

# NUCLEAR CONTROL INSTITUTE

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### **ENORMOUS "PLUTONIUM GAP" AT JAPAN'S TOKAI PLANT HIGHLIGHTS PROLIFERATION RISKS OF REPROCESSING**

The disturbing revelation yesterday by the Japanese government that plutonium recovered over twenty-five years of operations at the Tokai-mura Reprocessing Plant is 206 kilograms short of the amount predicted demonstrates the inherent inadequacy of safeguards at facilities handling large quantities of bomb-usable nuclear material, according to Nuclear Control Institute, a Washington DC-based nonproliferation research and advocacy center.

"This is not just a minor accounting error. We're talking about an enormous amount of plutonium, enough to make 30 to 40 atomic bombs," noted Dr. Edwin Lyman, NCI President. "Until the discrepancy is resolved, one cannot rule out the possibility that the plutonium was diverted for weapons use by states or terrorists. When one is dealing with nuclear-bomb materials, the proliferation and terrorism risks of sloppy management are simply too great to tolerate."

Japan has offered various explanations, including measurement and estimation errors, 'hold up' in the plant's process equipment and leaks into waste streams. Regardless of how it occurred, however, the Tokai 'plutonium gap' demonstrates that safeguards technology is incapable of fulfilling the objective of allowing timely detection of plutonium diversion. Japan and the International Atomic Energy Agency (IAEA) have apparently been aware of this problem for many years, yet have been unable to resolve it.

While the IAEA says that it is satisfied with the Japanese government explanation that about half the missing material ended up in liquid waste, about 100 kilograms of plutonium still remain unaccounted for. Japan should immediately shut down the Tokai plant and undertake a full clean-out and accounting under IAEA supervision. To be credible this process must be transparent and open to scrutiny.

There is ample precedent for this cleanout. In the mid-1990s, [NCI revealed a 'discrepancy' of some 70 kilograms of plutonium at the Tokai Plutonium Fuel Production Facility \(PFPF\)](#). Much of the plutonium was later discovered to be "held up" in PFPF's process lines, leading to extended clean-up and inspection operations estimated to cost on the order of \$100 million. Even after this major effort, Japan was still unable to account for 10 kilograms of the missing material.

Japan should also cancel plans to operate a much larger reprocessing plant at Rokkasho-mura beginning in 2005, according to NCI. "If similar problems occurred at Rokkasho, which would have a far greater annual throughput than Tokai, some 240 kilograms of plutonium could go unaccounted for every year," Dr. Lyman estimated.

The Tokai plutonium gap is the latest in a number of serious setbacks to Japan's controversial plutonium fuel program. Last year, Japanese electric utilities indefinitely postponed plans to load mixed plutonium-uranium fuel (known as "MOX" or "pluthermal") into their reactors, in the wake of a quality-control scandal. On Monday, a Japanese appeals court blocked efforts to restart the Monju breeder reactor, which experienced a serious sodium leak accident in 1995.

"Japan has already accumulated a 38-ton stockpile of separated plutonium from its domestic and overseas reprocessing operations, and they have no safe way to utilize it," Dr. Lyman noted. "Given the threat of nuclear terrorism and the proven inability to manage plutonium safely or securely, the Rokkasho reprocessing plant poses a threat to the entire world and should never operate."

*Additional information on the dangers of plutonium and reprocessing are available on NCI's website at <http://www.nci.org/pu-repro.htm>*

*For information on the 1994 plutonium discrepancy at the PFPF plant, please see NCI's [press release](#) and [letter to the State Department](#).*