NUCLEAR CONTROL INSTITUTE
Washington, D.C.

HOLD FOR RELEASE:
8:30 AM, Thursday, January 21, 1999
CONTACT: Edwin Lyman, Paul Leventhal (202) 822-8444

U.S. PLAN TO USE WARHEAD PLUTONIUM AS FUEL IN POWER REACTORS POSES SIGNIFICANT CANCER RISKS TO PUBLIC, NEW REPORT CONCLUDES

Thousands of Additional Cancer Deaths Possible In the Event of a Severe Accident

Washington, D.C.---A U.S. Government plan to use tons of plutonium from dismantled nuclear warheads as fuel in civilian nuclear power reactors will result in a "significant increase" in cancer risk to residents in and near North Carolina, South Carolina and Virginia where reactors are likely to use the special fuel, according to a report released today by the Nuclear Control Institute (NCI).

NCI's report identified a number of technical flaws and misleading statements in earlier analyses by the Department of Energy (DoE) that had found only a slight increase or even a decrease in cancer risk in the event of a severe accident at a power reactor using warhead plutonium in its fuel.

NCI President Paul Leventhal announced he would ask Energy Secretary Bill Richardson to defer plans to award a contract next month for manufacturing the fuel and irradiating it in six power reactors, pending an independent evaluation of NCI's findings. Leventhal said NCI would ask Richardson to re-focus DoE's plutonium-disposal efforts on methods with less severe impacts on public health and the environment.

NCI will also ask the Nuclear Regulatory Commission, which must license power reactors to use plutonium fuel, to give the Department of Energy's program special scrutiny pursuant to new risk guidelines recently issued by the NRC, Leventhal said. NCI's findings indicate that, under these guidelines, the increase in risk resulting from use of this fuel is so large that a reactor license amendment to authorize such use "would not normally be considered" by the NRC.

The Department of Energy is now expected to award the contract to a consortium that includes the French plutonium-fuel fabricator, Cogema, and the U.S. utilities, Duke Power and Virginia Power. Cogema would turn 33 metric tons of surplus warhead plutonium into mixed plutonium-uranium oxide ("MOX") fuel. Virginia Power would use the fuel in its North Anna 1 and 2 nuclear power reactors located between Richmond and Washington D.C. Duke Power would use the fuel in its McGuire 1 and 2 reactors near Charlotte N.C., and its Catawba 1 and 2 reactors in South Carolina, also near Charlotte.

NCI's report, "Public Health Consequences of Substituting Mixed-Oxide for Uranium Fuel in Light-Water Reactors" was prepared by its Scientific Director, Dr. Edwin Lyman, a physicist. Dr. Lyman used U.S. government computer codes to calculate the expected number of cancer fatalities resulting from severe, loss-of-containment accidents at a nuclear plant using MOX fuel and compared it with the number that would occur if the plant were using conventional low-enriched uranium (LEU) fuel.

Dr. Lyman found that the number of cancer fatalities is greater from accidents at MOX-fueled plants because the quantities of plutonium, americium, curium and other highly radiotoxic "actinides" contained in the MOX fuel are several times greater than in LEU fuel. He found that the risk of cancer fatalities within 10 miles of a plant doubles when a full core of warhead- plutonium MOX fuel is substituted for LEU.

Dr. Lyman found that within a 1,000-mile radius of a plant, the number of "early" cancer fatalities among the public (those that will occur due to radiation exposures within one week after a severe accident) will be

81%-96% greater on average for a plant with a full core of weapons-grade MOX fuel, and 27-32% greater for a plant with a one-third core of this type of MOX fuel, than for a plant with an LEU core.

Dr. Lyman found that in such an area with a surrounding population density similar to the Catawba and McGuire plants, the actual number of additional fatalities would be 1,430 to 6,165 if the plant had a full core of warhead-plutonium MOX fuel, and 477 to 2,055 if the plant had a one-third core of this fuel. He noted that the increase in overall cancer risk to the public will be approximately the same for both full and partial MOX core loadings because of the longer period reactors would have to operate with partial cores to irradiate all of the warhead plutonium made available to the program.

These values are considerably higher than those presented in DOE's Programmatic Environmental Impact Statement on the military plutonium disposition program. DoE calculated that the change in accident consequences from substituting weapons-plutonium MOX for LEU fuel would be +8% to -7%---in other words, the number of cancer fatalities could actually decrease by switching to MOX fuel.

Dr. Lyman found that the DoE calculations are flawed because they assumed only a low release of actinides in a severe accident and also assumed use of an advanced-design reactor not yet built rather than an existing reactor. Dr. Lyman's calculations are based on existing reactor designs.

Dr. Lyman also found that the planned use of warhead-plutonium MOX fuel in Russia posed an even greater health risk than in the United States because Russian reactors do not meet Western safety standards and Russia is reluctant to accept Western assistance to upgrade them. His study concludes that all health risks associated with MOX fuel could be averted if the United States and Russia agreed to pursue a safer alternative---immobilization of surplus weapons plutonium in highly radioactive waste.

Dr. Lyman also found that the number of cancer fatalities more than doubles in severe reactor accidents in which commercial "reactor-grade" plutonium rather than weapons-grade plutonium is used in MOX fuel---a finding of particular relevance to countries like France, Germany, Japan and Switzerland that have commercial plutonium fuel programs. The number of fatal cancers attributable to reactor-grade plutonium MOX fuel is quadruple the number attributable to LEU in a severe reactor accident, Dr. Lyman found.