucca Mountain site is supposed to safely dispose of 77,000
tons of deadly radioactive waste, this translates into 11 billion curies. Eighty to 100 curies were
released from Chernobyl in a nuclear disaster that killed thousands and contaminated much of
Europe.

There are several risks that have been identified by the people of Nevada, the Senate, and various
organizations. Risk that surface water could penetrate to the repository level has been identified.
This is unacceptable because the waste containers need a dry and non-corrosive environment. The
previous notion that in the case that radioactivity did escape from the canisters, it would be
immobilized within the rock has been found to be untrue. In addition, there are also dozens of
earthquake faults in the surrounding area. The planned nuclear waste shipments to Yucca Mountain
would run for 20-30 years. In just one year, the shipments would outnumber all such shipments
made over the past three decades in the U.S. Large expenditures to deal with upgrades to highways
and rail routes, to build and test new shipping containers, and to train emergency response
personnel nationwide are expected. As indicated by the DOE’s own figures, 150-400 accidents
are expected over the shipping period. This would put approximately 50 million people in 43 states
in direct risk for at least 20 years. According to the Alliance for Nuclear Accountability the Senate
Committee discussing Yucca Mountain expressed many concerns including issues of expenditures.
They said, "To say the least, it is disturbing that overall costs have nearly doubled (from $30 billion
to $58 billion) since the early 1990's."

This fact sheet was prepared by Erin Peck of the Arms Trade Resource Center of the World Policy
Institute.