

## **First Use of Tritium at the National Ignition Facility**

S.J. Brereton<sup>a\*</sup>

<sup>a</sup>*Lawrence Livermore National Laboratory, L-580, P.O. Box 808, Livermore, CA 94551 USA*

The National Ignition Facility (NIF) at Lawrence Livermore National Laboratory is the world's largest and most powerful laser system for inertial confinement fusion (ICF) and experiments studying high energy density (HED) science. NIF is a 192 beam Nd-glass laser facility that can produce 1.8 MJ, 500 TW of ultraviolet light. Construction of NIF began in 1997 and it was completed in 2009. Since that time, enhancements to the facility have been installed to allow for the use of tritium and execution of the Ignition Campaign. Capsules fielded for an ignition target will require a 75  $\mu\text{m}$  thick DT ice fuel layer. The Cryogenic TARget POSitioner (TARPOS) provides the cryogenic cooling systems necessary to complete the formation of the ignition target's fuel ice layer. Standard capabilities and practices will be used to manage the tritium hazard to workers and to limit releases to the environment to negligibly small amounts. Equipment to support safe operations with tritium, including the Tritium Processing System, local contamination control systems, area and stack tritium monitoring systems, a hazardous materials handling area, has been installed and is operational.

Tritium introduction into NIF is expected in the spring-to-summer time frame of 2010. The startup process will be described along with Initial experiences with tritium operations at the facility.

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