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UN Office

International Association of Lawyers Against Nuclear Arms

August 30, 2011

The Honorable Ellen Tauscher
Under Secretary of State for Arms Control and International Security
United States Department of State
2201 C Street, NW
Washington, D.C. 20520

Dear Under Secretary Tauscher:

A year ago, on August 30, 2010, we wrote to the Bureau of International Security and Nonproliferation with respect to the pending licensing proceedings before the Nuclear Regulatory Commission concerning a planned laser uranium enrichment facility to be constructed at Wilmington, NC by a consortium led by GE-Hitachi Nuclear Energy. In that letter, a copy of which is enclosed, we expressed our concern at the refusal of the NRC even to consider potential proliferation risks in its licensing review, and noted the statement made by a number of prominent physicists and arms control experts that "given the great difficulty in detecting laser isotope enrichment facilities, their spread could undermine U.S. nonproliferation efforts and the ability of the International Atomic Energy Agency to confirm the absence of undeclared nuclear activities in Nuclear Nonproliferation Treaty (NPT) non-nuclear-weapon states." We asked the State Department, with its special expertise in nonproliferation matters, to conduct its own proliferation risk assessment. Two recent developments lead us to renew that request with increased urgency.

First, on August 21, 2011, The New York Times reported that the GE-Hitachi consortium has actually conducted its own proliferation risk assessment in connection with the Wilmington project. While it may be a positive development that the consortium has conducted such a study, after originally denying that it was necessary, we submit that the issue is too important to be decided exclusively by the private parties sponsoring the transaction. We therefore urge the State Department to obtain a copy of the consortium's proliferation risk study, which could be a useful input to an independent analysis of the issue.

Second, we understand that in mid- May, 2011 the NRC staff issued some sort of violation notice with respect to the Wilmington project. We currently do not know the nature of the violation, or the extent to which it may be relevant to an analysis of proliferation risk. Based on past practice, it can be anticipated that the actual description of the violation will probably be contained in a classified attachment. We would therefore urge that the State Department obtain a full copy of the notice, and make its own determination as to its relevancy to proliferation concerns.

It also seems appropriate to note that, with respect to an earlier version of the SILEX laser isotope enrichment process, the Clinton administration reportedly submitted to Congress a Nuclear Proliferation Assessment Statement in connection with the 1999 technology transfer agreement with Australia. While the contents of that statement have never been made public, we understand it concluded (1) that significant proliferation concerns might be presented if the technology were widely adopted but (2) that the practical risk was limited because the process was unlikely to be commercially successful. If the prospects for the commercial success of the current technology are as favorable as the consortium clearly believes them to be, that reasoning obviously would be inapplicable.

For all of these reasons, we would urge that the State Department should develop its own proliferation risk assessment of the proposed technology, for consideration by the administration as a whole.

We would greatly appreciate a response, and request a meeting with you in the near future to discuss the issue.

Very truly yours,

Peter Weiss, President

John Burroughs, Executive Director

Guy C. Quinlan, Board of Directors

cc: Gregory Jaczko, Chairman, Nuclear Regulatory Commission
Ambassador Susan F. Burk, Special Representative of the President for Nuclear Nonproliferation
Richard Stratford, Director, State Department Office of Nuclear Energy, Safety and Security
Denis McDonough, Deputy National Security Advisor
Gary Samore, WMD Coordinator, National Security Council
John Holdren, Science Advisor to the President

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Ambassador Susan F. Burk
Special Representative of the President for Nuclear Nonproliferation
Bureau of International Security and Nonproliferation
United States Department of State
2201 C Street NW
Washington, D.C. 20520
Fax.: (202) 647-8665

Dear Ambassador Burk:

You may remember meeting two of us (Peter Weiss and John Burroughs) at the Carter Center last January. We are now taking the liberty of addressing you on the extremely important matter discussed below.

On July 30, 2010, the Nuclear Threat Initiative's Global Security Newswire reported that: "The U.S. Nuclear Regulatory Commission is standing by a decision not to conduct an assessment of potential proliferation risks associated with licensing a new technology for uranium enrichment, despite the concerns of several leading physicists and issue experts. Pending NRC approval - expected as early as January 2012 - a consortium led by GE-Hitachi Nuclear Energy plans to construct a facility near Wilmington, N.C. that would employ a laser-based process to enrich uranium." (A copy of the article is enclosed.) The scientists' letter referred to in the article had stated *inter alia* that: "Given the great difficulty in detecting laser isotope enrichment facilities, their spread could undermine U.S. nonproliferation efforts and the ability of the International Atomic Energy Agency to confirm the absence of undeclared nuclear activities in Nuclear Nonproliferation Treaty (NPT) non-nuclear-weapon states."

In addition to the specific problems presented by the proposed Wilmington enrichment facility, we believe that the position taken by the NRC, in refusing even to consider potential proliferation risks as a part of the licensing process, sets a dangerous precedent. It cannot be

helpful at a time when the United States is seeking to persuade other countries, in the interests of nonproliferation, to limit their own development and use of enrichment and reprocessing technologies. A refusal to evaluate potential proliferation risks could also be viewed as violating the spirit, if not the letter, of treaty obligations imposed on a nuclear weapons state by Article I of the NPT.

For these reasons we urge your bureau, with its special expertise in non-proliferation matters, to conduct its own proliferation risk assessment incident to the proposed license, in accordance with the suggestion of NRC spokesman David McIntyre quoted in the enclosed article. We feel certain that scientific as well as political experts would be prepared to participate in such an effort and would be glad, in this connection, to provide any assistance that you might find helpful.

Such a risk assessment would not be unprecedented. The Department of Energy conducted a nonproliferation impacts assessment of the planned National Ignition Facility at Lawrence Livermore National Laboratory, resulting in the report, United States Department of Energy Office of Arms Control and Nonproliferation, "The National Ignition Facility (NIF) and the issue of nonproliferation," NN-40, August 23, 1995. The assessment included a public hearing and the opportunity for public comments on a draft report. The Global Security Newswire article also reports that: "More than a decade ago, the Clinton administration submitted to Congress a Nuclear Proliferation Assessment Statement regarding the SILEX process [to be used in the proposed facility], as the focus of its 1999 technology-transfer agreement with Australia."

We would highly appreciate your attention to this matter.

Very truly yours,

Peter Weiss, President

John Burroughs, Executive Director

Guy Quinlan, Board Member

cc: Gregory Jaczko, Chairman, Nuclear Regulatory Commission
Gary Samore, WMD Coordinator, National Security Council

NTI
Working for a Safer World

Global Security Newswire
By National Journal Group
Daily news on nuclear, biological and chemical weapons, terrorism and related issues.

Agency Forgoes Proliferation Review of New Nuclear Technology, Despite Worries

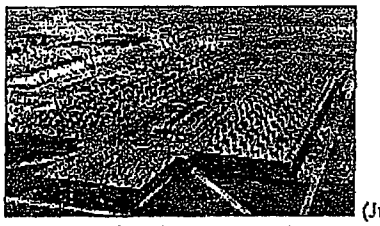
Friday, July 30, 2010

By Elaine M. Grossman

Global Security Newswire

This is the first in a five-part Global Security Newswire series on emerging technologies and scientific advances that might pose new proliferation risks.

WASHINGTON -- The U.S. Nuclear Regulatory Commission is standing by a decision not to conduct an assessment of potential proliferation risks associated with licensing a new technology for uranium enrichment, despite the concerns of several leading physicists and issue experts (see *GSN*, April 12).



(Jul. 30) - *The K-25 facility at Oak Ridge, Tenn., used gaseous diffusion to enrich uranium, before shutting down. A laser-based enrichment technology proposed for U.S. licensing could be housed in a much smaller structure, raising concerns that some nations might use similar processes to covertly produce weapon material (U.S. Energy Department/*Christian Science Monitor).

Pending NRC approval -- expected as early as January 2012 -- a consortium led by GE-Hitachi Nuclear Energy plans to construct a facility near Wilmington, N.C., that would employ a laser-based process to enrich uranium. The enriched uranium, in turn, would be used for fueling commercial nuclear power reactors worldwide. The venture in 2006 acquired sole rights to the process called "separation of isotopes by laser excitation," or SILEX, from Australia.

"The NRC has no statutory requirement to perform a 'nonproliferation assessment' as part of its licensing review for the proposed GE-Hitachi facility," said David McIntyre, an NRC spokesman. He insisted, though, that even without a nonproliferation analysis, the commission's license-review process "effectively protects against the unauthorized spread of the technology."

If commercially successful, the laser enrichment approach might significantly cut reactor fuel costs and other nations would be likely to redouble their efforts to develop similar techniques, experts say. GE-Hitachi would not address outside estimates that the SILEX technique, which it has renamed Global Laser Enrichment, could cut the cost of reactor fuel in half.

Laser enrichment might also offer a boon to nations interested in covertly developing nuclear weapons, according to physicist James Acton of the Carnegie Endowment for International Peace.

"The concern is that laser enrichment facilities might take up less space, use less electricity and produce fewer emissions than centrifuge enrichment," he said last week. "If this is correct, laser enrichment could appear attractive to a state intent on secretly producing [highly enriched uranium] for military purposes."

More than a dozen nations have researched the technique for decades but it has proven exceedingly difficult to master on an industrial scale.

That might soon change, as GE-Hitachi has recently claimed initial test successes at the Wilmington site, where several of its commercial facilities are already based.

Detecting a Covert Facility

Many details about the technology remain sensitive or proprietary, making it difficult for outsiders to gauge the risk that similar processes might be used in secret. For example, it is unclear whether the laser technology offers an effective means of producing

weapon-grade uranium, or if inmate limitations in the process might largely constrain production to low-enriched uranium insufficient for building an atomic device.

"If it turns out that SILEX is not very good at producing [highly-enriched uranium], I'd be less concerned," said Acton, an associate at Carnegie's Nuclear Policy Program. "We just don't know."

A laser enrichment process that is capable of manufacturing material usable in nuclear weapons would stoke the worries of many nonproliferation specialists.

Perhaps the toughest challenge in stemming proliferation lies in uncovering undeclared facilities that a non-nuclear weapon nation might seek to hide. Iran, for example, was recently found to have hidden initial construction of a centrifuge enrichment site at Qum (see *GSN*, March 29).

"Given the great difficulty in detecting laser isotope enrichment facilities, their spread could undermine U.S. nonproliferation efforts and the ability of the International Atomic Energy Agency to confirm the absence of undeclared nuclear activities in Nuclear Nonproliferation Treaty non-nuclear-weapon states," according to a letter to the Nuclear Regulatory Commission, signed last fall by eight scientists and issue experts.

"Detecting clandestine centrifuge facilities is already the IAEA's toughest challenge," Acton said last week, referring to the U.N. nuclear watchdog agency. "Initiating the use of this technology might -- and I emphasize might -- be risky, but the NRC does not appear remotely interested in assessing the risk."

No Special Assessment

The September 2009 letter from scientists and issue specialists called on the Nuclear Regulatory Commission to make "the increased risk of nuclear proliferation" an "explicit factor in its decision" about whether to license the new facility.

More recently, on June 29, the American Physical Society petitioned the nuclear agency to adopt a brand new rule that would obligate "proliferation assessments as part of the [nuclear facility] licensing process," to include not only laser enrichment facilities but other new plants, as well.

An NRC response on the requested rule change remains pending. Ed Lyman, senior staff scientist at the Union of Concerned Scientists, said he thinks it "would require an act of Congress ... to change the rules."

The NRC chairman, Gregory Jaczko, has alluded to the international detection worries, noting in a July 12 speech that "the smaller footprint and lower energy needs of the laser enrichment technology have been the cause of concern."

He also told the *Christian Science Monitor* in May that evaluating a nuclear facility such as the GE-Hitachi plant for possible proliferation risk "is certainly well within our authority as a regulator."

The nuclear agency spokesman last week insisted, though, that no special assessment would be required for determining the proliferation dangers associated with laser enrichment technology, beyond a narrowly defined analysis focused on whether GE-Hitachi can adequately protect information and technology at the new facility.

Based on its initial reviews, the regulatory commission staff "preliminarily recommends that, unless safety issues mandate otherwise, the ... NRC should issue a license," according to a June 25 notice in the *Federal Register*.

The emerging dynamic might well place Jaczko at odds with his own NRC staff, according to some observers.

The commission chairman "may not yet have gone the distance" and still has an opportunity to weigh in on the issue, said Francis Slakey, a physicist at Georgetown University and public affairs director at the American Physical Society.

Tom Clements, southeastern nuclear campaign coordinator at Friends of the Earth, agreed. He was one of two dozen experts who wrote to Congress last October to request hearings on the issue.

"There is still time to stop this train and conduct a proper review of the proliferation threat posed by laser enrichment technology and Commissioner Jaczko needs to make sure that this review happens now," Clements told *Global Security Newswire*.

Under the NRC licensing schedule for the GE-Hitachi facility, the commission's Nuclear Material Safety and Safeguards Office is slated to issue a "Safety Evaluation Report" by Dec. 31 that would address requirements for ensuring that secret details about the technology are not diverted outside the facility.

However, the planned scope of that analysis is overly narrow, critics say. While tight controls over GE-Hitachi's proprietary technology are clearly necessary, they are likely to be insufficient alone to guard against proliferation of the laser enrichment process, according to this view.

A U.S. Precedent?

If GE-Hitachi "successfully commercializes this technology, other nations would certainly be interested in developing their own

variant, which then could be employed in a nuclear weapons program," Acton said. Other nations that have previously researched the technology -- such as Brazil, France and Russia -- can be expected to intensify their work to match any new U.S. capability, nonproliferation specialists say.

Washington's approval of a laser enrichment license also "could make it much more difficult for the United States to criticize its future use abroad," Acton said.

Absent a rule change, the Nuclear Regulatory Commission lacks a specific mandate to review nonproliferation risks -- beyond security issues at the particular facility -- as part of its licensing process, according to the agency spokesman. He also said a review of the proposed plant's security plans should be enough.

"The NRC believes that nonproliferation goals are achieved through its normal licensing and regulation," McIntyre said. "A separate nonproliferation assessment is neither warranted nor necessary, as it would provide no additional benefit."

He added that it would be more appropriate for Congress or other government agencies, such as the State Department, to weigh the risk that other nations would follow suit if the United States successfully commercializes laser enrichment. However, the Nuclear Regulatory Commission, as lead agency in the licensing process, has not requested external support of this kind.

"It is unnecessary for the NRC to retain such a capability [to conduct a nonproliferation assessment] within its staff, 'delegate' the preparation of an assessment to another federal agency, or retain a contractor to prepare such an assessment," the NRC spokesman said.

"There is something of a contradiction here," Acton said. "Without a qualified staff, how can the NRC judge that methods to prevent the unauthorized disclosure of information and the diversion of material are sufficient, in themselves, to achieve U.S. nonproliferation goals?"

More than a decade ago, the Clinton administration submitted to Congress a Nuclear Proliferation Assessment Statement regarding the SILEX process, as the focus of its 1999 technology-transfer agreement with Australia. The State Department this week refused to release the assessment or a summary of its findings.

However, a department official cited then-President Clinton's transmittal letter to Capitol Hill, which said he had "determined that [the pact's] performance will promote, and not constitute an unreasonable risk to, the common defense and security."

The State Department also would not say whether it plans to initiate any new appraisal of laser enrichment, in light of today's proliferation concerns and the impending first license of the technology.

Lacking movement on the issue by other federal agencies or Congress, "the ball is in the NRC's court," Clements said. "It looks like this technology is moving toward licensing by the U.S. government without a nonproliferation assessment," he said.

Commission staff has indicated that the licensing process is ahead of schedule and construction of the Wilmington plant might be given the green light six months earlier than an official June 2012 deadline, according to GE-Hitachi officials.

One U.S. government official scoffed this week at the argument advanced by nonproliferation advocates that Washington should consider restraining commercial development of laser enrichment on the basis that it might help contain global spread of the technology.

"That's an esoteric point that does not have application in the real world," said the official, who declined to be named.

A U.S. decision not to license Global Laser Enrichment would mean that rights to the technology revert back to Australia, where Washington would no longer have control over it, potentially opening the door to greater proliferation concerns, according to the government official and GE-Hitachi representatives.

Editor's Note: Look for the next article in the series on Friday, Aug. 6.