TA-18

nuclear watch new mexico

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Federal Safety Board Says LANL Could Have Deadly Accident
Group Demands that Dangerous Experiments Be Stopped

Santa Fe, NM — On May 21, 2004, the Defense Nuclear Facilities Safety Board (DNSFB) transmitted to the Administrator of the DOE's National Nuclear Security Administration (NNSA) a letter with two attached reports outlining the potentially severe risks of conducting "criticality" experiments at Los Alamos National Laboratory's (LANL's) Technical Area-18. The DNFSB is an independent agency created by Congress to "identify the nature and consequences of potential threats to public health and safety at the Department of Energy's (DOE's) defense nuclear facilities, to elevate such issues to the highest levels of authority, and to inform the public."

Some of TA-18's criticality reactors are scheduled to be relocated to the Nevada Test Site by September 2004, but this process has already been long delayed. According to the DNFSB, two uncontained reactors "will continue to operate for the near term at TA-18 in a campaign mode." In 2000 DOE's own bureau for enforcing nuclear safety regulations fined LANL $605,000 for breaking safety rules at TA-18, but the Lab did not have to pay because its manager the University of California is a "nonprofit" entity. A November 2003 *Vanity Fair* article reported that the DOE nuclear safety officer at Los Alamos had to reject as a safety protocol a scientist's offer to drive a bulldozer into a reactor if it ever overheated during an experiment. Finally, mechanical malfunctions have repeatedly occurred during TA-18's criticality experiments.

Nuclear Watch New Mexico calls on DOE and LANL to stop any planned criticality experiments at TA-18 until all safety issues are thoroughly resolved and verified as such by the Defense Nuclear Facilities Safety Board. Jay Coghlan, NukeWatch Director, declared "It's unthinkable for LANL to even dream of running such high risk experiments until it is certain that it's got it right. The Lab's track record to date engenders no confidence. The Board and DOE should step in and make it right or close TA-18 once and for all".

Highlights of the DNFSB reports are quoted below.

"**Postulated Accidents.** TA-18 is located one-half mile from the nearest site boundary and 3 miles from the town of White Rock. The laboratory buildings containing the critical assemblies offer no confinement in the event of an accident with a radiological release. The postulated accidents in

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TA-18 with the highest off-site consequences involve uncontrolled reactivity excursions in critical assemblies containing a core or sample of plutonium. For example, LANL analyses approved by NNSA indicate that an uncontrolled $1.00 step insertion with a plutonium core in Flattop [one of five uncontained reactors] would cause a transient exceeding the plutonium melting point (640° C) in about 2 seconds, ultimately reaching above 1,500° C; the core would partially vaporize; and, conservatively calculated, the maximally exposed off-site individual (MEOI) would receive on the order of 1,000 rem committed effective dose equivalent (CEDE) unless the accident were mitigated... It appears credible to drive these assemblies into a temperature regime that could melt plutonium." [Note: A "$1.00 step insertion" is physicist's jargon for introducing enough plutonium to induce criticality. Less than $1.00 is subcritical; more than $1.00 is hypercritical. Chest x-rays are 5 to 10 *milli*rem, or 5 to 10 one-thousandths of a rem. A 1,000 rem dose is fatal.]

"**Engineered Controls.** LANL's selection and implementation of engineered controls are not compelling... Currently, installation of the [new engineered control] has stalled, and the system is not declared operational in any of the assemblies."

"**Operational Oversight by NNSA and LANL**... Recent federal oversight in TA-18 has been minimal... In the past several years, the support of LANL's senior management for this committee [the Reactor Safety Committee] has been marginal at best. In 2000, most of the committee members resigned. The committee was later reconstituted as an advisory board to TA-18 line management... Committee reports during the last 3 years have tended to focus more on advocating for continued operations (e.g., mission relocation impacts) than on independently identifying safety issues and verifying adequacy of their resolution."

"**Conclusions**... [A] sequence of operator errors at TA-18 could initiate its worst accident - an uncontrolled reactivity excursion resulting in melting and partial vaporization of a plutonium core sample... NNSA and LANL are currently relying on a set of administrative controls and interim compensatory measures to prevent this accident... However, most of these controls are missing from the current list of those to be verified in response to the Board's Recommendation. It appears that these controls ought to be included and to have priority for verification."

- 30 -

The DNFSB Letter on LANL TA-18 Plutonium Criticality Risk, dated May 21, 2004, and related information are available at www.nukewatch.org.