THE BOMBPLEX:
HIGH EXPLOSIVES TESTING AT SITE 300

The Department of Energy will be accepting comments on where and how much hydrodynamic testing should be done in the United States. Livermore Lab's Site 300 is one of the sites under consideration. We argue that all high explosives testing at Site 300 should be phased out and no additional testing should go forward anywhere in the complex. This fact sheet should help you understand what hydrodynamic testing is and get prepared to comment during the public comment period. Now is the time to get involved and shape the future of Site 300. Together we can phase out explosives testing at Site 300 forever.

What is Hydrodynamic Testing?

Since the late 1940s, weapons engineers have used hydrodynamic tests and dynamic experiments in conjunction with nuclear tests to study nuclear weapon bomb cores or "primaries". In hydrodynamic tests, assemblies that mock the conditions of an actual nuclear weapon are detonated using high explosives. Non-fissile isotopes, such as uranium-238 (also known as depleted uranium) and plutonium-242, are subjected to enough pressure and shock that they start to behave like liquids (hence the 'hydro' in hydrodynamic). Radiographs (x-ray photographs) can be used to obtain information on the resulting implosion; computer calculations based on these test results are used to predict how a nuclear weapon would perform. Hydrodynamic tests at Site 300 routinely use uranium-238.

What is Site 300?

Lawrence Livermore National Laboratory's (LLNL) Site 300 is a test site owned by the Department of Energy. It is situated on 7,000 acres 15 miles southeast of Livermore. 5,500 homes are planned for within a mile of the site and approximately 7 million people live within a 50 mile radius.

Site 300 was established in 1955 as a non-nuclear explosives test facility to support LLNL's national security mission. The site gets its name from the early days of LLNL, when the main laboratory was called Site 200 and the test facility was Site 300 (Lawrence Berkeley National Laboratory was Site 100). Today, many of the tests are done in the service of the US nuclear weapons arsenal and some may be done at the behest of the Department of Homeland Security.

The land at Site 300 is already so badly contaminated by similar past tests that the US Environmental Protection Agency designated it as a federal "Superfund" site in 1990, one of the most contaminated sites in the nation. The soil and groundwater at Site 300 is polluted with a

dangerous mixture of chemical and radioactive wastes including solvents, radioactive tritium, uranium-238 high explosives and heavy metals.

What are the potential releases of Hydrodynamic Testing at Site 300?

Short Answer: uranium-238 / tritium (radioactive hydrogen) / other dangerous substances

The exact content of the explosions are not known. We do know that LLNL applied in April of 2007 to increase explosives testing annually eight-fold! In its application to the Air District, the Lab was forced to disclose the releases associated with the proposed explosions. Based upon the Lab's statements in the application, it seeks to detonate up to 5,000 pounds of uranium-238 each year in open-air bomb tests with no control technology to reduce offsite airborne emissions. The explosions could also contain up to 200 curies of tritium (radioactive hydrogen) and 60 other toxic and hazardous materials, some of which would drift in the wind offsite into the Bay Area and Central Valley.

Where are Other Hydrodynamic Testing Centers in the United States?

The majority of stockpile stewardship hydrotesting is conducted at LLNL's Site 300 and at Los Alamos National Laboratory's Dual Axis Radiographic Hydrodynamic Test Facility, where the diagnostic capabilities have been developed to meet specific weapons design agency needs. Large scale tests are conducted at the Nevada Test Site's Big Explosives Experimental Facility. Small scale dynamic tests are also conducted at Pantex, Sandia National Lab – New Mexico, and the Nevada Test Site.

What is the Department of Energy proposing to do with Site 300?

The Department of Energy is looking at either keeping Site 300 operational with increased testing OR phasing out hydrodynamic testing at Site 300 altogether. The DOE has publicly stated in documents that open-air large-scale high explosive testing is not appropriate for Site 300 due to the increases of residential populations in the area. There is also a possibility that Site 300 could be shifted to the Department of Homeland Security for high explosives testing.

What does Tri-Valley CAREs recommend for the future for Site 300?

- End all high explosive testing at Site 300
- Clean up the extensive existing contamination at Site 300
- Ensure that no other government agencies will be allowed to acquire the land in order to use it for toxic and hazardous pursuits, such as continued high explosives testing.
- Don't build new hydrotesting facilities anywhere else. Existing capabilities should be downsized and maintained for the exclusive function of ensuring the safety and reliability of nuclear weapons as they await disarmament.

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