

PRM-70-9  
(75FR80730)

DOCKETED  
USNRC

March 9, 2011 (8:45 am)

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

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## PUBLIC SUBMISSION

<b>As of:</b> March 09, 2011
<b>Received:</b> March 08, 2011
<b>Status:</b> Pending_Post
<b>Tracking No.</b> 80c0369a
<b>Comments Due:</b> March 08, 2011
<b>Submission Type:</b> Web

**Docket:** NRC-2010-0372  
Francis Slakey - Nuclear Proliferation Assessments

**Comment On:** NRC-2010-0372-0003  
Francis Slakey on Behalf of the American Physical Society; Receipt of Petition for Rulemaking

**Document:** NRC-2010-0372-DRAFT-0042  
Comment on FR Doc # 2010-32242

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### Submitter Information

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### General Comment

See attached file(s)

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### Attachments

**NRC-2010-0372-DRAFT-0042.1:** Comment on FR Doc # 2010-32242

Template = SECY-067

DS 10

Secretary, U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001.

ATTN: Rulemakings and Adjudications Staff  
RE: Nonproliferation Review of New Fuel Cycle Technologies  
FROM: Matthew Bunn, Harvard Kennedy School

I am writing to support the American Physical Society's petition to the Nuclear Regulatory Commission (NRC) (Docket ID NRC-2010-0372<sup>1</sup>), that would require those seeking NRC approval of new uranium enrichment or plutonium reprocessing technologies to provide a formal Nuclear Proliferation Assessment (NPA) as part of their application.

A fundamental responsibility of the NRC is to ensure that the activities it licenses are not "inimical to the common defense and security." Commercial development and deployment of new technologies that made the production of nuclear weapons material cheaper, easier to master technologically, or more difficult to detect could well be inimical to the common defense and security, and it is the NRC's legal obligation to protect against such possibilities in the licensing process. Such commercial development and deployment might suggest new avenues to potential proliferants or create new pathways for leakage of technology. For example, in the (admittedly unlikely) event that someone were someday to invent a means to enrich uranium on a desktop that was also not difficult to master technologically, knowledge of the existence of this technology could itself lead proliferating states to pursue that option, to the detriment of U.S. and world security. Current arrangements do not provide for adequate consideration of these issues before a license is issued; none of the issues that are currently required to be addressed in the licensing process really adds up to the "net effect" of giving due consideration to proliferation.

As APS notes in its petition, the Atomic Energy Act already requires the government to perform an NPA for each nuclear cooperation agreement entered into with a foreign country. In many cases these cooperation agreements pose fewer nonproliferation risks than does licensing of a new enrichment or reprocessing technology. Hence a risk-informed approach would suggest that NPAs should be performed in the case of licensing new fuel cycle technologies as well. The successful performance of many NPAs for civilian nuclear cooperation agreements makes clear that the government has the ability to perform NPAs.

Arguably the nonproliferation assessments that the Department of Energy and its National Nuclear Security Administration (NNSA) have performed as part of the National Environmental Policy Act (NEPA) review for several major recent projects provide an even better example.

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<sup>1</sup> Federal Register, December 23, 2010; Document Citation 75 FR 80730 <http://federalregister.gov/a/2010-32242>

Such reviews have been performed to help inform decisions about disposition of excess plutonium;<sup>2</sup> management of spent research reactor fuel;<sup>3</sup> and, most recently, the Global Nuclear Energy Partnership (GNEP).<sup>4</sup> Each of these assessments focused on the proliferation risks of a proposed fuel-cycle-related activity; explored those risks in a nuanced way, comparing the pros and cons of a variety of alternatives; drew on expertise from a variety of sources, both from within the government and outside; and informed policy-making in important ways.<sup>5</sup> In short, such assessments can be done, and can make an important and useful difference.

In the case of laser uranium enrichment currently being considered, a thorough nonproliferation assessment might well conclude that centrifuge enrichment technology is already so small and easy to hide that the potentially even smaller size and lower power requirements of laser enrichment technology would have little effect. Or it might conclude the opposite. The point is not to prejudge the issue, but to insure that a thorough review of all the proliferation issues posed by the technology is performed – not only for this technology, but for other technologies in the future.

The APS requests a rule change under which license applicants would themselves be the ones to prepare an NPA. If that were the approach taken, it would be important for the NRC to work with other government agencies to perform a thorough government-wide review of the issues, and of the applicant's NPA, rather than simply accepting the applicant's NPA. There are two problematic aspects of an NPA prepared by a license applicant:

- (1) applicants will presumably have an inherent bias in favor of their proposed technology; and
- (2) applicants may not have the expertise and information needed for a complete assessment (such as expertise on safeguards approaches for different technologies, what technologies past proliferating states have pursued, or intelligence information on current proliferation issues related to particular technologies).

Hence, in my judgment it will ultimately be crucial for the government to perform an NPA of its own, whether it begins with reviewing an applicant's NPA or not. Past experience makes clear that the government has the capability to prepare an NPA, though it would be desirable for the NRC to reach out to other agencies to contribute, as is required to be the case for NPAs for civilian nuclear cooperation agreements under the Atomic Energy Act.

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<sup>2</sup> *Nonproliferation and Arms Control Assessment of Weapons-Usable Fissile Material Storage and Excess Plutonium Disposition Alternatives*, DOE/NN-0007 (Washington, D.C.: U.S. Department of Energy, January 1997).

<sup>3</sup> *Nonproliferation Impacts Assessment for the Management of the Savannah River Aluminum-Based Spent Nuclear Fuel* (Washington, D.C.: U.S. Department of Energy, December 1998).

<sup>4</sup> *Draft Nonproliferation Impact Assessment for the Global Nuclear Energy Partnership Programmatic Alternatives* (Washington, D.C.: U.S. Department of Energy, December 2008).

<sup>5</sup> Disclaimer: I was directly involved in drafting the first two of these three assessments.

Fundamentally, the issues surrounding U.S. efforts to control the spread of nuclear weapons are simply too important to be ignored, or treated as included by implication with other issues, in the licensing process for new technologies that could have a substantial nonproliferation impact. Formal consideration of nonproliferation impacts in licensing proceedings for new fuel cycle technologies is long overdue, and the NRC should take action to put such formal consideration in place.

## Rulemaking Comments

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**From:** Gallagher, Carol  
**Sent:** Wednesday, March 09, 2011 8:31 AM  
**To:** Rulemaking Comments  
**Subject:** Comment letter on PRM-70-9  
**Attachments:** NRC-2010-0372-DRAFT-0042.pdf

Van,

Attached for docketing is a comment letter from Matthew Bunn on the above noted PRM (75 FR 80730) that I received via the regulations.gov website on 3/08/11.

Thanks,  
Carol