NUCLEAR REACTOR LABORATORY
AN INTERDEPARTMENTAL CENTER OF
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

O.K. HARLING
Director

138 Albany Street Cambridge, Mass. 02139
(617) 253-4201

L. CLARK, JR
Director of Reactor Operations

February 7, 1984

The Honorable Nunzio J. Palladino, Chairman
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Palladino:

The purpose of this letter is to request urgently that the Nuclear Regulatory Commission take steps to correct dangerously misleading information recently issued by the news media concerning a Commission meeting on Friday, January 27, 1984, to consider the subject of highly enriched uranium (HEU) in university research reactor fuels.

We are extremely concerned that the information contained in newspaper reports could mislead fanatics and others to expect that quantities of weapon-grade uranium, well in excess of that required to make a bomb, is easily stolen from each of many university reactors. Please see the enclosed January 28-30 news items. Attempted diversion of HEU, based on such articles, could lead to violence against the staffs at university reactors.

Our concern is not with the Commission's review of the utilization of HEU but rather with the manner in which it is reported, and we believe that NRC is in the best position to set the record straight - in the news media - so as to minimize the possibility that anyone at a university research reactor will be the victim of a misguided terrorist or thief.

Given the gravity of the situation, we believe that the Associated Press and other news services will recognize a responsibility to provide similar and hopefully greater news coverage for a press release by NRC providing information that was omitted from the January 28-30 articles. Principally, the HEU at university research reactors is not the attractive target that the reports described, because most of it is irradiated - very highly so at the larger reactors. The unirradiated fuel is in the gram or low kilogram range, always below five kilograms and much less than the possession limits reported in the newspapers. This means that only a small fraction of a bomb quantity is available as unirradiated fuel at any university. In addition, the security is much better than was stated in the news reports.

Because NRC licenses, regulates and inspects these reactors, we believe that it can make the most credible case to the Associated Press and others that the news media have an obligation to correct these recent gross exaggerations on this subject, which could result in injury to innocent people, and to do so in a manner that does not exacerbate the situation. We urge the

E/10

Commission not only to make the pertinent information available to the media but also to impress them with the need to give it coverage at least equal to that given the January 28-30 stories.

The assistance of your Agency in this regard will be most appreciated, and we would be happy to discuss this with you in more detail by telephone.

Sincerely,

Otto K. Harling, Director
Nuclear Reactor Laboratory

Lincoln Clark, Jr.
Director of Reactor Operations

DKE

Enclosures

cc: Robert E. Carter
Daniel Garner

Uranium theft from colleges called possible

WASHINGTON - Quantities of highly enriched uranium, used in research reactors at three colleges in Massachusetts and a necessary ingredient for making nuclear weapons, could be easily stolen by terrorist groups or nations intent on acquiring such weapons, a physicist told the Nuclear Regulatory Commission.

The uranium is used at a total of 23 universities around the nation, the New York Times reported yesterday.

The physicist, Dr. Theodore B. Taylor, said the presence of the enriched uranium in universities with often lax security was "highly undesirable and dangerous" and that there was no justification on research grounds for the use of the fuel.

Taylor, who was on the staff of the Los Alamos National Laboratory and sat on the panel that looked into the accident at Three Mile Island, said the reactors should be required to use low-enriched uranium, which cannot be used for nuclear weapons, the Times said.

The NRC, at the request of one of its commissioners, Victor Gilinsky, is holding hearings on a possible rule to restrict the use of highly enriched uranium. Gilinsky urged Friday at a hearing that research reactors be barred from using such uranium as a way for the United States to set an example of its commitment to nonproliferation of nuclear weapons. He also said that low-enriched uranium would not affect the performance of the reactors, the Times reported.

The Bay State colleges that have weapons-grade uranium are the University of Lowell, Massachusetts Institute of Technology and Worcester Polytechnic Institute.

The reactors are chiefly used to train nuclear engineers and for medical research.

Taylor told the NRC, which licenses the university reactors, that he would be "very concerned" about the theft of even one kilogram of highly enriched uranium.

"I want to make sure I am not being taken to say that one kilogram of highly enriched uranium is the minimum quantity to make a bomb," Dr. Taylor said. "The minimum quantity is not a well-defined number at all. It depends on the talents, experience and requirements of the designers."

Boston Globe
P. 36 1/30/84

Patriot Ledger Jan 28, 1984

U.S. to ban university use of bomb-grade uranium

WASHINGTON (AP) — Government officials said yesterday they hope to have new regulations ready by March that would require universities and other institutions to stop using bomb-grade uranium in their research nuclear reactors.

Nuclear Regulatory Commission officials said the new regulations are being prompted in part by the wave of terrorist activities throughout the world.

Witnesses urged the commission to stick by its plan, first announced in August 1982, to require research reactors to switch by 1988 to a lower-grade uranium.

"The potential of the stuff for a terrorist-type attack is great," said Robert Minogue, NRC research director. "The recognition of terrorists is not new, but the kinds of acts that they are capable of performing has changed in recent years."

Daniel Hirsch of the Committee to Bridge the Gap, a public interest [illegible] said most universities have between [illegible] 20 kilograms of highly enriched uranium storage even though many use as little one gram a year to run their reactors.

Roughly 20 kilograms (about 44 pounds) of the highly fissionable material is the amount cited by most experts as necessary for building an atomic bomb.

But Theodore B. Taylor, a former nuclear weapons designer at Los Alamos National Laboratory, said the critical mass of highly enriched uranium to set off a explosion is only 11 kilograms with certain equipment.

The 25 universities licensed to use bomb-grade uranium include the Massachusetts Institute of Technology, the University of Lowell at Lowell, Mass. and Worcester Polytechnic Institute in Worchester, Mass.

THE NEW YORK TIMES, SUNDAY, JANUARY 29, 1984

23 Colleges' Weapon-Grade Uranium Called Risk

By JANE PERLEZ
Special to The New York Times

WASHINGTON, Jan. 28 — Quantities of highly enriched uranium, used in research reactors at 23 universities around the nation and an essential ingredient for making nuclear weapons, could be easily stolen by terrorist groups or nations intent on acquiring such weapons, a physicist has told the Nuclear Regulatory Commission.

He said the presence of the enriched uranium in universities with often lax security was "highly undesirable and dangerous" and that there was no justification on research grounds for the use of the fuel.

One of the reactors is in New York City, on the campus of Manhattan College in the Bronx.

The physicist, Dr. Theodore B. Taylor, who was on the staff of the Los Alamos National Laboratory and sat on the official panel that looked into the accident at Three Mile Island, said the reactors should be required to use low-enriched uranium, which cannot be used for nuclear weapons.

The Federal agency, at the instigation of one of its Commissioners, Victor Gilinsky, is holding hearings on a possible rule to restrict the use of highly enriched uranium. Mr. Gilinsky urged Friday at a hearing that research reactors be barred from using such uranium as a way for the United States to set an example of its commitment to nonproliferation of nuclear weapons. He also said that low-enriched uranium would not affect the performance of the reactors.

The fuel at commercial power reactors is not sufficiently enriched to be used in the manufacture of nuclear weapons.

The college campuses that have weapons-grade enriched uranium are these:

Manhattan College, Riverdale, Bronx
Rensselaer Polytechnic Institute, Troy, N.Y.
University of California at Los Angeles
University of California at Santa Barbara
University of Florida
Georgia Institute of Technology
Iowa State University
University of Kansas
University of Lowell (Mass.)
Massachusetts Institute of Technology
University of Michigan
University of Missouri at Columbia
University of Missouri at Rolla
Ohio State University
Oregon State University
Purdue University
Texas A&M University
University of Virginia (two reactors)
Virginia Polytechnic Institute
University of Washington
Washington State University
University of Wisconsin, Madison
Worcester (Mass.) Polytechnic Institute

The University of Michigan is converting its reactor from highly enriched uranium to the low-enriched uranium.

The commission allows the University of Missouri at Columbia to have the largest amount of highly enriched uranium, 45 kilograms, roughly 100 pounds, and M.I.T. is second at 29 kilograms. Manhattan College is allowed to have one of the smaller amounts, 3.2 kilograms.

The reactors are chiefly used for the training of nuclear engineers and for medical research.

Dr. Taylor told the regulatory commission, which licenses the university reactors, that he would be "very concerned" about the theft of even one kilogram of highly enriched uranium.

"I want to make sure I am not being taken to say that one kilogram of highly enriched uranium is the minimum quantity necessary to make a bomb," Dr. Taylor said. "The minimum quantity is not a well-defined number at all. It depends on the talents, experience and requirements of the designers."

The administrator in charge of the reactor at Manhattan College, Ronald S. Kane, wrote to the commission this month that the college opposed changing its reactor fuel unless the costs were assumed by the Government.

Mr. Gilinsky said that it was estimated to cost $15 million to convert all the reactors and that money seemed to be the only stumbling block. He suggested the Department of Energy pay.

Three key members of Congress, including Representative Richard L. Ottinger, Democrat of Westchester County and chairman of the House Energy and Commerce Subcommittee on Energy Conservation and Power, wrote this week to the chairman of the commission, Nunzio J. Palladino. They said they would seek to legislate the necessary money.

SUN

Lowell, Mass.
SATURDAY
January 28, 1984

Fair See Back Page

16 Pages 25 Cents

Index

NRC: universities are poorly guarding bomb grade uranium

By MATT YANCEY
Associated Press Writer

WASHINGTON (AP) – Enough highly enriched uranium to make a bomb is stored at several universities, sometimes in filing cabinets with a simple burglar alarm wired to the campus police station as the only security measure.

The Nuclear Regulatory Commission is trying to stop the use of the bomb-grade uranium at 25 campus reactors – including the University of Lowell and the Massachusetts Institute of Technology – and six others operated by private companies. But the commission is running into opposition from university officials who contend that converting to a lower-grade uranium fuel is too costly.

On Friday, NRC officials said they hope to have new regulations ready by late March that would require the schools and companies to quit fueling their reactors with bomb-grade

Commissioner Victor Gilinsky said Friday.

Daniel Hirsch, director of a nuclear policy program at the University of California at Santa Cruz, said the bomb-grade uranium "is often protected at a similar level of security on these campuses as personnel records or the student store."

In many cases, he told the commission Friday, the storage facility is nothing more than a filing cabinet or "simply a room with a door."

The NRC regulations would provide the enforcement power for a policy announced by the commission in August 1982 to convert the nation's research reactors from 93 percent enriched bomb-grade uranium to a 20 percent enriched variety less usable in weapons. Most atomic power plants use only 3 percent to 5 percent enriched uranium.

That new NRC policy, viewed as essential for convincing foreign nations to make the same conversion on their civilian research reactors, was endorsed by the Reagan administration as part of its anti-proliferation program.

Implementing it has proven more difficult. Several university officials asked the commission last month for regulations that would allow all but five to seven of the 25 campus reactors to keep on using bomb-grade fuel.

Two schools, the University of Missouri at Columbia and Massachusetts Institute of Technology, have told the commission it is technically infeasible to convert their reactors to the lower grade fuel.

Those two reactors should be given more time to make the conversion but should not be granted exemptions from the regulations that are being sought by the universities, Paul Leventhal of the Nuclear Control Institute told the commission Friday.

Roughly 20 kilograms (about 44 pounds) of the highly fissionable material is the amount cited by most experts as necessary for building an atomic bomb.

But Theodore B. Taylor, a former nuclear weapons designer at Los Alamos National Laboratory said that, with certain equipment, the critical mass of highly enriched uranium to set off an explosion is only 11 kilograms.

Only two schools are now licensed to stockpile more than 20 kilograms of the bomb-grade uranium: the University of Missouri at Columbia, 45 kilograms, and MIT, 29 kilograms.

Schools with licenses to possess between 10 kilograms and 20 kilograms of the highly enriched fuel are: Georgia Tech, the Rhode Island Nuclear Science Center, the University of Michigan, the University of Virginia, Oregon State University; Texas A&M, the University of Wisconsin and Washington State University.

University research reactors with licenses to possess less than 10 kilograms are: the University of Lowell in Massachusetts, the University of Missouri at Rolla; Ohio State, the University of Kansas, Worcester Polytechnic Institute in Massachusetts, Purdue University, Rensselaer Polytechnic Institute in New York, Manhattan College, UCLA, the University of Florida, the University of Washington, Virginia Tech, Iowa State University and the University of California at Santa Barbara.