Los Alamos and NNSS team to resume critical experiments at new location

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LOS ALAMOS, New Mexico, June 17, 2011—At 4:14 p.m. Pacific Time on June 15, a team of researchers from Los Alamos National Laboratory brought the Planet criticality assembly machine located at the Nevada National Security Site to a supercritical point for approximately eight minutes, successfully repeating an experiment last conducted at Los Alamos in 2004.This experiment, bringing a small amount of nuclear material into a chain reaction using the Planet assembly, demonstrated the restoration of a national capability to perform critical operations that was lost with the closure in 2005 of Technical Area 18 at Los Alamos National Laboratory. The Los Alamos team has been working since that time to move four criticality assemblies and more than a ton of associated nuclear material to the Criticality Experiments Facility (CEF) operated by the Laboratory at the Nevada National Security Site.Experiments at CEF use a variety of nuclear materials that range from small neutron-emitting sources for radiation-detection equipment to larger quantities of uranium and plutonium for criticality experiments.

These machines run at power levels far below those attained by nuclear reactors. The criticality assembly machines are Godiva, Flattop, Planet, and Comet.Experiments at CEF help support a variety of nuclear security missions, including validating the performance of specific radiation detection instruments and providing hands-on training for criticality safety engineers and nuclear-material handlers.These experiments address issues including criticality safety processes; criticality safety for storage, transportation, and disposition of nuclear materials; criticality issues in device assessment and performance; domestic and international safeguards technology; safety guidelines for the nuclear power industry worldwide through research, modeling and accident analysis; and arms control and treaty verification. Producing criticality safety evaluations for process operations requires the use of an experimental database that is credible and will be provided for by the CEF capability.

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