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DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
001. email	Jessica Stern to Coit Blacker and Daniel Poneman, re: [PDD] [partial] (1 page)	06/12/1995	P1/b(1) VZ 04/07/2023 Released in Part
~~002a. memo~~	~~Charles Curtis to Daniel Poneman, re: Comments on Draft PDD on NIS Nuclear Security (1 page)~~	~~06/13/1995~~	~~P1/b(1)~~ KDE 12/31/2019
002b. paper	Department of Energy Comments on Presidential Decision Directive on NIS Nuclear Security [partial] (3 pages)	06/13/1995	P1/b(1) VZ 04/07/2023 Released in Part
~~003a. memo~~	~~Deputy Assistant Secretary of Defense of Threat Reduction Policy to the Special Assistant to the President and Senior Director for Nonproliferation and Export Control, re: PCAST Report: OSD Comments on Draft PDD and Response to Report (2 pages)~~	~~06/09/1995~~	~~P1/b(1)~~ VZ 04/07/2023
003b. paper	OSD Comments on Draft Decision Directive on NIS Nuclear Security (5 pages)	06/09/1995	P1/b(1)
~~003c. paper~~	~~OSD Proposed Changes to NSC Response to PCAST Recommendations (2 pages)~~	~~06/09/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~004. memo~~	~~Anthony Lake and Laura D'Andrea Tyson to the President, re: Uranium and the U.S.-Russian Agreement on Highly Enriched Uranium (2 pages)~~	~~n.d.~~	~~P1/b(1)~~ VZ 04/07/2023
~~005. memo~~	~~[duplicate of 004] (2 pages)~~	~~n.d.~~	~~P1/b(1)~~ VZ 04/07/2023
~~006. memo~~	~~Norman Wulf to the Special Assistant to the President and Director for Nonproliferation, re: ACDA Comments on the Draft Presidential Decision Directive on FSU Nuclear Security and Responses to the Recommendations of the PCAST Report (4 pages)~~	~~06/09/1995~~	~~P1/b(1)~~ VZ 04/07/2023

COLLECTION:
Clinton Presidential Records
National Security Council
Nonproliferation and Export Controls (Samore, Gary)
OA/Box Number: 3128

FOLDER TITLE:
PCAST [President's Committee of Advisers on Science & Technology] [2]

2014-0880-F
ke2697

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P3 Release would violate a Federal statute [(a)(3) of the PRA]
P4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

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PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).
RR. Document will be reviewed upon request.

Freedom of Information Act - [5 U.S.C. 552(b)]

b(1) National security classified information [(b)(1) of the FOIA]
b(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
b(3) Release would violate a Federal statute [(b)(3) of the FOIA]
b(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
b(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
b(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

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DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
~~007. memo~~	~~Jane Wales to Dan Poneman and Chip Blacker, re: Modifications to the Draft PDD on NIS Nuclear Security and to the Draft Response to the PCAST (4 pages)~~	~~06/07/1995~~	~~P1/b(1)~~ VZ 04/07/2023
008. paper	The PCAST Panel's Findings in Summary [partial] (10 pages)	n.d. Released in Part	~~P1/b(1),~~ P3/b(3) VZ 04/07/2023
~~009a. memo~~	~~John Gibbons to the Secretary of State, et al., re: Fissile Materials Report from the President's Committee of Advisers on Science and Technology (1 page)~~	~~04/20/1995~~	~~P1/b(1)~~ VZ
009b. report	President's Committee of Advisors on Science and Technology, Report of the Panel on US-FSU Cooperation to Protect, Control, and Account for Weapons-Usable Nuclear Materials [partial] (52 pages)	03/28/1995 Released in Part	~~P1/b(1),~~ P3/b(3) VZ 04/07/2023
~~010. memo~~	~~John Deutch to Tony Lake, re: [PCAST Report] (1 page)~~	~~n.d.~~	~~P1/b(1)~~ VZ 04/07/2023
~~011. paper~~	~~[PCAST Trip Summary] (6 pages)~~	~~ca. 02/1995~~	~~P1/b(1)~~ VZ 04/07/2023
012. agenda	Meeting of the PCAST Panel on US-FSU Cooperation to Control and Account for Nuclear Materials [partial] (2 pages)	01/27/1995 Released in Part	P1/b(1) VZ 04/07/2023

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Clinton Presidential Records
National Security Council
Nonproliferation and Export Controls (Samore, Gary)
OA/Box Number: 3128

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2014-0880-F
ke2697

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Freedom of Information Act - [5 U.S.C. 552(b)]

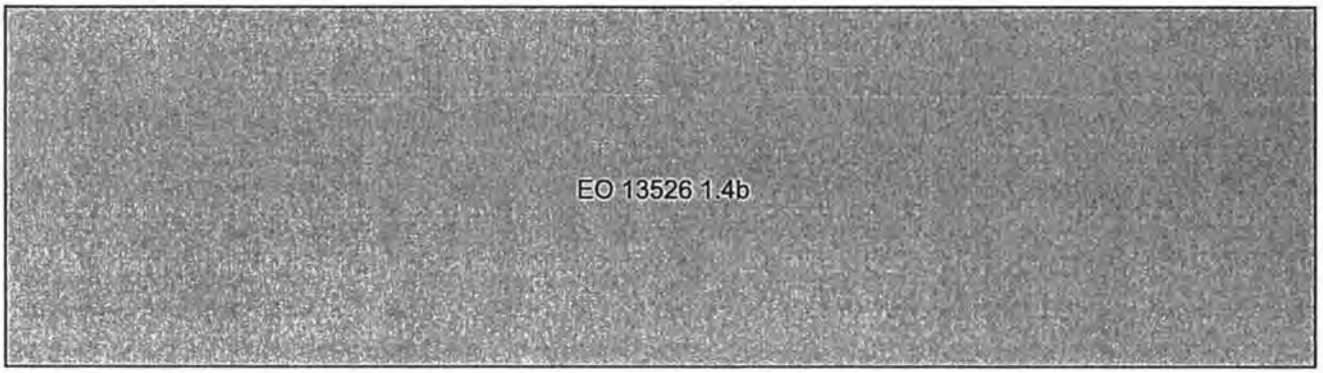
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PDD

Poneman, Daniel B.

From: Stern, Jessica E.
To: Blacker, Coit D.; Poneman, Daniel B.
Cc: /R, Record at A1; @RUSSIA - Russia/Ukraine
Subject: PDD: jcs view on naval fuel ~~[CONFIDENTIAL]~~
Date: Monday, June 12, 1995 9:43AM



I would suggest that this issue be put on the agenda for the next meeting on the PDD.

Document declassified in part
Per E. O. 13526
2016-0129-M (1.02) 10/24/2017

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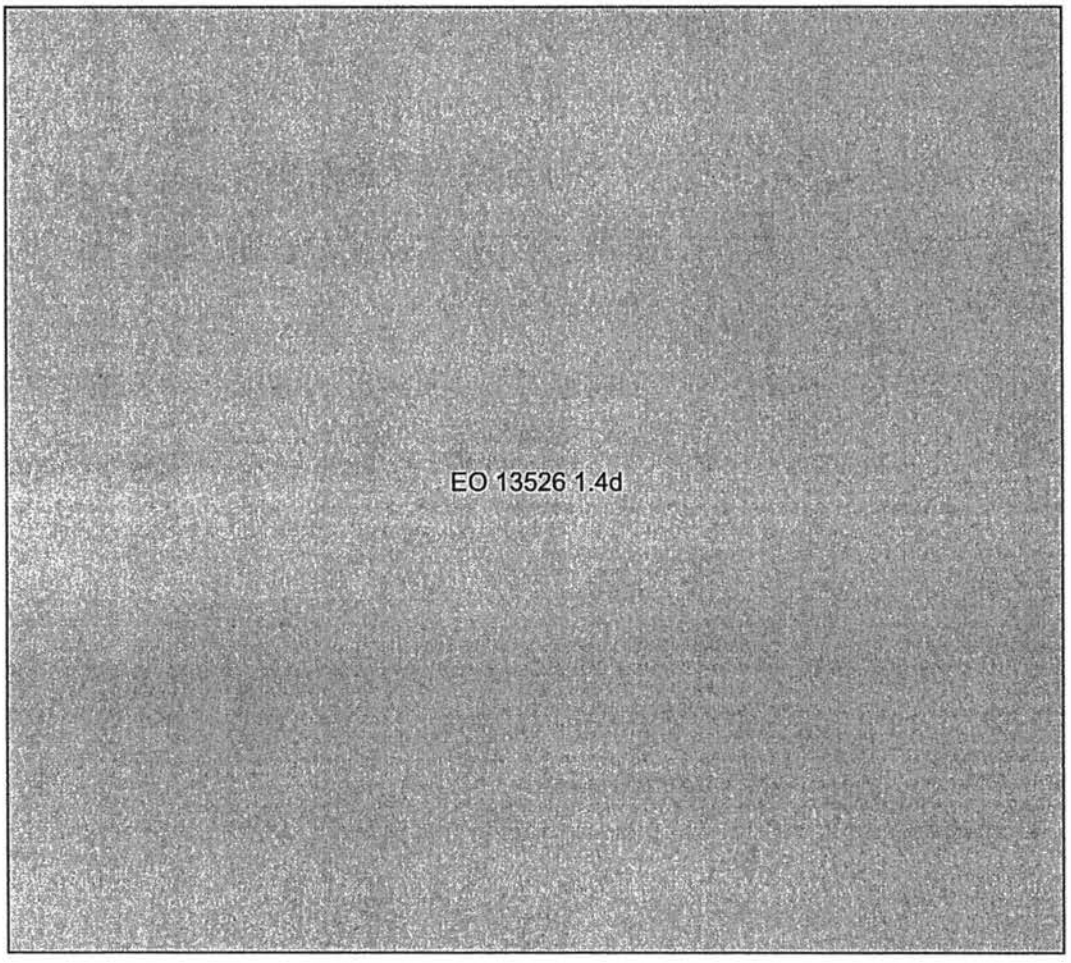
June 13, 1995

DEPARTMENT OF ENERGY
COMMENTS ON PRESIDENTIAL DECISION DIRECTIVE
ON NIS NUCLEAR SECURITY

COMMENTS ON PLAN OF ACTION:

Secretary of Energy Actions

Paragraph 1



Document released in part
Per E. O. 13526
2016-0129-M (1.04) 7/6/2016

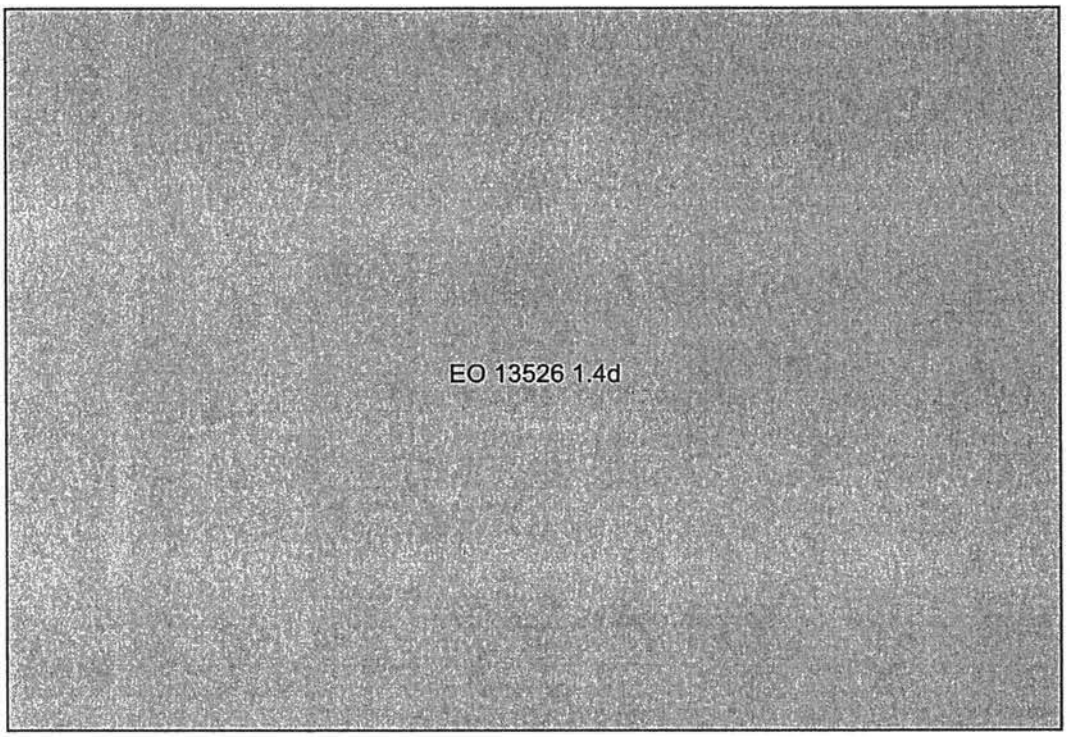
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Paragraph 2

Paragraph 5

Paragraph 7



Secretary of Defense Actions

Paragraph 2 The Department of Defense (DoD) is tasked with leading a review on consolidation, transfer, and purchase of particularly vulnerable stocks of weapons-usable fissile materials. While it is appropriate for DoD to be responsible for any actual transfer of the material, the Department of Energy (DOE) should lead the analysis of the opportunities as the capability to perform this assessment is largely based in DOE and some of the analytical work may overlap with the MPC&A action plan.

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Director of Central Intelligence (DCI) Actions

Paragraph 1 The DCI is assigned the action to analyze MPC&A vulnerabilities worldwide and analyze prospects for nuclear nonproliferation. Because DOE chairs JAEIC, the assignment solely to DCI is confusing. Both analyses should be implemented in concert with DOE.

Paragraph 2. The intelligence assessment outlined in paragraph 2 should be supplemented with Policy Analysis from relevant agencies.

Secretary of State Actions

Paragraph 1. The Department of State has been tasked to "develop a plan to strengthen and, where necessary, establish programs to improve nuclear security and to combat nuclear smuggling in the NIS." Similarly, the Department of Energy has been tasked to "Develop a comprehensive prioritized nuclear material security and accounting plan by August 31, 1995." This seems to indicate overlap in responsibility for drafting such a report. Since DOE will draft a comprehensive MPC&A plan, the Department of State should draft a plan focused solely on the issue of nuclear smuggling.

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OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
2600 DEFENSE PENTAGON
WASHINGTON, DC 20301-2600

INTERNATIONAL
SECURITY POLICY

In reply refer to:
I-95/35552

MEMORANDUM FOR: SPECIAL ASSISTANT TO THE PRESIDENT
AND SENIOR DIRECTOR FOR
NONPROLIFERATION AND EXPORT CONTROL

SPECIAL ASSISTANT TO THE PRESIDENT
AND SENIOR DIRECTOR FOR RUSSIA,
UKRAINE AND EURASIA

FROM: DEPUTY ASSISTANT SECRETARY OF DEFENSE
FOR THREAT REDUCTION POLICY Bob Loch 9 June 95

SUBJECT: PCAST Report: OSD Comments on Draft PDD and Response to Report (U)

(C) The PCAST report provides an important diagnosis of the serious problems we face in implementing our fissile material policy with the Former Soviet Union. OSD welcomes the report's conclusions, and believes most should be implemented through the proposed Presidential Decision Directive. Detailed comments on the draft PDD and response to the PCAST report are attached.

(C) The most critical need is for a strong White House hand to manage the FSU fissile material issue in all its varied aspects. The Administration requires firm and continuing leadership to establish policy priorities in the fissile material area and to devise strategies for dealing with Russia and securing necessary Congressional funding. The strategy for Russia should fully implement the top-down/bottom-up approach discussed by the Standing Committee on 6 June. There is a real need for pressure from the top of the Russian Government, directed particularly to Minatom, to take the actions necessary to deal with the vital security issues at stake. At the same time, we do not want to risk hindering successful ongoing activities, such as those undertaken by U.S. and Russian laboratories. In that regard, we do not require a Special Negotiator or single Point of Contact for dealing with Russia, nor should we seek a single Point of Contact on their side; indeed, such steps could prove counterproductive.

(C) U.S. policy on fissile material issues must be an integral part of our overall policy toward the states of the Former Soviet Union. It can only move forward in the context of the U.S.-FSU relationship as a whole, using all the resources available from that broader relationship. As a result, OSD strongly believes the

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management function must reside in the National Security Council staff, reflecting its high Presidential priority and "supra-agency" character. We further believe that the function should be performed by a full-time NSC staff Director, with intimate knowledge of the region. We would recommend against nomination of a new Senior Director for FSU fissile material issues; rather than creating a new locus of activity, we need greatly improved internal coordination on ongoing and future action.

Attachment:
Line-in, line-out changes

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OSD PROPOSED CHANGES TO
NSC RESPONSE TO PCAST RECOMMENDATIONS

OSD has the following comments to the NSC response to PCAST:

1. Concur with PCAST recommendation and NSC draft response.

2. Concur with PCAST recommendation. Nonconcur with NSC draft response. The most critical need is for a strong White House hand to manage the FSU fissile material issues all its varied aspects. The Administration requires firm and continuing leadership to establish policy priorities in the fissile material area and to devise strategies for dealing with Russia and securing necessary Congressional funding. Past difficulties in resolving issues in timely fashion (e.g., Sapphire, MPC&A budget authority) underscore the need for appointment of full-time NSC Director to manage these issues. Such an appointment would be welcomed by the FSU and public as demonstrating the seriousness of the Administration with respect to fissile material issues.

3. Concur with PCAST recommendation. Nonconcur with NSC draft response. The current structure, including the sub-IWGs referenced in the NSC response (MPC&A, Nuclear Smuggling, Fissile Materials/STI, and Plutonium Disposition), does not and will not bring the necessary focus to the fissile material area. An NSC Director should be appointed with full-time responsibility for FSU fissile material policy issues. This official would oversee all nuclear materials security and nuclear smuggling matters on a day-to-day basis; ensure full coordination of on-going and prospective initiatives undertaken individually or collectively by government agencies; manage the development of policy priorities; and take the lead in developing an overall strategy in this area.

4. Concur with PCAST recommendation but modify NSC draft response to require that the Secretary of Energy develop the proposed plan in coordination with the Departments of Defense and State and other relevant agencies and that the plan address expected additional efforts by the FSU states and a strategy for securing additional allied resource commitments

5. Concur with PCAST recommendation and NSC draft response. It should be noted, however, that, given current budget limitations, it may not be possible to fully meet the identified need.

6. Concur with PCAST recommendation and NSC draft response.

7. Concur with PCAST recommendation and NSC draft response.

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8. Concur with PCAST recommendation and NSC draft response.

9. Concur with PCAST recommendation and NSC draft response.

10. Concur conditionally with PCAST recommendation and NSC draft response. The plan of action for appropriate assistance should be based on an assessment of all aspects of the Russian request, including the proliferation risks, Russian security practices and capabilities, and U.S. national concerns. The requirement for such an assessment is missing in both the PCAST recommendation and NSC draft response.

Programmatic Recommendations (Last page of the NSC Draft Response to the PCAST Report). Concur with PCAST recommendation and NSC draft response.

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INFORMATION

MEMORANDUM FOR THE PRESIDENT

FROM: ANTHONY LAKE
LAURA D'ANDREA TYSON

SUBJECT: Uranium and the U.S.-Russian Agreement on Highly-Enriched Uranium

The $12 billion value of the highly-enriched uranium agreement between Russia and the U.S. Enrichment Corporation (or "USEC", as executive agent for the United States) breaks down into two components: roughly $8 billion for the enrichment services and roughly $4 billion for the natural uranium feed component. Russia cannot be paid currently for the natural uranium feed component of the agreement, however, under the terms of a 1992 suspension agreement between Russia and the Department of Commerce to settle antidumping claims against Russian uranium.

The natural uranium impasse creates two problems. First, Russian Atomic Energy Minister Mikhailov is threatening to break the HEU agreement, which would stop the process of eliminating HEU in Russia by converting it into low-enriched uranium. Second, USEC worries that its ability to contribute $1.5 billion to the U.S. Treasury from its upcoming privatization will be compromised by a $4 billion liability in unsold uranium inventory. Recent Senate hearings (before Nunn and Domenici), news reports and analyses have generated increasing concern that the national security benefits of the HEU Agreement are being jeopardized by USEC for narrow pecuniary interests.

This issue pits our overarching nonproliferation and national security interests in the full and timely implementation of the HEU agreement against a cascade of other priorities: rigorous enforcement of our trade laws, maximizing the value to U.S. taxpayers of USEC as it is privatized, and avoiding trade disputes with Canada and others under NAFTA and the GATT.

Agencies have developed an approach designed to sell the natural uranium in a manner that is timely, while minimizing the price-suppressive effect on the U.S. market; to pay Russia for the natural uranium value sooner than is now possible, thereby supporting continued elimination of bomb-grade material in the FSU; and to facilitate the privatization of USEC. The approach involves allowing the full amount of natural uranium related to

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cc: Vice President
Chief of Staff

the HEU Agreement to enter the market in a controlled fashion through a number of "tiers", intended to mitigate the inevitable price suppressive effects that any such increase of supply will produce. (The first tier is to increase sales to foreign markets; U.S. markets should share more of this burden with Europe and Japan, which restrict uranium imports more tightly than we do.)

Some of the proposed "tiers", however, would require amendment of -- and place great strain upon -- the anti-dumping suspension agreement that now controls Russian uranium imports. We therefore believe we need to seek legislative authority to waive antidumping duties in the event that the suspension agreement will collapse, in which event Russian natural uranium would be blocked from the U.S. market through confiscatory duties. All national security agencies -- joined by OMB, CEA and USEC -- support this legislative relief, on the grounds that the national interest in continuing to eliminate HEU from the former Soviet arsenal is compelling and the authority to waive duties against uranium extracted from former Soviet nuclear weapons is unique and so narrow as to set no precedent in eroding U.S. trade protection. We agree.

Commerce and USTR, however, have serious reservations about seeking any legislative exceptions to our trade laws. Despite the unique circumstances of this case, they are concerned about provoking strong opposition from the antidumping community at large. Even if overcome, that opposition could divert political capital needed to press other trade issues in Congress. They also note that this approach could well provoke challenges from Canada, Australia, and others as inconsistent with NAFTA and GATT. (In February, Canada dropped a NAFTA suit against us on assurances that the natural uranium would not be exempted from antidumping duties; Ottawa likely could revive its suit. Australia and other foreign uranium suppliers could seek relief from the World Trade Organization.)

Given the stakes involved, we will need your approval for any course we may propose. We are now seeking to narrow differences between agencies, but you may need to decide whether or not to pursue the legislative authority needed to implement a proposal to allow more Russian uranium into the United States. Meanwhile, we are developing both a legislative strategy for House and Senate, and a diplomatic strategy vis-a-vis Canada, Europe and Japan, to implement this approach in the event that we do seek legislative relief. We need a final U.S. position by the end of June, when the Vice President travels to Moscow to discuss this and other sensitive issues with Prime Minister Chernomyrdin. The Congress expects to hear of our plans on this issue shortly thereafter.

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INFORMATION

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LAURA D'ANDREA TYSON

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the HEU Agreement to enter the market in a controlled fashion through a number of "tiers", intended to mitigate the inevitable price suppressive effects that any such increase of supply will produce. (The first tier is to increase sales to foreign markets; U.S. markets should share more of this burden with Europe and Japan, which restrict uranium imports more tightly than we do.)

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Given the stakes involved, we will need your approval for any course we may propose. We are now seeking to narrow differences between agencies, but you may need to decide whether or not to pursue the legislative authority needed to implement a proposal to allow more Russian uranium into the United States. Meanwhile, we are developing both a legislative strategy for House and Senate, and a diplomatic strategy vis-a-vis Canada, Europe and Japan, to implement this approach in the event that we do seek legislative relief. We need a final U.S. position by the end of June, when the Vice President travels to Moscow to discuss this and other sensitive issues with Prime Minister Chernomyrdin. The Congress expects to hear of our plans on this issue shortly thereafter.

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ASSISTANT DIRECTOR

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

JUN 9 1995

MEMORANDUM FOR THE SPECIAL ASSISTANT TO THE PRESIDENT AND DIRECTOR FOR NONPROLIFERATION

SUBJECT: ACDA Comments on the Draft Presidential Decision Directive on FSU Nuclear Security and Responses to the Recommendations of the PCAST Report

ACDA has organizational and substantive comments to the draft PDD.

Organizational Comments:

ACDA proposes that Vice President Gore be named overall head of the U.S. fissile material effort, and that the GCC be used as an umbrella channel with Russia for resolution of difficult issues. A smaller version of the Standing Committee consisting of the five policy agencies (ACDA, OSD, STATE, JCS, and DOE) plus OSTP would report through Leon Fuerth to the Vice President. ACDA would serve as the Secretariat for this rump group, which would develop fissile material strategies and issues for discussion at the Gore-Chernomyrdin Commission (GCC) meetings. The rump group would be chaired by a senior NSC staff member and would work to coordinate existing agency programs and oversee the work of the four fissile material sub-IWGs. Ambassador Goodby would continue in his role as the negotiator for Material Protection Control and Accounting and Safeguards, Transparency and Irreversibility issues, and ACDA would continue to provide staff and travel support for Ambassador Goodby.

There are several advantages to this organizational structure. Fissile material issues have industrial, economic, and security dimensions. The GCC was created, and is uniquely suited, to deal with these types of issues. By moving oversight of fissile material issues solidly into the GCC, the United States will be able to foster greater participation with more ministries on the Russian side (e.g., with GAN) and counter more effectively resistance from MINATOM to accept certain types of U.S. assistance and transparency arrangements.

This organizational structure satisfies the PCAST recommendations to give fissile material issues higher-level attention and to strengthen the interagency process to deal with fissile material issues more effectively. When required, for example, Vice President Gore could be the Administration spokesperson for fissile material issues, and intervene as

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necessary, to resolve issues that require attention at higher levels. Adding a secretariat function would also facilitate the interagency sharing of information on agency activities and project planning without requiring diversion of a senior NSC staffer's time.

Substantive Comments:

ACDA'S role within the PDD should be stated more clearly and enhanced:

1. The draft PDD should include a proposal that ACDA:

a. develop a plan for utilizing IAEA assets to:

-- assist states in the FSU in developing and implementing sound MPC&A programs; and

-- organize its available data so as to be able to assist in identifying the sources of seized material if possible and where requested

b. work with the Department of State to:

-- promote adherence to the convention on the physical protection of nuclear materials and utilize the convention's provisions to the extent possible to address nuclear smuggling issues and;

-- identify, develop, and promote new multilateral arrangements, if any, that are needed to supplement other means of combating nuclear smuggling

2. P. 2, under DOE item 1, modify first sentence to read:
Develop in consultation with the Director of ACDA, a comprehensive prioritized nuclear material security and accounting plan...

3. P. 5, under section on Secretary of State, modify first sentence and insert a second sentence to read:
Develop in consultation with the Director of ACDA a plan to strengthen, and where necessary, establish programs to improve nuclear security and to combat nuclear smuggling in the NIS. In consultation with ACDA, develop a plan to support relevant negotiations, including support of Ambassador Goodby and delegation preparations.

4. In addition, ACDA disagrees with several comments made at the Standing Committee meeting on June 6 to the effect that multilateral support for FSU fissile material controls should be discouraged. To the contrary, ACDA believes that there could be significant benefit in involving other countries, multilateral institutions such as the IAEA, and other multilateral fora such as the G-7. Indeed, this is already occuring through Germany's strong interest in working to

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counter nuclear smuggling, and through other donor states' assistance coordinated by the IAEA to MPCA programs in the NIS. ACDA believes this multilateral cooperation should be encouraged and expanded, and that the PDD should reflect the importance of such activities and associated consultations.

Additional Comments on the PDD Text:

5. P. 2, 6th line before Plan of Action, modify the sentence to add the following highlighted words:

> ACDA will provide input to other agencies based on its experience in safeguards, physical protection, and related technologies, and in nonproliferation negotiations.

Justification: ACDA's expertise extends beyond safeguards, per se, and the additional areas relevant to the PDD should be acknowledged.

6. P. 2, last line, modify the guiding principles to add the following highlighted words:

> The plan will be based on three guiding principles: focusing on addressing the most urgent proliferation risks (including implementing quick fixes wherever possible); fostering the indigenous safeguards and security capabilities of the FSU states and working in cooperation with those states to improve these capabilities; and building toward national-level MPC&A systems.

Justification: a key recommendation of the PCAST report and Embassy Moscow is that, to be accepted, support to FSU MPC&A systems must be approached carefully and characterized as "cooperation" rather Western assistance to improve a flawed system. Fostering indigenous capabilities is important, but it is only one part of this approach.

7. P. 4, item 3 under section on Secretary of Defense, change to read as follows:

> Prepare, in coordination with the Director of OMB, legislation including funding mechanisms and logistics and sufficient authority to facilitate emergency transfer to safe storage outside the FSU of vulnerable stocks of fissile materials.

Justification: It is not so much a fund per se that would be needed, but funding mechanisms and logistics for transferring such funds and for bringing such authority to bear in a timely and effective manner in preperation for Sapphire-like projects in the future. Also, transfer to safe storage at new or upgraded facilities within the FSU would more logically fall under Nunn-Lugar funds or MPC&A lab-to-lab assistance rather than requiring a new or separate fund.

DECL: 6/9/15

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8. P. 3, item 3, first line, change to read:
Designate measures for <u>improving</u> effective protection, control, and accounting for nuclear materials as a critical mission of the relevant national laboratories and nuclear facilities.

Justification: It could cost billions of dollars to "assure" effective MPC&A in the FSU.

9. P. 5, add the following minor clarification to the 2nd sentence under Secretary of State actions:
The plan will include consideration of issues such as maintenance of confidentiality, purchase of equipment <u>produced indigenously in the NIS,</u> and offers of reciprocal access <u>to U.S. facilities</u> where this would further these programs.

N. S. Wulf
Norman Wulf, Acting

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EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20500

7 June 1995

MEMORANDUM FOR DAN PONEMAN
CHIP BLACKER

FROM: JANE WALES

SUBJECT: Modifications to the Draft PDD on NIS Nuclear Security and to the Draft Response to the PCAST

The draft PDD provides an excellent basis from which to build. I believe that a PDD should include the level of detail that is necessary to ensure that the President's intentions are carried out. In this light, I support the inclusion of a specific "plan of action" in the PDD, as in the current draft, with the following additions:

(1) Full-Time Coordinator

An important recommendation of the PCAST report, the creation of a full-time position with sufficient authority to ensure that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented, is not addressed in the current draft. The President clearly embraced this recommendation, and that decision should be reflected in the PDD. There is precedent in previous PDDs for discussion of staff-level assignments to ensure that relevant policy is carried out (see, for example, PDD-18). There appeared to be support for this point from all agencies represented at the Standing Committee meeting.

I would therefore suggest the following specific changes. On p.2, the first sentence of the second paragraph should be changed to read, "The NSC will *coordinate* USG efforts and *will exercise* oversight of nuclear security and nuclear smuggling programs, *and will appoint an additional Director exclusively for this purpose.*" On p.6, the following sentence should be added to the end of the first paragraph: "The NSC Standing Committee will be staffed by a dedicated, Director-level NSC staff member who will be responsible for coordination and problem-solving."

(2) Sense of Urgency and Priority

A more strongly worded opening would better reflect the sense of urgency and priority which both the President and the NSC clearly

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assign to this issue. To better capture this, I would suggest the deletion of the current first two paragraphs of the "policy principles" section, and their replacement with the following paragraphs:

"Ensuring that plutonium and highly-enriched-uranium (HEU) do not fall into the hands of potential proliferators is central to the national security of the United States. Access to these materials is the primary technical barrier to nuclear proliferation in the world today. With the collapse of the Soviet Union and the ensuing political, economic, and social turmoil in the former Soviet states, the world is faced with an unprecedented crisis on the "supply side" of nuclear proliferation.

Under current conditions, virtually all of the weapons-usable material at the roughly 100 former Soviet facilities with such materials is potentially at risk. Already, there have been multiple seizures of kilogram quantities of stolen weapons-usable uranium and of hundreds of grams of weapons-usable plutonium. There is no evidence that enough material for a bomb has yet fallen into the hands of states such as Iran, Iraq, Libya, or North Korea, but such a proliferation disaster could occur at any time. This problem is among the most serious and urgent threats to national security the United States faces in the coming decade. Measures to reduce this threat are a top national security priority, and will be given commensurate resources and attention. Action now is a prudent investment to forestall much larger costs and risks in the future.

We also suggest striking the first sentence of the following paragraph, "Reducing the risk . . . is an urgent national security priority" (since the language above is similar). In that same paragraph, we would strike the word "growing" on line 4, replace "need also to maintain" on line 8 with "will continue to seek", and add "will accelerate our own bilateral efforts with NIS countries, and" after the final "we" on line 4.

Other Suggestions

On p.1, third line of the last paragraph, strike the phrase "at the sites", as security during transport is also an issue.

On p. 2, second paragraph, we would like to add: "OSTP will continue to provide technical and policy input to these programs."

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On p.2, second paragraph, line 13, insert the word "will" after the phrase "Department of State".

On p.3, under point 3, line 5, replace "mission." with "mission, and shall provide for such reciprocal access to U.S. MPC&A systems as may be necessary and appropriate to secure NIS cooperation and provide MPC&A experience and training."

On p.3, under point 5, line 2, insert "and related" after the word "nuclear".

On p.4, under point 1, top of page, line 3, replace "weapons." with "weapons, including appropriate measures of reciprocal access to MPC&A systems."

Comments on the draft reply to PCAST

My concern is that the President will fail to gain credit for the seriousness with which he has responded to the PCAST report. He, and the NSC staff, have been open, responsive, and energetic in acting on the panel's recommendations. Credit is due. I therefore urge a very different tone, and emphasis on areas of agreement (which are many) rather than on the sole point of disagreement.

(1) The reply to PCAST recommendation 2 spends most of its time explaining why a "czar" (a word not used in the PCAST report) would be inappropriate. The tone of this section is that of creating a strawman which can then be knocked down. Both paragraphs in this section should be replaced with a single sentence, drawn from the PDD: "The NSC will coordinate USG efforts and will exercise oversight of nuclear security and nuclear smuggling programs, and will appoint an additional Director exclusively for this purpose."

(2) The reply to recommendation 3 carries the same defensive tone. The entire first paragraph should be struck, along with the first sentence of the second paragraph. This section would therefore begin with the sentence, "In order to ensure that this issue . . . ."

(4) In the reply to recommendation 7, line 2, strike the word "already".

We also suggest that the following paragraph be added:

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"To further focus and provide additional clout to U.S. efforts in eliciting Russian cooperation, the U.S. chief negotiator in this area, Ambassador Jim Goodby, will be given a Presidential appointment."

cc: Jessica Stern

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THE PCAST PANEL'S FINDINGS IN SUMMARY

LARGE AMOUNTS OF Pu AND HEU IN THE FORMER SOVIET UNION ARE INADEQUATELY SAFEGUARDED.

THESE MATERIALS REPRESENT AN IMMEDIATE AND SERIOUS THREAT TO U.S. & WORLD SECURITY.

COOPERATIVE US-FSU PROGRAMS TO REDUCE THIS THREAT EXIST AND RECENTLY HAVE BEGUN TO MAKE PROGRESS.

THESE PROGRAMS HAVE BEEN AND CONTINUE TO BE HAMPERED BY INADEQUATE RESOURCES AND OTHER DIFFICULTIES IN BOTH THE UNITED STATES AND THE FSU.

SUBSTANTIAL FURTHER STEPS ARE NEEDED AND ATTAINABLE, BUT WILL REQUIRE PRESIDENTIAL LEADERSHIP.

THE MONETARY AND POLITICAL COSTS OF THE NEEDED PREVENTATIVE MEASURES ARE FAR LESS THAN THOSE LIKELY TO RESULT FROM FAILURE TO ADDRESS THIS PROBLEM ADEQUATELY.

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LARGE AMOUNTS OF Pu AND HEU IN THE FORMER SOVIET UNION ARE INADEQUATELY SAFEGUARDED.

ALTOGETHER THERE ARE ABOUT 170 TONS OF Pu AND ABOUT 1000 TONS OF HEU IN THE FSU. ABOUT HALF OF THIS MATERIAL IS IN NUCLEAR WEAPONS AND IS WELL GUARDED IN THE CUSTODY OF THE MINISTRY OF DEFENSE. THE REST IS NOT IN WEAPONS, IS SPREAD AMONG SOME 100 NON-MOD SITES, AND IS INADEQUATELY GUARDED.

PREVIOUSLY, PROTECTION OF THIS MATERIAL FROM THEFT DEPENDED HEAVILY ON THE CLOSED CHARACTER OF SOVIET SOCIETY AND THE PERVASIVE OVERSIGHT BY THE KGB OF NUCLEAR MATERIALS AND PERSONNEL. NEITHER OF THESE CONDITIONS HOLDS TODAY.

MUCH OF THE Pu AND HEU IS STORED IN ORDINARY LABORATORY BUILDINGS AND STORAGE SHEDS, WITHOUT ADEQUATE FENCES, INTRUSION DETECTORS, PERSONNEL-ACCESS RESRICTIONS, ALARMS, PORTAL MONITORS, OR GUARD FORCES. RUSSIA HAS NO NATIONAL SYSTEM OF NUCLEAR MATERIALS CONTROL & ACCOUNTING, AND NO NATIONAL INVENTORY OF THESE MATERIALS EXISTS.

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THESE MATERIALS REPRESENT AN IMMEDIATE AND SERIOUS THREAT TO U.S. & WORLD SECURITY.

LIMITED ACCESS TO Pu & HEU HAS BEEN THE PRINCIPAL TECHNICAL BARRIER AGAINST THE SPREAD OF NUCLEAR-WEAPONS CAPABILITIES TO ADDITIONAL COUNTRIES AND SUBNATIONAL GROUPS.

E.O. 13526 6.2(a) (b)(3)

ECONOMIC DEPRIVATION, INSTITUTIONAL DISARRAY, AND THE EXPLOSIVE GROWTH OF ORGANIZED AND DISORGANIZED CRIME IN RUSSIA — PLUS INTENSIFIED INTEREST IN WEAPONS OF MASS DESTRUCTION IN 3rd-WORLD COUNTRIES & TERRORIST ORGANIZATIONS — HAVE GREATLY INCREASED THE DANGER OF NUCLEAR THEFT.

ALREADY THERE HAVE BEEN MULTIPLE SEIZURES, BY AUTHORITIES IN RUSSIA AND ELSEWHERE, OF KILOGRAM QUANTITIES OF STOLEN HEU AND OF HUNDREDS OF GRAMS OF Pu. THERE IS NO WAY OF KNOWING HOW MANY THEFTS HAVE GONE UNDETECTED, OR WHETHER STOLEN MATERIAL IS ALREADY IN THE HANDS OF POTENTIAL PROLIFERATORS.

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COOPERATIVE US-FSU PROGRAMS TO REDUCE THIS THREAT EXIST

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3 PRINCIPAL PROGRAMS:

- GOVERNMENT-TO-GOVERNMENT, CHANNELED THROUGH MINATOM

  FUNDING:

  FY92-FY95: $30 MILLION FOR RUSSIA

  $22.5 MILLION FOR UKRAINE

  $20 MILLION FOR KAZAKHSTAN

  FY96: $20 MILLION REQUEST

  TRANSITIONING FROM NUNN-LUGAR TO DOE

- LAB-TO-LAB

  FUNDING:

  FY92-FY95: $17 MILLION

  FY96: $40 MILLION REQUEST (DOE)

- COOPERATION WITH GAN (RUSSIAN NUCLEAR REGULATORS)

  FUNDING:

  FY92-95: $300,000

  FY96: $10 MILLION REQUEST (DOE)

TOTAL FY96 REQUEST: $70 MILLION (DOE)

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THE COOPERATIVE PROGRAMS HAVE RECENTLY BEGUN TO MAKE PROGRESS

- IN MID-1994 AN NSC-LED INTERAGENCY FISSILE-MATERIALS WORKING GROUP WAS FORMED; AN MPC&A SUBGROUP REPORTING TO THIS GROUP WAS FORMED IN FALL 1994.

- AT THEIR SEPTEMBER 1994 SUMMIT, PRESIDENTS CLINTON AND YELTSIN ENDORSED CONTINUED U.S.-RUSSIAN COOPERATION ON MPC&A.

- IN NOVEMBER 1994 PROJECT SAPPHIRE AIRLIFTED A HALF A TON OF HEU TO SECURE STORAGE IN THE UNITED STATES.

- DURING NOVEMBER AND DECEMBER 1994 A NEW SECURITY SYSTEM WAS INSTALLED AT THE KURCHATOV INSTITUTE IN MOSCOW TO IMPROVE SECURITY AND ACCOUNTING FOR OVER 100 KILOGRAMS OF WEAPONS-USABLE HEU.

- AGREEMENTS REACHED IN LATE 1994 AND EARLY 1995 IN THE GOVERNMENT-TO-GOVERNMENT AND LAB-TO-LAB PROGRAMS PROVIDE FOR COOPERATIVE EFFORTS TO IMPROVE SECURITY & ACCOUNTING FOR TONS OF MATERIAL AT SEVERAL SITES OVER THE NEXT YEAR.

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THESE PROGRAMS HAVE BEEN AND CONTINUE TO BE HAMPERED BY INADEQUATE RESOURCES AND OTHER DIFFICULTIES IN BOTH THE UNITED STATES AND THE FSU

- HUNDREDS OF TONS OF MATERIAL AT SCORES OF SITES MUST BE PROTECTED AND ACCOUNTED FOR, A TASK FOR WHICH THE RESOURCES NOW AVAILABLE ARE CLEARLY INSUFFICIENT.

- WHILE THESE PROGRAMS HAVE BEEN "COOPERATION-LIMITED", THEY ARE NOW CLEARLY RESOURCE-LIMITED. WE HAVE ALREADY HAD TO POSTPONE VALUABLE PROJECTS , WHICH THE RUSSIAN SIDE WAS WILLING TO DO, BECAUSE THE FUNDS AND PERSONNEL WERE NOT AVAILABLE.

- IN RUSSIA, BOTH MINATOM AND THE FINANCE MINISTRY REFUSE TO DIVERT SIGNIFICANT RESOURCES FROM OTHER PRIORITIES TO ADDRESS THIS ISSUE, DESPITE ORDERS FROM YELTSIN AND CHERNOMYRDIN. TURF DISPUTES AMONG THE RELEVANT RUSSIAN AGENCIES ARE FURTHER HOBBLING PROGRESS.

- IN THE UNITED STATES, LONG-STANDING INTERAGENCY DISAGREEMENTS ABOUT THE TERMS OF U.S.-FSU COOPERATION ON THIS ISSUE — ESPECIALLY ABOUT THE CONDITIONS TO BE ATTACHED TO U.S. FUNDS — HAVE NOT BEEN FULLY RESOLVED.

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SUBSTANTIAL FURTHER STEPS ARE NEEDED AND, WITH PRESIDENTIAL LEADERSHIP, ATTAINABLE. WE RECOMMEND THAT THE PRESIDENT:

- ISSUE A DECISION DIRECTIVE DESIGNATING COOPERATION WITH THE FSU ON MPC&A TO BE AN URGENT NATIONAL-SECURITY PRIORITY OF THE UNITED STATES

- APPOINT A SENIOR ADMINISTRATION OFFICIAL TO TAKE FULL-TIME RESPONSIBILITY FOR IMPLEMENTATION OF THIS COOPERATIVE EFFORT

- ESTABLISH UNDER THAT OFFICIAL'S LEADERSHIP A STRONGER AND MORE FOCUSED INTERAGENCY PROCESS DESIGNED TO BRING THE TALENTS OF ALL THE RELEVANT AGENCIES TO BEAR

- DIRECT THAT ADEQUATE FUNDS & PERSONNEL BE ALLOCATED SPECIFICALLY FOR MPC&A COOPERATION, AND THAT HIGH PRIORITY BE GIVEN TO PROTECTING THESE FROM CUTBACKS STET

- MAKE EFFECTIVE MPC&A AN IMPORTANT FACTOR IN U.S. RELATIONS WITH THE STATES OF THE FSU, AND USE THE OPPORTUNITY OF THE UPCOMING SUMMIT TO GAIN AGREEMENT ON SPECIFIC NEW STEPS TO IMPROVE MPC&A STET

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THE PANEL RECOMMENDS THAT THE PROGRAM IMPLEMENTERS

- ADOPT THREE GUIDING PRINCIPLES FOR THE PROGRAM:
  - -- FOCUS ON HIGHEST PRIORITIES
  - -- FOSTER INDIGENOUS CAPABILITIES
  - -- BUILD TOWARD NATIONAL SYSTEMS
- DEVELOP A PRIORITIZED ACTION PLAN BASED ON A SPECIFIC SET OF NEAR-TERM, MID-TERM, AND LONG-TERM GOALS
- CONTINUE TO TAKE A FLEXIBLE, MULTI-PRONGED APPROACH, WITH BOTH GOVERNMENT-TO-GOVERNMENT AND LAB-TO-LAB COMPONENTS
- MAKE A COMPREHENSIVE EFFORT TO ANALYZE AND DEAL WITH RECIPIENT-STATE SENSITIVITIES AND INCENTIVES
  - -- CONFIDENTIALITY
  - -- COOPERATION, NOT ASSISTANCE
  - -- RECIPROCAL ACCESS
  - -- INDIGENOUS EQUIPMENT
- CONTINUE TO FOCUS PROGRAMS ON SPECIFIC DELIVERABLES, TO ENSURE FUNDS ARE SPENT FOR THEIR INTENDED PURPOSES

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SPECIFIC, NEW NEAR-TERM ACTIONS RECOMMENDED BY THE PANEL INCLUDE:

- ESTABLISH RUSSIAN MPC&A ASSESSMENT & IMPROVEMENT TEAMS
- ESTABLISH RUSSIAN NUCLEAR MATERIAL INVENTORY TEAMS
- INITIATE A PROGRAM TO PROTECT & ACCOUNT FOR RUSSIAN NAVAL & ICEBREAKER FUEL
- BEGIN DISCUSSING CONSOLIDATION OF MATERIALS AT FEWER LOCATIONS
- FORM "QUICK RESPONSE" TEAMS
- STATION A SMALL CADRE OF FULL-TIME U.S. PERSONNEL IN MOSCOW TO FACILITATE THESE PROGRAMS
- PROVIDE TO THE RUSSIANS A FRANK AND DETAILED BRIEFING ON PAST U.S. MPC&A PROBLEMS, AND RAPID UPGRADE MEASURES THAT ADDRESSED THEM

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THE MONETARY AND POLITICAL COSTS OF THE NEEDED PREVENTATIVE MEASURES ARE FAR LESS THAN THOSE LIKELY TO RESULT FROM FAILURE TO ADEQUATELY ADDRESS THE PROBLEM.

- THEFT OF EVEN A TINY FRACTION OF THE MATERIAL NOW INADEQUATELY PROTECTED COULD LEAD TO NUCLEAR WEAPONS IN THE HANDS OF TERRORISTS OR ROGUE STATES.

- SUCH PROLIFERATION COULD POSE DEVASTATING NEW THREATS WITH VIRTUALLY NO WARNING.

- IT COULD SERIOUSLY CONSTRAIN U.S. OPTIONS IN FUTURE CRISES.

- THE COSTS OF DEFENSE OR PRE-EMPTION AGAINST PROLIFERATED NUCLEAR WEAPONS WOULD BE EXTREMELY HIGH, WITH UNCERTAIN PROSPECTS OF SUCCESS.

- ACTION NOW IS A PRUDENT AND NECESSARY INVESTMENT TO AVOID HUGE COSTS AND RISKS LATER.

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PCAST

THE WHITE HOUSE

WASHINGTON

April 20, 1995

MEMORANDUM TO THE SECRETARY OF STATE
THE SECRETARY OF DEFENSE
THE SECRETARY OF ENERGY
THE DIRECTOR OF CENTRAL INTELLIGENCE
THE DIRECTOR OF ACDA
THE CHAIRMAN OF THE NUCLEAR REGULATORY COMMISSION

FROM: JOHN H. GIBBONS

RE: FISSILE MATERIALS REPORT
FROM THE PRESIDENT'S COMMITTEE OF ADVISERS
ON SCIENCE AND TECHNOLOGY

Enclosed you will find a new independent study on the urgent problem of nuclear theft and nuclear smuggling, prepared by a panel of the President's Committee of Advisers on Science and Technology (PCAST).

The report warns that inadequate safeguards for nuclear materials in the former Soviet Union create a "clear and present danger" that the essential ingredients of nuclear weapons will fall into the hands of rogue states or terrorist groups. The report concludes that all the Administration's efforts to address this critical issue deserve support, and makes recommendations for both Presidential and agency action to expand and accelerate these efforts -- including possible steps to be taken at President Clinton's upcoming summit with President Yeltsin.

The panel was chaired by John Holdren, Professor of Energy and Resources at the University of California at Berkeley, and chairman of the National Academy of Sciences' Committee on International Security and Arms Control. Other members include Norman Augustine, President of Lockheed Martin Corporation; Gen. William Burns, former Director of the Arms Control and Disarmament Agency, and former Ambassador, Safe, Secure Dismantlement (SSD) Talks; C. Ruth Kempf, Group Leader for International Safeguards at the Brookhaven National Laboratory; and Sally Ride, Professor of Physics at the University of California San Diego, and Director of the California Space Institute.

PCAST approved the study for transmission on March 28, and it was then briefed to Anthony Lake. Following some final changes by the panel, and a decision to schedule a briefing for the President for May 1, as part of his preparations for the summit, the report is now ready for distribution to agencies.

I believe this report will make a major contribution to our efforts to address this critical national security problem. The panel members and staff are available to provide briefings at your convenience. The OSTP point of contact is Jane Wales, Associate Director for National Security and International Affairs, at 202-456-2894. To arrange briefings, the panel staff, Matthew Bunn, can be contacted at the National Academy of Sciences, at 202-334-2682.

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Securing Weapons-Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation

Report of the Panel on U.S.-FSU Cooperation to Protect, Control, and Account for Weapons-Usable Nuclear Materials

March 28, 1995

The President's Committee of Advisors on Science and Technology

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2016-0129-M (1.15)
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The President's Committee of Advisors on Science and Technology

Members of the Panel on U.S.-FSU Cooperation to Protect, Control, and Account for Weapons-Usable Nuclear Materials

PCAST Members

John P. Holdren
Chairman
Class of 1935 Professor of Energy
University of California, Berkeley
Chairman, Committee on International Security and Arms Control
National Academy of Sciences

Norman Augustine
President, Lockheed Martin Corporation

Sally K. Ride
Professor of Physics
University of California, San Diego
Director, California Space Institute

Other Panel Members

Gen. William F. Burns, USA (Ret.)
Former Director, Arms Control and Disarmament Agency
Former Chief Negotiator, Safe, Secure Dismantlement Talks

C. Ruth Kempf
Group Leader, International Safeguards and Technical Analysis
Brookhaven National Laboratory

Staff

Matthew Bunn
National Academy of Sciences
Advisor, Office of Science and Technology Policy

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Securing Weapons-Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation

Executive Summary

A Grave Security Threat

- Grossly inadequate safeguards and security for nuclear materials in the former Soviet Union pose a clear and present danger that the essential ingredients of nuclear bombs could fall into the hands of terrorist groups or rogue states.
- This is among the most serious and urgent threats to national security the United States faces in the coming decade—an unprecedented crisis on the "supply side" of nuclear proliferation.
- Already, there have been multiple seizures of kilogram-quantities of weapons-usable materials stolen from nuclear facilities in the former Soviet Union. (b)(3)
  E.O. 13526 6.2(a) (b)(3)
- The intelligence community has concluded that *none* of the scores of facilities with weapons-usable materials in the former Soviet Union has adequate safeguards and security. *All* are at risk of losing nuclear materials.
- While there is no evidence that such materials have yet fallen into the hands of potential proliferators, we do not know what has not been detected. Such a proliferation disaster could occur at any time.

Urgent Presidential Action Needed

U.S. programs to cooperate with the states of the former Soviet Union in reducing this threat are beginning to make progress after a slow start, and deserve strong support.

The Panel recommends that the President should:

- issue a decision directive designating the effort to control and account for fissile material as a critical and urgent security priority of the United States, and direct that it be given commensurate resources and top-level attention;
- appoint a senior Administration official to take full-time, personal responsibility for ensuring that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented;
- establish, under the leadership of that senior official, a stronger and more focused interagency process designed to bring the talents of all critical agencies to bear in addressing this problem;
- direct the senior official responsible for these programs to prepare a prioritized nuclear material security and accounting action plan within 60 days, specifying near-term, mid-term, and long-term goals and objectives, and the resources needed to accomplish them;

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- direct that adequate funds and personnel be allocated specifically for nuclear material security and accounting cooperation, and that a high priority be assigned to protecting these resources from cutbacks;
- direct the senior official responsible for these programs to develop and implement a plan to secure needed legislative and public support;
- make effective security and accounting for weapons-usable material an important factor in U.S. relations with the states of the former Soviet Union, and use the opportunity of the upcoming summit to gain agreement on specific new steps to improve security and accounting for nuclear materials;
- direct that higher priority be placed on providing information support to efforts to reduce nuclear theft risks, including increased cooperation between intelligence agencies in tracking and responding to nuclear smuggling;
- designate efforts to enhance security and accounting for nuclear materials worldwide as a key mission of the national laboratories.

In addition, the Panel provides a wide range of specific recommendations for those implementing these programs. Especially important among these recommendations are that these programs:

- follow three guiding principles, namely: focus on the highest priorities; foster indigenous capabilities in the former Soviet states; and build toward national systems in those states;
- continue to take a flexible, multi-pronged approach, with both government-to-government and lab-to-lab components;
- make a comprehensive effort to analyze and deal with recipient-state sensitivities and incentives, including: maintaining confidentiality; emphasizing cooperation, not assistance; offering reciprocal access to facilities; and using equipment produced in the former Soviet states;
- continue to focus on specific deliverables, to ensure that funds are spent for their intended purposes.

Further, the Panel suggests a specific set of near-term, mid-term, and long-term objectives, and a specific set of near-term recommended actions, spelled out in the body of the report.

Cost-Effectiveness of Early Action

The cost of ensuring adequate security for these weapons and materials, while not insignificant, is dwarfed by the potential costs of the necessary defense responses, and the potential threats to U.S. security, should theft of these materials result in uncontrolled nuclear proliferation. Thus, *a decision not to take available steps that could substantially reduce these proliferation risks would be a strategic misstep of profound proportions.* In this area as in others, an ounce of prevention is worth a pound of cure.

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I. INTRODUCTION

Nothing could be more central to U.S. security than ensuring that plutonium and highly-enriched-uranium (HEU) do not fall into the hands of potential proliferators. These materials are the essential ingredients of nuclear weapons, and access to them is the primary technical barrier to nuclear proliferation in the world today. Gaining access to such materials could shorten a third-world bomb program from a decade to months, or even days if other preparations had already been made.

With the collapse of the Soviet Union and the ensuing political, economic, and social turmoil in the former Soviet states, the world is faced with an unprecedented crisis on the "supply side" of nuclear proliferation. Never before has the world dealt with the phenomenon of breakup, rapid political and economic transformations, and internal disarray in a nuclear superpower with tens of thousands of nuclear weapons and hundreds of tons of weapons-usable material. Nuclear material security systems that once relied on the Iron Curtain and the iron hand of the KGB are grossly inadequate for the new environment.

Under current conditions, virtually all of the weapons-usable material in the former Soviet Union (FSU) is potentially at risk. Already, there have been multiple seizures, by authorities in Russia and elsewhere, of kilogram quantities of stolen weapons-usable uranium and of hundreds of grams of weapons-usable plutonium. (b)(3) E.O. 13526 6.2(a) (b)(3) While there is no evidence that enough material for a bomb has yet fallen into the hands of states such as Iran, Iraq, Libya, or North Korea, we do not know what we have not detected. Such a proliferation disaster could occur at any time. *This problem of "loose materials" is among the most serious and urgent threats to national security the United States faces in the coming decade.*

The cost of ensuring adequate security for these weapons and materials, while not insignificant, is dwarfed by the potential costs of the necessary defense responses, and the potential threats to U.S. security, should theft of these materials result in uncontrolled nuclear proliferation. Thus, *a decision not to take available steps that could substantially reduce these proliferation risks would be a strategic misstep of profound proportions.* In this area as in others, an ounce of prevention is worth a pound of cure. (See "The Consequences of Failure to Act," p. 2.)

Recognizing this danger, and the critical role that science and technology must play in resolving it, the White House, in the winter of 1994–1995, requested the President's Committee of Advisors on Science and Technology (PCAST) to form a panel to conduct an urgent independent review of U.S. programs to cooperate with the states of the former Soviet Union in reducing these proliferation risks. The charge to the Panel was to prepare a report for the President on the status and effectiveness of U.S.-FSU cooperation to enhance security and accounting for nuclear materials—what is working, what is not working, and what further action by the President and by others might be needed. This report summarizes our findings.

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The Consequences of Failure to Act

The risks of unpredictable nuclear proliferation resulting from inadequately secured nuclear material in the former Soviet Union are unacceptably high. The potential costs of *not* taking action to reduce these risks—measured in both threats to U.S. national security and the cost of defense responses to them—would be far higher than the cost of timely preventative action now. Any missed opportunity could well come back to haunt us.

The potential consequences of nuclear weapons in the hands of terrorists or rogue states are far-reaching. If a state such as Iran or Libya were to suddenly acquire the essential ingredients of nuclear weapons on the black market, the international community could be faced with a devastating new threat with virtually no warning before the threat springs full-blown on the scene. The horror of the recent use of chemical weapons by terrorists in the Tokyo subways would have been unimaginably greater had the weapons been nuclear explosives.

Such proliferation—which could result from diversions of even a tiny fraction of the hundreds of tons of weapons-usable material now spread across scores of poorly-protected sites in the former Soviet Union—could have dire implications for U.S. defense and foreign policy decision-making. In such a circumstance, the flexibility of the United States to deploy troops and intervene in foreign crises would be severely constrained. For example, it would seem unlikely that the U.S. Congress would have approved the deployment of troops to the Persian Gulf had it been known that Iraq possessed nuclear weapons and was capable of delivering them. Even had the troops been deployed, they could not have been concentrated at a handful of decisive points—a critical element of U.S. strategy in the Gulf War—for fear of a key concentration node being wiped out in a nuclear attack. In such a world, the already strained deterrent to local mischief could be severely undermined.

The costs of the necessary defense responses would dwarf the costs of protecting these materials to prevent the threat from arising. One need only look at the immensely costly buildup that was being seriously contemplated for Korea last year—and the vast cost in lives and value had the Korean crisis led to war—to make that calculation.

The primary focus of the review was on cooperation with the states of the former Soviet Union in enhancing security and accounting for weapons-usable nuclear materials—known formally as material protection, control, and accounting (MPC&A). The principal MPC&A programs on which this review has mainly focused include: the government-to-government MPC&A programs (funded through FY95 from the Nunn-Lugar program, and after that in the DOE budget); a U.S.-Russian laboratory-to-laboratory MPC&A program, initiated in April 1994; and expanding cooperation with nuclear regulatory bodies, particularly GAN, the Russian counterpart to the U.S. Nuclear Regulatory Agency. (See Table 1.)

Two further kinds of activities were considered more briefly in the Panel's review: smaller-scale MPC&A support activities such as the safeguards projects funded by the International Science and Technology Center in Moscow (ISTC) and safeguards assistance to former Soviet states other than Russia, Kazakhstan, and Ukraine,[1] and a wider range of related

[1]These programs are carried out in coordination with other donor countries and organizations, with the efforts partly coordinated through the International Atomic Energy Agency (IAEA). A number of donor countries and organizations, including Japan, EURATOM, Sweden, and the United Kingdom, among others, have established programs designed to assist the former Soviet states in upgrading MPC&A, focusing in most cases on the non-Russian states, though no other donor country has yet established an MPC&A assistance program of comparable scale to that of the United States. Japan, France, and the United Kingdom have programs valued in the tens of

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If cooperative approaches to forestalling this potential threat fail, all of the options that will then be available are hazardous and uncertain of success. These would include efforts to: forcibly control the materials(e.g., through the use of Special Operations Forces); forcibly destroy the materials (e.g., Special Operations or air attacks); or intercept the materials during delivery. With regard to attacking the materials in place, it will be recalled how difficult it was to locate and destroy SA-2 sites in North Vietnam, SA-6 sites in the Suez area, or Scud launchers in the Persian Gulf—in spite of the dedication of considerable assets to those missions.

The task of defense once these materials were constituted into the form of nuclear weapons is even more daunting. Intercepting such weapons delivered by ballistic missile is the province of ballistic missile defense—a mission wherein a great deal of technical progress has been made in recent years. Nonetheless, the economic cost of providing full-area coverage with near leak-proof quality is extremely high, running into many billions of dollars for the continental United States alone. To protect both the United States and U.S. and allied forces abroad would cost even more. Even if such a capability to intercept ballistic missiles were deployed, there would still be the matter of "engaging" the small number of weapons which, for extortion purposes, might be smuggled in the hold of a cargo ship, on board an airliner, or in some other manner that experience suggests we would find difficult to intercept (say, in a bale of marijuana).

In short, should theft of these materials lead to unpredictable nuclear proliferation, the resulting security threats to the United States would be severe, and the possible defense responses would be both expensive and of uncertain effectiveness. A world in which any dictator or terrorist group who wants a nuclear bomb can purchase the essential ingredients on a thriving nuclear black market is simply not an acceptable world to bequeath to our children. Action must be taken now to prevent such a world from arising.

As Senators Nunn and Lugar wrote in the summer of 1992: "The United States has spent trillions of dollars defending against the military threat imposed by the former Soviet Union. We now have the unique opportunity to help ensure that our children and grandchildren will not be confronted with a comparable threat from that region of the world. This is an opportunity we cannot afford to miss."

programs that, while not directly focused on MPC&A, are related to the management of nuclear weapons and nuclear materials in the FSU. Initiatives in this latter category include: cooperation to improve security for assembled nuclear weapons (as opposed to materials outside of weapons); purchases of nuclear materials (such as Project Sapphire); assistance (under the Nunn-Lugar program) in construction of a safe and secure storage facility for plutonium and HEU from dismantled weapons; cooperation in combating nuclear smuggling (including police, intelligence, and customs cooperation); proposals to increase openness and transparency related to nuclear stockpiles, including exchanges of data and reciprocal visits; proposals and agreements to end further production of materials for weapons (such as the June 1994 plutonium production cessation agreement); and disposition efforts designed to transform some of these nuclear materials into forms that pose much lower security risks (such as the HEU purchase agreement, and the recently inaugurated joint study of options for plutonium disposition). (See Table 2.)

The Panel believes that all of these related efforts are important (and in many cases synergistic with efforts to improve MPC&A), and a number of recommendations related to them

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millions of dollars for purposes similar to those of the U.S. Nunn-Lugar program, and Germany, Italy, Canada, Norway, and Sweden, among others, have smaller programs. While a few of these programs include modest investments in MPC&A in the non-Russian states, none of them other than a modest EURATOM program involve significant contributions to MPC&A in Russia.

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Table 1 Principal U.S.-FSU MPC&A Programs

- Government-to Government
  (Transitioning from Nunn-Lugar to DOE)

  Funding:
  FY92-FY95: $30 million for Russia (focused on MINATOM facilities)
  $22.5 million for Ukraine
  $20 million for Kazakhstan

  FY96: $20 million request (DOE)

- Lab-to-Lab

  Funding:
  FY92-FY95 $17 million
  FY96: $40 million request (DOE)

- GAN Cooperation

  Funding:
  FY92-FY95: $300,000
  FY96 $10 million request (DOE)

Total FY96 request: $70 million (DOE)

Note: In addition to these principal programs, there are modest efforts funded by the International Science and Technology Center, and by DOE program funds. DOE program funds for states other than those listed include $100,000 for Belarus, and $300,000 for all of the other former Soviet states. The $300,000 listed for GAN cooperation in FY92-FY95 is complemented by regulatory support funds from the $30 million allocated to Nunn-Lugar MPC&A programs in Russia.

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can be found in this report. Nevertheless, they were not the principal focus of this review, which centered on the establishment of effective security and accounting systems at the wide range of sites where such materials are held. This is the most fundamental requirement for success in reducing the proliferation risks from possible theft of nuclear materials.[2]

In conducting its review, the Panel discussed the problem and current programs to address it with representatives of the White House, including the National Security Council and the Office of Science and Technology Policy; the Central Intelligence Agency and other intelligence organizations; the Departments of Energy, State, and Defense; the Nuclear Regulatory Commission and the Arms Control and Disarmament Agency; the national laboratories; and outside experts. In addition, the chairman of the Panel and the principal staff member traveled to

[2]Under current conditions, it appears that security for assembled nuclear weapons is substantially better than security for nuclear materials, and therefore that the probability of proliferation resulting from theft of a nuclear weapon is significantly lower than the probability of proliferation resulting from theft of weapons-usable material outside of weapons. See Joint Atomic Energy Intelligence Committee, *The Russian Nuclear Weapons Stockpile System (U)*, (Secret NF), JAEIC 94-005, December 1994. However, see also CIA, (b)(3)

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Table 2 Related U.S.-Russian Fissile Material Management Programs

Securing Nuclear Materials
- Nunn-Lugar Storage Facility
- DoD-MoD Nuclear Weapons Security Talks
- Combating Nuclear Smuggling

Building Confidence Through Openness
- Safeguards, Transparency, and Irreversibility Talks
- Reciprocal Nuclear Stockpile Declarations
- Reciprocal Inspections of Material From Dismantled Weapons
- IAEA Safeguards on Excess Materials
- Nunn-Lugar Storage Facility Transparency
- HEU Purchase Agreement Transparency

Halting Accumulation of Excess Stocks
- Plutonium Production Cessation Agreement
  - Monitoring
  - Alternate Energy for Production Reactors
- Fissile Material Cutoff
- Reduced Enrichment for Research and Test Reactors

Disposition of Excess Material
- HEU Purchase Agreement
- U.S.-Russian Plutonium Disposition Options Study

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Moscow and discussed these issues with representatives of the Russian Ministry of Atomic Energy (MINATOM); the Federal Nuclear and Radiation Safety Authority (the Russian nuclear regulatory agency, known by its Russian acronym, GAN); the Federal Counterintelligence Service (FSK); Arzamas-16, one of Russia's two principal nuclear weapons laboratories; and the Kurchatov Institute (where the new MPC&A system recently installed at Building 116 with U.S. assistance was also reviewed). Appendix A provides a list of the principal briefings the Panel received.

Given the urgency of the problem, the Panel was forced to conduct its review in a very short period, and the level of detail we were able to pursue was necessarily limited. We recommend that mechanisms be established for further, ongoing review of the implementation of these programs.

Before going further it is important to emphasize the sensitivity of this issue in the former Soviet Union. While grave problems exist with security and accounting for nuclear materials in these nations, it is unwise for official statements to say so. Unguarded public statements suggesting that these nations are unable to effectively control their nuclear materials can quickly poison the atmosphere for cooperation. Such statements are already feeding Russian paranoia concerning U.S. intentions; Minister of Atomic Energy Victor Mikhailov expressed a widely-held view in a recent interview when he said that the West was whipping up fears of nuclear smuggling

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in order to suggest "that Russia is unable to handle its nuclear industrial complex and the West should take control over it into its own hands."[3] After some stories that have appeared in the Western press, individuals who have been open and cooperative with the United States on MPC&A matters have been sternly warned by the FSK.[4] Sensitivities about cooperation in this area also exist in the other former Soviet states. Hence, extreme care must be taken to avoid incautious public statements and sensationalized press reports. As one official from the U.S. Embassy in Moscow put it to the Panel: "Trust that took thousands of hours to build can be destroyed in a ten-minute speech."

In the remainder of this report, we begin by describing in more detail the scope and nature of the deficiencies in security and accounting for weapons-usable nuclear materials in the former Soviet Union. We then discuss the U.S. response to this problem to date, and outline some key lessons learned from the experience so far. We then conclude with a series of recommendations for next steps, including actions we believe the President should take and actions that should be taken by the program's implementers.

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[3]Interviewed in the new Russian journal *Yaderny Kontrol* (Nuclear Control), translated in *The Monitor: Nonproliferation, Demilitarization, and Arms Control*, University of Georgia, Center for East-West Trade Policy, February 1995.

[4]See Moscow 001888, January 1995, "Holes in the Fences: Protecting Nuclear Materials in Russia's Closed Nuclear Cities," (Secret).

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II. THE PROBLEM

The Soviet Union had a nuclear materials security system that was highly effective for decades. But the threat, and the environment, have changed. Today, this system, once effective, has become grossly inadequate.

Recently, the Joint Atomic Energy Intelligence Community (JAEIC) produced a comprehensive study examining safeguards and security in the former Soviet Union. The study found that *none* of the roughly 80 non-Ministry of Defense facilities with weapons-usable materials in the former Soviet Union had adequate safeguards and security. *All* of these facilities are judged to be at risk of losing weapons-usable nuclear materials. "There is no national system of nuclear materials safeguards and security in any of the countries which make up the former Soviet Union," the study warned. "In Russia this deficiency is exacerbated by bureaucratic conflict over responsibility for safeguards and security." Seven facilities—all large facilities handling hundreds of kilograms of weapons-usable material that are not in closed cities—were judged to be "most seriously deficient," posing the highest proliferation risks. Dozens more were judged to be "seriously deficient."[5]

The system that is still in place was designed almost exclusively to counter an "outsider" threat—such as American spies getting into nuclear facilities.[6] The "insider" threat—workers within a facility who might steal materials—was virtually non-existent, because of the location of most of the materials within closed cities or at least closed facilities, the extensive monitoring of personnel within these cities and facilities by the KGB, and the limitations imposed on the operation of black markets (whereby stolen materials might be transported out of the country) by the characteristics of the closed, authoritarian society.

With a burgeoning black market, ever-increasing corruption, porous borders, and severe economic distress for nuclear workers, the "insider" threat has grown astronomically, and the old system is simply unable to cope. The nuclear cities that once received the best the Soviet economy had to offer are now stricken by genuine poverty. At many sites, workers go unpaid for months; several strikes and other labor actions at major nuclear sites have occurred. With nuclear workers struggling to feed their children, the temptation to steal could be overwhelming. Already, there have been many cases of insiders at nuclear facilities stealing nuclear materials for possible sale.

The systems in place to protect nuclear materials were never designed to deal with the insider threat that is now predominant. The facts are stark:

- Russia has no national accounting of its nuclear materials. No one in Russia knows exactly how much plutonium and HEU they have; at most sites, no one would know if plutonium or HEU were missing.

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[5]Joint Atomic Energy Intelligence Committee, *Safeguards and Security of Weapons-Usable Material At Non-Ministry of Defense Facilities in the Former Soviet Union (U)*, JAEIC-95-001, (Secret NF WN), January 1995.

[6]Given that this was a key threat around which Soviet security systems were designed, it is not surprising that it has been difficult to convince Russian security officials that Americans in Russian nuclear sites are part of the answer, not part of the problem.

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- In several known cases, individuals have simply "walked off" with kilograms of weapons-usable materials, and no one noticed until long after the materials were gone.
- The Russian Interior Minister has estimated that 80% of Russian nuclear facilities have no systems in place to detect nuclear materials being carried out the gates. The correct figure is probably higher.
- Little if any actual safeguards accounting of nuclear materials is done. Materials are weighed when they enter a facility and when they leave, with the difference simply assumed to be normal process losses or losses to waste—meaning that an intelligent insider could remove materials without the losses ever showing up in the inventory books.

E.O. 13526 6.2(a) (b)(3)

- Most of the alarm systems that do exist have open wiring that could be cut by a single insider—and cutting the wiring does not itself set off an alarm.
- Seals to indicate whether containers have been opened use technology that could be forged in seconds by most insiders. For example, many facilities use wax seals imprinted with a special stamp; but all the workers with access to nuclear materials carry such a stamp with them, and so could rapidly produce a new seal that would falsely indicate that no tampering had occurred.
- While in theory there is a "two-man-rule" barring any individual alone from getting access to nuclear material, this crucial safeguard is widely ignored.
- Few facilities have TV cameras monitoring areas where nuclear materials are stored.
- Existing security systems are not being maintained. At many sites, there are holes in the perimeter fences, intrusion detectors, even if they exist, are broken, the electricity for electric fences no longer works, and easily climbed trees have been allowed to grow up next to fences.
- Guards at some facilities are not properly paid, equipped, or trained. At one facility with weapons-usable materials, for example, a fence around the guard house is intended to prevent the guards from stealing bread from the bakery next door.

Two aspects of the Soviet economic system have exacerbated the problem. First, under the quota system, if a particular facility produced more than central planners had demanded in a given year, there was a considerable incentive to set the extra material aside in a secret stock, to make up any shortfalls that might occur in subsequent years. Thus many facilities have secret "honey pots" potentially representing hundreds of kilograms or even tons of nuclear material, unknown to central authorities.

Second, since HEU was difficult to get, research institutes typically would try to acquire substantially more HEU than was needed for their immediate purposes, so as to have enough available to do further experiments. Since HEU might come in handy later, and there were no

[7] "Holes in the Fences," *op. cit.*

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Table 3 Seizures of Weapons-Usable Materials

Date	Amount	Description of Material	Where Seized
October 1992	1.5 kilograms	HEU	Russia
Spring 1994	3 kilograms	HEU	Russia
May 1994	6 grams	99.75% Pu-239	Baden-Wuerttemberg, Germany
June 1994	.8 grams	87.7% U-235	Landshut, Germany
August 1994	560 grams	Mixture of 87% Pu-239 and uranium	Munich, Germany
December 1994	2.73 kilograms	87.7% U-235	Prague, Czech Republic

UNCLASSIFIED Source: (b)(3)

regulations requiring expensive protection for such material, there was no incentive to send any "leftovers" back to central authorities. In some cases, it has been found that leftover HEU was simply forgotten when researchers retired or moved on to other projects: there have been a number of recent instances in which facilities have discovered stashes of HEU that they did not know they had.

These weaknesses have been assessed primarily through visits to a limited number of Russian sites by U.S. personnel, along with accounts by Russian nuclear workers. Intelligence relating to safeguards and security has only recently become a priority and is difficult to come by. Satellite photography can reveal fencing arrangements, guard houses, armored cars, and the like, but says little about crucial matters such as nuclear material accounting and control activities occurring within buildings. Major gaps in our knowledge remain, which in most cases are more likely to be filled by cooperative visits to facilities by MPC&A experts than by traditional intelligence means.

Weaknesses in nuclear material security, and the growing insider threat, have already led to a significant number of confirmed thefts. Table 3 shows the known cases that have been confirmed and are unclassified.[8] Russian officials have reported a number of additional cases through classified channels—including, in one case, a theft of 9–12 kilograms of HEU.[9] While these have not been directly confirmed, there is no reason to dismiss these reports. There have been multiple seizures, by authorities inside and outside Russia, of stolen weapons-usable HEU in quantities ranging into the kilograms, as well as several seizures of stolen plutonium in quantities ranging up to hundreds of grams. As yet, there is no evidence that any of this material has fallen into the hands of potential proliferators, but we do not know what we have not detected. It is reasonable to ask: are the known cases only the tip of the iceberg?

E.O. 13526 6.2(a) (b)(3)

[9]See, for example, Moscow 032874, "Overview of Nuclear Material Protection, Control, and Accounting in Russia," November 1994 (Secret).

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Fortunately, there is as yet no evidence of a substantial "market" of agents of proliferating states looking to buy such materials: the very large number of scams being run by con artists claiming to be selling valuable weapons-usable material appears to have spooked some of the potential buyers. Nor is there any evidence, as yet, of the involvement of organized crime in thefts of weapons-usable nuclear materials. Here too, however, we simply cannot know what may be happening that we have not detected.

The facilities where the roughly 170 tons of separated plutonium and 1000 metric tons of HEU in the former Soviet Union are located can be divided into several categories:

1. *Weapons Sites.* About half of the separated plutonium and HEU in the former Soviet Union is in the stockpile of nuclear weapons, controlled by the Ministry of Defense (MoD). Security for assembled nuclear weapons is believed to be significantly better than security for nuclear materials, though transport security remains an important issue.[10] Thus, while the weapons represent a large fraction of the material, they probably represent a small percentage of the overall proliferation risk.

2. *Nuclear Weapons Complex.* A large fraction of the plutonium and HEU outside weapons is in the nuclear weapons complex—the large "closed cities" controlled by the Ministry of Atomic Energy (MINATOM). There are approximately a dozen of these closed cities, including three plutonium-production sites, four uranium-enrichment facilities (one co-located, at Tomsk-7, with one of the plutonium-production sites), two principal weapon-design laboratories, and four weapons-assembly/disassembly facilities (one co-located, at Arzamas-16, with one of the weapon-design laboratories). The closed cities are typically large sites covering many square kilometers, handling many tons of plutonium and HEU. At these facilities, plutonium and HEU exist in a wide variety of forms—as metal weapons components, metallic ingots, oxides, scrap, solutions, and residues, to name a few. Typically the entire "closed city" is enclosed within a fence, and the nuclear facility itself is also fenced. Within the facility, however, tons of weapons-usable materials may be stored in ordinary buildings with glass windows and minimal guarding. A large response force (hundreds if not thousands of soldiers) is usually stationed at the closed city. Thus these facilities are likely to be quite resistant to overt, armed attack; likely resistance to insider threats or well-trained covert teams of outsiders (possibly with the collaboration of one or more insiders) appears to be poor, however.

3. *Civilian Facilities and Research Institutes.* Substantial quantities of weapons-usable material are also held at civilian facilities—particularly fuel-fabrication plants and research institutes. Some of these are controlled by MINATOM and some by a wide array of other organizations, ranging from the Russian Academy of Sciences to individual universities. Much of this material is in the form of HEU fuel elements for research reactors, but at a number of these facilities HEU or plutonium exist in bulk form (typically oxides) as well. Much of the HEU at these facilities is enriched to 90 percent or even higher, making it very attractive bomb material. These institutes, not located in closed cities, typically have only the most minimal physical

[10]See note 2.

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protection. In many cases, a substantial number of facility employees have the access required to walk in, remove the nuclear materials, and leave the premises without detection or questioning. Essentially all of the stolen weapons-usable materials seized by authorities to date appear to have originated from facilities in this category. Thus, while these facilities may have less than 5 percent of the weapons-usable materials in Russia, they represent a very large fraction of the proliferation risk. Indeed, all of the facilities listed in the JAEIC study as "most seriously deficient" were in this category. It should be noted that a small percentage of hundreds of tons of weapons-usable material is still sufficient to make thousands of nuclear weapons.

4. *Naval Fuel.* A substantial quantity of HEU ranging from 20–90 percent enrichment exists in the naval complex, including fuel for submarines, surface combatants, and civilian icebreakers. E.O. 13526 6.2(a) ~~(b)(3)~~ ~~(b)(3)~~ ~~(b)(3)~~ Naval fuel storage sites (such as the one at Murmansk where several kilograms of fuel was recently stolen) are controlled by the Navy. Despite being controlled by the military and its contractors, naval fuel sites appear to be startlingly insecure. In the Murmansk case, for example, a single thief simply walked through one of the many holes in the fence, sawed off the padlock on a shed holding naval fuel, pried open the door (using a pole he found at the site), broke open several fuel elements, poured the material into his bag, and retraced his steps. While the theft was detected within hours, the thief was not arrested until six months later, when he began trying to market the material. The prosecutor concluded publicly that in Russia it is easier to steal nuclear material than to steal a sack of potatoes.

5. *Beyond Russia.* When the Soviet Union collapsed, Russia was left with more than 95% of the weapons-usable nuclear materials that were not in nuclear weapons. Operation Sapphire, which airlifted 600 kilograms of HEU from Kazakhstan to safe storage at Oak Ridge, eliminated the largest known stock of weapons-usable material remaining outside Russia. The other material of concern outside the Russian Federation is at a small number of research institutes, in Ukraine, Kazakhstan, Belarus, Latvia, Georgia, and Uzbekistan. As with the research institutes in Russia, these facilities have minimal physical protection or material accounting, and pose high proliferation risks. It appears possible, however, that sufficient funds will be made available by the United States and other donor countries to greatly improve security and accounting for all sites outside Russia with weapons-usable materials during 1995–1997.

In short, the problem is a gigantic one: hundreds of tons of material, at scores of sites spread across the 11 time zones of the former Soviet Union, in weapons, production facilities, and research institutes.

The governments of the region, faced with a wide range of other urgent priorities in a wrenching time of transition, have failed to devote the attention and resources needed to solve these problems. In Russia, while President Yeltsin and Prime Minister Victor Chernomyrdin have both issued orders and decrees calling for urgent programs to upgrade security for nuclear materials, interagency disagreements and conflicting budget pressures have stymied effective action.

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The Ministry of Atomic Energy (MINATOM), which controls most of the nuclear materials in Russia, continues to tell Russian authorities and the world at large that there is no problem, that it is impossible to steal nuclear materials in Russia, and that they know for certain that every gram of material is in its proper place. Nothing could be farther from the truth—as other ministries, such as the Federal Counterintelligence Service (FSK) and the Ministry of Internal Affairs (MVD) are beginning to point out within the Russian government.

But from MINATOM's perspective, the whole issue represents a profound economic threat: admitting that there is a problem would mean admitting that substantial resources should be diverted from favored MINATOM projects to address it. (As an indication of the scale of resources involved, the United States spends some $800 million every year on safeguards and security in the DOE complex.) And MINATOM's budget is already stretched extremely thin, as Minister Mikhailov attempts to maintain his million-person empire even after its Cold War mission is over. Moreover, acknowledging that there were problems controlling nuclear materials where they are now would be a fundamental challenge to MINATOM's vision of a future in which reactors running on weapons-usable plutonium fuel would be spread throughout the Russian Federation.

Just as the Russian government is not a monolith, however, MINATOM is not a monolith. Many of the institutes and facilities involved in MPC&A cooperation with the United States are developing an acute understanding of the problem and considerable enthusiasm for continued cooperation. Tension between MINATOM headquarters' efforts to go slow and MINATOM facilities' desire to move forward is building.

While decrees signed by Yeltsin have given the nascent nuclear regulatory agency, GAN, authority to regulate security and accounting for both civilian and military materials, GAN has only recently begun to gain the real authority needed to implement that mandate. GAN is a tiny organization with few staff and fewer resources, trying to regulate some of the most powerful ministries in Russia. During 1993 and most of 1994, GAN was effectively barred from MINATOM facilities handling military materials, and from Ministry of Defense facilities—both of which Yeltsin had decreed GAN should regulate.

In September 1994, however, Yeltsin issued a decree calling for an interministerial commission, chaired by GAN, to make recommendations for urgent steps to be taken to improve security for nuclear materials. Working closely with MINATOM, and with support from the FSK and the MVD, GAN succeeded in securing agreement of all ministries on a report to Yeltsin, and later on a government order that was signed by Chernomyrdin in January of 1995. A new Atomic Law which will provide the legal foundation for GAN's regulation of MPC&A is expected to be approved by the Duma this spring. Nevertheless, despite explicit instructions in Chernomyrdin's order that funding should be made available, the Ministry of Finance has failed to provide the roughly $4 million that GAN and MINATOM agreed was needed to implement the "most urgent" steps called for in the order.

In short, while this issue has come to the attention of the very highest levels of the Russian government, no comprehensive plan of action is yet being implemented in response, and

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MINATOM headquarters continues to deny even the existence of a problem. For the other former Soviet states, the situation varies from one nation to another—but none of them has undertaken a comprehensive program to do what needs to be done. Indeed, in Ukraine, the main organization which had been in charge of security and accounting for nuclear materials—and with whom the United States had signed agreements calling for joint work on upgrades—has recently been abolished, with its responsibilities folded into a new ministry headed by a leading opponent of Ukraine's accession to the Nonproliferation Treaty.

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III: THE U.S. RESPONSE TO DATE

U.S. programs to enhance security and accounting for weapons-usable nuclear materials in the former Soviet Union got off to a slow start, but they are now beginning to show solid achievements and appear likely to make additional progress during 1995.

A Slow Start: 1991–1993

In the years immediately following the collapse of the Soviet Union, efforts to improve security and accounting for weapons-usable materials in the former Soviet states made little progress—hobbled by lack of priority, lack of policy coherence, and lack of top-level attention in both the United States and the FSU, and by the extreme sensitivity on the FSU side about the issue of security at nuclear sites. Indeed, until early 1993, U.S. experts had not recognized the full scope and severity of the MPC&A problem that existed in the former Soviet Union.

As early as 1991, when Congress voted to establish the Nunn-Lugar program and provide $400 million for its first year, preventing proliferation and securing nuclear weapons and materials were designated as key priorities. Material protection, control, and accounting (MPC&A) was one of the seven areas of cooperation agreed to by Secretary of State James Baker and his Soviet and Russian counterparts in late 1991 and early 1992. Nevertheless, this issue received little priority on either side, and a variety of interagency conflicts delayed progress. In retrospect, setting up a program in which the Department of Energy was to spend the Department of Defense's money was a recipe for interagency conflict (some of which has continued to this day). In addition, acting on a strict interpretation of Congressional direction, DOD decided that the Nunn-Lugar program must "buy American," using normal DOD procurement regulations, for essentially all goods and services procured (so that only a tiny fraction of the money flowed to the former Soviet states). DOE's pace and priorities were criticized by other agencies as oriented more toward discussion than action. No one of sufficient authority in the White House or anywhere else brought such issues to closure to move the program forward.

It took until September 1993—a year and a half after the inception of the program—to complete a very simple implementing agreement providing the legal basis for MPC&A cooperation at Russian facilities handling civilian nuclear materials. (During this period, however, initial technical contacts were established that were to prove fruitful later, principally through conferences and the joint effort to design the MPC&A system for the proposed Nunn-Lugar storage facility for fissile materials from dismantled weapons.)

At that time, because of Russian sensitivities and resource constraints, MPC&A cooperation plans were limited to extremely modest steps. The approach was to establish a small number of "model" facilities with highly effective MPC&A systems, with the idea that Russia would then apply the lessons learned at these facilities more broadly. The schedule was leisurely: initial plans called for the "model" facilities to be established over a period of years, with implementation at other sites requiring years beyond that. A similar "model facility" approach was taken with Ukraine and Kazakhstan. (No Nunn-Lugar agreement on MPC&A has yet been

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MPC&A in the Non-Russian Former Soviet States

Russia inherited more than 95% of the Soviet Union's stockpile of separated plutonium and HEU outside of weapons. Nevertheless, facilities with kilograms or tens of kilograms of plutonium or HEU exist in Kazakhstan, Ukraine, Belarus, Latvia, Georgia, and Uzbekistan. At the Kharkiv research institute in Ukraine, for example, there are reportedly roughly 75 kilograms of bulk HEU powder, with little protection or accounting for the material. These stockpiles pose serious proliferation risks, particularly given the ongoing economic and political transformations underway in many of these countries.

The United States, Japan, Sweden, the United Kingdom, and other countries are involved in providing MPC&A assistance to these countries. The efforts of these donor countries are coordinated through meetings sponsored by the IAEA.

Given the relatively small number of facilities with weapons-usable material outside Russia, it would be desirable to make it an objective to deal with them all within the next two years—either by significantly improving security and accounting for the material there, or by removing it to a secure location (as in the case of Project Sapphire). A plan for accomplishing this objective would have to be drawn up with the participation of the other donor countries and the recipient states.

The United States has Nunn-Lugar MPC&A agreements with Ukraine and Kazakhstan. The United States has recently suggested to these countries increasing the amount of Nunn-Lugar funding for MPC&A, with the objective of covering all the facilities in these two nations that have substantial quantities of weapons-usable material (as well as establishing MPC&A training programs).

There is no Nunn-Lugar MPC&A agreement with Belarus, and hence consideration is being given to providing MPC&A assistance through the International Science and Technology Center (ISTC) in Moscow, so that a new funding agreement would not have to be negotiated. The other relevant states are not currently eligible for Nunn-Lugar assistance, but DOE has provided some initial seed money that has covered some site visits for analyses of needs. Several million dollars might be required to assure effective MPC&A for the small number of facilities in the states not already covered by Nunn-Lugar MPC&A assistance. This could potentially be accomplished by other donor states, if they were willing to take responsibility.

concluded with Belarus; other former Soviet states are not eligible for Nunn-Lugar assistance. See "MPC&A In the Non-Russian Former Soviet States," p. 15)

The Russian side insisted that the initial "model facility" efforts be limited to low-enriched uranium (LEU) facilities, even though these facilities posed virtually no proliferation risk—arguing that the two sides had to take "one step at a time," and needed to build confidence before working on more sensitive materials. In addition, although the U.S. side proposed cooperating in the development of national standards for MPC&A, MINATOM negotiators declined: national standards were now to be developed by the Russian nuclear regulatory agency, GAN, whose regulatory interference MINATOM was seeking to minimize.

Thus, as of January 1994, the only significant effort underway to cooperate with Russia to improve security and accounting for nuclear materials was focused on modest upgrades at a single low-enriched uranium fuel fabrication facility at Elektrostal. Ten million dollars of Nunn-Lugar funding was then available for MPC&A in Russia, with modest additional funds for Ukraine and Kazakhstan.

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New Initiatives: January-October 1994

It was clear that different approaches were needed, which would focus on the most urgent upgrade needs and attempt to address Russian sensitivities. The United States therefore launched two new initiatives: a concept in the Nunn-Lugar MPC&A program that came to be called the "quick fix," and a separate U.S.-Russian lab-to-lab MPC&A program. Later in the year, the United States also decided to undertake a third initiative—a greatly expanded effort to cooperate with the Russian nuclear regulatory agency, GAN.

The "Quick Fix"

The idea of the "quick fix," which was modeled on steps the United States had taken to upgrade MPC&A in its own weapons complex years before, was for the Russian government to form a series of teams to inspect Russian nuclear sites, determine what MPC&A upgrades were most urgently needed, and provide a prioritized list to the U.S. side, which could then be the basis for discussions of assistance and cooperation.

The United States proposed that a Russian team should come to the plutonium storage site at Hanford to observe U.S. MPC&A approaches and means of assessing upgrade needs; this would be followed by a U.S. visit to the Russian civilian plutonium storage facility at Mayak (chosen because of its civilian character, the large amount—nearly 30 tons—of material there, and a Soviet-era government report that had called attention to poor security there). That visit would in turn be followed by Russian-led assessments of MPC&A upgrade needs at Russian nuclear sites, beginning with 10 facilities in 180 days. To fund the high-priority upgrades (and to fund a proposal, made at the same time, to upgrade MPC&A at the Yekaterinburg blending facility for the HEU purchase agreement), the United States indicated it would be willing to increase the amount of Nunn-Lugar funding available for MPC&A from $10 million to $30 million, and to expand the Nunn-Lugar MPC&A agreement's scope to cover military as well as civilian materials.

The Russian side accepted the reciprocal visits to Hanford and Mayak (which were conducted successfully in July and October of 1994), but declined the idea of a broad-based "quick fix" approach, preferring instead to limit cooperation to a small number of specific sites. The Russian side also rejected the proposal to expand cooperation to include military materials, and declined the specific proposal to upgrade MPC&A at the Yekaterinburg blending facility (arguing that MPC&A there was already adequate, and that any upgrades that might be needed could be carried out in the context of the ongoing negotiations concerning transparency for the HEU purchase agreement).

By late 1994, however, a number of factors were converging to change attitudes regarding the importance of ensuring that nuclear materials were secured and accounted for. A series of seizures of weapons-usable material in Europe culminated in August 1994 with the seizure of 350 grams of plutonium (in some 560 grams of material, including uranium) on a plane from Moscow to Munich, provoking widespread press coverage and public concern. A top-level German official flew to Moscow and reached an agreement to cooperate in stopping nuclear smuggling. The issue was unavoidably on the international agenda, and, within Russia, there was considerable discussion of the issue in the public press. On September 15, President Yeltsin issued a decree

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establishing an interagency commission to report to him within one month on urgent measures to improve security and accounting for nuclear materials; later that month, Presidents Clinton and Yeltsin endorsed continued cooperation in this area at their Washington summit. At the same time, the less formal U.S.-Russian lab-to-lab program (described below) was beginning to make real progress, helping to establish U.S. bona fides.

Thus, during November and December 1994, the Russian side agreed to MPC&A cooperation at half a dozen sites, all of them high-risk facilities with hundreds of kilograms of weapons-usable material. These included every single one of the sites listed by the JAEIC as "most seriously deficient," except for the Kurchatov Institute, which was covered in the lab-to-lab program. Compared to the situation only a few months before, when cooperation was limited to protecting only LEU, this represented a major breakthrough. In addition, by that time the two sides had reached agreement that the United States would help establish an MPC&A training center at Obninsk—a critically important project, if a new "safeguards culture" is to be developed in Russia. Based on these agreements, the United States agreed to sign an amendment to the Nunn-Lugar MPC&A agreement increasing the available funds to $30 million, without insisting that the agreement also expand cooperation to include military materials.

Funding currently available for the government-to-government program includes some $30 million in FY94 and prior year Nunn-Lugar funds. While only a small fraction of that amount has yet been spent, the recent agreements on specific sites are expected to enable a significant acceleration of the effort. In late 1994, an interagency decision was taken to remove MPC&A from Nunn-Lugar and consolidate both the government-to-government and lab-to-lab MPC&A programs in DOE's budget request. DOE's FY96 request includes $20 million to continue the government-to-government programs channeled through MINATOM.

The Lab-to-Lab Initiative

In April 1994, Undersecretary of Energy Charles Curtis, in collaboration with the national laboratory directors, decided to establish a lab-to-lab MPC&A program, building on the lab-to-lab relationships that already existed in other areas. A total of $2 million was moved from other projects to kick off the program in FY94.

The U.S. laboratories quickly began meeting among themselves and with their Russian counterparts to discuss possibilities for cooperation. By the summer, the U.S. side was drafting a rough plan for cooperation, and contracts for initial steps were being signed. Los Alamos was designated as the leader of a multi-lab team on the U.S. side. On the Russian side, one group of participants was a team of laboratories designated by MINATOM, led by Arzamas-16, one of Russia's premier nuclear weapons laboratories.[11] This group also included the Institute of Physics and Power Engineering at Obninsk, which was expected to play an important role in MPC&A for civilian MINATOM facilities. At the same time, a parallel lab-to-lab effort was undertaken at the Kurchatov Institute, the largest nuclear institute independent of MINATOM, which had long been an advocate of improved MPC&A in Russia.

[11] Sometimes known by its Russian acronym, VNIIEF.

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From its inception, the lab-to-lab program was implemented in a different and more flexible way than the Nunn-Lugar MPC&A program, and was able to move more quickly. (For details, see "Lessons Learned,"p. 22.)

In October of 1994, Undersecretary Curtis traveled to Russia and provided a copy of the draft cooperation plan that had been prepared by the U.S. laboratories. Within weeks, the Russian laboratories had responded with a plan of their own, covering a wide range of activities. Moreover, while the Russian side in the government-to-government MPC&A effort had consistently rejected proposals to cooperate on MPC&A for military materials, in the lab-to-lab program weapons laboratories and weapons facilities were included from the outset. The lab-to-lab program also provided an opportunity for reaching outside MINATOM to independent institutes such as Kurchatov, which had been beyond the scope of the Nunn-Lugar MPC&A agreement, which was channeled through MINATOM.

A total of $15 million has been budgeted for lab-to-lab MPC&A cooperation in FY95.[12] The FY96 DOE budget includes a request of $40 million for this purpose.

Expanding GAN Cooperation

For some time, the NRC has been cooperating with GAN, its Russian counterpart, on development of a new MPC&A regulatory structure for Russia. In mid-to-late 1994, GAN and U.S. officials began discussing broadened cooperation, including the provision of training and equipment. During Undersecretary Curtis' trip to Russia in October 1994, he signed a DOE-GAN memorandum of intent for expanded cooperation. Three main areas were identified as particularly promising:

- equipment and training for GAN MPC&A inspectors (GAN provided a list of requested equipment in mid-1994);
- establishment of a national computerized material accounting system (Russia does not have such a national accounting system at present); and
- MPC&A at non-MINATOM, non-MoD sites (where GAN could serve as the single point of contact for facilities controlled by a wide array of different agencies and groups).

Current funding specifically targeted for cooperation with GAN on MPC&A is only a few hundred thousand dollars, channeled through the NRC. DOE's FY96 budget request includes $10 million for this purpose (out of the total of $30 million for government-to-government MPC&A programs).

[12]In late 1994, an interagency decision was taken that these funds would be provided from DOD's FY95 Nunn-Lugar funding. At the time of the Panel's review, however, while a substantial fraction of these funds had already been spent or committed (borrowing from other DOE programs), DOE and DOD had not yet reached agreement on the terms and conditions for this transfer.

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Demonstrable Progress: November 1994-Present

By late 1994, the U.S. government had established a multi-pronged approach to MPC&A cooperation with Russia, including three principal programs:

- government-to-government (funded through FY95 from Nunn-Lugar, but transitioning to DOE funding in FY96);
- lab-to-lab;
- expanded GAN cooperation.

During late 1994 and early 1995, these programs began to make demonstrable progress on the ground. Until late 1994, it was still correct to say (as critics sometimes did) that there was not a single kilogram of weapons-usable material for which security had been improved as a result of U.S.-FSU cooperation efforts. This is no longer true. Recent successes include:

Project Sapphire

This well-publicized operation airlifted 600 kilograms of HEU from Kazakhstan to safe storage at Oak Ridge in November 1994, at Kazakh request. This represented a key nonproliferation success, born of complex and intensive interagency cooperation. Given the politics of bringing foreign nuclear material into the United States, however, such an approach will probably only be applicable in a limited number of cases. The Administration should continue to examine expedited options for achieving similar objectives in the future (see "Project Sapphire—and Beyond," p. 25).

The Kurchatov Institute

In the course of just two months, in November and December 1994, a radically improved MPC&A system was installed at Building 116 at the Kurchatov Institute in Moscow—home to two critical assemblies fueled with over 100 kilograms of HEU. The new system includes double fences, motion detectors, TV monitoring cameras, portal monitors to detect anyone leaving the premises with nuclear materials, and more. Built for less than $1 million, the system includes almost exclusively Russian equipment, though the design was a cooperative effort between U.S. and Russian laboratories. This was the first site where major improvements in MPC&A were actually implemented as a result of U.S.-Russian cooperation. Similar upgrades are planned for two other buildings at the Kurchatov Institute housing substantial quantities of HEU. Largely because of the use of Russian equipment, the Russian participants (Kurchatov and Eleron, a principal Russian producer of security equipment affiliated with MINATOM) have become enthusiastic backers of the approach, and are actively working to sell similar systems to other facilities. GAN, the Russian nuclear regulatory agency, has publicly advocated installing similar systems at nuclear facilities throughout the Russian Federation.

Government-to-Government and Lab-to-Lab Agreements

In addition to these specific successes in securing materials at particular sites, agreement has been reached on next steps for both the government-to-government and lab-to-lab programs.

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As noted earlier, in November-December 1994, agreement was reached to expand Nunn-Lugar MPC&A cooperation to include a half-dozen key, high-priority nuclear sites, including the key facilities listed by the JAEIC as "most seriously deficient." After a brief effort by MINATOM to walk this agreement back, agreement was reached in March 1995 to proceed with implementation of MPC&A upgrades at 5 of these sites. Major upgrades are expected to be implemented during 1995 and early 1996.

Similarly, in January 1995, the U.S. and Russian multi-lab steering groups reached agreement on a plan calling for a wide array of activities at a variety of Russian nuclear sites. Upgrades at Kurchatov will continue; at Arzamas-16, a demonstration MPC&A system has just been installed, and analyses of U.S. and Russian MPC&A equipment are continuing; at Obninsk, a complete MC&A system for two major facilities is expected to be installed by June of 1995; at the Tomsk-7 facility where HEU from weapons will be converted to oxide, tentative agreement (pending MINATOM approval) was reached to implement an MC&A system by late 1995 or early 1996; and a similar system will be installed for Site 20 at Chelyabinsk.

Remaining Issues

Despite these successes, a number of key issues remain:

- Only a tiny fraction of the job is yet done: most of the work remains before us. Cooperative MPC&A programs must continue and must receive high priority and commensurate resources, if the grave proliferation risks that now exist are to be substantially reduced.
- The Russian government remains a cautious partner. MINATOM continues to exclude military materials (the majority of the weapons-usable materials in Russia) from government-to-government cooperation, and to seek to limit the number of sites where such cooperation proceeds. MINATOM is also seeking to exert greater government control over the lab-to-lab program (a request which should be resisted). Despite decrees from President Yeltsin and an order signed by Prime Minister Chernomyrdin, MINATOM and the economic ministries are still giving MPC&A low priority. As noted earlier, the Ministry of Finance has refused to provide the roughly $4 million that GAN and MINATOM agreed was necessary to implement the "most urgent" steps in the Russian government's MPC&A plan, signed by Chernomyrdin.
- Within the U.S. government, interagency squabbles continue. While some important steps have been taken to resolve these issues (such as establishing an NSC-led interagency coordinating group, and consolidating MPC&A funding in the DOE budget, rather than leaving it split between DOE and Nunn-Lugar), some disagreements remain unresolved. As one indicative example, DOE and DOD have been disagreeing for weeks over the specifics of how $15 million will be transferred from DOD Nunn-Lugar accounts to DOE to fund the FY95 lab-to-lab program, and this disagreement has now been allowed to spill over into discussions with congressional committees, potentially imperiling the viability of the FY95 lab-to-lab program.
- Resources remain limited. In a number of cases, particularly in the lab-to-lab program, the United States has had to put off Russian proposals for further cooperation, because

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sufficient funds and personnel were not available to carry them out. In other words, while MPC&A programs through mid-1994 were primarily "cooperation-limited"—that is, available funds could not be spent because sufficient cooperation had not yet been achieved—these programs are now clearly resource-limited.

- Currently the critical managers of the MPC&A effort at DOE are burdened with many other responsibilities. Additional, qualified, full-time personnel are needed at all levels to implement DOE's expanding program. The team of qualified people at the implementing level at DOE and the laboratories also needs to be expanded.
- There is insufficient coordination with other related efforts, such as various transparency initiatives, the HEU purchase agreement, and plutonium disposition.

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IV. LESSONS LEARNED

The United States, in its attempt to assist the former Soviet states in remedying weaknesses in the system to protect, control, and account for nuclear materials inherited from the former Soviet regime, has been faced with a daunting task. Never before has one nation, in so short a period of time, attempted to assist a former adversary to meet such security needs. Never before has the United States been faced with the delicate task of providing assistance of this sort while being sensitive both to the democratic evolution of its former adversary and to the significant security dangers that remain in the transition. The short history of this program suggests a number of important lessons, and these lessons must be applied if the assistance effort is to produce maximum benefits in the future.

1. An effective program requires sustained top-level leadership, including positive direction and support by the President and active, personal participation by cabinet-level officials.

The history of these programs unfortunately makes clear that if working-level agency officials are allowed to let their disagreements block action, that is precisely what will happen. Leadership by top-level officials is required to break through such logjams. The priority of this issue within the Executive Branch must be increased if the program is to succeed. The program requires clear lines of authority from President, and a strong interagency focal point.

Top-level leadership is also required to mobilize opinion within the Executive Branch, the Congress, and the public, to support the modest costs required for these crucial programs. This is particularly important when the assistance is for programs that are often misunderstood, such as those in the nuclear area.

2. Maximum progress requires maximum flexibility.

Experience demonstrates that the best way to make progress is to push forward on several fronts at once, while constantly searching for new ways to get around obstacles that arise.

Faced with multiple actors on the Russian side with differing (and sometimes conflicting) responsibilities and interests, the United States has taken a multi-pronged approach, cooperating with MINATOM, with GAN, and with individual laboratories and institutes. This flexible approach has proved its worth and should be continued.

To date, the DOE's lab-to-lab program has achieved greater successes and moved more rapidly than has the portion of the Nunn-Lugar program devoted to securing nuclear materials. The flexibility of the lab-to-lab program is a large part of the reason for this difference. In particular, explanations for this success include:

- basing the program on direct collaborative efforts between scientists and engineers focused on common goals, bypassing detailed negotiation by governments;
- a willingness to provide a substantial portion of the funds for direct purchase of equipment and services from entities in the former Soviet states, giving the Russian laboratories

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strong incentives to participate and to assign personnel to this task (rather than providing only U.S. equipment and excluding payment of recipient-state salaries, as has been the case in Nunn-Lugar); and

- the absence of some Nunn-Lugar requirements, including the need to follow all DOD procurement regulations and the need for the U.S. to insist on the "audit and examination rights" called for in the Nunn-Lugar implementing agreement.

In particular, the willingness to use Russian equipment in those cases where suitable equipment is available (which is not the case in all areas of MPC&A) increased Russian incentives to cooperate; lowered costs; and resulted in equipment that was easier for Russian personnel to operate, maintain, and replicate at other sites.

This flexibility has been achieved without sacrificing protection for the taxpayer. Instead of the "audit and examinations" called for under Nunn-Lugar, for example, the laboratories have been contracting for specific deliverables at specific prices, with a full demonstration required of each system paid for under the program.

3. Responsiveness to recipient-country concerns is essential.

The effort to protect, control, and account for fissile material in the former Soviet states is ultimately the responsibility of those states. Hence U.S. efforts will not be successful unless undertaken cooperatively. To build a continuing basis for cooperation, there must be a constant effort to understand how the various states (and the various actors within those states) view the problem and the cooperative program, to respond to their concerns, and to provide incentives for cooperation.

Failing to be sensitive to recipient country concerns can greatly damage prospects for gaining cooperation in upgrading MPC&A. As noted, some key officials have already been warned about excessive cooperation with the United States, after sensationalized stories appeared in the Western press. The concerns that must be addressed fall into four main categories: confidentiality and limiting negative press commentary; a focus on conceiving of these programs as cooperation, not as assistance; reciprocal access to U.S. facilities; and the use of indigenous equipment and expertise. The first and last of these appear to be concerns shared by many of the recipient states, while the middle two primarily apply in the case of Russia.

i. *Confidentiality.* Cooperation will not be forthcoming if, whenever Russia opens a nuclear site to the United States, the press is then filled with stories about the inadequacies of the security and accounting at that site. Extreme care must be taken to protect information the recipient states consider confidential. Efforts should be made to avoid sensationalized press accounts of the state of MPC&A in the former Soviet Union. Public statements that Russian MPC&A systems are inadequate, that seizures of nuclear material in Europe and elsewhere came from Russia, or that Russian technology is inferior to Western technology should be avoided.

ii. *Emphasize Cooperation, Not Assistance.* Particularly in Russia, which conceives of itself as an advanced nuclear power on a par with the United States, it is very important that these

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programs be presented as joint cooperation to mutual benefit—not as an assistance program for countries incapable of properly managing their nuclear materials by themselves. Public statements should emphasize that this is a global problem, not just a Russian one, and that programs to cooperate with the FSU states in addressing the problem represent cooperation on mutual problems to mutual benefit, not assistance.

iii. *Reciprocal Access.* Given Russian sensitivities, gaining necessary access to the wide range of facilities in Russia requiring MPC&A upgrades will inevitably require offering similar access to U.S. nuclear sites. There is little doubt, for example, that the U.S. decision to give a high-level Russian team a detailed look at the security and material control systems in place at the Hanford plutonium storage site was a critical factor in the Russian decision to allow cooperation to begin at similar sites with weapons-usable material in Russia. Indeed, the Russian official who led the U.S. return visit to the Mayak plutonium storage site informed the group that his instructions were to provide exactly as much access as the Russian group had received at Hanford—no more, and no less. Thus, the Clinton Administration's decision to offer reciprocal transparency measures—in contrast to the Bush Administration's "pay per view" approach, which demanded unilateral Russian transparency in return for Nunn-Lugar assistance—is critical to continued success.

iv. *Indigenous Equipment.* As already mentioned, making use of equipment produced in the former Soviet states themselves, rather than using only American equipment (as has been the case to date in most of the Nunn-Lugar program, including the Nunn-Lugar MPC&A program) is critically important to addressing recipient-state sensitivities. One official of the Russian security service told the Panel bluntly that if the United States insisted on using its own equipment, cooperation would go no further.

4. There is no substitute for a strong management team to lead these programs.

Particularly in a complex, multi-pronged program such as this one, effective management is essential to keep the programs focused on the central goal of achieving the largest possible reductions in proliferation risk per dollar spent, as quickly as possible, and to keep participants focused on a prioritized plan of action. In both Russia and the United States, participants in these programs have a variety of interests (including financial interests in receiving as large a fraction of the program's funds as possible) in addition to their interest in reducing proliferation risks. This is not to criticize any of the participants: it is simply a fact of human nature, which must be kept in mind. Given that situation, strong managers, aware of these different and sometimes conflicting interests, are essential to keep the program on track.

5. Public support in the United States, the former Soviet Union, and among their present and former allies is needed.

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Project Sapphire—And Beyond

Project Sapphire, which airlifted some 600 kilograms of HEU from a vulnerable fuel fabrication facility in Kazakhstan to safe storage at Oak Ridge, was a major nonproliferation success, for which the Clinton Administration deserves great credit.

A variety of lessons can be drawn from the Sapphire experience. The effort took many months, far longer than was originally anticipated. Indeed, the operation was not over when the material arrived in the United States: some important issues, such as how the material will be managed in the United States, and precisely how the promised assistance to Kazakhstan would be paid for, remained unsettled at the time of the Panel's review.

An intensive effort was needed to accomplish this mission, including the establishment of an interagency "Tiger Team" and, ultimately, the personal involvement of the President and several Cabinet Secretaries. (The press conference announcing the operation after it was complete featured the Secretaries of State, Defense, and Energy.) In addition to reaching agreement with Kazakhstan (and confirming that Russia did not object, and had no interest in taking the material itself), there were important issues that had to be resolved within the U.S. government, including the responsibilities and authorities of different agencies; where funds could be found with sufficient flexibility to pay for the activities required for this effort; locations in the United States where such material could be received; compliance with environment, safety, and health regulations; difficulties of packaging and transport (including the touchy question of overflights of other countries carrying nuclear materials); and others. The dedication of those who took part in this effort was responsible for its ultimate success.

The involvement of the President and several Cabinet Secretaries in this successful effort demonstrates the need for, and value of, such top-level leadership in pushing to a successful conclusion programs related to reducing risks of theft of fissile materials. The obstacles that arose and were overcome demonstrate the need for a strong and focused interagency process to deal with such issues, led by a senior official with day-to-day responsibility for coordinating these efforts. The Panel believes it would be very useful for the participants in Sapphire to prepare a "lessons learned" report. The insights contained therein could help guide cooperative MPC&A programs and future efforts to purchase materials.

As far as is known, Sapphire took care of by far the largest stockpile of weapons-usable fissile material outside Russia. There is little reason for confidence, however, that other stockpiles will not be found whose removal would be determined to be an urgent matter of national security. The Clinton Administration is establishing a process for examining, on a case-by-case basis, whether other such purchases would be justified. No assumption is being made that the specific arrangements made for Sapphire would be repeated for the next purchase—but the experience of Sapphire should make similar efforts far easier to implement should they prove necessary in the future.

There may be simpler approaches to such purchases that should be explored. For example, if effective MPC&A systems were established at the facilities processing HEU for the HEU purchase agreement, then HEU could be purchased from a site with an insecure stockpile, and sent to the blending facilities in Russia to be processed into LEU as an add-on to the HEU deal. (The entire Sapphire stock would have increased the scale of the HEU purchase agreement by just over one-tenth of one percent.) The price for the HEU could be the same as that in the HEU purchase agreement, or some other arrangement might be made if there were security reasons for offering a higher price. Proceeds from such purchases might be divided in such a way as to provide incentives to research institutes to give up their HEU, and incentives to the relevant government to participate in the collaborative purchase arrangement. Further exploration of such concepts is needed.

The cooperative MPC&A program is difficult to describe to the public because of the obvious sensitivities involved, described above. Support from the public sector is required, however, if the program is to maintain adequate funding from the United States and benign cooperation, at least, from others. A difficult balance must be drawn between providing sufficient

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information to make a public case for the importance and urgency of these programs, and maintaining sufficient confidentiality to ensure continued recipient-state cooperation. A proactive approach under Presidential leadership is essential.

The need for such leadership is particularly acute in those cases where cooperation is perceived to have a negative impact on the interests of segments of the U.S. public. For example, the HEU purchase agreement has the potential to displace U.S. jobs in uranium mining and enrichment. Project Sapphire required bringing foreign nuclear material to Tennessee, where local residents believe they are carrying a big enough nuclear burden already. Purchasing MPC&A equipment produced in the former Soviet states will mean that the money will not go to American contractors. In all these cases, the public and the Congress need to understand the substantial security benefits from the modest sacrifices called for.

6. Effective collection and analysis of information is essential.

Analysis by experts of data available to the U.S. Government to ensure adequate understanding of the true situation is crucial. Important information can be gained from the existing analytical resources of the intelligence community if it is properly tasked and focused. Since information related to accounting and control procedures within particular facilities is not available through national technical means, however, much of the most important information is coming not from the intelligence agencies, but from U.S. MPC&A experts who have visited many of these facilities. Increased attention needs to be devoted to ensuring that information available from individuals who have worked at or visited these facilities is collected and integrated with other information.

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Securing Weapons–Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation



Report of the Panel on U.S.–FSU Cooperation to Protect, Control, and Account for Weapons–Usable Nuclear Materials

The President's Committee of Advisors on Science and Technology

March 28, 1995

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E. O. 13526
2016-0129-M (1.59)
09/19/2022 VZ

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Securing Weapons-Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation

Executive Summary

A Grave Security Threat

- Grossly inadequate safeguards and security for nuclear materials in the former Soviet Union pose a clear and present danger that the essential ingredients of nuclear bombs could fall into the hands of terrorist groups or rogue states.
- This is among the most serious and urgent threats to national security the United States faces in the coming decade—an unprecedented crisis on the "supply side" of nuclear proliferation.
- Already, there have been multiple seizures of kilogram-quantities of weapons-usable materials stolen from nuclear facilities in the former Soviet Union. (b)(3) E.O. 13526 6.2(a) (b)(3)
- The intelligence community has concluded that *none* of the scores of facilities with weapons-usable materials in the former Soviet Union has adequate safeguards and security. *All* are at risk of losing nuclear materials.
- While there is no evidence that such materials have yet fallen into the hands of potential proliferators, we do not know what has not been detected. Such a proliferation disaster could occur at any time.

Urgent Presidential Action Needed

U.S. programs to cooperate with the states of the former Soviet Union in reducing this threat are beginning to make progress after a slow start, and deserve strong support.

The Panel recommends that the President should:

- issue a decision directive designating the effort to control and account for fissile material as a critical and urgent security priority of the United States, and direct that it be given commensurate resources and top-level attention;
- appoint a senior Administration official to take full-time, personal responsibility for ensuring that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented;
- establish, under the leadership of that senior official, a stronger and more focused interagency process designed to bring the talents of all critical agencies to bear in addressing this problem;
- direct the senior official responsible for these programs to prepare a prioritized nuclear material security and accounting action plan within 60 days, specifying near-term, mid-term, and long-term goals and objectives, and the resources needed to accomplish them;

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- direct that adequate funds and personnel be allocated specifically for nuclear material security and accounting cooperation, and that a high priority be assigned to protecting these resources from cutbacks;
- direct the senior official responsible for these programs to develop and implement a plan to secure needed legislative and public support;
- make effective security and accounting for weapons-usable material an important factor in U.S. relations with the states of the former Soviet Union, and use the opportunity of the upcoming summit to gain agreement on specific new steps to improve security and accounting for nuclear materials;
- direct that higher priority be placed on providing information support to efforts to reduce nuclear theft risks, including increased cooperation between intelligence agencies in tracking and responding to nuclear smuggling;
- designate efforts to enhance security and accounting for nuclear materials worldwide as a key mission of the national laboratories.

In addition, the Panel provides a wide range of specific recommendations for those implementing these programs. Especially important among these recommendations are that these programs:

- follow three guiding principles, namely: focus on the highest priorities; foster indigenous capabilities in the former Soviet states; and build toward national systems in those states;
- continue to take a flexible, multi-pronged approach, with both government-to-government and lab-to-lab components;
- make a comprehensive effort to analyze and deal with recipient-state sensitivities and incentives, including: maintaining confidentiality; emphasizing cooperation, not assistance; offering reciprocal access to facilities; and using equipment produced in the former Soviet states;
- continue to focus on specific deliverables, to ensure that funds are spent for their intended purposes.

Further, the Panel suggests a specific set of near-term, mid-term, and long-term objectives, and a specific set of near-term recommended actions, spelled out in the body of the report.

Cost-Effectiveness of Early Action

The cost of ensuring adequate security for these weapons and materials, while not insignificant, is dwarfed by the potential costs of the necessary defense responses, and the potential threats to U.S. security, should theft of these materials result in uncontrolled nuclear proliferation. Thus, *a decision not to take available steps that could substantially reduce these proliferation risks would be a strategic misstep of profound proportions.* In this area as in others, an ounce of prevention is worth a pound of cure.

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I. INTRODUCTION

Nothing could be more central to U.S. security than ensuring that plutonium and highly-enriched-uranium (HEU) do not fall into the hands of potential proliferators. These materials are the essential ingredients of nuclear weapons, and access to them is the primary technical barrier to nuclear proliferation in the world today. Gaining access to such materials could shorten a third-world bomb program from a decade to months, or even days if other preparations had already been made.

With the collapse of the Soviet Union and the ensuing political, economic, and social turmoil in the former Soviet states, the world is faced with an unprecedented crisis on the "supply side" of nuclear proliferation. Never before has the world dealt with the phenomenon of breakup, rapid political and economic transformations, and internal disarray in a nuclear superpower with tens of thousands of nuclear weapons and hundreds of tons of weapons-usable material. Nuclear material security systems that once relied on the Iron Curtain and the iron hand of the KGB are grossly inadequate for the new environment.

Under current conditions, virtually all of the weapons-usable material in the former Soviet Union (FSU) is potentially at risk. Already, there have been multiple seizures, by authorities in Russia and elsewhere, of kilogram quantities of stolen weapons-usable uranium and of hundreds of grams of weapons-usable plutonium. (b)(3) E.O. 13526 6.2(a) (b)(3) While there is no evidence that enough material for a bomb has yet fallen into the hands of states such as Iran, Iraq, Libya, or North Korea, we do not know what we have not detected. Such a proliferation disaster could occur at any time. *This problem of "loose materials" is among the most serious and urgent threats to national security the United States faces in the coming decade.*

The cost of ensuring adequate security for these weapons and materials, while not insignificant, is dwarfed by the potential costs of the necessary defense responses, and the potential threats to U.S. security, should theft of these materials result in uncontrolled nuclear proliferation. Thus, *a decision not to take available steps that could substantially reduce these proliferation risks would be a strategic misstep of profound proportions.* In this area as in others, an ounce of prevention is worth a pound of cure. (See "The Consequences of Failure to Act," p. 2.)

Recognizing this danger, and the critical role that science and technology must play in resolving it, the White House, in the winter of 1994–1995, requested the President's Committee of Advisors on Science and Technology (PCAST) to form a panel to conduct an urgent independent review of U.S. programs to cooperate with the states of the former Soviet Union in reducing these proliferation risks. The charge to the Panel was to prepare a report for the President on the status and effectiveness of U.S.-FSU cooperation to enhance security and accounting for nuclear materials—what is working, what is not working, and what further action by the President and by others might be needed. This report summarizes our findings.

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The Consequences of Failure to Act

The risks of unpredictable nuclear proliferation resulting from inadequately secured nuclear material in the former Soviet Union are unacceptably high. The potential costs of *not* taking action to reduce these risks—measured in both threats to U.S. national security and the cost of defense responses to them—would be far higher than the cost of timely preventative action now. Any missed opportunity could well come back to haunt us.

The potential consequences of nuclear weapons in the hands of terrorists or rogue states are far-reaching. If a state such as Iran or Libya were to suddenly acquire the essential ingredients of nuclear weapons on the black market, the international community could be faced with a devastating new threat with virtually no warning before the threat springs full-blown on the scene. The horror of the recent use of chemical weapons by terrorists in the Tokyo subways would have been unimaginably greater had the weapons been nuclear explosives.

Such proliferation—which could result from diversions of even a tiny fraction of the hundreds of tons of weapons-usable material now spread across scores of poorly-protected sites in the former Soviet Union—could have dire implications for U.S. defense and foreign policy decision-making. In such a circumstance, the flexibility of the United States to deploy troops and intervene in foreign crises would be severely constrained. For example, it would seem unlikely that the U.S. Congress would have approved the deployment of troops to the Persian Gulf had it been known that Iraq possessed nuclear weapons and was capable of delivering them. Even had the troops been deployed, they could not have been concentrated at a handful of decisive points—a critical element of U.S. strategy in the Gulf War—for fear of a key concentration node being wiped out in a nuclear attack. In such a world, the already strained deterrent to local mischief could be severely undermined.

The costs of the necessary defense responses would dwarf the costs of protecting these materials to prevent the threat from arising. One need only look at the immensely costly buildup that was being seriously contemplated for Korea last year—and the vast cost in lives and value had the Korean crisis led to war—to make that calculation.

The primary focus of the review was on cooperation with the states of the former Soviet Union in enhancing security and accounting for weapons-usable nuclear materials—known formally as material protection, control, and accounting (MPC&A). The principal MPC&A programs on which this review has mainly focused include: the government-to-government MPC&A programs (funded through FY95 from the Nunn-Lugar program, and after that in the DOE budget); a U.S.-Russian laboratory-to-laboratory MPC&A program, initiated in April 1994; and expanding cooperation with nuclear regulatory bodies, particularly GAN, the Russian counterpart to the U.S. Nuclear Regulatory Agency. (See Table 1.)

Two further kinds of activities were considered more briefly in the Panel's review: smaller-scale MPC&A support activities such as the safeguards projects funded by the International Science and Technology Center in Moscow (ISTC) and safeguards assistance to former Soviet states other than Russia, Kazakhstan, and Ukraine,[1] and a wider range of related

[1]These programs are carried out in coordination with other donor countries and organizations, with the efforts partly coordinated through the International Atomic Energy Agency (IAEA). A number of donor countries and organizations, including Japan, EURATOM, Sweden, and the United Kingdom, among others, have established programs designed to assist the former Soviet states in upgrading MPC&A, focusing in most cases on the non-Russian states, though no other donor country has yet established an MPC&A assistance program of comparable scale to that of the United States. Japan, France, and the United Kingdom have programs valued in the tens of

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If cooperative approaches to forestalling this potential threat fail, all of the options that will then be available are hazardous and uncertain of success. These would include efforts to: forcibly control the materials(e.g., through the use of Special Operations Forces); forcibly destroy the materials (e.g., Special Operations or air attacks); or intercept the materials during delivery. With regard to attacking the materials in place, it will be recalled how difficult it was to locate and destroy SA-2 sites in North Vietnam, SA-6 sites in the Suez area, or Scud launchers in the Persian Gulf—in spite of the dedication of considerable assets to those missions.

The task of defense once these materials were constituted into the form of nuclear weapons is even more daunting. Intercepting such weapons delivered by ballistic missile is the province of ballistic missile defense—a mission wherein a great deal of technical progress has been made in recent years. Nonetheless, the economic cost of providing full-area coverage with near leak-proof quality is extremely high, running into many billions of dollars for the continental United States alone. To protect both the United States and U.S. and allied forces abroad would cost even more. Even if such a capability to intercept ballistic missiles were deployed, there would still be the matter of "engaging" the small number of weapons which, for extortion purposes, might be smuggled in the hold of a cargo ship, on board an airliner, or in some other manner that experience suggests we would find difficult to intercept (say, in a bale of marijuana).

In short, should theft of these materials lead to unpredictable nuclear proliferation, the resulting security threats to the United States would be severe, and the possible defense responses would be both expensive and of uncertain effectiveness. A world in which any dictator or terrorist group who wants a nuclear bomb can purchase the essential ingredients on a thriving nuclear black market is simply not an acceptable world to bequeath to our children. Action must be taken now to prevent such a world from arising.

As Senators Nunn and Lugar wrote in the summer of 1992: "The United States has spent trillions of dollars defending against the military threat imposed by the former Soviet Union. We now have the unique opportunity to help ensure that our children and grandchildren will not be confronted with a comparable threat from that region of the world. This is an opportunity we cannot afford to miss."

programs that, while not directly focused on MPC&A, are related to the management of nuclear weapons and nuclear materials in the FSU. Initiatives in this latter category include: cooperation to improve security for assembled nuclear weapons (as opposed to materials outside of weapons); purchases of nuclear materials (such as Project Sapphire); assistance (under the Nunn-Lugar program) in construction of a safe and secure storage facility for plutonium and HEU from dismantled weapons; cooperation in combating nuclear smuggling (including police, intelligence, and customs cooperation); proposals to increase openness and transparency related to nuclear stockpiles, including exchanges of data and reciprocal visits; proposals and agreements to end further production of materials for weapons (such as the June 1994 plutonium production cessation agreement); and disposition efforts designed to transform some of these nuclear materials into forms that pose much lower security risks (such as the HEU purchase agreement, and the recently inaugurated joint study of options for plutonium disposition). (See Table 2.)

The Panel believes that all of these related efforts are important (and in many cases synergistic with efforts to improve MPC&A), and a number of recommendations related to them

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millions of dollars for purposes similar to those of the U.S. Nunn-Lugar program, and Germany, Italy, Canada, Norway, and Sweden, among others, have smaller programs. While a few of these programs include modest investments in MPC&A in the non-Russian states, none of them other than a modest EURATOM program involve significant contributions to MPC&A in Russia.

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Table 1 Principal U.S.-FSU MPC&A Programs

- Government-to Government
  (Transitioning from Nunn-Lugar to DOE)

  Funding:
  FY92-FY95: $30 million for Russia (focused on MINATOM facilities)
  $22.5 million for Ukraine
  $20 million for Kazakhstan

  FY96: $20 million request (DOE)

- Lab-to-Lab

  Funding:
  FY92-FY95 $17 million
  FY96: $40 million request (DOE)

- GAN Cooperation

  Funding:
  FY92-FY95: $300,000
  FY96 $10 million request (DOE)

Total FY96 request: $70 million (DOE)

Note: In addition to these principal programs, there are modest efforts funded by the International Science and Technology Center, and by DOE program funds. DOE program funds for states other than those listed include $100,000 for Belarus, and $300,000 for all of the other former Soviet states. The $300,000 listed for GAN cooperation in FY92-FY95 is complemented by regulatory support funds from the $30 million allocated to Nunn-Lugar MPC&A programs in Russia.

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can be found in this report. Nevertheless, they were not the principal focus of this review, which centered on the establishment of effective security and accounting systems at the wide range of sites where such materials are held. This is the most fundamental requirement for success in reducing the proliferation risks from possible theft of nuclear materials.[2]

In conducting its review, the Panel discussed the problem and current programs to address it with representatives of the White House, including the National Security Council and the Office of Science and Technology Policy; the Central Intelligence Agency and other intelligence organizations; the Departments of Energy, State, and Defense; the Nuclear Regulatory Commission and the Arms Control and Disarmament Agency; the national laboratories; and outside experts. In addition, the chairman of the Panel and the principal staff member traveled to

[2]Under current conditions, it appears that security for assembled nuclear weapons is substantially better than security for nuclear materials, and therefore that the probability of proliferation resulting from theft of a nuclear weapon is significantly lower than the probability of proliferation resulting from theft of weapons-usable material outside of weapons. See Joint Atomic Energy Intelligence Committee, *The Russian Nuclear Weapons Stockpile System (U)*, (Secret NF), JAEIC 94-005, December 1994. However, see also CIA (b)(3)

(b)(3)

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Table 2 Related U.S.-Russian Fissile Material Management Programs

Securing Nuclear Materials
- Nunn-Lugar Storage Facility
- DoD-MoD Nuclear Weapons Security Talks
- Combating Nuclear Smuggling

Building Confidence Through Openness
- Safeguards, Transparency, and Irreversibility Talks
- Reciprocal Nuclear Stockpile Declarations
- Reciprocal Inspections of Material From Dismantled Weapons
- IAEA Safeguards on Excess Materials
- Nunn-Lugar Storage Facility Transparency
- HEU Purchase Agreement Transparency

Halting Accumulation of Excess Stocks
- Plutonium Production Cessation Agreement
  - Monitoring
  - Alternate Energy for Production Reactors
- Fissile Material Cutoff
- Reduced Enrichment for Research and Test Reactors

Disposition of Excess Material
- HEU Purchase Agreement
- U.S.-Russian Plutonium Disposition Options Study

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Moscow and discussed these issues with representatives of the Russian Ministry of Atomic Energy (MINATOM); the Federal Nuclear and Radiation Safety Authority (the Russian nuclear regulatory agency, known by its Russian acronym, GAN); the Federal Counterintelligence Service (FSK); Arzamas-16, one of Russia's two principal nuclear weapons laboratories; and the Kurchatov Institute (where the new MPC&A system recently installed at Building 116 with U.S. assistance was also reviewed). Appendix A provides a list of the principal briefings the Panel received.

Given the urgency of the problem, the Panel was forced to conduct its review in a very short period, and the level of detail we were able to pursue was necessarily limited. We recommend that mechanisms be established for further, ongoing review of the implementation of these programs.

Before going further it is important to emphasize the sensitivity of this issue in the former Soviet Union. While grave problems exist with security and accounting for nuclear materials in these nations, it is unwise for official statements to say so. Unguarded public statements suggesting that these nations are unable to effectively control their nuclear materials can quickly poison the atmosphere for cooperation. Such statements are already feeding Russian paranoia concerning U.S. intentions; Minister of Atomic Energy Victor Mikhailov expressed a widely-held view in a recent interview when he said that the West was whipping up fears of nuclear smuggling

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in order to suggest "that Russia is unable to handle its nuclear industrial complex and the West should take control over it into its own hands."[3] After some stories that have appeared in the Western press, individuals who have been open and cooperative with the United States on MPC&A matters have been sternly warned by the FSK.[4] Sensitivities about cooperation in this area also exist in the other former Soviet states. Hence, extreme care must be taken to avoid incautious public statements and sensationalized press reports. As one official from the U.S. Embassy in Moscow put it to the Panel: "Trust that took thousands of hours to build can be destroyed in a ten-minute speech."

In the remainder of this report, we begin by describing in more detail the scope and nature of the deficiencies in security and accounting for weapons-usable nuclear materials in the former Soviet Union. We then discuss the U.S. response to this problem to date, and outline some key lessons learned from the experience so far. We then conclude with a series of recommendations for next steps, including actions we believe the President should take and actions that should be taken by the program's implementers.

[3]Interviewed in the new Russian journal *Yaderny Kontrol* (Nuclear Control), translated in *The Monitor: Nonproliferation, Demilitarization, and Arms Control*, University of Georgia, Center for East-West Trade Policy, February 1995.

[4]See Moscow 001888, January 1995, "Holes in the Fences: Protecting Nuclear Materials in Russia's Closed Nuclear Cities," (Secret).

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II. THE PROBLEM

The Soviet Union had a nuclear materials security system that was highly effective for decades. But the threat, and the environment, have changed. Today, this system, once effective, has become grossly inadequate.

Recently, the Joint Atomic Energy Intelligence Community (JAEIC) produced a comprehensive study examining safeguards and security in the former Soviet Union. The study found that *none* of the roughly 80 non-Ministry of Defense facilities with weapons-usable materials in the former Soviet Union had adequate safeguards and security. *All* of these facilities are judged to be at risk of losing weapons-usable nuclear materials. "There is no national system of nuclear materials safeguards and security in any of the countries which make up the former Soviet Union," the study warned. "In Russia this deficiency is exacerbated by bureaucratic conflict over responsibility for safeguards and security." Seven facilities—all large facilities handling hundreds of kilograms of weapons-usable material that are not in closed cities—were judged to be "most seriously deficient," posing the highest proliferation risks. Dozens more were judged to be "seriously deficient."[5]

The system that is still in place was designed almost exclusively to counter an "outsider" threat—such as American spies getting into nuclear facilities.[6] The "insider" threat—workers within a facility who might steal materials—was virtually non-existent, because of the location of most of the materials within closed cities or at least closed facilities, the extensive monitoring of personnel within these cities and facilities by the KGB, and the limitations imposed on the operation of black markets (whereby stolen materials might be transported out of the country) by the characteristics of the closed, authoritarian society.

With a burgeoning black market, ever-increasing corruption, porous borders, and severe economic distress for nuclear workers, the "insider" threat has grown astronomically, and the old system is simply unable to cope. The nuclear cities that once received the best the Soviet economy had to offer are now stricken by genuine poverty. At many sites, workers go unpaid for months; several strikes and other labor actions at major nuclear sites have occurred. With nuclear workers struggling to feed their children, the temptation to steal could be overwhelming. Already, there have been many cases of insiders at nuclear facilities stealing nuclear materials for possible sale.

The systems in place to protect nuclear materials were never designed to deal with the insider threat that is now predominant. The facts are stark:

- Russia has no national accounting of its nuclear materials. No one in Russia knows exactly how much plutonium and HEU they have; at most sites, no one would know if plutonium or HEU were missing.

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[5]Joint Atomic Energy Intelligence Committee, *Safeguards and Security of Weapons-Usable Material At Non-Ministry of Defense Facilities in the Former Soviet Union (U)*, JAEIC-95-001, (Secret NF WN), January 1995.

[6]Given that this was a key threat around which Soviet security systems were designed, it is not surprising that it has been difficult to convince Russian security officials that Americans in Russian nuclear sites are part of the answer, not part of the problem.

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- In several known cases, individuals have simply "walked off" with kilograms of weapons-usable materials, and no one noticed until long after the materials were gone.
- The Russian Interior Minister has estimated that 80% of Russian nuclear facilities have no systems in place to detect nuclear materials being carried out the gates. The correct figure is probably higher.
- Little if any actual safeguards accounting of nuclear materials is done. Materials are weighed when they enter a facility and when they leave, with the difference simply assumed to be normal process losses or losses to waste—meaning that an intelligent insider could remove materials without the losses ever showing up in the inventory books.

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(b)(3)

- Most of the alarm systems that do exist have open wiring that could be cut by a single insider—and cutting the wiring does not itself set off an alarm.
- Seals to indicate whether containers have been opened use technology that could be forged in seconds by most insiders. For example, many facilities use wax seals imprinted with a special stamp; but all the workers with access to nuclear materials carry such a stamp with them, and so could rapidly produce a new seal that would falsely indicate that no tampering had occurred.
- While in theory there is a "two-man-rule" barring any individual alone from getting access to nuclear material, this crucial safeguard is widely ignored.
- Few facilities have TV cameras monitoring areas where nuclear materials are stored.
- Existing security systems are not being maintained. At many sites, there are holes in the perimeter fences, intrusion detectors, even if they exist, are broken, the electricity for electric fences no longer works, and easily climbed trees have been allowed to grow up next to fences.
- Guards at some facilities are not properly paid, equipped, or trained. At one facility with weapons-usable materials, for example, a fence around the guard house is intended to prevent the guards from stealing bread from the bakery next door.

Two aspects of the Soviet economic system have exacerbated the problem. First, under the quota system, if a particular facility produced more than central planners had demanded in a given year, there was a considerable incentive to set the extra material aside in a secret stock, to make up any shortfalls that might occur in subsequent years. Thus many facilities have secret "honey pots" potentially representing hundreds of kilograms or even tons of nuclear material, unknown to central authorities.

Second, since HEU was difficult to get, research institutes typically would try to acquire substantially more HEU than was needed for their immediate purposes, so as to have enough available to do further experiments. Since HEU might come in handy later, and there were no

[7] "Holes in the Fences," *op. cit.*

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Table 3 Seizures of Weapons-Usable Materials

Date	Amount	Description of Material	Where Seized
October 1992	1.5 kilograms	HEU	Russia
Spring 1994	3 kilograms	HEU	Russia
May 1994	6 grams	99.75% Pu-239	Baden-Wuerttemberg, Germany
June 1994	.8 grams	87.7% U-235	Landshut, Germany
August 1994	560 grams	Mixture of 87% Pu-239 and uranium	Munich, Germany
December 1994	2.73 kilograms	87.7% U-235	Prague, Czech Republic

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regulations requiring expensive protection for such material, there was no incentive to send any "leftovers" back to central authorities. In some cases, it has been found that leftover HEU was simply forgotten when researchers retired or moved on to other projects: there have been a number of recent instances in which facilities have discovered stashes of HEU that they did not know they had.

These weaknesses have been assessed primarily through visits to a limited number of Russian sites by U.S. personnel, along with accounts by Russian nuclear workers. Intelligence relating to safeguards and security has only recently become a priority and is difficult to come by. Satellite photography can reveal fencing arrangements, guard houses, armored cars, and the like, but says little about crucial matters such as nuclear material accounting and control activities occurring within buildings. Major gaps in our knowledge remain, which in most cases are more likely to be filled by cooperative visits to facilities by MPC&A experts than by traditional intelligence means.

Weaknesses in nuclear material security, and the growing insider threat, have already led to a significant number of confirmed thefts. Table 3 shows the known cases that have been confirmed and are unclassified.[8] Russian officials have reported a number of additional cases through classified channels—including, in one case, a theft of 9–12 kilograms of HEU.[9] While these have not been directly confirmed, there is no reason to dismiss these reports. There have been multiple seizures, by authorities inside and outside Russia, of stolen weapons-usable HEU in quantities ranging into the kilograms, as well as several seizures of stolen plutonium in quantities ranging up to hundreds of grams. As yet, there is no evidence that any of this material has fallen into the hands of potential proliferators, but we do not know what we have not detected. It is reasonable to ask: are the known cases only the tip of the iceberg?

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[9]See, for example, Moscow 032874, "Overview of Nuclear Material Protection, Control, and Accounting in Russia," November 1994 (Secret).

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Fortunately, there is as yet no evidence of a substantial "market" of agents of proliferating states looking to buy such materials: the very large number of scams being run by con artists claiming to be selling valuable weapons-usable material appears to have spooked some of the potential buyers. Nor is there any evidence, as yet, of the involvement of organized crime in thefts of weapons-usable nuclear materials. Here too, however, we simply cannot know what may be happening that we have not detected.

The facilities where the roughly 170 tons of separated plutonium and 1000 metric tons of HEU in the former Soviet Union are located can be divided into several categories:

1. *Weapons Sites.* About half of the separated plutonium and HEU in the former Soviet Union is in the stockpile of nuclear weapons, controlled by the Ministry of Defense (MoD). Security for assembled nuclear weapons is believed to be significantly better than security for nuclear materials, though transport security remains an important issue.[10] Thus, while the weapons represent a large fraction of the material, they probably represent a small percentage of the overall proliferation risk.

2. *Nuclear Weapons Complex.* A large fraction of the plutonium and HEU outside weapons is in the nuclear weapons complex—the large "closed cities" controlled by the Ministry of Atomic Energy (MINATOM). There are approximately a dozen of these closed cities, including three plutonium-production sites, four uranium-enrichment facilities (one co-located, at Tomsk-7, with one of the plutonium-production sites), two principal weapon-design laboratories, and four weapons-assembly/disassembly facilities (one co-located, at Arzamas-16, with one of the weapon-design laboratories). The closed cities are typically large sites covering many square kilometers, handling many tons of plutonium and HEU. At these facilities, plutonium and HEU exist in a wide variety of forms—as metal weapons components, metallic ingots, oxides, scrap, solutions, and residues, to name a few. Typically the entire "closed city" is enclosed within a fence, and the nuclear facility itself is also fenced. Within the facility, however, tons of weapons-usable materials may be stored in ordinary buildings with glass windows and minimal guarding. A large response force (hundreds if not thousands of soldiers) is usually stationed at the closed city. Thus these facilities are likely to be quite resistant to overt, armed attack; likely resistance to insider threats or well-trained covert teams of outsiders (possibly with the collaboration of one or more insiders) appears to be poor, however.

3. *Civilian Facilities and Research Institutes.* Substantial quantities of weapons-usable material are also held at civilian facilities—particularly fuel-fabrication plants and research institutes. Some of these are controlled by MINATOM and some by a wide array of other organizations, ranging from the Russian Academy of Sciences to individual universities. Much of this material is in the form of HEU fuel elements for research reactors, but at a number of these facilities HEU or plutonium exist in bulk form (typically oxides) as well. Much of the HEU at these facilities is enriched to 90 percent or even higher, making it very attractive bomb material. These institutes, not located in closed cities, typically have only the most minimal physical

[10]See note 2.

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protection. In many cases, a substantial number of facility employees have the access required to walk in, remove the nuclear materials, and leave the premises without detection or questioning. Essentially all of the stolen weapons-usable materials seized by authorities to date appear to have originated from facilities in this category. Thus, while these facilities may have less than 5 percent of the weapons-usable materials in Russia, they represent a very large fraction of the proliferation risk. Indeed, all of the facilities listed in the JAEIC study as "most seriously deficient" were in this category. It should be noted that a small percentage of hundreds of tons of weapons-usable material is still sufficient to make thousands of nuclear weapons.

4. *Naval Fuel.* A substantial quantity of HEU ranging from 20–90 percent enrichment exists in the naval complex, including fuel for submarines, surface combatants, and civilian icebreakers. (b)(3)

E.O. 13526 6.2(a) (b)(3)

Naval fuel storage sites (such as the one at Murmansk where several kilograms of fuel was recently stolen) are controlled by the Navy. Despite being controlled by the military and its contractors, naval fuel sites appear to be startlingly insecure. In the Murmansk case, for example, a single thief simply walked through one of the many holes in the fence, sawed off the padlock on a shed holding naval fuel, pried open the door (using a pole he found at the site), broke open several fuel elements, poured the material into his bag, and retraced his steps. While the theft was detected within hours, the thief was not arrested until six months later, when he began trying to market the material. The prosecutor concluded publicly that in Russia it is easier to steal nuclear material than to steal a sack of potatoes.

5. *Beyond Russia.* When the Soviet Union collapsed, Russia was left with more than 95% of the weapons-usable nuclear materials that were not in nuclear weapons. Operation Sapphire, which airlifted 600 kilograms of HEU from Kazakhstan to safe storage at Oak Ridge, eliminated the largest known stock of weapons-usable material remaining outside Russia. The other material of concern outside the Russian Federation is at a small number of research institutes, in Ukraine, Kazakhstan, Belarus, Latvia, Georgia, and Uzbekistan. As with the research institutes in Russia, these facilities have minimal physical protection or material accounting, and pose high proliferation risks. It appears possible, however, that sufficient funds will be made available by the United States and other donor countries to greatly improve security and accounting for all sites outside Russia with weapons-usable materials during 1995–1997.

In short, the problem is a gigantic one: hundreds of tons of material, at scores of sites spread across the 11 time zones of the former Soviet Union, in weapons, production facilities, and research institutes.

The governments of the region, faced with a wide range of other urgent priorities in a wrenching time of transition, have failed to devote the attention and resources needed to solve these problems. In Russia, while President Yeltsin and Prime Minister Victor Chernomyrdin have both issued orders and decrees calling for urgent programs to upgrade security for nuclear materials, interagency disagreements and conflicting budget pressures have stymied effective action.

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The Ministry of Atomic Energy (MINATOM), which controls most of the nuclear materials in Russia, continues to tell Russian authorities and the world at large that there is no problem, that it is impossible to steal nuclear materials in Russia, and that they know for certain that every gram of material is in its proper place. Nothing could be farther from the truth—as other ministries, such as the Federal Counterintelligence Service (FSK) and the Ministry of Internal Affairs (MVD) are beginning to point out within the Russian government.

But from MINATOM's perspective, the whole issue represents a profound economic threat: admitting that there is a problem would mean admitting that substantial resources should be diverted from favored MINATOM projects to address it. (As an indication of the scale of resources involved, the United States spends some $800 million every year on safeguards and security in the DOE complex.) And MINATOM's budget is already stretched extremely thin, as Minister Mikhailov attempts to maintain his million-person empire even after its Cold War mission is over. Moreover, acknowledging that there were problems controlling nuclear materials where they are now would be a fundamental challenge to MINATOM's vision of a future in which reactors running on weapons-usable plutonium fuel would be spread throughout the Russian Federation.

Just as the Russian government is not a monolith, however, MINATOM is not a monolith. Many of the institutes and facilities involved in MPC&A cooperation with the United States are developing an acute understanding of the problem and considerable enthusiasm for continued cooperation. Tension between MINATOM headquarters' efforts to go slow and MINATOM facilities' desire to move forward is building.

While decrees signed by Yeltsin have given the nascent nuclear regulatory agency, GAN, authority to regulate security and accounting for both civilian and military materials, GAN has only recently begun to gain the real authority needed to implement that mandate. GAN is a tiny organization with few staff and fewer resources, trying to regulate some of the most powerful ministries in Russia. During 1993 and most of 1994, GAN was effectively barred from MINATOM facilities handling military materials, and from Ministry of Defense facilities—both of which Yeltsin had decreed GAN should regulate.

In September 1994, however, Yeltsin issued a decree calling for an interministerial commission, chaired by GAN, to make recommendations for urgent steps to be taken to improve security for nuclear materials. Working closely with MINATOM, and with support from the FSK and the MVD, GAN succeeded in securing agreement of all ministries on a report to Yeltsin, and later on a government order that was signed by Chernomyrdin in January of 1995. A new Atomic Law which will provide the legal foundation for GAN's regulation of MPC&A is expected to be approved by the Duma this spring. Nevertheless, despite explicit instructions in Chernomyrdin's order that funding should be made available, the Ministry of Finance has failed to provide the roughly $4 million that GAN and MINATOM agreed was needed to implement the "most urgent" steps called for in the order.

In short, while this issue has come to the attention of the very highest levels of the Russian government, no comprehensive plan of action is yet being implemented in response, and

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MINATOM headquarters continues to deny even the existence of a problem. For the other former Soviet states, the situation varies from one nation to another—but none of them has undertaken a comprehensive program to do what needs to be done. Indeed, in Ukraine, the main organization which had been in charge of security and accounting for nuclear materials—and with whom the United States had signed agreements calling for joint work on upgrades—has recently been abolished, with its responsibilities folded into a new ministry headed by a leading opponent of Ukraine's accession to the Nonproliferation Treaty.

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III: THE U.S. RESPONSE TO DATE

U.S. programs to enhance security and accounting for weapons-usable nuclear materials in the former Soviet Union got off to a slow start, but they are now beginning to show solid achievements and appear likely to make additional progress during 1995.

A Slow Start: 1991–1993

In the years immediately following the collapse of the Soviet Union, efforts to improve security and accounting for weapons-usable materials in the former Soviet states made little progress—hobbled by lack of priority, lack of policy coherence, and lack of top-level attention in both the United States and the FSU, and by the extreme sensitivity on the FSU side about the issue of security at nuclear sites. Indeed, until early 1993, U.S. experts had not recognized the full scope and severity of the MPC&A problem that existed in the former Soviet Union.

As early as 1991, when Congress voted to establish the Nunn-Lugar program and provide $400 million for its first year, preventing proliferation and securing nuclear weapons and materials were designated as key priorities. Material protection, control, and accounting (MPC&A) was one of the seven areas of cooperation agreed to by Secretary of State James Baker and his Soviet and Russian counterparts in late 1991 and early 1992. Nevertheless, this issue received little priority on either side, and a variety of interagency conflicts delayed progress. In retrospect, setting up a program in which the Department of Energy was to spend the Department of Defense's money was a recipe for interagency conflict (some of which has continued to this day). In addition, acting on a strict interpretation of Congressional direction, DOD decided that the Nunn-Lugar program must "buy American," using normal DOD procurement regulations, for essentially all goods and services procured (so that only a tiny fraction of the money flowed to the former Soviet states). DOE's pace and priorities were criticized by other agencies as oriented more toward discussion than action. No one of sufficient authority in the White House or anywhere else brought such issues to closure to move the program forward.

It took until September 1993—a year and a half after the inception of the program—to complete a very simple implementing agreement providing the legal basis for MPC&A cooperation at Russian facilities handling civilian nuclear materials. (During this period, however, initial technical contacts were established that were to prove fruitful later, principally through conferences and the joint effort to design the MPC&A system for the proposed Nunn-Lugar storage facility for fissile materials from dismantled weapons.)

At that time, because of Russian sensitivities and resource constraints, MPC&A cooperation plans were limited to extremely modest steps. The approach was to establish a small number of "model" facilities with highly effective MPC&A systems, with the idea that Russia would then apply the lessons learned at these facilities more broadly. The schedule was leisurely: initial plans called for the "model" facilities to be established over a period of years, with implementation at other sites requiring years beyond that. A similar "model facility" approach was taken with Ukraine and Kazakhstan. (No Nunn-Lugar agreement on MPC&A has yet been

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MPC&A in the Non-Russian Former Soviet States

Russia inherited more than 95% of the Soviet Union's stockpile of separated plutonium and HEU outside of weapons. Nevertheless, facilities with kilograms or tens of kilograms of plutonium or HEU exist in Kazakhstan, Ukraine, Belarus, Latvia, Georgia, and Uzbekistan. At the Kharkiv research institute in Ukraine, for example, there are reportedly roughly 75 kilograms of bulk HEU powder, with little protection or accounting for the material. These stockpiles pose serious proliferation risks, particularly given the ongoing economic and political transformations underway in many of these countries.

The United States, Japan, Sweden, the United Kingdom, and other countries are involved in providing MPC&A assistance to these countries. The efforts of these donor countries are coordinated through meetings sponsored by the IAEA.

Given the relatively small number of facilities with weapons-usable material outside Russia, it would be desirable to make it an objective to deal with them all within the next two years—either by significantly improving security and accounting for the material there, or by removing it to a secure location (as in the case of Project Sapphire). A plan for accomplishing this objective would have to be drawn up with the participation of the other donor countries and the recipient states.

The United States has Nunn-Lugar MPC&A agreements with Ukraine and Kazakhstan. The United States has recently suggested to these countries increasing the amount of Nunn-Lugar funding for MPC&A, with the objective of covering all the facilities in these two nations that have substantial quantities of weapons-usable material (as well as establishing MPC&A training programs).

There is no Nunn-Lugar MPC&A agreement with Belarus, and hence consideration is being given to providing MPC&A assistance through the International Science and Technology Center (ISTC) in Moscow, so that a new funding agreement would not have to be negotiated. The other relevant states are not currently eligible for Nunn-Lugar assistance, but DOE has provided some initial seed money that has covered some site visits for analyses of needs. Several million dollars might be required to assure effective MPC&A for the small number of facilities in the states not already covered by Nunn-Lugar MPC&A assistance. This could potentially be accomplished by other donor states, if they were willing to take responsibility.

concluded with Belarus; other former Soviet states are not eligible for Nunn-Lugar assistance. See "MPC&A In the Non-Russian Former Soviet States," p. 15)

The Russian side insisted that the initial "model facility" efforts be limited to low-enriched uranium (LEU) facilities, even though these facilities posed virtually no proliferation risk—arguing that the two sides had to take "one step at a time," and needed to build confidence before working on more sensitive materials. In addition, although the U.S. side proposed cooperating in the development of national standards for MPC&A, MINATOM negotiators declined: national standards were now to be developed by the Russian nuclear regulatory agency, GAN, whose regulatory interference MINATOM was seeking to minimize.

Thus, as of January 1994, the only significant effort underway to cooperate with Russia to improve security and accounting for nuclear materials was focused on modest upgrades at a single low-enriched uranium fuel fabrication facility at Elektrostal. Ten million dollars of Nunn-Lugar funding was then available for MPC&A in Russia, with modest additional funds for Ukraine and Kazakhstan.

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New Initiatives: January-October 1994

It was clear that different approaches were needed, which would focus on the most urgent upgrade needs and attempt to address Russian sensitivities. The United States therefore launched two new initiatives: a concept in the Nunn-Lugar MPC&A program that came to be called the "quick fix," and a separate U.S.-Russian lab-to-lab MPC&A program. Later in the year, the United States also decided to undertake a third initiative—a greatly expanded effort to cooperate with the Russian nuclear regulatory agency, GAN.

The "Quick Fix"

The idea of the "quick fix," which was modeled on steps the United States had taken to upgrade MPC&A in its own weapons complex years before, was for the Russian government to form a series of teams to inspect Russian nuclear sites, determine what MPC&A upgrades were most urgently needed, and provide a prioritized list to the U.S. side, which could then be the basis for discussions of assistance and cooperation.

The United States proposed that a Russian team should come to the plutonium storage site at Hanford to observe U.S. MPC&A approaches and means of assessing upgrade needs; this would be followed by a U.S. visit to the Russian civilian plutonium storage facility at Mayak (chosen because of its civilian character, the large amount—nearly 30 tons—of material there, and a Soviet-era government report that had called attention to poor security there). That visit would in turn be followed by Russian-led assessments of MPC&A upgrade needs at Russian nuclear sites, beginning with 10 facilities in 180 days. To fund the high-priority upgrades (and to fund a proposal, made at the same time, to upgrade MPC&A at the Yekaterinburg blending facility for the HEU purchase agreement), the United States indicated it would be willing to increase the amount of Nunn-Lugar funding available for MPC&A from $10 million to $30 million, and to expand the Nunn-Lugar MPC&A agreement's scope to cover military as well as civilian materials.

The Russian side accepted the reciprocal visits to Hanford and Mayak (which were conducted successfully in July and October of 1994), but declined the idea of a broad-based "quick fix" approach, preferring instead to limit cooperation to a small number of specific sites. The Russian side also rejected the proposal to expand cooperation to include military materials, and declined the specific proposal to upgrade MPC&A at the Yekaterinburg blending facility (arguing that MPC&A there was already adequate, and that any upgrades that might be needed could be carried out in the context of the ongoing negotiations concerning transparency for the HEU purchase agreement).

By late 1994, however, a number of factors were converging to change attitudes regarding the importance of ensuring that nuclear materials were secured and accounted for. A series of seizures of weapons-usable material in Europe culminated in August 1994 with the seizure of 350 grams of plutonium (in some 560 grams of material, including uranium) on a plane from Moscow to Munich, provoking widespread press coverage and public concern. A top-level German official flew to Moscow and reached an agreement to cooperate in stopping nuclear smuggling. The issue was unavoidably on the international agenda, and, within Russia, there was considerable discussion of the issue in the public press. On September 15, President Yeltsin issued a decree

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establishing an interagency commission to report to him within one month on urgent measures to improve security and accounting for nuclear materials; later that month, Presidents Clinton and Yeltsin endorsed continued cooperation in this area at their Washington summit. At the same time, the less formal U.S.-Russian lab-to-lab program (described below) was beginning to make real progress, helping to establish U.S. bona fides.

Thus, during November and December 1994, the Russian side agreed to MPC&A cooperation at half a dozen sites, all of them high-risk facilities with hundreds of kilograms of weapons-usable material. These included every single one of the sites listed by the JAEIC as "most seriously deficient," except for the Kurchatov Institute, which was covered in the lab-to-lab program. Compared to the situation only a few months before, when cooperation was limited to protecting only LEU, this represented a major breakthrough. In addition, by that time the two sides had reached agreement that the United States would help establish an MPC&A training center at Obninsk—a critically important project, if a new "safeguards culture" is to be developed in Russia. Based on these agreements, the United States agreed to sign an amendment to the Nunn-Lugar MPC&A agreement increasing the available funds to $30 million, without insisting that the agreement also expand cooperation to include military materials.

Funding currently available for the government-to-government program includes some $30 million in FY94 and prior year Nunn-Lugar funds. While only a small fraction of that amount has yet been spent, the recent agreements on specific sites are expected to enable a significant acceleration of the effort. In late 1994, an interagency decision was taken to remove MPC&A from Nunn-Lugar and consolidate both the government-to-government and lab-to-lab MPC&A programs in DOE's budget request. DOE's FY96 request includes $20 million to continue the government-to-government programs channeled through MINATOM.

The Lab-to-Lab Initiative

In April 1994, Undersecretary of Energy Charles Curtis, in collaboration with the national laboratory directors, decided to establish a lab-to-lab MPC&A program, building on the lab-to-lab relationships that already existed in other areas. A total of $2 million was moved from other projects to kick off the program in FY94.

The U.S. laboratories quickly began meeting among themselves and with their Russian counterparts to discuss possibilities for cooperation. By the summer, the U.S. side was drafting a rough plan for cooperation, and contracts for initial steps were being signed. Los Alamos was designated as the leader of a multi-lab team on the U.S. side. On the Russian side, one group of participants was a team of laboratories designated by MINATOM, led by Arzamas-16, one of Russia's premier nuclear weapons laboratories.[11] This group also included the Institute of Physics and Power Engineering at Obninsk, which was expected to play an important role in MPC&A for civilian MINATOM facilities. At the same time, a parallel lab-to-lab effort was undertaken at the Kurchatov Institute, the largest nuclear institute independent of MINATOM, which had long been an advocate of improved MPC&A in Russia.

[11]Sometimes known by its Russian acronym, VNIIEF.

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From its inception, the lab-to-lab program was implemented in a different and more flexible way than the Nunn-Lugar MPC&A program, and was able to move more quickly. (For details, see "Lessons Learned,"p. 22.)

In October of 1994, Undersecretary Curtis traveled to Russia and provided a copy of the draft cooperation plan that had been prepared by the U.S. laboratories. Within weeks, the Russian laboratories had responded with a plan of their own, covering a wide range of activities. Moreover, while the Russian side in the government-to-government MPC&A effort had consistently rejected proposals to cooperate on MPC&A for military materials, in the lab-to-lab program weapons laboratories and weapons facilities were included from the outset. The lab-to-lab program also provided an opportunity for reaching outside MINATOM to independent institutes such as Kurchatov, which had been beyond the scope of the Nunn-Lugar MPC&A agreement, which was channeled through MINATOM.

A total of $15 million has been budgeted for lab-to-lab MPC&A cooperation in FY95.[12] The FY96 DOE budget includes a request of $40 million for this purpose.

Expanding GAN Cooperation

For some time, the NRC has been cooperating with GAN, its Russian counterpart, on development of a new MPC&A regulatory structure for Russia. In mid-to-late 1994, GAN and U.S. officials began discussing broadened cooperation, including the provision of training and equipment. During Undersecretary Curtis' trip to Russia in October 1994, he signed a DOE-GAN memorandum of intent for expanded cooperation. Three main areas were identified as particularly promising:

- equipment and training for GAN MPC&A inspectors (GAN provided a list of requested equipment in mid-1994);
- establishment of a national computerized material accounting system (Russia does not have such a national accounting system at present); and
- MPC&A at non-MINATOM, non-MoD sites (where GAN could serve as the single point of contact for facilities controlled by a wide array of different agencies and groups).

Current funding specifically targeted for cooperation with GAN on MPC&A is only a few hundred thousand dollars, channeled through the NRC. DOE's FY96 budget request includes $10 million for this purpose (out of the total of $30 million for government-to-government MPC&A programs).

[12]In late 1994, an interagency decision was taken that these funds would be provided from DOD's FY95 Nunn-Lugar funding. At the time of the Panel's review, however, while a substantial fraction of these funds had already been spent or committed (borrowing from other DOE programs), DOE and DOD had not yet reached agreement on the terms and conditions for this transfer.

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Demonstrable Progress: November 1994-Present

By late 1994, the U.S. government had established a multi-pronged approach to MPC&A cooperation with Russia, including three principal programs:

- government-to-government (funded through FY95 from Nunn-Lugar, but transitioning to DOE funding in FY96);
- lab-to-lab;
- expanded GAN cooperation.

During late 1994 and early 1995, these programs began to make demonstrable progress on the ground. Until late 1994, it was still correct to say (as critics sometimes did) that there was not a single kilogram of weapons-usable material for which security had been improved as a result of U.S.-FSU cooperation efforts. This is no longer true. Recent successes include:

Project Sapphire

This well-publicized operation airlifted 600 kilograms of HEU from Kazakhstan to safe storage at Oak Ridge in November 1994, at Kazakh request. This represented a key nonproliferation success, born of complex and intensive interagency cooperation. Given the politics of bringing foreign nuclear material into the United States, however, such an approach will probably only be applicable in a limited number of cases. The Administration should continue to examine expedited options for achieving similar objectives in the future (see "Project Sapphire—and Beyond," p. 25).

The Kurchatov Institute

In the course of just two months, in November and December 1994, a radically improved MPC&A system was installed at Building 116 at the Kurchatov Institute in Moscow—home to two critical assemblies fueled with over 100 kilograms of HEU. The new system includes double fences, motion detectors, TV monitoring cameras, portal monitors to detect anyone leaving the premises with nuclear materials, and more. Built for less than $1 million, the system includes almost exclusively Russian equipment, though the design was a cooperative effort between U.S. and Russian laboratories. This was the first site where major improvements in MPC&A were actually implemented as a result of U.S.-Russian cooperation. Similar upgrades are planned for two other buildings at the Kurchatov Institute housing substantial quantities of HEU. Largely because of the use of Russian equipment, the Russian participants (Kurchatov and Eleron, a principal Russian producer of security equipment affiliated with MINATOM) have become enthusiastic backers of the approach, and are actively working to sell similar systems to other facilities. GAN, the Russian nuclear regulatory agency, has publicly advocated installing similar systems at nuclear facilities throughout the Russian Federation.

Government-to-Government and Lab-to-Lab Agreements

In addition to these specific successes in securing materials at particular sites, agreement has been reached on next steps for both the government-to-government and lab-to-lab programs.

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As noted earlier, in November-December 1994, agreement was reached to expand Nunn-Lugar MPC&A cooperation to include a half-dozen key, high-priority nuclear sites, including the key facilities listed by the JAEIC as "most seriously deficient." After a brief effort by MINATOM to walk this agreement back, agreement was reached in March 1995 to proceed with implementation of MPC&A upgrades at 5 of these sites. Major upgrades are expected to be implemented during 1995 and early 1996.

Similarly, in January 1995, the U.S. and Russian multi-lab steering groups reached agreement on a plan calling for a wide array of activities at a variety of Russian nuclear sites. Upgrades at Kurchatov will continue; at Arzamas-16, a demonstration MPC&A system has just been installed, and analyses of U.S. and Russian MPC&A equipment are continuing; at Obninsk, a complete MC&A system for two major facilities is expected to be installed by June of 1995; at the Tomsk-7 facility where HEU from weapons will be converted to oxide, tentative agreement (pending MINATOM approval) was reached to implement an MC&A system by late 1995 or early 1996; and a similar system will be installed for Site 20 at Chelyabinsk.

Remaining Issues

Despite these successes, a number of key issues remain:

- Only a tiny fraction of the job is yet done: most of the work remains before us. Cooperative MPC&A programs must continue and must receive high priority and commensurate resources, if the grave proliferation risks that now exist are to be substantially reduced.
- The Russian government remains a cautious partner. MINATOM continues to exclude military materials (the majority of the weapons-usable materials in Russia) from government-to-government cooperation, and to seek to limit the number of sites where such cooperation proceeds. MINATOM is also seeking to exert greater government control over the lab-to-lab program (a request which should be resisted). Despite decrees from President Yeltsin and an order signed by Prime Minister Chernomyrdin, MINATOM and the economic ministries are still giving MPC&A low priority. As noted earlier, the Ministry of Finance has refused to provide the roughly $4 million that GAN and MINATOM agreed was necessary to implement the "most urgent" steps in the Russian government's MPC&A plan, signed by Chernomyrdin.
- Within the U.S. government, interagency squabbles continue. While some important steps have been taken to resolve these issues (such as establishing an NSC-led interagency coordinating group, and consolidating MPC&A funding in the DOE budget, rather than leaving it split between DOE and Nunn-Lugar), some disagreements remain unresolved. As one indicative example, DOE and DOD have been disagreeing for weeks over the specifics of how $15 million will be transferred from DOD Nunn-Lugar accounts to DOE to fund the FY95 lab-to-lab program, and this disagreement has now been allowed to spill over into discussions with congressional committees, potentially imperiling the viability of the FY95 lab-to-lab program.
- Resources remain limited. In a number of cases, particularly in the lab-to-lab program, the United States has had to put off Russian proposals for further cooperation, because

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sufficient funds and personnel were not available to carry them out. In other words, while MPC&A programs through mid-1994 were primarily "cooperation-limited"—that is, available funds could not be spent because sufficient cooperation had not yet been achieved—these programs are now clearly resource-limited.

- Currently the critical managers of the MPC&A effort at DOE are burdened with many other responsibilities. Additional, qualified, full-time personnel are needed at all levels to implement DOE's expanding program. The team of qualified people at the implementing level at DOE and the laboratories also needs to be expanded.
- There is insufficient coordination with other related efforts, such as various transparency initiatives, the HEU purchase agreement, and plutonium disposition.

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IV. LESSONS LEARNED

The United States, in its attempt to assist the former Soviet states in remedying weaknesses in the system to protect, control, and account for nuclear materials inherited from the former Soviet regime, has been faced with a daunting task. Never before has one nation, in so short a period of time, attempted to assist a former adversary to meet such security needs. Never before has the United States been faced with the delicate task of providing assistance of this sort while being sensitive both to the democratic evolution of its former adversary and to the significant security dangers that remain in the transition. The short history of this program suggests a number of important lessons, and these lessons must be applied if the assistance effort is to produce maximum benefits in the future.

1. An effective program requires sustained top-level leadership, including positive direction and support by the President and active, personal participation by cabinet-level officials.

The history of these programs unfortunately makes clear that if working-level agency officials are allowed to let their disagreements block action, that is precisely what will happen. Leadership by top-level officials is required to break through such logjams. The priority of this issue within the Executive Branch must be increased if the program is to succeed. The program requires clear lines of authority from President, and a strong interagency focal point.

Top-level leadership is also required to mobilize opinion within the Executive Branch, the Congress, and the public, to support the modest costs required for these crucial programs. This is particularly important when the assistance is for programs that are often misunderstood, such as those in the nuclear area.

2. Maximum progress requires maximum flexibility.

Experience demonstrates that the best way to make progress is to push forward on several fronts at once, while constantly searching for new ways to get around obstacles that arise.

Faced with multiple actors on the Russian side with differing (and sometimes conflicting) responsibilities and interests, the United States has taken a multi-pronged approach, cooperating with MINATOM, with GAN, and with individual laboratories and institutes. This flexible approach has proved its worth and should be continued.

To date, the DOE's lab-to-lab program has achieved greater successes and moved more rapidly than has the portion of the Nunn-Lugar program devoted to securing nuclear materials. The flexibility of the lab-to-lab program is a large part of the reason for this difference. In particular, explanations for this success include:

- basing the program on direct collaborative efforts between scientists and engineers focused on common goals, bypassing detailed negotiation by governments;
- a willingness to provide a substantial portion of the funds for direct purchase of equipment and services from entities in the former Soviet states, giving the Russian laboratories

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strong incentives to participate and to assign personnel to this task (rather than providing only U.S. equipment and excluding payment of recipient-state salaries, as has been the case in Nunn-Lugar); and

- the absence of some Nunn-Lugar requirements, including the need to follow all DOD procurement regulations and the need for the U.S. to insist on the "audit and examination rights" called for in the Nunn-Lugar implementing agreement.

In particular, the willingness to use Russian equipment in those cases where suitable equipment is available (which is not the case in all areas of MPC&A) increased Russian incentives to cooperate; lowered costs; and resulted in equipment that was easier for Russian personnel to operate, maintain, and replicate at other sites.

This flexibility has been achieved without sacrificing protection for the taxpayer. Instead of the "audit and examinations" called for under Nunn-Lugar, for example, the laboratories have been contracting for specific deliverables at specific prices, with a full demonstration required of each system paid for under the program.

3. Responsiveness to recipient-country concerns is essential.

The effort to protect, control, and account for fissile material in the former Soviet states is ultimately the responsibility of those states. Hence U.S. efforts will not be successful unless undertaken cooperatively. To build a continuing basis for cooperation, there must be a constant effort to understand how the various states (and the various actors within those states) view the problem and the cooperative program, to respond to their concerns, and to provide incentives for cooperation.

Failing to be sensitive to recipient country concerns can greatly damage prospects for gaining cooperation in upgrading MPC&A. As noted, some key officials have already been warned about excessive cooperation with the United States, after sensationalized stories appeared in the Western press. The concerns that must be addressed fall into four main categories: confidentiality and limiting negative press commentary; a focus on conceiving of these programs as cooperation, not as assistance; reciprocal access to U.S. facilities; and the use of indigenous equipment and expertise. The first and last of these appear to be concerns shared by many of the recipient states, while the middle two primarily apply in the case of Russia.

i. *Confidentiality.* Cooperation will not be forthcoming if, whenever Russia opens a nuclear site to the United States, the press is then filled with stories about the inadequacies of the security and accounting at that site. Extreme care must be taken to protect information the recipient states consider confidential. Efforts should be made to avoid sensationalized press accounts of the state of MPC&A in the former Soviet Union. Public statements that Russian MPC&A systems are inadequate, that seizures of nuclear material in Europe and elsewhere came from Russia, or that Russian technology is inferior to Western technology should be avoided.

ii. *Emphasize Cooperation, Not Assistance.* Particularly in Russia, which conceives of itself as an advanced nuclear power on a par with the United States, it is very important that these

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programs be presented as joint cooperation to mutual benefit—not as an assistance program for countries incapable of properly managing their nuclear materials by themselves. Public statements should emphasize that this is a global problem, not just a Russian one, and that programs to cooperate with the FSU states in addressing the problem represent cooperation on mutual problems to mutual benefit, not assistance.

iii. *Reciprocal Access.* Given Russian sensitivities, gaining necessary access to the wide range of facilities in Russia requiring MPC&A upgrades will inevitably require offering similar access to U.S. nuclear sites. There is little doubt, for example, that the U.S. decision to give a high-level Russian team a detailed look at the security and material control systems in place at the Hanford plutonium storage site was a critical factor in the Russian decision to allow cooperation to begin at similar sites with weapons-usable material in Russia. Indeed, the Russian official who led the U.S. return visit to the Mayak plutonium storage site informed the group that his instructions were to provide exactly as much access as the Russian group had received at Hanford—no more, and no less. Thus, the Clinton Administration's decision to offer reciprocal transparency measures—in contrast to the Bush Administration's "pay per view" approach, which demanded unilateral Russian transparency in return for Nunn-Lugar assistance—is critical to continued success.

iv. *Indigenous Equipment.* As already mentioned, making use of equipment produced in the former Soviet states themselves, rather than using only American equipment (as has been the case to date in most of the Nunn-Lugar program, including the Nunn-Lugar MPC&A program) is critically important to addressing recipient-state sensitivities. One official of the Russian security service told the Panel bluntly that if the United States insisted on using its own equipment, cooperation would go no further.

4. There is no substitute for a strong management team to lead these programs.

Particularly in a complex, multi-pronged program such as this one, effective management is essential to keep the programs focused on the central goal of achieving the largest possible reductions in proliferation risk per dollar spent, as quickly as possible, and to keep participants focused on a prioritized plan of action. In both Russia and the United States, participants in these programs have a variety of interests (including financial interests in receiving as large a fraction of the program's funds as possible) in addition to their interest in reducing proliferation risks. This is not to criticize any of the participants: it is simply a fact of human nature, which must be kept in mind. Given that situation, strong managers, aware of these different and sometimes conflicting interests, are essential to keep the program on track.

5. Public support in the United States, the former Soviet Union, and among their present and former allies is needed.

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Project Sapphire—And Beyond

Project Sapphire, which airlifted some 600 kilograms of HEU from a vulnerable fuel fabrication facility in Kazakhstan to safe storage at Oak Ridge, was a major nonproliferation success, for which the Clinton Administration deserves great credit.

A variety of lessons can be drawn from the Sapphire experience. The effort took many months, far longer than was originally anticipated. Indeed, the operation was not over when the material arrived in the United States; some important issues, such as how the material will be managed in the United States, and precisely how the promised assistance to Kazakhstan would be paid for, remained unsettled at the time of the Panel's review.

An intensive effort was needed to accomplish this mission, including the establishment of an interagency "Tiger Team" and, ultimately, the personal involvement of the President and several Cabinet Secretaries. (The press conference announcing the operation after it was complete featured the Secretaries of State, Defense, and Energy.) In addition to reaching agreement with Kazakhstan (and confirming that Russia did not object, and had no interest in taking the material itself), there were important issues that had to be resolved within the U.S. government, including the responsibilities and authorities of different agencies; where funds could be found with sufficient flexibility to pay for the activities required for this effort; locations in the United States where such material could be received; compliance with environment, safety, and health regulations; difficulties of packaging and transport (including the touchy question of overflights of other countries carrying nuclear materials); and others. The dedication of those who took part in this effort was responsible for its ultimate success.

The involvement of the President and several Cabinet Secretaries in this successful effort demonstrates the need for, and value of, such top-level leadership in pushing to a successful conclusion programs related to reducing risks of theft of fissile materials. The obstacles that arose and were overcome demonstrate the need for a strong and focused interagency process to deal with such issues, led by a senior official with day-to-day responsibility for coordinating these efforts. The Panel believes it would be very useful for the participants in Sapphire to prepare a "lessons learned" report. The insights contained therein could help guide cooperative MPC&A programs and future efforts to purchase materials.

As far as is known, Sapphire took care of by far the largest stockpile of weapons-usable fissile material outside Russia. There is little reason for confidence, however, that other stockpiles will not be found whose removal would be determined to be an urgent matter of national security. The Clinton Administration is establishing a process for examining, on a case-by-case basis, whether other such purchases would be justified. No assumption is being made that the specific arrangements made for Sapphire would be repeated for the next purchase—but the experience of Sapphire should make similar efforts far easier to implement should they prove necessary in the future.

There may be simpler approaches to such purchases that should be explored. For example, if effective MPC&A systems were established at the facilities processing HEU for the HEU purchase agreement, then HEU could be purchased from a site with an insecure stockpile, and sent to the blending facilities in Russia to be processed into LEU as an add-on to the HEU deal. (The entire Sapphire stock would have increased the scale of the HEU purchase agreement by just over one-tenth of one percent.) The price for the HEU could be the same as that in the HEU purchase agreement, or some other arrangement might be made if there were security reasons for offering a higher price. Proceeds from such purchases might be divided in such a way as to provide incentives to research institutes to give up their HEU, and incentives to the relevant government to participate in the collaborative purchase arrangement. Further exploration of such concepts is needed.

The cooperative MPC&A program is difficult to describe to the public because of the obvious sensitivities involved, described above. Support from the public sector is required, however, if the program is to maintain adequate funding from the United States and benign cooperation, at least, from others. A difficult balance must be drawn between providing sufficient

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information to make a public case for the importance and urgency of these programs, and maintaining sufficient confidentiality to ensure continued recipient-state cooperation. A proactive approach under Presidential leadership is essential.

The need for such leadership is particularly acute in those cases where cooperation is perceived to have a negative impact on the interests of segments of the U.S. public. For example, the HEU purchase agreement has the potential to displace U.S. jobs in uranium mining and enrichment. Project Sapphire required bringing foreign nuclear material to Tennessee, where local residents believe they are carrying a big enough nuclear burden already. Purchasing MPC&A equipment produced in the former Soviet states will mean that the money will not go to American contractors. In all these cases, the public and the Congress need to understand the substantial security benefits from the modest sacrifices called for.

6. Effective collection and analysis of information is essential.

Analysis by experts of data available to the U.S. Government to ensure adequate understanding of the true situation is crucial. Important information can be gained from the existing analytical resources of the intelligence community if it is properly tasked and focused. Since information related to accounting and control procedures within particular facilities is not available through national technical means, however, much of the most important information is coming not from the intelligence agencies, but from U.S. MPC&A experts who have visited many of these facilities. Increased attention needs to be devoted to ensuring that information available from individuals who have worked at or visited these facilities is collected and integrated with other information.

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V. RECOMMENDATIONS

Our recommendations fall into two categories: recommendations for Presidential action, and recommendations for those who will implement the policies prescribed by the President.

Recommendations for Presidential Action

1. The President should issue a decision directive designating the effort to protect, control, and account for fissile material as a critical and urgent security priority of the United States, and directing that it be given commensurate resources and top-level attention.

The nuclear proliferation threat posed by inadequately secured nuclear materials in the former Soviet Union is among the most serious and urgent threats to national security the United States faces in the coming decade. Only Presidential action can firmly establish efforts to reduce this threat as a top priority. The directive should clearly establish the Administration's policy and outline a coherent approach to implementing that policy throughout the government.

2. The President should appoint a senior Administration official to take full-time, personal responsibility for ensuring that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented, and should give that individual clear authority to get the job done.

Security and control for nuclear materials, as one of the preeminent security challenges facing the United States, is an issue that requires sustained top-level leadership. The gigantic scope of the challenge of managing these materials—involving hundreds of tons of materials at scores of sites in the former Soviet Union and the United States—has spawned a wide array of initiatives, ranging from securing nuclear materials (the primary focus of this report), to mutual reciprocal inspections of storage sites, to providing alternative energy sources to replace plutonium production reactors (see Table 2). A dozen or more interagency groups have been established to coordinate various aspects of these efforts. To maximize the prospects for success, these initiatives require a single coordinator, not burdened with other responsibilities, with the responsibility and the authority to ensure that these programs receive adequate resources and are effectively implemented, to resolve interagency disputes, and to coordinate these efforts with related programs. Such a role will allow the coordinator to balance priorities among these initiatives and ensure that key synergies are pursued.

3. The President should establish, under the leadership of the senior official just described, a stronger and more focused interagency process, with clearly defined lines of responsibility, authority, and organizational roles, designed to bring the talents of all critical agencies to bear in addressing this problem.

U.S.-FSU cooperation to reduce the risk of theft of nuclear materials is a broad problem that requires the expertise of many agencies. DOE is now the principal implementing agency, though NRC continues to play an important role. DOE is well-suited for this role: it has

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expertise in fissile materials; it has the responsibility for most U.S. domestic MPC&A; it has good working relations with Russians involved in this effort; and, most important, it has a top leadership which is committed to this program and assigns substantial priority to getting the job done. (As noted below, however, DOE needs to assign additional capable, trained staff to manage and implement these programs.)

Other agencies can and must make critical contributions. The State Department and the Arms Control and Disarmament Agency will continue to have important roles to play, in interacting with other countries (both the former Soviet states and other donor countries) and the IAEA, and in providing additional safeguards expertise. The contribution of the intelligence agencies will also be important. The Defense Department's On-Site Inspection Agency (OSIA) has considerable expertise in quickly organizing visits to sites in the former Soviet Union, arranging interpretation services, and the like; this expertise could provide key support to the MPC&A cooperation program, and should be utilized where appropriate (though sensitivities of the recipient states regarding the participation of an "inspection" agency in this endeavor must be kept in mind).

As noted above, a large number of interagency groups have been established to coordinate various parts of the effort to cooperate with the states of the former Soviet Union in managing fissile materials. In mid-1994, the National Security Council staff established a central coordinating group for issues related to fissile materials in the former Soviet Union. Interagency groups on MPC&A, transparency, and plutonium disposition all report to this overall coordinating group. Using that mechanism and others, in late 1994, the National Security Council staff successfully brought the interagency process to agreement on significantly increasing the funds available for MPC&A in the FY96 budget request (as well as arranging for additional funds for FY95 activities that were then beginning).

These are important steps in the right direction. Nevertheless, to bring the talents of all agencies to bear in moving this program forward, a stronger and more focused interagency process is needed, under the leadership of a senior official with clear authority from the President, who is not burdened with other responsibilities.

4. The President should direct the senior official responsible for these programs to prepare a prioritized MPC&A action plan within 60 days. This plan should identify specific near-term, mid-term, and long-term goals and objectives, and resources needed to accomplish them, and it should be updated regularly.

The importance of a such a plan to any effective program can hardly be overemphasized. DOE has much of the basis for such a plan in place, in its lab-to-lab action plan and the list of initial sites for government-to-government cooperation that has been agreed with Russia.

The fundamental goal of this program must be to achieve the *maximum reduction in proliferation risk* per dollar spent, as quickly as possible. Note that this is *not* the same as protecting the maximum total quantity of material (since some large stockpiles of material may

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already be substantially better protected, and thus pose lower proliferation risks, than some small stockpiles) or protecting the largest possible number of sites.

Achieving such a goal will require a systems engineering approach—one that includes all aspects of the problem and looks for the maximum return for the marginal dollar. It will also require a set of guiding principles around which to organize the plan, and a set of specific objectives deriving from those principles. (Some specific suggestions regarding the content of this action plan are offered below.)

5. The President should direct that adequate funds and personnel be allocated specifically for MPC&A cooperation, and that a high priority be assigned to protecting these resources from cutbacks.

Funding should be provided that is sufficient to meet a clear set of objectives, rather than tailoring the objectives to fit within a pre-determined funding ceiling. It would be a serious error to fail to provide the funds for actions that could greatly reduce serious proliferation risks for modest costs.

It is essential that adequate funds be appropriated specifically for this purpose, rather than simply "taxing" funds otherwise provided to various agencies, or expecting agencies to fund this cooperation by taking funds from other programs in their budgets.

This program is now funded primarily in the Department of Energy. The probability of further reductions in DOE's budget appears high. Given the priority of the MPC&A effort, the President should direct that its funding be protected in allocating budget reductions (as has been directed, for example, in the case of DOE's stockpile stewardship program).

6. The President should direct the senior official responsible for these programs to develop and implement a plan to secure needed legislative and public support.

The crucial effort to build support for these programs must maintain a difficult balance between providing sufficient information to make a public case for these programs and maintaining sufficient confidentiality to avoid poisoning the well for cooperation with the recipient states. Bipartisan support for the MPC&A program on Capitol Hill is essential. Any DOE program whose budget is increasing will inevitably come under close scrutiny—particularly if, as in this case, it appears to involve "Russian aid." The Administration must develop and execute an effective legislative and public information plan to win the support these programs deserve.

As noted in the lessons learned, a proactive approach to building public support for these programs, under Presidential leadership, is needed—particularly in cases where the actions required in the interest of national security have conspicuous economic or other costs.

7. The President should make effective security and accounting for weapons-usable material an important factor in U.S. relations with the states of the former Soviet Union. In

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particular, the President should seize opportunities such as that afforded by his upcoming summit with President Yeltsin to gain agreement on specific new steps to improve MPC&A.

Nonproliferation policies are already central to our relations with the former Soviet states, as the current crisis in relations with Russia over the proposed sale of reactors to Iran illustrates. The single most essential step the former Soviet states must take to prevent nuclear proliferation beyond their borders is to protect the nuclear weapons and weapons-usable materials on their territories. That issue, therefore, deserves a central place at the diplomatic table in discussions with these countries.

At their January 1994 summit, President Clinton and President Yeltsin identified cooperation in this area as a "high priority." The issue was highlighted again at their September 1994 summit. The issue has also been discussed seriously in the Gore-Chernomyrdin Commission. At the next summit, the United States should seek more detailed commitments to take specific new steps by agreed deadlines.

For example, the two Presidents could agree:

- to endorse the cooperation already underway, including the government-to-government effort channeled through MINATOM, the lab-to-lab effort, and the expanding GAN cooperation (giving each of these efforts Presidential authorization);
- that Russia would carry out a series of fast-paced inspections of its own fissile materials sites, to identify and prioritize needs for MPC&A improvements, and that the United States would contribute to defraying the cost of this survey and of implementing the highest-priority improvements identified;
- that MPC&A cooperation would be extended to include materials in military use (including naval fuel) as well as civilian materials, with appropriate measures to protect secrets that remain important to the security of each side;
- that MPC&A cooperation would be extended to additional sites beyond those already agreed to, including, for example, the major bulk-handling facilities at Tomsk-7 (Seversk), Krasnoyarsk-26 (Zeleznogorsk), Chelyabinsk-65 (the Mayak plant), and Sverdlovsk-44 (Yekaterinburg);
- that the two sides will exchange lists of major sites where fissile materials are handled and stored, and will exchange visits to major sites on a schedule to be agreed, to discuss and observe security and accounting arrangements at those sites;
- that the two sides will establish a joint working group to explore cooperation between their intelligence, police, and customs services in tracking and responding to thefts of, and illegal trade in, nuclear materials;
- that the two sides will explore possibilities for reducing the number of sites where weapons-usable fissile materials are used and stored, for example by using non-weapons-usable materials in research reactors;
- that the two sides will explore means to improve economic conditions for personnel responsible for accounting and security for nuclear weapons and fissile materials;

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- that the two sides will continue to work together in establishing improved MPC&A regulations and enhancing regulatory oversight of these activities; and
- that the two sides will work out specific agreements on these points for the next meeting of the Gore-Chernomyrdin Commission, and prepare a joint report on what had been accomplished and additional steps that could be taken for consideration at the next summit.

8. The President should direct that higher priority be placed on assessing proliferation risks posed by inadequate security for nuclear materials, and providing information support to address these risks. In particular, increased cooperation between intelligence agencies in tracking and responding to nuclear smuggling is needed.

Cooperative programs to enhance MPC&A cannot be effective without the information needed to determine where the problems are. As noted earlier, important information is being provided by the intelligence agencies and national technical means. But even more essential information related to accounting and control procedures used at individual facilities is coming from the exchanges of visits by MPC&A experts that have already taken place.

Only very recently has the intelligence community undertaken a site-by-site assessment of security and accounting for nuclear materials and associated proliferation risks in the former Soviet Union. (Indeed, at the time the Panel performed its review, the volume of this assessment providing the crucial site-by-site details was not yet complete.) This assessment should be transformed into a continually updated database, listing all the available information concerning:

- all known facilities with weapons-usable materials in the former Soviet Union;
- the types and amounts of materials at these facilities;
- the state of MPC&A at those facilities, and any known enhancement efforts underway;
- other relevant factors affecting proliferation risk at that facility (such as known thefts from the facility, or organized crime activity in the area, for example);
- remaining information gaps.

While it is important that the information available from the intelligence community be integrated into this database, it is also important to recognize the potential concerns of recipient states. Nothing would more surely cut off further progress in MPC&A cooperation than creating an impression that U.S. MPC&A experts visiting FSU facilities were "spies" working for U.S. intelligence. Therefore it is possible that the database just described should be maintained as a joint product of the interagency group responsible for MPC&A, rather than as a product of the intelligence agencies.[13] The national laboratories, which are already making major contributions to the site-by-site assessment, could potentially take responsibility for maintaining such a database.

[13]As the intelligence agencies are barred by law from collecting intelligence on the activities of U.S. citizens, keeping the database separate from the intelligence agencies themselves would facilitate including information on U.S. efforts to upgrade MPC&A in the description of individual sites.

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To support MPC&A cooperation efforts, higher priority needs to be devoted to collecting information available from individuals who have worked at or visited nuclear facilities in the FSU, and integrating this data with other information.

If current nuclear "transparency" efforts are successful, the information derived from data exchanges and reciprocal visits could provide a critical addition to cooperative MPC&A efforts. This information should be integrated with information from other sources to support the cooperative MPC&A program, and the potential benefits for MPC&A of specific proposals should be an important factor in developing U.S. negotiating positions in the transparency area (see "Managing Fissile Materials: A Spectrum of Related Efforts," p. 42).

In addition to such facility-specific information, an intensive effort must be made to identify and analyze the domestic sources of nuclear policy-making in the former Soviet states. Who are the relevant actors? Which parts of the problem are their responsibility? What are their attitudes and institutional interests relevant to MPC&A? How have they acted on these matters in the past? Cooperative MPC&A programs must be supported by an intensive effort to provide the answers to these questions.

To provide such support, the senior official with responsibility for fissile material cooperation programs should have the authority to issue high-priority intelligence taskings for special-purpose analyses to meet the needs of the MPC&A enhancement effort.

The Administration should also improve coordination of the several efforts to collect and analyze intelligence related to nuclear smuggling. Mechanisms must be developed to integrate information held by the Central Intelligence Agency, DOE's Office of Threat Assessment, the FBI, and other agencies: a central analysis effort is essential to analyze the sources and pathways for nuclear smuggling and provide the basis for effective response.

Finally, it is important to work toward improved collaboration between U.S. intelligence, police, and customs agencies with their counterparts in other countries in the fight against nuclear smuggling. Sharing of information and samples, training of police, customs, and border patrol teams, provision of equipment, and other measures could all be part of this collaborative effort. In particular, intelligence information related to the sources of smuggled materials (likely to be more available to Russian agencies than to those in other countries) should be linked to information on buyers and transit routes (likely to be more available to European countries and the United States).

9. The President should designate efforts to enhance security and accounting for nuclear materials worldwide as a key mission of the national laboratories.

Already, the national laboratories have made a substantial contribution to U.S. security through the lab-to-lab MPC&A program. The lab directors, however, need Presidential direction to make efforts to enhance MPC&A—not only in the former Soviet Union but worldwide—a fundamental part of their mission. The outstanding technical expertise in nuclear materials

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management built up at several of the national laboratories is a global resource that must be applied effectively to this mission. While the national laboratories are already involved in this effort, there is substantial room for elevating its priority: at the six laboratories involved, a total of only about 30 full-time equivalents are devoted to lab-to-lab MPC&A cooperation with Russia, out of thousands of personnel at the laboratories.

Recommendations for Implementers

The individuals responsible for implementing the President's guidance on strengthening security and accounting for nuclear materials in the former Soviet Union will need the authority to get the job done and the flexibility that goes with such authority. Without wishing to prejudge all the issues that will face them, we offer some recommendations—based on our review of the current state of these cooperative MPC&A efforts—that the implementers may find useful.

1. The senior official given responsibility for these efforts should establish a set of key guiding principles around which program planning and execution can be organized.

A program of this importance and scope requires a set of guiding principles. As noted above, the overall objective must to be to achieve the maximum reduction in proliferation risk per dollar spent, as quickly as possible. At the same time, the United States cannot do everything, and cannot expect to be allowed to participate in MPC&A upgrades at every site that may require them. As noted earlier, the states of the former Soviet Union themselves bear the long-term responsibility for protecting and accounting for these materials. The U.S. role is to:

(1) assist in implementing high-priority MPC&A upgrades; and

(2) help the FSU states develop their own indigenous MPC&A capabilities and approaches, so that they can protect and account for these materials over the long term after the cooperative MPC&A program winds down.

Given this objective and this role for the United States, guiding principles for this program should include:

- *Focus on Top Priorities.* This requires identifying and addressing the highest proliferation risks wherever possible. In particular, to the extent possible, "quick fixes" should be identified and implemented. The problem is so acute that remarkably inexpensive and low-tech upgrades can make a huge difference in some cases: one obvious example is piling massive concrete blocks in front of the doors of vaults storing nuclear materials to delay illicit access, if regular authorized access is not required. The emphasis should be on making the most urgent improvements at a wide range of sites, not making wholesale and expensive changes at only one or two. The top priority must be implementing upgrades with whatever effective technology is already available, rather than developing new technologies (though development efforts can be an important means of building mutual trust and cooperation). We cannot afford to wait for (or pay for) a Rolls Royce when a Ford will suffice to do much of the job.

- *Foster Indigenous FSU Capabilities.* As noted, the nations of the former Soviet Union themselves must bear responsibility for ensuring effective MPC&A. Therefore building indigenous MPC&A expertise and a new "safeguards culture" should be a key priority. This

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again implies a focus on using equipment designed and produced in the former Soviet states wherever effective equipment is available, and transferring the technology needed to build effective equipment where it is not. Wherever possible, the work should be done by FSU personnel and companies, with the U.S. team as consultants. As the adage goes, "give a man a fish, and you feed him for a day; teach a man to fish and you feed him for a lifetime."

- *Build Toward National Systems.* Efforts at individual sites should be coordinated so that they fit together and contribute to the goal of creating a national system providing a generally consistent level of MPC&A for all weapons-usable materials. The creation of national-level tracking and accounting systems for nuclear materials, as well as effective regulatory functions, should be an important priority. While regulations are often taken to have less urgency than securing materials on the ground, the fact is that only a sound set of regulations requiring effective MPC&A, backed up by realistic enforcement, will provide facility managers the incentives necessary to lead them to invest in, operate, and maintain MPC&A systems.

There will often be some tension between these principles: for example, funds spent establishing a national computerized accounting system will be funds not spent on "quick fixes." But we believe that an overall balanced program requires pursuit of all three of these principles in parallel.

2. The Administration should establish a specific set of near-term, mid-term, and long-term objectives for the MPC&A program, with well-defined ways to assess progress toward the objectives.

Such a set of objectives and ways to measure progress in achieving them is an essential management tool. At the same time, such a tool should not be used so rigidly that the program is inhibited from responding rapidly to new developments.

The following suggested set of objectives is keyed to the near-term, mid-term, and long-term. Near-term objectives are those that can be expected to be completed or well underway within roughly one year; mid-term objectives are those that can be expected to be completed or well underway in 2–4 years; and long-term objectives represent the desired end-state the program is striving to achieve.

Suggested objectives:

Near-term:

N1. Significantly improve security and accounting for the weapons-usable materials at all of the half-dozen highest-risk sites in Russia.

N2. Significantly improve security and accounting at (or remove material from) all sites in the non-Russian former Soviet states with separated plutonium or HEU.

N3. Work with Russia to establish a Russian program to identify the highest-priority MPC&A upgrades needed at all of its nuclear sites, and mechanisms to accomplish them.

N4. Work with Russia to establish a Russian program to take inventories at major Russian sites with substantial quantities of weapons-usable materials.

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N5. Work with Russia to put into place a Russian system of MPC&A regulations, including appropriate incentives (e.g., backed up by realistic threats of fines or closure) for upgrading MPC&A.

N6. Initiate a program to work with Russia to improve MPC&A for stockpiles of highly-enriched naval and icebreaker fuel.

N7. Work with the former Soviet states to establish effective training programs for MPC&A implementers and regulators, and to foster a "safeguards culture."

N8. Work with Russia to establish a nationwide system of material accounting.

N9. Initiate mass production in Russia of key MPC&A equipment (effective portal monitors, particularly).

Mid-Term:

M1. Significantly improve security and accounting for the weapons-usable materials at all the major non-weapons bulk-handling facilities and large-scale fissile material storage facilities in the MINATOM complex (e.g. the reprocessing plants and associated storage facilities at Tomsk, Krasnoyarsk, and Chelyabinsk; HEU oxidation at Tomsk and HEU production and blending at Yekaterinburg; and HEU fabrication at Elektrostal, Novosibirsk, and Podolsk).

M2. Significantly improve security and accounting at (or remove materials from) all facilities outside of closed cities or military bases which handle kilogram-quantities or more of separated Pu or HEU (e.g., civilian institutes).

M3. Work with Russia to develop a comprehensive plan, with cost estimates, for longer-term MPC&A upgrade needs and material consolidation for all its nuclear sites, including specific staff, equipment, and training needs for specific sites.

M4. Work with Russia to ensure that effective portal monitors or equivalent capability to detect removal of nuclear material are installed and used effectively at all major Russian sites with substantial quantities of weapons-usable materials.

M5. Work with Russia to ensure that GAN acquires all the capabilities necessary to effectively regulate and inspect MPC&A.

Long-Term:

L1. Work with the former Soviet states to ensure that all facilities in the FSU with strategic quantities of HEU or Pu have effective MPC&A systems in place and in use.

L2. Work with the former Soviet states to ensure that effective MPC&A is established as an ongoing priority activity with requisite funding.

L3. Work with the former Soviet states to establish a sufficient and self-sustaining cadre of MPC&A implementers, designers, inspectors, and regulators in those states.

L4. Work with the regulatory agencies of the former Soviet states to establish effective overall programs of MPC&A regulation.

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Once a set of objectives such as these has been defined, it is essential to develop an estimate of what is required (technically, politically, and administratively) to attain those objectives, including in particular the resources (money and people) that must be committed. In this case, not all of the resources should come from the United States; the recipient states and other donor states should make substantial contributions as well.

3. The Administration should continue to take a flexible, multi-pronged approach to improving MPC&A in the FSU, exploiting opportunities as they arise. All of the current MPC&A cooperative programs deserve strong support.

All three of the major current programs to cooperate with the states of the former Soviet Union—the government-to-government MPC&A effort (now transitioning from Nunn-Lugar to DOE), the lab-to-lab program, and the expanding cooperation with GAN—should be continued. Given the multitude of different actors on the Russian side (not to mention the non-Russian states), suggestions that the program be trimmed down to a single approach should be resisted. A strong U.S. management team will be needed to coordinate these programs and all the U.S. participants in them so that they remain focused on the key objectives and reinforce each other effectively.

4. The Administration should make a comprehensive effort to analyze and deal with recipient-state sensitivities and incentives, in order to achieve the maximum degree of cooperation.

As noted above, cooperative MPC&A efforts need to be supported by a detailed effort to understand the domestic sources of nuclear decision-making, including the multiple actors involved, the sensitivities of each of those actors, their incentives for cooperating or for blocking progress, and the leverage points in the system. In some cases, this will mean working hard to cooperate with former Soviet nuclear bureaucracies that are peopled with unreformed Cold War holdovers—an arduous, unpleasant, but essential task.

The four key areas to which the United States must be sensitive—confidentiality, focusing on cooperation, reciprocity, and use of indigenous equipment—were outlined above under lessons learned. The U.S. government should develop a conceptual framework and a detailed plan for working with each country, which responds to the differing sensitivities of the different countries and of the different actors within them. It is essential to analyze these sensitivities and determine the best ways to meet concerns at each step of the process, rather than waiting until well intentioned proposals have already encountered a buzz-saw of skepticism and opposition.

In particular, both lab-lab and government-government programs should be seen as "collaborative" efforts—not purely assistance—with reciprocal visits and evaluations, and genuine technical input from both sides. This is particularly important in cooperation with Russia.

5. The Administration should continue to design cooperative MPC&A programs with a focus on specific deliverables, to ensure that the money is spent for its intended purposes.

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Clearly it is critical that the funds allocated to improving MPC&A in fact are spent for that purpose. Both the approach taken in the Nunn-Lugar program (purchasing nearly all equipment in the United States, and declining to pay Russian salaries) and the approach taken in DOE's programs (negotiating prices for specific deliverables to be delivered by specified deadlines) provide effective protection for the U.S. taxpayer when used appropriately. But the DOE approach offers substantially greater flexibility and better chances of fostering recipient-state cooperation.

In a fast-moving program—as these must be, if they are to achieve their goals in a timely fashion—it is impossible to ensure that every dollar is accounted for. But even a single well-publicized case of diversion of funds to purposes other than those intended could have a devastating impact on support for these programs. Therefore vigilance on this score should continue to be an important priority.

6. DOE should assign additional qualified personnel to manage and implement these programs.

The personnel managing and implementing these programs at DOE are already stretched thin. As these programs expand in scope and priority, they will need additional personnel to ensure effective management and implementation. Additional staff with safeguards expertise and international experience will also be needed. Training of this staff should begin now.

These programs require an effective organizational structure within DOE, with managers not burdened with a wide range of other responsibilities. The program management should include individuals with strong *domestic* safeguards experience,[14] including experience with implementation of MPC&A at operational DOE facilities, as well as experience in international cooperation. In particular, the program should make use of the expertise of DOE's Office of Safeguards and Security, which is in charge of implementing MPC&A at DOE nuclear facilities.

All MPC&A programs within DOE should be subject to continuing review, to ensure that they remain focused on accomplishing the key objectives in the least time at the lowest cost.

7. Additional efforts to coordinate U.S. cooperative MPC&A programs with those of other countries, and to encourage other countries to expand their contribution to this effort, should be pursued.

Given that the possibility of nuclear theft poses a global threat, other countries with MPC&A expertise, particularly those that also have denuclearization assistance programs in the former Soviet Union (such as Japan, Germany, and France), should be encouraged to make more substantial contributions to reducing the risk. U.S. efforts should be coordinated as closely as possible with those of other donor countries and with international organizations (such as the

[14]Domestic safeguards, operated unilaterally by a country having nuclear activities, focus on detecting and preventing nuclear materials theft, i.e., facility-level protection, accounting, and control with national coordination and oversight. International safeguards, implemented by international organizations such as the International Atomic Energy Agency, focus on detecting diversion by a state having nuclear activities.

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International Atomic Energy Agency), to avoid duplication of effort and share information needed to focus priorities.

8. Additional U.S. and FSU personnel with expertise in security and accounting for nuclear materials should be trained.

As cooperative MPC&A programs expand, additional personnel with MPC&A expertise will be needed. The need is particularly acute in the states of the former Soviet Union. The establishment of an MPC&A training center in Russia (currently slated to be established at Obninsk) should be a high priority. The current focus on "training the trainers"—that is, training individuals who could serve as instructors for training courses at other facilities—is a useful approach. It is essential to ensure that training is available for both MPC&A implementers and regulators. Consideration should be given to establishing similar training centers in the other former Soviet states (or perhaps a small number of regional training centers). This effort will require detailed planning and the compilation of materials from a number of sources (e.g., the DOE Office of Safeguards and Security Central Training Academy, Los Alamos courses on nuclear material measurements, Sandia training on physical security, and Brookhaven courses on safeguards systems, principles, bulk measurements, and statistics.)

At the same time, the number of qualified personnel available in the United States to implement these programs also needs to be increased. All those in the United States with expertise relevant to these issues should be identified. People with expertise may be located at national labs, at nuclear weapons complex sites (such as major former reprocessing facilities, for example), in academia, and elsewhere. Opportunities should be created for national laboratory personnel working in other areas to be retrained as MPC&A specialists (in line with the previous recommendation to make enhanced safeguards a central mission of the laboratories).

Recommended Specific Near-Term Actions

Achieving the ambitious set of near-term, mid-term, and long-term objectives outlined above will require a broad range of specific actions. Some of these are already occurring, but need acceleration. For example, it is critical to take action to accelerate the government-to-government program to a pace more closely approximating that of the lab-to-lab program—so that MPC&A upgrades at the key, high-risk facilities identified for cooperation in the government-to-government program can be accomplished as rapidly as possible. Other actions are implied in the statement of objectives, but work on them remains to be undertaken. For example, it is important to begin as soon as possible to reduce the proliferation risks posed by the almost completely unprotected material at the many small civilian research institutes, not located in closed cities, that exist in the FSU. While these sites represent a small fraction of the total material, they may represent a large fraction of the proliferation risk.

The following represent important near-term actions that require further comment:

1. The United States should work with Russia to establish Russian MPC&A assessment and improvement teams, which could rapidly assess what upgrades are needed.

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For Russia's own MPC&A upgrade program to be effective, it needs to be based on an assessment of what the most urgent needs are throughout Russia's nuclear facilities. While some assessments have been conducted at particular sites, no consistent program to identify and prioritize the most urgent requirements throughout the Russian nuclear complex exists. Given the many institutional interests involved, establishing such a program would require tough top-level leadership on the Russian side. There are some indications that the Russian leadership is focusing increased attention on this area. Indeed, in the lab-to-lab program, the possibility of the Russian laboratories undertaking such an assessment for those facilities within MINATOM's nuclear weapons complex is already being discussed.

The United States has considerable expertise to offer in this area. For many years, DOE has had teams which visit U.S. sites, assess MPC&A there, and make recommendations for needed upgrades. At one time, DOE conducted a rapid-assessment program and carried out large-scale upgrades based on the assessment's recommendations.

The United States, therefore, should offer to help establish and train the Russian teams that could conduct such an assessment, and to contribute to defraying the costs. Once the assessment had been accomplished, the United States could contribute to the most urgent of the upgrades identified, as agreed between the two sides. This would represent, in a sense, a revival of the earlier "quick fix" approach.

2. The United States should work with Russia to establish nuclear-material inventory teams.

There is a pressing and immediate need for the states of the former Soviet Union to take a measured, physical inventory of the weapons-usable nuclear materials on their territories. (EURATOM has also targeted measured, physical inventory as a high priority.) This is the only way to know how much nuclear material exists, where, and in what form.

The United States should work with Russia and the other states to develop a cooperative process to produce measured nuclear material inventories—applied first to all weapons-usable material. This is a labor-intensive, time-consuming process: equipment has to be identified, supplied, and installed; measurement controls have to be put in place; nuclear materials have to be handled; the measurements themselves have to be made; and the data must be recorded, analyzed, and updated as necessary. Once the inventories have been established, appropriate material controls (tags, seals, surveillance, and the like) and continuing material accounting must be instituted. Current rules may have to be modified to accomplish such an inventory: at present, a physical inventory that varied from the book inventory could subject the plant managers to sanctions.

To expedite this effort, the United States should help train, equip and certify Russian inventory-taking teams.

3. The United States should undertake a new initiative to help Russia improve MPC&A for stockpiles of highly-enriched fuel for naval vessels and icebreakers.

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To date, MPC&A cooperation has focused on MINATOM, GAN, and individual laboratories and facilities. That leaves out an entire sector of the Russian nuclear complex—naval and icebreaker fuel, much of it enriched to up to 90% U-235. At least one well-publicized theft of over 4 kilograms of naval fuel has already occurred, from the naval base at Murmansk. As noted earlier, the ease with which that theft succeeded suggests that security for naval fuel in Russia is in urgent need of improvement. The United States should initiate a fast-paced program directed toward that goal. Cooperation in this area is likely to be particularly sensitive. The Agreement for Cooperation being negotiated in the context of stockpile transparency, which will provide a legal basis for exchanging classified nuclear information, may be very useful in furthering Russian openness in this area.

4. The United States should begin discussing with the former Soviet states, and Russia in particular, the need to consolidate nuclear materials in a smaller number of areas within specific sites, and at a smaller number of sites overall.

Currently, weapons-usable nuclear materials exist at scores of sites in Russia alone, and often at many separate locations within a single one of these sites. Reducing the number of locations that must be protected has the potential to greatly reduce the costs of ensuring adequate safeguards and security. With the end of the Cold War, a contraction of the Russian nuclear weapons complex is inevitable in the long run, and consolidation of nuclear materials should be a key part of that contraction—as it has been in the United States. DOE should prepare a detailed briefing for the Russian side on the U.S. experience, including the very large reductions in safeguards and security costs that have been achieved at some sites through consolidating materials, and the reduction in the number of research reactors using HEU over the last several decades. Both in work at individual sites and in discussions of the overall program, the United States should use every opportunity to encourage Russia to undertake consolidation.

5. One or more "quick response teams" should be established to respond quickly to fast-breaking events.

This issue is important enough and explosive enough that the United States should form one or more permanent "quick response teams," with the expertise and resources needed to respond rapidly and effectively to requirements such as Project Sapphire. It is quite possible, for example, that an urgent need to rapidly secure or remove material at a particular site could arise (for example if the material is newly discovered, or is in an area where armed conflict is breaking out). A mechanism should be set up within the government to support these teams. Procedures for expediting the teams' response, and flexible sources for funding the required operations and transactions should be established. The team should train and practice for various kinds of operations, including securing sensitive materials in place or removal to a safe area. Special communications capabilities should be provided, designed for secure communications in remote areas of concern. Consideration should also be given to helping Russia establish such teams to deal with such situations on its own territory, as in many cases U.S. quick-response efforts may be too sensitive.

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6. A small cadre of personnel should be stationed in Moscow on a full-time basis to facilitate and support these programs.

The Embassy science and technology staff plays an essential role in supporting negotiations and implementation missions, monitoring events within the Russian government, and determining the attitudes and priorities of the wide array of Russian actors involved in MPC&A-related activities. This staff is stretched thin, however, and additional personnel devoted to this effort full-time will be required as the cooperative MPC&A program expands in priority and scope.

7. To address Russian sensitivities, the Administration should prepare a frank and detailed briefing on past MPC&A problems in the U.S. nuclear complex, and rapid upgrade steps that were taken to address them.

Being open and frank in revealing that the United States has also had MPC&A problems in its weapon complex could help serve to improve the sense of reciprocity and mutual cooperation in the program. Such a discussion could also focus on the very rapid steps the United States took at certain points to assess and remedy deficiencies.

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Managing Fissile Materials: A Spectrum of Related Efforts

The Clinton Administration has undertaken a wide array of initiatives related to cooperating with the former Soviet states in managing weapons-usable fissile materials, falling into four broad categories:

- Securing nuclear materials (including MPC&A);
- Building confidence through openness;
- Halting accumulation of excess stocks; and
- Disposition, transforming these materials into forms that pose greatly reduced security risks.

This report has focused on the first of these categories. Here, we offer a few remarks on those aspects of other initiatives that bear directly on the objective of reducing the risk of theft of these nuclear materials.

Securing Nuclear Materials

A few programs in this area have not been discussed in this report, but are nonetheless important:

The Nunn-Lugar Storage Facility. Under the Nunn-Lugar program, a safe and secure storage facility for plutonium and HEU from dismantled weapons is being built with U.S. assistance at Chelyabinsk. While Russia already has considerable storage space available—if Ministry of Defense warhead storage facilities are included—the new facility would offer greatly improved security and accounting compared to the locations where these materials are currently being stored, and the United States would be offered transparency measures in return for its assistance. Despite the many delays that have plagued this program, we believe the establishment of a modern facility with a highly effective MPC&A system and some degree of U.S. oversight is important, and that this program should continue—assuming that MINATOM demonstrates a good-faith commitment to cooperation, and to investing its own resources in the project as well.

Combating Nuclear Smuggling. If MPC&A systems fail and material is stolen, anti-smuggling efforts form the next line of defense. Additional efforts to train and equip police, investigators, customs officials, and border guards in the relevant states—and to coordinate intelligence and sharing of analyses and samples of seized material—are needed. This is a global problem requiring intensive international cooperation.

Securing Nuclear Weapons. Under current circumstances, it appears that security for assembled nuclear weapons in the former Soviet Union is substantially better than security and accounting for nuclear materials outside of weapons. Nevertheless, given the grave consequences that could result if a nuclear weapon were actually diverted, it is important to continue pursuing the recently expanded dialog between the U.S. Department of Defense and the Russian Ministry of Defense regarding upgrades to security for nuclear weapons. This effort may offer spin-off benefits for MPC&A: if the principle of genuine cooperation at nuclear weapon sites can be established, it will become more difficult for MINATOM to argue that its military materials are too sensitive for cooperation to be possible.

Building Confidence Through Openness

Reciprocal Stockpile Declarations. The agreement reached between President Clinton and President Yeltsin at their September, 1994 summit to exchange data regarding stockpiles of nuclear weapons and fissile materials, "and on their safety and security," could have important benefits for MPC&A. A good-faith Russian declaration would require the Russian central government to get a good handle on the inventories that exist at Russian sites. The initial declarations should be seen as the beginning of a process heading toward ever-increasing levels of detail. The more information that can be exchanged regarding the specific locations, amounts, and forms of materials, the greater the potential synergistic benefit for MPC&A cooperation. Additional consideration is needed of what information can and should be provided under the rubric of exchanging data on the "safety and security" of nuclear weapons and fissile materials.

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Transparency and Irreversibility. The reciprocal visits to nearly all plutonium and HEU storage sites envisioned in the U.S. proposal tabled in December 1994, if agreed to and implemented, could have enormous spin-off benefit for MPC&A. There is no substitute, in judging what MPC&A improvements are needed, for actual visits to the relevant sites by MPC&A experts. The U.S. approaches to such reciprocal visits should be configured to take maximum advantage of this potential synergy between transparency and MPC&A. The reciprocal nature of these visits will be an essential (but not sufficient) condition for Russian acceptance of them.

IAEA Safeguards on Excess Stocks. The United States has begun placing weapons materials excess to its defense needs under international safeguards, and is urging Russia to do the same, as well as to make its civilian nuclear facilities eligible for IAEA safeguards.* Similarly, IAEA safeguards may be the verification method chosen for the fissile cutoff convention under discussion in Geneva, which would mean putting U.S. and Russian reprocessing and enrichment plants under safeguards. Preparing a site for IAEA safeguards requires that an effective material control and accounting system be in place, so there is a potential synergy with MPC&A efforts here, as well.

Halting Accumulation of Excess Stocks

Plutonium Cutoff Agreement. Under the current approach to monitoring this accord, reprocessing plants would not be monitored, and therefore there would not be an opportunity to upgrade MPC&A at those facilities as part of the monitoring arrangements. If the monitoring measures discussed to date are implemented, however, the sites where the separated plutonium would be stored after leaving the reprocessing plant would have significantly better material control and accounting than most other Russian sites.

RERTR. The United States and Russia are cooperating to develop non-weapons-usable low-enriched fuel for research reactors. The U.S. program in this area is known as Reduced Enrichment for Research and Test Reactors (RERTR). This program may offer a high potential for eliminating stockpiles of HEU fuel, and requirements for additional deliveries of such fuel, at a large number of poorly-protected civilian research facilities in the former Soviet Union. (Soviet supplied research reactors fueled by HEU also exist in Libya and North Korea.)

Disposition

HEU Purchase Agreement. Oxidation and blending of HEU for the HEU purchase agreement will involve large-scale bulk handling of HEU, raising potential opportunities for theft. Even a single documented case of theft of HEU from this effort could have a devastating political impact on the entire cooperative effort to deal with fissile material, in addition to the serious security risks that any HEU theft would pose. Therefore it is critically important that both the site at Tomsk where the HEU weapons components will be converted to HEU oxide, and the site at Sverdlovsk-44 where the material will be blended to low-enriched uranium, be provided with effective MPC&A systems. The apparent lab-to-lab agreement to establish such a system at the Tomsk oxidation facility should be vigorously pursued, as should efforts to reach agreement on MPC&A upgrades at Sverdlovsk-44, being pursued under the umbrella of transparency arrangements for the HEU deal.

Plutonium Disposition. Given the very different attitudes toward plutonium fuel cycles in Russia and the United States, the two countries may not agree to pursue identical plutonium disposition options, and specific decisions are likely to take time. But the two sides should agree now that whatever options are chosen, an agreed and stringent standard of safety, security, and international accountability will be maintained throughout the process.

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* The list of facilities eligible for safeguards under the former Soviet Union's "voluntary offer" agreement with the IAEA was minimal by comparison to the U.S. list, which makes all civilian facilities eligible for safeguards, though because of resource constraints these safeguards have not actually been implemented in recent years.

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APPENDIX A

List of Principal Briefings

Washington, D.C.

Known Cases of Theft of Weapons-Usable Material
(b)(3) Central Intelligence Agency

Safeguards and Security in the FSU: Conclusions of the JAEIC Study
Stephen Mladineo, DOE, Pacific Northwest Laboratory.

Material Control and Accounting in the FSU
Mark Mullen, Los Alamos National Laboratory

Physical Protection in the FSU
John Kane and Byron Gardner, Sandia National Laboratory

On the Ground in Russia: The Politics and Problems of MPC&A Cooperation
Ken Fairfax, U.S. Embassy, Moscow

Overview of MPC&A Cooperation
Ken Luongo, Director, DOE Office of Arms Control and Nonproliferation

Government-to-Government MPC&A Programs
Ken Sanders, chief, International Safeguards Division, DOE

The Lab-to-Lab MPC&A Program
Mark Mullen, Los Alamos National Laboratory

NRC MPC&A Support to the States of the Former Soviet Union
Ted Sherr, chief, Regulatory and International Safeguards Branch,
Nuclear Regulatory Commission

Securing Nuclear Materials: A DoD Perspective
Gloria Duffy, Special Coordinator,
Cooperative Threat Reduction, Office of the Secretary of Defense

Purchases of FSU Materials: Sapphire and After
Jeffrey Starr, Principal Director, Threat Reduction Policy
Office of the Secretary of Defense; head, Sapphire "Tiger Team"

Stopping Nuclear Smuggling
Joseph DeThomas, Director, Office of Regional Nonproliferation
Department of State

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Overview of Outstanding Issues
James Goodby, chief negotiator, Safe, Secure Dismantlement
Department of State

Next Steps In MPC&A Cooperation
Frank von Hippel, Federation of American Scientists, former Assistant Director for National Security, Office of Science and Technology Policy

U.S. Assistance to Improve Physical Security and Accounting of Fissile Material in Russia
Thomas B. Cochran, Natural Resources Defense Council

Cooperation Between the U.S. and MINATOM in the Area of Fissile Material Safeguards
Oleg Bukharin, Princeton University and Moscow Physical-Technical Institute

Securing Nuclear Materials in the Former Soviet Union
William Potter, Center for Nonproliferation Studies, Monterey Institute of International Studies

Overview of Fissile Material Initiatives and Interagency Process
Steve Aoki, Director, Nuclear Nonproliferation, National Security Council

Moscow

Ken Fairfax, Science and Technology Officer, U.S. Embassy Moscow

Victor Gubanov, head, Committee on Emergency Situations, Ministry of Atomic Energy (MINATOM); Lead Negotiator, Government-to-Government MPC&A Cooperation, and others.

Yuri Zubkov, Deputy Chairman for Fuel Cycle and Safeguards, Federal Nuclear and Radiation Safety Authority (GAN), and others.

Yuri Dyomin, chief, International Relations, Federal Counterintelligence Service, and others.

Yuri Ilkaev, Deputy Scientific Director, All-Russia Institute of Experimental Physics (Arzamas-16).

Nikolai Ponomarev-Stepnoi, Deputy Director, Kurchatov Institute, and others. (Including review of MPC&A system at Building 116).

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analyzed that there isn't ~~SECRET~~
a sustained effort
by DC to get the
shift - especially if
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have.

yes we'll
got to turn
this up.
try by end of this
week to get answers
on how
they fit in w/
what we're doing

- huge quantity -
- small weight -

Goal - ought
to be addressed
at together with
PCC's before
summit

do we want PDD?
→ summit?
↓
strong endorsement
& cooperation

we know how to solve it
he nods.

Goal -
more intensive
analytics w/
new this pix
w/ organization that
was absent.

What surprises us is that
they don't have inventory.

because they're
taking fresh look
they might not know
what's going on -
stronger coordination.

WHY DON'T YOU
SUGGEST HE GO TO
KURCHATOV
ON MAY 11

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003. email	Christopher Chyba to Cathy Millison, re: Fissile Materials Schedule Request (4 pages)	04/06/1995	P1/b(1) VZ
004. email	Steven Pifer to John Beyrle, et al., re: 10 may meeting (3 pages)	04/17/1995	P1/b(1) VZ
005. email	Steven Aoki to Frederick Tarantino, re: PCAST Briefing memo for Lake (2 pages)	04/28/1995	P1/b(1) VZ
006. email	Frederick Tarantino to Steven Aoki, re: [Memorandum for the President] (3 pages)	04/28/1995	P1/b(1) VZ
007. email	Jessica Stern to Steven Aoki, et al., re: peast briefing (2 pages)	05/01/1995	P1/b(1) VZ
008. email	Jessica Stern to Steven Aoki and Daniel Poneman, re: state's response to peast (1 page)	05/02/1995	P1/b(1) VZ
009. email	Frederick Tarantino to Steven Aoki, re: Draft Memo on PCAST Follow-Up (2 pages)	05/02/1995	P1/b(1) VZ
010. email	Peter Bass to Steven Aoki, et al., re: Talking points on PCAST Panel Report (2 pages)	05/03/1995	P1/b(1) VZ
011. email	Steven Aoki to John Boright, Frederick Tarantino, and Jane Wales, re: PCAST report & C-P-L luncn (2 pages)	05/03/1995	P1/b(1) VZ

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014. email	Steven Aoki to Peter Bass, et al., re: CPL item (2 pages)	05/03/1995	P1/b(1) VZ
015. email	Steven Aoki to Jessica Stern, re: [Memorandum for Anthony Lake] (3 pages)	05/03/1995	P1/b(1) VZ
016. email	Jessica Stern to Steven Aoki and Daniel Poneman, re: changes to the wales/poneman memo (3 pages)	05/03/1995	P1/b(1) VZ
017. email	Steven Aoki to Jessica Stern, re: MC&A memo (3 pages)	05/03/1995	P1/b(1) VZ
018. email	Frederick Tarantino to Steven Aoki, re: MPC&A memo (4 pages)	05/03/1995	P1/b(1) VZ
019. email	Steven Aoki to Daniel Poneman, re: here is the compromise (3 pages)	05/03/1995	P1/b(1) VZ
020. email	Jessica Stern to Deanna Behring, et al., re: here is the compromise (3 pages)	05/04/1995	P1/b(1) VZ
021. email	Frederick Tarantino to Steven Aoki, re: [Memorandum for Anthony Lake] (3 pages)	05/04/1995	P1/b(1) VZ
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P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

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PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).
RR. Document will be reviewed upon request.

Freedom of Information Act - [5 U.S.C. 552(b)]

b(1) National security classified information [(b)(1) of the FOIA]
b(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
b(3) Release would violate a Federal statute [(b)(3) of the FOIA]
b(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
b(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
b(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

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MSMail

DATE-TIME 24 March 95 23:04

FROM Poneman, Daniel B.

CLASSIFICATION ~~SECRET~~

SUBJECT Subject: Stuff ~~[SECRET]~~

TO Aoki, Steven N.

CARBON_COPY Edwards, Joan
Litwak, Robert C.
Quinn, Mary E.

DECLASSIFIED
PER E.O. 13526
2016-0129-M (1.61)
9/19/2022 VL

TEXT_BODY

Steve:

For Monday:

PCAST:

In terms of overall priority and leadership on this issue, the President has made this a key priority, which has enjoyed repeated high-level attention, e.g., PDD-13; UNGA 93 speech; every Russian summit; 500MT HEU deal; suspension agreements; Sapphire; declaration of 200MT excess to national security needs; Lake speech in Jan at Carnegie; Nixon Ctr speech by POTUS.

Where coordination problems have been identified they have been tackled: general coordination through aoki sub-iwg; diplomatic coordination through appointment of Goodby; perceived dissonance of various fissile material elements through "symphony" process in Standing Committee; Nunn-Lugar and related issues -- not just funding but also authorities (including pumping up DOE as the lead on MC&A) -- through the NSC-OMB process Gordon and I ran;
nuclear smuggling through aoki/stern process.

In terms of public presentations, we have interagency agreement that our lead public team is lynn davis -- charlie curtis -- ash carter. To the extent it is to be one person that person is lynn davis.

It is not clear to me what problems persist that call for a "czar." In my experience, the creation of separate boxes, not supported by line organizations, does not tend to produce greater coherence or integration of policy. They can provide greater visibility and public profile, but my sense is that Davis, Curtis and Carter speak frequently and in a variety of fora and public media. "Czars" also bring with them the risk that more attention is absorbed by the creation, staffing, and turf-protection of the

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newcomer than by the substance of the problem to be worked, especially in the second half of a Presidential term.

In terms of the specific shortcomings Matt mentioned, if there should be more Congressional briefings that is certainly doable. It is not clear to me that the problem on the $15 million could be more easily resolved by a czar than by the existing OMB-NSC mechanism. I would certainly agree that we need a rapid mechanism to alert decisionmakers when such a decision is not properly -- and promptly -- executed.

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MSMail

DATE-TIME 28 March 95 19:25

FROM Aoki, Steven N.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT Subject: Your meeting with PCAST on Fissile Materials ~~[CONFIDENTIAL]~~

TO
Cicio, Kristen K.
Emery, Mary C.
Hall, Wilma G.
Veit, Katherine M.
Wolin, Neal S.

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.62)
5/19/2022 VL

CARBON_COPY
Aoki, Steven N.
Beyrle, John R.
Blacker, Coit D.
Broadway, Jamuna
Clements, William L.
Edwards, Joan
Harris, Elisa D.
Heslin, Sheila N.
Litwak, Robert C.
Pifer, Steven K.
Poneman, Daniel B.
Quinn, Mary E.
Stauffer, Helen L.
Stern, Jessica E.
Tarantino, Frederick A.
Wales, Jane

TEXT_BODY

PLEASE PASS TO TONY LAKE

You are scheduled to meet with a panel from the President's Committee of Advisers on Science and Technology on Wednesday, March 29 at 10:30 a.m. to be briefed on their study of efforts to control fissile materials in the former Soviet Union. Jane Wales and Dan Poneman will also attend.

The panel's report calls attention to the dangers arising from inadequately protected nuclear materials in Russia and other FSU states. It is generally supportive of Administration efforts, praising our successes over the last year, while calling for more resources and Presidential attention to be devoted to this problem. The report should be useful on the Hill in defending the Nunn-Lugar program.

There is one point, however, on which the NSC Nonproliferation Office

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differs with the panel's conclusions. We do not support appointing a senior Administration official whose sole responsibility would be implementing these efforts -- a nuclear materials czar. Rather, we think that top officials at State, Energy and Defense need to keep nuclear materials security high on their agenda, as they have done in recent months, while the NSC continues to perform interagency coordination. If one wants to raise the profile of this issue, this can most effectively be done through Cabinet officials and their principal subordinates, not by appointing a nominal leader outside of the chain of command, who will have only limited ability to redirect resources or coordinate across agency lines.

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MSMail

DATE-TIME 06 April 95 15:50

FROM Chyba, Christopher F.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT [~~CONFIDENTIAL~~]Fissile Materials Schedule Request

TO Millison, Cathy L.

CARBON_COPY Ward, JoAnn X.

TEXT_BODY

As requested, here is an electronic copy of the original fissile materials schedule request (2583).

[[PCASTBRF.DOC : 3850 in PCASTBRF.DOC]]

ATTACHMENT FILE DATE 5 April 95 16:31

ATTACHMENT FILE NAME PCASTBRF.DOC
~~CONFIDENTIAL~~
2583
~~CONFIDENTIAL~~
Declassify on: OADR

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~
Declassify on: OADR

Schedule Proposal 4 April 1995

_____ACCEPT _____REGRET _____PENDING

TO: Billy Webster
Director of Scheduling and Advance

FROM: Anthony Lake
Assistant to the President for
National Security Affairs

REQUEST: In response to request

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DECLASSIFIED
E.O. 13526
White House Guidelines, May 16, 2017
By W NARA, Date 9/9/2022
2016-0129-M

from Chief of Staff Panetta to set up a briefing on this topic.

Twenty-minute briefing (followed by ten minute Q&A) on immediate actions recommended to strengthen the security of weapons-usable nuclear materials in the former Soviet Union. The briefing should take place in time to incorporate any Presidential guidance into preparations for the President's May Summit with President Yeltsin.

PURPOSE: The briefing, at the Secret level, will be given by John Holdren (Chair of the National Academy of Sciences' Committee on International Security and Arms Control) and Norman Augustine (President of Lockheed Martin Corporation), members of a special panel of the President's Committee of Advisors on Science and Technology (PCAST). The panel has just completed its review of U.S.-former Soviet Union cooperation to protect, control, and account for weapons-usable nuclear materials. The panel will recommend to the President specific actions to strengthen U.S. efforts to prevent nuclear theft.

BACKGROUND: The PCAST is chartered to provide independent private-sector advice to the President. This panel of experts concluded that inadequately safeguarded nuclear materials in the former Soviet Union pose a significant danger of falling into the hands of terrorists or rogue states. They note

that while our recent efforts have made headway in solving this problem, there are additional, immediate steps the President can take to improve the security of these materials.

PREVIOUS PARTICIPATION: None

DATE AND TIME: As early as possible, to allow time to incorporate any

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Presidential guidance into preparations for the President's Moscow Summit with President Yeltsin May 9-10.

Strongly Preferred Date and Time:
Any time the week of April 10-14.

The principal PCAST briefer, Dr. John Holdren, will be in Beijing April 15-20.

Alternate Dates:
Subsequent to April 21.

BRIEFING TIME: None

DURATION: 30 minutes

LOCATION: Open

PARTICIPANTS: White House Participants:

Anthony Lake
Assistant to the President for
National Security Affairs

John H. Gibbons
Assistant to the President for
Science and Technology

Daniel Poneman
Special Assistant to the President
for Nonproliferation and Export Controls

Jane Wales
Special Assistant to the President
for Science and Technology

PCAST Panel Participants:

John Holdren (Chairman)
University of California, Berkeley;
Chairman, Committee on International
Security and Arms Control, National
Academy of Sciences

Norman Augustine
President, Lockheed Martin
Corporation

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Matthew Bunn (staff)
National Academy of Sciences

OUTLINE OF EVENTS: The briefing would be presented by Holdren and

Augustine, who would deliver the PCAST conclusions to the President and make recommendations for Presidential action. Time will be set aside for Q&A.

REMARKS REQUIRED: No formal remarks required

MEDIA COVERAGE: None (classified briefing)

FIRST LADY'S ATTENDANCE: Not requested

VICE PRESIDENT'S ATTENDANCE:

Requested

RECOMMENDED BY: The Assistant to the President for National Security

The Assistant to the President for Science and Technology

The President's Committee of Advisors on Science and Technology

CONTACT: Jane Wales
Special Assistant to the President
for Science and Technology

ORIGIN OF THIS PROPOSAL: NSC, OSTP, and PCAST

SECOND LADY'S ATTENDANCE: Not requested

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MSMail

DATE-TIME 17 April 95 12:20

FROM Pifer, Steven K.

CLASSIFICATION ~~CONFIDENTIA~~L

SUBJECT Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~

TO
Beyrle, John R.
Blacker, Coit D.
Broadway, Jamuna
Heslin, Sheila N.
Pifer, Steven K.
Stauffer, Helen L.
Stern, Jessica E.

DECLASSIFIED
PER E.O. 13526
2016-0129-M (1.63)
9/19/2022

CARBON_COPY
Andreasen, Steven P.
Aoki, Steven N.
Bell, Robert G.
Edwards, Joan
Hahn, Keith D.
Harris, Elisa D.
Jones, Steven R.
Kelly, Sandra L.
Litwak, Robert C.
Moody, Angelyn D.
Poneman, Daniel B.
Quinn, Mary E.
Seaton, James B.
Sestak, Joseph A.
Witkowsky, Anne A.

TEXT_BODY

Steve (Aoki) is right. Unless we record phenomenal progress on arms control in the next three weeks, we will want short treatment of it in the overall joint statement. The drawback to a long, ambitious statement is that we may end up where we are now with regard to the September statement -- lots of things not yet done.

Jessica: if you can give me Matt's input, I'll feed it into the arms control/security pot with Aoki and Andreasen.

John: I can update you on the R and D foundation (I have an in with the expert).

From: Aoki, Steven

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To: @RUSSIA - Russia/Ukraine; @DEFENSE - Defense Policy
CC: /R, Record at A1; @NONPRO - Export Controls
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Monday, April 17, 1995 11:42 AM

Jessica/John:

Before we get tangled up on summit statement language re fissile materials -- I thought there was agreement that Defense & Nonpro were supposed to work out the language on security issues. I've been talking to Pifer & Andreasen about this. I have also seen Matt Bunn's proposal, which strikes me as too long, and possibly too ambitious.

Let's talk this out.

Additionally, Dan & I have some problems with the recommendations of the PCAST study. At an earlier stage, Deputies discussed having a fissile materials czar, and decided against it. I continue to think that is the right answer, and that creating another "senior coordinator" would be unproductive, unless the objective is to sideline the issue.

From: Stern, Jessica E.
To: Aoki, Steven
CC: /N, NonRecord at A1
Subject: FW: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Monday, April 17, 1995 11:16 AM

fyi

From: Stern, Jessica E.
To: Beyrle, John R.
CC: /N, NonRecord at A1; /R, Record at A1; @RUSSIA - Russia/Ukraine
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Monday, April 17, 1995 11:15 AM

Answers to your questions:

A. On the PCAST study: The President's Committee of Advisors on Science and Technology just completed a study of US-FSU cooperation to protect, control, and account for weapons-usable nuclear materials.
Members of the panel: John Holdren, Norm Augustine, Bill Burns, Sally Ride (yes! the astronaut), and Ruth Kempf.

The bottom line: insufficient high-level attention to the "greatly increased danger of nuclear theft."

The recommendations:
1) appoint a senior administration official to take full-time responsibility

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for implementation of MPCA in FSU
2) issue a PDD designating this program "an urgent national security priority of the US"

B. On a summit statement on fissile materials: One of the members of my MPCA

Group, Matt Bunn, has already drafted language for a summit statement on MPCA/fissile materials issues. I will edit them.

C. On the Civilian R&D Foundation.

Prime Minister Chernomyrdin recently offered to contribute an additional $20 million to the Soros International Science Foundation, if Soros would match that amount. Soros is willing, provided that the USG contribute half, i.e,. $10 million. Soros has finally agreed to allow the USG funds to go to a civilian R&D foundation, rather than directly to his foundation.

We have been working on setting up that civilian R&D Foundation, and Jane Wales is very excited by some recent progress. But the real expert on this subject is Marilyn Pifer. I have asked her to provide me an update, and will get back to you.

From: Beyrle, John R.
To: Stern, Jessica E.
CC: /N, NonRecord at A1
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Saturday, April 15, 1995 12:29 PM

JS -- think most of the alliteration sprang from Chip, but thanks.

Need to talk about how MPCA fits into the summit. Time is tight for discussion but strikes me we have a couple of good stories to tell in public forum. What is this agreement on R&D foundation that Jane Wales is talking/pcast briefing about? Is this the thing we couldn't get closed last December in Moscow for GC-4?

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MSMail

DATE-TIME 28 April 95 16:26

FROM Aoki, Steven N.

CLASSIFICATION ~~SECRET~~

SUBJECT PCAST Briefing memo for Lake [~~SECRET~~]

TO Tarantino, Frederick A.

CARBON_COPY NO CC's on THIS MESSAGE

DECLASSIFIED PER E.O. 13526
2016-0179-m (1.64)
9/19/2022 VL

TEXT_BODY

[[3221.DOC : 4182 in 3221.DOC]]
Attached is my draft cover memo. Request yr clearance.

Thanks.

ATTACHMENT FILE DATE 28 April 95 16:25

ATTACHMENT FILE NAME 3221.DOC
~~SECRET~~
3221
~~SECRET~~
Declassify on: OADR

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

ACTION

MEMORANDUM FOR JOHN H. GIBBONS/ANTHONY LAKE

THROUGH: JOHN BORIGHT/DANIEL PONEMAN

FROM: MATTHEW BUNN/STEVEN AOKI

SUBJECT: Presidential Briefing on Nuclear Materials in the Former Soviet Union

The President is scheduled to receive a briefing on Monday, May 1 at 11:15 on the security risk from inadequately protected nuclear material in the former Soviet Union. The briefing will be provided

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by a panel of the President's Committee of Advisers on Science and Technology (PCAST); the Executive Summary of their report is at Tab D.

While agencies have not fully reviewed the PCAST report, there is broad agreement that efforts to improve the security of nuclear material in Russia and elsewhere in the FSU deserve high priority. The PCAST panel's recommendation that the President appoint a senior official to have full-time responsibility for coordinating cooperation with the FSU on nuclear material security is controversial, however. In considering organizational recommendations, you should be aware that the panel did not receive input from senior policy levels, although it did interview those officials charged with implementing current programs. John Deutch has written you concerning the panel's recommendations (Tab II).

Concurrences by: Jessica Stern, John Boright

RECOMMENDATION

That you sign the Memorandum to the President at Tab I.

Attachments
Tab I Memorandum to the President
Tab A Scenario
Tab B Talking Points
Tab C List of PCAST Panel Members
Tab D Executive Summary of the PCAST Report

Tab E PCAST Report
Tab II Memorandum from John Deutch

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MSMail

DATE-TIME 28 April 95 17:46

FROM Tarantino, Frederick A.

CLASSIFICATION ~~SECRET~~

SUBJECT ~~[SECRET]~~

TO Aoki, Steven N.

CARBON_COPY NO CC's on THIS MESSAGE

TEXT_BODY

File attached

[[MEMO.DOC : 4392 in MEMO.DOC]]

ATTACHMENT FILE DATE 28 April 95 17:45

ATTACHMENT FILE NAME MEMO.DOC

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.65)
9/19/2022 M

~~SECRET~~
3221
~~SECRET~~
cc: Vice President
Declassify on: OADR
Chief of Staff

~~SECRET~~
~~SECRET~~

MEMORANDUM FOR THE PRESIDENT

FROM: JOHN H. GIBBONS
ANTHONY LAKE

SUBJECT: Briefing on Report From PCAST on Securing Weapons-Usable Nuclear Materials in the Former Soviet Union

You will receive a briefing Monday, May 1, from 11:15 to 11:45 a.m. on an independent report from a panel of the President's Committee of Advisers on Science and Technology (PCAST), recommending immediate actions to strengthen the security of weapons-usable nuclear materials in the former Soviet Union. The briefing will be

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given by Dr. John Holdren, chairman of the PCAST panel. A scenario for the meeting is at Tab A. Talking points are at Tab B. A list of the panel members is at Tab C.

The report concludes that:
ù "Grossly inadequate safeguards and security for nuclear materials in the former Soviet Union pose a clear and present danger that the essential ingredients of nuclear bombs could fall into the hands of terrorist groups or rogue states."
ù While this is "among the most serious and urgent threats to national security" the United States faces, it is one we know how to address. The technologies are available and many of the needed programs are in place to substantially reduce the threat.

However, the panel concludes that urgent Presidential action is needed to strengthen U.S. efforts in this area. The panel recommends that:
ù you designate the effort to deal with this threat as a "critical and urgent security priority of the United States," and direct that it be given commensurate resources and top-level attention;
ù that you designate a senior full-time coordinator with responsibility and authority for coordinating all programs related to addressing this threat; and
ù that you "use the opportunity of the upcoming summit to gain agreement on specific new steps to improve security and accounting for nuclear materials." A one-page summary of the specific points the panel recommends you seek agreement on at next week's summit is at Tab C.

The report concludes that action now is a prudent investment to avoid the huge costs and risks that would result if weapons-usable nuclear material were to fall into the hands of states such as Iran, Iraq or Libya.

As the report notes, your Administration has significantly enhanced cooperative U.S.-FSU efforts to address this threat:
□ The January 1994 summit statement identified cooperation in this area as a "high p
riority," and additional measures were
agreed at the September 1994 summit.

□ We've reorganized management of our program that helps Russia with security and ac
counting for nuclear materials, giving
DOE the lead and signing an agreement with Russia to provide an additional $20 milli
on. Other programs under Nunn-Lugar provide
assistance in related areas.
ù DOE initiated last year an innovative program of direct cooperation between U.S. a

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nd Russian nuclear labs on security for nuclear
materials. For rather modest investments, we've been able to produce rapid, substan
tial security upgrades, while cutting U.S. red
tape. We're seeking a large funding increase for this program in FY96.
ù In Project Sapphire, we successfully airlifted half a ton of highly-enriched urani
um to safe storage in the U.S. Deliveries will begin
soon of the uranium that we'be agreed to buy from dismantled Russian warheads.

This report will be helpful in advancing Administration priorities in this area, par
ticularly in securing Congressional support.

Attachments
Tab A Scenario for the Briefing
Tab B Talking Points for the Briefing
Tab C List of PCAST Panel Members
Tab D PCAST Summit Recommendations
Tab E Executive Summary of the PCAST Report
Tab F Copy of the PCAST Report

CLINTON LIBRARY PHOTOCOPY

MSMail

DATE-TIME 01 May 95 13:05

FROM Stern, Jessica E.

CLASSIFICATION ~~SECRET~~

SUBJECT Subject: pcast briefing ~~[SECRET]~~

DECLASSIFIED
PER E.O. 13526
2016-0129-m (1.66)
9/19/2022 VL

TO
Aoki, Steven N.
Beyrle, John R.
Blacker, Coit D.
Broadway, Jamuna
Edwards, Joan
Harris, Elisa D.
Heslin, Sheila N.
Litwak, Robert C.
Pifer, Steven K.
Poneman, Daniel B.
Quinn, Mary E.
Stauffer, Helen L.
Stern, Jessica E.

CARBON_COPY NO CC's on THIS MESSAGE

TEXT_BODY

Poneman, Aoki, and Stern agree that there are two main tasks resulting from the briefing:
1. Make sure that MPCA is given priority in the summit. In the President's words, at the summit "we've got to turn this up."
2. Respond to each of the PCAST's recommendations.

Here is how we agreed to respond to these tasks:

1. Dan will send email to Tony outlining our proposed actions.
2. Jessica will add additional language on MPCA to the summit security paper.
3. Dan will get Einhorn to add MPCA to the joint nonproliferation statement.
4. Dan will call agencies to ensure they are prepared to respond to the PCAST recommendations at his Standing Committee meeting tomorrow. Steve and
Jessica will also make some calls.
5. We will task the agencies to write draft responses to each of the recommendations ASAP. We hope to have the paper ready by the end of the week, as Gore suggested.
6. Dan will contact Leon.

On the recommendation to issue a PDD, we basically think it's a good idea.

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Our preliminary thoughts about what would go in it: make it national policy to buy Russian equipment for MPCA improvements; make it national policy to cooperate with GAN (Russia's NRC); make it national policy that DOE will continuously update the Joint Atomic Energy Intelligence Committee Report on vulnerable nuclear materials, including by keeping track of US and European/Japanese MPCA efforts.

The VP made clear that he would like us to respond the recommendations of the PCAST panel by the end of the week, in particular to how we are organized to work with the Russians on MPCA. And

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M S M a i l

DATE-TIME 02 May 95 12:27

FROM Stern, Jessica E.

CLASSIFICATION ~~SECRET~~

SUBJECT Subject: state's response to pcast ~~[SECRET]~~

TO Aoki, Steven N.
Poneman, Daniel B.

DECLASSIFIED
PER E.O. 13526
2016-0129-M (1.67)
9/19/2022 VL

CARBON_COPY NO CC's on THIS MESSAGE

TEXT_BODY

The bottom line:

On the Czar:
No, there should not be a Czar. Instead, my MPCA Group should be upgraded to a full sub-IWG to include representatives of agencies at DAS level, as appropriate.

**It would be useful if you were to announce that my group is now official rather than informal, and that the Group will report to the Deputies and Principals through your Standing Committee.

On the PDD:
Yes, the PDD should be written immediately.

On the action plan the subjunctive czar would have written:
My MPCA Group should immediately establish a Tiger Team to complete this action plan in (if possible) fewer than 60 days. (Some of the work has already been done.)

[Dolliff writes that the PDD should direct the Tiger Team to complete the Action Plan within 3 weeks.]

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M S M a i l

DATE-TIME 02 May 95 17:50

FROM Tarantino, Frederick A.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT Draft Memo on PCAST Follow-Up ~~[CONFIDENTIAL]~~

TO Aoki, Steven N.

CARBON_COPY NO CC's on THIS MESSAGE

DECLASSIFIED PER E.O. 13526
2016-0129-M (1,68)
9/19/2022 VL

TEXT_BODY

Steve --
Here's the draft. Jane's happy with it as it is.

Matt

[[MEMO.PON : 4365 in MEMO.PON]]

ATTACHMENT FILE DATE 2 May 95 17:48

ATTACHMENT FILE NAME MEMO.PON
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~
Declassify on: OADR

May 2, 1995

MEMORANDUM FOR ANTHONY LAKE
JOHN H. GIBBONS

FROM: DAN PONEMAN/JANE WALES

RE: FOLLOW-UP ON FSU NUCLEAR MATERIALS SECURITY

At your direction, we have been moving out rapidly to follow up on the PCAST report on security for nuclear materials in the former Soviet Union.

1. Agency Views. The Standing Committee on Nonproliferation discussed the report's recommendations today. All agencies agreed

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that: A) improvements in security and accounting for nuclear materials in the FSU are a high priority; B) this should be reflected in summit language (see next item); C) it would be beneficial to have a full-time coordinator for these issues on the
NSC staff; and D) a PDD designed to highlight the importance of our efforts and guide future actions should be developed.

2. Summit Language. We have drafted and the Standing Committee has approved proposed summit language highlighting the priority of cooperation to secure nuclear materials and calling for a joint report for Gore-Chernomyrdin in June. (The proposed language, at Tab A, would be included in a planned summit statement on nonproliferation.) This language will be discussed with Russian representatives in New York tomorrow.

3. Staffing. We believe the best approach to the staffing issue, considering Presidential direction, the PCAST recommendations, and agency views, is to add a full-time person to the NSC staff to coordinate agency activities related to controlling fissile materials in the former Soviet Union. We envision that this individual would be an NSC director, and would report up through the NSC and to the Gore-Chernomyrdin process. This person's first tasks would be to staff these issues for the next Gore-Chernomyrdin meeting, and to prepare a PDD (see next item).

4. Presidential Decision Directive. Given the consensus that a PDD on this subject should be prepared, we will be working over the next few days to solicit agency views on what should be included, and to develop a process for producing a draft. The PDD should identify actions to address the President's concern about the lack of an inventory of nuclear materials in the former Soviet Union. By the end of the week, we expect to provide you with a draft memorandum for the President's signature directing the preparation of such a PDD.

5. DOE-DOD Disagreements. DOE and DOD confirm that the specific issue of the transfer of the $15 million to fund lab-to-lab programs has been resolved. Both agencies agree that a full-time NSC coordinator could work to ensure that such issues are surfaced and resolved more quickly in the future. DOE proposes, in addition, as-needed meetings of a triumvirate of Undersecretary Charles Curtis, Undersecretary Lynn Davis, and Assistant Secretary Ash Carter to give these efforts high-level impetus and coordination.

CLINTON LIBRARY PHOTOCOPY

MSMail

DATE-TIME 03 May 95 09:39

FROM Bass, Peter E.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT FW: Talking points on PCAST Panel Report ~~[CONFIDENTIAL]~~

TO Aoki, Steven N.
Edwards, Joan
Harris, Elisa D.
Litwak, Robert C.
Poneman, Daniel B.
Quinn, Mary E.

DECLASSIFIED
PER E.O. 13526
2016-0129-M (1.69)
9/19/2022 RZ

CARBON_COPY Wales, Jane

TEXT_BODY

Attached are Jane's points on the PCAST report. Please fold in, as appropriate, to the points Aoki is preparing. (The lunch agenda is rather full and cannot accommodate 2 separate items on this subject.) Thanks, Peter

---

From: Wales, Jane M.
To: Bass, Peter E.
CC: /R, Record at A1; Wales, Jane M.
Subject: Talking points on PCAST Panel Report ~~[CONFIDENTIAL]~~
Date: Tuesday, May 02, 1995 06:42 PM

[[PCASTTLK.DOC : 2324 in PCASTTLK.DOC]]

Attached you will find my suggested talking points for Tony at his lunch tomorrow on the subject of the PCAST panel report. Dan Poneman has been in a meeting since I promised you the attached, so they have not been cleared by him. They do, however, reflect meetings and discussions he and I have had over the past 24 hours. The Standing Committee on Nonproliferation is chaired by Dan. It met today and was given the same PCAST briefing that the President, Perry, and Holum received yesterday.

Tony will be receiving a memo from Dan and me on our follow-up to the POTUS

briefing as soon as Dan gets a chance to look at it.

I hope this is helpful.

ATTACHMENT FILE DATE 2 May 95 18:32

ATTACHMENT FILE NAME PCASTTLK.DOC

CLINTON LIBRARY PHOTOCOPY

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~
Declassify on: OADR

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

POINTS TO BE MADE AT LAKE-PERRY-CHRISTOPHER LUNCH ON PCAST REPORT ON SECURITY FOR FSU NUCLEAR MATERIALS

-- We are moving rapidly to follow up on the PCAST report.

-- At the Standing Committee on Nonproliferation yesterday, all agencies agreed tha
t:

ù improvements in security and accounting for nuclear materials in the FSU are a high priority;
ù this should be reflected in summit language;
ù it would be beneficial to have a full-time coordinator for these issues on the NSC staff; and
ù a PDD designed to highlight the importance of our efforts and guide future actions should be his or her first task.

-- The Standing Committee approved proposed summit language highlighting the importance of cooperation to secure nuclear materials and calling for a progress report at the June Gore-Chernomyrdin meeting. Einhorn at State is bringing up this language with the Russians today. We hope that Lynn Davis will also bring it up with Mamedov on Friday.

-- We are examining ways to bring on a full-time person at the NSC director level to coordinate these issues. That person would report up through the NSC and support the Gore-Chernomyrdin process.

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M S M a i l

DATE-TIME	03 May 95 10:29
FROM	Aoki, Steven N.
CLASSIFICATION	UNCLASSIFIED
SUBJECT	PCAST report & C-P-L lunch [UNCLASSIFIED]
TO	Boright, John Tarantino, Frederick A. Wales, Jane
CARBON_COPY	NO CC's on THIS MESSAGE
TEXT_BODY	[[5-3A.DOC : 2607 in 5-3A.DOC]] Attached are Poneman/Aoki comments on your memo. OK?
ATTACHMENT FILE DATE	3 May 95 10:27
ATTACHMENT FILE NAME	5-3A.DOC

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.70)
9/19/2022 VL

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~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

POINTS TO BE MADE AT LAKE-PERRY-CHRISTOPHER LUNCH ON PCAST REPORT ON SECURITY FOR FSU NUCLEAR MATERIALS

-- We are moving rapidly to follow up on the PCAST report.

-- At Dan Poneman's Standing Committee on Nonproliferation yesterday, all agencies agreed that:

ù improvements in security and accounting for nuclear materials in the FSU are a high priority;

ù this should be reflected in summit language;

ù it would be beneficial to have a full-time coordinator for these issues on the NSC staff; and

ù we should seek a PDD that would mandate adequate senior-level attention and organizational arrangements to ensure an aggressive approach in this area.

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-- The Standing Committee approved proposed summit language highlighting the importance of cooperation to secure nuclear materials and calling for a progress report at the June Gore-Chernomyrdin meeting, and approved proceeding with an ad ref declaration on nuclear transparency measures that sets in motion negotiations on reciprocal access to nuclear storage sites and related data exchanges.

-- We are examining ways to bring on a full-time person at the NSC director level to coordinate nuclear material security issues. That person would report up through the NSC and also support the Gore-Chernomyrdin process. We also should consider a Presidential appointment for our lead negotiator in this area (Amb. Goodby) and ask agencies (particularly DOE, which now has the lead) to review the adequacy of their own organizational support for nuclear materials security assistance.

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Withdrawal/Redaction Sheet
Clinton Library

DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
~~001. memo~~	~~Anthony Lake to the President, re: Nuclear Materials Security in the FSU (1 page)~~	~~05/1995~~	~~P1/b(1)~~ VZ
~~002a. memo~~	~~Steven Aoki to Anthony Lake, re: Presidential Briefing on Nuclear Materials in the Former Soviet Union (1 page)~~	~~04/28/1995~~	~~P1/b(1)~~ VZ
~~002b. memo~~	~~John Gibbons and Anthony Lake to the President, re: [Briefing on Report from PCAST] (2 pages)~~	~~04/1998~~	~~P1/b(1)~~ VZ
~~002c. talking points~~	~~Points to be made for Meeting on PCAST Report on Security for Nuclear Materials in the FSU (1 page)~~	~~04/1998~~	~~P1/b(1)~~ VZ
~~002d. paper~~	~~Withdrawal of Excess Fissile Materials from Availability for Nuclear Weapons Use (1 page)~~	~~04/1998~~	~~P1/b(1)~~ VZ
003. draft	Draft Presidential Decision Directive (7 pages)	n.d.	P1/b(1)
~~004. letter~~	~~Kenneth Luongo to Daniel Poneman, re: [NSC decision] (2 pages)~~	~~06/13/1996~~	~~P1/b(1)~~ VZ
005. email	Joseph Smaldone to the Special Assistant to the President and Senior Director for Nonproliferation and Export Controls, re: [Computer Export Policy] [partial] (2 pages)	06/12/1996 Released in Part	P1/b(1), P3/b(3) VZ
006. report	President's Committee of Advisors on Science and Technology, Report of the Panel on US-FSU Cooperation to Protect, Control, and Account for Weapons-Usable Nuclear Materials [partial] (54 pages)	03/28/1995 Released in Part	~~P1/b(1)~~, P3/b(3) VZ
~~007. memo~~	~~Dan Poneman and Jane Wales to Anthony Lake and John Gibbons, re: Follow-Up on FSU Nuclear Materials Security (3 pages)~~	~~05/04/1995~~	~~P1/b(1)~~ VZ

04/07/2023

COLLECTION:
Clinton Presidential Records
National Security Council
Nonproliferation and Export Controls (Samore, Gary)
OA/Box Number: 3128

FOLDER TITLE:
PCAST [President's Committee of Advisers on Science & Technology] [1]

2014-0880-F
ke2696

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P3 Release would violate a Federal statute [(a)(3) of the PRA]
P4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

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RR. Document will be reviewed upon request.

Freedom of Information Act - [5 U.S.C. 552(b)]

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DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
~~008. memo~~	~~Jane Wales to Dan Poneman and Chip Blacker, re: Modifications to the Draft PDD on NIS Nuclear Security and to the PCAST (4 pages)~~	~~06/07/1995~~	~~P1/b(1)~~ VZ 04/08/2013
~~009. memo~~	~~Norman Wulf to the Special Assistant to the President and Director for Nonproliferation, re: [ACDA Comments on the Draft Presidential Decision Directive] (4 pages)~~	~~06/09/1995~~	~~P1/b(1)~~ VZ 04/07/2013

COLLECTION:
Clinton Presidential Records
National Security Council
Nonproliferation and Export Controls (Samore, Gary)
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FOLDER TITLE:
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2014-0880-F
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THE WHITE HOUSE

WASHINGTON

INFORMATION

MEMORANDUM FOR THE PRESIDENT

FROM: ANTHONY LAKE

SUBJECT: Nuclear Materials Security in the FSU

At your direction, I am following up on the PCAST report on security for nuclear materials in the former Soviet Union. I agree with the PCAST finding that improvements in security and accounting for nuclear materials in the FSU should be high on our agenda with the Russians. I also agree that these issues deserve greater attention within our own government.

To that end, I have directed my staff to prepare a PDD that will identify policy priorities, mandate senior-level oversight, and task development of a gameplan for our own program and for further negotiations with Russia and the other NIS, especially in the area of accounting for nuclear materials. The PDD will direct agencies to develop a coordinated legislative strategy to ensure adequate funding and authority for these efforts. The PDD will also mandate that the potential involvement of organized criminal groups in nuclear smuggling activities receive priority attention.

We have also drafted summit language highlighting the priority of cooperation to secure nuclear materials and calling for a joint report for the Gore-Chernomyrdin Commission in June. We are currently negotiating with the Russians on this language.

I have suggested to Leon Panetta that our chief negotiator with the Russians on this issue, Ambassador Goodby, receive a Presidential commission to make clear the higher priority we are placing on Russian cooperation in this area.

Finally, we have requested authority to hire an additional NSC staff person to coordinate agency implementation of our program. We have also urged DOE to review its staffing on this issue.

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2016-0129-NA (1.90)
9/19/2022 V2

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cc: Vice President
Chief of Staff

~~SECRET~~

PCAST 3221

NATIONAL SECURITY COUNCIL
WASHINGTON, D.C. 20506

April 28, 1995

ACTION

MEMORANDUM FOR ANTHONY LAKE

THROUGH: DANIEL PONEMAN

FROM: STEVEN AOKI

SUBJECT: Presidential Briefing on Nuclear Materials in the Former Soviet Union

The President is scheduled to receive a briefing on Monday, May 1 at 11:15 on the security risk from inadequately protected nuclear material in the former Soviet Union. The briefing will be provided by a panel of the President's Committee of Advisers on Science and Technology (PCAST); the Executive Summary of their report is at Tab D.

While agencies have not fully reviewed the PCAST report, there is broad agreement that efforts to improve the security of nuclear material in Russia and elsewhere in the FSU deserve high priority. The PCAST panel's recommendation that the President appoint a senior official to have full-time responsibility for coordinating cooperation with the FSU on nuclear material security is controversial, however. In considering organizational recommendations, you should be aware that the panel interviewed those officials charged with implementing current programs, but did not talk to Principals or Deputies. John Deutch has written you concerning the panel's recommendations (Tab II).

Concurrences by: Jessica Stern

RECOMMENDATION

That you sign the Memorandum to the President at Tab I.

Attachments
Tab I Memorandum to the President
- Tab A Scenario
- Tab B Talking Points
- Tab C List of PCAST Panel Members
- Tab D Executive Summary of the PCAST Report
- Tab E PCAST Report

Tab II Memorandum from John Deutch

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2011-0179-M (1.91)
9/14/2022 VZ

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THE WHITE HOUSE

WASHINGTON

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2016-0129-M (1.92)
4/19/2022 VL

MEMORANDUM FOR THE PRESIDENT

FROM: JOHN H. GIBBONS
ANTHONY LAKE

SUBJECT: Briefing on Report From PCAST on Securing Weapons-Usable Nuclear Materials in the Former Soviet Union

You will receive a briefing Monday, May 1, from 11:15 to 11:45 a.m. on an independent report from a panel of the President's Committee of Advisers on Science and Technology (PCAST), recommending immediate actions to strengthen the security of weapons-usable nuclear materials in the former Soviet Union. The briefing will be given by Dr. John Holdren, chairman of the PCAST panel. A scenario for the meeting is at Tab A. Talking points are at Tab B. A list of the panel members is at Tab C.

The report concludes that:

- "Grossly inadequate safeguards and security for nuclear materials in the former Soviet Union pose a clear and present danger that the essential ingredients of nuclear bombs could fall into the hands of terrorist groups or rogue states."
- While this is "among the most serious and urgent threats to national security" the United States faces, it is one we know how to address. The technologies are available and many of the needed programs are in place to substantially reduce the threat.

However, the panel concludes that urgent Presidential action is needed to strengthen U.S. efforts in this area. The panel recommends that:

- you designate the effort to deal with this threat as a "critical and urgent security priority of the United States," and direct that it be given commensurate resources and top-level attention;
- that you designate a senior full-time coordinator with responsibility and authority for coordinating all programs related to addressing this threat; and
- that you "use the opportunity of the upcoming summit to gain agreement on specific new steps to improve security and accounting for nuclear materials." A one-page summary of the specific points the panel recommends you seek agreement on at next week's summit is at Tab C.

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cc: Vice President
Chief of Staff

The report concludes that action now is a prudent investment to avoid the huge costs and risks that would result if weapons-usable nuclear material were to fall into the hands of states such as Iran, Iraq or Libya.

As the report notes, your Administration has significantly enhanced cooperative U.S.-FSU efforts to address this threat:

- The January 1994 summit statement identified cooperation in this area as a "high priority," and additional measures were agreed at the September 1994 summit.
- We've reorganized management of our program that helps Russia with security and accounting for nuclear materials, giving DOE the lead and signing an agreement with Russia to provide an additional $20 million. Other programs under Nunn-Lugar provide assistance in related areas.
- DOE initiated last year an innovative program of direct cooperation between U.S. and Russian nuclear labs on security for nuclear materials. For rather modest investments, we've been able to produce rapid, substantial security upgrades, while cutting U.S. red tape. We're seeking a large funding increase for this program in FY96.
- In Project Sapphire, we successfully airlifted half a ton of highly-enriched uranium to safe storage in the United States. Deliveries will begin soon of the 500 tons of uranium that we'be agreed to buy from dismantled Russian warheads.

This report will be helpful in advancing Administration priorities in this area, particularly in securing Congressional support.

Attachments
Tab A Scenario for the Briefing
Tab B Talking Points for the Briefing
Tab C List of PCAST Panel Members
Tab D PCAST Summit Recommendations
Tab E Executive Summary of the PCAST Report
Tab F Copy of the PCAST Report

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POINTS TO BE MADE FOR MEETING ON
PCAST REPORT ON SECURITY FOR NUCLEAR MATERIALS IN THE FSU

-- Thank you very much for the remarkable job you have done in producing this report. It will be very helpful to us in confronting this critical national security problem, particularly in gaining Congressional support.

-- As you know, I believe that reducing the size of nuclear stockpiles and ensuring the security of nuclear materials is of vital importance to our national security, and my administration has made this issue a high priority.

-- We can't tolerate terrorists or countries like Iran getting hold of these bomb materials.

-- I intend to raise this issue with President Yeltsin at the summit, as I have at our last two meetings.

-- I expect we will also address this subject again at the next Gore-Chernomyrdin meeting.

-- I will direct my staff to begin discussing with responsible agencies what actions should be taken in response to your recommendations.

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9/19/2022 VZ

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WITHDRAWAL OF EXCESS FISSILE MATERIALS FROM AVAILABILITY FOR NUCLEAR WEAPONS USE (U)

The Secretary of Energy is hereby directed to withdraw the following quantities of fissile material from availability for use in nuclear weapons or any other nuclear explosive device:

Weapons-grade plutonium	38 metric tons
Highly-enriched uranium	
Enriched between 20% and 92%	142 metric tons
Enriched to 92% or more	33 metric tons

The Nuclear Weapons Council has determined that these quantities of fissile material are excess to national security needs. In this connection, the President's Budget for FY 1996 proposes that 50 metric tons of highly-enriched uranium included in the totals listed above will be transferred to the United States Enrichment Corporation for blending to low-enriched uranium and sale to commercial customers. (S)

PDD-13 provides that "the United States will make excess highly-enriched uranium and plutonium subject to the U.S.-IAEA voluntary safeguards agreement and develop the necessary technical measures to permit international safeguarding of excess fissile material. Material will not be made available to international inspection where this would facilitate the transfer of nuclear weapons design information." In this regard, and with the objective of maximizing the amount of excess fissile material placed under international safeguards and of maximizing the amount of highly-enriched uranium made available for blending and sale as low-enriched uranium, the President directs the Secretary of Energy, in consultation with the Secretary of State, the Secretary of Defense, and the Director of the Arms Control and Disarmament Agency to provide recommendations for the further disposition of the fissile material subject to this directive, taking into account the need to protect sensitive information, as well as budgetary, safety, environmental and health considerations. (S)

Recommendations should be reviewed by appropriate U.S. government agencies, through the National Security Council process, and provided within thirty days of the effective date of this directive. (S)

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2016-0129-M (1.94)
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& Computer

Department of Energy
Washington, DC 20585

June 13, 1996

Mr. Daniel Poneman
Special Assistant to the President
National Security Council
Old Executive Office Building
Room 380
Washington, D.C. 20504

Dear Mr. Poneman:

The Department of Energy (DOE) concurs in the National Security Council (NSC) decision to designate Ben Gurion University as an end user of proliferation concern, thus requiring an export license for any High Performance Computer (HPC) above 2000 MTOPS. DOE also concurs with notifying U.S. exporters of this decision and subsequent publication of the decision in the Federal Register. However, DOE does not agree that any computer license application for Ben Gurion, whether the system is networked or otherwise, should receive a presumption of approval. Rather, it is our belief that each license should be reviewed and decided on the merits of the case with neither a presumption of approval nor denial.

The Department of Energy cannot concur with the remainder of the NSC proposal, i.e., to permit computers in the 2000-7000 MTOP range to be exported under general license to Technion and Weizmann without prejudice to the larger question of HPC exports to universities in Tier III countries. There is ample evidence that many universities in Tier III countries are involved in either military programs or weapons of mass destruction programs. DOE recommends that the university issue not be limited to the instant applications for the three Israeli universities, but treated in the broader context. This would remove the last hurdle in fully implementing the President's decision of last Fall.

In summary, DOE continues to support the January 1996 position developed by the Arms Control and Disarmament Agency and the Departments of State and Energy. Under that proposal, all exports of HPCs to universities in countries of proliferation concern require a validated license if the CTP exceeds 2000 MTOPS.

Sincerely,

Kenneth N. Luongo
Senior Advisor to the Secretary
for Nonproliferation Policy and
Director of the Office of Arms
Control and Nonproliferation

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2016-0129-M (1,97)
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cc:
Martha Harris, Department of State
Dan Tarbell, Department of Defense
Sue Eckert, Department of Commerce
Joe Smaldone, Arms Control and Disarmament Agency
Malcolm Fages, Joint Chiefs of Staff
Gordon Oehler, Central Intelligence Agency

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ASSISTANT DIRECTOR

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

June 12, 1996

MEMORANDUM FOR THE SPECIAL ASSISTANT TO THE PRESIDENT AND SENIOR DIRECTOR FOR NONPROLIFERATION AND EXPORT CONTROLS

SUBJECT: Computer Export Policy for Israel (U)

We have reviewed the summary of the June 3 IWG meeting on computer export policy for Israel, and have the following comments on the proposals outlined in that paper. (U)

We do agree to the publication in the Federal Register of Ben Gurion University as an end user requiring a license for the export of computers above 2,000 MTOPS. This type of commodity-specific publication could represent a significant step forward in the "Is Informed" process. ~~(C)~~

However, we do not agree to treat the Weizmann and Technion Institutes as civil end users for the purposes of computer export control regulations. ACDA notes military research activities at Technion, including missile-related activities (see cable (b)(3) 050422Z MAR 96) and shaped charge development. This is sufficient, in our view, to rule out treating Technion as a civil end user. With respect to Weizmann, ACDA proposed a study of the relevance of inertial confinement fusion research in Israel EO 13526 3.3(b)(6) Any such research that would be classified Restricted Data in the United States would constitute prima facie evidence of such relevance. ~~(C)~~

We also do not agree to treat all computers for the Interuniversity Network located at Ben Gurion University with a presumption of approval. Whether a computer is designated as part of this network would certainly be an important factor in any licensing decision, but we believe that a presumption of approval would be inappropriate. ~~(C)~~

Finally, we reiterate our preference for the ACDA/DOE/State proposal to require licenses at 2,000 MTOPS for computer exports to all universities and research institutes in Tier 3 countries. Such end users often play a critical role in research and development to support proliferant programs, and have normally received special scrutiny by the Supercomputer Working Group. Continued discussion of three particular end users in one country has delayed implementation of that part of the President's October 6, 1995 decision that required licenses at 2,000 MTOPS for all military or proliferation-related end users. ~~(C)~~

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Per E.O. 13526
2016-0129-M (1.98)
09/19/2022 VZ

~~Classified by: ACDA/NP - J. Smaldone~~
~~Reason: 1.5(c)~~
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We believe that a Federal Register notice implementing this proposal can be formulated in a manner consistent with the President's decision. For example, the notice might read: "Unless otherwise stated, universities and research institutes in Tier 3 countries are presumed to be military and proliferation-related end users requiring a license for computer exports above 2,000 MTOPS." We look forward to further interagency discussions to clarify the scope and formulation of such a notice. (~~C~~)

Joseph P. Smaldone
Acting

cc: DOC/BXA - (b)(6)
DOD - (b)(6)
JCS - (b)(6)
DOE/NN-43 - Trisha Dedik
DOS/PM - Martha Harris
CIA - (b)(3)

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Securing Weapons–Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation



Report of the Panel on U.S.–FSU Cooperation to Protect, Control, and Account for Weapons–Usable Nuclear Materials

The President's Committee of Advisors on Science and Technology

March 28, 1995

Declassified
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2016-0129-M (1.99)
09/19/2022 VZ

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Securing Weapons-Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation

Report of the Panel on U.S.-FSU Cooperation to Protect, Control, and Account for Weapons-Usable Nuclear Materials

March 28, 1995

The President's Committee of Advisors on Science and Technology

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The President's Committee of Advisors on Science and Technology

Members of the Panel on U.S.-FSU Cooperation to Protect, Control, and Account for Weapons-Usable Nuclear Materials

PCAST Members

John P. Holdren
Chairman
Class of 1935 Professor of Energy
University of California, Berkeley
Chairman, Committee on International Security and Arms Control
National Academy of Sciences

Norman Augustine
President, Lockheed Martin Corporation

Sally K. Ride
Professor of Physics
University of California, San Diego
Director, California Space Institute

Other Panel Members

Gen. William F. Burns, USA (Ret.)
Former Director, Arms Control and Disarmament Agency
Former Chief Negotiator, Safe, Secure Dismantlement Talks

C. Ruth Kempf
Group Leader, International Safeguards and Technical Analysis
Brookhaven National Laboratory

Staff

Matthew Bunn
National Academy of Sciences
Advisor, Office of Science and Technology Policy

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Assistant to the President for Science and Technology
Director, Office of Science and Technology Policy

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Peter Raven
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Washington University in Saint Louis

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Professor of Physics
University of California, San Diego

Judith Rodin
President, University of Pennsylvania

Charles A. Sanders
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Phillip Sharp
Professor of Biology
Head, Department of Biology
Massachusetts Institute of Technology

David E. Shaw
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Securing Weapons-Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation

Executive Summary

A Grave Security Threat

- Grossly inadequate safeguards and security for nuclear materials in the former Soviet Union pose a clear and present danger that the essential ingredients of nuclear bombs could fall into the hands of terrorist groups or rogue states.
- This is among the most serious and urgent threats to national security the United States faces in the coming decade—an unprecedented crisis on the "supply side" of nuclear proliferation.
- Already, there have been multiple seizures of kilogram-quantities of weapons-usable materials stolen from nuclear facilities in the former Soviet Union. (b)(3)

E.O. 13526 6.2(a) (b)(3)

- The intelligence community has concluded that *none* of the scores of facilities with weapons-usable materials in the former Soviet Union has adequate safeguards and security. *All* are at risk of losing nuclear materials.
- While there is no evidence that such materials have yet fallen into the hands of potential proliferators, we do not know what has not been detected. Such a proliferation disaster could occur at any time.

Urgent Presidential Action Needed

U.S. programs to cooperate with the states of the former Soviet Union in reducing this threat are beginning to make progress after a slow start, and deserve strong support.

The Panel recommends that the President should:

- issue a decision directive designating the effort to control and account for fissile material as a critical and urgent security priority of the United States, and direct that it be given commensurate resources and top-level attention;
- appoint a senior Administration official to take full-time, personal responsibility for ensuring that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented;
- establish, under the leadership of that senior official, a stronger and more focused interagency process designed to bring the talents of all critical agencies to bear in addressing this problem;
- direct the senior official responsible for these programs to prepare a prioritized nuclear material security and accounting action plan within 60 days, specifying near-term, mid-term, and long-term goals and objectives, and the resources needed to accomplish them;

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- direct that adequate funds and personnel be allocated specifically for nuclear material security and accounting cooperation, and that a high priority be assigned to protecting these resources from cutbacks;
- direct the senior official responsible for these programs to develop and implement a plan to secure needed legislative and public support;
- make effective security and accounting for weapons-usable material an important factor in U.S. relations with the states of the former Soviet Union, and use the opportunity of the upcoming summit to gain agreement on specific new steps to improve security and accounting for nuclear materials;
- direct that higher priority be placed on providing information support to efforts to reduce nuclear theft risks, including increased cooperation between intelligence agencies in tracking and responding to nuclear smuggling;
- designate efforts to enhance security and accounting for nuclear materials worldwide as a key mission of the national laboratories.

In addition, the Panel provides a wide range of specific recommendations for those implementing these programs. Especially important among these recommendations are that these programs:

- follow three guiding principles, namely: focus on the highest priorities; foster indigenous capabilities in the former Soviet states; and build toward national systems in those states;
- continue to take a flexible, multi-pronged approach, with both government-to-government and lab-to-lab components;
- make a comprehensive effort to analyze and deal with recipient-state sensitivities and incentives, including: maintaining confidentiality; emphasizing cooperation, not assistance; offering reciprocal access to facilities; and using equipment produced in the former Soviet states;
- continue to focus on specific deliverables, to ensure that funds are spent for their intended purposes.

Further, the Panel suggests a specific set of near-term, mid-term, and long-term objectives, and a specific set of near-term recommended actions, spelled out in the body of the report.

Cost-Effectiveness of Early Action

The cost of ensuring adequate security for these weapons and materials, while not insignificant, is dwarfed by the potential costs of the necessary defense responses, and the potential threats to U.S. security, should theft of these materials result in uncontrolled nuclear proliferation. Thus, *a decision not to take available steps that could substantially reduce these proliferation risks would be a strategic misstep of profound proportions.* In this area as in others, an ounce of prevention is worth a pound of cure.

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I. INTRODUCTION

Nothing could be more central to U.S. security than ensuring that plutonium and highly-enriched-uranium (HEU) do not fall into the hands of potential proliferators. These materials are the essential ingredients of nuclear weapons, and access to them is the primary technical barrier to nuclear proliferation in the world today. Gaining access to such materials could shorten a third-world bomb program from a decade to months, or even days if other preparations had already been made.

With the collapse of the Soviet Union and the ensuing political, economic, and social turmoil in the former Soviet states, the world is faced with an unprecedented crisis on the "supply side" of nuclear proliferation. Never before has the world dealt with the phenomenon of breakup, rapid political and economic transformations, and internal disarray in a nuclear superpower with tens of thousands of nuclear weapons and hundreds of tons of weapons-usable material. Nuclear material security systems that once relied on the Iron Curtain and the iron hand of the KGB are grossly inadequate for the new environment.

Under current conditions, virtually all of the weapons-usable material in the former Soviet Union (FSU) is potentially at risk. Already, there have been multiple seizures, by authorities in Russia and elsewhere, of kilogram quantities of stolen weapons-usable uranium and of hundreds of grams of weapons-usable plutonium. (b)(3) E.O. 13526 6.2(a) (b)(3) While there is no evidence that enough material for a bomb has yet fallen into the hands of states such as Iran, Iraq, Libya, or North Korea, we do not know what we have not detected. Such a proliferation disaster could occur at any time. *This problem of "loose materials" is among the most serious and urgent threats to national security the United States faces in the coming decade.*

The cost of ensuring adequate security for these weapons and materials, while not insignificant, is dwarfed by the potential costs of the necessary defense responses, and the potential threats to U.S. security, should theft of these materials result in uncontrolled nuclear proliferation. Thus, *a decision not to take available steps that could substantially reduce these proliferation risks would be a strategic misstep of profound proportions.* In this area as in others, an ounce of prevention is worth a pound of cure. (See "The Consequences of Failure to Act," p. 2.)

Recognizing this danger, and the critical role that science and technology must play in resolving it, the White House, in the winter of 1994–1995, requested the President's Committee of Advisors on Science and Technology (PCAST) to form a panel to conduct an urgent independent review of U.S. programs to cooperate with the states of the former Soviet Union in reducing these proliferation risks. The charge to the Panel was to prepare a report for the President on the status and effectiveness of U.S.-FSU cooperation to enhance security and accounting for nuclear materials—what is working, what is not working, and what further action by the President and by others might be needed. This report summarizes our findings.

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The Consequences of Failure to Act

The risks of unpredictable nuclear proliferation resulting from inadequately secured nuclear material in the former Soviet Union are unacceptably high. The potential costs of *not* taking action to reduce these risks—measured in both threats to U.S. national security and the cost of defense responses to them—would be far higher than the cost of timely preventative action now. Any missed opportunity could well come back to haunt us.

The potential consequences of nuclear weapons in the hands of terrorists or rogue states are far-reaching. If a state such as Iran or Libya were to suddenly acquire the essential ingredients of nuclear weapons on the black market, the international community could be faced with a devastating new threat with virtually no warning before the threat springs full-blown on the scene. The horror of the recent use of chemical weapons by terrorists in the Tokyo subways would have been unimaginably greater had the weapons been nuclear explosives.

Such proliferation—which could result from diversions of even a tiny fraction of the hundreds of tons of weapons-usable material now spread across scores of poorly-protected sites in the former Soviet Union—could have dire implications for U.S. defense and foreign policy decision-making. In such a circumstance, the flexibility of the United States to deploy troops and intervene in foreign crises would be severely constrained. For example, it would seem unlikely that the U.S. Congress would have approved the deployment of troops to the Persian Gulf had it been known that Iraq possessed nuclear weapons and was capable of delivering them. Even had the troops been deployed, they could not have been concentrated at a handful of decisive points—a critical element of U.S. strategy in the Gulf War—for fear of a key concentration node being wiped out in a nuclear attack. In such a world, the already strained deterrent to local mischief could be severely undermined.

The costs of the necessary defense responses would dwarf the costs of protecting these materials to prevent the threat from arising. One need only look at the immensely costly buildup that was being seriously contemplated for Korea last year—and the vast cost in lives and value had the Korean crisis led to war—to make that calculation.

The primary focus of the review was on cooperation with the states of the former Soviet Union in enhancing security and accounting for weapons-usable nuclear materials—known formally as material protection, control, and accounting (MPC&A). The principal MPC&A programs on which this review has mainly focused include: the government-to-government MPC&A programs (funded through FY95 from the Nunn-Lugar program, and after that in the DOE budget); a U.S.-Russian laboratory-to-laboratory MPC&A program, initiated in April 1994; and expanding cooperation with nuclear regulatory bodies, particularly GAN, the Russian counterpart to the U.S. Nuclear Regulatory Agency. (See Table 1.)

Two further kinds of activities were considered more briefly in the Panel's review: smaller-scale MPC&A support activities such as the safeguards projects funded by the International Science and Technology Center in Moscow (ISTC) and safeguards assistance to former Soviet states other than Russia, Kazakhstan, and Ukraine,[1] and a wider range of related

[1]These programs are carried out in coordination with other donor countries and organizations, with the efforts partly coordinated through the International Atomic Energy Agency (IAEA). A number of donor countries and organizations, including Japan, EURATOM, Sweden, and the United Kingdom, among others, have established programs designed to assist the former Soviet states in upgrading MPC&A, focusing in most cases on the non-Russian states, though no other donor country has yet established an MPC&A assistance program of comparable scale to that of the United States. Japan, France, and the United Kingdom have programs valued in the tens of

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If cooperatrve approaches to forestalling this potential threat fail, all of the options that will then be available are hazardous and uncertain of success. These would include efforts to: forcibly control the materials(e.g., through the use of Special Operations Forces); forcibly destroy the materials (e.g., Special Operations or air attacks); or intercept the materials during delivery. With regard to attacking the materials in place, it will be recalled how difficult it was to locate and destroy SA-2 sites in North Vietnam, SA-6 sites in the Suez area, or Scud launchers in the Persian Gulf—in spite of the dedication of considerable assets to those missions.

The task of defense once these materials were constituted into the form of nuclear weapons is even more daunting. Intercepting such weapons delivered by ballistic missile is the province of ballistic missile defense—a mission wherein a great deal of technical progress has been made in recent years. Nonetheless, the economic cost of providing full-area coverage with near leak-proof quality is extremely high, running into many billions of dollars for the continental United States alone. To protect both the United States and U.S. and allied forces abroad would cost even more. Even if such a capability to intercept ballistic missiles were deployed, there would still be the matter of "engaging" the small number of weapons which, for extortion purposes, might be smuggled in the hold of a cargo ship, on board an airliner, or in some other manner that experience suggests we would find difficult to intercept (say, in a bale of marijuana).

In short, should theft of these materials lead to unpredictable nuclear proliferation, the resulting security threats to the United States would be severe, and the possible defense responses would be both expensive and of uncertain effectiveness. A world in which any dictator or terrorist group who wants a nuclear bomb can purchase the essential ingredients on a thriving nuclear black market is simply not an acceptable world to bequeath to our children. Action must be taken now to prevent such a world from arising.

As Senators Nunn and Lugar wrote in the summer of 1992: "The United States has spent trillions of dollars defending against the military threat imposed by the former Soviet Union. We now have the unique opportunity to help ensure that our children and grandchildren will not be confronted with a comparable threat from that region of the world. This is an opportunity we cannot afford to miss."

programs that, while not directly focused on MPC&A, are related to the management of nuclear weapons and nuclear materials in the FSU. Initiatives in this latter category include: cooperation to improve security for assembled nuclear weapons (as opposed to materials outside of weapons); purchases of nuclear materials (such as Project Sapphire); assistance (under the Nunn-Lugar program) in construction of a safe and secure storage facility for plutonium and HEU from dismantled weapons; cooperation in combating nuclear smuggling (including police, intelligence, and customs cooperation); proposals to increase openness and transparency related to nuclear stockpiles, including exchanges of data and reciprocal visits; proposals and agreements to end further production of materials for weapons (such as the June 1994 plutonium production cessation agreement); and disposition efforts designed to transform some of these nuclear materials into forms that pose much lower security risks (such as the HEU purchase agreement, and the recently inaugurated joint study of options for plutonium disposition). (See Table 2.)

The Panel believes that all of these related efforts are important (and in many cases synergistic with efforts to improve MPC&A), and a number of recommendations related to them

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millions of dollars for purposes similar to those of the U.S. Nunn-Lugar program, and Germany, Italy, Canada, Norway, and Sweden, among others, have smaller programs. While a few of these programs include modest investments in MPC&A in the non-Russian states, none of them other than a modest EURATOM program involve significant contributions to MPC&A in Russia.

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Table 1 Principal U.S.-FSU MPC&A Programs

- Government-to Government
  (Transitioning from Nunn-Lugar to DOE)

  Funding:
  FY92-FY95: $30 million for Russia (focused on MINATOM facilities)
  $22.5 million for Ukraine
  $20 million for Kazakhstan

  FY96: $20 million request (DOE)

- Lab-to-Lab

  Funding:
  FY92-FY95 $17 million
  FY96: $40 million request (DOE)

- GAN Cooperation

  Funding:
  FY92-FY95: $300,000
  FY96 $10 million request (DOE)

Total FY96 request: $70 million (DOE)

Note: In addition to these principal programs, there are modest efforts funded by the International Science and Technology Center, and by DOE program funds. DOE program funds for states other than those listed include $100,000 for Belarus, and $300,000 for all of the other former Soviet states. The $300,000 listed for GAN cooperation in FY92-FY95 is complemented by regulatory support funds from the $30 million allocated to Nunn-Lugar MPC&A programs in Russia.

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can be found in this report. Nevertheless, they were not the principal focus of this review, which centered on the establishment of effective security and accounting systems at the wide range of sites where such materials are held. This is the most fundamental requirement for success in reducing the proliferation risks from possible theft of nuclear materials.[2]

In conducting its review, the Panel discussed the problem and current programs to address it with representatives of the White House, including the National Security Council and the Office of Science and Technology Policy; the Central Intelligence Agency and other intelligence organizations; the Departments of Energy, State, and Defense; the Nuclear Regulatory Commission and the Arms Control and Disarmament Agency; the national laboratories; and outside experts. In addition, the chairman of the Panel and the principal staff member traveled to

[2]Under current conditions, it appears that security for assembled nuclear weapons is substantially better than security for nuclear materials, and therefore that the probability of proliferation resulting from theft of a nuclear weapon is significantly lower than the probability of proliferation resulting from theft of weapons-usable material outside of weapons. See Joint Atomic Energy Intelligence Committee, *The Russian Nuclear Weapons Stockpile System (U)*, (Secret NF), JAEIC 94-005, December 1994. However, see also CIA, (b)(3)

(b)(3)

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Table 2 Related U.S.-Russian Fissile Material Management Programs

Securing Nuclear Materials
- Nunn-Lugar Storage Facility
- DoD-MoD Nuclear Weapons Security Talks
- Combating Nuclear Smuggling

Building Confidence Through Openness
- Safeguards, Transparency, and Irreversibility Talks
- Reciprocal Nuclear Stockpile Declarations
- Reciprocal Inspections of Material From Dismantled Weapons
- IAEA Safeguards on Excess Materials
- Nunn-Lugar Storage Facility Transparency
- HEU Purchase Agreement Transparency

Halting Accumulation of Excess Stocks
- Plutonium Production Cessation Agreement
  - Monitoring
  - Alternate Energy for Production Reactors
- Fissile Material Cutoff
- Reduced Enrichment for Research and Test Reactors

Disposition of Excess Material
- HEU Purchase Agreement
- U.S.-Russian Plutonium Disposition Options Study

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Moscow and discussed these issues with representatives of the Russian Ministry of Atomic Energy (MINATOM); the Federal Nuclear and Radiation Safety Authority (the Russian nuclear regulatory agency, known by its Russian acronym, GAN); the Federal Counterintelligence Service (FSK); Arzamas-16, one of Russia's two principal nuclear weapons laboratories; and the Kurchatov Institute (where the new MPC&A system recently installed at Building 116 with U.S. assistance was also reviewed). Appendix A provides a list of the principal briefings the Panel received.

Given the urgency of the problem, the Panel was forced to conduct its review in a very short period, and the level of detail we were able to pursue was necessarily limited. We recommend that mechanisms be established for further, ongoing review of the implementation of these programs.

Before going further it is important to emphasize the sensitivity of this issue in the former Soviet Union. While grave problems exist with security and accounting for nuclear materials in these nations, it is unwise for official statements to say so. Unguarded public statements suggesting that these nations are unable to effectively control their nuclear materials can quickly poison the atmosphere for cooperation. Such statements are already feeding Russian paranoia concerning U.S. intentions; Minister of Atomic Energy Victor Mikhailov expressed a widely-held view in a recent interview when he said that the West was whipping up fears of nuclear smuggling

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in order to suggest "that Russia is unable to handle its nuclear industrial complex and the West should take control over it into its own hands."[3] After some stories that have appeared in the Western press, individuals who have been open and cooperative with the United States on MPC&A matters have been sternly warned by the FSK.[4] Sensitivities about cooperation in this area also exist in the other former Soviet states. Hence, extreme care must be taken to avoid incautious public statements and sensationalized press reports. As one official from the U.S. Embassy in Moscow put it to the Panel: "Trust that took thousands of hours to build can be destroyed in a ten-minute speech."

In the remainder of this report, we begin by describing in more detail the scope and nature of the deficiencies in security and accounting for weapons-usable nuclear materials in the former Soviet Union. We then discuss the U.S. response to this problem to date, and outline some key lessons learned from the experience so far. We then conclude with a series of recommendations for next steps, including actions we believe the President should take and actions that should be taken by the program's implementers.

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[3]Interviewed in the new Russian journal *Yaderny Kontrol* (Nuclear Control), translated in *The Monitor: Nonproliferation, Demilitarization, and Arms Control*, University of Georgia, Center for East-West Trade Policy, February 1995.

[4]See Moscow 001888, January 1995, "Holes in the Fences: Protecting Nuclear Materials in Russia's Closed Nuclear Cities," (Secret).

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II. THE PROBLEM

The Soviet Union had a nuclear materials security system that was highly effective for decades. But the threat, and the environment, have changed. Today, this system, once effective, has become grossly inadequate.

Recently, the Joint Atomic Energy Intelligence Community (JAEIC) produced a comprehensive study examining safeguards and security in the former Soviet Union. The study found that *none* of the roughly 80 non-Ministry of Defense facilities with weapons-usable materials in the former Soviet Union had adequate safeguards and security. *All* of these facilities are judged to be at risk of losing weapons-usable nuclear materials. "There is no national system of nuclear materials safeguards and security in any of the countries which make up the former Soviet Union," the study warned. "In Russia this deficiency is exacerbated by bureaucratic conflict over responsibility for safeguards and security." Seven facilities—all large facilities handling hundreds of kilograms of weapons-usable material that are not in closed cities—were judged to be "most seriously deficient," posing the highest proliferation risks. Dozens more were judged to be "seriously deficient."[5]

The system that is still in place was designed almost exclusively to counter an "outsider" threat—such as American spies getting into nuclear facilities.[6] The "insider" threat—workers within a facility who might steal materials—was virtually non-existent, because of the location of most of the materials within closed cities or at least closed facilities, the extensive monitoring of personnel within these cities and facilities by the KGB, and the limitations imposed on the operation of black markets (whereby stolen materials might be transported out of the country) by the characteristics of the closed, authoritarian society.

With a burgeoning black market, ever-increasing corruption, porous borders, and severe economic distress for nuclear workers, the "insider" threat has grown astronomically, and the old system is simply unable to cope. The nuclear cities that once received the best the Soviet economy had to offer are now stricken by genuine poverty. At many sites, workers go unpaid for months; several strikes and other labor actions at major nuclear sites have occurred. With nuclear workers struggling to feed their children, the temptation to steal could be overwhelming. Already, there have been many cases of insiders at nuclear facilities stealing nuclear materials for possible sale.

The systems in place to protect nuclear materials were never designed to deal with the insider threat that is now predominant. The facts are stark:

- Russia has no national accounting of its nuclear materials. No one in Russia knows exactly how much plutonium and HEU they have; at most sites, no one would know if plutonium or HEU were missing.

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[5]Joint Atomic Energy Intelligence Committee, *Safeguards and Security of Weapons-Usable Material At Non-Ministry of Defense Facilities in the Former Soviet Union (U)*, JAEIC-95-001, (Secret NF WN), January 1995.

[6]Given that this was a key threat around which Soviet security systems were designed, it is not surprising that it has been difficult to convince Russian security officials that Americans in Russian nuclear sites are part of the answer, not part of the problem.

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- In several known cases, individuals have simply "walked off" with kilograms of weapons-usable materials, and no one noticed until long after the materials were gone.
- The Russian Interior Minister has estimated that 80% of Russian nuclear facilities have no systems in place to detect nuclear materials being carried out the gates. The correct figure is probably higher.
- Little if any actual safeguards accounting of nuclear materials is done. Materials are weighed when they enter a facility and when they leave, with the difference simply assumed to be normal process losses or losses to waste—meaning that an intelligent insider could remove materials without the losses ever showing up in the inventory books.

E.O. 13526, 6.2(a) (b)(3)

- Most of the alarm systems that do exist have open wiring that could be cut by a single insider—and cutting the wiring does not itself set off an alarm.
- Seals to indicate whether containers have been opened use technology that could be forged in seconds by most insiders. For example, many facilities use wax seals imprinted with a special stamp; but all the workers with access to nuclear materials carry such a stamp with them, and so could rapidly produce a new seal that would falsely indicate that no tampering had occurred.
- While in theory there is a "two-man-rule" barring any individual alone from getting access to nuclear material, this crucial safeguard is widely ignored.
- Few facilities have TV cameras monitoring areas where nuclear materials are stored.
- Existing security systems are not being maintained. At many sites, there are holes in the perimeter fences, intrusion detectors, even if they exist, are broken, the electricity for electric fences no longer works, and easily climbed trees have been allowed to grow up next to fences.
- Guards at some facilities are not properly paid, equipped, or trained. At one facility with weapons-usable materials, for example, a fence around the guard house is intended to prevent the guards from stealing bread from the bakery next door.

Two aspects of the Soviet economic system have exacerbated the problem. First, under the quota system, if a particular facility produced more than central planners had demanded in a given year, there was a considerable incentive to set the extra material aside in a secret stock, to make up any shortfalls that might occur in subsequent years. Thus many facilities have secret "honey pots" potentially representing hundreds of kilograms or even tons of nuclear material, unknown to central authorities.

Second, since HEU was difficult to get, research institutes typically would try to acquire substantially more HEU than was needed for their immediate purposes, so as to have enough available to do further experiments. Since HEU might come in handy later, and there were no

[7] "Holes in the Fences," *op. cit.*

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Table 3 Seizures of Weapons-Usable Materials

Date	Amount	Description of Material	Where Seized
October 1992	1.5 kilograms	HEU	Russia
Spring 1994	3 kilograms	HEU	Russia
May 1994	6 grams	99.75% Pu-239	Baden-Wuerttemberg, Germany
June 1994	.8 grams	87.7% U-235	Landshut, Germany
August 1994	560 grams	Mixture of 87% Pu-239 and uranium	Munich, Germany
December 1994	2.73 kilograms	87.7% U-235	Prague, Czech Republic

UNCLASSIFIED Source: (b)(3)

regulations requiring expensive protection for such material, there was no incentive to send any "leftovers" back to central authorities. In some cases, it has been found that leftover HEU was simply forgotten when researchers retired or moved on to other projects: there have been a number of recent instances in which facilities have discovered stashes of HEU that they did not know they had.

These weaknesses have been assessed primarily through visits to a limited number of Russian sites by U.S. personnel, along with accounts by Russian nuclear workers. Intelligence relating to safeguards and security has only recently become a priority and is difficult to come by. Satellite photography can reveal fencing arrangements, guard houses, armored cars, and the like, but says little about crucial matters such as nuclear material accounting and control activities occurring within buildings. Major gaps in our knowledge remain, which in most cases are more likely to be filled by cooperative visits to facilities by MPC&A experts than by traditional intelligence means.

Weaknesses in nuclear material security, and the growing insider threat, have already led to a significant number of confirmed thefts. Table 3 shows the known cases that have been confirmed and are unclassified.[8] Russian officials have reported a number of additional cases through classified channels—including, in one case, a theft of 9–12 kilograms of HEU.[9] While these have not been directly confirmed, there is no reason to dismiss these reports. There have been multiple seizures, by authorities inside and outside Russia, of stolen weapons-usable HEU in quantities ranging into the kilograms, as well as several seizures of stolen plutonium in quantities ranging up to hundreds of grams. As yet, there is no evidence that any of this material has fallen into the hands of potential proliferators, but we do not know what we have not detected. It is reasonable to ask: are the known cases only the tip of the iceberg?

E.O. 13526 6.2(a) (b)(3)

[9]See, for example, Moscow 032874, "Overview of Nuclear Material Protection, Control, and Accounting in Russia," November 1994 (Secret).

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Fortunately, there is as yet no evidence of a substantial "market" of agents of proliferating states looking to buy such materials: the very large number of scams being run by con artists claiming to be selling valuable weapons-usable material appears to have spooked some of the potential buyers. Nor is there any evidence, as yet, of the involvement of organized crime in thefts of weapons-usable nuclear materials. Here too, however, we simply cannot know what may be happening that we have not detected.

The facilities where the roughly 170 tons of separated plutonium and 1000 metric tons of HEU in the former Soviet Union are located can be divided into several categories:

1. *Weapons Sites.* About half of the separated plutonium and HEU in the former Soviet Union is in the stockpile of nuclear weapons, controlled by the Ministry of Defense (MoD). Security for assembled nuclear weapons is believed to be significantly better than security for nuclear materials, though transport security remains an important issue.[10] Thus, while the weapons represent a large fraction of the material, they probably represent a small percentage of the overall proliferation risk.

2. *Nuclear Weapons Complex.* A large fraction of the plutonium and HEU outside weapons is in the nuclear weapons complex—the large "closed cities" controlled by the Ministry of Atomic Energy (MINATOM). There are approximately a dozen of these closed cities, including three plutonium-production sites, four uranium-enrichment facilities (one co-located, at Tomsk-7, with one of the plutonium-production sites), two principal weapon-design laboratories, and four weapons-assembly/disassembly facilities (one co-located, at Arzamas-16, with one of the weapon-design laboratories). The closed cities are typically large sites covering many square kilometers, handling many tons of plutonium and HEU. At these facilities, plutonium and HEU exist in a wide variety of forms—as metal weapons components, metallic ingots, oxides, scrap, solutions, and residues, to name a few. Typically the entire "closed city" is enclosed within a fence, and the nuclear facility itself is also fenced. Within the facility, however, tons of weapons-usable materials may be stored in ordinary buildings with glass windows and minimal guarding. A large response force (hundreds if not thousands of soldiers) is usually stationed at the closed city. Thus these facilities are likely to be quite resistant to overt, armed attack; likely resistance to insider threats or well-trained covert teams of outsiders (possibly with the collaboration of one or more insiders) appears to be poor, however.

3. *Civilian Facilities and Research Institutes.* Substantial quantities of weapons-usable material are also held at civilian facilities—particularly fuel-fabrication plants and research institutes. Some of these are controlled by MINATOM and some by a wide array of other organizations, ranging from the Russian Academy of Sciences to individual universities. Much of this material is in the form of HEU fuel elements for research reactors, but at a number of these facilities HEU or plutonium exist in bulk form (typically oxides) as well. Much of the HEU at these facilities is enriched to 90 percent or even higher, making it very attractive bomb material. These institutes, not located in closed cities, typically have only the most minimal physical

[10]See note 2.

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protection. In many cases, a substantial number of facility employees have the access required to walk in, remove the nuclear materials, and leave the premises without detection or questioning. Essentially all of the stolen weapons-usable materials seized by authorities to date appear to have originated from facilities in this category. Thus, while these facilities may have less than 5 percent of the weapons-usable materials in Russia, they represent a very large fraction of the proliferation risk. Indeed, all of the facilities listed in the JAEIC study as "most seriously deficient" were in this category. It should be noted that a small percentage of hundreds of tons of weapons-usable material is still sufficient to make thousands of nuclear weapons.

4. *Naval Fuel.* A substantial quantity of HEU ranging from 20–90 percent enrichment exists in the naval complex, including fuel for submarines, surface combatants, and civilian icebreakers. E.O. 13526 6.2(a) (b)(3) (b)(3) (b)(3) Naval fuel storage sites (such as the one at Murmansk where several kilograms of fuel was recently stolen) are controlled by the Navy. Despite being controlled by the military and its contractors, naval fuel sites appear to be startlingly insecure. In the Murmansk case, for example, a single thief simply walked through one of the many holes in the fence, sawed off the padlock on a shed holding naval fuel, pried open the door (using a pole he found at the site), broke open several fuel elements, poured the material into his bag, and retraced his steps. While the theft was detected within hours, the thief was not arrested until six months later, when he began trying to market the material. The prosecutor concluded publicly that in Russia it is easier to steal nuclear material than to steal a sack of potatoes.

5. *Beyond Russia.* When the Soviet Union collapsed, Russia was left with more than 95% of the weapons-usable nuclear materials that were not in nuclear weapons. Operation Sapphire, which airlifted 600 kilograms of HEU from Kazakhstan to safe storage at Oak Ridge, eliminated the largest known stock of weapons-usable material remaining outside Russia. The other material of concern outside the Russian Federation is at a small number of research institutes, in Ukraine, Kazakhstan, Belarus, Latvia, Georgia, and Uzbekistan. As with the research institutes in Russia, these facilities have minimal physical protection or material accounting, and pose high proliferation risks. It appears possible, however, that sufficient funds will be made available by the United States and other donor countries to greatly improve security and accounting for all sites outside Russia with weapons-usable materials during 1995–1997.

In short, the problem is a gigantic one: hundreds of tons of material, at scores of sites spread across the 11 time zones of the former Soviet Union, in weapons, production facilities, and research institutes.

The governments of the region, faced with a wide range of other urgent priorities in a wrenching time of transition, have failed to devote the attention and resources needed to solve these problems. In Russia, while President Yeltsin and Prime Minister Victor Chernomyrdin have both issued orders and decrees calling for urgent programs to upgrade security for nuclear materials, interagency disagreements and conflicting budget pressures have stymied effective action.

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The Ministry of Atomic Energy (MINATOM), which controls most of the nuclear materials in Russia, continues to tell Russian authorities and the world at large that there is no problem, that it is impossible to steal nuclear materials in Russia, and that they know for certain that every gram of material is in its proper place. Nothing could be farther from the truth—as other ministries, such as the Federal Counterintelligence Service (FSK) and the Ministry of Internal Affairs (MVD) are beginning to point out within the Russian government.

But from MINATOM's perspective, the whole issue represents a profound economic threat: admitting that there is a problem would mean admitting that substantial resources should be diverted from favored MINATOM projects to address it. (As an indication of the scale of resources involved, the United States spends some $800 million every year on safeguards and security in the DOE complex.) And MINATOM's budget is already stretched extremely thin, as Minister Mikhailov attempts to maintain his million-person empire even after its Cold War mission is over. Moreover, acknowledging that there were problems controlling nuclear materials where they are now would be a fundamental challenge to MINATOM's vision of a future in which reactors running on weapons-usable plutonium fuel would be spread throughout the Russian Federation.

Just as the Russian government is not a monolith, however, MINATOM is not a monolith. Many of the institutes and facilities involved in MPC&A cooperation with the United States are developing an acute understanding of the problem and considerable enthusiasm for continued cooperation. Tension between MINATOM headquarters' efforts to go slow and MINATOM facilities' desire to move forward is building.

While decrees signed by Yeltsin have given the nascent nuclear regulatory agency, GAN, authority to regulate security and accounting for both civilian and military materials, GAN has only recently begun to gain the real authority needed to implement that mandate. GAN is a tiny organization with few staff and fewer resources, trying to regulate some of the most powerful ministries in Russia. During 1993 and most of 1994, GAN was effectively barred from MINATOM facilities handling military materials, and from Ministry of Defense facilities—both of which Yeltsin had decreed GAN should regulate.

In September 1994, however, Yeltsin issued a decree calling for an interministerial commission, chaired by GAN, to make recommendations for urgent steps to be taken to improve security for nuclear materials. Working closely with MINATOM, and with support from the FSK and the MVD, GAN succeeded in securing agreement of all ministries on a report to Yeltsin, and later on a government order that was signed by Chernomyrdin in January of 1995. A new Atomic Law which will provide the legal foundation for GAN's regulation of MPC&A is expected to be approved by the Duma this spring. Nevertheless, despite explicit instructions in Chernomyrdin's order that funding should be made available, the Ministry of Finance has failed to provide the roughly $4 million that GAN and MINATOM agreed was needed to implement the "most urgent" steps called for in the order.

In short, while this issue has come to the attention of the very highest levels of the Russian government, no comprehensive plan of action is yet being implemented in response, and

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MINATOM headquarters continues to deny even the existence of a problem. For the other former Soviet states, the situation varies from one nation to another—but none of them has undertaken a comprehensive program to do what needs to be done. Indeed, in Ukraine, the main organization which had been in charge of security and accounting for nuclear materials—and with whom the United States had signed agreements calling for joint work on upgrades—has recently been abolished, with its responsibilities folded into a new ministry headed by a leading opponent of Ukraine's accession to the Nonproliferation Treaty.

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III: THE U.S. RESPONSE TO DATE

U.S. programs to enhance security and accounting for weapons-usable nuclear materials in the former Soviet Union got off to a slow start, but they are now beginning to show solid achievements and appear likely to make additional progress during 1995.

A Slow Start: 1991–1993

In the years immediately following the collapse of the Soviet Union, efforts to improve security and accounting for weapons-usable materials in the former Soviet states made little progress—hobbled by lack of priority, lack of policy coherence, and lack of top-level attention in both the United States and the FSU, and by the extreme sensitivity on the FSU side about the issue of security at nuclear sites. Indeed, until early 1993, U.S. experts had not recognized the full scope and severity of the MPC&A problem that existed in the former Soviet Union.

As early as 1991, when Congress voted to establish the Nunn-Lugar program and provide $400 million for its first year, preventing proliferation and securing nuclear weapons and materials were designated as key priorities. Material protection, control, and accounting (MPC&A) was one of the seven areas of cooperation agreed to by Secretary of State James Baker and his Soviet and Russian counterparts in late 1991 and early 1992. Nevertheless, this issue received little priority on either side, and a variety of interagency conflicts delayed progress. In retrospect, setting up a program in which the Department of Energy was to spend the Department of Defense's money was a recipe for interagency conflict (some of which has continued to this day). In addition, acting on a strict interpretation of Congressional direction, DOD decided that the Nunn-Lugar program must "buy American," using normal DOD procurement regulations, for essentially all goods and services procured (so that only a tiny fraction of the money flowed to the former Soviet states). DOE's pace and priorities were criticized by other agencies as oriented more toward discussion than action. No one of sufficient authority in the White House or anywhere else brought such issues to closure to move the program forward.

It took until September 1993—a year and a half after the inception of the program—to complete a very simple implementing agreement providing the legal basis for MPC&A cooperation at Russian facilities handling civilian nuclear materials. (During this period, however, initial technical contacts were established that were to prove fruitful later, principally through conferences and the joint effort to design the MPC&A system for the proposed Nunn-Lugar storage facility for fissile materials from dismantled weapons.)

At that time, because of Russian sensitivities and resource constraints, MPC&A cooperation plans were limited to extremely modest steps. The approach was to establish a small number of "model" facilities with highly effective MPC&A systems, with the idea that Russia would then apply the lessons learned at these facilities more broadly. The schedule was leisurely: initial plans called for the "model" facilities to be established over a period of years, with implementation at other sites requiring years beyond that. A similar "model facility" approach was taken with Ukraine and Kazakhstan. (No Nunn-Lugar agreement on MPC&A has yet been

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MPC&A in the Non-Russian Former Soviet States

Russia inherited more than 95% of the Soviet Union's stockpile of separated plutonium and HEU outside of weapons. Nevertheless, facilities with kilograms or tens of kilograms of plutonium or HEU exist in Kazakhstan, Ukraine, Belarus, Latvia, Georgia, and Uzbekistan. At the Kharkiv research institute in Ukraine, for example, there are reportedly roughly 75 kilograms of bulk HEU powder, with little protection or accounting for the material. These stockpiles pose serious proliferation risks, particularly given the ongoing economic and political transformations underway in many of these countries.

The United States, Japan, Sweden, the United Kingdom, and other countries are involved in providing MPC&A assistance to these countries. The efforts of these donor countries are coordinated through meetings sponsored by the IAEA.

Given the relatively small number of facilities with weapons-usable material outside Russia, it would be desirable to make it an objective to deal with them all within the next two years—either by significantly improving security and accounting for the material there, or by removing it to a secure location (as in the case of Project Sapphire). A plan for accomplishing this objective would have to be drawn up with the participation of the other donor countries and the recipient states.

The United States has Nunn-Lugar MPC&A agreements with Ukraine and Kazakhstan. The United States has recently suggested to these countries increasing the amount of Nunn-Lugar funding for MPC&A, with the objective of covering all the facilities in these two nations that have substantial quantities of weapons-usable material (as well as establishing MPC&A training programs).

There is no Nunn-Lugar MPC&A agreement with Belarus, and hence consideration is being given to providing MPC&A assistance through the International Science and Technology Center (ISTC) in Moscow, so that a new funding agreement would not have to be negotiated. The other relevant states are not currently eligible for Nunn-Lugar assistance, but DOE has provided some initial seed money that has covered some site visits for analyses of needs. Several million dollars might be required to assure effective MPC&A for the small number of facilities in the states not already covered by Nunn-Lugar MPC&A assistance. This could potentially be accomplished by other donor states, if they were willing to take responsibility.

concluded with Belarus; other former Soviet states are not eligible for Nunn-Lugar assistance. See "MPC&A In the Non-Russian Former Soviet States," p. 15)

The Russian side insisted that the initial "model facility" efforts be limited to low-enriched uranium (LEU) facilities, even though these facilities posed virtually no proliferation risk—arguing that the two sides had to take "one step at a time," and needed to build confidence before working on more sensitive materials. In addition, although the U.S. side proposed cooperating in the development of national standards for MPC&A, MINATOM negotiators declined: national standards were now to be developed by the Russian nuclear regulatory agency, GAN, whose regulatory interference MINATOM was seeking to minimize.

Thus, as of January 1994, the only significant effort underway to cooperate with Russia to improve security and accounting for nuclear materials was focused on modest upgrades at a single low-enriched uranium fuel fabrication facility at Elektrostal. Ten million dollars of Nunn-Lugar funding was then available for MPC&A in Russia, with modest additional funds for Ukraine and Kazakhstan.

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New Initiatives: January-October 1994

It was clear that different approaches were needed, which would focus on the most urgent upgrade needs and attempt to address Russian sensitivities. The United States therefore launched two new initiatives: a concept in the Nunn-Lugar MPC&A program that came to be called the "quick fix," and a separate U.S.-Russian lab-to-lab MPC&A program. Later in the year, the United States also decided to undertake a third initiative—a greatly expanded effort to cooperate with the Russian nuclear regulatory agency, GAN.

The "Quick Fix"

The idea of the "quick fix," which was modeled on steps the United States had taken to upgrade MPC&A in its own weapons complex years before, was for the Russian government to form a series of teams to inspect Russian nuclear sites, determine what MPC&A upgrades were most urgently needed, and provide a prioritized list to the U.S. side, which could then be the basis for discussions of assistance and cooperation.

The United States proposed that a Russian team should come to the plutonium storage site at Hanford to observe U.S. MPC&A approaches and means of assessing upgrade needs; this would be followed by a U.S. visit to the Russian civilian plutonium storage facility at Mayak (chosen because of its civilian character, the large amount—nearly 30 tons—of material there, and a Soviet-era government report that had called attention to poor security there). That visit would in turn be followed by Russian-led assessments of MPC&A upgrade needs at Russian nuclear sites, beginning with 10 facilities in 180 days. To fund the high-priority upgrades (and to fund a proposal, made at the same time, to upgrade MPC&A at the Yekaterinburg blending facility for the HEU purchase agreement), the United States indicated it would be willing to increase the amount of Nunn-Lugar funding available for MPC&A from $10 million to $30 million, and to expand the Nunn-Lugar MPC&A agreement's scope to cover military as well as civilian materials.

The Russian side accepted the reciprocal visits to Hanford and Mayak (which were conducted successfully in July and October of 1994), but declined the idea of a broad-based "quick fix" approach, preferring instead to limit cooperation to a small number of specific sites. The Russian side also rejected the proposal to expand cooperation to include military materials, and declined the specific proposal to upgrade MPC&A at the Yekaterinburg blending facility (arguing that MPC&A there was already adequate, and that any upgrades that might be needed could be carried out in the context of the ongoing negotiations concerning transparency for the HEU purchase agreement).

By late 1994, however, a number of factors were converging to change attitudes regarding the importance of ensuring that nuclear materials were secured and accounted for. A series of seizures of weapons-usable material in Europe culminated in August 1994 with the seizure of 350 grams of plutonium (in some 560 grams of material, including uranium) on a plane from Moscow to Munich, provoking widespread press coverage and public concern. A top-level German official flew to Moscow and reached an agreement to cooperate in stopping nuclear smuggling. The issue was unavoidably on the international agenda, and, within Russia, there was considerable discussion of the issue in the public press. On September 15, President Yeltsin issued a decree

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establishing an interagency commission to report to him within one month on urgent measures to improve security and accounting for nuclear materials; later that month, Presidents Clinton and Yeltsin endorsed continued cooperation in this area at their Washington summit. At the same time, the less formal U.S.-Russian lab-to-lab program (described below) was beginning to make real progress, helping to establish U.S. bona fides.

Thus, during November and December 1994, the Russian side agreed to MPC&A cooperation at half a dozen sites, all of them high-risk facilities with hundreds of kilograms of weapons-usable material. These included every single one of the sites listed by the JAEIC as "most seriously deficient," except for the Kurchatov Institute, which was covered in the lab-to-lab program. Compared to the situation only a few months before, when cooperation was limited to protecting only LEU, this represented a major breakthrough. In addition, by that time the two sides had reached agreement that the United States would help establish an MPC&A training center at Obninsk—a critically important project, if a new "safeguards culture" is to be developed in Russia. Based on these agreements, the United States agreed to sign an amendment to the Nunn-Lugar MPC&A agreement increasing the available funds to $30 million, without insisting that the agreement also expand cooperation to include military materials.

Funding currently available for the government-to-government program includes some $30 million in FY94 and prior year Nunn-Lugar funds. While only a small fraction of that amount has yet been spent, the recent agreements on specific sites are expected to enable a significant acceleration of the effort. In late 1994, an interagency decision was taken to remove MPC&A from Nunn-Lugar and consolidate both the government-to-government and lab-to-lab MPC&A programs in DOE's budget request. DOE's FY96 request includes $20 million to continue the government-to-government programs channeled through MINATOM.

The Lab-to-Lab Initiative

In April 1994, Undersecretary of Energy Charles Curtis, in collaboration with the national laboratory directors, decided to establish a lab-to-lab MPC&A program, building on the lab-to-lab relationships that already existed in other areas. A total of $2 million was moved from other projects to kick off the program in FY94.

The U.S. laboratories quickly began meeting among themselves and with their Russian counterparts to discuss possibilities for cooperation. By the summer, the U.S. side was drafting a rough plan for cooperation, and contracts for initial steps were being signed. Los Alamos was designated as the leader of a multi-lab team on the U.S. side. On the Russian side, one group of participants was a team of laboratories designated by MINATOM, led by Arzamas-16, one of Russia's premier nuclear weapons laboratories.[11] This group also included the Institute of Physics and Power Engineering at Obninsk, which was expected to play an important role in MPC&A for civilian MINATOM facilities. At the same time, a parallel lab-to-lab effort was undertaken at the Kurchatov Institute, the largest nuclear institute independent of MINATOM, which had long been an advocate of improved MPC&A in Russia.

[11] Sometimes known by its Russian acronym, VNIIEF.

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From its inception, the lab-to-lab program was implemented in a different and more flexible way than the Nunn-Lugar MPC&A program, and was able to move more quickly. (For details, see "Lessons Learned,"p. 22.)

In October of 1994, Undersecretary Curtis traveled to Russia and provided a copy of the draft cooperation plan that had been prepared by the U.S. laboratories. Within weeks, the Russian laboratories had responded with a plan of their own, covering a wide range of activities. Moreover, while the Russian side in the government-to-government MPC&A effort had consistently rejected proposals to cooperate on MPC&A for military materials, in the lab-to-lab program weapons laboratories and weapons facilities were included from the outset. The lab-to-lab program also provided an opportunity for reaching outside MINATOM to independent institutes such as Kurchatov, which had been beyond the scope of the Nunn-Lugar MPC&A agreement, which was channeled through MINATOM.

A total of $15 million has been budgeted for lab-to-lab MPC&A cooperation in FY95.[12] The FY96 DOE budget includes a request of $40 million for this purpose.

Expanding GAN Cooperation

For some time, the NRC has been cooperating with GAN, its Russian counterpart, on development of a new MPC&A regulatory structure for Russia. In mid-to-late 1994, GAN and U.S. officials began discussing broadened cooperation, including the provision of training and equipment. During Undersecretary Curtis' trip to Russia in October 1994, he signed a DOE-GAN memorandum of intent for expanded cooperation. Three main areas were identified as particularly promising:

- equipment and training for GAN MPC&A inspectors (GAN provided a list of requested equipment in mid-1994);
- establishment of a national computerized material accounting system (Russia does not have such a national accounting system at present); and
- MPC&A at non-MINATOM, non-MoD sites (where GAN could serve as the single point of contact for facilities controlled by a wide array of different agencies and groups).

Current funding specifically targeted for cooperation with GAN on MPC&A is only a few hundred thousand dollars, channeled through the NRC. DOE's FY96 budget request includes $10 million for this purpose (out of the total of $30 million for government-to-government MPC&A programs).

[12]In late 1994, an interagency decision was taken that these funds would be provided from DOD's FY95 Nunn-Lugar funding. At the time of the Panel's review, however, while a substantial fraction of these funds had already been spent or committed (borrowing from other DOE programs), DOE and DOD had not yet reached agreement on the terms and conditions for this transfer.

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Demonstrable Progress: November 1994-Present

By late 1994, the U.S. government had established a multi-pronged approach to MPC&A cooperation with Russia, including three principal programs:

- government-to-government (funded through FY95 from Nunn-Lugar, but transitioning to DOE funding in FY96);
- lab-to-lab;
- expanded GAN cooperation.

During late 1994 and early 1995, these programs began to make demonstrable progress on the ground. Until late 1994, it was still correct to say (as critics sometimes did) that there was not a single kilogram of weapons-usable material for which security had been improved as a result of U.S.-FSU cooperation efforts. This is no longer true. Recent successes include:

Project Sapphire

This well-publicized operation airlifted 600 kilograms of HEU from Kazakhstan to safe storage at Oak Ridge in November 1994, at Kazakh request. This represented a key nonproliferation success, born of complex and intensive interagency cooperation. Given the politics of bringing foreign nuclear material into the United States, however, such an approach will probably only be applicable in a limited number of cases. The Administration should continue to examine expedited options for achieving similar objectives in the future (see "Project Sapphire—and Beyond," p. 25).

The Kurchatov Institute

In the course of just two months, in November and December 1994, a radically improved MPC&A system was installed at Building 116 at the Kurchatov Institute in Moscow—home to two critical assemblies fueled with over 100 kilograms of HEU. The new system includes double fences, motion detectors, TV monitoring cameras, portal monitors to detect anyone leaving the premises with nuclear materials, and more. Built for less than $1 million, the system includes almost exclusively Russian equipment, though the design was a cooperative effort between U.S. and Russian laboratories. This was the first site where major improvements in MPC&A were actually implemented as a result of U.S.-Russian cooperation. Similar upgrades are planned for two other buildings at the Kurchatov Institute housing substantial quantities of HEU. Largely because of the use of Russian equipment, the Russian participants (Kurchatov and Eleron, a principal Russian producer of security equipment affiliated with MINATOM) have become enthusiastic backers of the approach, and are actively working to sell similar systems to other facilities. GAN, the Russian nuclear regulatory agency, has publicly advocated installing similar systems at nuclear facilities throughout the Russian Federation.

Government-to-Government and Lab-to-Lab Agreements

In addition to these specific successes in securing materials at particular sites, agreement has been reached on next steps for both the government-to-government and lab-to-lab programs.

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As noted earlier, in November-December 1994, agreement was reached to expand Nunn-Lugar MPC&A cooperation to include a half-dozen key, high-priority nuclear sites, including the key facilities listed by the JAEIC as "most seriously deficient." After a brief effort by MINATOM to walk this agreement back, agreement was reached in March 1995 to proceed with implementation of MPC&A upgrades at 5 of these sites. Major upgrades are expected to be implemented during 1995 and early 1996.

Similarly, in January 1995, the U.S. and Russian multi-lab steering groups reached agreement on a plan calling for a wide array of activities at a variety of Russian nuclear sites. Upgrades at Kurchatov will continue; at Arzamas-16, a demonstration MPC&A system has just been installed, and analyses of U.S. and Russian MPC&A equipment are continuing; at Obninsk, a complete MC&A system for two major facilities is expected to be installed by June of 1995; at the Tomsk-7 facility where HEU from weapons will be converted to oxide, tentative agreement (pending MINATOM approval) was reached to implement an MC&A system by late 1995 or early 1996; and a similar system will be installed for Site 20 at Chelyabinsk.

Remaining Issues

Despite these successes, a number of key issues remain:

- Only a tiny fraction of the job is yet done: most of the work remains before us. Cooperative MPC&A programs must continue and must receive high priority and commensurate resources, if the grave proliferation risks that now exist are to be substantially reduced.
- The Russian government remains a cautious partner. MINATOM continues to exclude military materials (the majority of the weapons-usable materials in Russia) from government-to-government cooperation, and to seek to limit the number of sites where such cooperation proceeds. MINATOM is also seeking to exert greater government control over the lab-to-lab program (a request which should be resisted). Despite decrees from President Yeltsin and an order signed by Prime Minister Chernomyrdin, MINATOM and the economic ministries are still giving MPC&A low priority. As noted earlier, the Ministry of Finance has refused to provide the roughly $4 million that GAN and MINATOM agreed was necessary to implement the "most urgent" steps in the Russian government's MPC&A plan, signed by Chernomyrdin.
- Within the U.S. government, interagency squabbles continue. While some important steps have been taken to resolve these issues (such as establishing an NSC-led interagency coordinating group, and consolidating MPC&A funding in the DOE budget, rather than leaving it split between DOE and Nunn-Lugar), some disagreements remain unresolved. As one indicative example, DOE and DOD have been disagreeing for weeks over the specifics of how $15 million will be transferred from DOD Nunn-Lugar accounts to DOE to fund the FY95 lab-to-lab program, and this disagreement has now been allowed to spill over into discussions with congressional committees, potentially imperiling the viability of the FY95 lab-to-lab program.
- Resources remain limited. In a number of cases, particularly in the lab-to-lab program, the United States has had to put off Russian proposals for further cooperation, because

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sufficient funds and personnel were not available to carry them out. In other words, while MPC&A programs through mid-1994 were primarily "cooperation-limited"—that is, available funds could not be spent because sufficient cooperation had not yet been achieved—these programs are now clearly resource-limited.

- Currently the critical managers of the MPC&A effort at DOE are burdened with many other responsibilities. Additional, qualified, full-time personnel are needed at all levels to implement DOE's expanding program. The team of qualified people at the implementing level at DOE and the laboratories also needs to be expanded.
- There is insufficient coordination with other related efforts, such as various transparency initiatives, the HEU purchase agreement, and plutonium disposition.

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IV. LESSONS LEARNED

The United States, in its attempt to assist the former Soviet states in remedying weaknesses in the system to protect, control, and account for nuclear materials inherited from the former Soviet regime, has been faced with a daunting task. Never before has one nation, in so short a period of time, attempted to assist a former adversary to meet such security needs. Never before has the United States been faced with the delicate task of providing assistance of this sort while being sensitive both to the democratic evolution of its former adversary and to the significant security dangers that remain in the transition. The short history of this program suggests a number of important lessons, and these lessons must be applied if the assistance effort is to produce maximum benefits in the future.

1. An effective program requires sustained top-level leadership, including positive direction and support by the President and active, personal participation by cabinet-level officials.

The history of these programs unfortunately makes clear that if working-level agency officials are allowed to let their disagreements block action, that is precisely what will happen. Leadership by top-level officials is required to break through such logjams. The priority of this issue within the Executive Branch must be increased if the program is to succeed. The program requires clear lines of authority from President, and a strong interagency focal point.

Top-level leadership is also required to mobilize opinion within the Executive Branch, the Congress, and the public, to support the modest costs required for these crucial programs. This is particularly important when the assistance is for programs that are often misunderstood, such as those in the nuclear area.

2. Maximum progress requires maximum flexibility.

Experience demonstrates that the best way to make progress is to push forward on several fronts at once, while constantly searching for new ways to get around obstacles that arise.

Faced with multiple actors on the Russian side with differing (and sometimes conflicting) responsibilities and interests, the United States has taken a multi-pronged approach, cooperating with MINATOM, with GAN, and with individual laboratories and institutes. This flexible approach has proved its worth and should be continued.

To date, the DOE's lab-to-lab program has achieved greater successes and moved more rapidly than has the portion of the Nunn-Lugar program devoted to securing nuclear materials. The flexibility of the lab-to-lab program is a large part of the reason for this difference. In particular, explanations for this success include:

- basing the program on direct collaborative efforts between scientists and engineers focused on common goals, bypassing detailed negotiation by governments;
- a willingness to provide a substantial portion of the funds for direct purchase of equipment and services from entities in the former Soviet states, giving the Russian laboratories

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strong incentives to participate and to assign personnel to this task (rather than providing only U.S. equipment and excluding payment of recipient-state salaries, as has been the case in Nunn-Lugar); and

- the absence of some Nunn-Lugar requirements, including the need to follow all DOD procurement regulations and the need for the U.S. to insist on the "audit and examination rights" called for in the Nunn-Lugar implementing agreement.

In particular, the willingness to use Russian equipment in those cases where suitable equipment is available (which is not the case in all areas of MPC&A) increased Russian incentives to cooperate; lowered costs; and resulted in equipment that was easier for Russian personnel to operate, maintain, and replicate at other sites.

This flexibility has been achieved without sacrificing protection for the taxpayer. Instead of the "audit and examinations" called for under Nunn-Lugar, for example, the laboratories have been contracting for specific deliverables at specific prices, with a full demonstration required of each system paid for under the program.

3. Responsiveness to recipient-country concerns is essential.

The effort to protect, control, and account for fissile material in the former Soviet states is ultimately the responsibility of those states. Hence U.S. efforts will not be successful unless undertaken cooperatively. To build a continuing basis for cooperation, there must be a constant effort to understand how the various states (and the various actors within those states) view the problem and the cooperative program, to respond to their concerns, and to provide incentives for cooperation.

Failing to be sensitive to recipient country concerns can greatly damage prospects for gaining cooperation in upgrading MPC&A. As noted, some key officials have already been warned about excessive cooperation with the United States, after sensationalized stories appeared in the Western press. The concerns that must be addressed fall into four main categories: confidentiality and limiting negative press commentary; a focus on conceiving of these programs as cooperation, not as assistance; reciprocal access to U.S. facilities; and the use of indigenous equipment and expertise. The first and last of these appear to be concerns shared by many of the recipient states, while the middle two primarily apply in the case of Russia.

i. *Confidentiality.* Cooperation will not be forthcoming if, whenever Russia opens a nuclear site to the United States, the press is then filled with stories about the inadequacies of the security and accounting at that site. Extreme care must be taken to protect information the recipient states consider confidential. Efforts should be made to avoid sensationalized press accounts of the state of MPC&A in the former Soviet Union. Public statements that Russian MPC&A systems are inadequate, that seizures of nuclear material in Europe and elsewhere came from Russia, or that Russian technology is inferior to Western technology should be avoided.

ii. *Emphasize Cooperation, Not Assistance.* Particularly in Russia, which conceives of itself as an advanced nuclear power on a par with the United States, it is very important that these

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programs be presented as joint cooperation to mutual benefit—not as an assistance program for countries incapable of properly managing their nuclear materials by themselves. Public statements should emphasize that this is a global problem, not just a Russian one, and that programs to cooperate with the FSU states in addressing the problem represent cooperation on mutual problems to mutual benefit, not assistance.

iii. *Reciprocal Access.* Given Russian sensitivities, gaining necessary access to the wide range of facilities in Russia requiring MPC&A upgrades will inevitably require offering similar access to U.S. nuclear sites. There is little doubt, for example, that the U.S. decision to give a high-level Russian team a detailed look at the security and material control systems in place at the Hanford plutonium storage site was a critical factor in the Russian decision to allow cooperation to begin at similar sites with weapons-usable material in Russia. Indeed, the Russian official who led the U.S. return visit to the Mayak plutonium storage site informed the group that his instructions were to provide exactly as much access as the Russian group had received at Hanford—no more, and no less. Thus, the Clinton Administration's decision to offer reciprocal transparency measures—in contrast to the Bush Administration's "pay per view" approach, which demanded unilateral Russian transparency in return for Nunn-Lugar assistance—is critical to continued success.

iv. *Indigenous Equipment.* As already mentioned, making use of equipment produced in the former Soviet states themselves, rather than using only American equipment (as has been the case to date in most of the Nunn-Lugar program, including the Nunn-Lugar MPC&A program) is critically important to addressing recipient-state sensitivities. One official of the Russian security service told the Panel bluntly that if the United States insisted on using its own equipment, cooperation would go no further.

4. There is no substitute for a strong management team to lead these programs.

Particularly in a complex, multi-pronged program such as this one, effective management is essential to keep the programs focused on the central goal of achieving the largest possible reductions in proliferation risk per dollar spent, as quickly as possible, and to keep participants focused on a prioritized plan of action. In both Russia and the United States, participants in these programs have a variety of interests (including financial interests in receiving as large a fraction of the program's funds as possible) in addition to their interest in reducing proliferation risks. This is not to criticize any of the participants: it is simply a fact of human nature, which must be kept in mind. Given that situation, strong managers, aware of these different and sometimes conflicting interests, are essential to keep the program on track.

5. Public support in the United States, the former Soviet Union, and among their present and former allies is needed.

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Project Sapphire—And Beyond

Project Sapphire, which airlifted some 600 kilograms of HEU from a vulnerable fuel fabrication facility in Kazakhstan to safe storage at Oak Ridge, was a major nonproliferation success, for which the Clinton Administration deserves great credit.

A variety of lessons can be drawn from the Sapphire experience. The effort took many months, far longer than was originally anticipated. Indeed, the operation was not over when the material arrived in the United States; some important issues, such as how the material will be managed in the United States, and precisely how the promised assistance to Kazakhstan would be paid for, remained unsettled at the time of the Panel's review.

An intensive effort was needed to accomplish this mission, including the establishment of an interagency "Tiger Team" and, ultimately, the personal involvement of the President and several Cabinet Secretaries. (The press conference announcing the operation after it was complete featured the Secretaries of State, Defense, and Energy.) In addition to reaching agreement with Kazakhstan (and confirming that Russia did not object, and had no interest in taking the material itself), there were important issues that had to be resolved within the U.S. government, including the responsibilities and authorities of different agencies; where funds could be found with sufficient flexibility to pay for the activities required for this effort; locations in the United States where such material could be received; compliance with environment, safety, and health regulations; difficulties of packaging and transport (including the touchy question of overflights of other countries carrying nuclear materials); and others. The dedication of those who took part in this effort was responsible for its ultimate success.

The involvement of the President and several Cabinet Secretaries in this successful effort demonstrates the need for, and value of, such top-level leadership in pushing to a successful conclusion programs related to reducing risks of theft of fissile materials. The obstacles that arose and were overcome demonstrate the need for a strong and focused interagency process to deal with such issues, led by a senior official with day-to-day responsibility for coordinating these efforts. The Panel believes it would be very useful for the participants in Sapphire to prepare a "lessons learned" report. The insights contained therein could help guide cooperative MPC&A programs and future efforts to purchase materials.

As far as is known, Sapphire took care of by far the largest stockpile of weapons-usable fissile material outside Russia. There is little reason for confidence, however, that other stockpiles will not be found whose removal would be determined to be an urgent matter of national security. The Clinton Administration is establishing a process for examining, on a case-by-case basis, whether other such purchases would be justified. No assumption is being made that the specific arrangements made for Sapphire would be repeated for the next purchase—but the experience of Sapphire should make similar efforts far easier to implement should they prove necessary in the future.

There may be simpler approaches to such purchases that should be explored. For example, if effective MPC&A systems were established at the facilities processing HEU for the HEU purchase agreement, then HEU could be purchased from a site with an insecure stockpile, and sent to the blending facilities in Russia to be processed into LEU as an add-on to the HEU deal. (The entire Sapphire stock would have increased the scale of the HEU purchase agreement by just over one-tenth of one percent.) The price for the HEU could be the same as that in the HEU purchase agreement, or some other arrangement might be made if there were security reasons for offering a higher price. Proceeds from such purchases might be divided in such a way as to provide incentives to research institutes to give up their HEU, and incentives to the relevant government to participate in the collaborative purchase arrangement. Further exploration of such concepts is needed.

The cooperative MPC&A program is difficult to describe to the public because of the obvious sensitivities involved, described above. Support from the public sector is required, however, if the program is to maintain adequate funding from the United States and benign cooperation, at least, from others. A difficult balance must be drawn between providing sufficient

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information to make a public case for the importance and urgency of these programs, and maintaining sufficient confidentiality to ensure continued recipient-state cooperation. A proactive approach under Presidential leadership is essential.

The need for such leadership is particularly acute in those cases where cooperation is perceived to have a negative impact on the interests of segments of the U.S. public. For example, the HEU purchase agreement has the potential to displace U.S. jobs in uranium mining and enrichment. Project Sapphire required bringing foreign nuclear material to Tennessee, where local residents believe they are carrying a big enough nuclear burden already. Purchasing MPC&A equipment produced in the former Soviet states will mean that the money will not go to American contractors. In all these cases, the public and the Congress need to understand the substantial security benefits from the modest sacrifices called for.

6. Effective collection and analysis of information is essential.

Analysis by experts of data available to the U.S. Government to ensure adequate understanding of the true situation is crucial. Important information can be gained from the existing analytical resources of the intelligence community if it is properly tasked and focused. Since information related to accounting and control procedures within particular facilities is not available through national technical means, however, much of the most important information is coming not from the intelligence agencies, but from U.S. MPC&A experts who have visited many of these facilities. Increased attention needs to be devoted to ensuring that information available from individuals who have worked at or visited these facilities is collected and integrated with other information.

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V. RECOMMENDATIONS

Our recommendations fall into two categories: recommendations for Presidential action, and recommendations for those who will implement the policies prescribed by the President.

Recommendations for Presidential Action

1. The President should issue a decision directive designating the effort to protect, control, and account for fissile material as a critical and urgent security priority of the United States, and directing that it be given commensurate resources and top-level attention.

The nuclear proliferation threat posed by inadequately secured nuclear materials in the former Soviet Union is among the most serious and urgent threats to national security the United States faces in the coming decade. Only Presidential action can firmly establish efforts to reduce this threat as a top priority. The directive should clearly establish the Administration's policy and outline a coherent approach to implementing that policy throughout the government.

2. The President should appoint a senior Administration official to take full-time, personal responsibility for ensuring that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented, and should give that individual clear authority to get the job done.

Security and control for nuclear materials, as one of the preeminent security challenges facing the United States, is an issue that requires sustained top-level leadership. The gigantic scope of the challenge of managing these materials—involving hundreds of tons of materials at scores of sites in the former Soviet Union and the United States—has spawned a wide array of initiatives, ranging from securing nuclear materials (the primary focus of this report), to mutual reciprocal inspections of storage sites, to providing alternative energy sources to replace plutonium production reactors (see Table 2). A dozen or more interagency groups have been established to coordinate various aspects of these efforts. To maximize the prospects for success, these initiatives require a single coordinator, not burdened with other responsibilities, with the responsibility and the authority to ensure that these programs receive adequate resources and are effectively implemented, to resolve interagency disputes, and to coordinate these efforts with related programs. Such a role will allow the coordinator to balance priorities among these initiatives and ensure that key synergies are pursued.

3. The President should establish, under the leadership of the senior official just described, a stronger and more focused interagency process, with clearly defined lines of responsibility, authority, and organizational roles, designed to bring the talents of all critical agencies to bear in addressing this problem.

U.S.-FSU cooperation to reduce the risk of theft of nuclear materials is a broad problem that requires the expertise of many agencies. DOE is now the principal implementing agency, though NRC continues to play an important role. DOE is well-suited for this role: it has

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expertise in fissile materials; it has the responsibility for most U.S. domestic MPC&A; it has good working relations with Russians involved in this effort; and, most important, it has a top leadership which is committed to this program and assigns substantial priority to getting the job done. (As noted below, however, DOE needs to assign additional capable, trained staff to manage and implement these programs.)

Other agencies can and must make critical contributions. The State Department and the Arms Control and Disarmament Agency will continue to have important roles to play, in interacting with other countries (both the former Soviet states and other donor countries) and the IAEA, and in providing additional safeguards expertise. The contribution of the intelligence agencies will also be important. The Defense Department's On-Site Inspection Agency (OSIA) has considerable expertise in quickly organizing visits to sites in the former Soviet Union, arranging interpretation services, and the like; this expertise could provide key support to the MPC&A cooperation program, and should be utilized where appropriate (though sensitivities of the recipient states regarding the participation of an "inspection" agency in this endeavor must be kept in mind).

As noted above, a large number of interagency groups have been established to coordinate various parts of the effort to cooperate with the states of the former Soviet Union in managing fissile materials. In mid-1994, the National Security Council staff established a central coordinating group for issues related to fissile materials in the former Soviet Union. Interagency groups on MPC&A, transparency, and plutonium disposition all report to this overall coordinating group. Using that mechanism and others, in late 1994, the National Security Council staff successfully brought the interagency process to agreement on significantly increasing the funds available for MPC&A in the FY96 budget request (as well as arranging for additional funds for FY95 activities that were then beginning).

These are important steps in the right direction. Nevertheless, to bring the talents of all agencies to bear in moving this program forward, a stronger and more focused interagency process is needed, under the leadership of a senior official with clear authority from the President, who is not burdened with other responsibilities.

4. The President should direct the senior official responsible for these programs to prepare a prioritized MPC&A action plan within 60 days. This plan should identify specific near-term, mid-term, and long-term goals and objectives, and resources needed to accomplish them, and it should be updated regularly.

The importance of a such a plan to any effective program can hardly be overemphasized. DOE has much of the basis for such a plan in place, in its lab-to-lab action plan and the list of initial sites for government-to-government cooperation that has been agreed with Russia.

The fundamental goal of this program must be to achieve the *maximum reduction in proliferation risk* per dollar spent, as quickly as possible. Note that this is *not* the same as protecting the maximum total quantity of material (since some large stockpiles of material may

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already be substantially better protected, and thus pose lower proliferation risks, than some small stockpiles) or protecting the largest possible number of sites.

Achieving such a goal will require a systems engineering approach—one that includes all aspects of the problem and looks for the maximum return for the marginal dollar. It will also require a set of guiding principles around which to organize the plan, and a set of specific objectives deriving from those principles. (Some specific suggestions regarding the content of this action plan are offered below.)

5. The President should direct that adequate funds and personnel be allocated specifically for MPC&A cooperation, and that a high priority be assigned to protecting these resources from cutbacks.

Funding should be provided that is sufficient to meet a clear set of objectives, rather than tailoring the objectives to fit within a pre-determined funding ceiling. It would be a serious error to fail to provide the funds for actions that could greatly reduce serious proliferation risks for modest costs.

It is essential that adequate funds be appropriated specifically for this purpose, rather than simply "taxing" funds otherwise provided to various agencies, or expecting agencies to fund this cooperation by taking funds from other programs in their budgets.

This program is now funded primarily in the Department of Energy. The probability of further reductions in DOE's budget appears high. Given the priority of the MPC&A effort, the President should direct that its funding be protected in allocating budget reductions (as has been directed, for example, in the case of DOE's stockpile stewardship program).

6. The President should direct the senior official responsible for these programs to develop and implement a plan to secure needed legislative and public support.

The crucial effort to build support for these programs must maintain a difficult balance between providing sufficient information to make a public case for these programs and maintaining sufficient confidentiality to avoid poisoning the well for cooperation with the recipient states. Bipartisan support for the MPC&A program on Capitol Hill is essential. Any DOE program whose budget is increasing will inevitably come under close scrutiny—particularly if, as in this case, it appears to involve "Russian aid." The Administration must develop and execute an effective legislative and public information plan to win the support these programs deserve.

As noted in the lessons learned, a proactive approach to building public support for these programs, under Presidential leadership, is needed—particularly in cases where the actions required in the interest of national security have conspicuous economic or other costs.

7. The President should make effective security and accounting for weapons-usable material an important factor in U.S. relations with the states of the former Soviet Union. In

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particular, the President should seize opportunities such as that afforded by his upcoming summit with President Yeltsin to gain agreement on specific new steps to improve MPC&A.

Nonproliferation policies are already central to our relations with the former Soviet states, as the current crisis in relations with Russia over the proposed sale of reactors to Iran illustrates. The single most essential step the former Soviet states must take to prevent nuclear proliferation beyond their borders is to protect the nuclear weapons and weapons-usable materials on their territories. That issue, therefore, deserves a central place at the diplomatic table in discussions with these countries.

At their January 1994 summit, President Clinton and President Yeltsin identified cooperation in this area as a "high priority." The issue was highlighted again at their September 1994 summit. The issue has also been discussed seriously in the Gore-Chernomyrdin Commission. At the next summit, the United States should seek more detailed commitments to take specific new steps by agreed deadlines.

For example, the two Presidents could agree:

- to endorse the cooperation already underway, including the government-to-government effort channeled through MINATOM, the lab-to-lab effort, and the expanding GAN cooperation (giving each of these efforts Presidential authorization);
- that Russia would carry out a series of fast-paced inspections of its own fissile materials sites, to identify and prioritize needs for MPC&A improvements, and that the United States would contribute to defraying the cost of this survey and of implementing the highest-priority improvements identified;
- that MPC&A cooperation would be extended to include materials in military use (including naval fuel) as well as civilian materials, with appropriate measures to protect secrets that remain important to the security of each side;
- that MPC&A cooperation would be extended to additional sites beyond those already agreed to, including, for example, the major bulk-handling facilities at Tomsk-7 (Seversk), Krasnoyarsk-26 (Zeleznogorsk), Chelyabinsk-65 (the Mayak plant), and Sverdlovsk-44 (Yekaterinburg);
- that the two sides will exchange lists of major sites where fissile materials are handled and stored, and will exchange visits to major sites on a schedule to be agreed, to discuss and observe security and accounting arrangements at those sites;
- that the two sides will establish a joint working group to explore cooperation between their intelligence, police, and customs services in tracking and responding to thefts of, and illegal trade in, nuclear materials;
- that the two sides will explore possibilities for reducing the number of sites where weapons-usable fissile materials are used and stored, for example by using non-weapons-usable materials in research reactors;
- that the two sides will explore means to improve economic conditions for personnel responsible for accounting and security for nuclear weapons and fissile materials;

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- that the two sides will continue to work together in establishing improved MPC&A regulations and enhancing regulatory oversight of these activities; and
- that the two sides will work out specific agreements on these points for the next meeting of the Gore-Chernomyrdin Commission, and prepare a joint report on what had been accomplished and additional steps that could be taken for consideration at the next summit.

8. The President should direct that higher priority be placed on assessing proliferation risks posed by inadequate security for nuclear materials, and providing information support to address these risks. In particular, increased cooperation between intelligence agencies in tracking and responding to nuclear smuggling is needed.

Cooperative programs to enhance MPC&A cannot be effective without the information needed to determine where the problems are. As noted earlier, important information is being provided by the intelligence agencies and national technical means. But even more essential information related to accounting and control procedures used at individual facilities is coming from the exchanges of visits by MPC&A experts that have already taken place.

Only very recently has the intelligence community undertaken a site-by-site assessment of security and accounting for nuclear materials and associated proliferation risks in the former Soviet Union. (Indeed, at the time the Panel performed its review, the volume of this assessment providing the crucial site-by-site details was not yet complete.) This assessment should be transformed into a continually updated database, listing all the available information concerning:

- all known facilities with weapons-usable materials in the former Soviet Union;
- the types and amounts of materials at these facilities;
- the state of MPC&A at those facilities, and any known enhancement efforts underway;
- other relevant factors affecting proliferation risk at that facility (such as known thefts from the facility, or organized crime activity in the area, for example);
- remaining information gaps.

While it is important that the information available from the intelligence community be integrated into this database, it is also important to recognize the potential concerns of recipient states. Nothing would more surely cut off further progress in MPC&A cooperation than creating an impression that U.S. MPC&A experts visiting FSU facilities were "spies" working for U.S. intelligence. Therefore it is possible that the database just described should be maintained as a joint product of the interagency group responsible for MPC&A, rather than as a product of the intelligence agencies.[13] The national laboratories, which are already making major contributions to the site-by-site assessment, could potentially take responsibility for maintaining such a database.

[13]As the intelligence agencies are barred by law from collecting intelligence on the activities of U.S. citizens, keeping the database separate from the intelligence agencies themselves would facilitate including information on U.S. efforts to upgrade MPC&A in the description of individual sites.

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To support MPC&A cooperation efforts, higher priority needs to be devoted to collecting information available from individuals who have worked at or visited nuclear facilities in the FSU, and integrating this data with other information.

If current nuclear "transparency" efforts are successful, the information derived from data exchanges and reciprocal visits could provide a critical addition to cooperative MPC&A efforts. This information should be integrated with information from other sources to support the cooperative MPC&A program, and the potential benefits for MPC&A of specific proposals should be an important factor in developing U.S. negotiating positions in the transparency area (see "Managing Fissile Materials: A Spectrum of Related Efforts," p. 42).

In addition to such facility-specific information, an intensive effort must be made to identify and analyze the domestic sources of nuclear policy-making in the former Soviet states. Who are the relevant actors? Which parts of the problem are their responsibility? What are their attitudes and institutional interests relevant to MPC&A? How have they acted on these matters in the past? Cooperative MPC&A programs must be supported by an intensive effort to provide the answers to these questions.

To provide such support, the senior official with responsibility for fissile material cooperation programs should have the authority to issue high-priority intelligence taskings for special-purpose analyses to meet the needs of the MPC&A enhancement effort.

The Administration should also improve coordination of the several efforts to collect and analyze intelligence related to nuclear smuggling. Mechanisms must be developed to integrate information held by the Central Intelligence Agency, DOE's Office of Threat Assessment, the FBI, and other agencies: a central analysis effort is essential to analyze the sources and pathways for nuclear smuggling and provide the basis for effective response.

Finally, it is important to work toward improved collaboration between U.S. intelligence, police, and customs agencies with their counterparts in other countries in the fight against nuclear smuggling. Sharing of information and samples, training of police, customs, and border patrol teams, provision of equipment, and other measures could all be part of this collaborative effort. In particular, intelligence information related to the sources of smuggled materials (likely to be more available to Russian agencies than to those in other countries) should be linked to information on buyers and transit routes (likely to be more available to European countries and the United States).

9. The President should designate efforts to enhance security and accounting for nuclear materials worldwide as a key mission of the national laboratories.

Already, the national laboratories have made a substantial contribution to U.S. security through the lab-to-lab MPC&A program. The lab directors, however, need Presidential direction to make efforts to enhance MPC&A—not only in the former Soviet Union but worldwide—a fundamental part of their mission. The outstanding technical expertise in nuclear materials

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management built up at several of the national laboratories is a global resource that must be applied effectively to this mission. While the national laboratories are already involved in this effort, there is substantial room for elevating its priority: at the six laboratories involved, a total of only about 30 full-time equivalents are devoted to lab-to-lab MPC&A cooperation with Russia, out of thousands of personnel at the laboratories.

Recommendations for Implementers

The individuals responsible for implementing the President's guidance on strengthening security and accounting for nuclear materials in the former Soviet Union will need the authority to get the job done and the flexibility that goes with such authority. Without wishing to prejudge all the issues that will face them, we offer some recommendations—based on our review of the current state of these cooperative MPC&A efforts—that the implementers may find useful.

1. The senior official given responsibility for these efforts should establish a set of key guiding principles around which program planning and execution can be organized.

A program of this importance and scope requires a set of guiding principles. As noted above, the overall objective must to be to achieve the maximum reduction in proliferation risk per dollar spent, as quickly as possible. At the same time, the United States cannot do everything, and cannot expect to be allowed to participate in MPC&A upgrades at every site that may require them. As noted earlier, the states of the former Soviet Union themselves bear the long-term responsibility for protecting and accounting for these materials. The U.S. role is to:

(1) assist in implementing high-priority MPC&A upgrades; and

(2) help the FSU states develop their own indigenous MPC&A capabilities and approaches, so that they can protect and account for these materials over the long term after the cooperative MPC&A program winds down.

Given this objective and this role for the United States, guiding principles for this program should include:

- *Focus on Top Priorities.* This requires identifying and addressing the highest proliferation risks wherever possible. In particular, to the extent possible, "quick fixes" should be identified and implemented. The problem is so acute that remarkably inexpensive and low-tech upgrades can make a huge difference in some cases: one obvious example is piling massive concrete blocks in front of the doors of vaults storing nuclear materials to delay illicit access, if regular authorized access is not required. The emphasis should be on making the most urgent improvements at a wide range of sites, not making wholesale and expensive changes at only one or two. The top priority must be implementing upgrades with whatever effective technology is already available, rather than developing new technologies (though development efforts can be an important means of building mutual trust and cooperation). We cannot afford to wait for (or pay for) a Rolls Royce when a Ford will suffice to do much of the job.

- *Foster Indigenous FSU Capabilities.* As noted, the nations of the former Soviet Union themselves must bear responsibility for ensuring effective MPC&A. Therefore building indigenous MPC&A expertise and a new "safeguards culture" should be a key priority. This

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again implies a focus on using equipment designed and produced in the former Soviet states wherever effective equipment is available, and transferring the technology needed to build effective equipment where it is not. Wherever possible, the work should be done by FSU personnel and companies, with the U.S. team as consultants. As the adage goes, "give a man a fish, and you feed him for a day; teach a man to fish and you feed him for a lifetime."

- *Build Toward National Systems.* Efforts at individual sites should be coordinated so that they fit together and contribute to the goal of creating a national system providing a generally consistent level of MPC&A for all weapons-usable materials. The creation of national-level tracking and accounting systems for nuclear materials, as well as effective regulatory functions, should be an important priority. While regulations are often taken to have less urgency than securing materials on the ground, the fact is that only a sound set of regulations requiring effective MPC&A, backed up by realistic enforcement, will provide facility managers the incentives necessary to lead them to invest in, operate, and maintain MPC&A systems.

There will often be some tension between these principles: for example, funds spent establishing a national computerized accounting system will be funds not spent on "quick fixes." But we believe that an overall balanced program requires pursuit of all three of these principles in parallel.

2. The Administration should establish a specific set of near-term, mid-term, and long-term objectives for the MPC&A program, with well-defined ways to assess progress toward the objectives.

Such a set of objectives and ways to measure progress in achieving them is an essential management tool. At the same time, such a tool should not be used so rigidly that the program is inhibited from responding rapidly to new developments.

The following suggested set of objectives is keyed to the near-term, mid-term, and long-term. Near-term objectives are those that can be expected to be completed or well underway within roughly one year; mid-term objectives are those that can be expected to be completed or well underway in 2–4 years; and long-term objectives represent the desired end-state the program is striving to achieve.

Suggested objectives:

Near-term:

N1. Significantly improve security and accounting for the weapons-usable materials at all of the half-dozen highest-risk sites in Russia.

N2. Significantly improve security and accounting at (or remove material from) all sites in the non-Russian former Soviet states with separated plutonium or HEU.

N3. Work with Russia to establish a Russian program to identify the highest-priority MPC&A upgrades needed at all of its nuclear sites, and mechanisms to accomplish them.

N4. Work with Russia to establish a Russian program to take inventories at major Russian sites with substantial quantities of weapons-usable materials.

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N5. Work with Russia to put into place a Russian system of MPC&A regulations, including appropriate incentives (e.g., backed up by realistic threats of fines or closure) for upgrading MPC&A.

N6. Initiate a program to work with Russia to improve MPC&A for stockpiles of highly-enriched naval and icebreaker fuel.

N7. Work with the former Soviet states to establish effective training programs for MPC&A implementers and regulators, and to foster a "safeguards culture."

N8. Work with Russia to establish a nationwide system of material accounting.

N9. Initiate mass production in Russia of key MPC&A equipment (effective portal monitors, particularly).

Mid-Term:

M1. Significantly improve security and accounting for the weapons-usable materials at all the major non-weapons bulk-handling facilities and large-scale fissile material storage facilities in the MINATOM complex (e.g. the reprocessing plants and associated storage facilities at Tomsk, Krasnoyarsk, and Chelyabinsk; HEU oxidation at Tomsk and HEU production and blending at Yekaterinburg; and HEU fabrication at Elektrostal, Novosibirsk, and Podolsk).

M2. Significantly improve security and accounting at (or remove materials from) all facilities outside of closed cities or military bases which handle kilogram-quantities or more of separated Pu or HEU (e.g., civilian institutes).

M3. Work with Russia to develop a comprehensive plan, with cost estimates, for longer-term MPC&A upgrade needs and material consolidation for all its nuclear sites, including specific staff, equipment, and training needs for specific sites.

M4. Work with Russia to ensure that effective portal monitors or equivalent capability to detect removal of nuclear material are installed and used effectively at all major Russian sites with substantial quantities of weapons-usable materials.

M5. Work with Russia to ensure that GAN acquires all the capabilities necessary to effectively regulate and inspect MPC&A.

Long-Term:

L1. Work with the former Soviet states to ensure that all facilities in the FSU with strategic quantities of HEU or Pu have effective MPC&A systems in place and in use.

L2. Work with the former Soviet states to ensure that effective MPC&A is established as an ongoing priority activity with requisite funding.

L3. Work with the former Soviet states to establish a sufficient and self-sustaining cadre of MPC&A implementers, designers, inspectors, and regulators in those states.

L4. Work with the regulatory agencies of the former Soviet states to establish effective overall programs of MPC&A regulation.

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Once a set of objectives such as these has been defined, it is essential to develop an estimate of what is required (technically, politically, and administratively) to attain those objectives, including in particular the resources (money and people) that must be committed. In this case, not all of the resources should come from the United States; the recipient states and other donor states should make substantial contributions as well.

3. The Administration should continue to take a flexible, multi-pronged approach to improving MPC&A in the FSU, exploiting opportunities as they arise. All of the current MPC&A cooperative programs deserve strong support.

All three of the major current programs to cooperate with the states of the former Soviet Union—the government-to-government MPC&A effort (now transitioning from Nunn-Lugar to DOE), the lab-to-lab program, and the expanding cooperation with GAN—should be continued. Given the multitude of different actors on the Russian side (not to mention the non-Russian states), suggestions that the program be trimmed down to a single approach should be resisted. A strong U.S. management team will be needed to coordinate these programs and all the U.S. participants in them so that they remain focused on the key objectives and reinforce each other effectively.

4. The Administration should make a comprehensive effort to analyze and deal with recipient-state sensitivities and incentives, in order to achieve the maximum degree of cooperation.

As noted above, cooperative MPC&A efforts need to be supported by a detailed effort to understand the domestic sources of nuclear decision-making, including the multiple actors involved, the sensitivities of each of those actors, their incentives for cooperating or for blocking progress, and the leverage points in the system. In some cases, this will mean working hard to cooperate with former Soviet nuclear bureaucracies that are peopled with unreformed Cold War holdovers—an arduous, unpleasant, but essential task.

The four key areas to which the United States must be sensitive—confidentiality, focusing on cooperation, reciprocity, and use of indigenous equipment—were outlined above under lessons learned. The U.S. government should develop a conceptual framework and a detailed plan for working with each country, which responds to the differing sensitivities of the different countries and of the different actors within them. It is essential to analyze these sensitivities and determine the best ways to meet concerns at each step of the process, rather than waiting until well intentioned proposals have already encountered a buzz-saw of skepticism and opposition.

In particular, both lab-lab and government-government programs should be seen as "collaborative" efforts—not purely assistance—with reciprocal visits and evaluations, and genuine technical input from both sides. This is particularly important in cooperation with Russia.

5. The Administration should continue to design cooperative MPC&A programs with a focus on specific deliverables, to ensure that the money is spent for its intended purposes.

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Clearly it is critical that the funds allocated to improving MPC&A in fact are spent for that purpose. Both the approach taken in the Nunn-Lugar program (purchasing nearly all equipment in the United States, and declining to pay Russian salaries) and the approach taken in DOE's programs (negotiating prices for specific deliverables to be delivered by specified deadlines) provide effective protection for the U.S. taxpayer when used appropriately. But the DOE approach offers substantially greater flexibility and better chances of fostering recipient-state cooperation.

In a fast-moving program—as these must be, if they are to achieve their goals in a timely fashion—it is impossible to ensure that every dollar is accounted for. But even a single well-publicized case of diversion of funds to purposes other than those intended could have a devastating impact on support for these programs. Therefore vigilance on this score should continue to be an important priority.

6. DOE should assign additional qualified personnel to manage and implement these programs.

The personnel managing and implementing these programs at DOE are already stretched thin. As these programs expand in scope and priority, they will need additional personnel to ensure effective management and implementation. Additional staff with safeguards expertise and international experience will also be needed. Training of this staff should begin now.

These programs require an effective organizational structure within DOE, with managers not burdened with a wide range of other responsibilities. The program management should include individuals with strong *domestic* safeguards experience,[14] including experience with implementation of MPC&A at operational DOE facilities, as well as experience in international cooperation. In particular, the program should make use of the expertise of DOE's Office of Safeguards and Security, which is in charge of implementing MPC&A at DOE nuclear facilities.

All MPC&A programs within DOE should be subject to continuing review, to ensure that they remain focused on accomplishing the key objectives in the least time at the lowest cost.

7. Additional efforts to coordinate U.S. cooperative MPC&A programs with those of other countries, and to encourage other countries to expand their contribution to this effort, should be pursued.

Given that the possibility of nuclear theft poses a global threat, other countries with MPC&A expertise, particularly those that also have denuclearization assistance programs in the former Soviet Union (such as Japan, Germany, and France), should be encouraged to make more substantial contributions to reducing the risk. U.S. efforts should be coordinated as closely as possible with those of other donor countries and with international organizations (such as the

[14]Domestic safeguards, operated unilaterally by a country having nuclear activities, focus on detecting and preventing nuclear materials theft, i.e., facility-level protection, accounting, and control with national coordination and oversight. International safeguards, implemented by international organizations such as the International Atomic Energy Agency, focus on detecting diversion by a state having nuclear activities.

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International Atomic Energy Agency), to avoid duplication of effort and share information needed to focus priorities.

8. Additional U.S. and FSU personnel with expertise in security and accounting for nuclear materials should be trained.

As cooperative MPC&A programs expand, additional personnel with MPC&A expertise will be needed. The need is particularly acute in the states of the former Soviet Union. The establishment of an MPC&A training center in Russia (currently slated to be established at Obninsk) should be a high priority. The current focus on "training the trainers"—that is, training individuals who could serve as instructors for training courses at other facilities—is a useful approach. It is essential to ensure that training is available for both MPC&A implementers and regulators. Consideration should be given to establishing similar training centers in the other former Soviet states (or perhaps a small number of regional training centers). This effort will require detailed planning and the compilation of materials from a number of sources (e.g., the DOE Office of Safeguards and Security Central Training Academy, Los Alamos courses on nuclear material measurements, Sandia training on physical security, and Brookhaven courses on safeguards systems, principles, bulk measurements, and statistics.)

At the same time, the number of qualified personnel available in the United States to implement these programs also needs to be increased. All those in the United States with expertise relevant to these issues should be identified. People with expertise may be located at national labs, at nuclear weapons complex sites (such as major former reprocessing facilities, for example), in academia, and elsewhere. Opportunities should be created for national laboratory personnel working in other areas to be retrained as MPC&A specialists (in line with the previous recommendation to make enhanced safeguards a central mission of the laboratories).

Recommended Specific Near-Term Actions

Achieving the ambitious set of near-term, mid-term, and long-term objectives outlined above will require a broad range of specific actions. Some of these are already occurring, but need acceleration. For example, it is critical to take action to accelerate the government-to-government program to a pace more closely approximating that of the lab-to-lab program—so that MPC&A upgrades at the key, high-risk facilities identified for cooperation in the government-to-government program can be accomplished as rapidly as possible. Other actions are implied in the statement of objectives, but work on them remains to be undertaken. For example, it is important to begin as soon as possible to reduce the proliferation risks posed by the almost completely unprotected material at the many small civilian research institutes, not located in closed cities, that exist in the FSU. While these sites represent a small fraction of the total material, they may represent a large fraction of the proliferation risk.

The following represent important near-term actions that require further comment:

1. The United States should work with Russia to establish Russian MPC&A assessment and improvement teams, which could rapidly assess what upgrades are needed.

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For Russia's own MPC&A upgrade program to be effective, it needs to be based on an assessment of what the most urgent needs are throughout Russia's nuclear facilities. While some assessments have been conducted at particular sites, no consistent program to identify and prioritize the most urgent requirements throughout the Russian nuclear complex exists. Given the many institutional interests involved, establishing such a program would require tough top-level leadership on the Russian side. There are some indications that the Russian leadership is focusing increased attention on this area. Indeed, in the lab-to-lab program, the possibility of the Russian laboratories undertaking such an assessment for those facilities within MINATOM's nuclear weapons complex is already being discussed.

The United States has considerable expertise to offer in this area. For many years, DOE has had teams which visit U.S. sites, assess MPC&A there, and make recommendations for needed upgrades. At one time, DOE conducted a rapid-assessment program and carried out large-scale upgrades based on the assessment's recommendations.

The United States, therefore, should offer to help establish and train the Russian teams that could conduct such an assessment, and to contribute to defraying the costs. Once the assessment had been accomplished, the United States could contribute to the most urgent of the upgrades identified, as agreed between the two sides. This would represent, in a sense, a revival of the earlier "quick fix" approach.

2. The United States should work with Russia to establish nuclear-material inventory teams.

There is a pressing and immediate need for the states of the former Soviet Union to take a measured, physical inventory of the weapons-usable nuclear materials on their territories. (EURATOM has also targeted measured, physical inventory as a high priority.) This is the only way to know how much nuclear material exists, where, and in what form.

The United States should work with Russia and the other states to develop a cooperative process to produce measured nuclear material inventories—applied first to all weapons-usable material. This is a labor-intensive, time-consuming process: equipment has to be identified, supplied, and installed; measurement controls have to be put in place; nuclear materials have to be handled; the measurements themselves have to be made; and the data must be recorded, analyzed, and updated as necessary. Once the inventories have been established, appropriate material controls (tags, seals, surveillance, and the like) and continuing material accounting must be instituted. Current rules may have to be modified to accomplish such an inventory: at present, a physical inventory that varied from the book inventory could subject the plant managers to sanctions.

To expedite this effort, the United States should help train, equip and certify Russian inventory-taking teams.

3. The United States should undertake a new initiative to help Russia improve MPC&A for stockpiles of highly-enriched fuel for naval vessels and icebreakers.

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To date, MPC&A cooperation has focused on MINATOM, GAN, and individual laboratories and facilities. That leaves out an entire sector of the Russian nuclear complex—naval and icebreaker fuel, much of it enriched to up to 90% U-235. At least one well-publicized theft of over 4 kilograms of naval fuel has already occurred, from the naval base at Murmansk. As noted earlier, the ease with which that theft succeeded suggests that security for naval fuel in Russia is in urgent need of improvement. The United States should initiate a fast-paced program directed toward that goal. Cooperation in this area is likely to be particularly sensitive. The Agreement for Cooperation being negotiated in the context of stockpile transparency, which will provide a legal basis for exchanging classified nuclear information, may be very useful in furthering Russian openness in this area.

4. The United States should begin discussing with the former Soviet states, and Russia in particular, the need to consolidate nuclear materials in a smaller number of areas within specific sites, and at a smaller number of sites overall.

Currently, weapons-usable nuclear materials exist at scores of sites in Russia alone, and often at many separate locations within a single one of these sites. Reducing the number of locations that must be protected has the potential to greatly reduce the costs of ensuring adequate safeguards and security. With the end of the Cold War, a contraction of the Russian nuclear weapons complex is inevitable in the long run, and consolidation of nuclear materials should be a key part of that contraction—as it has been in the United States. DOE should prepare a detailed briefing for the Russian side on the U.S. experience, including the very large reductions in safeguards and security costs that have been achieved at some sites through consolidating materials, and the reduction in the number of research reactors using HEU over the last several decades. Both in work at individual sites and in discussions of the overall program, the United States should use every opportunity to encourage Russia to undertake consolidation.

5. One or more "quick response teams" should be established to respond quickly to fast-breaking events.

This issue is important enough and explosive enough that the United States should form one or more permanent "quick response teams," with the expertise and resources needed to respond rapidly and effectively to requirements such as Project Sapphire. It is quite possible, for example, that an urgent need to rapidly secure or remove material at a particular site could arise (for example if the material is newly discovered, or is in an area where armed conflict is breaking out). A mechanism should be set up within the government to support these teams. Procedures for expediting the teams' response, and flexible sources for funding the required operations and transactions should be established. The team should train and practice for various kinds of operations, including securing sensitive materials in place or removal to a safe area. Special communications capabilities should be provided, designed for secure communications in remote areas of concern. Consideration should also be given to helping Russia establish such teams to deal with such situations on its own territory, as in many cases U.S. quick-response efforts may be too sensitive.

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6. A small cadre of personnel should be stationed in Moscow on a full-time basis to facilitate and support these programs.

The Embassy science and technology staff plays an essential role in supporting negotiations and implementation missions, monitoring events within the Russian government, and determining the attitudes and priorities of the wide array of Russian actors involved in MPC&A-related activities. This staff is stretched thin, however, and additional personnel devoted to this effort full-time will be required as the cooperative MPC&A program expands in priority and scope.

7. To address Russian sensitivities, the Administration should prepare a frank and detailed briefing on past MPC&A problems in the U.S. nuclear complex, and rapid upgrade steps that were taken to address them.

Being open and frank in revealing that the United States has also had MPC&A problems in its weapon complex could help serve to improve the sense of reciprocity and mutual cooperation in the program. Such a discussion could also focus on the very rapid steps the United States took at certain points to assess and remedy deficiencies.

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Managing Fissile Materials: A Spectrum of Related Efforts

The Clinton Administration has undertaken a wide array of initiatives related to cooperating with the former Soviet states in managing weapons-usable fissile materials, falling into four broad categories:

- Securing nuclear materials (including MPC&A);
- Building confidence through openness;
- Halting accumulation of excess stocks; and
- Disposition, transforming these materials into forms that pose greatly reduced security risks.

This report has focused on the first of these categories. Here, we offer a few remarks on those aspects of other initiatives that bear directly on the objective of reducing the risk of theft of these nuclear materials.

Securing Nuclear Materials

A few programs in this area have not been discussed in this report, but are nonetheless important:

The Nunn-Lugar Storage Facility. Under the Nunn-Lugar program, a safe and secure storage facility for plutonium and HEU from dismantled weapons is being built with U.S. assistance at Chelyabinsk. While Russia already has considerable storage space available—if Ministry of Defense warhead storage facilities are included—the new facility would offer greatly improved security and accounting compared to the locations where these materials are currently being stored, and the United States would be offered transparency measures in return for its assistance. Despite the many delays that have plagued this program, we believe the establishment of a modern facility with a highly effective MPC&A system and some degree of U.S. oversight is important, and that this program should continue—assuming that MINATOM demonstrates a good-faith commitment to cooperation, and to investing its own resources in the project as well.

Combating Nuclear Smuggling. If MPC&A systems fail and material is stolen, anti-smuggling efforts form the next line of defense. Additional efforts to train and equip police, investigators, customs officials, and border guards in the relevant states—and to coordinate intelligence and sharing of analyses and samples of seized material—are needed. This is a global problem requiring intensive international cooperation.

Securing Nuclear Weapons. Under current circumstances, it appears that security for assembled nuclear weapons in the former Soviet Union is substantially better than security and accounting for nuclear materials outside of weapons. Nevertheless, given the grave consequences that could result if a nuclear weapon were actually diverted, it is important to continue pursuing the recently expanded dialog between the U.S. Department of Defense and the Russian Ministry of Defense regarding upgrades to security for nuclear weapons. This effort may offer spin-off benefits for MPC&A: if the principle of genuine cooperation at nuclear weapon sites can be established, it will become more difficult for MINATOM to argue that its military materials are too sensitive for cooperation to be possible.

Building Confidence Through Openness

Reciprocal Stockpile Declarations. The agreement reached between President Clinton and President Yeltsin at their September, 1994 summit to exchange data regarding stockpiles of nuclear weapons and fissile materials, "and on their safety and security," could have important benefits for MPC&A. A good-faith Russian declaration would require the Russian central government to get a good handle on the inventories that exist at Russian sites. The initial declarations should be seen as the beginning of a process heading toward ever-increasing levels of detail. The more information that can be exchanged regarding the specific locations, amounts, and forms of materials, the greater the potential synergistic benefit for MPC&A cooperation. Additional consideration is needed of what information can and should be provided under the rubric of exchanging data on the "safety and security" of nuclear weapons and fissile materials.

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Transparency and Irreversibility. The reciprocal visits to nearly all plutonium and HEU storage sites envisioned in the U.S. proposal tabled in December 1994, if agreed to and implemented, could have enormous spin-off benefit for MPC&A. There is no substitute, in judging what MPC&A improvements are needed, for actual visits to the relevant sites by MPC&A experts. The U.S. approaches to such reciprocal visits should be configured to take maximum advantage of this potential synergy between transparency and MPC&A. The reciprocal nature of these visits will be an essential (but not sufficient) condition for Russian acceptance of them.

IAEA Safeguards on Excess Stocks. The United States has begun placing weapons materials excess to its defense needs under international safeguards, and is urging Russia to do the same, as well as to make its civilian nuclear facilities eligible for IAEA safeguards.* Similarly, IAEA safeguards may be the verification method chosen for the fissile cutoff convention under discussion in Geneva, which would mean putting U.S. and Russian reprocessing and enrichment plants under safeguards. Preparing a site for IAEA safeguards requires that an effective material control and accounting system be in place, so there is a potential synergy with MPC&A efforts here, as well.

Halting Accumulation of Excess Stocks

Plutonium Cutoff Agreement. Under the current approach to monitoring this accord, reprocessing plants would not be monitored, and therefore there would not be an opportunity to upgrade MPC&A at those facilities as part of the monitoring arrangements. If the monitoring measures discussed to date are implemented, however, the sites where the separated plutonium would be stored after leaving the reprocessing plant would have significantly better material control and accounting than most other Russian sites.

RERTR. The United States and Russia are cooperating to develop non-weapons-usable low-enriched fuel for research reactors. The U.S. program in this area is known as Reduced Enrichment for Research and Test Reactors (RERTR). This program may offer a high potential for eliminating stockpiles of HEU fuel, and requirements for additional deliveries of such fuel, at a large number of poorly-protected civilian research facilities in the former Soviet Union. (Soviet supplied research reactors fueled by HEU also exist in Libya and North Korea.)

Disposition

HEU Purchase Agreement. Oxidation and blending of HEU for the HEU purchase agreement will involve large-scale bulk handling of HEU, raising potential opportunities for theft. Even a single documented case of theft of HEU from this effort could have a devastating political impact on the entire cooperative effort to deal with fissile material, in addition to the serious security risks that any HEU theft would pose. Therefore it is critically important that both the site at Tomsk where the HEU weapons components will be converted to HEU oxide, and the site at Sverdlovsk-44 where the material will be blended to low-enriched uranium, be provided with effective MPC&A systems. The apparent lab-to-lab agreement to establish such a system at the Tomsk oxidation facility should be vigorously pursued, as should efforts to reach agreement on MPC&A upgrades at Sverdlovsk-44, being pursued under the umbrella of transparency arrangements for the HEU deal.

Plutonium Disposition. Given the very different attitudes toward plutonium fuel cycles in Russia and the United States, the two countries may not agree to pursue identical plutonium disposition options, and specific decisions are likely to take time. But the two sides should agree now that whatever options are chosen, an agreed and stringent standard of safety, security, and international accountability will be maintained throughout the process.

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* The list of facilities eligible for safeguards under the former Soviet Union's "voluntary offer" agreement with the IAEA was minimal by comparison to the U.S. list, which makes all civilian facilities eligible for safeguards, though because of resource constraints these safeguards have not actually been implemented in recent years.

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APPENDIX A

List of Principal Briefings

Washington, D.C.

Known Cases of Theft of Weapons-Usable Material
(b)(3) Central Intelligence Agency

Safeguards and Security in the FSU: Conclusions of the JAEIC Study
Stephen Mladineo, DOE, Pacific Northwest Laboratory.

Material Control and Accounting in the FSU
Mark Mullen, Los Alamos National Laboratory

Physical Protection in the FSU
John Kane and Byron Gardner, Sandia National Laboratory

On the Ground in Russia: The Politics and Problems of MPC&A Cooperation
Ken Fairfax, U.S. Embassy, Moscow

Overview of MPC&A Cooperation
Ken Luongo, Director, DOE Office of Arms Control and Nonproliferation

Government-to-Government MPC&A Programs
Ken Sanders, chief, International Safeguards Division, DOE

The Lab-to-Lab MPC&A Program
Mark Mullen, Los Alamos National Laboratory

NRC MPC&A Support to the States of the Former Soviet Union
Ted Sherr, chief, Regulatory and International Safeguards Branch,
Nuclear Regulatory Commission

Securing Nuclear Materials: A DoD Perspective
Gloria Duffy, Special Coordinator,
Cooperative Threat Reduction, Office of the Secretary of Defense

Purchases of FSU Materials: Sapphire and After
Jeffrey Starr, Principal Director, Threat Reduction Policy
Office of the Secretary of Defense; head, Sapphire "Tiger Team"

Stopping Nuclear Smuggling
Joseph DeThomas, Director, Office of Regional Nonproliferation
Department of State

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Overview of Outstanding Issues
James Goodby, chief negotiator, Safe, Secure Dismantlement
Department of State

Next Steps In MPC&A Cooperation
Frank von Hippel, Federation of American Scientists, former Assistant Director for National Security, Office of Science and Technology Policy

U.S. Assistance to Improve Physical Security and Accounting of Fissile Material in Russia
Thomas B. Cochran, Natural Resources Defense Council

Cooperation Between the U.S. and MINATOM in the Area of Fissile Material Safeguards
Oleg Bukharin, Princeton University and Moscow Physical-Technical Institute

Securing Nuclear Materials in the Former Soviet Union
William Potter, Center for Nonproliferation Studies, Monterey Institute of International Studies

Overview of Fissile Material Initiatives and Interagency Process
Steve Aoki, Director, Nuclear Nonproliferation, National Security Council

Moscow

Ken Fairfax, Science and Technology Officer, U.S. Embassy Moscow

Victor Gubanov, head, Committee on Emergency Situations, Ministry of Atomic Energy (MINATOM); Lead Negotiator, Government-to-Government MPC&A Cooperation, and others.

Yuri Zubkov, Deputy Chairman for Fuel Cycle and Safeguards, Federal Nuclear and Radiation Safety Authority (GAN), and others.

Yuri Dyomin, chief, International Relations, Federal Counterintelligence Service, and others.

Yuri Ilkaev, Deputy Scientific Director, All-Russia Institute of Experimental Physics (Arzamas-16).

Nikolai Ponomarev-Stepnoi, Deputy Director, Kurchatov Institute, and others. (Including review of MPC&A system at Building 116).

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NATIONAL SECURITY COUNCIL
WASHINGTON, D.C. 20506

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May 4, 1995

MEMORANDUM FOR ANTHONY LAKE
JOHN H. GIBBONS

FROM: DAN PONEMAN/JANE WALES

RE: FOLLOW-UP ON FSU NUCLEAR MATERIALS SECURITY

At your direction, we have been moving out rapidly to follow up on the PCAST report on security for nuclear materials in the former Soviet Union.

1. Agency Views. The Standing Committee on Nonproliferation discussed the report's recommendations on Tuesday, May 2. All agencies agreed that:

-- improvements in security and accounting for nuclear materials in the FSU are a high priority, and the PCAST report made a valuable contribution;

-- the summit nonproliferation declaration should include language on nuclear materials security;

-- a PDD should be issued to identify policy priorities and mandate senior-level oversight and organizational changes needed for effective implementation.

-- it would be beneficial to have a full-time coordinator for these issues on the NSC staff.

2. Summit Language. We have drafted, and the Standing Committee has approved, proposed summit language highlighting the priority of cooperation to secure nuclear materials and calling for a joint report for Gore-Chernomyrdin in June. (The proposed language, at Tab A, would be included in a planned summit statement on nonproliferation.) This language is being discussed with Russian representatives in New York, and should be raised at the Davis-Mamedov meeting on Friday.

3. Presidential Decision Directive. Given the consensus that a PDD on this subject should be prepared, we will be working over the next few days to solicit agency views on what should be included, and to produce a draft. The PDD should task

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development of a gameplan for our own program and for further negotiations with Russia, including actions to address the President's concern about the lack of an inventory of nuclear materials in the former Soviet Union. Our plan will also include as a priority a coordinated legislative strategy to ensure adequate funding and authority for cooperative programs with Russia. By the end of the week, we expect to provide you with a memorandum for signature directing the preparation of such a PDD.

4. Staffing and Organization. We believe several steps should be taken to strengthen the Administration's response to the problem of fissile materials in the former Soviet Union.

-- Our chief negotiator with the Russians on this issue, Ambassador Goodby, should receive a Presidential commission to make clear the higher priority we are placing on Russian cooperation in this area.

-- An additional director should be added to the NSC to coordinate USG activities related to fissile materials in the former Soviet Union. Immediate responsibilities would be to staff these issues for the next Gore-Chernomyrdin meeting and to oversee preparation of the PDD.

-- The Standing Committee should meet more frequently to ensure that policy-level Administration officials give adequate attention to the implementation of our nuclear materials security efforts.

-- DOE, the lead agency in this area, should review its staffing and funding priorities in light of the PCAST findings, and in coordination with the development of our overall gameplan.

5. DOE-DOD Disagreements. DOE and DOD confirm that the specific issue referred to in the PCAST briefing -- the transfer of the $15 million to fund lab-to-lab programs -- has been resolved. This problem points to the need for greater flexibility in our funding and management mechanisms in this area, and we should identify any legislative or procedural changes needed.

6. MPCA Action Plan: The existing NSC-led MPCA Group is already working with agencies to develop a plan for upgrading security and accounting for nuclear materials at the most vulnerable facilities in the FSU. In addition, we are seeking

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DOE commitment to develop and maintain a database that prioritizes nuclear sites in terms of their vulnerability to nuclear theft, and includes USG and other-government efforts to improve security at each site.

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EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20500

PCAST

7 June 1995

MEMORANDUM FOR DAN PONEMAN
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FROM: JANE WALES

SUBJECT: Modifications to the Draft PDD on NIS Nuclear Security and to the Draft Response to the PCAST

The draft PDD provides an excellent basis from which to build. I believe that a PDD should include the level of detail that is necessary to ensure that the President's intentions are carried out. In this light, I support the inclusion of a specific "plan of action" in the PDD, as in the current draft, with the following additions:

(1) Full-Time Coordinator

An important recommendation of the PCAST report, the creation of a full-time position with sufficient authority to ensure that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented, is not addressed in the current draft. The President clearly embraced this recommendation, and that decision should be reflected in the PDD. There is precedent in previous PDDs for discussion of staff-level assignments to ensure that relevant policy is carried out (see, for example, PDD-18). There appeared to be support for this point from all agencies represented at the Standing Committee meeting.

I would therefore suggest the following specific changes. On p.2, the first sentence of the second paragraph should be changed to read, "The NSC will *coordinate* USG efforts and *will exercise* oversight of nuclear security and nuclear smuggling programs, *and will appoint an additional Director exclusively for this purpose.*" On p.6, the following sentence should be added to the end of the first paragraph: "The NSC Standing Committee will be staffed by a dedicated, Director-level NSC staff member who will be responsible for coordination and problem-solving."

(2) Sense of Urgency and Priority

A more strongly worded opening would better reflect the sense of urgency and priority which both the President and the NSC clearly

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assign to this issue. To better capture this, I would suggest the deletion of the current first two paragraphs of the "policy principles" section, and their replacement with the following paragraphs:

"Ensuring that plutonium and highly-enriched-uranium (HEU) do not fall into the hands of potential proliferators is central to the national security of the United States. Access to these materials is the primary technical barrier to nuclear proliferation in the world today. With the collapse of the Soviet Union and the ensuing political, economic, and social turmoil in the former Soviet states, the world is faced with an unprecedented crisis on the "supply side" of nuclear proliferation.

Under current conditions, virtually all of the weapons-usable material at the roughly 100 former Soviet facilities with such materials is potentially at risk. Already, there have been multiple seizures of kilogram quantities of stolen weapons-usable uranium and of hundreds of grams of weapons-usable plutonium. There is no evidence that enough material for a bomb has yet fallen into the hands of states such as Iran, Iraq, Libya, or North Korea, but such a proliferation disaster could occur at any time. This problem is among the most serious and urgent threats to national security the United States faces in the coming decade. Measures to reduce this threat are a top national security priority, and will be given commensurate resources and attention. Action now is a prudent investment to forestall much larger costs and risks in the future.

We also suggest striking the first sentence of the following paragraph, "Reducing the risk . . . is an urgent national security priority" (since the language above is similar). In that same paragraph, we would strike the word "growing" on line 4, replace "need also to maintain" on line 8 with "will continue to seek", and add "will accelerate our own bilateral efforts with NIS countries, and" after the final "we" on line 4.

Other Suggestions

On p.1, third line of the last paragraph, strike the phrase "at the sites", as security during transport is also an issue.

On p. 2, second paragraph, we would like to add: "OSTP will continue to provide technical and policy input to these programs."

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On p.2, second paragraph, line 13, insert the word "will" after the phrase "Department of State".

On p.3, under point 3, line 5, replace "mission." with "mission, and shall provide for such reciprocal access to U.S. MPC&A systems as may be necessary and appropriate to secure NIS cooperation and provide MPC&A experience and training."

On p.3, under point 5, line 2, insert "and related" after the word "nuclear".

On p.4, under point 1, top of page, line 3, replace "weapons." with "weapons, including appropriate measures of reciprocal access to MPC&A systems."

Comments on the draft reply to PCAST

My concern is that the President will fail to gain credit for the seriousness with which he has responded to the PCAST report. He, and the NSC staff, have been open, responsive, and energetic in acting on the panel's recommendations. Credit is due. I therefore urge a very different tone, and emphasis on areas of agreement (which are many) rather than on the sole point of disagreement.

(1) The reply to PCAST recommendation 2 spends most of its time explaining why a "czar" (a word not used in the PCAST report) would be inappropriate. The tone of this section is that of creating a strawman which can then be knocked down. Both paragraphs in this section should be replaced with a single sentence, drawn from the PDD: "The NSC will coordinate USG efforts and will exercise oversight of nuclear security and nuclear smuggling programs, and will appoint an additional Director exclusively for this purpose."

(2) The reply to recommendation 3 carries the same defensive tone. The entire first paragraph should be struck, along with the first sentence of the second paragraph. This section would therefore begin with the sentence, "In order to ensure that this issue . . . ."

(4) In the reply to recommendation 7, line 2, strike the word "already".

We also suggest that the following paragraph be added:

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"To further focus and provide additional clout to U.S. efforts in eliciting Russian cooperation, the U.S. chief negotiator in this area, Ambassador Jim Goodby, will be given a Presidential appointment."

cc: Jessica Stern

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ASSISTANT DIRECTOR

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

JUN 9 1995

MEMORANDUM FOR THE SPECIAL ASSISTANT TO THE PRESIDENT AND DIRECTOR FOR NONPROLIFERATION

SUBJECT: ACDA Comments on the Draft Presidential Decision Directive on FSU Nuclear Security and Responses to the Recommendations of the PCAST Report

ACDA has organizational and substantive comments to the draft PDD.

Organizational Comments:

ACDA proposes that Vice President Gore be named overall head of the U.S. fissile material effort, and that the GCC be used as an umbrella channel with Russia for resolution of difficult issues. A smaller version of the Standing Committee consisting of the five policy agencies (ACDA, OSD, STATE, JCS, and DOE) plus OSTP would report through Leon Fuerth to the Vice President. ACDA would serve as the Secretariat for this rump group, which would develop fissile material strategies and issues for discussion at the Gore-Chernomyrdin Commission (GCC) meetings. The rump group would be chaired by a senior NSC staff member and would work to coordinate existing agency programs and oversee the work of the four fissile material sub-IWGs. Ambassador Goodby would continue in his role as the negotiator for Material Protection Control and Accounting and Safeguards, Transparency and Irreversibility issues, and ACDA would continue to provide staff and travel support for Ambassador Goodby.

There are several advantages to this organizational structure. Fissile material issues have industrial, economic, and security dimensions. The GCC was created, and is uniquely suited, to deal with these types of issues. By moving oversight of fissile material issues solidly into the GCC, the United States will be able to foster greater participation with more ministries on the Russian side (e.g., with GAN) and counter more effectively resistance from MINATOM to accept certain types of U.S. assistance and transparency arrangements.

This organizational structure satisfies the PCAST recommendations to give fissile material issues higher-level attention and to strengthen the interagency process to deal with fissile material issues more effectively. When required, for example, Vice President Gore could be the Administration spokesperson for fissile material issues, and intervene as

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necessary, to resolve issues that require attention at higher levels. Adding a secretariat function would also facilitate the interagency sharing of information on agency activities and project planning without requiring diversion of a senior NSC staffer's time.

Substantive Comments:

ACDA'S role within the PDD should be stated more clearly and enhanced:

1. The draft PDD should include a proposal that ACDA:

a. develop a plan for utilizing IAEA assets to:

-- assist states in the FSU in developing and implementing sound MPC&A programs; and

-- organize its available data so as to be able to assist in identifying the sources of seized material if possible and where requested

b. work with the Department of State to:

-- promote adherence to the convention on the physical protection of nuclear materials and utilize the convention's provisions to the extent possible to address nuclear smuggling issues and;

-- identify, develop, and promote new multilateral arrangements, if any, that are needed to supplement other means of combating nuclear smuggling

2. P. 2, under DOE item 1, modify first sentence to read:
Develop in consultation with the Director of ACDA, a comprehensive prioritized nuclear material security and accounting plan...

3. P. 5, under section on Secretary of State, modify first sentence and insert a second sentence to read:
Develop in consultation with the Director of ACDA a plan to strengthen, and where necessary, establish programs to improve nuclear security and to combat nuclear smuggling in the NIS. In consultation with ACDA, develop a plan to support relevant negotiations, including support of Ambassador Goodby and delegation preparations.

4. In addition, ACDA disagrees with several comments made at the Standing Committee meeting on June 6 to the effect that multilateral support for FSU fissile material controls should be discouraged. To the contrary, ACDA believes that there could be significant benefit in involving other countries, multilateral institutions such as the IAEA, and other multilateral fora such as the G-7. Indeed, this is already occuring through Germany's strong interest in working to

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counter nuclear smuggling, and through other donor states' assistance coordinated by the IAEA to MPCA programs in the NIS. ACDA believes this multilateral cooperation should be encouraged and expanded, and that the PDD should reflect the importance of such activities and associated consultations.

Additional Comments on the PDD Text:

5. P. 2, 6th line before Plan of Action, modify the sentence to add the following highlighted words:

> ACDA will provide input to other agencies based on its experience in safeguards, physical protection, and related technologies, and in nonproliferation negotiations.

Justification: ACDA's expertise extends beyond safeguards, per se, and the additional areas relevant to the PDD should be acknowledged.

6. P. 2, last line, modify the guiding principles to add the following highlighted words:

> The plan will be based on three guiding principles: focusing on addressing the most urgent proliferation risks (including implementing quick fixes wherever possible); fostering the indigenous safeguards and security capabilities of the FSU states and working in cooperation with those states to improve these capabilities; and building toward national-level MPC&A systems.

Justification: a key recommendation of the PCAST report and Embassy Moscow is that, to be accepted, support to FSU MPC&A systems must be approached carefully and characterized as "cooperation" rather Western assistance to improve a flawed system. Fostering indigenous capabilities is important, but it is only one part of this approach.

7. P. 4, item 3 under section on Secretary of Defense, change to read as follows:

> Prepare, in coordination with the Director of OMB, legislation including funding mechanisms and logistics and sufficient authority to facilitate emergency transfer to safe storage outside the FSU of vulnerable stocks of fissile materials.

Justification: It is not so much a fund per se that would be needed, but funding mechanisms and logistics for transferring such funds and for bringing such authority to bear in a timely and effective manner in preperation for Sapphire-like projects in the future. Also, transfer to safe storage at new or upgraded facilities within the FSU would more logically fall under Nunn-Lugar funds or MPC&A lab-to-lab assistance rather than requiring a new or separate fund.

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8. P. 3, item 3, first line, change to read:
Designate measures for <u>improving</u> effective protection, control, and accounting for nuclear materials as a critical mission of the relevant national laboratories and nuclear facilities.

Justification: It could cost billions of dollars to "assure" effective MPC&A in the FSU.

9. P. 5, add the following minor clarification to the 2nd sentence under Secretary of State actions:
The plan will include consideration of issues such as maintenance of confidentiality, purchase of equipment <u>produced indigenously in the NIS</u>, and offers of reciprocal access <u>to U.S. facilities</u> where this would further these programs.

N. S. Wulf

Norman Wulf, Acting

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V. RECOMMENDATIONS

Our recommendations fall into two categories: recommendations for Presidential action, and recommendations for those who will implement the policies prescribed by the President.

Recommendations for Presidential Action

1. The President should issue a decision directive designating the effort to protect, control, and account for fissile material as a critical and urgent security priority of the United States, and directing that it be given commensurate resources and top-level attention.

The nuclear proliferation threat posed by inadequately secured nuclear materials in the former Soviet Union is among the most serious and urgent threats to national security the United States faces in the coming decade. Only Presidential action can firmly establish efforts to reduce this threat as a top priority. The directive should clearly establish the Administration's policy and outline a coherent approach to implementing that policy throughout the government.

2. The President should appoint a senior Administration official to take full-time, personal responsibility for ensuring that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented, and should give that individual clear authority to get the job done.

Security and control for nuclear materials, as one of the preeminent security challenges facing the United States, is an issue that requires sustained top-level leadership. The gigantic scope of the challenge of managing these materials—involving hundreds of tons of materials at scores of sites in the former Soviet Union and the United States—has spawned a wide array of initiatives, ranging from securing nuclear materials (the primary focus of this report), to mutual reciprocal inspections of storage sites, to providing alternative energy sources to replace plutonium production reactors (see Table 2). A dozen or more interagency groups have been established to coordinate various aspects of these efforts. To maximize the prospects for success, these initiatives require a single coordinator, not burdened with other responsibilities, with the responsibility and the authority to ensure that these programs receive adequate resources and are effectively implemented, to resolve interagency disputes, and to coordinate these efforts with related programs. Such a role will allow the coordinator to balance priorities among these initiatives and ensure that key synergies are pursued.

3. The President should establish, under the leadership of the senior official just described, a stronger and more focused interagency process, with clearly defined lines of responsibility, authority, and organizational roles, designed to bring the talents of all critical agencies to bear in addressing this problem.

U.S.-FSU cooperation to reduce the risk of theft of nuclear materials is a broad problem that requires the expertise of many agencies. DOE is now the principal implementing agency, though NRC continues to play an important role. DOE is well-suited for this role: it has

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expertise in fissile materials; it has the responsibility for most U.S. domestic MPC&A; it has good working relations with Russians involved in this effort; and, most important, it has a top leadership which is committed to this program and assigns substantial priority to getting the job done. (As noted below, however, DOE needs to assign additional capable, trained staff to manage and implement these programs.)

Other agencies can and must make critical contributions. The State Department and the Arms Control and Disarmament Agency will continue to have important roles to play, in interacting with other countries (both the former Soviet states and other donor countries) and the IAEA, and in providing additional safeguards expertise. The contribution of the intelligence agencies will also be important. The Defense Department's On-Site Inspection Agency (OSIA) has considerable expertise in quickly organizing visits to sites in the former Soviet Union, arranging interpretation services, and the like; this expertise could provide key support to the MPC&A cooperation program, and should be utilized where appropriate (though sensitivities of the recipient states regarding the participation of an "inspection" agency in this endeavor must be kept in mind).

As noted above, a large number of interagency groups have been established to coordinate various parts of the effort to cooperate with the states of the former Soviet Union in managing fissile materials. In mid-1994, the National Security Council staff established a central coordinating group for issues related to fissile materials in the former Soviet Union. Interagency groups on MPC&A, transparency, and plutonium disposition all report to this overall coordinating group. Using that mechanism and others, in late 1994, the National Security Council staff successfully brought the interagency process to agreement on significantly increasing the funds available for MPC&A in the FY96 budget request (as well as arranging for additional funds for FY95 activities that were then beginning).

These are important steps in the right direction. Nevertheless, to bring the talents of all agencies to bear in moving this program forward, a stronger and more focused interagency process is needed, under the leadership of a senior official with clear authority from the President, who is not burdened with other responsibilities.

4. The President should direct the senior official responsible for these programs to prepare a prioritized MPC&A action plan within 60 days. This plan should identify specific near-term, mid-term, and long-term goals and objectives, and resources needed to accomplish them, and it should be updated regularly.

The importance of a such a plan to any effective program can hardly be overemphasized. DOE has much of the basis for such a plan in place, in its lab-to-lab action plan and the list of initial sites for government-to-government cooperation that has been agreed with Russia.

The fundamental goal of this program must be to achieve the *maximum reduction in proliferation risk* per dollar spent, as quickly as possible. Note that this is *not* the same as protecting the maximum total quantity of material (since some large stockpiles of material may

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already be substantially better protected, and thus pose lower proliferation risks, than some small stockpiles) or protecting the largest possible number of sites.

Achieving such a goal will require a systems engineering approach—one that includes all aspects of the problem and looks for the maximum return for the marginal dollar. It will also require a set of guiding principles around which to organize the plan, and a set of specific objectives deriving from those principles. (Some specific suggestions regarding the content of this action plan are offered below.)

5. The President should direct that adequate funds and personnel be allocated specifically for MPC&A cooperation, and that a high priority be assigned to protecting these resources from cutbacks.

Funding should be provided that is sufficient to meet a clear set of objectives, rather than tailoring the objectives to fit within a pre-determined funding ceiling. It would be a serious error to fail to provide the funds for actions that could greatly reduce serious proliferation risks for modest costs.

It is essential that adequate funds be appropriated specifically for this purpose, rather than simply "taxing" funds otherwise provided to various agencies, or expecting agencies to fund this cooperation by taking funds from other programs in their budgets.

This program is now funded primarily in the Department of Energy. The probability of further reductions in DOE's budget appears high. Given the priority of the MPC&A effort, the President should direct that its funding be protected in allocating budget reductions (as has been directed, for example, in the case of DOE's stockpile stewardship program).

6. The President should direct the senior official responsible for these programs to develop and implement a plan to secure needed legislative and public support.

The crucial effort to build support for these programs must maintain a difficult balance between providing sufficient information to make a public case for these programs and maintaining sufficient confidentiality to avoid poisoning the well for cooperation with the recipient states. Bipartisan support for the MPC&A program on Capitol Hill is essential. Any DOE program whose budget is increasing will inevitably come under close scrutiny—particularly if, as in this case, it appears to involve "Russian aid." The Administration must develop and execute an effective legislative and public information plan to win the support these programs deserve.

As noted in the lessons learned, a proactive approach to building public support for these programs, under Presidential leadership, is needed—particularly in cases where the actions required in the interest of national security have conspicuous economic or other costs.

7. The President should make effective security and accounting for weapons-usable material an important factor in U.S. relations with the states of the former Soviet Union. In

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particular, the President should seize opportunities such as that afforded by his upcoming summit with President Yeltsin to gain agreement on specific new steps to improve MPC&A.

Nonproliferation policies are already central to our relations with the former Soviet states, as the current crisis in relations with Russia over the proposed sale of reactors to Iran illustrates. The single most essential step the former Soviet states must take to prevent nuclear proliferation beyond their borders is to protect the nuclear weapons and weapons-usable materials on their territories. That issue, therefore, deserves a central place at the diplomatic table in discussions with these countries.

At their January 1994 summit, President Clinton and President Yeltsin identified cooperation in this area as a "high priority." The issue was highlighted again at their September 1994 summit. The issue has also been discussed seriously in the Gore-Chernomyrdin Commission. At the next summit, the United States should seek more detailed commitments to take specific new steps by agreed deadlines.

For example, the two Presidents could agree:

- to endorse the cooperation already underway, including the government-to-government effort channeled through MINATOM, the lab-to-lab effort, and the expanding GAN cooperation (giving each of these efforts Presidential authorization);
- that Russia would carry out a series of fast-paced inspections of its own fissile materials sites, to identify and prioritize needs for MPC&A improvements, and that the United States would contribute to defraying the cost of this survey and of implementing the highest-priority improvements identified;
- that MPC&A cooperation would be extended to include materials in military use (including naval fuel) as well as civilian materials, with appropriate measures to protect secrets that remain important to the security of each side;
- that MPC&A cooperation would be extended to additional sites beyond those already agreed to, including, for example, the major bulk-handling facilities at Tomsk-7 (Seversk), Krasnoyarsk-26 (Zeleznogorsk), Chelyabinsk-65 (the Mayak plant), and Sverdlovsk-44 (Yekaterinburg);
- that the two sides will exchange lists of major sites where fissile materials are handled and stored, and will exchange visits to major sites on a schedule to be agreed, to discuss and observe security and accounting arrangements at those sites;
- that the two sides will establish a joint working group to explore cooperation between their intelligence, police, and customs services in tracking and responding to thefts of, and illegal trade in, nuclear materials;
- that the two sides will explore possibilities for reducing the number of sites where weapons-usable fissile materials are used and stored, for example by using non-weapons-usable materials in research reactors;
- that the two sides will explore means to improve economic conditions for personnel responsible for accounting and security for nuclear weapons and fissile materials;

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- that the two sides will continue to work together in establishing improved MPC&A regulations and enhancing regulatory oversight of these activities; and
- that the two sides will work out specific agreements on these points for the next meeting of the Gore-Chernomyrdin Commission, and prepare a joint report on what had been accomplished and additional steps that could be taken for consideration at the next summit.

8. The President should direct that higher priority be placed on assessing proliferation risks posed by inadequate security for nuclear materials, and providing information support to address these risks. In particular, increased cooperation between intelligence agencies in tracking and responding to nuclear smuggling is needed.

Cooperative programs to enhance MPC&A cannot be effective without the information needed to determine where the problems are. As noted earlier, important information is being provided by the intelligence agencies and national technical means. But even more essential information related to accounting and control procedures used at individual facilities is coming from the exchanges of visits by MPC&A experts that have already taken place.

Only very recently has the intelligence community undertaken a site-by-site assessment of security and accounting for nuclear materials and associated proliferation risks in the former Soviet Union. (Indeed, at the time the Panel performed its review, the volume of this assessment providing the crucial site-by-site details was not yet complete.) This assessment should be transformed into a continually updated database, listing all the available information concerning:

- all known facilities with weapons-usable materials in the former Soviet Union;
- the types and amounts of materials at these facilities;
- the state of MPC&A at those facilities, and any known enhancement efforts underway;
- other relevant factors affecting proliferation risk at that facility (such as known thefts from the facility, or organized crime activity in the area, for example);
- remaining information gaps.

While it is important that the information available from the intelligence community be integrated into this database, it is also important to recognize the potential concerns of recipient states. Nothing would more surely cut off further progress in MPC&A cooperation than creating an impression that U.S. MPC&A experts visiting FSU facilities were "spies" working for U.S. intelligence. Therefore it is possible that the database just described should be maintained as a joint product of the interagency group responsible for MPC&A, rather than as a product of the intelligence agencies.[13] The national laboratories, which are already making major contributions to the site-by-site assessment, could potentially take responsibility for maintaining such a database.

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[13] As the intelligence agencies are barred by law from collecting intelligence on the activities of U.S. citizens, keeping the database separate from the intelligence agencies themselves would facilitate including information on U.S. efforts to upgrade MPC&A in the description of individual sites.

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To support MPC&A cooperation efforts, higher priority needs to be devoted to collecting information available from individuals who have worked at or visited nuclear facilities in the FSU, and integrating this data with other information.

If current nuclear "transparency" efforts are successful, the information derived from data exchanges and reciprocal visits could provide a critical addition to cooperative MPC&A efforts. This information should be integrated with information from other sources to support the cooperative MPC&A program, and the potential benefits for MPC&A of specific proposals should be an important factor in developing U.S. negotiating positions in the transparency area (see "Managing Fissile Materials: A Spectrum of Related Efforts," p. 42).

In addition to such facility-specific information, an intensive effort must be made to identify and analyze the domestic sources of nuclear policy-making in the former Soviet states. Who are the relevant actors? Which parts of the problem are their responsibility? What are their attitudes and institutional interests relevant to MPC&A? How have they acted on these matters in the past? Cooperative MPC&A programs must be supported by an intensive effort to provide the answers to these questions.

To provide such support, the senior official with responsibility for fissile material cooperation programs should have the authority to issue high-priority intelligence taskings for special-purpose analyses to meet the needs of the MPC&A enhancement effort.

The Administration should also improve coordination of the several efforts to collect and analyze intelligence related to nuclear smuggling. Mechanisms must be developed to integrate information held by the Central Intelligence Agency, DOE's Office of Threat Assessment, the FBI, and other agencies: a central analysis effort is essential to analyze the sources and pathways for nuclear smuggling and provide the basis for effective response.

Finally, it is important to work toward improved collaboration between U.S. intelligence, police, and customs agencies with their counterparts in other countries in the fight against nuclear smuggling. Sharing of information and samples, training of police, customs, and border patrol teams, provision of equipment, and other measures could all be part of this collaborative effort. In particular, intelligence information related to the sources of smuggled materials (likely to be more available to Russian agencies than to those in other countries) should be linked to information on buyers and transit routes (likely to be more available to European countries and the United States).

9. The President should designate efforts to enhance security and accounting for nuclear materials worldwide as a key mission of the national laboratories.

Already, the national laboratories have made a substantial contribution to U.S. security through the lab-to-lab MPC&A program. The lab directors, however, need Presidential direction to make efforts to enhance MPC&A—not only in the former Soviet Union but worldwide—a fundamental part of their mission. The outstanding technical expertise in nuclear materials

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management built up at several of the national laboratories is a global resource that must be applied effectively to this mission. While the national laboratories are already involved in this effort, there is substantial room for elevating its priority: at the six laboratories involved, a total of only about 30 full-time equivalents are devoted to lab-to-lab MPC&A cooperation with Russia, out of thousands of personnel at the laboratories.

Recommendations for Implementers

The individuals responsible for implementing the President's guidance on strengthening security and accounting for nuclear materials in the former Soviet Union will need the authority to get the job done and the flexibility that goes with such authority. Without wishing to prejudge all the issues that will face them, we offer some recommendations—based on our review of the current state of these cooperative MPC&A efforts—that the implementers may find useful.

1. The senior official given responsibility for these efforts should establish a set of key guiding principles around which program planning and execution can be organized.

A program of this importance and scope requires a set of guiding principles. As noted above, the overall objective must to be to achieve the maximum reduction in proliferation risk per dollar spent, as quickly as possible. At the same time, the United States cannot do everything, and cannot expect to be allowed to participate in MPC&A upgrades at every site that may require them. As noted earlier, the states of the former Soviet Union themselves bear the long-term responsibility for protecting and accounting for these materials. The U.S. role is to:

(1) assist in implementing high-priority MPC&A upgrades; and

(2) help the FSU states develop their own indigenous MPC&A capabilities and approaches, so that they can protect and account for these materials over the long term after the cooperative MPC&A program winds down.

Given this objective and this role for the United States, guiding principles for this program should include:

- *Focus on Top Priorities.* This requires identifying and addressing the highest proliferation risks wherever possible. In particular, to the extent possible, "quick fixes" should be identified and implemented. The problem is so acute that remarkably inexpensive and low-tech upgrades can make a huge difference in some cases: one obvious example is piling massive concrete blocks in front of the doors of vaults storing nuclear materials to delay illicit access, if regular authorized access is not required. The emphasis should be on making the most urgent improvements at a wide range of sites, not making wholesale and expensive changes at only one or two. The top priority must be implementing upgrades with whatever effective technology is already available, rather than developing new technologies (though development efforts can be an important means of building mutual trust and cooperation). We cannot afford to wait for (or pay for) a Rolls Royce when a Ford will suffice to do much of the job.

- *Foster Indigenous FSU Capabilities.* As noted, the nations of the former Soviet Union themselves must bear responsibility for ensuring effective MPC&A. Therefore building indigenous MPC&A expertise and a new "safeguards culture" should be a key priority. This

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again implies a focus on using equipment designed and produced in the former Soviet states wherever effective equipment is available, and transferring the technology needed to build effective equipment where it is not. Wherever possible, the work should be done by FSU personnel and companies, with the U.S. team as consultants. As the adage goes, "give a man a fish, and you feed him for a day; teach a man to fish and you feed him for a lifetime."

- *Build Toward National Systems.* Efforts at individual sites should be coordinated so that they fit together and contribute to the goal of creating a national system providing a generally consistent level of MPC&A for all weapons-usable materials. The creation of national-level tracking and accounting systems for nuclear materials, as well as effective regulatory functions, should be an important priority. While regulations are often taken to have less urgency than securing materials on the ground, the fact is that only a sound set of regulations requiring effective MPC&A, backed up by realistic enforcement, will provide facility managers the incentives necessary to lead them to invest in, operate, and maintain MPC&A systems.

There will often be some tension between these principles: for example, funds spent establishing a national computerized accounting system will be funds not spent on "quick fixes." But we believe that an overall balanced program requires pursuit of all three of these principles in parallel.

2. The Administration should establish a specific set of near-term, mid-term, and long-term objectives for the MPC&A program, with well-defined ways to assess progress toward the objectives.

Such a set of objectives and ways to measure progress in achieving them is an essential management tool. At the same time, such a tool should not be used so rigidly that the program is inhibited from responding rapidly to new developments.

The following suggested set of objectives is keyed to the near-term, mid-term, and long-term. Near-term objectives are those that can be expected to be completed or well underway within roughly one year; mid-term objectives are those that can be expected to be completed or well underway in 2–4 years; and long-term objectives represent the desired end-state the program is striving to achieve.

Suggested objectives:

Near-term:

N1. Significantly improve security and accounting for the weapons-usable materials at all of the half-dozen highest-risk sites in Russia.

N2. Significantly improve security and accounting at (or remove material from) all sites in the non-Russian former Soviet states with separated plutonium or HEU.

N3. Work with Russia to establish a Russian program to identify the highest-priority MPC&A upgrades needed at all of its nuclear sites, and mechanisms to accomplish them.

N4. Work with Russia to establish a Russian program to take inventories at major Russian sites with substantial quantities of weapons-usable materials.

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N5. Work with Russia to put into place a Russian system of MPC&A regulations, including appropriate incentives (e.g., backed up by realistic threats of fines or closure) for upgrading MPC&A.

N6. Initiate a program to work with Russia to improve MPC&A for stockpiles of highly-enriched naval and icebreaker fuel.

N7. Work with the former Soviet states to establish effective training programs for MPC&A implementers and regulators, and to foster a "safeguards culture."

N8. Work with Russia to establish a nationwide system of material accounting.

N9. Initiate mass production in Russia of key MPC&A equipment (effective portal monitors, particularly).

Mid-Term:

M1. Significantly improve security and accounting for the weapons-usable materials at all the major non-weapons bulk-handling facilities and large-scale fissile material storage facilities in the MINATOM complex (e.g. the reprocessing plants and associated storage facilities at Tomsk, Krasnoyarsk, and Chelyabinsk; HEU oxidation at Tomsk and HEU production and blending at Yekaterinburg; and HEU fabrication at Elektrostal, Novosibirsk, and Podolsk).

M2. Significantly improve security and accounting at (or remove materials from) all facilities outside of closed cities or military bases which handle kilogram-quantities or more of separated Pu or HEU (e.g., civilian institutes).

M3. Work with Russia to develop a comprehensive plan, with cost estimates, for longer-term MPC&A upgrade needs and material consolidation for all its nuclear sites, including specific staff, equipment, and training needs for specific sites.

M4. Work with Russia to ensure that effective portal monitors or equivalent capability to detect removal of nuclear material are installed and used effectively at all major Russian sites with substantial quantities of weapons-usable materials.

M5. Work with Russia to ensure that GAN acquires all the capabilities necessary to effectively regulate and inspect MPC&A.

Long-Term:

L1. Work with the former Soviet states to ensure that all facilities in the FSU with strategic quantities of HEU or Pu have effective MPC&A systems in place and in use.

L2. Work with the former Soviet states to ensure that effective MPC&A is established as an ongoing priority activity with requisite funding.

L3. Work with the former Soviet states to establish a sufficient and self-sustaining cadre of MPC&A implementers, designers, inspectors, and regulators in those states.

L4. Work with the regulatory agencies of the former Soviet states to establish effective overall programs of MPC&A regulation.

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Once a set of objectives such as these has been defined, it is essential to develop an estimate of what is required (technically, politically, and administratively) to attain those objectives, including in particular the resources (money and people) that must be committed. In this case, not all of the resources should come from the United States; the recipient states and other donor states should make substantial contributions as well.

3. The Administration should continue to take a flexible, multi-pronged approach to improving MPC&A in the FSU, exploiting opportunities as they arise. All of the current MPC&A cooperative programs deserve strong support.

All three of the major current programs to cooperate with the states of the former Soviet Union—the government-to-government MPC&A effort (now transitioning from Nunn-Lugar to DOE), the lab-to-lab program, and the expanding cooperation with GAN—should be continued. Given the multitude of different actors on the Russian side (not to mention the non-Russian states), suggestions that the program be trimmed down to a single approach should be resisted. A strong U.S. management team will be needed to coordinate these programs and all the U.S. participants in them so that they remain focused on the key objectives and reinforce each other effectively.

4. The Administration should make a comprehensive effort to analyze and deal with recipient-state sensitivities and incentives, in order to achieve the maximum degree of cooperation.

As noted above, cooperative MPC&A efforts need to be supported by a detailed effort to understand the domestic sources of nuclear decision-making, including the multiple actors involved, the sensitivities of each of those actors, their incentives for cooperating or for blocking progress, and the leverage points in the system. In some cases, this will mean working hard to cooperate with former Soviet nuclear bureaucracies that are peopled with unreformed Cold War holdovers—an arduous, unpleasant, but essential task.

The four key areas to which the United States must be sensitive—confidentiality, focusing on cooperation, reciprocity, and use of indigenous equipment—were outlined above under lessons learned. The U.S. government should develop a conceptual framework and a detailed plan for working with each country, which responds to the differing sensitivities of the different countries and of the different actors within them. It is essential to analyze these sensitivities and determine the best ways to meet concerns at each step of the process, rather than waiting until well intentioned proposals have already encountered a buzz-saw of skepticism and opposition.

In particular, both lab-lab and government-government programs should be seen as "collaborative" efforts—not purely assistance—with reciprocal visits and evaluations, and genuine technical input from both sides. This is particularly important in cooperation with Russia.

5. The Administration should continue to design cooperative MPC&A programs with a focus on specific deliverables, to ensure that the money is spent for its intended purposes.

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Clearly it is critical that the funds allocated to improving MPC&A in fact are spent for that purpose. Both the approach taken in the Nunn-Lugar program (purchasing nearly all equipment in the United States, and declining to pay Russian salaries) and the approach taken in DOE's programs (negotiating prices for specific deliverables to be delivered by specified deadlines) provide effective protection for the U.S. taxpayer when used appropriately. But the DOE approach offers substantially greater flexibility and better chances of fostering recipient-state cooperation.

In a fast-moving program—as these must be, if they are to achieve their goals in a timely fashion—it is impossible to ensure that every dollar is accounted for. But even a single well-publicized case of diversion of funds to purposes other than those intended could have a devastating impact on support for these programs. Therefore vigilance on this score should continue to be an important priority.

6. DOE should assign additional qualified personnel to manage and implement these programs.

The personnel managing and implementing these programs at DOE are already stretched thin. As these programs expand in scope and priority, they will need additional personnel to ensure effective management and implementation. Additional staff with safeguards expertise and international experience will also be needed. Training of this staff should begin now.

These programs require an effective organizational structure within DOE, with managers not burdened with a wide range of other responsibilities. The program management should include individuals with strong *domestic* safeguards experience,[14] including experience with implementation of MPC&A at operational DOE facilities, as well as experience in international cooperation. In particular, the program should make use of the expertise of DOE's Office of Safeguards and Security, which is in charge of implementing MPC&A at DOE nuclear facilities.

All MPC&A programs within DOE should be subject to continuing review, to ensure that they remain focused on accomplishing the key objectives in the least time at the lowest cost.

7. Additional efforts to coordinate U.S. cooperative MPC&A programs with those of other countries, and to encourage other countries to expand their contribution to this effort, should be pursued.

Given that the possibility of nuclear theft poses a global threat, other countries with MPC&A expertise, particularly those that also have denuclearization assistance programs in the former Soviet Union (such as Japan, Germany, and France), should be encouraged to make more substantial contributions to reducing the risk. U.S. efforts should be coordinated as closely as possible with those of other donor countries and with international organizations (such as the

[14]Domestic safeguards, operated unilaterally by a country having nuclear activities, focus on detecting and preventing nuclear materials theft, i.e., facility-level protection, accounting, and control with national coordination and oversight. International safeguards, implemented by international organizations such as the International Atomic Energy Agency, focus on detecting diversion by a state having nuclear activities.

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International Atomic Energy Agency), to avoid duplication of effort and share information needed to focus priorities.

8. Additional U.S. and FSU personnel with expertise in security and accounting for nuclear materials should be trained.

As cooperative MPC&A programs expand, additional personnel with MPC&A expertise will be needed. The need is particularly acute in the states of the former Soviet Union. The establishment of an MPC&A training center in Russia (currently slated to be established at Obninsk) should be a high priority. The current focus on "training the trainers"—that is, training individuals who could serve as instructors for training courses at other facilities—is a useful approach. It is essential to ensure that training is available for both MPC&A implementers and regulators. Consideration should be given to establishing similar training centers in the other former Soviet states (or perhaps a small number of regional training centers). This effort will require detailed planning and the compilation of materials from a number of sources (e.g., the DOE Office of Safeguards and Security Central Training Academy, Los Alamos courses on nuclear material measurements, Sandia training on physical security, and Brookhaven courses on safeguards systems, principles, bulk measurements, and statistics.)

At the same time, the number of qualified personnel available in the United States to implement these programs also needs to be increased. All those in the United States with expertise relevant to these issues should be identified. People with expertise may be located at national labs, at nuclear weapons complex sites (such as major former reprocessing facilities, for example), in academia, and elsewhere. Opportunities should be created for national laboratory personnel working in other areas to be retrained as MPC&A specialists (in line with the previous recommendation to make enhanced safeguards a central mission of the laboratories).

Recommended Specific Near-Term Actions

Achieving the ambitious set of near-term, mid-term, and long-term objectives outlined above will require a broad range of specific actions. Some of these are already occurring, but need acceleration. For example, it is critical to take action to accelerate the government-to-government program to a pace more closely approximating that of the lab-to-lab program—so that MPC&A upgrades at the key, high-risk facilities identified for cooperation in the government-to-government program can be accomplished as rapidly as possible. Other actions are implied in the statement of objectives, but work on them remains to be undertaken. For example, it is important to begin as soon as possible to reduce the proliferation risks posed by the almost completely unprotected material at the many small civilian research institutes, not located in closed cities, that exist in the FSU. While these sites represent a small fraction of the total material, they may represent a large fraction of the proliferation risk.

The following represent important near-term actions that require further comment:

1. The United States should work with Russia to establish Russian MPC&A assessment and improvement teams, which could rapidly assess what upgrades are needed.

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For Russia's own MPC&A upgrade program to be effective, it needs to be based on an assessment of what the most urgent needs are throughout Russia's nuclear facilities. While some assessments have been conducted at particular sites, no consistent program to identify and prioritize the most urgent requirements throughout the Russian nuclear complex exists. Given the many institutional interests involved, establishing such a program would require tough top-level leadership on the Russian side. There are some indications that the Russian leadership is focusing increased attention on this area. Indeed, in the lab-to-lab program, the possibility of the Russian laboratories undertaking such an assessment for those facilities within MINATOM's nuclear weapons complex is already being discussed.

The United States has considerable expertise to offer in this area. For many years, DOE has had teams which visit U.S. sites, assess MPC&A there, and make recommendations for needed upgrades. At one time, DOE conducted a rapid-assessment program and carried out large-scale upgrades based on the assessment's recommendations.

The United States, therefore, should offer to help establish and train the Russian teams that could conduct such an assessment, and to contribute to defraying the costs. Once the assessment had been accomplished, the United States could contribute to the most urgent of the upgrades identified, as agreed between the two sides. This would represent, in a sense, a revival of the earlier "quick fix" approach.

2. The United States should work with Russia to establish nuclear-material inventory teams.

There is a pressing and immediate need for the states of the former Soviet Union to take a measured, physical inventory of the weapons-usable nuclear materials on their territories. (EURATOM has also targeted measured, physical inventory as a high priority.) This is the only way to know how much nuclear material exists, where, and in what form.

The United States should work with Russia and the other states to develop a cooperative process to produce measured nuclear material inventories—applied first to all weapons-usable material. This is a labor-intensive, time-consuming process: equipment has to be identified, supplied, and installed; measurement controls have to be put in place; nuclear materials have to be handled; the measurements themselves have to be made; and the data must be recorded, analyzed, and updated as necessary. Once the inventories have been established, appropriate material controls (tags, seals, surveillance, and the like) and continuing material accounting must be instituted. Current rules may have to be modified to accomplish such an inventory: at present, a physical inventory that varied from the book inventory could subject the plant managers to sanctions.

To expedite this effort, the United States should help train, equip and certify Russian inventory-taking teams.

3. The United States should undertake a new initiative to help Russia improve MPC&A for stockpiles of highly-enriched fuel for naval vessels and icebreakers.

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To date, MPC&A cooperation has focused on MINATOM, GAN, and individual laboratories and facilities. That leaves out an entire sector of the Russian nuclear complex—naval and icebreaker fuel, much of it enriched to up to 90% U-235. At least one well-publicized theft of over 4 kilograms of naval fuel has already occurred, from the naval base at Murmansk. As noted earlier, the ease with which that theft succeeded suggests that security for naval fuel in Russia is in urgent need of improvement. The United States should initiate a fast-paced program directed toward that goal. Cooperation in this area is likely to be particularly sensitive. The Agreement for Cooperation being negotiated in the context of stockpile transparency, which will provide a legal basis for exchanging classified nuclear information, may be very useful in furthering Russian openness in this area.

4. The United States should begin discussing with the former Soviet states, and Russia in particular, the need to consolidate nuclear materials in a smaller number of areas within specific sites, and at a smaller number of sites overall.

Currently, weapons-usable nuclear materials exist at scores of sites in Russia alone, and often at many separate locations within a single one of these sites. Reducing the number of locations that must be protected has the potential to greatly reduce the costs of ensuring adequate safeguards and security. With the end of the Cold War, a contraction of the Russian nuclear weapons complex is inevitable in the long run, and consolidation of nuclear materials should be a key part of that contraction—as it has been in the United States. DOE should prepare a detailed briefing for the Russian side on the U.S. experience, including the very large reductions in safeguards and security costs that have been achieved at some sites through consolidating materials, and the reduction in the number of research reactors using HEU over the last several decades. Both in work at individual sites and in discussions of the overall program, the United States should use every opportunity to encourage Russia to undertake consolidation.

5. One or more "quick response teams" should be established to respond quickly to fast-breaking events.

This issue is important enough and explosive enough that the United States should form one or more permanent "quick response teams," with the expertise and resources needed to respond rapidly and effectively to requirements such as Project Sapphire. It is quite possible, for example, that an urgent need to rapidly secure or remove material at a particular site could arise (for example if the material is newly discovered, or is in an area where armed conflict is breaking out). A mechanism should be set up within the government to support these teams. Procedures for expediting the teams' response, and flexible sources for funding the required operations and transactions should be established. The team should train and practice for various kinds of operations, including securing sensitive materials in place or removal to a safe area. Special communications capabilities should be provided, designed for secure communications in remote areas of concern. Consideration should also be given to helping Russia establish such teams to deal with such situations on its own territory, as in many cases U.S. quick-response efforts may be too sensitive.

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6. A small cadre of personnel should be stationed in Moscow on a full-time basis to facilitate and support these programs.

The Embassy science and technology staff plays an essential role in supporting negotiations and implementation missions, monitoring events within the Russian government, and determining the attitudes and priorities of the wide array of Russian actors involved in MPC&A-related activities. This staff is stretched thin, however, and additional personnel devoted to this effort full-time will be required as the cooperative MPC&A program expands in priority and scope.

7. To address Russian sensitivities, the Administration should prepare a frank and detailed briefing on past MPC&A problems in the U.S. nuclear complex, and rapid upgrade steps that were taken to address them.

Being open and frank in revealing that the United States has also had MPC&A problems in its weapon complex could help serve to improve the sense of reciprocity and mutual cooperation in the program. Such a discussion could also focus on the very rapid steps the United States took at certain points to assess and remedy deficiencies.

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Managing Fissile Materials: A Spectrum of Related Efforts

The Clinton Administration has undertaken a wide array of initiatives related to cooperating with the former Soviet states in managing weapons-usable fissile materials, falling into four broad categories:

- Securing nuclear materials (including MPC&A);
- Building confidence through openness;
- Halting accumulation of excess stocks; and
- Disposition, transforming these materials into forms that pose greatly reduced security risks.

This report has focused on the first of these categories. Here, we offer a few remarks on those aspects of other initiatives that bear directly on the objective of reducing the risk of theft of these nuclear materials.

Securing Nuclear Materials

A few programs in this area have not been discussed in this report, but are nonetheless important:

The Nunn-Lugar Storage Facility. Under the Nunn-Lugar program, a safe and secure storage facility for plutonium and HEU from dismantled weapons is being built with U.S. assistance at Chelyabinsk. While Russia already has considerable storage space available—if Ministry of Defense warhead storage facilities are included—the new facility would offer greatly improved security and accounting compared to the locations where these materials are currently being stored, and the United States would be offered transparency measures in return for its assistance. Despite the many delays that have plagued this program, we believe the establishment of a modern facility with a highly effective MPC&A system and some degree of U.S. oversight is important, and that this program should continue—assuming that MINATOM demonstrates a good-faith commitment to cooperation, and to investing its own resources in the project as well.

Combating Nuclear Smuggling. If MPC&A systems fail and material is stolen, anti-smuggling efforts form the next line of defense. Additional efforts to train and equip police, investigators, customs officials, and border guards in the relevant states—and to coordinate intelligence and sharing of analyses and samples of seized material—are needed. This is a global problem requiring intensive international cooperation.

Securing Nuclear Weapons. Under current circumstances, it appears that security for assembled nuclear weapons in the former Soviet Union is substantially better than security and accounting for nuclear materials outside of weapons. Nevertheless, given the grave consequences that could result if a nuclear weapon were actually diverted, it is important to continue pursuing the recently expanded dialog between the U.S. Department of Defense and the Russian Ministry of Defense regarding upgrades to security for nuclear weapons. This effort may offer spin-off benefits for MPC&A: if the principle of genuine cooperation at nuclear weapon sites can be established, it will become more difficult for MINATOM to argue that its military materials are too sensitive for cooperation to be possible.

Building Confidence Through Openness

Reciprocal Stockpile Declarations. The agreement reached between President Clinton and President Yeltsin at their September, 1994 summit to exchange data regarding stockpiles of nuclear weapons and fissile materials, "and on their safety and security," could have important benefits for MPC&A. A good-faith Russian declaration would require the Russian central government to get a good handle on the inventories that exist at Russian sites. The initial declarations should be seen as the beginning of a process heading toward ever-increasing levels of detail. The more information that can be exchanged regarding the specific locations, amounts, and forms of materials, the greater the potential synergistic benefit for MPC&A cooperation. Additional consideration is needed of what information can and should be provided under the rubric of exchanging data on the "safety and security" of nuclear weapons and fissile materials.

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Transparency and Irreversibility. The reciprocal visits to nearly all plutonium and HEU storage sites envisioned in the U.S. proposal tabled in December 1994, if agreed to and implemented, could have enormous spin-off benefit for MPC&A. There is no substitute, in judging what MPC&A improvements are needed, for actual visits to the relevant sites by MPC&A experts. The U.S. approaches to such reciprocal visits should be configured to take maximum advantage of this potential synergy between transparency and MPC&A. The reciprocal nature of these visits will be an essential (but not sufficient) condition for Russian acceptance of them.

IAEA Safeguards on Excess Stocks. The United States has begun placing weapons materials excess to its defense needs under international safeguards, and is urging Russia to do the same, as well as to make its civilian nuclear facilities eligible for IAEA safeguards.* Similarly, IAEA safeguards may be the verification method chosen for the fissile cutoff convention under discussion in Geneva, which would mean putting U.S. and Russian reprocessing and enrichment plants under safeguards. Preparing a site for IAEA safeguards requires that an effective material control and accounting system be in place, so there is a potential synergy with MPC&A efforts here, as well.

Halting Accumulation of Excess Stocks

Plutonium Cutoff Agreement. Under the current approach to monitoring this accord, reprocessing plants would not be monitored, and therefore there would not be an opportunity to upgrade MPC&A at those facilities as part of the monitoring arrangements. If the monitoring measures discussed to date are implemented, however, the sites where the separated plutonium would be stored after leaving the reprocessing plant would have significantly better material control and accounting than most other Russian sites.

RERTR. The United States and Russia are cooperating to develop non-weapons-usable low-enriched fuel for research reactors. The U.S. program in this area is known as Reduced Enrichment for Research and Test Reactors (RERTR). This program may offer a high potential for eliminating stockpiles of HEU fuel, and requirements for additional deliveries of such fuel, at a large number of poorly-protected civilian research facilities in the former Soviet Union. (Soviet supplied research reactors fueled by HEU also exist in Libya and North Korea.)

Disposition

HEU Purchase Agreement. Oxidation and blending of HEU for the HEU purchase agreement will involve large-scale bulk handling of HEU, raising potential opportunities for theft. Even a single documented case of theft of HEU from this effort could have a devastating political impact on the entire cooperative effort to deal with fissile material, in addition to the serious security risks that any HEU theft would pose. Therefore it is critically important that both the site at Tomsk where the HEU weapons components will be converted to HEU oxide, and the site at Sverdlovsk-44 where the material will be blended to low-enriched uranium, be provided with effective MPC&A systems. The apparent lab-to-lab agreement to establish such a system at the Tomsk oxidation facility should be vigorously pursued, as should efforts to reach agreement on MPC&A upgrades at Sverdlovsk-44, being pursued under the umbrella of transparency arrangements for the HEU deal.

Plutonium Disposition. Given the very different attitudes toward plutonium fuel cycles in Russia and the United States, the two countries may not agree to pursue identical plutonium disposition options, and specific decisions are likely to take time. But the two sides should agree now that whatever options are chosen, an agreed and stringent standard of safety, security, and international accountability will be maintained throughout the process.

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* The list of facilities eligible for safeguards under the former Soviet Union's "voluntary offer" agreement with the IAEA was minimal by comparison to the U.S. list, which makes all civilian facilities eligible for safeguards, though because of resource constraints these safeguards have not actually been implemented in recent years.

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APPENDIX A

List of Principal Briefings

Washington, D.C.

Known Cases of Theft of Weapons-Usable Material
(b)(3) Central Intelligence Agency

Safeguards and Security in the FSU: Conclusions of the JAEIC Study
Stephen Mladineo, DOE, Pacific Northwest Laboratory.

Material Control and Accounting in the FSU
Mark Mullen, Los Alamos National Laboratory

Physical Protection in the FSU
John Kane and Byron Gardner, Sandia National Laboratory

On the Ground in Russia: The Politics and Problems of MPC&A Cooperation
Ken Fairfax, U.S. Embassy, Moscow

Overview of MPC&A Cooperation
Ken Luongo, Director, DOE Office of Arms Control and Nonproliferation

Government-to-Government MPC&A Programs
Ken Sanders, chief, International Safeguards Division, DOE

The Lab-to-Lab MPC&A Program
Mark Mullen, Los Alamos National Laboratory

NRC MPC&A Support to the States of the Former Soviet Union
Ted Sherr, chief, Regulatory and International Safeguards Branch,
Nuclear Regulatory Commission

Securing Nuclear Materials: A DoD Perspective
Gloria Duffy, Special Coordinator,
Cooperative Threat Reduction, Office of the Secretary of Defense

Purchases of FSU Materials: Sapphire and After
Jeffrey Starr, Principal Director, Threat Reduction Policy
Office of the Secretary of Defense; head, Sapphire "Tiger Team"

Stopping Nuclear Smuggling
Joseph DeThomas, Director, Office of Regional Nonproliferation
Department of State

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Overview of Outstanding Issues
James Goodby, chief negotiator, Safe, Secure Dismantlement
Department of State

Next Steps In MPC&A Cooperation
Frank von Hippel, Federation of American Scientists, former Assistant Director for National Security, Office of Science and Technology Policy

U.S. Assistance to Improve Physical Security and Accounting of Fissile Material in Russia
Thomas B. Cochran, Natural Resources Defense Council

Cooperation Between the U.S. and MINATOM in the Area of Fissile Material Safeguards
Oleg Bukharin, Princeton University and Moscow Physical-Technical Institute

Securing Nuclear Materials in the Former Soviet Union
William Potter, Center for Nonproliferation Studies, Monterey Institute of International Studies

Overview of Fissile Material Initiatives and Interagency Process
Steve Aoki, Director, Nuclear Nonproliferation, National Security Council

Moscow

Ken Fairfax, Science and Technology Officer, U.S. Embassy Moscow

Victor Gubanov, head, Committee on Emergency Situations, Ministry of Atomic Energy (MINATOM); Lead Negotiator, Government-to-Government MPC&A Cooperation, and others.

Yuri Zubkov, Deputy Chairman for Fuel Cycle and Safeguards, Federal Nuclear and Radiation Safety Authority (GAN), and others.

Yuri Dyomin, chief, International Relations, Federal Counterintelligence Service, and others.

Yuri Ilkaev, Deputy Scientific Director, All-Russia Institute of Experimental Physics (Arzamas-16).

Nikolai Ponomarev-Stepnoi, Deputy Director, Kurchatov Institute, and others. (Including review of MPC&A system at Building 116).

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DEPUTY SECRETARY OF DEFENSE

1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

PCAST

MEMORANDUM FOR TONY LAKE

From: John Deutch

Subject: PCAST Report on Securing Usable Nuclear Material in Former Soviet Union

This is a heads up about a briefing scheduled for the President on Monday, May 1, from a Panel of President's Committee of Advisors on Science and Technology concerning the urgent problem of controlling nuclear materials in the former Soviet Union (FSU). As you know, we have been seized with this problem since the beginning of this Administration and several government agencies have taken action to strengthen material control and accounting (MC&A) in the FSU.

I am concerned that if the President is not prepared in advance, upon hearing this briefing he will react to its recommendation and set us on a course of action that will repeat past frustrations.

For example, we have been attempting to designate a senior White House coordinator for counter proliferation matters with Russia ever since Strobe Talbott became Deputy Secretary of State. In the meantime, we have discussed problems of MC&A in the Gore-Chernomyrdin Commission and other venues on frequent occasions. Additionally, we have been working to convince MINATOM's Mikhailov that a problem exists for two years. The report does not address how this roadblock can be removed. The report also does not even address other important matters, such as convincing Congress that the U.S. has an important role in this matter.

To its credit, the report does not deal with the process issue of implementing policy, but points the way toward worthy objectives. I suggest that you encourage the President to respond to this excellent report by directing more vigorous interagency attention to its objectives under the leadership of the NSC.

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Trip Summary

PCAST MPC&A Review, Meetings in Moscow February 22-24, 1995

Participants:

John Holdren, Class of 1935 Professor of Energy, University of California at Berkeley; chairman, Panel on U.S.-FSU Cooperation To Control and Account for Nuclear Materials

Matthew Bunn, Office of Science and Technology Policy; staffer, Panel on U.S.-FSU Cooperation To Control and Account for Nuclear Materials

Meetings:

MINATOM: Victor Gubanov, head, Committee on Emergency Situations

GAN: Deputy Director Yuri Zubkov

Arzamas-16: Deputy Scientific Director Ilkaev

Kurchatov: Deputy Director Nikolai Ponomarev-Stepnoi, others.

General Impressions

1) GAN is becoming stronger, and Russia closer to having basic MPC&A regulations in place, than generally has been realized, and this may greatly improve opportunities for cooperation. In particular, GAN has succeeded in convincing the government to draft a comprehensive plan for MPC&A improvements; an Atomic Law providing the legal basis for MPC&A regulation is close to passage and much of the relevant regulations are written; with the support of the FSK, it appears that GAN may genuinely be able to cajole/force major MINATOM (and other) facilities into making good faith efforts to improve MPC&A in accordance with the regulations; and the requirement to meet new regulations may make MINATOM facilities significantly more interested in MPC&A cooperation with the U.S. (particularly financial assistance).

President Yeltsin's September 15, 1994 decree on urgent measures to protect nuclear materials gave GAN primary responsibility for ensuring effective MPC&A, and subordinated GAN directly to the President. GAN's responsibilities were even more strongly and explicitly stated than before. GAN was then appointed as chair of the interministerial commission to develop a plan; GAN succeeded in securing agreement from all the relevant ministries (at the level of ministers) on a set of recommendations. In mid-January, a government plan was issued, signed by Chernomyrdin, further securing GAN's role. The strong support of the FSK (which has long had a central role in protection for nuclear materials) has been critical in GAN's growing stature.

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According to both GAN and Embassy staff, the Atomic Law (corresponding roughly to the U.S. Atomic Energy Act) has passed two readings in the parliament and is likely to be approved and signed into law in March-April. GAN and MINATOM have been working together to draft regulations; these regulations can go into effect shortly after the law is in place. It will be impossible for most facilities to meet the regulations immediately, but Embassy staff believes that with the support of the FSK (and of these Presidential decrees and Government orders), GAN will be able to cajole or require major facilities to make good faith efforts (requiring investments in new equipment) to upgrade MPC&A.

Thus these regulations may, in the very near term, become a major "forcing function" leading to improved MPC&A in Russia. If major facilities are being required to meet new regulations, interest in assistance from the U.S. on the part of MINATOM facility managers may increase dramatically, creating major new opportunities for cooperation in improving MPC&A.

GAN's plan, as described by Deputy Director Zubkov, is to put the relevant regulations in place, and finance initial "serial production" of relevant equipment. Initial equipment samples would be sent to the various facilities, so that they could become convinced of its value, and the facilities themselves would then purchase the major part of the equipment they required (which would already be in serial production). A data-base would be established of the equipment required by the regulations, and where the equipment could be purchased.

However, both money and personnel remain in critically short supply. GAN's entire safeguards branch, according to Zubkov, consists of 13 people (to regulate many scores of facilities). GAN has no money to implement its plan: GAN requested 17 billion rubles (ca. $4 million) to implement the "most urgent" steps in this plan, but has so far been denied by the Finance Ministry.

As we left Moscow, the newspapers reported more top-level attention to improving MPC&A. On Thursday, February 23, at a government conference on the future of the nuclear industry (chaired by Chernomyrdin), the Ministry of Internal Affairs reportedly indicated that it was investigating 30 reported cases of thefts of nuclear materials, and had had found that 80 percent of nuclear facilities did not have requisite equipment for detecting removal of nuclear materials (i.e., portal monitors). In response, Chernomyrdin reportedly ordered that a plan be drawn up to immediately redress these deficiencies. Whether this will have any impact on the financing problem remains to be seen.

2) The entire area of MPC&A cooperation with the United States remains extraordinarily sensitive. Past Soviet security systems were designed in significant part to keep the Americans out. The notion that bringing the Americans in is part of the answer, not part of the problem, is still highly controversial. In the current Russian political scene, ALL cooperation with the West is being attacked from many sides. (The recent leaked FSK report arguing that all Western assistance -- even George Soros' science programs -- was only an effort to steal Russian secrets and expertise is one suggestion of the mood in some quarters.) Russian advocates of, and participants in, MPC&A cooperation with the United States are

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going out on a limb for what they believe in. Incautious statements and press reports can be misinterpreted in Russia and greatly undermine joint cooperation. The United States must emphasize that the program represents cooperation on mutual problems to mutual benefit, not assistance; must emphasize the use of Russian equipment, and not suggest that Russian technology is inferior to that of the U.S.; should not publicly suggest that Russian MPC&A systems are inadequate, and should not publicly argue that known smuggling cases originated in Russia; and should take extreme care in public statements about the program.

3) Focusing on use of Russian equipment, rather than insisting on American equipment, is essential to achieve broader Russian cooperation -- and would allow replication of systems at other sites, easier operation and maintenance of systems by the Russian side, and more "bang for the buck." As one key Russian official put it: "If the U.S. insists on providing its own equipment, cooperation can't go further." By using virtually all-Russian equipment for the Kurchatov upgrades, the lab-to-lab program has succeeded in getting enthusiastic "buy-in" from the Russian participants who built the systems, creating a cadre of experts who are already working to "sell" other facilities on the need to install similar systems. This means that effective Russian systems are now close to serial production, and that these participants now have a direct profit incentive (and an intellectual credit incentive) to push implementation of these systems. This will not be achieved using U.S. equipment. In addition, Russian equipment is significantly cheaper.

4) Continued Washington attention is needed to ensure that the lab-to-lab program remains focused on achieving fast improvements in MPC&A at major high-risk facilities. The Kurchatov effort, funded under the lab-to-lab program, was focused very explicitly on actual implementation of major improvements in MPC&A at a high-risk facility containing large quantities of HEU in a short period of time. (As noted, this was done using almost entirely Russian equipment and designs.) As a result, a dramatically improved system that demonstrably reduces the risk of HEU theft was installed in only 2 months -- and the Russian participants have a sense of ownership and enthusiasm, leading them to make active efforts on their own to "sell" similar systems to other facilities.

Not all of the lab-to-lab program is following a similar approach, however. A significant fraction is focused on development and demonstration of technologies, rather than implementation. In addition, a large fraction of the total funding in the program (more than half) is going to the U.S. side, either for U.S. lab participation or for American equipment. The "demonstration" system at Arzamas-16, for example, is being installed at a building that normally has no nuclear materials at all -- materials will be brought into the system for demonstration purposes that would not otherwise be there. The focus should be, as much as possible, on rapid implementation of improved MPC&A, on the model of Kurchatov.

5) MINATOM's desire to keep cooperation tightly controlled and confined to a small number of carefully specified projects remains strong. MINATOM officials strongly expressed the view that areas of cooperation should be kept limited enough to allow government control. This is probably related to the extreme sensitivity of cooperation in this area. Victor Gubanov, MINATOM's lead negotiator with the U.S. on MPC&A, indicated that implementing upgrades at 6-8 sites (as previously agreed with MINATOM) was too many,

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and that cooperation should be focused on no more than three. Gubanov complained that the lab-to-lab program was proceeding without proper government control, and insisted that there should be a government-to-government agreement to regulate the program through government channels. The probability that MINATOM would agree to cooperation in implementing MPC&A upgrades at an even wider range of sites appears minimal in the near term -- unless pressures from elsewhere in the Russian government change MINATOM's view.

Notes of Individual Meetings

MINATOM: Gubanov presented a broad overview of U.S.-Russian MPC&A cooperation, focused on the value of taking "one step at a time." He indicated that during the talks set for the week of March 6, he intended to backtrack on MINATOM's previous agreement to cooperate at 6 high-risk facilities, saying cooperation should be limited to no more than three (mentioning the Elektrostal HEU line and Mayak as among those where cooperation should continue). He demanded a government-to-government agreement to regulate the lab-to-lab program.

Earlier in the week, the Pugwash group (including Holdren and Bunn) met with Mikhailov, who indicated that he was on "very difficult terms with the Clinton Administration." Several MINATOM sources indicated that when DOE, because of the Iran deal, postponed Mikhailov's planned trip to the U.S. (where he was to have visited all three of the weapons labs and the test site), Mikhailov became so angry he was storming around the room and swearing he would cut off all cooperation with the United States. In his meeting with the Pugwash group, Mikhailov focused not on the Iran deal but on his desire to get rid of the uranium dumping agreement, saying that he had lost $450 million in lost sales in the U.S. market over the last 4 years, and had received only $200 million in Nunn-Lugar assistance -- and that he would "rather earn my money than have to reach into the pockets of the U.S. taxpayer."

GAN: Deputy Director Yuri Zubkov hosted our visit to GAN. (Zubkov is Yuri Volodin's boss; Volodin was in Siberia.) Zubkov said candidly that Russia had no state system of accounting and control, no legislation, no regulations, no money for safeguards, and no people for safeguards. Because of the changes in society and the rise in crime, fundamentally new MPC&A systems were needed.

Zubkov provided copies of President Yeltsin's September 15 decree on MPC&A, and the January government plan to implement it, signed by Chernomyrdin. While the plan was a good one, he argued, what was needed was money. GAN had asked the government for a budget of 17 billion rubles (roughly $4 million) for the most urgent steps in implementing the plan, but was told "we are asking too much." With the war in Chechenya and other problems, MPC&A can wait, GAN is being told.

As noted above, Zubkov indicated that the Atomic Law would soon be approved by the Duma, and that MPC&A regulations were nearly complete. (This would give GAN the authority to fine or close facilities that did not make a good-faith effort to meet regulations.) GAN's plan, once the regulations are in place, is to provide a small amount of seed money to initiate serial production of necessary MPC&A equipment, and provide initial samples to

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the various enterprises, to show them its value. (This would be where most of the $4 million would go.) GAN would then cajole/force them into purchasing additional equipment to meet the regulations. Assistance in initiating serial production of such equipment might be a valuable additional area of cooperation. Zubkov suggested that the next summit or Gore-Chernomyrdin meeting should make an explicit statement on the importance of providing sufficient financing for MPC&A.

Arzamas-16: We met with Ilkaev on the margins of the Pugwash conference, which he attended. While his title is "Deputy Scientific Director," Ilkaev is in fact the genuine director, since Mikhailov is the titular scientific director. Ilkaev was quite pleased by the lab-to-lab MPC&A cooperation to date. He indicated that relations with the U.S. labs were strong, that Los Alamos had provided "good equipment," that there had been no problems with delivery of promised money, and that money had been sufficient for the purposes agreed to so far. Arzamas-16, based on its demonstration system developed with the U.S. labs, will propose a "standard" set of MPC&A equipment to be installed at MINATOM facilities. Where systems could actually be implemented would be a decision of the government, however, not of the labs. He held out high hopes for additional cooperation in this area, and gave us his home phone number (saying that his wife spoke good English and could act as an interpreter).

Kurchatov: Our visit at Kurchatov coincided with a huge "show and tell" meeting demonstrating the new MPC&A system for Building 116. Some 75 people were in the room, representing MINATOM, MoD, a wide variety of MINATOM facilities (including Arzamas-16, Chelyabinsk-70, Obninsk, Dmitrovgrad, Luch, and others), the Russian Academy of Sciences, and so on. Kurchatov and Eleron (the main producer of physical protection equipment in Russia, which built the system at Building 116) briefed on the system's capabilities in detail. It was quite impressive to see that the program at Kurchatov had created a committed cadre of MPC&A enthusiasts and experts, who were actively "selling" such systems to other facilities. All the major talks were given by the Russians, and Russians asked most of the questions. Embassy staff reports that the Russian press was filled with stories about this meeting the next day, all of them 100% positive, with General Mizin, the head of Eleron, saying that Building 116 was now "the best protected site in all of Russia," and Deputy Director Zubkov of GAN saying that similar measures should be installed at nuclear facilities throughout Russia.

To the extent it is possible to spend available funds on Russian-produced equipment, this may open a major avenue for cooperation -- essentially relying on Kurchatov and Eleron to "sell" the idea of improved MPC&A to the various facilities, with the United States then stepping in to help with design and financing of the systems. In short, the money spent at Kurchatov appears to have bought even more than expected, in sowing the seeds of expansion to other sites.

Our visit to Building 116 made clear that MPC&A there was dramatically improved. In particular, access control and portal monitoring systems make it impossible to get into or out of the building without going through metal detectors and nuclear material detectors; access control systems enforce the "two-man-rule" for access to the material; double fences

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(around a portion of the perimeter) and motion detectors (around all of it) ensure that intruders would be detected; cameras and alarms throughout the building are integrated into a computerized central guard station, which is being linked to the response-force headquarters 800 meters away, and so on. While the system does not appear to be at all comparable to what one would find at a nuclear-weapons-site in the U.S., that is to be expected, given that this is a civilian research site. (One item that probably should be improved is the seals: typical Russian wax and paper seals are still in use, rather than modern unique seals that would be more difficult for an insider to counterfeit. Provision of modern seals would be quite cheap and would "round out" the total MPC&A system at the site.)

The Kurchatov progress should not be oversold, however. Building 116 is only of several sites at Kurchatov with HEU. Kurchatov is just completing, on contract to U.S. labs, conceptual designs for installing improved MPC&A at the central storage facility and the Gas Plant. Additional funds would be needed to implement these plans. In addition to these three facilities, there are as many as 9 smaller facilities with some HEU. Kurchatov personnel have so far been reluctant to consolidate the material into the three main facilities -- saying that taking away the HEU from the labs that now have it would take away those labs' main research and livelihood. The new GAN regulations, if enforced, will make it much more expensive to manage HEU (since MPC&A will have to be provided), which may change attitudes toward consolidation.

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AGENDA

Meeting of the PCAST Panel on U.S.-FSU Cooperation to Control and Account for Nuclear Materials

Friday, January 27, 1995

Old Executive Office Building, Rm. 208

8:00: Breakfast Discussion: OSTP Welcome

1. The Problem ~~(Top Secret)~~

8:30: EO 13526 1.4c

9:00: Safeguards and Security in the FSU
Steve Mladineo, DOE

9:30: Material Control and Accounting in the FSU
Mark Mullen, Los Alamos

10:00: Physical Protection in the FSU
John Kane and Byron Gardner, Sandia

10:30: On the Ground in Russia: The Politics, the Problems
Ken Fairfax, U.S. Embassy, Moscow

11:00: Discussion, Break.

2. The Programs ~~(Top Secret)~~

11:45: Overview
Ken Luongo, Director, DOE Office of Arms Control and Nonproliferation

12:00: The Nunn-Lugar MPC&A program
Ken Sanders, DOE

12:30: The Lab-to-Lab MPC&A Program
Mark Mullen, Los Alamos

1:00: Private lunch, discussion among the panel.

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AGENDA

Meeting of the PCAST Panel on U.S.-FSU Cooperation to Control and Account for Nuclear Materials

(cont.)

2:00: NRC Cooperation with GAN
Ted Sherr, Nuclear Regulatory Commission

2:30: Purchases of FSU Materials: Sapphire and After
Jeff Starr, Office of the Secretary of Defense

3:00: Securing Nuclear Materials: A DoD Perspective
Gloria Duffy, Special Coordinator,
Cooperative Threat Reduction, OSD.

3:30: Stopping Nuclear Smuggling
Joseph DeThomas, Office of Regional Nonproliferation
Department of State

4:00: Break

3. External Proposals for Next Steps (Unclassified.)

4:30: Tom Cochran (Natural Resources Defense Council)

5:00: William Potter (Monterrey Institute) and Oleg Bukharin (Moscow Physical-Technical Institute)

5:45: Discussion

6:15: Break

6:45: Working Dinner: Discussion (Hotel Washington)

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DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
~~001a. memo~~	~~Babara Starr to Andrew Sens, re: ACDA's Role in Securing Fissile Material in the Former Soviet Union (1 page)~~	~~05/24/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~001b. memo~~	~~John Holum to the National Security Advisor, re: ACDA's Role in Securing Fissile Material in the Former Soviet Union (1 page)~~	~~05/24/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~001c. memo~~	~~John Holum to the Special Assistant to the President and Senior Director of Nonproliferation and Export Controls, et al., re: U.S. Strategy for Transparency in Nuclear Warhead and Fissile Material Controls (3 pages)~~	~~06/29/1994~~	~~P1/b(1)~~ VZ 04/07/2023
~~002. memo~~	~~Jane Wales to Dan Poneman and Chip Blacker, re: Modifications to the Draft PDD on Nuclear Security and to the Draft Response to the PCAST (5 pages)~~	~~06/07/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~003. letter~~	~~Letter to Jessica [Stern], re: [PDD] (3 pages)~~	~~06/15/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~004a. memo~~	~~Gordon Adams to Jessica Stern, re: Comments on Draft PDD on Nuclear Material Controls Policy and Programs (2 pages)~~	~~06/13/1995~~	~~P1/b(1)~~ VZ 04/07/2023
004b. draft	Draft Decision Directive on NIS Nuclear Security (6 pages)	ca. 06/1995	P1/b(1)
~~005. paper~~	~~DeThomas Comments (3 pages)~~	~~n.d.~~	~~P1/b(1)~~ VZ 04/07/2023
006. note	To Jessica [Stern], re: [PDD] (3 pages)	n.d.	P1/b(1)
007. memo	To Jessica Stern, re: Comments on draft Presidential Decision Directive and Response to PCAST Report (6 pages)	06/12/1995	P1/b(1)

COLLECTION:
Clinton Presidential Records
National Security Council
Russia/Ukraine/Eurasian Affairs (Stern, Jessica)
OA/Box Number: 335

FOLDER TITLE:
PCAST [President's Committee of Advisers on Science & Technology] Report & Responses (Decision Directive) [1]

2014-0880-F
ke2698

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
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DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
~~008a. fax~~	~~Fax coversheet (1 page)~~	~~09/09/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~008b. memo~~	~~Douglas Browning to Daniel Poneman and Coit Blacker, re: Draft~~ PDD on NIS Nuclear Security (1 page)	~~06/09/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~008c. paper~~	~~PDD on NIS Nuclear Security comments (2 pages)~~	~~ca. 06/1995~~	~~P1/b(1)~~ VZ 04/07/2023
009. paper	Joint Staff Comments on NSC Draft Decision Directive on NIS Nuclear Security [partial] (2 pages)	06/10/1995	P1/b(1), b(7)(C), b(6) Released in Part VZ 04/07/2023
010a. fax	Fax Coversheet (1 page)	06/09/1995	P1/b(1)
010b. letter	Letter from Daniel Gallington to Jessica Stern (1 page)	06/09/1995	P1/b(1)
010c. paper	Draft Decision Directive on NIS Nuclear Security comments (4 pages)	ca. 06/1995	P1/b(1)
~~011a. memo~~	~~Deputy Assistant Secretary of Defense for Threat Reduction Policy to Special Assistant to the President and Senior Director for Nonproliferation and Exprt Control, re: PCASt Report: OSD Comments on Draft PDD and Response to Report (2 pages)~~	~~ca. 06/1995~~	~~P1/b(1)~~ VZ 04/07/2023
011b. paper	OSD Comments on Draft Decision Directive on NIS Nuclear Security (5 pages)	ca. 06/1995	P1/b(1)
~~011c. paper~~	~~OSD Proposed Changes to NSC Response to PCAST Recommendations (2 pages)~~	~~ca. 06/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~012a. memo~~	~~[duplicate of 004a] (2 pages)~~	~~06/13/1995~~	~~P1/b(1)~~ VZ 04/07/2023

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DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
012b. paper	[duplicate of 004b] (6 pages)	ca. 06/1995	P1/b(1)
~~013. list~~	~~Questions about Draft PDD on Nuclear Materials (1 page)~~	~~06/06/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~014a. memo~~	~~Charles Curtis to Dan Poneman and Coit Blacker, re: Comments on Draft PDD on NIS Nuclear Security (1 page)~~	~~06/13/1995~~	~~P1/b(1)~~ KDE 12/31/2019
014b. paper	Department of Energy Comments on Presidential Decision Directive on NIS Nuclear Security [partial] (3 pages) Released in Part	06/13/1995	P1/b(1) VZ 04/07/2023
015. paper	Comments on the Draft Nuclear Security PDD (12 pages)	ca. 06/1995	P1/b(1)

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UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

Washington, D.C. 20451

OFFICE OF
THE DIRECTOR

MAY 24 1995

MEMORANDUM FOR ANDREW D. SENS
EXECUTIVE SECRETARY, NATIONAL SECURITY COUNCIL

SUBJECT: ACDA's Role In Securing Fissile Material in the Former Soviet Union (U)

I would appreciate your forwarding the attached Memorandum, dated May 22, 1995, to Anthony Lake, from John D. Holum. This Memorandum discusses ACDA's views on strengthening the U.S. effort to control fissile material in the former Soviet Union. (C)

Barbara Starr
Executive Secretary

Attachment:
As stated

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Department of State Guidelines,
September 11, 2006

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2016-0129-M

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UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

Washington, D.C. 20451

MAY 24 1995

THE DIRECTOR

MEMORANDUM FOR THE NATIONAL SECURITY ADVISOR

SUBJECT: ACDA's Role In Securing Fissile Material in the Former Soviet Union

On July 29, 1994 I sent a memorandum to Dan Poneman, Special Assistant to the President and Senior Director For Nonproliferation, on the organization of efforts to control fissile material in the former Soviet Union. I recommended that a single person at the NSC staff oversee all U.S. efforts to control fissile material in the former Soviet Union and that the President appoint a single U.S. negotiator with Russia who would coordinate a stronger and more focused interagency effort. The President's Committee of Advisors on Science and Technology (PCAST) has now reported on U.S.-FSU cooperation to protect, control and account for weapons-usable fissile material and has addressed the same issue of organization. The PCAST report recommends that a PDD be issued designating this problem as one requiring high-level attention; appointing a senior Administration official to take full-time, personal responsibility in this area; and establishing a stronger and more focused interagency process.

At our next meeting, I would like to discuss with you how ACDA, in cooperation with DOE, could help strengthen the interagency process in this area. I propose that Ambassador Goodby be assigned to ACDA with a charter as the senior U.S. official responsible for coordinating all of the U.S. efforts in this area. The interagency group would report to the NSC and OSTP. As you know, Ambassador Goodby is already deeply involved in fissile material issues as they relate to the Nunn-Lugar program and Safeguards, Transparency, and Irreversibility in the process of arms reductions. Consistent with the PCAST recommendations, ACDA would be the most appropriate agency to lead a more focused, fair, and orderly interagency process. ACDA was created to perform these types of missions. ACDA's core strengths include developing policies and strategies to control the global proliferation of fissile material. ACDA personnel already participate in all of the existing fissile material working groups. ACDA has the resources and organization in place to support the senior coordinator for fissile material and to coordinate interagency working-level fissile material issues.

John D. Holum

cc: John H. Gibbons, Assistant to the President for Science and Technology

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UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY
Washington, D.C. 20451

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JUL 29 1994

THE DIRECTOR

MEMORANDUM FOR:

THE SPECIAL ASSISTANT TO THE PRESIDENT
AND SENIOR DIRECTOR FOR NONPROLIFERATION
AND EXPORT CONTROLS
DIRECTOR FOR NATIONAL SECURITY, OFFICE OF THE
VICE PRESIDENT
UNDER SECRETARY OF STATE FOR ARMS CONTROL AND
INTERNATIONAL SECURITY
THE DEPUTY SECRETARY OF DEFENSE
THE UNDER SECRETARY OF ENERGY
ASSOCIATE DIRECTOR FOR NATIONAL AND INTERNATIONAL
AFFAIRS, OFFICE OF MANAGEMENT AND BUDGET
DEPUTY DIRECTOR FOR INTELLIGENCE, CENTRAL
INTELLIGENCE AGENCY
ASSOCIATE DIRECTOR FOR NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS, OFFICE OF SCIENCE AND
TECHNOLOGY
ASSISTANT TO THE CHAIRMAN OF THE JOINT CHIEFS OF
STAFF

SUBJECT: U.S. Strategy for Transparency in Nuclear Warhead and Fissile Material Controls (U)

Following the Standing Committee meeting held on July 21 on nuclear warhead accounting and fissile materials transparency, I would like to share with you my views on how I believe the United States should proceed, both in terms of our broad strategy and within the narrower context of organizing to achieve our objectives. (U)

The OSTP papers on "U.S.-Russian Fissile Material Initiatives," dated June 30, 1994, and "Strategy for Nuclear Reductions Transparency," dated July 12 1994 are helpful in that they demonstrate the connectivity of U.S. objectives. However, they are just the beginning. (S)

The U.S. needs to develop a comprehensive and attainable strategy designed to overcome the objections, lethargy and internal disputes of the Russian ministries (MOD, MINATOM, GAN, etc.), a strategy whose aim would be to reconcile the actions and policies of the ministries with the goals President Yeltsin has stated. The resistance that key Russian ministries have shown toward some U.S. initiatives is exemplified by the lack of a Russian response to DOE letters seeking to begin

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negotiations for a transparency regime covering the inventory of fissile material and reciprocal declarations of nuclear weapons facilities, as was Russia's continued silence concerning our proposals for transparency measures at the proposed fissile material storage facility in Russia. (S)

ACDA believes that the eight objectives listed in the OSTP paper entitled "Strategy for Nuclear Reductions Transparency" are a good start. We now need to refine those objectives and move toward strategies to meet each of these objectives in an organized fashion. (S)

In particular, ACDA believes we should be cautious about "pump-priming" offers of data before we get firm Russian commitments to providing comparable data. Nevertheless, the USG's efforts related to accounting for nuclear warheads and transparency efforts regarding U.S. and Russian fissile materials overall should not be cosmetic actions, but should be as far-reaching as possible, comparable in scope and effectiveness to the START treaties' implementation and verification mechanisms, as alluded to in the OSTP strategy paper. (S)

In this light, one of the biggest problems facing us as we begin working on this comprehensive task is procedural -- currently the USG is not well organized to proceed along the lines of the approach proposed in the OSTP strategy paper. (S)

In my view, the creation of the Deputies Standing Committee is an excellent start and dramatic improvement, but discussions and events thus far -- particularly the opportunities that we have inadvertently provided for Russia to play our negotiators off each other -- demonstrate that more is needed. (S)

Because these issues crosscut and intersect at many different levels, and because agencies have important yet diverse equities in all of them, I believe that we should first establish clear lines of interagency responsibility and procedural guidelines, which include the following:

- First, a single person at the NSC should oversee, focus and coordinate <u>all</u> U.S. efforts in warhead reduction/fissile material areas, merging both technical and political-timing questions. This needs to be done as soon as possible so substantive work can begin, with our objectives and outline of strategy identified before the September Summit.

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- Second, we need a single U.S. negotiator with Russia on the overall effort, to integrate issues common to DOE and DOD programs. This should include a single negotiating group for policy issues, to which specific technical groups could input as appropriate.

- Finally, if we believe that this is to be as important as our efforts in START, we need to establish a working-level interagency mechanism that meets regularly and does the day-to-day work to ensure that the strategies we develop to meet our objectives are carried out. (C)

I solicit your thoughts. (U)

John D. Holum

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STANDARD FORM 704 (8-85)
Prescribed by GSA/ISOO
32 CFR 2003

~~SECRET~~

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20500

7 June 1995

MEMORANDUM FOR DAN PONEMAN
CHIP BLACKER

FROM: JANE WALES

SUBJECT: Modifications to the Draft PDD on NIS Nuclear Security and to the Draft Response to the PCAST

The draft PDD provides an excellent basis from which to build. I believe that a PDD should include the level of detail that is necessary to ensure that the President's intentions are carried out. In this light, I support the inclusion of a specific "plan of action" in the PDD, as in the current draft, with the following additions:

(1) Full-Time Coordinator

An important recommendation of the PCAST report, the creation of a full-time position with sufficient authority to ensure that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented, is not addressed in the current draft. The President clearly embraced this recommendation, and that decision should be reflected in the PDD. There is precedent in previous PDDs for discussion of staff-level assignments to ensure that relevant policy is carried out (see, for example, PDD-18). There appeared to be support for this point from all agencies represented at the Standing Committee meeting.

I would therefore suggest the following specific changes. On p.2, the first sentence of the second paragraph should be changed to read, "The NSC will *coordinate* USG efforts and *will exercise* oversight of nuclear security and nuclear smuggling programs, *and will appoint an additional Director exclusively for this purpose.*" On p.6, the following sentence should be added to the end of the first paragraph: "The NSC Standing Committee will be staffed by a dedicated, Director-level NSC staff member who will be responsible for coordination and problem-solving."

(2) Sense of Urgency and Priority

A more strongly worded opening would better reflect the sense of urgency and priority which both the President and the NSC clearly

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assign to this issue. To better capture this, I would suggest the deletion of the current first two paragraphs of the "policy principles" section, and their replacement with the following paragraphs:

"Ensuring that plutonium and highly-enriched-uranium (HEU) do not fall into the hands of potential proliferators is central to the national security of the United States. Access to these materials is the primary technical barrier to nuclear proliferation in the world today. With the collapse of the Soviet Union and the ensuing political, economic, and social turmoil in the former Soviet states, the world is faced with an unprecedented crisis on the "supply side" of nuclear proliferation.

Under current conditions, virtually all of the weapons-usable material at the roughly 100 former Soviet facilities with such materials is potentially at risk. Already, there have been multiple seizures of kilogram quantities of stolen weapons-usable uranium and of hundreds of grams of weapons-usable plutonium. There is no evidence that enough material for a bomb has yet fallen into the hands of states such as Iran, Iraq, Libya, or North Korea, but such a proliferation disaster could occur at any time. This problem is among the most serious and urgent threats to national security the United States faces in the coming decade. Measures to reduce this threat are a top national security priority, and will be given commensurate resources and attention. Action now is a prudent investment to forestall much larger costs and risks in the future.

We also suggest striking the first sentence of the following paragraph, "Reducing the risk . . . is an urgent national security priority" (since the language above is similar). In that same paragraph, we would strike the word "growing" on line 4, replace "need also to maintain" on line 8 with "will continue to seek", and add "will accelerate our own bilateral efforts with NIS countries, and" after the final "we" on line 4.

Other Suggestions

On p.1, third line of the last paragraph, strike the phrase "at the sites", as security during transport is also an issue.

On p. 2, second paragraph, we would like to add: "OSTP will continue to provide technical and policy input to these programs."

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On p.2, second paragraph, line 13, insert the word "will" after the phrase "Department of State".

On p.3, under point 3, line 5, replace "mission." with "mission, and shall provide for such reciprocal access to U.S. MPC&A systems as may be necessary and appropriate to secure NIS cooperation and provide MPC&A experience and training."

On p.3, under point 5, line 2, insert "and related" after the word "nuclear".

On p.4, under point 1, top of page, line 3, replace "weapons." with "weapons, including appropriate measures of reciprocal access to MPC&A systems."

Comments on the draft reply to PCAST

My concern is that the President will fail to gain credit for the seriousness with which he has responded to the PCAST report. He, and the NSC staff, have been open, responsive, and energetic in acting on the panel's recommendations. Credit is due. I therefore urge a very different tone, and emphasis on areas of agreement (which are many) rather than on the sole point of disagreement.

(1) The reply to PCAST recommendation 2 spends most of its time explaining why a "czar" (a word not used in the PCAST report) would be inappropriate. The tone of this section is that of creating a strawman which can then be knocked down. Both paragraphs in this section should be replaced with a single sentence, drawn from the PDD: "The NSC will coordinate USG efforts and will exercise oversight of nuclear security and nuclear smuggling programs, and will appoint an additional Director exclusively for this purpose."

(2) The reply to recommendation 3 carries the same defensive tone. The entire first paragraph should be struck, along with the first sentence of the second paragraph. This section would therefore begin with the sentence, "In order to ensure that this issue . . . ."

(4) In the reply to recommendation 7, line 2, strike the word "already".

We also suggest that the following paragraph be added:

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"To further focus and provide additional clout to U.S. efforts in eliciting Russian cooperation, the U.S. chief negotiator in this area, Ambassador Jim Goodby, will be given a Presidential appointment."

cc: Jessica Stern

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June 15, 1995

Jessica,

Hope your speaking engagement and weekend were both successes.

Some, or most, of your questions may be answered by the new version of the OMB comments on the PDD which Jeff Ashford brought by on Thursday. It goes into much more detail than the original comments faxed to you. (Helen, you (with one for Ken Fairfax as well) and I have copies of this document.)

I had a long conversation with Ashford of OMB re: your questions on the PDD. He is very helpful, although reluctant to provide too much specific guidance at this point. He said that OMB would definitely work with you to get everything right in the end. (Please forgive me if the rest of this gives you information you already know. This is all new to me.)

A major point seems to be the distinction between "funding" and "authorization". As Ashford stated, "This is a PDD. If the President tells these agencies to go out and do something, the budget resources will be found." However, Ashford and OMB in general, take the approach that a PDD will be a much more useful document if there are some guidelines and constraints set. For example, from what I can gather, he feels that under the taskings for each agency/department they should make some kind of comment about how much, in general terms, it is going to take to accomplish their tasks. Also, Ashford finds it helpful for OMB if the agencies can indicate where they believe such funding might come from. Is it an existing authorization to spend? or Will a whole new authority need to be established? Do the agencies anticipate any complications involve in the authorizing process? If legislation is needed, who has the responsibility to do this? If there is legislation to be drafted, that tasking should be assigned in the PDD. There does seem to be a fine line with this because I said, perhaps this is what Customs was trying to do. Ashford thinks Customs went much too far and much too specific for a PDD and has recommended that Customs' requests not go in the PDD at all. He said that Customs was essentially out to lock in additional budgetary resources for themselves (which is what you had indicated to me).

While the additional comments from OMB may be enough to handle this issue, options for the PDD might be to designate an agency as "coordinator" for authorizing issues. Ashford seemed more interested in the authorizing aspect than the actual funding. The impression I got was that funding would happen, but in

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general, there had to be some kind of process to develop (or use existing legislation) to get that funding.

I got the impression that Ashford felt that the agencies/departments should do some tinkering with this first and them OMB could provide assistance as to what needs to be there and what does not. Ashford stated that it makes the most sense for the agencies to take the first shot at this because they understand best what their taskings are going to require.

Again, I do not think they are looking for very specific items here, but rather just parameters. Ashford does not think the agencies should be making funding decisions, but rather that they should be designating parameters and designating what existing (or what new) legal authority they will need to accomplish the taskings, so that the PDD can address what new authorities would be needed and so that the plans they are tasked with will be developed within constraints.

Obviously, we can discuss more when you return. I know you were hoping for specific language, but Ashford was reluctant to get pinned down to that at this point. I feel like he wanted us to give it a shot and then have OMB step in and help?

Thanks,
Michelle

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Ambassador Crosby

due this week
talking points
a GCC

JAFIC papers
guns

new opps
VRA w/ Rus

Matt Burns
paper

JAFIC papers

Rus invoke safety
5th Tony Blair

NPCA
guns.



Rebecca

Shoot & Mandela
discuss # guns

by prod guns
start my

memo for Pres
by Tuesday.

avoid public linkage
between Iran arms sales &
don't use of Iran

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EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

JUN 13 1995

MEMORANDUM FOR JESSICA STERN

FROM: **GORDON ADAMS** GA for

SUBJECT: **COMMENTS ON DRAFT PDD ON NUCLEAR MATERIAL CONTROLS POLICY AND PROGRAMS**

(S) This memorandum provides OMB comments on the subject draft PDD, as requested by Dan Poneman at the Standing Committee meeting, June 6, 1995. A copy of the PDD, marked to reflect our comments, is attached.

1. (S) The PDD would require many plans to be developed, by DOE, DOD, Treasury/Customs, State and Justice. Most of the directives do not offer guidance on timing for completion of the plans (e.g., by August 15 for consideration in the FY 1997 budget process), nor on budget planning aspects of the plans (e.g., plans must be developed within existing and planned agency resource levels). We suggest that due dates be added where missing, and that the following sentence on budget guidance be inserted near the beginning of the PDD:

As it is likely that there will be no new funds available to be added to agency budgets for these activities, agencies should develop plans and activities within existing and planned agency budget resources.

2. (S) The major planning effort is by DOE which is told to write a plan for MPC&A assistance by August 31, 1995. Realistically, DOE should be directed to draft their plan within fiscal constraints of $70 million per year. Appropriate language is suggested on the attached copy of the PDD.

3. (U) Other plans should be costed, with legislative authorization and other legal/Congressional issues addressed.

4. (S) In the section directing the SecDef to undertake certain projects, item #3: many questions must be answered before legislation can be prepared; e.g.,

a. What is the scope of the activities the fund should cover? e.g., Do we want to plan purchases of both HEU and Plutonium? If so, how do we place a value on Pu, which is a very deadly trash for the US? Should the fund cover transportation of materials, cost of preparing the material for transportation and storage, storage cost in the US, and foreign assistance/*quid pro quo* if necessary?

b. Should funds or reprogramming authority be requested?

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PER E.O. 13526
2016-0129-M (1.25)
9/19/2022 VZ

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Derivative CL by Jeffrey Ashford
Declassify on OADR
Derived from Draft NSC Decision Directive on NIS Nuclear Materials Security

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(S) Because many questions need to be addressed, I suggest that the PDD be changed to direct a review of the issues, with a report and recommendation on legislation from DOD,State and DOE by August 15. Language is included on the attachment.

5. (S) In the section dealing with OMB's responsibilities, the first two sentences should be redrafted as follows:

"The Office of Management and Budget will work with agencies to review plans and activities and to allocate available resources to address the proliferation risks currently posed by inadequate MPC&A in the former Soviet Union. The MPC&A and other plans will serve as guides for determining priorities. Decisions on funding levels will be made as part of the regular budget process for each fiscal year...."

M-

Attachment

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FOR CLASSIFIED INFORMATION

ALL INDIVIDUALS HANDLING THIS INFORMATION ARE REQUIRED TO PROTECT IT FROM UNAUTHORIZED DISCLOSURE IN THE INTEREST OF THE NATIONAL SECURITY OF THE UNITED STATES.

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STANDARD FORM 704 (8-85)
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DETHOMAS COMMENTS

I don't think the PDD is ready for submission to the President. I would like to start with fundamentals. I would like to see agreement at the under secretary level on the following (or similar) list of basic objectives. Once we have agreement on such a list, we can then build text around them. At the moment, both the PDD and the comments I have seen from State look more like a detailed set of regulations emanating from the lower levels of the bureaucracy than a set of orders from the President of the United States. The PDD needs to be shorter and punchier.

Suggested list of Presidential level decisions.

"I have therefore decided to order the following steps:

1. The U.S. will seek to have all weapons usable nuclear material in the FSU under internationally acceptable security by the year 2001.

2. The U.S. will seek to persuade the senior leadership in Russia of the need to take such steps through a coordinated diplomatic approach. I will appoint a special negotiator for this purpose.

3. Efforts to achieve the securing of the material will include both government to government efforts and other activities -- including laboratory-to-laboratory efforts designed to address immediate problems that cannot be handled quickly on a governmental level.

4. The U.S. will engage cooperatively with other donor countries and the NIS to resolve this problem. Special mechanisms will be required in this regard in dealing with Russia. The Department of State will take the lead in crafting an effective mechanism to ensure that bilateral assistance programs of the U.S., the G-7, and other donors have maximum impact in improving nuclear materials security in the NIS.

5. OMB, DOE, DOD (etc.) will ensure that assistance programs to improve nuclear materials security receive adequate funding and that sufficient staff is available to implement them.

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2016-0224-M (1 of 27) 9/14/2022 VR

6. DOD and JCS will in coordination with DOS and DOE [language here on securing Russian weapons from PDD]

6. DOE will seek to secure nuclear material in the civilian sector and from the Russian Navy by [language from the PDD.

7. Assistance to the NIS in the above mentioned fields will be coordinated through the Standing Committee on Non-proliferation. NSC/S will appoint a staff member with the primary task of ensuring that all Departments operate in a coherent and coordinated fashion.

8. While means to secure nuclear material at its source continue we shall encourage the development of bilateral and multilateral means to combat nuclear smuggling through improved internal U.S. coordination and cooperation with other involved governments and international organizations. The Department of State will chair a special response group to ensure that information on smuggling incidents is shared and initial recommendations on USG responses are discussed in a coordinated fashion. The Chairman of the response group will also serve as the USG's Point of Contact under the G-7 action plan on nuclear smuggling."

I am not certain we need more text for the whole PDD than these two pages. I strongly oppose littering a Presidential Document with a bunch of make-work and activities designed to make the bureaucracy look busy. This should be left for implementation of the PDD. The Standing Committee or another body should be given implementation authority.

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COVER SHEET FOR FACSIMILE TRANSMISSION

NUMBER OF PAGES INCLUDING COVER SHEET
PAGE 1 OF 4

U.S. CUSTOMS SERVICE
OFFICE OF INTERNATIONAL AFFAIRS
WASHINGTON, D.C. 20229
TELEPHONE: (202) 927-0400
FAX NUMBER: (202) 927-2064

DATE: June 9, 1995

TO : Jessica Stern

SUBJ: PDD on NIS Nuclear Security

COMMENTS:

Jessica:

These recommended revisions to the draft PDD have been coordinated with Phil Dolich, who suggested that we FAX them to the NSC today so that they might be discussed at Monday's meeting.

Questions have arisen Customs fax: first 2 pp → Should we put Dixon into PDD (OSD)

FROM: David D. Harrell

FOR INFORMATION ABOUT THIS TRANSMISSION, THE ACTION OFFICER IS: D. HARRELL 927-04

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UNITED STATES GOVERNMENT
Memorandum

DEPARTMENT OF THE TREASURY
UNITED STATES CUSTOMS SERVICE

DATE: JUN -9 1995

FILE: INO-1 IN DHH

TO : National Security Council
The White House

ATTN : Daniel Poneman
Special Assistant to the President
and Senior Director for Nonproliferation
and Export Controls

Coit D. Blacker
Special Assistant to the
President and Senior Director
for Russia/Ukraine/Eurasian Affairs

FROM : Assistant Commissioner
Office of International Affairs

SUBJECT: Draft PDD on NIS Nuclear Security

Attached please find proposed revisions to the draft PDD on NIS Nuclear Security. Our recommended language provides the necessary authorities and resources for implementation of a Southern Tier Strategy to prevent and deter Nuclear Smuggling from the former Soviet Union to the proliferant states of the Middle East.

Among the countries of the Caucasus and Central Asia, borders are mostly transparent and border control is minimal to nonexistent. The fledgling customs organizations of the region are under-trained, under-equipped and largely comprised of officers with less than 3 years of service.

The authorities and resources proposed in this PDD will enable us to expand our current efforts in Central and Eastern Europe and the FSU and to address the customs technical assistance and training needs of this region on a long-term, priority basis.

David D. Harrell
for Douglas M. Browning

Attachment

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2016-0174-M (1 of 30) 9/19/2022 V2

DRAFT

PDD on NIS Nuclear Security:

Page Two, Para 2:

Change "Commerce" to "Treasury"

Page Five, Para 3:

The Secretary of Treasury shall take the following action:

The U.S. Customs Service will develop plans as needed, to provide technical assistance to the former Soviet Union (FSU) and Central and Eastern European customs and other border law enforcement agencies and agencies which investigate related smuggling cases. This program will be developed with input from the Departments of State, Energy, and Defense. This action will be coordinated and integrated with other nuclear smuggling, non-proliferation and export control programs underway in this region. A major new element of nuclear security foreign policy will be an expansion of U.S. Customs' "Project Amber", to include the establishment, upgrade, and modernization of border enforcement along the southern flank of the FSU, among the countries of the Caucasus and Central Asia. This new strategy will be critical to the success of efforts to prevent and deter nuclear smuggling from the FSU to the proliferant states of the Middle East.

In coordination with other export control efforts, U.S. Customs will assess the needs of each country and develop specific technical assistance programs, to include training, facilities upgrade, and equipment. Customs will assist foreign customs and border enforcement agencies with the development of suitable legal and physical infrastructure in order to strengthen nuclear non-proliferation policy and overall export controls. The establishment of honest, predictable and facilitative customs services also will contribute to market reform and economic development, with a resultant decrease in smuggling and other criminal activities.

In order to accomplish this, U.S. Customs will be provided additional staffing and resources. Specifically, Customs will be authorized 15 headquarters positions for the development of a cadre of trainers which will be dedicated to international nuclear non-proliferation training and assistance programs. The Department of State, starting with FY-1997 and continuing through FY-2000, will request in its Nonproliferation Disarmament Fund (NDF) budget for export control specific funding of $2.5 million per year for salaries and travel and related training expenses for this program. These funds will be sent through an Inter-Agency Cost Re-imbursement Order (IACRO) to Customs at the

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beginning of each fiscal year. With the concurrence the NDF Review Board and the Under Secretary of State for International Security Affairs, funding for this program prior to FY-1997 also will be made available from the NDF. To make this possible, the Department of State will allow the use of NDF funds for travel and salaries for USG export control assistance.

Page 5, Para 5:

Under the responsibilities of OMB:

The Office of Management .... posed by inadequate MPC&A and nonproliferation law enforcement in the former Soviet Union. ... Similarly, OMB will work with the agencies to allocate sufficient personnel to this effort. U.S. Customs will be allocated 15 additional headquarters full time equivalent positions for establishment of a nuclear nonproliferation technical assistance cadre. ...

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FROM LtCol (b)(6) OFFICE/DESK WTC PHONE NBR (b)(7)c

SUBJECT COMMENTS ON DRAFT PDD

DELIVERY INSTRUCTIONS:

PAGES 3 (INCLUDING COVER)

☒ HOLD FOR NORMAL DUTY HOURS/ROUTINE

☒ IMMEDIATELY/URGENT

NOTE: FURNISH AFTER DUTY HOUR CONTACT TELEPHONE NUMBER FOR EACH ADDEE REQUIRING AFTER DUTY HOUR DELIVERY

TRANSMIT TO

AGENCY	INDIVIDUAL (NAME)	OFFICE	ROOM NBR	PHONE NBR
NSC	JESSICA STERN	456-9307	373	
WHITE	HOUSE			

REMARKS: HERE ARE OUR COMMENTS ON DRAFT PDD

WASHFAX COVER SHEET

WASHFAX OPERATOR (703) 695-2427

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Unclassified upon Removal of Classified Attachments
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JOINT STAFF COMMENTS ON NSC DRAFT DECISION DIRECTIVE ON

EO 13526 3.3(b)(5)

EO 13526 3.3(b)(5)

The Joint Staff position is that it is appropriate for this collaboration to take place, however there are several issues which are of concern and are listed below.

EO 13526 3.3(b)(5)

Therefore, the following language should be added to paragraph 6:

EO 13526 3.3(b)(5)

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OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
2600 DEFENSE PENTAGON
WASHINGTON, DC 20301-2600

INTERNATIONAL SECURITY POLICY

Jessica

In reply refer to:
I-95/35552

MEMORANDUM FOR: SPECIAL ASSISTANT TO THE PRESIDENT AND SENIOR DIRECTOR FOR NONPROLIFERATION AND EXPORT CONTROL

SPECIAL ASSISTANT TO THE PRESIDENT AND SENIOR DIRECTOR FOR RUSSIA, UKRAINE AND EURASIA

FROM: DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR THREAT REDUCTION POLICY

9 June 95

SUBJECT: PCAST Report: OSD Comments on Draft PDD and Response to Report (U)

(C) The PCAST report provides an important diagnosis of the serious problems we face in implementing our fissile material policy with the Former Soviet Union. OSD welcomes the report's conclusions, and believes most should be implemented through the proposed Presidential Decision Directive. Detailed comments on the draft PDD and response to the PCAST report are attached.

(C) The most critical need is for a strong White House hand to manage the FSU fissile material issue in all its varied aspects. The Administration requires firm and continuing leadership to establish policy priorities in the fissile material area and to devise strategies for dealing with Russia and securing necessary Congressional funding. The strategy for Russia should fully implement the top-down/bottom-up approach discussed by the Standing Committee on 6 June. There is a real need for pressure from the top of the Russian Government, directed particularly to Minatom, to take the actions necessary to deal with the vital security issues at stake. At the same time, we do not want to risk hindering successful ongoing activities, such as those undertaken by U.S. and Russian laboratories. In that regard, we do not require a Special Negotiator or single Point of Contact for dealing with Russia, nor should we seek a single Point of Contact on their side; indeed, such steps could prove counterproductive.

(C) U.S. policy on fissile material issues must be an integral part of our overall policy toward the states of the Former Soviet Union. It can only move forward in the context of the U.S.-FSU relationship as a whole, using all the resources available from that broader relationship. As a result, OSD strongly believes the

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management function must reside in the National Security Council staff, reflecting its high Presidential priority and "supra-agency" character. We further believe that the function should be performed by a full-time NSC staff Director, with intimate knowledge of the region. We would recommend against nomination of a new Senior Director for FSU fissile material issues; rather than creating a new locus of activity, we need greatly improved internal coordination on ongoing and future action.

Attachment:
Line-in, line-out changes

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OSD PROPOSED CHANGES TO NSC RESPONSE TO PCAST RECOMMENDATIONS

OSD has the following comments to the NSC response to PCAST:

1. Concur with PCAST recommendation and NSC draft response.

2. Concur with PCAST recommendation. Nonconcur with NSC draft response. The most critical need is for a strong White House hand to manage the FSU fissile material issues all its varied aspects. The Administration requires firm and continuing leadership to establish policy priorities in the fissile material area and to devise strategies for dealing with Russia and securing necessary Congressional funding. Past difficulties in resolving issues in timely fashion (e.g., Sapphire, MPC&A budget authority) underscore the need for appointment of full-time NSC Director to manage these issues. Such an appointment would be welcomed by the FSU and public as demonstrating the seriousness of the Administration with respect to fissile material issues.

3. Concur with PCAST recommendation. Nonconcur with NSC draft response. The current structure, including the sub-IWGs referenced in the NSC response (MPC&A, Nuclear Smuggling, Fissile Materials/STI, and Plutonium Disposition), does not and will not bring the necessary focus to the fissile material area. An NSC Director should be appointed with full-time responsibility for FSU fissile material policy issues. This official would oversee all nuclear materials security and nuclear smuggling matters on a day-to-day basis; ensure full coordination of on-going and prospective initiatives undertaken individually or collectively by government agencies; manage the development of policy priorities; and take the lead in developing an overall strategy in this area.

4. Concur with PCAST recommendation but modify NSC draft response to require that the Secretary of Energy develop the proposed plan in coordination with the Departments of Defense and State and other relevant agencies and that the plan address expected additional efforts by the FSU states and a strategy for securing additional allied resource commitments

5. Concur with PCAST recommendation and NSC draft response. It should be noted, however, that, given current budget limitations, it may not be possible to fully meet the identified need.

6. Concur with PCAST recommendation and NSC draft response.

7. Concur with PCAST recommendation and NSC draft response.

Classified By: Multiple Sources
Declassified By: DADR

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8. Concur with PCAST recommendation and NSC draft response.

9. Concur with PCAST recommendation and NSC draft response.

10. Concur conditionally with PCAST recommendation and NSC draft response. The plan of action for appropriate assistance should be based on an assessment of all aspects of the Russian request, including the proliferation risks, Russian security practices and capabilities, and U.S. national concerns. The requirement for such an assessment is missing in both the PCAST recommendation and NSC draft response.

Programmatic Recommendations (Last page of the NSC Draft Response to the PCAST Report). Concur with PCAST recommendation and NSC draft response.

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EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

Ken Fairfax

JUN 13 1995

MEMORANDUM FOR JESSICA STERN

FROM: **GORDON ADAMS**

SUBJECT: **COMMENTS ON DRAFT PDD ON NUCLEAR MATERIAL CONTROLS POLICY AND PROGRAMS**

(S) This memorandum provides OMB comments on the subject draft PDD, as requested by Dan Poneman at the Standing Committee meeting, June 6, 1995. A copy of the PDD, marked to reflect our comments, is attached.

1. (S) The PDD would require many plans to be developed, by DOE, DOD, Treasury/Customs,State and Justice. Most of the directives do not offer guidance on timing for completion of the plans (e.g., by August 15 for consideration in the FY 1997 budget process),nor on budget planning aspects of the plans (e.g., plans must be developed within existing and planned agency resource levels). We suggest that due dates be added where missing, and that the following sentence on budget guidance be inserted near the beginning of the PDD:

> **As it is likely that there will be no new funds available to be added to agency budgets for these activities, agencies should develop plans and activities within existing and planned agency budget resources.**

2. (S) The major planning effort is by DOE which is told to write a plan for MPC&A assistance by August 31, 1995. Realistically, DOE should be directed to draft their plan within fiscal constraints of $70 million per year. Appropriate language is suggested on the attached copy of the PDD.

3. (U) Other plans should be costed, with legislative authorization and other legal/Congressional issues addressed.

4. (S) In the section directing the SecDef to undertake certain projects, item #3: many questions must be answered before legislation can be prepared; e.g.,

a. What is the scope of the activities the fund should cover? e.g.,Do we want to plan purchases of both HEU and Plutonium? If so, how do we place a value on Pu, which is a very deadly trash for the US? Should the fund cover transportation of materials, cost of preparing the material for transportation and storage, storage cost in the US, and foreign assistance/*quid pro quo* if necessary?

b. Should funds or reprogramming authority be requested?

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(S) Because many questions need to be addressed, I suggest that the PDD be changed to direct a review of the issues, with a report and recommendation on legislation from DOD,State and DOE by August 15. Language is included on the attachment.

5. (S) In the section dealing with OMB's responsibilities, the first two sentences should be redrafted as follows:

> **"The Office of Management and Budget will work with agencies to review plans and activities and to allocate available resources to address the proliferation risks currently posed by inadequate MPC&A in the former Soviet Union. The MPC&A and other plans will serve as guides for determining priorities. Decisions on funding levels will be made as part of the regular budget process for each fiscal year...."**

Attachment

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JUN 6 1995

QUESTIONS ABOUT DRAFT PDD ON NUCLEAR MATERIALS

1. The PDD would require many plans to be developed, by DOE, DOD, Treasury/Customs, State and Justice. Most of the directives do not offer guidance on timing for completion of the plans, nor on financial planning aspects of the plans (e.g., within existing and planned resource levels, by August 15 for consideration in the FY 1997 budget process).

2. The major planning effort is by DOE which is told to write a plan for MPC&A assistance by August 31, 1995. DOE should be directed to draft their plan within fiscal constraints of $70 million per year.

3. Other plans should be costed, with legal authorizaty and other legal/Congressional issues addressed.

4. In the section directing the SecDef to undertake certain projects, item #3: many questions must be answered before legislation can be prepared; e.g.,

   a. What is the scope of the activities the fund should cover? (e.g., HEU and PU purchase? If so, how do we value Pu, which is a very deadly trash for the US? Transportation of materials? Cost of preparing the material for transportation and storage? Storage cost in the US? Foreign assistance/bribes, if necessary?)

   b. Should funds or reprogramming authority be requested?

5. In the section dealing with OMB's responsibilities, the first two sentences should be redrafted as follows:

   "The Office of Management and Budget will work with agencies to review plans and activities and to allocate resources to address the proliferation risks currently posed by inadequate MPC&A in the former Soviet Union. The MPC&A and other plans will serve as guides for determining priorities. Decisions on funding levels will be made as part of the budget preparation process for each fiscal year...."

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June 13, 1995

DEPARTMENT OF ENERGY
COMMENTS ON PRESIDENTIAL DECISION DIRECTIVE
ON NIS NUCLEAR SECURITY

COMMENTS ON PLAN OF ACTION:

Secretary of Energy Actions

Paragraph 1

[redacted] EO 13526 1.4d

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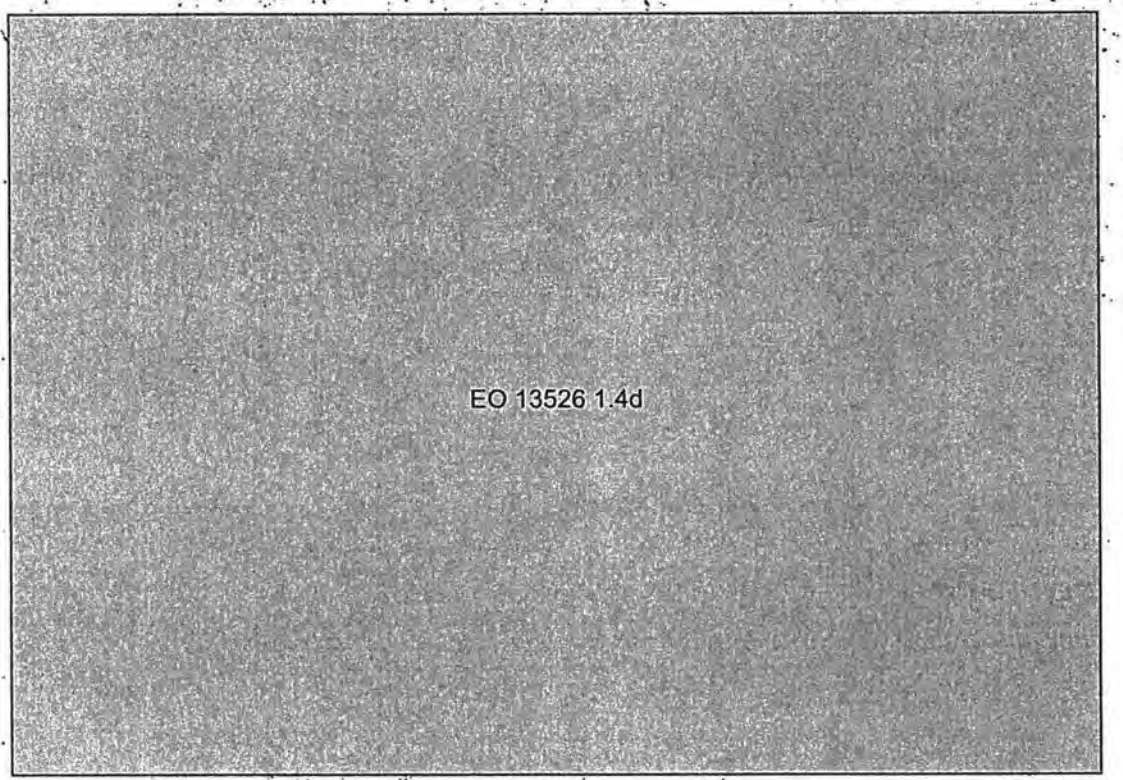
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Paragraph 2

Paragraph 5

Paragraph 7



Secretary of Defense Actions

Paragraph 2. The Department of Defense (DoD) is tasked with leading a review on consolidation, transfer, and purchase of particularly vulnerable stocks of weapons-usable fissile materials. While it is appropriate for DoD to be responsible for any actual transfer of the material, the Department of Energy (DOE) should lead the analysis of the opportunities as the capability to perform this assessment is largely based in DOE and some of the analytical work may overlap with the MPC&A action plan.

~~SECRET~~

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~~SECRET~~

Director of Central Intelligence (DCI) Actions

Paragraph 1 The DCI is assigned the action to analyze MPC&A vulnerabilities worldwide and analyze prospects for nuclear nonproliferation. Because DOE chairs JAEIC, the assignment solely to DCI is confusing. Both analyses should be implemented in concert with DOE.

Paragraph 2. The intelligence assessment outlined in paragraph 2 should be supplemented with Policy Analysis from relevant agencies.

Secretary of State Actions

Paragraph 1. The Department of State has been tasked to "develop a plan to strengthen and, where necessary, establish programs to improve nuclear security and to combat nuclear smuggling in the NIS." Similarly, the Department of Energy has been tasked to "Develop a comprehensive prioritized nuclear material security and accounting plan by August 31, 1995." This seems to indicate overlap in responsibility for drafting such a report. Since DOE will draft a comprehensive MPC&A plan, the Department of State should draft a plan focused solely on the issue of nuclear smuggling.

~~SECRET~~

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M S M a i l

DECLASSIFIED
E.O. 13526
White House Guidelines, May 16, 2017
By_IR_NARA, Date 9/19/2022
2016-0179-M

DATE-TIME 03 May 95 11:01

FROM Wales, Jane

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT Subject: RE: Talking points on PCAST Panel Report ~~[CONFIDENTIAL]~~

TO Bass, Peter E.

CARBON_COPY NO CC's on THIS MESSAGE

TEXT_BODY

Yes, and having failed to reach Dan, I coordinated with Steve Aoki, who is sending you our agreed upon text momentarily.

From: Bass, Peter E.
To: Poneman, Daniel B.; Wales, Jane M.
CC: /R, Record at A1
Subject: RE: Talking points on PCAST Panel Report ~~[CONFIDENTIAL]~~
Date: Tuesday, May 02, 1995 07:47 PM

Does this substitute for the points I had tasked out to Dan regarding Perry's wish to raise nuclear smuggling at the lunch? If so, please advise. If not, please coordinate. Thanks. Peter

---

From: Wales, Jane M.
To: Bass, Peter E.
CC: /R, Record at A1; Wales, Jane M.
Subject: Talking points on PCAST Panel Report ~~[CONFIDENTIAL]~~
Date: Tuesday, May 02, 1995 06:42 PM

<<Attached File: PCASTTLK.DOC>>

Attached you will find my suggested talking points for Tony at his lunch tomorrow on the subject of the PCAST panel report. Dan Poneman has been in a meeting since I promised you the attached, so they have not been cleared by him. They do, however, reflect meetings and discussions he and I have had over the past 24 hours. The Standing Committee on Nonproliferation is chaired by Dan. It met today and was given the same PCAST briefing that the President, Perry, and Holum received yesterday.

Tony will be receiving a memo from Dan and me on our follow-up to the POTUS

briefing as soon as Dan gets a chance to look at it.

I hope this is helpful.

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MSMail

DATE-TIME 03 May 95 11:02

FROM Aoki, Steven N.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT C-P-L item: PCAST report [~~CONFIDENTIAL~~]

TO
Aoki, Steven N.
Baker, Jane E.
Bass, Peter E.
Boright, John
Cicio, Kristen K.
Darby, Melanie B.
Dohse, Fred J.
Edwards, Joan
Emery, Mary C.
Gray, Wendy
Hall, Wilma G.
Harmon, Joyce A.
Harris, Elisa D.
Hawkins, Ardenia R.
Hilliard, Brenda I.
Itoh, William H.
Joshi, M. Kay
Litwak, Robert C.
Millison, Cathy L.
Poneman, Daniel B.
Quinn, Mary E.
Jim Reed
Sens, Andrew D.
Tarantino, Frederick A.
Veit, Katherine M.
Wales, Jane

DECLASSIFIED
PER E.O. 13526
2016-0179-M (1,71)
9/19/2022 VZ

CARBON_COPY NO CC's on THIS MESSAGE

TEXT_BODY

[[5-3A.DOC : 2820 in 5-3A.DOC]]
Attached is a coordinated paper from Poneman/Wales/Aoki on steps we're taking to respond to the nuclear smuggling/poor security issue raised by the PCAST panel.

ATTACHMENT FILE DATE 3 May 95 10:39

ATTACHMENT FILE NAME 5-3A.DOC
~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

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Declassify on: OADR

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

POINTS TO BE MADE AT LAKE-PERRY-CHRISTOPHER LUNCH ON PCAST REPORT ON SECURITY FOR FSU NUCLEAR MATERIALS

-- We are moving rapidly to follow up on the PCAST report.

-- At Dan Poneman's Standing Committee on Nonproliferation yesterday, all agencies agreed that:

ù the report was useful and that improvements in security and accounting for nuclear materials in the FSU are a high priority;

ù this should be reflected in summit language;

ù it would be beneficial to have a full-time coordinator for these issues on the NSC staff; and

ù we should seek a PDD that would mandate adequate senior-level attention and organizational arrangements to ensure an aggressive approach in this area.

-- The Standing Committee approved proposed summit language highlighting the importance of cooperation to secure nuclear materials and calling for a progress report at the June Gore-Chernomyrdin meeting, and approved proceeding with an ad ref declaration on nuclear transparency measures that sets in motion negotiations on reciprocal access to nuclear storage sites and related data exchanges. Einhorn will table our summit language with Kislayak today.

-- We are examining ways to bring on a full-time person at the NSC director level to coordinate nuclear material security issues. That person would report up through the NSC and also support the Gore-Chernomyrdin process. We also should consider a Presidential appointment for our lead negotiator in this area (Amb. Goodby) and ask agencies (particularly DOE, which now has the lead) to review the adequacy of their own organizational support for nuclear materials security assistance.

CLINTON LIBRARY PHOTOCOPY

M S M a i l

DATE-TIME 03 May 95 11:06

FROM Aoki, Steven N.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT CPL item ~~[CONFIDENTIAL]~~

DECLASSIFIED
PER E.O. 13526
2016-0129-M (1.72)
9/19/2016 VZ

TO Bass, Peter E.
Cicio, Kristen K.
Emery, Mary C.
Hall, Wilma G.
Veit, Katherine M.

CARBON_COPY NO CC's on THIS MESSAGE

TEXT_BODY

[[5-3A.DOC : 2829 in 5-3A.DOC]]
Let's try again

ATTACHMENT FILE DATE 3 May 95 11:6

ATTACHMENT FILE NAME 5-3A.DOC

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~
Declassify on: OADR

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

POINTS TO BE MADE AT LAKE-PERRY-CHRISTOPHER LUNCH

SECURITY FOR FSU NUCLEAR MATERIALS

-- We are moving rapidly to follow up on the PCAST report.

-- At Dan Poneman's Standing Committee on Nonproliferation yesterday, all agencies agreed that:

ù the report was useful and that improvements in security and accounting for nuclear materials in the FSU are a high priority;

ù we should have summit language on nuclear materials security;

ù it would be beneficial to have a full-time coordinator for these issues on the NSC staff; and

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ù we should seek a PDD that would mandate adequate senior-level attention and organizational arrangements to ensure an aggressive approach in this area.

-- The Standing Committee approved proposed summit language highlighting the importance of cooperation to secure nuclear materials and calling for a progress report at the June Gore-Chernomyrdin meeting, and approved proceeding with an ad ref declaration on nuclear transparency measures that sets in motion negotiations on reciprocal access to nuclear storage sites and related data exchanges. Einhorn will table our summit language with Kislayak today.

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MSMail

DATE-TIME 03 May 95 11:08

FROM Aoki, Steven N.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT ~~[CONFIDENTIAL]~~

TO Stern, Jessica E.

CARBON_COPY NO CC's on THIS MESSAGE

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.73)
7/19/2022 VZ

TEXT_BODY

[[5-2B.DOC : 2833 in 5-2B.DOC]]
As received from Jane Wales.

Matt, Dan and I have agreed to add the following recommendations:

-- Dan's group to meet more frequently

-- Goodby to be upgraded

-- DOE to review its own organization/staffing/funding levels

ATTACHMENT FILE DATE 3 May 95 11:6

ATTACHMENT FILE NAME 5-2B.DOC
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~
Declassify on: OADR
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

May 2, 1995

CLINTON LIBRARY PHOTOCOPY

MEMORANDUM FOR ANTHONY LAKE
JOHN H. GIBBONS

FROM: DAN PONEMAN/JANE WALES

RE: FOLLOW-UP ON FSU NUCLEAR MATERIALS SECURITY

At your direction, we have been moving out rapidly to follow up on the PCAST report on security for nuclear materials in the former Soviet Union.

1. Agency Views. The Standing Committee on Nonproliferation discussed the report's recommendations today. All agencies agreed that: A) improvements in security and accounting for nuclear materials in the FSU are a high priority; B) this should be reflected in summit language (see next item); C) it would be beneficial to have a full-time coordinator for these issues on the NSC staff; and D) a PDD designed to highlight the importance of our efforts and guide future actions should be developed.

2. Summit Language. We have drafted and the Standing Committee has approved proposed summit language highlighting the priority of cooperation to secure nuclear materials and calling for a joint report for Gore-Chernomyrdin in June. (The proposed language, at Tab A, would be included in a planned summit statement on nonproliferation.) This language will be discussed with Russian representatives in New York tomorrow.

3. Staffing. We believe the best approach to the staffing issue, considering Presidential direction, the PCAST recommendations, and agency views, is to add a full-time person to the NSC staff to coordinate agency activities related to controlling fissile materials in the former Soviet Union. We envision that this individual would be an NSC director, and would report up through the NSC and to the Gore-Chernomyrdin process. This person's first tasks would be to staff these issues for the next Gore-Chernomyrdin meeting, and to prepare a PDD (see next item).

4. Presidential Decision Directive. Given the consensus that a PDD on this subject should be prepared, we will be working over the next few days to solicit agency views on what should be included, and to develop a process for producing a draft. The PDD should identify actions to address the President's concern about the lack of an inventory of nuclear materials in the former Soviet Union. By the end of the week, we expect to provide you with a draft memorandum for the President's signature directing the preparation of such a PDD.

5. DOE-DOD Disagreements. DOE and DOD confirm that the specific

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issue of the transfer of the $15 million to fund lab-to-lab programs has been resolved. Both agencies agree that a full-time NSC coordinator could work to ensure that such issues are surfaced and resolved more quickly in the future. DOE proposes, in addition, as-needed meetings of a triumvirate of Undersecretary Charles Curtis, Undersecretary Lynn Davis, and Assistant Secretary Ash Carter to give these efforts high-level impetus and coordination.

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MSMail

DATE-TIME 03 May 95 11:57

FROM Stern, Jessica E.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT changes to the wales/poneman memo ~~[CONFIDENTIAL]~~

TO Aoki, Steven N.
Poneman, Daniel B.

CARBON_COPY NO CC's on THIS MESSAGE

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.74)
9/19/2022 VL

TEXT_BODY

[[5-2B.DOC : 2872 in 5-2B.DOC]]1. don't know what to say goodby was upgraded to;
2. added a paragraph before I turned on the blue line -- see last poing
3. please send me the version you send back up to wales.

ATTACHMENT FILE DATE 3 May 95 11:55

ATTACHMENT FILE NAME 5-2B.DOC
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~
Declassify on: OADR
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

May 2, 1995

MEMORANDUM FOR ANTHONY LAKE
JOHN H. GIBBONS

FROM: DAN PONEMAN/JANE WALES

RE: FOLLOW-UP ON FSU NUCLEAR MATERIALS SECURITY

At your direction, we have been moving out rapidly to follow up on

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the PCAST report on security for nuclear materials in the former Soviet Union.

1. Agency Views. The Standing Committee on Nonproliferation discussed the report's recommendations today. All agencies agreed that: A) improvements in security and accounting for nuclear materials in the FSU are a high priority; B) this should be reflected in summit language (see next item); C) it would be beneficial to have a full-time coordinator for these issues on the NSC staff; and D) a PDD designed to highlight the importance of our efforts and guide future actions should be developed.

2. Summit Language. We have drafted and the Standing Committee has approved proposed summit language highlighting the priority of cooperation to secure nuclear materials and calling for a joint report for Gore-Chernomyrdin in June. (The proposed language, at Tab A, would be included in a planned summit statement on nonproliferation.) This language will be discussed with Russian representatives in New York tomorrow.

3. Staffing. We believe the best approach to the staffing issue, considering Presidential direction, the PCAST recommendations, and agency views, is to upgrade Ambassador Goodby to [], to add a full-time person to the NSC staff to coordinate agency activities related to controlling fissile materials in the former Soviet Union. We envisage that this individual would be an NSC director, and would report to the Deputies and Principals through the Nonproliferation Group Standing Committee. The Standing Committee agreed to meet more frequently and to focus on these issues on a more regular basis. This person's first tasks would be to staff these issues for the next Gore-Chernomyrdin meeting, and to prepare a PDD (see next item). We would also recommend that DOE review its staffing and funding priorities in light of the PCAST findings.]

4. Presidential Decision Directive. Given the consensus that a PDD on this subject should be prepared, we will be working over the next few days to solicit agency views on what should be included, and to develop a process for producing a draft. The PDD should identify actions to address the President's concern about the lack of an inventory of nuclear materials in the former Soviet Union.

By the end of the week, we expect to provide you with a draft memorandum for the President's signature directing the preparation of such a PDD.

5. DOE-DOD Disagreements. DOE and DOD confirm that the specific issue of the transfer of the $15 million to fund lab-to-lab programs has been resolved. Both agencies agree that a full-time NSC coordinator could work to ensure that such issues are surfaced

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and resolved more quickly in the future. DOE proposes, in addition, as-needed meetings of a triumvirate of Undersecretary Charles Curtis, Undersecretary Lynn Davis, and Assistant Secretary Ash Carter to give these efforts high-level impetus and coordination.

6. MPCA Action Plan: An NSC-chaired MPCA sub-IWG will prepare a prioritized nuclear material security and accounting action plan, specifying near term, mid-term, and long-term goals and objectives, and the resources needed to accomplish them. The sub-IWG will commission a database that prioritizes nuclear sites in terms of their vulnerability to nuclear theft, and includes USG and other-government efforts to improve security at each site. The sub-IWG will report regularly on its progress to the Deputies and Principals through the Nonproliferation Standing Committee, and will present the completed plan to the Committee within 60 days.

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MSMail

DATE-TIME 03 May 95 16:15

FROM Aoki, Steven N.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT MC&A memo [~~CONFIDENTIAL~~]

TO Stern, Jessica E.

CARBON_COPY NO CC's on THIS MESSAGE

DECLASSIFIED
PER E.O. 13526
2016-0179-M (1.75)
9/19/2022 VL

TEXT_BODY

[[5-3C.DOC : 4180 in 5-3C.DOC]]
Would appreciate your review before I go back to OSTP. Thanks

ATTACHMENT FILE DATE 3 May 95 16:14

ATTACHMENT FILE NAME 5-3C.DOC
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~
Declassify on: OADR
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

May 2, 1995

MEMORANDUM FOR ANTHONY LAKE
JOHN H. GIBBONS

FROM: DAN PONEMAN/JANE WALES

RE: FOLLOW-UP ON FSU NUCLEAR MATERIALS SECURITY

At your direction, we have been moving out rapidly to follow up on the PCAST report on security for nuclear materials in the former Soviet Union.

1. Agency Views. The Standing Committee on Nonproliferation

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discussed the report's recommendations today. All agencies agreed that:

-- improvements in security and accounting for nuclear materials in the FSU are a high priority, and the PCAST report made a valuable contribution;

-- the summit nonproliferation declaration should include language on nuclear materials security;

-- a PDD should be issued to identify policy priorities and mandate senior-level oversight and organizational changes needed for effective implementation.

-- it would be beneficial to have a full-time coordinator for these issues on the NSC staff.

2. Summit Language. We have drafted, and the Standing Committee has approved, proposed summit language highlighting the priority of cooperation to secure nuclear materials and calling for a joint report for Gore-Chernomyrdin in June. (The proposed language, at Tab A, would be included in a planned summit statement on nonproliferation.) This language is being discussed with Russian representatives in New York.

3. Presidential Decision Directive. Given the consensus that a PDD on this subject should be prepared, we will be working over the next few days to solicit agency views on what should be included, and to produce a draft. The PDD should task development of a gameplan for our own program and for further negotiations with Russia, including actions to address the President's concern about the lack of an inventory of nuclear materials in the former Soviet Union. Our plan will also include as a priority a coordinated legislative strategy to ensure adequate funding and authority for cooperative programs with Russia. By the end of the week, we expect to provide you with a memorandum for signature directing that the Nonproliferation Standing Committee oversee the

preparation of such a PDD.

4. Staffing and Organization. We believe several steps should be taken to strengthen the Administration's response to the problem of fissile materials in the former Soviet Union.

-- Our chief negotiator with the Russians on this issue, Ambassador Goodby, should receive a Presidential commission to make clear the higher priority we are placing on Russian cooperation in this area.

-- An additional director should be added to the NSC

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Nonproliferation Office to coordinate USG activities related to fissile materials in the former Soviet Union. An immediate responsibility would be to staff these issues for the next Gore-Chernomyrdin meeting.

-- The Standing Committee should meet more frequently to ensure that policy-level Administration officials give adequate attention to the implementation of our nuclear materials security efforts.

-- DOE, the lead agency in this area, should review its staffing and funding priorities in light of the PCAST findings, and in coordination with the development of our overall gameplan.

5. DOE-DOD Disagreements. DOE and DOD confirm that the specific issue of the transfer of the $15 million to fund lab-to-lab programs has been resolved. This problem points to the need for greater flexibility in our funding and management mechanisms in this area, and we should identify any legislative or procedural changes needed.

6. MPCA Action Plan: As directed by the PDD, an existing NSC-chaired MPCA sub-IWG will prepare a prioritized nuclear material security and accounting action plan, specifying near term, mid-term, and long-term goals and objectives, and the resources needed to accomplish them. The sub-IWG will commission a database that prioritizes nuclear sites in terms of their vulnerability to nuclear theft, and includes USG and other-government efforts to improve security at each site.

The sub-IWG will present the completed plan to the Committee within 60 days.

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MSMail

DATE-TIME 03 May 95 18:13

FROM Tarantino, Frederick A.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT RE: MPC&A memo [~~CONFIDENTIAL~~]

TO Aoki, Steven N.

CARBON_COPY NO CC's on THIS MESSAGE

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.76)
9/19/2022 VL

TEXT_BODY

Steve --

Enclosed is a draft with Jane's edits. I believe she is speaking to Dan more or less as I write to explain the rationale for them. She felt that it was inappropriate for her to be sending a memo to Tony specifying which directorate this new director should be in, and that the presumption was it would be in the nonproliferation directorate in any case. She also believes strongly (as do I) that the development of the action plan should be the responsibility of the new person charged to coordinate these programs, as part of the preparation of the PDD, and that the entire section of tick 6 is more the kind of thing that should be saved for a later, more official document (such as the PDD itself) rather than simply being in a memo from Dan and Jane. Someday, all this will be done....

Matt

[[PCASTMEM.DOC : 4647 in PCASTMEM.DOC]]

From: Aoki, Steven
To: Tarantino, Frederick A.; Wales, Jane M.
CC: /R, Record at A1; Poneman, Daniel B.; Stern, Jessica E.
Subject: MPC&A memo ~~[CONFIDENTIAL]~~
Date: Wednesday, May 03, 1995 05:02 PM

<<Attached File: 5-3C.DOC>>

As noted before, I've done some rewriting to underscore for Tony what a PDD would do and to add the Goodby, DOE & Standing Committee improvements to the
list of action items. This is now cleared by Poneman. Let me know if you have changes to my changes.

Suggest in addition that Jessica and I be shown as concurring in the final version. Thanks

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ATTACHMENT FILE DATE 3 May 95 18:3

ATTACHMENT FILE NAME PCASTMEM.DOC
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~
Declassify on: OADR
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

May 2, 1995

MEMORANDUM FOR ANTHONY LAKE
JOHN H. GIBBONS

FROM: DAN PONEMAN/JANE WALES

RE: FOLLOW-UP ON FSU NUCLEAR MATERIALS SECURITY

At your direction, we have been moving out rapidly to follow up on the PCAST report on security for nuclear materials in the former Soviet Union.

1. Agency Views. The Standing Committee on Nonproliferation discussed the report's recommendations today. All agencies agreed that:

-- improvements in security and accounting for nuclear materials in the FSU are a high priority, and the PCAST report made a valuable contribution;

-- the summit nonproliferation declaration should include language on nuclear materials security;

-- a PDD should be issued to identify policy priorities and mandate senior-level oversight and organizational changes needed for effective implementation.

-- it would be beneficial to have a full-time coordinator for these issues on the NSC staff.

2. Summit Language. We have drafted, and the Standing Committee

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has approved, proposed summit language highlighting the priority of cooperation to secure nuclear materials and calling for a joint report for Gore-Chernomyrdin in June. (The proposed language, at Tab A, would be included in a planned summit statement on nonproliferation.) This language is being discussed with Russian representatives in New York.

3. Presidential Decision Directive. Given the consensus that a PDD on this subject should be prepared, we will be working over the next few days to solicit agency views on what should be included, and to produce a draft. The PDD should task development of a gameplan for our own program and for further negotiations with Russia, including actions to address the President's concern about the lack of an inventory of nuclear materials in the former Soviet Union. Our plan will also include as a priority a coordinated legislative strategy to ensure adequate funding and authority for cooperative programs with Russia. By the end of the week, we expect to provide you with a memorandum for signature directing the preparation of such a PDD.

4. Staffing and Organization. We believe several steps should be taken to strengthen the Administration's response to the problem of fissile materials in the former Soviet Union.

-- Our chief negotiator with the Russians on this issue, Ambassador Goodby, should receive a Presidential commission to make clear the higher priority we are placing on Russian cooperation in this area.

-- An additional director should be added to the NSC to coordinate USG activities related to fissile materials in the former Soviet Union. Immediate responsibilities would be to staff these issues for the next Gore-Chernomyrdin meeting and to oversee preparation of the PDD.

-- The Standing Committee should meet more frequently to ensure that policy-level Administration officials give adequate attention to the implementation of our nuclear materials security efforts.

-- DOE, the lead agency in this area, should review its staffing and funding priorities in light of the PCAST findings, and in coordination with the development of our overall gameplan.

5. DOE-DOD Disagreements. DOE and DOD confirm that the specific issue referred to in the PCAST briefing -- the transfer of the $15 million to fund lab-to-lab programs -- has been resolved. This problem points to the need for greater flexibility in our funding

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and management mechanisms in this area, and we should identify any legislative or procedural changes needed. In addition to a full-time NSC director to coordinate these issues, DOE proposes as-needed meetings of a triumvirate of Undersecretary Charles Curtis, Undersecretary Lynn Davis, and Assistant Secretary Ash Carter to give these efforts high-level impetus and coordination.

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MSMail

DATE-TIME 03 May 95 21:09

FROM Aoki, Steven N.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT FW: here is the compromise ~~[CONFIDENTIAL~~]

TO Poneman, Daniel B.

CARBON_COPY NO CC's on THIS MESSAGE

DECLASSIFIED
PER E.O. 13526
2016-0129-M (1.77)
9/19/2022 VL

TEXT_BODY

I think this is now OK; beware of colleagues bearing gifts, however.

Note that the one thing that Jane insisted on was removing the designation of the Nonproliferation Office as the place in NSC where the alleged new person would sit. I agreed to this because I think we have plenty of other hooks for this (and there's no credible alternative-- State, DOD and Energy will put up with us or the Russia office, but not anybody else in the lead.)

From: Stern, Jessica E.
To: Aoki, Steven
CC: /R, Record at A1
Subject: here is the compromise ~~[CONFIDENTIAL]~~
Date: Wednesday, May 03, 1995 07:34 PM

[[5-3C1.DOC : 5464 in 5-3C1.DOC]]

please forward to wales as soon as you approve.

ATTACHMENT FILE DATE 3 May 95 19:30

ATTACHMENT FILE NAME 5-3C1.DOC
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~
Declassify on: OADR
~~CONFIDENTIAL~~

CLINTON LIBRARY PHOTOCOPY

~~CONFIDENTIAL~~

May 2, 1995

MEMORANDUM FOR ANTHONY LAKE
JOHN H. GIBBONS

FROM: DAN PONEMAN/JANE WALES

RE: FOLLOW-UP ON FSU NUCLEAR MATERIALS SECURITY

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-- it would be beneficial to have a full-time coordinator for these issues on the NSC staff.

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Union. Our plan will also include as a priority a coordinated legislative strategy to ensure adequate funding and authority for cooperative programs with Russia. By the end of the week, we expect to provide you with a memorandum for signature directing that the Nonproliferation Standing Committee oversee the

preparation of such a PDD.

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-- Our chief negotiator with the Russians on this issue, Ambassador Goodby, should receive a Presidential commission to make clear the higher priority we are placing on Russian cooperation in this area.

-- An additional director should be added to the NSC Nonproliferation Office to coordinate USG activities related to fissile materials in the former Soviet Union. An immediate responsibility would be to staff these issues for the next Gore-Chernomyrdin meeting.

-- The Standing Committee should meet more frequently to ensure that policy-level Administration officials give adequate attention to the implementation of our nuclear materials security efforts.

-- DOE, the lead agency in this area, should review its staffing and funding priorities in light of the PCAST findings, and in coordination with the development of our overall gameplan.

5. DOE-DOD Disagreements. DOE and DOD confirm that the specific issue referred to in the PCAST briefing -- the transfer of the $15 million to fund lab-to-lab programs -- has been resolved. This problem points to the need for greater flexibility in our funding and management mechanisms in this area, and we should identify any legislative or procedural changes needed.

6. MPCA Action Plan: The existing NSC-led MPCA Group is already working with agencies to develop a plan for upgrading security and accounting for nuclear materials at the most vulnerable facilities in the FSU. In addition, we are seeking DOE commitment to develop and maintain a database that prioritizes nuclear sites in terms of their vulnerability to nuclear theft, and includes USG and other-government efforts to improve security at each site.

CLINTON LIBRARY PHOTOCOPY

MSMail

DATE-TIME	04 May 95 09:30
FROM	Stern, Jessica E.
CLASSIFICATION	~~SECRET~~
SUBJECT	FW: here is the compromise ~~[SECRET]~~
TO	Behring, Deanna M. Boright, John Chyba, Christopher F. Tarantino, Frederick A. Wales, Jane Ward, JoAnn X.
CARBON_COPY	NO CC's on THIS MESSAGE
TEXT_BODY	

DECLASSIFIED
PER E.O. 13526
2016-0129-M (1.78)
9/19/2022 VL

From: Stern, Jessica E.
To: Aoki, Steven
CC: /R, Record at A1
Subject: here is the compromise [~~CONFIDENTIAL~~]
Date: Wednesday, May 03, 1995 07:34 PM

[[5-3C1.DOC : 2333 in 5-3C1.DOC]]

please forward to wales as soon as you approve.

ATTACHMENT FILE DATE	3 May 95 19:30
ATTACHMENT FILE NAME	5-3C1.DOC ~~CONFIDENTIAL~~

~~CONFIDENTIAL~~
Declassify on: OADR
~~CONFIDENTIAL~~

CLINTON LIBRARY PHOTOCOPY

May 2, 1995

MEMORANDUM FOR ANTHONY LAKE
JOHN H. GIBBONS

FROM: DAN PONEMAN/JANE WALES

RE: FOLLOW-UP ON FSU NUCLEAR MATERIALS SECURITY

At your direction, we have been moving out rapidly to follow up on the PCAST report on security for nuclear materials in the former Soviet Union.

1. Agency Views. The Standing Committee on Nonproliferation discussed the report's recommendations today. All agencies agreed that:

-- improvements in security and accounting for nuclear materials in the FSU are a high priority, and the PCAST report made a valuable contribution;

-- the summit nonproliferation declaration should include language on nuclear materials security;

-- a PDD should be issued to identify policy priorities and mandate senior-level oversight and organizational changes needed for effective implementation.

-- it would be beneficial to have a full-time coordinator for these issues on the NSC staff.

2. Summit Language. We have drafted, and the Standing Committee has approved, proposed summit language highlighting the priority of cooperation to secure nuclear materials and calling for a joint report for Gore-Chernomyrdin in June. (The proposed language, at Tab A, would be included in a planned summit statement on nonproliferation.) This language is being discussed with Russian representatives in New York.

3. Presidential Decision Directive. Given the consensus that a PDD on this subject should be prepared, we will be working over the next few days to solicit agency views on what should be included, and to produce a draft. The PDD should task development of a gameplan for our own program and for further negotiations with Russia, including actions to address the President's concern about the lack of an inventory of nuclear materials in the former Soviet Union. Our plan will also include as a priority a coordinated legislative strategy to ensure adequate funding and authority for cooperative programs with Russia. By the end of the week, we

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expect to provide you with a memorandum for signature directing that the Nonproliferation Standing Committee oversee the

preparation of such a PDD.

4. Staffing and Organization. We believe several steps should be taken to strengthen the Administration's response to the problem of fissile materials in the former Soviet Union.

-- Our chief negotiator with the Russians on this issue, Ambassador Goodby, should receive a Presidential commission to make clear the higher priority we are placing on Russian cooperation in this area.

-- An additional director should be added to the NSC Nonproliferation Office to coordinate USG activities related to fissile materials in the former Soviet Union. An immediate responsibility would be to staff these issues for the next Gore-Chernomyrdin meeting.

-- The Standing Committee should meet more frequently to ensure that policy-level Administration officials give adequate attention to the implementation of our nuclear materials security efforts.

-- DOE, the lead agency in this area, should review its staffing and funding priorities in light of the PCAST findings, and in coordination with the development of our overall gameplan.

5. DOE-DOD Disagreements. DOE and DOD confirm that the specific issue referred to in the PCAST briefing -- the transfer of the $15 million to fund lab-to-lab programs -- has been resolved. This problem points to the need for greater flexibility in our funding and management mechanisms in this area, and we should identify any legislative or procedural changes needed.

6. MPCA Action Plan: The existing NSC-led MPCA Group is already working with agencies to develop a plan for upgrading security and accounting for nuclear materials at the most vulnerable facilities in the FSU. In addition, we are seeking DOE commitment to develop and maintain a database that prioritizes nuclear sites in terms of their vulnerability to nuclear theft, and includes USG and other-government efforts to improve security at each site.

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M S M a i l

DATE-TIME 04 May 95 09:57

FROM Tarantino, Frederick A.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT ~~[CONFIDENTIAL]~~

TO Aoki, Steven N.

CARBON_COPY Stern, Jessica E.

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.79)
9/19/2022 VL

TEXT_BODY

[[PCASTMEM.DOC : 2395 in PCASTMEM.DOC]]

Steve --

It appears that the file that Jessica and I were working from last night was your last draft, rather than the draft with the modest changes we had made up here. So here is a version with Jane's changes from yesterday (minus the reference to DOE's "triumvirate" idea, as we discussed), and the tick 6 that Jessica and I agreed to last night. Hope all is OK now.

Cheers,

Matt

ATTACHMENT FILE DATE 4 May 95 9:53

ATTACHMENT FILE NAME PCASTMEM.DOC
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~
Declassify on: OADR
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

May 4, 1995

CLINTON LIBRARY PHOTOCOPY

MEMORANDUM FOR ANTHONY LAKE
JOHN H. GIBBONS

FROM: DAN PONEMAN/JANE WALES

RE: FOLLOW-UP ON FSU NUCLEAR MATERIALS SECURITY

At your direction, we have been moving out rapidly to follow up on the PCAST report on security for nuclear materials in the former Soviet Union.

1. Agency Views. The Standing Committee on Nonproliferation discussed the report's recommendations on Tuesday, May 2. All agencies agreed that:

-- improvements in security and accounting for nuclear materials in the FSU are a high priority, and the PCAST report made a valuable contribution;

-- the summit nonproliferation declaration should include language on nuclear materials security;

-- a PDD should be issued to identify policy priorities and mandate senior-level oversight and organizational changes needed for effective implementation.

-- it would be beneficial to have a full-time coordinator for these issues on the NSC staff.

2. Summit Language. We have drafted, and the Standing Committee has approved, proposed summit language highlighting the priority of cooperation to secure nuclear materials and calling for a joint report for Gore-Chernomyrdin in June. (The proposed language, at Tab A, would be included in a planned summit statement on nonproliferation.) This language is being discussed with Russian representatives in New York, and should be raised at the Davis-Mamedov meeting on Friday.

3. Presidential Decision Directive. Given the consensus that a PDD on this subject should be prepared, we will be working over the next few days to solicit agency views on what should be included, and to produce a draft. The PDD should task development of a gameplan for our own program and for further negotiations with Russia, including actions to address the President's concern about the lack of an inventory of nuclear materials in the former Soviet Union. Our plan will also include as a priority a coordinated legislative strategy to ensure adequate funding and authority for cooperative programs with Russia. By the end of the week, we expect to provide you with a memorandum for signature directing the

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preparation of such a PDD.

4. Staffing and Organization. We believe several steps should be taken to strengthen the Administration's response to the problem of fissile materials in the former Soviet Union.

-- Our chief negotiator with the Russians on this issue, Ambassador Goodby, should receive a Presidential commission to make clear the higher priority we are placing on Russian cooperation in this area.

-- An additional director should be added to the NSC to coordinate USG activities related to fissile materials in the former Soviet Union. Immediate responsibilities would be to staff these issues for the next Gore-Chernomyrdin meeting and to oversee preparation of the PDD.

-- The Standing Committee should meet more frequently to ensure that policy-level Administration officials give adequate attention to the implementation of our nuclear materials security efforts.

-- DOE, the lead agency in this area, should review its staffing and funding priorities in light of the PCAST findings, and in coordination with the development of our overall gameplan.

5. DOE-DOD Disagreements. DOE and DOD confirm that the specific issue referred to in the PCAST briefing -- the transfer of the $15 million to fund lab-to-lab programs -- has been resolved. This problem points to the need for greater flexibility in our funding and management mechanisms in this area, and we should identify any legislative or procedural changes needed.

6. MPCA Action Plan: The existing NSC-led MPCA Group is already working with agencies to develop a plan for upgrading security and accounting for nuclear materials at the most vulnerable facilities in the FSU. In addition, we are seeking DOE commitment to develop and maintain a database that prioritizes nuclear sites in terms of their vulnerability to nuclear theft, and includes USG and other-government efforts to improve security at each site.

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M S M a i l

DATE-TIME 04 May 95 13:59

FROM Stern, Jessica E.

CLASSIFICATION ~~SECRET~~

SUBJECT memo to potus on mpca ~~[SECRET]~~

TO Aoki, Steven N.
Poneman, Daniel B.

CARBON_COPY Beyrle, John R.
Blacker, Coit D.
Broadway, Jamuna
Heslin, Sheila N.
Pifer, Steven K.
Stauffer, Helen L.
Stern, Jessica E.

DECLASSIFIED
PER E.O. 13526
2016-0129-M (1.80)
9/19/2022 VL

TEXT_BODY

[[MPCAPRE.DOC : 3375 in MPCAPRE.DOC]]here's my first cut at a memo to the
president on pcast, which would go from all 3 directorates. steve A.-- send me your changes and then I'll work with Matt. OK? Dan wants to get this out tonight. And then by tomorrow we have to have something on the PDD.

ATTACHMENT FILE DATE 4 May 95 13:53

ATTACHMENT FILE NAME MPCAPRE.DOC
~~SECRET~~
~~SECRET~~
cc: Vice President
Declassify on: OADR
Chief of Staff

~~SECRET~~
~~SECRET~~

INFORMATION

MEMORANDUM FOR THE PRESIDENT

FROM: ANTHONY LAKE/JACK GIBBONS

CLINTON LIBRARY PHOTOCOPY

SUBJECT: Nuclear Materials Security in the FSU

At your direction, we are following up on the PCAST report on security for nuclear materials in the former Soviet Union. We agree with the PCAST finding that improvements in security and accounting for nuclear materials in the FSU are a high priority and should be high on our agenda with the Russians. We also agree that these issues deserve greater attention within our own government.

To achieve these ends, we have undertaken the following actions:

-- [Directed our staff to prepare] a PDD that will identify policy priorities, mandate senior-level oversight, and task development of a gameplan for our own program and for further negotiations with Russia, especially in the area of improving Russia's accouting system for nuclear materials. Our plan will also include as a priority a coordinated legislative strategy to ensure adequate funding and authority for cooperative programs with Russia. [We will forward this plan to you within [60] days.]

-- Drafted summit language highlighting the priority of cooperation to secure nuclear materials and calling for a joint report for Gore-Chernomyrdin in June. We are currently negotiating with the Russians on this language.

We believe several additional steps should be taken to strengthen the Administration's response to the problem of fissile materials in the former Soviet Union.

-- Our chief negotiator with the Russians on this issue, Ambassador Goodby, should receive a Presidential commission to make clear the higher priority we are placing on Russian cooperation in this area.

-- We will undertake a review of NSC staffing on this issue, and will suggest tha t DOE do the same.

Attachment
Tab [A] [Enter brief description of attachment]

CLINTON LIBRARY PHOTOCOPY

M S M a i l

DATE-TIME 04 May 95 18:42

FROM Aoki, Steven N.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT URGENT CLEARANCE REQUEST [~~CONFIDENTIAL~~]

TO Blacker, Coit D.
Wales, Jane

CARBON_COPY Poneman, Daniel B.
Stern, Jessica E.
Tarantino, Frederick A.

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.81)
9/19/2022 VL

TEXT_BODY

[[5-4A.DOC : 4633 in 5-4A.DOC]][[5-4B.DOC : 4632 in 5-4B.DOC]]
Let's try this again with the documents attached this time.

Still need clearance ASAP. Thanks.

ATTACHMENT FILE DATE 4 May 95 18:11

ATTACHMENT FILE NAME 5-4B.DOC
~~CONFIDENTIAL~~
~~CONFIDENTIAL~~
Declassify on: OADR

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

ACTION

MEMORANDUM FOR ANTHONY LAKE

THROUGH: DANIEL PONEMAN

FROM: STEVEN AOKI

SUBJECT: Nuclear Materials in the Former Soviet Union

CLINTON LIBRARY PHOTOCOPY

Attached as requested is a memorandum to Leon Panetta following up on the PCAST briefing to the President and Vice President.

Concurrence by: Jane Wales, Coit Blacker

RECOMMENDATION

That you sign the Memorandum to the President at Tab I.

Attachment
Tab I Memorandum to the President

ATTACHMENT FILE DATE 4 May 95 16:42

ATTACHMENT FILE NAME 5-4A.DOC

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~
Declassify on: OADR

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

May 4, 1995

ACTION

MEMORANDUM FOR LEON PANETTA

FROM: ANTHONY LAKE

SUBJECT: Protecting Former Soviet Nuclear Materials

You and I attended a briefing for the President and Vice President about the danger from loosely-controlled nuclear material in the former Soviet Union. One of the expert panel's recommendations was that the White House needs to play a stronger leadership role in energizing our assistance programs in this area and in resolving interagency differences.

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I agree. A more centrally-focused U.S. effort will increase Russian cooperation and deflect Congressional criticism that is already directed at the Nunn-Lugar program. To this end, I propose that we do the following:

-- Give our chief negotiator in this area, Ambassador Jim Goodby, a Presidential appointment. This would give him additional clout to get the Russians to cooperate on protecting nuclear materials owned by the military and in expanding the number of sites where we're providing help.

-- Authorize an additional FTE for NSC to add a Director whose primary responsibility would be oversight of U.S. programs aimed at improving nuclear materials control, accounting and physical protection in the former Soviet Union. This will ensure that the White House can monitor effectively the implementation of our assistance. The new Director would also support the Vice President in his Gore-Chernomyrdin Commission efforts.

I've already asked Dan Poneman's interagency Standing Committee on Nonproliferation to put this issue at the top of its agenda. This group, with Under Secretary/Assistant Secretary level membership, will meet regularly to address any interagency policy problems that may arise.

RECOMMENDATION

That you concur in the steps outlined above, including authorizing the FTE for an additional NSC staff member.

Approve _____ Disapprove _____

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Withdrawal/Redaction Sheet
Clinton Library

DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
001. email	Jessica Stern to Helen Stauffer, re: memo to potus on mpca (3 pages)	05/05/1995	P1/b(1)
~~002. email~~	~~Steven Aoki to Steven Andreasen, re: PCAST Report (1 page)~~	~~05/17/1995~~	~~P1/b(1)~~ VZ 04/07/2023
003. email	Jessica Stern to Coit Blacker, re: agenda for a blacker/poneman meeting (2 pages)	05/22/1995	P1/b(1)
004. email	Jessica Stern to Coit Blacker and Daniel Poneman, re: memo to agencies on our response to PCAST (7 pages)	05/24/1995	P1/b(1)
005. email	Jessica Stern to Daniel Poneman, re: 3487, per your request (2 pages)	05/24/1995	P1/b(1)
006. email	Jessica Stern to Coit Blacker and Daniel Poneman, re: agenda for PCAST meeting (1 page)	05/24/1995	P1/b(1)
007. email	Peter Bass to Jessica Stern, re: [president's interest] (2 pages)	05/25/1995	P1/b(1)
008. email	Jessica Stern to Daniel Poneman, re: PDD, memo to Tony, memo to Standing Committee (15 pages)	05/25/1995	P1/b(1)
009. email	Jessica Stern to Daniel Poneman, re: [president's interest] (1 page)	05/26/1995	P1/b(1)
010. email	Jessica Stern to Daniel Poneman, re: pcast response (6 pages)	05/26/1995	P1/b(1)
011. email	Daniel Poneman to Jessica Stern, re: pcast insert as promised (7 pages)	05/30/1995	P1/b(1)
012. email	Jessica Stern to Daniel Poneman, re pdd; pcast response (12 pages)	05/30/1995	P1/b(1)

COLLECTION:
Clinton Presidential Records
NSC Emails
MSMail - Record (Sept 94 - Sept 97) ([PCAST])
OA/Box Number: 590000

FOLDER TITLE:
[05/05/1995 - 05/31/1995]

2014-0880-F
ke2701

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P3 Release would violate a Federal statute [(a)(3) of the PRA]
P4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.
PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).
RR. Document will be reviewed upon request.

Freedom of Information Act - [5 U.S.C. 552(b)]

b(1) National security classified information [(b)(1) of the FOIA]
b(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
b(3) Release would violate a Federal statute [(b)(3) of the FOIA]
b(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
b(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
b(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

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Withdrawal/Redaction Sheet
Clinton Library

DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
013. email	Jessica Stern to Joan Edwards, re: the two docs to send out (12 pages)	05/31/1995	P1/b(1)

COLLECTION:
Clinton Presidential Records
NSC Emails
MSMail - Record (Sept 94 - Sept 97) ([PCAST])
OA/Box Number: 590000

FOLDER TITLE:
[05/05/1995 - 05/31/1995]

2014-0880-F
ke2701

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P3 Release would violate a Federal statute [(a)(3) of the PRA]
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b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

CLINTON LIBRARY PHOTOCOPY

M S M a i l

DATE-TIME 17 May 95 09:54

FROM Aoki, Steven N.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT Subject: RE: PCAST Report ~~[CONFIDENTIAL]~~

TO Andreasen, Steven P.

CARBON_COPY NO CC's on THIS MESSAGE

DECLASSIFIED
E.O. 13526
White House Guidelines, May 16, 2017
By VR NARA, Date 9/19/2022
2020-0565-M

TEXT_BODY

I will leave a copy with Joan/Mary for you . Sounds like you're fully briefed on the state of play.
(with one exception: Jane Wales is going to mud wrestle Jessica for the title of czarina.

From: Andreasen, Steven P.
To: Aoki, Steven
CC: /R, Record at A1
Subject: PCAST Report [UNCLASSIFIED]
Date: Wednesday, May 17, 1995 08:41 AM

Do you have an extra copy of the PCAST report, or could I borrow yours to flip through the conclusions? I see Danvers is now briefing this damn thing to the hill, and I still haven't read it. Also, Bob Bell believes that the POTUS has approved there being a "czar" for this...does that mean that the next Aoki will be PCAST czar? Will Jessica Stern be the PCAST czarina? Will Jim Goodby ever have a real job? In short, what the hell is going on here?

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Withdrawal/Redaction Sheet
Clinton Library

DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
~~001. email~~	~~Christopher Clyba to Frederick Tarantino, re: read this one (4 pages)~~	~~04/04/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~002. email~~	~~From JoAnn Ward, re: Fissile Materials Schedule Request (5 pages)~~	~~04/07/1995~~	~~P1/b(1)~~ VZ 04/07/2023
003. email	Jessica Stern to Steven Aoki, re: 10 may meeting (1 page)	04/13/1995	P1/b(1)
004. email	Steven Aoki to Daniel Poneman, re: PCAST briefing [partial] (1 page)	04/17/1995	b(6)
~~005. email~~	~~Jessica Stern to Steven Pifer, re: 10 may meeting (3 pages)~~	~~04/17/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~006. email~~	~~John Beyrle to Steven Pifer, re: 10 may meeting (3 pages)~~	~~04/17/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~007. email~~	~~Steven Aoki to Jessica Stern, re: peast briefing (2 pages)~~	~~05/01/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~008. email~~	~~Frederick Tarantino to Jane Wales, re: Lake Talkers (2 pages)~~	~~05/02/1996~~	~~P1/b(1)~~ VZ 04/07/2023
~~009. email~~	~~Frederick Tarantino to Jane Wales, re: CPL Talkers (2 pages)~~	~~05/02/1995~~	~~P1/b(1)~~ VZ 04/07/2023
010. email	Jessica Stern to Steven Aoki and Daniel Poneman, re: two memos (5 pages)	05/05/1995	P1/b(1)
011. email	Jessica Stern to Coit Blacker, re: FW: fissile materials issues - your role (2 pages)	05/17/1995	P1/b(1)
012. email	Jessica Stern to John Beyrle, et al., re: pdd [on nuclear security] (8 pages)	05/17/1995	P1/b(1)

COLLECTION:
Clinton Presidential Records
NSC Emails
MSMail - Non-Record (Sept 94 - Sept 97) ([PCAST])
OA/Box Number: 605000

FOLDER TITLE:
[03/20/1995 - 05/30/1995]

2014-0880-F
ke2702

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P3 Release would violate a Federal statute [(a)(3) of the PRA]
P4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.
PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).
RR. Document will be reviewed upon request.

Freedom of Information Act - [5 U.S.C. 552(b)]

b(1) National security classified information [(b)(1) of the FOIA]
b(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
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b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

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Withdrawal/Redaction Sheet
Clinton Library

DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
013. email	George Reed to William Wise and Ann Woolston, re: proposed GC letter on MCPA (2 pages)	05/22/1995	P1/b(1)
014. email	From Jessica Stern, re: agenda for a blacker/poneman meeting (2 pages)	05/22/1995	P1/b(1)
015. email	Jessica Stern to John Hale, re: pcast document (9 pages)	05/23/1995	P1/b(1)
~~016. email~~	~~John Beryle to Coit Blacker, et al., re: [Memeon] (7 pages)~~	~~05/30/1995~~	~~P1/b(1)~~ VZ 04/07/2023

COLLECTION:
Clinton Presidential Records
NSC Emails
MSMail - Non-Record (Sept 94 - Sept 97) ([PCAST])
OA/Box Number: 605000

FOLDER TITLE:
[03/20/1995 - 05/30/1995]

2014-0880-F
ke2702

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
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b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

CLINTON LIBRARY PHOTOCOPY

MSMail

DATE-TIME	04 April 95 11:18
FROM	Chyba, Christopher F.
CLASSIFICATION	UNCLASSIFIED
SUBJECT	[UNCLASSIFIED]read this one
TO	Tarantino, Frederick A.
CARBON_COPY	NO CC's on THIS MESSAGE
TEXT_BODY	

Fred,

Chuck my last message; red-ink this version of the scheduling request.

[[PCASTBRF.DOC : 2904 in PCASTBRF.DOC]]

--chris

ATTACHMENT FILE DATE	4 April 95 11:17
ATTACHMENT FILE NAME	PCASTBRF.DOC

3 April 1995

Schedule Proposal date____/____/_____

_____ACCEPT _____REGRET _____PENDING

TO: Billy Webster
Director of Scheduling and Advance

FROM: Anthony Lake
Assistant to the President for
National Security Affairs

CLINTON LIBRARY PHOTOCOPY

REQUEST: Twenty-minute briefing on immediate actions needed to strengthen the security of weapons-usable nuclear materials in the former Soviet Union. The briefing should take place prior to the President's May Summit with President Yeltsin.

PURPOSE: The briefing, at the Secret level, will be given by John Holdren (Chair of the National Academy of Sciences' Committee on International Security and Arms Control) and Norman Augustine (President of Lockheed Martin Corporation), members of a special panel of the President's Committee of Advisors on Science and Technology (PCAST). The panel has just completed its review of U.S.-former Soviet Union cooperation to protect, control, and account for weapons-usable nuclear materials. The panel will recommend to the President specific actions to strengthen U.S. efforts to prevent nuclear theft.

BACKGROUND: The PCAST is chartered to provide independent private-sector advice to the President. This panel of experts concluded that inadequately safeguarded nuclear materials in the former Soviet Union pose a significant danger of falling into the hands of terrorists or rogue states. They note that while our recent efforts have begun to make headway in solving this problem, there are additional, immediate steps the President can take to improve the security of these materials as soon as possible, and reduce the danger currently posed to our country.

PREVIOUS PARTICIPATION: None

DATE AND TIME: Open, but prior to the Clinton-Yeltsin Summit in May

BRIEFING TIME: None

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DURATION: 20 minutes

LOCATION: Open

PARTICIPANTS: White House Participants:

Anthony Lake
Assistant to the President for
National Security Affairs

[John H. Gibbons
Assistant to the President for
Science and Technology]

Daniel Poneman
Special Assistant to the President
for Nonproliferation and Export Controls

Jane Wales
Special Assistant to the President
for Science and Technology

PCAST Panel Participants:

John Holdren (Chairman)
University of California, Berkeley;
Chairman, Committee on International
Security and Arms Control, National
Academy of Sciences

Norman Augustine
President, Lockheed Martin
Corporation

Matthew Bunn (staff)
National Academy of Sciences

OUTLINE OF EVENTS: The briefing would be presented by Holdren and Augustine, who would deliver the PCAST conclusions to the President and make recommendations for Presidential action.

REMARKS REQUIRED: No formal remarks required

MEDIA COVERAGE: None (classified briefing)

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FIRST LADY'S ATTENDANCE: Not requested

VICE PRESIDENT'S ATTENDANCE:

Not required, but highly desirable

RECOMMENDED BY: The Assistant to the President for National Security

The Assistant to the President for Science and Technology

The President's Committee of Advisors on Science and Technology

CONTACT: Jane Wales
Special Assistant to the President
for Science and Technology

ORIGIN OF THIS PROPOSAL: NSC, OSTP, and PCAST

SECOND LADY'S ATTENDANCE: Not requested

CLINTON LIBRARY PHOTOCOPY

M S M a i l

DATE-TIME	07 April 95 09:17
FROM	Ward, JoAnn X.
CLASSIFICATION	~~CONFIDENTIAL~~
SUBJECT	FW: ~~[CONFIDENTIAL]~~
TO	Ward, JoAnn X.
CARBON_COPY	NO CC's on THIS MESSAGE
TEXT_BODY	

DECLASSIFIED
E.O. 13526
White House Guidelines, May 16, 2017
By VL NARA, Date 4/14/2022
2020-0565-M

From: Chyba, Christopher F.
To: Millison, Cathy L.
CC: /R, Record at A1; Ward, Joann
Subject: ~~[CONFIDENTIAL]~~Fissile Materials Schedule Request
Date: Thursday, April 06, 1995 03:50 PM

[[PCASTBRF.DOC : 2345 in PCASTBRF.DOC]]

As requested, here is an electronic copy of the original fissile materials schedule request (2583).

ATTACHMENT FILE DATE	5 April 95 16:31
ATTACHMENT FILE NAME	PCASTBRF.DOC

~~CONFIDENTIAL~~
2583
~~CONFIDENTIAL~~
Declassify on: OADR

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~
Declassify on: OADR

Schedule Proposal 4 April 1995

CLINTON LIBRARY PHOTOCOPY

TO: Billy Webster
Director of Scheduling and Advance

FROM: Anthony Lake
Assistant to the President for
National Security Affairs

REQUEST: In response to request from Chief of Staff Panetta to set up a briefing on this topic.

Twenty-minute briefing (followed by ten minute Q&A) on immediate actions recommended to strengthen the security of weapons-usable nuclear materials in the former Soviet Union. The briefing should take place in time to incorporate any Presidential guidance into preparations for the President's May Summit with President Yeltsin.

PURPOSE: The briefing, at the Secret level, will be given by John Holdren (Chair of the National Academy of Sciences' Committee on International Security and Arms Control) and Norman Augustine (President of Lockheed Martin Corporation), members of a special panel of the President's Committee of Advisors on Science and Technology (PCAST). The panel has just completed its review of U.S.-former Soviet Union cooperation to protect, control, and account for weapons-usable nuclear materials. The panel will recommend to the President specific actions to strengthen U.S. efforts to prevent nuclear theft.

BACKGROUND: The PCAST is chartered to provide independent private-sector advice to the President. This panel of experts concluded that inadequately safeguarded nuclear materials in the former Soviet Union pose a significant danger of falling into the hands of terrorists or rogue states. They note

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that while our recent efforts have made headway in solving this problem, there are additional, immediate steps the President can take to improve the security of these materials.

PREVIOUS PARTICIPATION: None

DATE AND TIME: As early as possible, to allow time to incorporate any Presidential guidance into preparations for the President's Moscow Summit with President Yeltsin May 9-10.

Strongly Preferred Date and Time:
Any time the week of April 10-14.

The principal PCAST briefer, Dr. John Holdren, will be in Beijing April 15-20.

Alternate Dates:
Subsequent to April 21.

BRIEFING TIME: None

DURATION: 30 minutes

LOCATION: Open

PARTICIPANTS: White House Participants:

Anthony Lake
Assistant to the President for
National Security Affairs

John H. Gibbons
Assistant to the President for
Science and Technology

Daniel Poneman
Special Assistant to the President
for Nonproliferation and Export Controls

Jane Wales
Special Assistant to the President
for Science and Technology

PCAST Panel Participants:

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John Holdren (Chairman)
University of California, Berkeley;
Chairman, Committee on International
Security and Arms Control, National
Academy of Sciences

Norman Augustine
President, Lockheed Martin
Corporation

Matthew Bunn (staff)
National Academy of Sciences

OUTLINE OF EVENTS: The briefing would be presented by Holdren and

Augustine, who would deliver the PCAST conclusions to the President and make recommendations for Presidential action. Time will be set aside for Q&A.

REMARKS REQUIRED: No formal remarks required

MEDIA COVERAGE: None (classified briefing)

FIRST LADY'S ATTENDANCE: Not requested

VICE PRESIDENT'S ATTENDANCE:

Requested

RECOMMENDED BY: The Assistant to the President for National Security

The Assistant to the President for Science and Technology

The President's Committee of Advisors on Science and Technology

CONTACT: Jane Wales
Special Assistant to the President
for Science and Technology

ORIGIN OF THIS PROPOSAL: NSC, OSTP, and PCAST

CLINTON LIBRARY PHOTOCOPY

SECOND LADY'S ATTENDANCE: Not requested

CLINTON LIBRARY PHOTOCOPY

M S M a i l

DATE-TIME 17 April 95 14:08

FROM Stern, Jessica E.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~

TO Pifer, Steven K.

CARBON_COPY Beyrle, John R.
Blacker, Coit D.
Broadway, Jamuna
Heslin, Sheila N.
Stauffer, Helen L.
Stern, Jessica E.

DECLASSIFIED
PER E.O. 13526
2016-0129-M (1.63)
9/19/2022 R2

TEXT_BODY

SP --
I didn't mean for my email message to generate so much interest, or to spread to so many directorates.

With respect to Matt's suggested text, I have asked him first to clear it with my MPCA group (principally with Luongo and Dolliff), and to discuss it with Timbie. I also planned to edit it down before submitting it for scrutiny by you, John, and Steve A. There is no doubt that much of Matt's text will have to be cut out, but some will be quite useful. I would like to make sure that MPCA stays on the agenda because the lack of it in Russia is not just bad for the Relationship, it also represents a significant threat to security (unlike many if not most of the other security issues we plan to discuss). Please don't pass judgment until you see what I produce -- with your help!

From: Pifer, Steven K.
To: @RUSSIA - Russia/Ukraine
CC: /R, Record at A1; @NONPRO - Export Controls; @DEFENSE - Defense Policy
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Monday, April 17, 1995 12:20 PM

Steve (Aoki) is right. Unless we record phenomenal progress on arms control in the next three weeks, we will want short treatment of it in the overall joint statement. The drawback to a long, ambitious statement is that we may end up where we are now with regard to the September statement -- lots of things not yet done.

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Jessica: if you can give me Matt's input, I'll feed it into the arms control/security pot with Aoki and Andreasen.

John: I can update you on the R and D foundation (I have an in with the expert).

From: Aoki, Steven
To: @RUSSIA - Russia/Ukraine; @DEFENSE - Defense Policy
CC: /R, Record at A1; @NONPRO - Export Controls
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Monday, April 17, 1995 11:42 AM

Jessica/John:

Before we get tangled up on summit statement language re fissile materials -- I thought there was agreement that Defense & Nonpro were supposed to work out the language on security issues. I've been talking to Pifer & Andreasen about this. I have also seen Matt Bunn's proposal, which strikes me as too long, and possibly too ambitious.

Let's talk this out.

Additionally, Dan & I have some problems with the recommendations of the PCAST study. At an earlier stage, Deputies discussed having a fissile materials czar, and decided against it. I continue to think that is the right answer, and that creating another "senior coordinator" would be unproductive, unless the objective is to sideline the issue.

From: Stern, Jessica E.
To: Aoki, Steven
CC: /N, NonRecord at A1
Subject: FW: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Monday, April 17, 1995 11:16 AM

fyi

From: Stern, Jessica E.
To: Beyrle, John R.
CC: /N, NonRecord at A1; /R, Record at A1; @RUSSIA - Russia/Ukraine
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Monday, April 17, 1995 11:15 AM

Answers to your questions:

A. On the PCAST study: The President's Committee of Advisors on Science and Technology just completed a study of US-FSU cooperation to protect, control, and account for weapons-usable nuclear materials.

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Members of the panel: John Holdren, Norm Augustine, Bill Burns, Sally Ride (yes! the astronaut), and Ruth Kempf.

The bottom line: insufficient high-level attention to the "greatly increased danger of nuclear theft."

The recommendations:
1) appoint a senior administration official to take full-time responsibility for implementation of MPCA in FSU
2) issue a PDD designating this program "an urgent national security priority of the US"

B. On a summit statement on fissile materials: One of the members of my MPCA

Group, Matt Bunn, has already drafted language for a summit statement on MPCA/fissile materials issues. I will edit them.

C. On the Civilian R&D Foundation.

Prime Minister Chernomyrdin recently offered to contribute an additional $20 million to the Soros International Science Foundation, if Soros would match that amount. Soros is willing, provided that the USG contribute half, i.e,. $10 million. Soros has finally agreed to allow the USG funds to go to a civilian R&D foundation, rather than directly to his foundation.

We have been working on setting up that civilian R&D Foundation, and Jane Wales is very excited by some recent progress. But the real expert on this subject is Marilyn Pifer. I have asked her to provide me an update, and will get back to you.

From: Beyrle, John R.
To: Stern, Jessica E.
CC: /N, NonRecord at A1
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Saturday, April 15, 1995 12:29 PM

JS -- think most of the alliteration sprang from Chip, but thanks.

Need to talk about how MPCA fits into the summit. Time is tight for discussion but strikes me we have a couple of good stories to tell in public forum. What is this agreement on R&D foundation that Jane Wales is talking/pcast briefing about? Is this the thing we couldn't get closed last December in Moscow for GC-4?

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M S M a i l

DATE-TIME 17 April 95 17:21

FROM Beyrle, John R.

CLASSIFICATION ~~CONFIDENTIAL~~

SUBJECT Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~

TO Pifer, Steven K.

CARBON_COPY NO CC's on THIS MESSAGE

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.63)
9/19/2022 VL

TEXT_BODY

That Marilyn Pifer -- she's everywhere.

From: Pifer, Steven K.
To: @RUSSIA - Russia/Ukraine
CC: /R, Record at A1; @NONPRO - Export Controls; @DEFENSE - Defense Policy
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Monday, April 17, 1995 12:20 PM

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John: I can update you on the R and D foundation (I have an in with the expert).

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CC: /R, Record at A1; @NONPRO - Export Controls
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Monday, April 17, 1995 11:42 AM

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me as too long, and possibly too ambitious.

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From: Stern, Jessica E.
To: Aoki, Steven
CC: /N, NonRecord at A1
Subject: FW: 10 may meeting ~~[CONFIDENTIAL].~~
Date: Monday, April 17, 1995 11:16 AM

fyi

From: Stern, Jessica E.
To: Beyrle, John R.
CC: /N, NonRecord at A1; /R, Record at A1; @RUSSIA - Russia/Ukraine
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Monday, April 17, 1995 11:15 AM

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We have been working on setting up that civilian R&D Foundation, and Jane Wales is very excited by some recent progress. But the real expert on this subject is Marilyn Pifer. I have asked her to provide me an update, and will get back to you.

From: Beyrle, John R.
To: Stern, Jessica E.
CC: /N, NonRecord at A1
Subject: RE: 10 may meeting ~~[CONFIDENTIAL]~~
Date: Saturday, April 15, 1995 12:29 PM

JS -- think most of the alliteration sprang from Chip, but thanks.

Need to talk about how MPCA fits into the summit. Time is tight for discussion but strikes me we have a couple of good stories to tell in public forum. What is this agreement on R&D foundation that Jane Wales is talking/pcast briefing about? Is this the thing we couldn't get closed last December in Moscow for GC-4?

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MSMail

DATE-TIME 01 May 95 13:20

FROM Aoki, Steven N.

CLASSIFICATION ~~SECRET~~

SUBJECT Subject: RE: pcast briefing ~~[SECRET]~~

TO Stern, Jessica E.

CARBON_COPY NO CC's on THIS MESSAGE

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.66)
9/19/2022 VR

TEXT_BODY

Did you mean to say more? My text of this message stops in mid-sentence.

From: Stern, Jessica E.
To: @RUSSIA - Russia/Ukraine; @NONPRO - Export Controls
CC: /R, Record at A1
Subject: pcast briefing ~~[SECRET]~~
Date: Monday, May 01, 1995 01:05 PM

Poneman, Aoki, and Stern agree that there are two main tasks resulting from the briefing:
1. Make sure that MPCA is given priority in the summit. In the President's words, at the summit "we've got to turn this up."
2. Respond to each of the PCAST's recommendations.

Here is how we agreed to respond to these tasks:

1. Dan will send email to Tony outlining our proposed actions.
2. Jessica will add additional language on MPCA to the summit security paper.
3. Dan will get Einhorn to add MPCA to the joint nonproliferation statement.
4. Dan will call agencies to ensure they are prepared to respond to the PCAST recommendations at his Standing Committee meeting tomorrow. Steve and
Jessica will also make some calls.
5. We will task the agencies to write draft responses to each of the recommendations ASAP. We hope to have the paper ready by the end of the week, as Gore suggested.
6. Dan will contact Leon.

On the recommendation to issue a PDD. We basically think it's a good idea. Our preliminary thoughts about what would go in it: make it national policy to buy Russian equipment for MPCA improvements; make it national policy to cooperate with GAN (Russia's NRC); make it national policy that DOE will continuously update the Joint Atomic Energy Intelligence Committee Report on

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vulnerable nuclear materials, including by keeping track of US and European/Japanese MPCA efforts.

The VP made clear that he would like us to respond the recommendations of the PCAST panel by the end of the week, in particular to how we are organized to work with the Russians on MPCA. And

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MSMail

DATE-TIME	02 May 95 18:26
FROM	Tarantino, Frederick A.
CLASSIFICATION	~~CONFIDENTIAL~~
SUBJECT	Lake Talkers [~~CONFIDENTIAL~~]
TO	Wales, Jane
CARBON_COPY	NO CC's on THIS MESSAGE

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.69)
9/19/2022 VL

TEXT_BODY

Jane -- I figured you might want to send these to Bass yourself.

[[CPL-PNT.DOC : 4624 in CPL-PNT.DOC]]

ATTACHMENT FILE DATE	2 May 95 18:25
ATTACHMENT FILE NAME	CPL-PNT.DOC

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~
Declassify on: OADR

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

POINTS TO BE MADE AT LAKE-PERRY-CHRISTOPHER LUNCH ON PCAST REPORT ON SECURITY FOR FSU NUCLEAR MATERIALS

-- We are moving rapidly to follow up on the PCAST report.

-- At the Standing Committee on Nonproliferation yesterday, all agencies agreed tha
t:

ù improvements in security and accounting for nuclear materials in the FSU are a high priority;
ù this should be reflected in summit language;
ù it would be beneficial to have a full-time coordinator for these issues on the NSC staff; and
ù a PDD designed to highlight the importance of our efforts and guide future actions should be his or her first task.

-- The Standing Committee approved proposed summit language highlighting the importance of cooperation to secure nuclear

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materials and calling for a progress report at the June GCC meeting. Einhorn at State is bringing up this language with the Russians today. We hope that Lynn Davis will also bring it up with Mamedov on Friday.

-- We are examining ways to bring on a full-time person at the NSC director level to coordinate these issues. That person would report up through the NSC and the Gore-Chernomyrdin process.

-- We will move rapidly to begin the process of drafting a PDD.

CLINTON LIBRARY PHOTOCOPY

M S M a i l

DATE-TIME	02 May 95 18:29
FROM	Tarantino, Frederick A.
CLASSIFICATION	~~CONFIDENTIAL~~
SUBJECT	CPL Talkers [~~CONFIDENTIAL~~]
TO	Wales, Jane
CARBON_COPY	NO CC's on THIS MESSAGE
TEXT_BODY	[[CPL-PNT.DOC : 4695 in CPL-PNT.DOC]]
ATTACHMENT FILE DATE	2 May 95 18:28
ATTACHMENT FILE NAME	CPL-PNT.DOC ~~CONFIDENTIAL~~ ~~CONFIDENTIAL~~ Declassify on: OADR

DECLASSIFIED PER E.O. 13526
2016-0129-M (1.70)
9/19/2022 VZ

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

POINTS TO BE MADE AT LAKE-PERRY-CHRISTOPHER LUNCH ON PCAST REPORT ON SECURITY FOR FSU NUCLEAR MATERIALS

-- We are moving rapidly to follow up on the PCAST report.

-- At the Standing Committee on Nonproliferation yesterday, all agencies agreed tha
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ù a PDD designed to highlight the importance of our efforts and guide future actions should be his or her first task.

-- The Standing Committee approved proposed summit language highlighting the importance of cooperation to secure nuclear materials and calling for a progress report at the June Gore-Chernomyrdin meeting. Emhom at State is bringing up this

CLINTON LIBRARY PHOTOCOPY

language with the Russians today. We hope that Lynn Davis will also bring it up with Mamedov on Friday.

-- We are examining ways to bring on a full-time person at the NSC director level to coordinate these issues. That person would report up through the NSC and support the Gore-Chernomyrdin process.

CLINTON LIBRARY PHOTOCOPY

MSMail

DATE-TIME 30 May 95 10:36

FROM Beyrle, John R.

CLASSIFICATION ~~SECRET~~

SUBJECT Clinton-Kohl Memcon ~~[SECRET]~~

DECLASSIFIED PER E.O. 13526
2015-0776-M (1.24)
7/31/2018 KBH

TO
Beyrle, John R.
Blacker, Coit D.
Broadway, Jamuna
Debortoli, Michelle A.
Heslin, Sheila N.
Pifer, Steven K.
Stauffer, Helen L.
Stern, Jessica E.

CARBON_COPY NO CC's on THIS MESSAGE

TEXT_BODY

[[4069TEL.DOC : 2588 in 4069TEL.DOC]]Chip/Steve/Jessica -- attached is the

verrry interesting memcon of the Pres's call to Kohl last week. Kohl's "NATO slowdown" tone comes through very clearly. Jessica and Steve, note also discussion of PCAST/Halifax stuff for Tuesday's 11am mtg and the Wednesday Standing Committee

ATTACHMENT FILE DATE 30 May 95 10:17

ATTACHMENT FILE NAME
4069TEL.DOC
~~CONFIDENTIAL~~
4069
~~CONFIDENTIAL~~
Declassify on: OADR

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

MEMORANDUM OF TELEPHONE CONVERSATION

SUBJECT: Telcon with Chancellor Helmut Kohl of Germany (U)

PARTICIPANTS: The President

CLINTON LIBRARY PHOTOCOPY

Chancellor Helmut Kohl
Present: Alexander Vershbow; Dan Poneman
Notetaker: Anthony Gardner

DATE, TIME AND PLACE:
May 26, 1995, 4:35-4:55 pm,
Oval Office/
Kohl's Home

The President: Hello, Helmut. (U)

Chancellor Kohl: Hello, Bill. Guten Abend. (U)

The President: Guten Abend to you. (U)

Chancellor Kohl: How are you? (U)

The President: Well, and you? (U)

Chancellor Kohl: Very well. Stay the course, Bill. I see you are fighting hard and doing well. (U)

The President: Yes, I think things are going pretty well. There's a movement among the isolationists in Congress to handcuff the President's authority in foreign affairs and destroy the foreign aid budget, but we managed to postpone a vote on the bill. We have a chance of defeating it and maintaining our present course. (U)

Chancellor Kohl: Very good. (U)

The President: I wanted to talk to you about my trip to Moscow and my meeting with Yeltsin. (U)

Chancellor Kohl: Good. I have plenty of time, Bill. (U)

The President: I think we did the right thing to go to Moscow to express our respect for the Russian people and the magnitude of their loss during the war. The day after the commemorations I met with Yeltsin. He seemed alert and was well prepared for our meeting. We met one-on-one for three hours. We spent about an hour on NATO issues. He is clearly concerned about NATO enlargement and its impact on the elections in Russia in 1996. He clearly hopes to run and thinks he has a chance to win. (S)

First, Boris he asked me to postpone expansion until 2000. Then he stepped back and asked us to wait until a year or two after 1996.

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I said that I understood his problem and would be as supportive as possible, but that I can't abandon the timetable we have set forward or postpone expansion indefinitely. I then went through the timeline on the 1995 study which will focus on the "why" and the "how" of expansion rather than the "who" and the "when." (C)

Chancellor Kohl: You did not discuss a specific date, did you? (C)

The President: No, but I said that in the first months of 1996 the NATO ministers would work on processing all they had heard in response to the study on the "why" and the "how." I said that there wouldn't be any announcement of the "who" and the "when" before the 1996 elections. That would occur later in 1996. (C)

Chancellor Kohl: Yes. (U)

The President: Only one more comment. I also told him it was important that neither of us be seen as giving in to the other. We need to avoid discussion on speeding up or slowing down expansion. I made clear to him that he would be all right, but that he should stop putting so much pressure on us in public because this has a counterproductive reaction...I said we could control the timing in a way that he wouldn't be hurt by it.

Chancellor Kohl: Yes... (U)

President Clinton: Let me finish and then you can comment. At the end of our conversation, he said that he would drop Russian opposition to participation in the partnership agreements with NATO and that he would give approval just before the NAC meeting on May 30. This would enable us to move ahead with PFP and a NATO dialogue with Russia. I said that at the NAC Ministerial, we would urge that Ministers would do three things in return: first, it would reaffirm that enlargement will occur in a gradual, transparent and open way; second, it would reinvigorate PFP and enhance its importance; third, it would will launch a dialogue with Russia on an expanded NATO-Russia relationship. I think we can meet his political needs and still pursue our approach without anyone being seen to have given way. (C)

Chancellor Kohl: So, Bill. With respect to your report, I think it is excellent that you discussed this with Boris directly. Let me tell you openly how I assess the situation. I'm very unhappy with the fact that NATO expansion has been tied to a timetable. My position is unchanged. I think that Russia and Yeltsin have no right to a veto on anyone's acceptance by NATO. But it's also a question of simple prudence that we deal with Russian concerns over their own security. To be frank, we are facing two hurdles. First, the Russian domestic political situation: there are parliamentary elections in December and terrible fights over their election law.

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We don't know what the outcome will be. Second, there will be presidential elections next year. It would be prudent for us not to do anything that would make things worse there. What I mean by worse is that the radicals could cause a great upheaval. At this point the question of whether Yeltsin will run is open. He asked me for my opinion about what he should do. I couldn't give him an answer because the earliest one could assess the situation would be early next year. But I told him that if he moves toward one of the extremes from the center, his chances will decrease and, in particular, his international support would decline dramatically. (C)

Bill, to be frank, I see another hurdle: the U.S. primaries. I hear with concern what Dole is saying about you. The subject [of NATO expansion] is being used to harm you. I assume that Polish groups are going to play on this even more. You know a lot more

about this than I do; it is a complex group we are dealing with. In four weeks I'll be in Warsaw. My intention is to tell those in charge that it won't help to light a NATO fire and that this would only cause problems for their friends in the U.S. They need our help in the EU and, of course, they want to get into NATO. But NATO entry is not a question of months; we must be reasonable. (C)

We must therefore make the issue of timing less dramatic. Perhaps our ministers need more time to evaluate and perhaps hold another conference. I am willing to be as helpful as I can. But I have forbidden my Cabinet to continue pounding on this subject. Frankly, as for the U.S. primaries, it doesn't help us to produce hot air and get excited on this topic. I spoke to Chirac about this last week and tomorrow Major will be coming here. I also spoke to Dutch Prime Minister Kok. I think we have everyone in line and we have good cards to play. You did a great job in Moscow; but we cannot let foreign policy become a blunt instrument of domestic policy. We must be very clever and wise now. That's my position. I think we are in agreement. We'll be able to discuss this again before the summit in Halifax and at the time of that meeting. (C)

The President: Well, I'm very encouraged by all you have said. Let me tell you about the political situation here. (U)

Chancellor Kohl: Yes, of course. I have plenty of time. (U)

The President: NATO enlargement may be an important issue in the primaries. But if I can keep my position over the next six months, I won't have any opposition in the primaries. (C)

Chancellor Kohl: You mean from the Democrats? (C)

The President: Correct. That means that I won't have to deal with

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the question in a political context until the period from August to November of next year, well after the Russian elections. (C)

My goal is for us to be seen as steady so that neither the Poles nor the Russians will make an issue out of it. We must keep the dialogue steady and deliberate so that we can get through June 1996 without any adverse consequences for Yeltsin or for us. (C)

Chancellor Kohl: Bill, I totally agree with you. I will do everything so that the Europeans follow this path. (C)

The President: Great. (U)

Chancellor Kohl: So we are in agreement on the main points. If anything new comes up, we'll keep one another informed. (C)

The President: Yes, we need to keep each other informed. Both of us will be meeting with Yeltsin in Halifax. If we get through those meetings, we will be okay for a year. (C)

Chancellor Kohl: Exactly. (U)

The President: Just two more points. Yeltsin and I reached agreement on closing off Russian conventional arms sales to Iran. This enables them to become members of the post-COCOM regime and will help Yeltsin to improve his prestige. With regard to the sale of light water reactors to Iran, Yeltsin believes that they cannot be used for the construction of nuclear weapons. But he was concerned about the implications of intelligence we shared with him. So we agreed that Chernomyrdin and the Vice President would continue to discuss the issue and find a solution. I think that's a step in the right direction. (C)

Chancellor Kohl: Very good. (U)

The President: One last point we need to discuss in Halifax. I have a special committee here to follow security arrangements for nuclear materials in Russia. I turn to you since there have been instances of smuggling to Germany. Yeltsin says there is no problem of security. Either he's entirely unaware of the problem or he won't admit to it. We need to speak to him about this in Halifax. (C)

Chancellor Kohl: I don't know whether he's pretending or whether he really believes what he says. But I think he really believes there is no problem. I don't think he has any control over this issue at all. We must keep after him, but tactfully. It is an area which touches on criminality, so it is very delicate. We don't know how many people have their fingers in the pot. We need to work

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together. Although we cannot ignore others, it is really the two of us who count most. (C)

The President: We need an exchange of information. It is Germany that is most likely to be affected given the routes out of Russia. Of course, it is important not to embarrass Yeltsin. We have been spending time and money with them to improve security of their sites. We think they're doing a good job at military sites, but we are still very concerned about other sites. There's no need to say more about this now, but we do need to discuss it further at Halifax. (C)

Chancellor Kohl: Yes, this is very serious. We need to make him understand all the facts. (C)

The President: In Moscow he did not seem to have all the facts. We need to make him understand the importance of this issue. (C)

Chancellor Kohl: Bill, I'm without illusions on this issue. We need to talk to him directly and personally. (C)

The President: Yes. I'll have our government share the results of our work with him. But both of us will need to tell Yeltsin. (C)

Chancellor Kohl: Yes. (U)

The President: The last thing I wanted to do is to follow up on the letter I sent to you regarding the North Korea nuclear issue. We are entering a critical round in the talks. We need to convince North Korea that the KEDO project is viable. I know that a lot of people in Europe have concerns about our approach, but I honestly believe that it is the best approach and that we need the participation and leadership of Germany. We are hoping for a contribution which is more than symbolic. You know that the Australians have contributed $5 million. We hope you can manage something around that figure. (C)

Chancellor Kohl: Bill, we're going to do something. I'm going to discuss this with others in Europe. I have no problem with doing something that is more than symbolic. The problem lies in becoming a member [of the KEDO project]. (C)

The President: We can talk about that in Halifax. (U)

Chancellor Kohl: Yes. (U)

The President: OK, friend. (U)

Chancellor Kohl: My best to your wife. Good luck. (U)

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DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
~~001a. memo~~	~~John Gibbons and Anthony Lake to the President, re: [Briefing on Report from PCAST] (2 pages)~~	~~04/30/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~001b. talking points~~	~~Points to be Made for Meeting on PCAST Report (1 page)~~	~~ca. 04/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~001c. list~~	~~[Desirable Outcomes] (1 page)~~	~~n.d.~~	~~P1/b(1)~~ VZ 04/07/2023
001d. list	[duplicate of 001g] [Cover page and Executive Summary only] [partial] (3 pages) Released in Part	03/28/1995	~~P1/b(1),~~ P3/b(3) VZ 04/07/2023
~~001e. memo~~	~~Steven Aoki to Anthony Lake, re: Presidential Briefing on Nuclear Materials in the Former Soviet Union (1 page)~~	~~04/28/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~001f. memo~~	~~John Deutch to Tony Lake, re: [PCAST Report] (1 page)~~	~~n.d.~~	~~P1/b(1)~~ VZ 04/07/2023
001g. report	President's Committee of Advisors on Science and Technology, Report of the Panel on US-FSU Cooperation to Protect, Control, and Account for Weapons-Usable Nuclear Materials [partial] (54 pages) Released in Part	03/28/1995	~~P1/b(1)~~, P3/b(3) VZ 04/07/2023

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THE WHITE HOUSE

WASHINGTON

April 30, 1995

95 APR 30 P3:51

MEMORANDUM FOR THE PRESIDENT

FROM: JOHN H. GIBBONS
ANTHONY LAKE

SUBJECT: Briefing on Report From PCAST on Securing Weapons-Usable Nuclear Materials in the Former Soviet Union

You will receive a briefing Monday, May 1, from 11:15 to 11:45 a.m. on an independent report from a panel of the President's Committee of Advisers on Science and Technology (PCAST), recommending immediate actions to strengthen the security of weapons-usable nuclear materials in the former Soviet Union. The briefing will be given by Dr. John Holdren, chairman of the PCAST panel. A scenario for the meeting is at Tab A. Talking points are at Tab B. A list of the panel members is at Tab C.

The report concludes that:

- "Grossly inadequate safeguards and security for nuclear materials in the former Soviet Union pose a clear and present danger that the essential ingredients of nuclear bombs could fall into the hands of terrorist groups or rogue states."
- While this is "among the most serious and urgent threats to national security" the United States faces, it is one we know how to address. The technologies are available and many of the needed programs are in place to substantially reduce the threat.

However, the panel concludes that urgent Presidential action is needed to strengthen U.S. efforts in this area. The panel recommends that:

- you designate the effort to deal with this threat as a "critical and urgent security priority of the United States," and direct that it be given commensurate resources and top-level attention;
- that you designate a senior, full-time coordinator with responsibility and authority for coordinating all programs related to addressing this threat; and
- that you "use the opportunity of the upcoming summit to gain agreement on specific new steps to improve security and accounting for nuclear materials." A one-page summary of the specific points the panel recommends you seek agreement on at next week's summit is at Tab D.

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2016-0129-M (1 of 2)
9/19/2022 VC
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cc: Vice President
Chief of Staff

The report concludes that action now is a prudent investment to avoid the huge costs and risks that would result if weapons-usable nuclear material were to fall into the hands of states such as Iran, Iraq or Libya.

As the report notes, your Administration has significantly enhanced cooperative U.S.-FSU efforts to address this threat:

- The January 1994 summit statement identified cooperation in this area as a "high priority," and additional measures were agreed at the September 1994 summit.
- We've reorganized management of our program that helps Russia with security and accounting for nuclear materials, giving DOE the lead and signing an agreement with Russia to provide an additional $20 million. Other programs under Nunn-Lugar provide assistance in related areas.
- DOE initiated last year an innovative program of direct cooperation between U.S. and Russian nuclear labs on security for nuclear materials. For rather modest investments, we have been able to produce rapid, substantial security upgrades, while cutting U.S. red tape. We are seeking a large funding increase for this program in FY96.
- In Project Sapphire, we successfully airlifted half a ton of highly-enriched uranium to safe storage in the United States. Deliveries will begin soon of the 500 tons of uranium that we have agreed to buy from dismantled Russian warheads.

This report will be helpful in advancing Administration priorities in this area, particularly in securing Congressional support.

Attachments
Tab A Scenario for the Briefing
Tab B Talking Points for the Briefing
Tab C List of PCAST Panel Members
Tab D PCAST Summit Recommendations
Tab E Executive Summary of the PCAST Report
Tab F Copy of the PCAST Report

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POINTS TO BE MADE FOR MEETING ON
PCAST REPORT ON SECURITY FOR NUCLEAR MATERIALS IN THE FSU

-- Thank you for superb job in producing report; very helpful in confronting this critical problem, particularly in gaining Congressional support.

-- Reducing size of nuclear stockpiles and ensuring security of nuclear materials is vital to our national security; issue a high priority.

-- Can't tolerate terrorists or countries like Iran getting hold of these bomb materials.

-- Intend to raise issue with President Yeltsin at summit, as I have at our last two meetings.

-- Will also address subject at next Gore-Chernomyrdin meeting.

-- Will direct staff to begin discussing with responsible agencies actions to take in response to your recommendations.

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Desirable Outcomes on This Issue From the Summit Include:

- Endorsement of cooperative efforts already underway, including Government-to-Government, Lab-to-Lab and DOE/NRC/GAN.

- Agreement that Russia will carryout rapid inspections of its sites to identify and prioritize needs for MPC&A improvements, with U.S. to contribute part of the costs.

- Agreement to extend MPC&A cooperation to military as well as civilian materials and to additional sites.

- Agreement to exchange lists of fissile-materials sites and to organize reciprocal visits to major ones.

- Agreement to establish a joint working group on cooperation of intelligence, police, and customs services in tracking & responding to nuclear thefts and smuggling.

- Agreement to explore means to improve economic circumstances of personnel responsible for MPC&A.

- Commitment to work out specifics of foregoing for next meeting of the Gore-Chernomyrdin Commission, with progress report and further recommendations for next summit.

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THE PRESIDENT HAS SEEN 5/1

Securing Weapons–Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation



Report of the Panel on U.S.–FSU Cooperation to Protect, Control, and Account for Weapons–Usable Nuclear Materials

The President's Committee of Advisors on Science and Technology

March 28, 1995

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2016-0124-M (1.85)
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Securing Weapons-Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation

Executive Summary

A Grave Security Threat

- Grossly inadequate safeguards and security for nuclear materials in the former Soviet Union pose a clear and present danger that the essential ingredients of nuclear bombs could fall into the hands of terrorist groups or rogue states.
- This is among the most serious and urgent threats to national security the United States faces in the coming decade—an unprecedented crisis on the "supply side" of nuclear proliferation.
- Already, there have been multiple seizures of kilogram-quantities of weapons-usable materials stolen from nuclear facilities in the former Soviet Union. (b)(3)

E.O. 13526 6.2(a) (b)(3)

- The intelligence community has concluded that *none* of the scores of facilities with weapons-usable materials in the former Soviet Union has adequate safeguards and security. *All* are at risk of losing nuclear materials.
- While there is no evidence that such materials have yet fallen into the hands of potential proliferators, we do not know what has not been detected. Such a proliferation disaster could occur at any time.

Urgent Presidential Action Needed

U.S. programs to cooperate with the states of the former Soviet Union in reducing this threat are beginning to make progress after a slow start, and deserve strong support.

The Panel recommends that the President should:

- issue a decision directive designating the effort to control and account for fissile material as a critical and urgent security priority of the United States, and direct that it be given commensurate resources and top-level attention;
- appoint a senior Administration official to take full-time, personal responsibility for ensuring that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented;
- establish, under the leadership of that senior official, a stronger and more focused interagency process designed to bring the talents of all critical agencies to bear in addressing this problem;
- direct the senior official responsible for these programs to prepare a prioritized nuclear material security and accounting action plan within 60 days, specifying near-term, mid-term, and long-term goals and objectives, and the resources needed to accomplish them;

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- direct that adequate funds and personnel be allocated specifically for nuclear material security and accounting cooperation, and that a high priority be assigned to protecting these resources from cutbacks;
- direct the senior official responsible for these programs to develop and implement a plan to secure needed legislative and public support;
- make effective security and accounting for weapons-usable material an important factor in U.S. relations with the states of the former Soviet Union, and use the opportunity of the upcoming summit to gain agreement on specific new steps to improve security and accounting for nuclear materials;
- direct that higher priority be placed on providing information support to efforts to reduce nuclear theft risks, including increased cooperation between intelligence agencies in tracking and responding to nuclear smuggling;
- designate efforts to enhance security and accounting for nuclear materials worldwide as a key mission of the national laboratories.

In addition, the Panel provides a wide range of specific recommendations for those implementing these programs. Especially important among these recommendations are that these programs:

- follow three guiding principles, namely: focus on the highest priorities; foster indigenous capabilities in the former Soviet states; and build toward national systems in those states;
- continue to take a flexible, multi-pronged approach, with both government-to-government and lab-to-lab components;
- make a comprehensive effort to analyze and deal with recipient-state sensitivities and incentives, including: maintaining confidentiality; emphasizing cooperation, not assistance; offering reciprocal access to facilities; and using equipment produced in the former Soviet states;
- continue to focus on specific deliverables, to ensure that funds are spent for their intended purposes.

Further, the Panel suggests a specific set of near-term, mid-term, and long-term objectives, and a specific set of near-term recommended actions, spelled out in the body of the report.

Cost-Effectiveness of Early Action

The cost of ensuring adequate security for these weapons and materials, while not insignificant, is dwarfed by the potential costs of the necessary defense responses, and the potential threats to U.S. security, should theft of these materials result in uncontrolled nuclear proliferation. Thus, *a decision not to take available steps that could substantially reduce these proliferation risks would be a strategic misstep of profound proportions.* In this area as in others, an ounce of prevention is worth a pound of cure.

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NATIONAL SECURITY COUNCIL
WASHINGTON, D.C. 20506

April 28, 1995

ACTION

MEMORANDUM FOR ANTHONY LAKE

THROUGH: DANIEL PONEMAN

FROM: STEVEN AOKI

SUBJECT: Presidential Briefing on Nuclear Materials in the Former Soviet Union

The President is scheduled to receive a briefing on Monday, May 1 at 11:15 on the security risk from inadequately protected nuclear material in the former Soviet Union. The briefing will be provided by a panel of the President's Committee of Advisers on Science and Technology (PCAST); the Executive Summary of their report is at Tab D.

While agencies have not fully reviewed the PCAST report, there is broad agreement that efforts to improve the security of nuclear material in Russia and elsewhere in the FSU deserve high priority. The PCAST panel's recommendation that the President appoint a senior official to have full-time responsibility for coordinating cooperation with the FSU on nuclear material security is controversial, however. In considering organizational recommendations, you should be aware that the panel interviewed those officials charged with implementing current programs, but did not talk to Principals or Deputies. John Deutch has written you concerning the panel's recommendations (Tab II).

Concurrences by: Jessica Stern

RECOMMENDATION

That you sign the Memorandum to the President at Tab I.

Attachments
Tab I Memorandum to the President
Tab A Scenario
Tab B Talking Points
Tab C List of PCAST Panel Members
Tab D Executive Summary of the PCAST Report
Tab E PCAST Report
Tab II Memorandum from John Deutch

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DEPUTY SECRETARY OF DEFENSE

1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

MEMORANDUM FOR TONY LAKE

From: John Deutch

Subject: PCAST Report on Securing Usable Nuclear Material in Former Soviet Union

This is a heads up about a briefing scheduled for the President on Monday, May 1, from a Panel of President's Committee of Advisors on Science and Technology concerning the urgent problem of controlling nuclear materials in the former Soviet Union (FSU). As you know, we have been seized with this problem since the beginning of this Administration and several government agencies have taken action to strengthen material control and accounting (MC&A) in the FSU.

I am concerned that if the President is not prepared in advance, upon hearing this briefing he will react to its recommendation and set us on a course of action that will repeat past frustrations.

For example, we have been attempting to designate a senior White House coordinator for counter proliferation matters with Russia ever since Strobe Talbott became Deputy Secretary of State. In the meantime, we have discussed problems of MC&A in the Gore-Chernomyrdin Commission and other venues on frequent occasions. Additionally, we have been working to convince MINATOM's Mikhailov that a problem exists for two years. The report does not address how this roadblock can be removed. The report also does not even address other important matters, such as convincing Congress that the U.S. has an important role in this matter.

To its credit, the report does not deal with the process issue of implementing policy, but points the way toward worthy objectives. I suggest that you encourage the President to respond to this excellent report by directing more vigorous interagency attention to its objectives under the leadership of the NSC.

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THE PRESIDENT HAS SEEN 5/1

Securing Weapons–Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation



Report of the Panel on U.S.–FSU Cooperation to Protect, Control, and Account for Weapons–Usable Nuclear Materials

The President's Committee of Advisors on Science and Technology

March 28, 1995

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Securing Weapons-Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation

Report of the Panel on U.S.-FSU Cooperation to Protect, Control, and Account for Weapons-Usable Nuclear Materials

March 28, 1995

The President's Committee of Advisors on Science and Technology

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The President's Committee of Advisors on Science and Technology

Members of the Panel on U.S.-FSU Cooperation to Protect, Control, and Account for Weapons-Usable Nuclear Materials

PCAST Members

John P. Holdren
Chairman
Class of 1935 Professor of Energy
University of California, Berkeley
Chairman, Committee on International Security and Arms Control
National Academy of Sciences

Norman Augustine
President, Lockheed Martin Corporation

Sally K. Ride
Professor of Physics
University of California, San Diego
Director, California Space Institute

Other Panel Members

Gen. William F. Burns, USA (Ret.)
Former Director, Arms Control and Disarmament Agency
Former Chief Negotiator, Safe, Secure Dismantlement Talks

C. Ruth Kempf
Group Leader, International Safeguards and Technical Analysis
Brookhaven National Laboratory

Staff

Matthew Bunn
National Academy of Sciences
Advisor, Office of Science and Technology Policy

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Assistant to the President for Science and Technology
Director, Office of Science and Technology Policy

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Chair and CEO, Dynamac Corporation

Shirley M. Malcom
Head, Directorate for Education and Human Resources Programs
American Association for the Advancement of Science

Mario J. Molina
Lee and Geraldine Martin Professor of Environmental Sciences
Massachusetts Institute of Technology

Peter Raven
Director, Missouri Botanical Garden
Engelmann Professor of Botany
Washington University in Saint Louis

Sally K. Ride
Director, California Space Institute
Professor of Physics
University of California, San Diego

Judith Rodin
President, University of Pennsylvania

Charles A. Sanders
Chairman and CEO, Glaxo Inc.

Phillip Sharp
Professor of Biology
Head, Department of Biology
Massachusetts Institute of Technology

David E. Shaw
CEO, D.E. Shaw & Co

Charles M. Vest
President. Massachusetts Institute of Technology

Virginia V. Weldon
Senior Vice President for Public Policy
Monsanto Company

Lilian Shiao-Yen Wu
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Michael E. Kowalok
Policy Analyst
President's Committee of Advisors on Science and Technology
Office of Science and Technology Policy

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Securing Weapons-Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation

Executive Summary

A Grave Security Threat

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E.O. 13526 6.2(a) (b)(3)

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In addition, the Panel provides a wide range of specific recommendations for those implementing these programs. Especially important among these recommendations are that these programs:

- follow three guiding principles, namely: focus on the highest priorities; foster indigenous capabilities in the former Soviet states; and build toward national systems in those states;
- continue to take a flexible, multi-pronged approach, with both government-to-government and lab-to-lab components;
- make a comprehensive effort to analyze and deal with recipient-state sensitivities and incentives, including: maintaining confidentiality; emphasizing cooperation, not assistance; offering reciprocal access to facilities; and using equipment produced in the former Soviet states;
- continue to focus on specific deliverables, to ensure that funds are spent for their intended purposes.

Further, the Panel suggests a specific set of near-term, mid-term, and long-term objectives, and a specific set of near-term recommended actions, spelled out in the body of the report.

Cost-Effectiveness of Early Action

The cost of ensuring adequate security for these weapons and materials, while not insignificant, is dwarfed by the potential costs of the necessary defense responses, and the potential threats to U.S. security, should theft of these materials result in uncontrolled nuclear proliferation. Thus, *a decision not to take available steps that could substantially reduce these proliferation risks would be a strategic misstep of profound proportions.* In this area as in others, an ounce of prevention is worth a pound of cure.

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I. INTRODUCTION

Nothing could be more central to U.S. security than ensuring that plutonium and highly-enriched-uranium (HEU) do not fall into the hands of potential proliferators. These materials are the essential ingredients of nuclear weapons, and access to them is the primary technical barrier to nuclear proliferation in the world today. Gaining access to such materials could shorten a third-world bomb program from a decade to months, or even days if other preparations had already been made.

With the collapse of the Soviet Union and the ensuing political, economic, and social turmoil in the former Soviet states, the world is faced with an unprecedented crisis on the "supply side" of nuclear proliferation. Never before has the world dealt with the phenomenon of breakup, rapid political and economic transformations, and internal disarray in a nuclear superpower with tens of thousands of nuclear weapons and hundreds of tons of weapons-usable material. Nuclear material security systems that once relied on the Iron Curtain and the iron hand of the KGB are grossly inadequate for the new environment.

Under current conditions, virtually all of the weapons-usable material in the former Soviet Union (FSU) is potentially at risk. Already, there have been multiple seizures, by authorities in Russia and elsewhere, of kilogram quantities of stolen weapons-usable uranium and of hundreds of grams of weapons-usable plutonium. (b)(3) E.O. 13526 6.2(a) (b)(3) While there is no evidence that enough material for a bomb has yet fallen into the hands of states such as Iran, Iraq, Libya, or North Korea, we do not know what we have not detected. Such a proliferation disaster could occur at any time. *This problem of "loose materials" is among the most serious and urgent threats to national security the United States faces in the coming decade.*

The cost of ensuring adequate security for these weapons and materials, while not insignificant, is dwarfed by the potential costs of the necessary defense responses, and the potential threats to U.S. security, should theft of these materials result in uncontrolled nuclear proliferation. Thus, *a decision not to take available steps that could substantially reduce these proliferation risks would be a strategic misstep of profound proportions.* In this area as in others, an ounce of prevention is worth a pound of cure. (See "The Consequences of Failure to Act," p. 2.)

Recognizing this danger, and the critical role that science and technology must play in resolving it, the White House, in the winter of 1994–1995, requested the President's Committee of Advisors on Science and Technology (PCAST) to form a panel to conduct an urgent independent review of U.S. programs to cooperate with the states of the former Soviet Union in reducing these proliferation risks. The charge to the Panel was to prepare a report for the President on the status and effectiveness of U.S.-FSU cooperation to enhance security and accounting for nuclear materials—what is working, what is not working, and what further action by the President and by others might be needed. This report summarizes our findings.

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The Consequences of Failure to Act

The risks of unpredictable nuclear proliferation resulting from inadequately secured nuclear material in the former Soviet Union are unacceptably high. The potential costs of *not* taking action to reduce these risks—measured in both threats to U.S. national security and the cost of defense responses to them—would be far higher than the cost of timely preventative action now. Any missed opportunity could well come back to haunt us.

The potential consequences of nuclear weapons in the hands of terrorists or rogue states are far-reaching. If a state such as Iran or Libya were to suddenly acquire the essential ingredients of nuclear weapons on the black market, the international community could be faced with a devastating new threat with virtually no warning before the threat springs full-blown on the scene. The horror of the recent use of chemical weapons by terrorists in the Tokyo subways would have been unimaginably greater had the weapons been nuclear explosives.

Such proliferation—which could result from diversions of even a tiny fraction of the hundreds of tons of weapons-usable material now spread across scores of poorly-protected sites in the former Soviet Union—could have dire implications for U.S. defense and foreign policy decision-making. In such a circumstance, the flexibility of the United States to deploy troops and intervene in foreign crises would be severely constrained. For example, it would seem unlikely that the U.S. Congress would have approved the deployment of troops to the Persian Gulf had it been known that Iraq possessed nuclear weapons and was capable of delivering them. Even had the troops been deployed, they could not have been concentrated at a handful of decisive points—a critical element of U.S. strategy in the Gulf War—for fear of a key concentration node being wiped out in a nuclear attack. In such a world, the already strained deterrent to local mischief could be severely undermined.

The costs of the necessary defense responses would dwarf the costs of protecting these materials to prevent the threat from arising. One need only look at the immensely costly buildup that was being seriously contemplated for Korea last year—and the vast cost in lives and value had the Korean crisis led to war—to make that calculation.

The primary focus of the review was on cooperation with the states of the former Soviet Union in enhancing security and accounting for weapons-usable nuclear materials—known formally as material protection, control, and accounting (MPC&A). The principal MPC&A programs on which this review has mainly focused include: the government-to-government MPC&A programs (funded through FY95 from the Nunn-Lugar program, and after that in the DOE budget); a U.S.-Russian laboratory-to-laboratory MPC&A program, initiated in April 1994; and expanding cooperation with nuclear regulatory bodies, particularly GAN, the Russian counterpart to the U.S. Nuclear Regulatory Agency. (See Table 1.)

Two further kinds of activities were considered more briefly in the Panel's review: smaller-scale MPC&A support activities such as the safeguards projects funded by the International Science and Technology Center in Moscow (ISTC) and safeguards assistance to former Soviet states other than Russia, Kazakhstan, and Ukraine,[1] and a wider range of related

[1]These programs are carried out in coordination with other donor countries and organizations, with the efforts partly coordinated through the International Atomic Energy Agency (IAEA). A number of donor countries and organizations, including Japan, EURATOM, Sweden, and the United Kingdom, among others, have established programs designed to assist the former Soviet states in upgrading MPC&A, focusing in most cases on the non-Russian states, though no other donor country has yet established an MPC&A assistance program of comparable scale to that of the United States. Japan, France, and the United Kingdom have programs valued in the tens of

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If cooperative approaches to forestalling this potential threat fail, all of the options that will then be available are hazardous and uncertain of success. These would include efforts to: forcibly control the materials(e.g., through the use of Special Operations Forces), forcibly destroy the materials (e.g., Special Operations or air attacks), or intercept the materials during delivery. With regard to attacking the materials in place, it will be recalled how difficult it was to locate and destroy SA-2 sites in North Vietnam, SA-6 sites in the Suez area, or Scud launchers in the Persian Gulf—in spite of the dedication of considerable assets to those missions.

The task of defense once these materials were constituted into the form of nuclear weapons is even more daunting. Intercepting such weapons delivered by ballistic missile is the province of ballistic missile defense—a mission wherein a great deal of technical progress has been made in recent years. Nonetheless, the economic cost of providing full-area coverage with near leak-proof quality is extremely high, running into many billions of dollars for the continental United States alone. To protect both the United States and U.S. and allied forces abroad would cost even more. Even if such a capability to intercept ballistic missiles were deployed, there would still be the matter of "engaging" the small number of weapons which, for extortion purposes, might be smuggled in the hold of a cargo ship, on board an airliner, or in some other manner that experience suggests we would find difficult to intercept (say, in a bale of marijuana).

In short, should theft of these materials lead to unpredictable nuclear proliferation, the resulting security threats to the United States would be severe, and the possible defense responses would be both expensive and of uncertain effectiveness. A world in which any dictator or terrorist group who wants a nuclear bomb can purchase the essential ingredients on a thriving nuclear black market is simply not an acceptable world to bequeath to our children. Action must be taken now to prevent such a world from arising.

As Senators Nunn and Lugar wrote in the summer of 1992: "The United States has spent trillions of dollars defending against the military threat imposed by the former Soviet Union. We now have the unique opportunity to help ensure that our children and grandchildren will not be confronted with a comparable threat from that region of the world. This is an opportunity we cannot afford to miss."

programs that, while not directly focused on MPC&A, are related to the management of nuclear weapons and nuclear materials in the FSU. Initiatives in this latter category include: cooperation to improve security for assembled nuclear weapons (as opposed to materials outside of weapons); purchases of nuclear materials (such as Project Sapphire); assistance (under the Nunn-Lugar program) in construction of a safe and secure storage facility for plutonium and HEU from dismantled weapons; cooperation in combating nuclear smuggling (including police, intelligence, and customs cooperation); proposals to increase openness and transparency related to nuclear stockpiles, including exchanges of data and reciprocal visits; proposals and agreements to end further production of materials for weapons (such as the June 1994 plutonium production cessation agreement); and disposition efforts designed to transform some of these nuclear materials into forms that pose much lower security risks (such as the HEU purchase agreement, and the recently inaugurated joint study of options for plutonium disposition). (See Table 2.)

The Panel believes that all of these related efforts are important (and in many cases synergistic with efforts to improve MPC&A), and a number of recommendations related to them

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millions of dollars for purposes similar to those of the U.S. Nunn-Lugar program, and Germany, Italy, Canada, Norway, and Sweden, among others, have smaller programs. While a few of these programs include modest investments in MPC&A in the non-Russian states, none of them other than a modest EURATOM program involve significant contributions to MPC&A in Russia.

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Table 1 Principal U.S.-FSU MPC&A Programs

- Government-to Government
  (Transitioning from Nunn-Lugar to DOE)

  Funding:
  FY92-FY95: $30 million for Russia (focused on MINATOM facilities)
  $22.5 million for Ukraine
  $20 million for Kazakhstan

  FY96: $20 million request (DOE)

- Lab-to-Lab

  Funding:
  FY92-FY95 $17 million
  FY96: $40 million request (DOE)

- GAN Cooperation

  Funding:
  FY92-FY95: $300,000
  FY96 $10 million request (DOE)

Total FY96 request: $70 million (DOE)

Note: In addition to these principal programs, there are modest efforts funded by the International Science and Technology Center, and by DOE program funds. DOE program funds for states other than those listed include $100,000 for Belarus, and $300,000 for all of the other former Soviet states. The $300,000 listed for GAN cooperation in FY92-FY95 is complemented by regulatory support funds from the $30 million allocated to Nunn-Lugar MPC&A programs in Russia.

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can be found in this report. Nevertheless, they were not the principal focus of this review, which centered on the establishment of effective security and accounting systems at the wide range of sites where such materials are held. This is the most fundamental requirement for success in reducing the proliferation risks from possible theft of nuclear materials.[2]

In conducting its review, the Panel discussed the problem and current programs to address it with representatives of the White House, including the National Security Council and the Office of Science and Technology Policy; the Central Intelligence Agency and other intelligence organizations; the Departments of Energy, State, and Defense; the Nuclear Regulatory Commission and the Arms Control and Disarmament Agency; the national laboratories; and outside experts. In addition, the chairman of the Panel and the principal staff member traveled to

[2]Under current conditions, it appears that security for assembled nuclear weapons is substantially better than security for nuclear materials, and therefore that the probability of proliferation resulting from theft of a nuclear weapon is significantly lower than the probability of proliferation resulting from theft of weapons-usable material outside of weapons. See Joint Atomic Energy Intelligence Committee, *The Russian Nuclear Weapons Stockpile System (U)*, (Secret NF), JAEIC 94-005, December 1994. However, see also CIA, (b)(3)

(b)(3)

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Table 2 Related U.S.-Russian Fissile Material Management Programs

Securing Nuclear Materials
- Nunn-Lugar Storage Facility
- DoD-MoD Nuclear Weapons Security Talks
- Combating Nuclear Smuggling

Building Confidence Through Openness
- Safeguards, Transparency, and Irreversibility Talks
- Reciprocal Nuclear Stockpile Declarations
- Reciprocal Inspections of Material From Dismantled Weapons
- IAEA Safeguards on Excess Materials
- Nunn-Lugar Storage Facility Transparency
- HEU Purchase Agreement Transparency

Halting Accumulation of Excess Stocks
- Plutonium Production Cessation Agreement
  - Monitoring
  - Alternate Energy for Production Reactors
- Fissile Material Cutoff
- Reduced Enrichment for Research and Test Reactors

Disposition of Excess Material
- HEU Purchase Agreement
- U.S.-Russian Plutonium Disposition Options Study

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Moscow and discussed these issues with representatives of the Russian Ministry of Atomic Energy (MINATOM); the Federal Nuclear and Radiation Safety Authority (the Russian nuclear regulatory agency, known by its Russian acronym, GAN); the Federal Counterintelligence Service (FSK); Arzamas-16, one of Russia's two principal nuclear weapons laboratories; and the Kurchatov Institute (where the new MPC&A system recently installed at Building 116 with U.S. assistance was also reviewed). Appendix A provides a list of the principal briefings the Panel received.

Given the urgency of the problem, the Panel was forced to conduct its review in a very short period, and the level of detail we were able to pursue was necessarily limited. We recommend that mechanisms be established for further, ongoing review of the implementation of these programs.

Before going further it is important to emphasize the sensitivity of this issue in the former Soviet Union. While grave problems exist with security and accounting for nuclear materials in these nations, it is unwise for official statements to say so. Unguarded public statements suggesting that these nations are unable to effectively control their nuclear materials can quickly poison the atmosphere for cooperation. Such statements are already feeding Russian paranoia concerning U.S. intentions; Minister of Atomic Energy Victor Mikhailov expressed a widely-held view in a recent interview when he said that the West was whipping up fears of nuclear smuggling

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in order to suggest "that Russia is unable to handle its nuclear industrial complex and the West should take control over it into its own hands."[3] After some stories that have appeared in the Western press, individuals who have been open and cooperative with the United States on MPC&A matters have been sternly warned by the FSK.[4] Sensitivities about cooperation in this area also exist in the other former Soviet states. Hence, extreme care must be taken to avoid incautious public statements and sensationalized press reports. As one official from the U.S. Embassy in Moscow put it to the Panel: "Trust that took thousands of hours to build can be destroyed in a ten-minute speech."

In the remainder of this report, we begin by describing in more detail the scope and nature of the deficiencies in security and accounting for weapons-usable nuclear materials in the former Soviet Union. We then discuss the U.S. response to this problem to date, and outline some key lessons learned from the experience so far. We then conclude with a series of recommendations for next steps, including actions we believe the President should take and actions that should be taken by the program's implementers.

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[3]Interviewed in the new Russian journal *Yaderny Kontrol* (Nuclear Control), translated in *The Monitor: Nonproliferation, Demilitarization, and Arms Control*, University of Georgia, Center for East-West Trade Policy, February 1995.

[4]See Moscow 001888, January 1995, "Holes in the Fences: Protecting Nuclear Materials in Russia's Closed Nuclear Cities," (Secret).

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II. THE PROBLEM

The Soviet Union had a nuclear materials security system that was highly effective for decades. But the threat, and the environment, have changed. Today, this system, once effective, has become grossly inadequate.

Recently, the Joint Atomic Energy Intelligence Community (JAEIC) produced a comprehensive study examining safeguards and security in the former Soviet Union. The study found that *none* of the roughly 80 non-Ministry of Defense facilities with weapons-usable materials in the former Soviet Union had adequate safeguards and security. *All* of these facilities are judged to be at risk of losing weapons-usable nuclear materials. "There is no national system of nuclear materials safeguards and security in any of the countries which make up the former Soviet Union," the study warned. "In Russia this deficiency is exacerbated by bureaucratic conflict over responsibility for safeguards and security." Seven facilities—all large facilities handling hundreds of kilograms of weapons-usable material that are not in closed cities—were judged to be "most seriously deficient," posing the highest proliferation risks. Dozens more were judged to be "seriously deficient."[5]

The system that is still in place was designed almost exclusively to counter an "outsider" threat—such as American spies getting into nuclear facilities.[6] The "insider" threat—workers within a facility who might steal materials—was virtually non-existent, because of the location of most of the materials within closed cities or at least closed facilities, the extensive monitoring of personnel within these cities and facilities by the KGB, and the limitations imposed on the operation of black markets (whereby stolen materials might be transported out of the country) by the characteristics of the closed, authoritarian society.

With a burgeoning black market, ever-increasing corruption, porous borders, and severe economic distress for nuclear workers, the "insider" threat has grown astronomically, and the old system is simply unable to cope. The nuclear cities that once received the best the Soviet economy had to offer are now stricken by genuine poverty. At many sites, workers go unpaid for months; several strikes and other labor actions at major nuclear sites have occurred. With nuclear workers struggling to feed their children, the temptation to steal could be overwhelming. Already, there have been many cases of insiders at nuclear facilities stealing nuclear materials for possible sale.

The systems in place to protect nuclear materials were never designed to deal with the insider threat that is now predominant. The facts are stark:

- Russia has no national accounting of its nuclear materials. No one in Russia knows exactly how much plutonium and HEU they have; at most sites, no one would know if plutonium or HEU were missing.

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[5]Joint Atomic Energy Intelligence Committee, *Safeguards and Security of Weapons-Usable Material At Non-Ministry of Defense Facilities in the Former Soviet Union (U)*, JAEIC-95-001, (Secret NF WN), January 1995.

[6]Given that this was a key threat around which Soviet security systems were designed, it is not surprising that it has been difficult to convince Russian security officials that Americans in Russian nuclear sites are part of the answer, not part of the problem.

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- In several known cases, individuals have simply "walked off" with kilograms of weapons-usable materials, and no one noticed until long after the materials were gone.
- The Russian Interior Minister has estimated that 80% of Russian nuclear facilities have no systems in place to detect nuclear materials being carried out the gates. The correct figure is probably higher.
- Little if any actual safeguards accounting of nuclear materials is done. Materials are weighed when they enter a facility and when they leave, with the difference simply assumed to be normal process losses or losses to waste—meaning that an intelligent insider could remove materials without the losses ever showing up in the inventory books.

E.O. 13526 6.2(a) (b)(3)

- Most of the alarm systems that do exist have open wiring that could be cut by a single insider—and cutting the wiring does not itself set off an alarm.
- Seals to indicate whether containers have been opened use technology that could be forged in seconds by most insiders. For example, many facilities use wax seals imprinted with a special stamp; but all the workers with access to nuclear materials carry such a stamp with them, and so could rapidly produce a new seal that would falsely indicate that no tampering had occurred.
- While in theory there is a "two-man-rule" barring any individual alone from getting access to nuclear material, this crucial safeguard is widely ignored.
- Few facilities have TV cameras monitoring areas where nuclear materials are stored.
- Existing security systems are not being maintained. At many sites, there are holes in the perimeter fences, intrusion detectors, even if they exist, are broken, the electricity for electric fences no longer works, and easily climbed trees have been allowed to grow up next to fences.
- Guards at some facilities are not properly paid, equipped, or trained. At one facility with weapons-usable materials, for example, a fence around the guard house is intended to prevent the guards from stealing bread from the bakery next door.

Two aspects of the Soviet economic system have exacerbated the problem. First, under the quota system, if a particular facility produced more than central planners had demanded in a given year, there was a considerable incentive to set the extra material aside in a secret stock, to make up any shortfalls that might occur in subsequent years. Thus many facilities have secret "honey pots" potentially representing hundreds of kilograms or even tons of nuclear material, unknown to central authorities.

Second, since HEU was difficult to get, research institutes typically would try to acquire substantially more HEU than was needed for their immediate purposes, so as to have enough available to do further experiments. Since HEU might come in handy later, and there were no

[7] "Holes in the Fences," *op. cit.*

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Table 3 Seizures of Weapons-Usable Materials

Date	Amount	Description of Material	Where Seized
October 1992	1.5 kilograms	HEU	Russia
Spring 1994	3 kilograms	HEU	Russia
May 1994	6 grams	99.75% Pu-239	Baden-Wuerttemberg, Germany
June 1994	.8 grams	87.7% U-235	Landshut, Germany
August 1994	560 grams	Mixture of 87% Pu-239 and uranium	Munich, Germany
December 1994	2.73 kilograms	87.7% U-235	Prague, Czech Republic

UNCLASSIFIED Source: [redacted] (b)(3)

regulations requiring expensive protection for such material, there was no incentive to send any "leftovers" back to central authorities. In some cases, it has been found that leftover HEU was simply forgotten when researchers retired or moved on to other projects: there have been a number of recent instances in which facilities have discovered stashes of HEU that they did not know they had.

These weaknesses have been assessed primarily through visits to a limited number of Russian sites by U.S. personnel, along with accounts by Russian nuclear workers. Intelligence relating to safeguards and security has only recently become a priority and is difficult to come by. Satellite photography can reveal fencing arrangements, guard houses, armored cars, and the like, but says little about crucial matters such as nuclear material accounting and control activities occurring within buildings. Major gaps in our knowledge remain, which in most cases are more likely to be filled by cooperative visits to facilities by MPC&A experts than by traditional intelligence means.

Weaknesses in nuclear material security, and the growing insider threat, have already led to a significant number of confirmed thefts. Table 3 shows the known cases that have been confirmed and are unclassified.[8] Russian officials have reported a number of additional cases through classified channels—including, in one case, a theft of 9–12 kilograms of HEU.[9] While these have not been directly confirmed, there is no reason to dismiss these reports. There have been multiple seizures, by authorities inside and outside Russia, of stolen weapons-usable HEU in quantities ranging into the kilograms, as well as several seizures of stolen plutonium in quantities ranging up to hundreds of grams. As yet, there is no evidence that any of this material has fallen into the hands of potential proliferators, but we do not know what we have not detected. It is reasonable to ask: are the known cases only the tip of the iceberg?

[redacted] E.O. 13526 6.2(a) (b)(3)

[9]See, for example, Moscow 032874, "Overview of Nuclear Material Protection, Control, and Accounting in Russia," November 1994 (Secret).

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Fortunately, there is as yet no evidence of a substantial "market" of agents of proliferating states looking to buy such materials: the very large number of scams being run by con artists claiming to be selling valuable weapons-usable material appears to have spooked some of the potential buyers. Nor is there any evidence, as yet, of the involvement of organized crime in thefts of weapons-usable nuclear materials. Here too, however, we simply cannot know what may be happening that we have not detected.

The facilities where the roughly 170 tons of separated plutonium and 1000 metric tons of HEU in the former Soviet Union are located can be divided into several categories:

1. *Weapons Sites.* About half of the separated plutonium and HEU in the former Soviet Union is in the stockpile of nuclear weapons, controlled by the Ministry of Defense (MoD). Security for assembled nuclear weapons is believed to be significantly better than security for nuclear materials, though transport security remains an important issue.[10] Thus, while the weapons represent a large fraction of the material, they probably represent a small percentage of the overall proliferation risk.

2. *Nuclear Weapons Complex.* A large fraction of the plutonium and HEU outside weapons is in the nuclear weapons complex—the large "closed cities" controlled by the Ministry of Atomic Energy (MINATOM). There are approximately a dozen of these closed cities, including three plutonium-production sites, four uranium-enrichment facilities (one co-located, at Tomsk-7, with one of the plutonium-production sites), two principal weapon-design laboratories, and four weapons-assembly/disassembly facilities (one co-located, at Arzamas-16, with one of the weapon-design laboratories). The closed cities are typically large sites covering many square kilometers, handling many tons of plutonium and HEU. At these facilities, plutonium and HEU exist in a wide variety of forms—as metal weapons components, metallic ingots, oxides, scrap, solutions, and residues, to name a few. Typically the entire "closed city" is enclosed within a fence, and the nuclear facility itself is also fenced. Within the facility, however, tons of weapons-usable materials may be stored in ordinary buildings with glass windows and minimal guarding. A large response force (hundreds if not thousands of soldiers) is usually stationed at the closed city. Thus these facilities are likely to be quite resistant to overt, armed attack; likely resistance to insider threats or well-trained covert teams of outsiders (possibly with the collaboration of one or more insiders) appears to be poor, however.

3. *Civilian Facilities and Research Institutes.* Substantial quantities of weapons-usable material are also held at civilian facilities—particularly fuel-fabrication plants and research institutes. Some of these are controlled by MINATOM and some by a wide array of other organizations, ranging from the Russian Academy of Sciences to individual universities. Much of this material is in the form of HEU fuel elements for research reactors, but at a number of these facilities HEU or plutonium exist in bulk form (typically oxides) as well. Much of the HEU at these facilities is enriched to 90 percent or even higher, making it very attractive bomb material. These institutes, not located in closed cities, typically have only the most minimal physical

[10]See note 2.

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protection. In many cases, a substantial number of facility employees have the access required to walk in, remove the nuclear materials, and leave the premises without detection or questioning. Essentially all of the stolen weapons-usable materials seized by authorities to date appear to have originated from facilities in this category. Thus, while these facilities may have less than 5 percent of the weapons-usable materials in Russia, they represent a very large fraction of the proliferation risk. Indeed, all of the facilities listed in the JAEIC study as "most seriously deficient" were in this category. It should be noted that a small percentage of hundreds of tons of weapons-usable material is still sufficient to make thousands of nuclear weapons.

4. *Naval Fuel.* A substantial quantity of HEU ranging from 20–90 percent enrichment exists in the naval complex, including fuel for submarines, surface combatants, and civilian icebreakers. E.O. 13526 6.2(a) (b)(3) (b)(3) (b)(3) Naval fuel storage sites (such as the one at Murmansk where several kilograms of fuel was recently stolen) are controlled by the Navy. Despite being controlled by the military and its contractors, naval fuel sites appear to be startlingly insecure. In the Murmansk case, for example, a single thief simply walked through one of the many holes in the fence, sawed off the padlock on a shed holding naval fuel, pried open the door (using a pole he found at the site), broke open several fuel elements, poured the material into his bag, and retraced his steps. While the theft was detected within hours, the thief was not arrested until six months later, when he began trying to market the material. The prosecutor concluded publicly that in Russia it is easier to steal nuclear material than to steal a sack of potatoes.

5. *Beyond Russia.* When the Soviet Union collapsed, Russia was left with more than 95% of the weapons-usable nuclear materials that were not in nuclear weapons. Operation Sapphire, which airlifted 600 kilograms of HEU from Kazakhstan to safe storage at Oak Ridge, eliminated the largest known stock of weapons-usable material remaining outside Russia. The other material of concern outside the Russian Federation is at a small number of research institutes, in Ukraine, Kazakhstan, Belarus, Latvia, Georgia, and Uzbekistan. As with the research institutes in Russia, these facilities have minimal physical protection or material accounting, and pose high proliferation risks. It appears possible, however, that sufficient funds will be made available by the United States and other donor countries to greatly improve security and accounting for all sites outside Russia with weapons-usable materials during 1995--1997.

In short, the problem is a gigantic one: hundreds of tons of material, at scores of sites spread across the 11 time zones of the former Soviet Union, in weapons, production facilities, and research institutes.

The governments of the region, faced with a wide range of other urgent priorities in a wrenching time of transition, have failed to devote the attention and resources needed to solve these problems. In Russia, while President Yeltsin and Prime Minister Victor Chernomyrdin have both issued orders and decrees calling for urgent programs to upgrade security for nuclear materials, interagency disagreements and conflicting budget pressures have stymied effective action.

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The Ministry of Atomic Energy (MINATOM), which controls most of the nuclear materials in Russia, continues to tell Russian authorities and the world at large that there is no problem, that it is impossible to steal nuclear materials in Russia, and that they know for certain that every gram of material is in its proper place. Nothing could be farther from the truth—as other ministries, such as the Federal Counterintelligence Service (FSK) and the Ministry of Internal Affairs (MVD) are beginning to point out within the Russian government.

But from MINATOM's perspective, the whole issue represents a profound economic threat: admitting that there is a problem would mean admitting that substantial resources should be diverted from favored MINATOM projects to address it. (As an indication of the scale of resources involved, the United States spends some $800 million every year on safeguards and security in the DOE complex.) And MINATOM's budget is already stretched extremely thin, as Minister Mikhailov attempts to maintain his million-person empire even after its Cold War mission is over. Moreover, acknowledging that there were problems controlling nuclear materials where they are now would be a fundamental challenge to MINATOM's vision of a future in which reactors running on weapons-usable plutonium fuel would be spread throughout the Russian Federation.

Just as the Russian government is not a monolith, however, MINATOM is not a monolith. Many of the institutes and facilities involved in MPC&A cooperation with the United States are developing an acute understanding of the problem and considerable enthusiasm for continued cooperation. Tension between MINATOM headquarters' efforts to go slow and MINATOM facilities' desire to move forward is building.

While decrees signed by Yeltsin have given the nascent nuclear regulatory agency, GAN, authority to regulate security and accounting for both civilian and military materials, GAN has only recently begun to gain the real authority needed to implement that mandate. GAN is a tiny organization with few staff and fewer resources, trying to regulate some of the most powerful ministries in Russia. During 1993 and most of 1994, GAN was effectively barred from MINATOM facilities handling military materials, and from Ministry of Defense facilities—both of which Yeltsin had decreed GAN should regulate.

In September 1994, however, Yeltsin issued a decree calling for an interministerial commission, chaired by GAN, to make recommendations for urgent steps to be taken to improve security for nuclear materials. Working closely with MINATOM, and with support from the FSK and the MVD, GAN succeeded in securing agreement of all ministries on a report to Yeltsin, and later on a government order that was signed by Chernomyrdin in January of 1995. A new Atomic Law which will provide the legal foundation for GAN's regulation of MPC&A is expected to be approved by the Duma this spring. Nevertheless, despite explicit instructions in Chernomyrdin's order that funding should be made available, the Ministry of Finance has failed to provide the roughly $4 million that GAN and MINATOM agreed was needed to implement the "most urgent" steps called for in the order.

In short, while this issue has come to the attention of the very highest levels of the Russian government, no comprehensive plan of action is yet being implemented in response, and

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MINATOM headquarters continues to deny even the existence of a problem. For the other former Soviet states, the situation varies from one nation to another—but none of them has undertaken a comprehensive program to do what needs to be done. Indeed, in Ukraine, the main organization which had been in charge of security and accounting for nuclear materials—and with whom the United States had signed agreements calling for joint work on upgrades—has recently been abolished, with its responsibilities folded into a new ministry headed by a leading opponent of Ukraine's accession to the Nonproliferation Treaty.

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III: THE U.S. RESPONSE TO DATE

U.S. programs to enhance security and accounting for weapons-usable nuclear materials in the former Soviet Union got off to a slow start, but they are now beginning to show solid achievements and appear likely to make additional progress during 1995.

A Slow Start: 1991–1993

In the years immediately following the collapse of the Soviet Union, efforts to improve security and accounting for weapons-usable materials in the former Soviet states made little progress—hobbled by lack of priority, lack of policy coherence, and lack of top-level attention in both the United States and the FSU, and by the extreme sensitivity on the FSU side about the issue of security at nuclear sites. Indeed, until early 1993, U.S. experts had not recognized the full scope and severity of the MPC&A problem that existed in the former Soviet Union.

As early as 1991, when Congress voted to establish the Nunn-Lugar program and provide $400 million for its first year, preventing proliferation and securing nuclear weapons and materials were designated as key priorities. Material protection, control, and accounting (MPC&A) was one of the seven areas of cooperation agreed to by Secretary of State James Baker and his Soviet and Russian counterparts in late 1991 and early 1992. Nevertheless, this issue received little priority on either side, and a variety of interagency conflicts delayed progress. In retrospect, setting up a program in which the Department of Energy was to spend the Department of Defense's money was a recipe for interagency conflict (some of which has continued to this day). In addition, acting on a strict interpretation of Congressional direction, DOD decided that the Nunn-Lugar program must "buy American," using normal DOD procurement regulations, for essentially all goods and services procured (so that only a tiny fraction of the money flowed to the former Soviet states). DOE's pace and priorities were criticized by other agencies as oriented more toward discussion than action. No one of sufficient authority in the White House or anywhere else brought such issues to closure to move the program forward.

It took until September 1993—a year and a half after the inception of the program—to complete a very simple implementing agreement providing the legal basis for MPC&A cooperation at Russian facilities handling civilian nuclear materials. (During this period, however, initial technical contacts were established that were to prove fruitful later, principally through conferences and the joint effort to design the MPC&A system for the proposed Nunn-Lugar storage facility for fissile materials from dismantled weapons.)

At that time, because of Russian sensitivities and resource constraints, MPC&A cooperation plans were limited to extremely modest steps. The approach was to establish a small number of "model" facilities with highly effective MPC&A systems, with the idea that Russia would then apply the lessons learned at these facilities more broadly. The schedule was leisurely: initial plans called for the "model" facilities to be established over a period of years, with implementation at other sites requiring years beyond that. A similar "model facility" approach was taken with Ukraine and Kazakhstan. (No Nunn-Lugar agreement on MPC&A has yet been

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MPC&A in the Non-Russian Former Soviet States

Russia inherited more than 95% of the Soviet Union's stockpile of separated plutonium and HEU outside of weapons. Nevertheless, facilities with kilograms or tens of kilograms of plutonium or HEU exist in Kazakhstan, Ukraine, Belarus, Latvia, Georgia, and Uzbekistan. At the Kharkiv research institute in Ukraine, for example, there are reportedly roughly 75 kilograms of bulk HEU powder, with little protection or accounting for the material. These stockpiles pose serious proliferation risks, particularly given the ongoing economic and political transformations underway in many of these countries.

The United States, Japan, Sweden, the United Kingdom, and other countries are involved in providing MPC&A assistance to these countries. The efforts of these donor countries are coordinated through meetings sponsored by the IAEA.

Given the relatively small number of facilities with weapons-usable material outside Russia, it would be desirable to make it an objectrve to deal with them all within the next two years—either by significantly improving security and accounting for the material there, or by removing it to a secure location (as in the case of Project Sapphire). A plan for accomplishing this objective would have to be drawn up with the participation of the other donor countries and the recipient states.

The United States has Nunn-Lugar MPC&A agreements with Ukraine and Kazakhstan. The United States has recently suggested to these countries increasing the amount of Nunn-Lugar funding for MPC&A, with the objective of covering all the facilities in these two nations that have substantial quantities of weapons-usable material (as well as establishing MPC&A training programs).

There is no Nunn-Lugar MPC&A agreement with Belarus, and hence consideration is being given to providing MPC&A assistance through the International Science and Technology Center (ISTC) in Moscow, so that a new funding agreement would not have to be negotiated. The other relevant states are not currently eligible for Nunn-Lugar assistance, but DOE has provided some initial seed money that has covered some site visits for analyses of needs. Several million dollars might be required to assure effective MPC&A for the small number of facilities in the states not already covered by Nunn-Lugar MPC&A assistance. This could potentially be accomplished by other donor states, if they were willing to take responsibility.

concluded with Belarus; other former Soviet states are not eligible for Nunn-Lugar assistance. See "MPC&A In the Non-Russian Former Soviet States," p. 15)

The Russian side insisted that the initial "model facility" efforts be limited to low-enriched uranium (LEU) facilities, even though these facilities posed virtually no proliferation risk—arguing that the two sides had to take "one step at a time," and needed to build confidence before working on more sensitive materials. In addition, although the U.S. side proposed cooperating in the development of national standards for MPC&A, MINATOM negotiators declined: national standards were now to be developed by the Russian nuclear regulatory agency, GAN, whose regulatory interference MINATOM was seeking to minimize.

Thus, as of January 1994, the only significant effort underway to cooperate with Russia to improve security and accounting for nuclear materials was focused on modest upgrades at a single low-enriched uranium fuel fabrication facility at Elektrostal. Ten million dollars of Nunn-Lugar funding was then available for MPC&A in Russia, with modest additional funds for Ukraine and Kazakhstan.

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New Initiatives: January-October 1994

It was clear that different approaches were needed, which would focus on the most urgent upgrade needs and attempt to address Russian sensitivities. The United States therefore launched two new initiatives: a concept in the Nunn-Lugar MPC&A program that came to be called the "quick fix," and a separate U.S.-Russian lab-to-lab MPC&A program. Later in the year, the United States also decided to undertake a third initiative—a greatly expanded effort to cooperate with the Russian nuclear regulatory agency, GAN.

The "Quick Fix"

The idea of the "quick fix," which was modeled on steps the United States had taken to upgrade MPC&A in its own weapons complex years before, was for the Russian government to form a series of teams to inspect Russian nuclear sites, determine what MPC&A upgrades were most urgently needed, and provide a prioritized list to the U.S. side, which could then be the basis for discussions of assistance and cooperation.

The United States proposed that a Russian team should come to the plutonium storage site at Hanford to observe U.S. MPC&A approaches and means of assessing upgrade needs; this would be followed by a U.S. visit to the Russian civilian plutonium storage facility at Mayak (chosen because of its civilian character, the large amount—nearly 30 tons—of material there, and a Soviet-era government report that had called attention to poor security there). That visit would in turn be followed by Russian-led assessments of MPC&A upgrade needs at Russian nuclear sites, beginning with 10 facilities in 180 days. To fund the high-priority upgrades (and to fund a proposal, made at the same time, to upgrade MPC&A at the Yekaterinburg blending facility for the HEU purchase agreement), the United States indicated it would be willing to increase the amount of Nunn-Lugar funding available for MPC&A from $10 million to $30 million, and to expand the Nunn-Lugar MPC&A agreement's scope to cover military as well as civilian materials.

The Russian side accepted the reciprocal visits to Hanford and Mayak (which were conducted successfully in July and October of 1994), but declined the idea of a broad-based "quick fix" approach, preferring instead to limit cooperation to a small number of specific sites. The Russian side also rejected the proposal to expand cooperation to include military materials, and declined the specific proposal to upgrade MPC&A at the Yekaterinburg blending facility (arguing that MPC&A there was already adequate, and that any upgrades that might be needed could be carried out in the context of the ongoing negotiations concerning transparency for the HEU purchase agreement).

By late 1994, however, a number of factors were converging to change attitudes regarding the importance of ensuring that nuclear materials were secured and accounted for. A series of seizures of weapons-usable material in Europe culminated in August 1994 with the seizure of 350 grams of plutonium (in some 560 grams of material, including uranium) on a plane from Moscow to Munich, provoking widespread press coverage and public concern. A top-level German official flew to Moscow and reached an agreement to cooperate in stopping nuclear smuggling. The issue was unavoidably on the international agenda, and, within Russia, there was considerable discussion of the issue in the public press. On September 15, President Yeltsin issued a decree

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establishing an interagency commission to report to him within one month on urgent measures to improve security and accounting for nuclear materials; later that month, Presidents Clinton and Yeltsin endorsed continued cooperation in this area at their Washington summit. At the same time, the less formal U.S.-Russian lab-to-lab program (described below) was beginning to make real progress, helping to establish U.S. bona fides.

Thus, during November and December 1994, the Russian side agreed to MPC&A cooperation at half a dozen sites, all of them high-risk facilities with hundreds of kilograms of weapons-usable material. These included every single one of the sites listed by the JAEIC as "most seriously deficient," except for the Kurchatov Institute, which was covered in the lab-to-lab program. Compared to the situation only a few months before, when cooperation was limited to protecting only LEU, this represented a major breakthrough. In addition, by that time the two sides had reached agreement that the United States would help establish an MPC&A training center at Obninsk—a critically important project, if a new "safeguards culture" is to be developed in Russia. Based on these agreements, the United States agreed to sign an amendment to the Nunn-Lugar MPC&A agreement increasing the available funds to $30 million, without insisting that the agreement also expand cooperation to include military materials.

Funding currently available for the government-to-government program includes some $30 million in FY94 and prior year Nunn-Lugar funds. While only a small fraction of that amount has yet been spent, the recent agreements on specific sites are expected to enable a significant acceleration of the effort. In late 1994, an interagency decision was taken to remove MPC&A from Nunn-Lugar and consolidate both the government-to-government and lab-to-lab MPC&A programs in DOE's budget request. DOE's FY96 request includes $20 million to continue the government-to-government programs channeled through MINATOM.

The Lab-to-Lab Initiative

In April 1994, Undersecretary of Energy Charles Curtis, in collaboration with the national laboratory directors, decided to establish a lab-to-lab MPC&A program, building on the lab-to-lab relationships that already existed in other areas. A total of $2 million was moved from other projects to kick off the program in FY94.

The U.S. laboratories quickly began meeting among themselves and with their Russian counterparts to discuss possibilities for cooperation. By the summer, the U.S. side was drafting a rough plan for cooperation, and contracts for initial steps were being signed. Los Alamos was designated as the leader of a multi-lab team on the U.S. side. On the Russian side, one group of participants was a team of laboratories designated by MINATOM, led by Arzamas-16, one of Russia's premier nuclear weapons laboratories.[11] This group also included the Institute of Physics and Power Engineering at Obninsk, which was expected to play an important role in MPC&A for civilian MINATOM facilities. At the same time, a parallel lab-to-lab effort was undertaken at the Kurchatov Institute, the largest nuclear institute independent of MINATOM, which had long been an advocate of improved MPC&A in Russia.

[11] Sometimes known by its Russian acronym, VNIIEF.

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From its inception, the lab-to-lab program was implemented in a different and more flexible way than the Nunn-Lugar MPC&A program, and was able to move more quickly. (For details, see "Lessons Learned,"p. 22.)

In October of 1994, Undersecretary Curtis traveled to Russia and provided a copy of the draft cooperation plan that had been prepared by the U.S. laboratories. Within weeks, the Russian laboratories had responded with a plan of their own, covering a wide range of activities. Moreover, while the Russian side in the government-to-government MPC&A effort had consistently rejected proposals to cooperate on MPC&A for military materials, in the lab-to-lab program weapons laboratories and weapons facilities were included from the outset. The lab-to-lab program also provided an opportunity for reaching outside MINATOM to independent institutes such as Kurchatov, which had been beyond the scope of the Nunn-Lugar MPC&A agreement, which was channeled through MINATOM.

A total of $15 million has been budgeted for lab-to-lab MPC&A cooperation in FY95.[12] The FY96 DOE budget includes a request of $40 million for this purpose.

Expanding GAN Cooperation

For some time, the NRC has been cooperating with GAN, its Russian counterpart, on development of a new MPC&A regulatory structure for Russia. In mid-to-late 1994, GAN and U.S. officials began discussing broadened cooperation, including the provision of training and equipment. During Undersecretary Curtis' trip to Russia in October 1994, he signed a DOE-GAN memorandum of intent for expanded cooperation. Three main areas were identified as particularly promising:

- equipment and training for GAN MPC&A inspectors (GAN provided a list of requested equipment in mid-1994);
- establishment of a national computerized material accounting system (Russia does not have such a national accounting system at present); and
- MPC&A at non-MINATOM, non-MoD sites (where GAN could serve as the single point of contact for facilities controlled by a wide array of different agencies and groups).

Current funding specifically targeted for cooperation with GAN on MPC&A is only a few hundred thousand dollars, channeled through the NRC. DOE's FY96 budget request includes $10 million for this purpose (out of the total of $30 million for government-to-government MPC&A programs).

[12]In late 1994, an interagency decision was taken that these funds would be provided from DOD's FY95 Nunn-Lugar funding. At the time of the Panel's review, however, while a substantial fraction of these funds had already been spent or committed (borrowing from other DOE programs), DOE and DOD had not yet reached agreement on the terms and conditions for this transfer.

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Demonstrable Progress: November 1994-Present

By late 1994, the U.S. government had established a multi-pronged approach to MPC&A cooperation with Russia, including three principal programs:

- government-to-government (funded through FY95 from Nunn-Lugar, but transitioning to DOE funding in FY96);
- lab-to-lab;
- expanded GAN cooperation.

During late 1994 and early 1995, these programs began to make demonstrable progress on the ground. Until late 1994, it was still correct to say (as critics sometimes did) that there was not a single kilogram of weapons-usable material for which security had been improved as a result of U.S.-FSU cooperation efforts. This is no longer true. Recent successes include:

Project Sapphire

This well-publicized operation airlifted 600 kilograms of HEU from Kazakhstan to safe storage at Oak Ridge in November 1994, at Kazakh request. This represented a key nonproliferation success, born of complex and intensive interagency cooperation. Given the politics of bringing foreign nuclear material into the United States, however, such an approach will probably only be applicable in a limited number of cases. The Administration should continue to examine expedited options for achieving similar objectives in the future (see "Project Sapphire—and Beyond," p. 25).

The Kurchatov Institute

In the course of just two months, in November and December 1994, a radically improved MPC&A system was installed at Building 116 at the Kurchatov Institute in Moscow—home to two critical assemblies fueled with over 100 kilograms of HEU. The new system includes double fences, motion detectors, TV monitoring cameras, portal monitors to detect anyone leaving the premises with nuclear materials, and more. Built for less than $1 million, the system includes almost exclusively Russian equipment, though the design was a cooperative effort between U.S. and Russian laboratories. This was the first site where major improvements in MPC&A were actually implemented as a result of U.S.-Russian cooperation. Similar upgrades are planned for two other buildings at the Kurchatov Institute housing substantial quantities of HEU. Largely because of the use of Russian equipment, the Russian participants (Kurchatov and Eleron, a principal Russian producer of security equipment affiliated with MINATOM) have become enthusiastic backers of the approach, and are actively working to sell similar systems to other facilities. GAN, the Russian nuclear regulatory agency, has publicly advocated installing similar systems at nuclear facilities throughout the Russian Federation.

Government-to-Government and Lab-to-Lab Agreements

In addition to these specific successes in securing materials at particular sites, agreement has been reached on next steps for both the government-to-government and lab-to-lab programs.

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As noted earlier, in November-December 1994, agreement was reached to expand Nunn-Lugar MPC&A cooperation to include a half-dozen key, high-priority nuclear sites, including the key facilities listed by the JAEIC as "most seriously deficient." After a brief effort by MINATOM to walk this agreement back, agreement was reached in March 1995 to proceed with implementation of MPC&A upgrades at 5 of these sites. Major upgrades are expected to be implemented during 1995 and early 1996.

Similarly, in January 1995, the U.S. and Russian multi-lab steering groups reached agreement on a plan calling for a wide array of activities at a variety of Russian nuclear sites. Upgrades at Kurchatov will continue; at Arzamas-16, a demonstration MPC&A system has just been installed, and analyses of U.S. and Russian MPC&A equipment are continuing; at Obninsk, a complete MC&A system for two major facilities is expected to be installed by June of 1995; at the Tomsk-7 facility where HEU from weapons will be converted to oxide, tentative agreement (pending MINATOM approval) was reached to implement an MC&A system by late 1995 or early 1996; and a similar system will be installed for Site 20 at Chelyabinsk.

Remaining Issues

Despite these successes, a number of key issues remain:

- Only a tiny fraction of the job is yet done: most of the work remains before us. Cooperative MPC&A programs must continue and must receive high priority and commensurate resources, if the grave proliferation risks that now exist are to be substantially reduced.
- The Russian government remains a cautious partner. MINATOM continues to exclude military materials (the majority of the weapons-usable materials in Russia) from government-to-government cooperation, and to seek to limit the number of sites where such cooperation proceeds. MINATOM is also seeking to exert greater government control over the lab-to-lab program (a request which should be resisted). Despite decrees from President Yeltsin and an order signed by Prime Minister Chernomyrdin, MINATOM and the economic ministries are still giving MPC&A low priority. As noted earlier, the Ministry of Finance has refused to provide the roughly $4 million that GAN and MINATOM agreed was necessary to implement the "most urgent" steps in the Russian government's MPC&A plan, signed by Chernomyrdin.
- Within the U.S. government, interagency squabbles continue. While some important steps have been taken to resolve these issues (such as establishing an NSC-led interagency coordinating group, and consolidating MPC&A funding in the DOE budget, rather than leaving it split between DOE and Nunn-Lugar), some disagreements remain unresolved. As one indicative example, DOE and DOD have been disagreeing for weeks over the specifics of how $15 million will be transferred from DOD Nunn-Lugar accounts to DOE to fund the FY95 lab-to-lab program, and this disagreement has now been allowed to spill over into discussions with congressional committees, potentially imperiling the viability of the FY95 lab-to-lab program.
- Resources remain limited. In a number of cases, particularly in the lab-to-lab program, the United States has had to put off Russian proposals for further cooperation, because

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sufficient funds and personnel were not available to carry them out. In other words, while MPC&A programs through mid-1994 were primarily "cooperation-limited"—that is, available funds could not be spent because sufficient cooperation had not yet been achieved—these programs are now clearly resource-limited.

- Currently the critical managers of the MPC&A effort at DOE are burdened with many other responsibilities. Additional, qualified, full-time personnel are needed at all levels to implement DOE's expanding program. The team of qualified people at the implementing level at DOE and the laboratories also needs to be expanded.
- There is insufficient coordination with other related efforts, such as various transparency initiatives, the HEU purchase agreement, and plutonium disposition.

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IV. LESSONS LEARNED

The United States, in its attempt to assist the former Soviet states in remedying weaknesses in the system to protect, control, and account for nuclear materials inherited from the former Soviet regime, has been faced with a daunting task. Never before has one nation, in so short a period of time, attempted to assist a former adversary to meet such security needs. Never before has the United States been faced with the delicate task of providing assistance of this sort while being sensitive both to the democratic evolution of its former adversary and to the significant security dangers that remain in the transition. The short history of this program suggests a number of important lessons, and these lessons must be applied if the assistance effort is to produce maximum benefits in the future.

1. An effective program requires sustained top-level leadership, including positive direction and support by the President and active, personal participation by cabinet-level officials.

The history of these programs unfortunately makes clear that if working-level agency officials are allowed to let their disagreements block action, that is precisely what will happen. Leadership by top-level officials is required to break through such logjams. The priority of this issue within the Executive Branch must be increased if the program is to succeed. The program requires clear lines of authority from President, and a strong interagency focal point.

Top-level leadership is also required to mobilize opinion within the Executive Branch, the Congress, and the public, to support the modest costs required for these crucial programs. This is particularly important when the assistance is for programs that are often misunderstood, such as those in the nuclear area.

2. Maximum progress requires maximum flexibility.

Experience demonstrates that the best way to make progress is to push forward on several fronts at once, while constantly searching for new ways to get around obstacles that arise.

Faced with multiple actors on the Russian side with differing (and sometimes conflicting) responsibilities and interests, the United States has taken a multi-pronged approach, cooperating with MINATOM, with GAN, and with individual laboratories and institutes. This flexible approach has proved its worth and should be continued.

To date, the DOE's lab-to-lab program has achieved greater successes and moved more rapidly than has the portion of the Nunn-Lugar program devoted to securing nuclear materials. The flexibility of the lab-to-lab program is a large part of the reason for this difference. In particular, explanations for this success include:

- basing the program on direct collaborative efforts between scientists and engineers focused on common goals, bypassing detailed negotiation by governments;
- a willingness to provide a substantial portion of the funds for direct purchase of equipment and services from entities in the former Soviet states, giving the Russian laboratories

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strong incentives to participate and to assign personnel to this task (rather than providing only U.S. equipment and excluding payment of recipient-state salaries, as has been the case in Nunn-Lugar); and

- the absence of some Nunn-Lugar requirements, including the need to follow all DOD procurement regulations and the need for the U.S. to insist on the "audit and examination rights" called for in the Nunn-Lugar implementing agreement.

In particular, the willingness to use Russian equipment in those cases where suitable equipment is available (which is not the case in all areas of MPC&A) increased Russian incentives to cooperate; lowered costs; and resulted in equipment that was easier for Russian personnel to operate, maintain, and replicate at other sites.

This flexibility has been achieved without sacrificing protection for the taxpayer. Instead of the "audit and examinations" called for under Nunn-Lugar, for example, the laboratories have been contracting for specific deliverables at specific prices, with a full demonstration required of each system paid for under the program.

3. Responsiveness to recipient-country concerns is essential.

The effort to protect, control, and account for fissile material in the former Soviet states is ultimately the responsibility of those states. Hence U.S. efforts will not be successful unless undertaken cooperatively. To build a continuing basis for cooperation, there must be a constant effort to understand how the various states (and the various actors within those states) view the problem and the cooperative program, to respond to their concerns, and to provide incentives for cooperation.

Failing to be sensitive to recipient country concerns can greatly damage prospects for gaining cooperation in upgrading MPC&A. As noted, some key officials have already been warned about excessive cooperation with the United States, after sensationalized stories appeared in the Western press. The concerns that must be addressed fall into four main categories: confidentiality and limiting negative press commentary; a focus on conceiving of these programs as cooperation, not as assistance; reciprocal access to U.S. facilities; and the use of indigenous equipment and expertise. The first and last of these appear to be concerns shared by many of the recipient states, while the middle two primarily apply in the case of Russia.

i. *Confidentiality.* Cooperation will not be forthcoming if, whenever Russia opens a nuclear site to the United States, the press is then filled with stories about the inadequacies of the security and accounting at that site. Extreme care must be taken to protect information the recipient states consider confidential. Efforts should be made to avoid sensationalized press accounts of the state of MPC&A in the former Soviet Union. Public statements that Russian MPC&A systems are inadequate, that seizures of nuclear material in Europe and elsewhere came from Russia, or that Russian technology is inferior to Western technology should be avoided.

ii. *Emphasize Cooperation, Not Assistance.* Particularly in Russia, which conceives of itself as an advanced nuclear power on a par with the United States, it is very important that these

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programs be presented as joint cooperation to mutual benefit—not as an assistance program for countries incapable of properly managing their nuclear materials by themselves. Public statements should emphasize that this is a global problem, not just a Russian one, and that programs to cooperate with the FSU states in addressing the problem represent cooperation on mutual problems to mutual benefit, not assistance.

iii. *Reciprocal Access.* Given Russian sensitivities, gaining necessary access to the wide range of facilities in Russia requiring MPC&A upgrades will inevitably require offering similar access to U.S. nuclear sites. There is little doubt, for example, that the U.S. decision to give a high-level Russian team a detailed look at the security and material control systems in place at the Hanford plutonium storage site was a critical factor in the Russian decision to allow cooperation to begin at similar sites with weapons-usable material in Russia. Indeed, the Russian official who led the U.S. return visit to the Mayak plutonium storage site informed the group that his instructions were to provide exactly as much access as the Russian group had received at Hanford—no more, and no less. Thus, the Clinton Administration's decision to offer reciprocal transparency measures—in contrast to the Bush Administration's "pay per view" approach, which demanded unilateral Russian transparency in return for Nunn-Lugar assistance—is critical to continued success.

iv. *Indigenous Equipment.* As already mentioned, making use of equipment produced in the former Soviet states themselves, rather than using only American equipment (as has been the case to date in most of the Nunn-Lugar program, including the Nunn-Lugar MPC&A program) is critically important to addressing recipient-state sensitivities. One official of the Russian security service told the Panel bluntly that if the United States insisted on using its own equipment, cooperation would go no further.

4. There is no substitute for a strong management team to lead these programs.

Particularly in a complex, multi-pronged program such as this one, effective management is essential to keep the programs focused on the central goal of achieving the largest possible reductions in proliferation risk per dollar spent, as quickly as possible, and to keep participants focused on a prioritized plan of action. In both Russia and the United States, participants in these programs have a variety of interests (including financial interests in receiving as large a fraction of the program's funds as possible) in addition to their interest in reducing proliferation risks. This is not to criticize any of the participants: it is simply a fact of human nature, which must be kept in mind. Given that situation, strong managers, aware of these different and sometimes conflicting interests, are essential to keep the program on track.

5. Public support in the United States, the former Soviet Union, and among their present and former allies is needed.

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Project Sapphire—And Beyond

Project Sapphire, which airlifted some 600 kilograms of HEU from a vulnerable fuel fabrication facility in Kazakhstan to safe storage at Oak Ridge, was a major nonproliferation success, for which the Clinton Administration deserves great credit.

A variety of lessons can be drawn from the Sapphire experience. The effort took many months, far longer than was originally anticipated. Indeed, the operation was not over when the material arrived in the United States: some important issues, such as how the material will be managed in the United States, and precisely how the promised assistance to Kazakhstan would be paid for, remained unsettled at the time of the Panel's review.

An intensive effort was needed to accomplish this mission, including the establishment of an interagency "Tiger Team" and, ultimately, the personal involvement of the President and several Cabinet Secretaries. (The press conference announcing the operation after it was complete featured the Secretaries of State, Defense, and Energy.) In addition to reaching agreement with Kazakhstan (and confirming that Russia did not object, and had no interest in taking the material itself), there were important issues that had to be resolved within the U.S. government, including the responsibilities and authorities of different agencies; where funds could be found with sufficient flexibility to pay for the activities required for this effort; locations in the United States where such material could be received; compliance with environment, safety, and health regulations; difficulties of packaging and transport (including the touchy question of overflights of other countries carrying nuclear materials); and others. The dedication of those who took part in this effort was responsible for its ultimate success.

The involvement of the President and several Cabinet Secretaries in this successful effort demonstrates the need for, and value of, such top-level leadership in pushing to a successful conclusion programs related to reducing risks of theft of fissile materials. The obstacles that arose and were overcome demonstrate the need for a strong and focused interagency process to deal with such issues, led by a senior official with day-to-day responsibility for coordinating these efforts. The Panel believes it would be very useful for the participants in Sapphire to prepare a "lessons learned" report. The insights contained therein could help guide cooperative MPC&A programs and future efforts to purchase materials.

As far as is known, Sapphire took care of by far the largest stockpile of weapons-usable fissile material outside Russia. There is little reason for confidence, however, that other stockpiles will not be found whose removal would be determined to be an urgent matter of national security. The Clinton Administration is establishing a process for examining, on a case-by-case basis, whether other such purchases would be justified. No assumption is being made that the specific arrangements made for Sapphire would be repeated for the next purchase—but the experience of Sapphire should make similar efforts far easier to implement should they prove necessary in the future.

There may be simpler approaches to such purchases that should be explored. For example, if effective MPC&A systems were established at the facilities processing HEU for the HEU purchase agreement, then HEU could be purchased from a site with an insecure stockpile, and sent to the blending facilities in Russia to be processed into LEU as an add-on to the HEU deal. (The entire Sapphire stock would have increased the scale of the HEU purchase agreement by just over one-tenth of one percent.) The price for the HEU could be the same as that in the HEU purchase agreement, or some other arrangement might be made if there were security reasons for offering a higher price. Proceeds from such purchases might be divided in such a way as to provide incentives to research institutes to give up their HEU, and incentives to the relevant government to participate in the collaborative purchase arrangement. Further exploration of such concepts is needed.

The cooperative MPC&A program is difficult to describe to the public because of the obvious sensitivities involved, described above. Support from the public sector is required, however, if the program is to maintain adequate funding from the United States and benign cooperation, at least, from others. A difficult balance must be drawn between providing sufficient

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information to make a public case for the importance and urgency of these programs, and maintaining sufficient confidentiality to ensure continued recipient-state cooperation. A proactive approach under Presidential leadership is essential.

The need for such leadership is particularly acute in those cases where cooperation is perceived to have a negative impact on the interests of segments of the U.S. public. For example, the HEU purchase agreement has the potential to displace U.S. jobs in uranium mining and enrichment. Project Sapphire required bringing foreign nuclear material to Tennessee, where local residents believe they are carrying a big enough nuclear burden already. Purchasing MPC&A equipment produced in the former Soviet states will mean that the money will not go to American contractors. In all these cases, the public and the Congress need to understand the substantial security benefits from the modest sacrifices called for.

6. Effective collection and analysis of information is essential.

Analysis by experts of data available to the U.S. Government to ensure adequate understanding of the true situation is crucial. Important information can be gained from the existing analytical resources of the intelligence community if it is properly tasked and focused. Since information related to accounting and control procedures within particular facilities is not available through national technical means, however, much of the most important information is coming not from the intelligence agencies, but from U.S. MPC&A experts who have visited many of these facilities. Increased attention needs to be devoted to ensuring that information available from individuals who have worked at or visited these facilities is collected and integrated with other information.

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V. RECOMMENDATIONS

Our recommendations fall into two categories: recommendations for Presidential action, and recommendations for those who will implement the policies prescribed by the President.

Recommendations for Presidential Action

1. The President should issue a decision directive designating the effort to protect, control, and account for fissile material as a critical and urgent security priority of the United States, and directing that it be given commensurate resources and top-level attention.

The nuclear proliferation threat posed by inadequately secured nuclear materials in the former Soviet Union is among the most serious and urgent threats to national security the United States faces in the coming decade. Only Presidential action can firmly establish efforts to reduce this threat as a top priority. The directive should clearly establish the Administration's policy and outline a coherent approach to implementing that policy throughout the government.

2. The President should appoint a senior Administration official to take full-time, personal responsibility for ensuring that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented, and should give that individual clear authority to get the job done.

Security and control for nuclear materials, as one of the preeminent security challenges facing the United States, is an issue that requires sustained top-level leadership. The gigantic scope of the challenge of managing these materials—involving hundreds of tons of materials at scores of sites in the former Soviet Union and the United States—has spawned a wide array of initiatives, ranging from securing nuclear materials (the primary focus of this report), to mutual reciprocal inspections of storage sites, to providing alternative energy sources to replace plutonium production reactors (see Table 2). A dozen or more interagency groups have been established to coordinate various aspects of these efforts. To maximize the prospects for success, these initiatives require a single coordinator, not burdened with other responsibilities, with the responsibility and the authority to ensure that these programs receive adequate resources and are effectively implemented, to resolve interagency disputes, and to coordinate these efforts with related programs. Such a role will allow the coordinator to balance priorities among these initiatives and ensure that key synergies are pursued.

3. The President should establish, under the leadership of the senior official just described, a stronger and more focused interagency process, with clearly defined lines of responsibility, authority, and organizational roles, designed to bring the talents of all critical agencies to bear in addressing this problem.

U.S.-FSU cooperation to reduce the risk of theft of nuclear materials is a broad problem that requires the expertise of many agencies. DOE is now the principal implementing agency, though NRC continues to play an important role. DOE is well-suited for this role: it has

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expertise in fissile materials; it has the responsibility for most U.S. domestic MPC&A; it has good working relations with Russians involved in this effort; and, most important, it has a top leadership which is committed to this program and assigns substantial priority to getting the job done. (As noted below, however, DOE needs to assign additional capable, trained staff to manage and implement these programs.)

Other agencies can and must make critical contributions. The State Department and the Arms Control and Disarmament Agency will continue to have important roles to play, in interacting with other countries (both the former Soviet states and other donor countries) and the IAEA, and in providing additional safeguards expertise. The contribution of the intelligence agencies will also be important. The Defense Department's On-Site Inspection Agency (OSIA) has considerable expertise in quickly organizing visits to sites in the former Soviet Union, arranging interpretation services, and the like; this expertise could provide key support to the MPC&A cooperation program, and should be utilized where appropriate (though sensitivities of the recipient states regarding the participation of an "inspection" agency in this endeavor must be kept in mind).

As noted above, a large number of interagency groups have been established to coordinate various parts of the effort to cooperate with the states of the former Soviet Union in managing fissile materials. In mid-1994, the National Security Council staff established a central coordinating group for issues related to fissile materials in the former Soviet Union. Interagency groups on MPC&A, transparency, and plutonium disposition all report to this overall coordinating group. Using that mechanism and others, in late 1994, the National Security Council staff successfully brought the interagency process to agreement on significantly increasing the funds available for MPC&A in the FY96 budget request (as well as arranging for additional funds for FY95 activities that were then beginning).

These are important steps in the right direction. Nevertheless, to bring the talents of all agencies to bear in moving this program forward, a stronger and more focused interagency process is needed, under the leadership of a senior official with clear authority from the President, who is not burdened with other responsibilities.

4. The President should direct the senior official responsible for these programs to prepare a prioritized MPC&A action plan within 60 days. This plan should identify specific near-term, mid-term, and long-term goals and objectives, and resources needed to accomplish them, and it should be updated regularly.

The importance of a such a plan to any effective program can hardly be overemphasized. DOE has much of the basis for such a plan in place, in its lab-to-lab action plan and the list of initial sites for government-to-government cooperation that has been agreed with Russia.

The fundamental goal of this program must be to achieve the *maximum reduction in proliferation risk* per dollar spent, as quickly as possible. Note that this is *not* the same as protecting the maximum total quantity of material (since some large stockpiles of material may

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already be substantially better protected, and thus pose lower proliferation risks, than some small stockpiles) or protecting the largest possible number of sites.

Achieving such a goal will require a systems engineering approach—one that includes all aspects of the problem and looks for the maximum return for the marginal dollar. It will also require a set of guiding principles around which to organize the plan, and a set of specific objectives deriving from those principles. (Some specific suggestions regarding the content of this action plan are offered below.)

5. The President should direct that adequate funds and personnel be allocated specifically for MPC&A cooperation, and that a high priority be assigned to protecting these resources from cutbacks.

Funding should be provided that is sufficient to meet a clear set of objectives, rather than tailoring the objectives to fit within a pre-determined funding ceiling. It would be a serious error to fail to provide the funds for actions that could greatly reduce serious proliferation risks for modest costs.

It is essential that adequate funds be appropriated specifically for this purpose, rather than simply "taxing" funds otherwise provided to various agencies, or expecting agencies to fund this cooperation by taking funds from other programs in their budgets.

This program is now funded primarily in the Department of Energy. The probability of further reductions in DOE's budget appears high. Given the priority of the MPC&A effort, the President should direct that its funding be protected in allocating budget reductions (as has been directed, for example, in the case of DOE's stockpile stewardship program).

6. The President should direct the senior official responsible for these programs to develop and implement a plan to secure needed legislative and public support.

The crucial effort to build support for these programs must maintain a difficult balance between providing sufficient information to make a public case for these programs and maintaining sufficient confidentiality to avoid poisoning the well for cooperation with the recipient states. Bipartisan support for the MPC&A program on Capitol Hill is essential. Any DOE program whose budget is increasing will inevitably come under close scrutiny—particularly if, as in this case, it appears to involve "Russian aid." The Administration must develop and execute an effective legislative and public information plan to win the support these programs deserve.

As noted in the lessons learned, a proactive approach to building public support for these programs, under Presidential leadership, is needed—particularly in cases where the actions required in the interest of national security have conspicuous economic or other costs.

7. The President should make effective security and accounting for weapons-usable material an important factor in U.S. relations with the states of the former Soviet Union. In

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particular, the President should seize opportunities such as that afforded by his upcoming summit with President Yeltsin to gain agreement on specific new steps to improve MPC&A.

Nonproliferation policies are already central to our relations with the former Soviet states, as the current crisis in relations with Russia over the proposed sale of reactors to Iran illustrates. The single most essential step the former Soviet states must take to prevent nuclear proliferation beyond their borders is to protect the nuclear weapons and weapons-usable materials on their territories. That issue, therefore, deserves a central place at the diplomatic table in discussions with these countries.

At their January 1994 summit, President Clinton and President Yeltsin identified cooperation in this area as a "high priority." The issue was highlighted again at their September 1994 summit. The issue has also been discussed seriously in the Gore-Chernomyrdin Commission. At the next summit, the United States should seek more detailed commitments to take specific new steps by agreed deadlines.

For example, the two Presidents could agree:

- to endorse the cooperation already underway, including the government-to-government effort channeled through MINATOM, the lab-to-lab effort, and the expanding GAN cooperation (giving each of these efforts Presidential authorization);
- that Russia would carry out a series of fast-paced inspections of its own fissile materials sites, to identify and prioritize needs for MPC&A improvements, and that the United States would contribute to defraying the cost of this survey and of implementing the highest-priority improvements identified;
- that MPC&A cooperation would be extended to include materials in military use (including naval fuel) as well as civilian materials, with appropriate measures to protect secrets that remain important to the security of each side;
- that MPC&A cooperation would be extended to additional sites beyond those already agreed to, including, for example, the major bulk-handling facilities at Tomsk-7 (Seversk), Krasnoyarsk-26 (Zeleznogorsk), Chelyabinsk-65 (the Mayak plant), and Sverdlovsk-44 (Yekaterinburg);
- that the two sides will exchange lists of major sites where fissile materials are handled and stored, and will exchange visits to major sites on a schedule to be agreed, to discuss and observe security and accounting arrangements at those sites;
- that the two sides will establish a joint working group to explore cooperation between their intelligence, police, and customs services in tracking and responding to thefts of, and illegal trade in, nuclear materials;
- that the two sides will explore possibilities for reducing the number of sites where weapons-usable fissile materials are used and stored, for example by using non-weapons-usable materials in research reactors;
- that the two sides will explore means to improve economic conditions for personnel responsible for accounting and security for nuclear weapons and fissile materials;

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- that the two sides will continue to work together in establishing improved MPC&A regulations and enhancing regulatory oversight of these activities; and
- that the two sides will work out specific agreements on these points for the next meeting of the Gore-Chernomyrdin Commission, and prepare a joint report on what had been accomplished and additional steps that could be taken for consideration at the next summit.

8. The President should direct that higher priority be placed on assessing proliferation risks posed by inadequate security for nuclear materials, and providing information support to address these risks. In particular, increased cooperation between intelligence agencies in tracking and responding to nuclear smuggling is needed.

Cooperative programs to enhance MPC&A cannot be effective without the information needed to determine where the problems are. As noted earlier, important information is being provided by the intelligence agencies and national technical means. But even more essential information related to accounting and control procedures used at individual facilities is coming from the exchanges of visits by MPC&A experts that have already taken place.

Only very recently has the intelligence community undertaken a site-by-site assessment of security and accounting for nuclear materials and associated proliferation risks in the former Soviet Union. (Indeed, at the time the Panel performed its review, the volume of this assessment providing the crucial site-by-site details was not yet complete.) This assessment should be transformed into a continually updated database, listing all the available information concerning:

- all known facilities with weapons-usable materials in the former Soviet Union;
- the types and amounts of materials at these facilities;
- the state of MPC&A at those facilities, and any known enhancement efforts underway;
- other relevant factors affecting proliferation risk at that facility (such as known thefts from the facility, or organized crime activity in the area, for example);
- remaining information gaps.

While it is important that the information available from the intelligence community be integrated into this database, it is also important to recognize the potential concerns of recipient states. Nothing would more surely cut off further progress in MPC&A cooperation than creating an impression that U.S. MPC&A experts visiting FSU facilities were "spies" working for U.S. intelligence. Therefore it is possible that the database just described should be maintained as a joint product of the interagency group responsible for MPC&A, rather than as a product of the intelligence agencies.[13] The national laboratories, which are already making major contributions to the site-by-site assessment, could potentially take responsibility for maintaining such a database.

[13]As the intelligence agencies are barred by law from collecting intelligence on the activities of U.S. citizens, keeping the database separate from the intelligence agencies themselves would facilitate including information on U.S. efforts to upgrade MPC&A in the description of individual sites.

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To support MPC&A cooperation efforts, higher priority needs to be devoted to collecting information available from individuals who have worked at or visited nuclear facilities in the FSU, and integrating this data with other information.

If current nuclear "transparency" efforts are successful, the information derived from data exchanges and reciprocal visits could provide a critical addition to cooperative MPC&A efforts. This information should be integrated with information from other sources to support the cooperative MPC&A program, and the potential benefits for MPC&A of specific proposals should be an important factor in developing U.S. negotiating positions in the transparency area (see "Managing Fissile Materials: A Spectrum of Related Efforts," p. 42).

In addition to such facility-specific information, an intensive effort must be made to identify and analyze the domestic sources of nuclear policy-making in the former Soviet states. Who are the relevant actors? Which parts of the problem are their responsibility? What are their attitudes and institutional interests relevant to MPC&A? How have they acted on these matters in the past? Cooperative MPC&A programs must be supported by an intensive effort to provide the answers to these questions.

To provide such support, the senior official with responsibility for fissile material cooperation programs should have the authority to issue high-priority intelligence taskings for special-purpose analyses to meet the needs of the MPC&A enhancement effort.

The Administration should also improve coordination of the several efforts to collect and analyze intelligence related to nuclear smuggling. Mechanisms must be developed to integrate information held by the Central Intelligence Agency, DOE's Office of Threat Assessment, the FBI, and other agencies: a central analysis effort is essential to analyze the sources and pathways for nuclear smuggling and provide the basis for effective response.

Finally, it is important to work toward improved collaboration between U.S. intelligence, police, and customs agencies with their counterparts in other countries in the fight against nuclear smuggling. Sharing of information and samples, training of police, customs, and border patrol teams, provision of equipment, and other measures could all be part of this collaborative effort. In particular, intelligence information related to the sources of smuggled materials (likely to be more available to Russian agencies than to those in other countries) should be linked to information on buyers and transit routes (likely to be more available to European countries and the United States).

9. The President should designate efforts to enhance security and accounting for nuclear materials worldwide as a key mission of the national laboratories.

Already, the national laboratories have made a substantial contribution to U.S. security through the lab-to-lab MPC&A program. The lab directors, however, need Presidential direction to make efforts to enhance MPC&A—not only in the former Soviet Union but worldwide—a fundamental part of their mission. The outstanding technical expertise in nuclear materials

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management built up at several of the national laboratories is a global resource that must be applied effectively to this mission. While the national laboratories are already involved in this effort, there is substantial room for elevating its priority: at the six laboratories involved, a total of only about 30 full-time equivalents are devoted to lab-to-lab MPC&A cooperation with Russia, out of thousands of personnel at the laboratories.

Recommendations for Implementers

The individuals responsible for implementing the President's guidance on strengthening security and accounting for nuclear materials in the former Soviet Union will need the authority to get the job done and the flexibility that goes with such authority. Without wishing to prejudge all the issues that will face them, we offer some recommendations—based on our review of the current state of these cooperative MPC&A efforts—that the implementers may find useful.

1. The senior official given responsibility for these efforts should establish a set of key guiding principles around which program planning and execution can be organized.

A program of this importance and scope requires a set of guiding principles. As noted above, the overall objective must to be to achieve the maximum reduction in proliferation risk per dollar spent, as quickly as possible. At the same time, the United States cannot do everything, and cannot expect to be allowed to participate in MPC&A upgrades at every site that may require them. As noted earlier, the states of the former Soviet Union themselves bear the long-term responsibility for protecting and accounting for these materials. The U.S. role is to:

(1) assist in implementing high-priority MPC&A upgrades; and

(2) help the FSU states develop their own indigenous MPC&A capabilities and approaches, so that they can protect and account for these materials over the long term after the cooperative MPC&A program winds down.

Given this objective and this role for the United States, guiding principles for this program should include:

- *Focus on Top Priorities.* This requires identifying and addressing the highest proliferation risks wherever possible. In particular, to the extent possible, "quick fixes" should be identified and implemented. The problem is so acute that remarkably inexpensive and low-tech upgrades can make a huge difference in some cases: one obvious example is piling massive concrete blocks in front of the doors of vaults storing nuclear materials to delay illicit access, if regular authorized access is not required. The emphasis should be on making the most urgent improvements at a wide range of sites, not making wholesale and expensive changes at only one or two. The top priority must be implementing upgrades with whatever effective technology is already available, rather than developing new technologies (though development efforts can be an important means of building mutual trust and cooperation). We cannot afford to wait for (or pay for) a Rolls Royce when a Ford will suffice to do much of the job.

- *Foster Indigenous FSU Capabilities.* As noted, the nations of the former Soviet Union themselves must bear responsibility for ensuring effective MPC&A. Therefore building indigenous MPC&A expertise and a new "safeguards culture" should be a key priority. This

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again implies a focus on using equipment designed and produced in the former Soviet states wherever effective equipment is available, and transferring the technology needed to build effective equipment where it is not. Wherever possible, the work should be done by FSU personnel and companies, with the U.S. team as consultants. As the adage goes, "give a man a fish, and you feed him for a day; teach a man to fish and you feed him for a lifetime."

- *Build Toward National Systems.* Efforts at individual sites should be coordinated so that they fit together and contribute to the goal of creating a national system providing a generally consistent level of MPC&A for all weapons-usable materials. The creation of national-level tracking and accounting systems for nuclear materials, as well as effective regulatory functions, should be an important priority. While regulations are often taken to have less urgency than securing materials on the ground, the fact is that only a sound set of regulations requiring effective MPC&A, backed up by realistic enforcement, will provide facility managers the incentives necessary to lead them to invest in, operate, and maintain MPC&A systems.

There will often be some tension between these principles: for example, funds spent establishing a national computerized accounting system will be funds not spent on "quick fixes." But we believe that an overall balanced program requires pursuit of all three of these principles in parallel.

2. The Administration should establish a specific set of near-term, mid-term, and long-term objectives for the MPC&A program, with well-defined ways to assess progress toward the objectives.

Such a set of objectives and ways to measure progress in achieving them is an essential management tool. At the same time, such a tool should not be used so rigidly that the program is inhibited from responding rapidly to new developments.

The following suggested set of objectives is keyed to the near-term, mid-term, and long-term. Near-term objectives are those that can be expected to be completed or well underway within roughly one year; mid-term objectives are those that can be expected to be completed or well underway in 2–4 years; and long-term objectives represent the desired end-state the program is striving to achieve.

Suggested objectives:

Near-term:

N1. Significantly improve security and accounting for the weapons-usable materials at all of the half-dozen highest-risk sites in Russia.

N2. Significantly improve security and accounting at (or remove material from) all sites in the non-Russian former Soviet states with separated plutonium or HEU.

N3. Work with Russia to establish a Russian program to identify the highest-priority MPC&A upgrades needed at all of its nuclear sites, and mechanisms to accomplish them.

N4. Work with Russia to establish a Russian program to take inventories at major Russian sites with substantial quantities of weapons-usable materials.

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N5. Work with Russia to put into place a Russian system of MPC&A regulations, including appropriate incentives (e.g., backed up by realistic threats of fines or closure) for upgrading MPC&A.

N6. Initiate a program to work with Russia to improve MPC&A for stockpiles of highly-enriched naval and icebreaker fuel.

N7. Work with the former Soviet states to establish effective training programs for MPC&A implementers and regulators, and to foster a "safeguards culture."

N8. Work with Russia to establish a nationwide system of material accounting.

N9. Initiate mass production in Russia of key MPC&A equipment (effective portal monitors, particularly).

Mid-Term:

M1. Significantly improve security and accounting for the weapons-usable materials at all the major non-weapons bulk-handling facilities and large-scale fissile material storage facilities in the MINATOM complex (e.g. the reprocessing plants and associated storage facilities at Tomsk, Krasnoyarsk, and Chelyabinsk; HEU oxidation at Tomsk and HEU production and blending at Yekaterinburg; and HEU fabrication at Elektrostal, Novosibirsk, and Podolsk).

M2. Significantly improve security and accounting at (or remove materials from) all facilities outside of closed cities or military bases which handle kilogram-quantities or more of separated Pu or HEU (e.g., civilian institutes).

M3. Work with Russia to develop a comprehensive plan, with cost estimates, for longer-term MPC&A upgrade needs and material consolidation for all its nuclear sites, including specific staff, equipment, and training needs for specific sites.

M4. Work with Russia to ensure that effective portal monitors or equivalent capability to detect removal of nuclear material are installed and used effectively at all major Russian sites with substantial quantities of weapons-usable materials.

M5. Work with Russia to ensure that GAN acquires all the capabilities necessary to effectively regulate and inspect MPC&A.

Long-Term:

L1. Work with the former Soviet states to ensure that all facilities in the FSU with strategic quantities of HEU or Pu have effective MPC&A systems in place and in use.

L2. Work with the former Soviet states to ensure that effective MPC&A is established as an ongoing priority activity with requisite funding.

L3. Work with the former Soviet states to establish a sufficient and self-sustaining cadre of MPC&A implementers, designers, inspectors, and regulators in those states.

L4. Work with the regulatory agencies of the former Soviet states to establish effective overall programs of MPC&A regulation.

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Once a set of objectives such as these has been defined, it is essential to develop an estimate of what is required (technically, politically, and administratively) to attain those objectives, including in particular the resources (money and people) that must be committed. In this case, not all of the resources should come from the United States; the recipient states and other donor states should make substantial contributions as well.

3. The Administration should continue to take a flexible, multi-pronged approach to improving MPC&A in the FSU, exploiting opportunities as they arise. All of the current MPC&A cooperative programs deserve strong support.

All three of the major current programs to cooperate with the states of the former Soviet Union—the government-to-government MPC&A effort (now transitioning from Nunn-Lugar to DOE), the lab-to-lab program, and the expanding cooperation with GAN—should be continued. Given the multitude of different actors on the Russian side (not to mention the non-Russian states), suggestions that the program be trimmed down to a single approach should be resisted. A strong U.S. management team will be needed to coordinate these programs and all the U.S. participants in them so that they remain focused on the key objectives and reinforce each other effectively..

4. The Administration should make a comprehensive effort to analyze and deal with recipient-state sensitivities and incentives, in order to achieve the maximum degree of cooperation.

As noted above, cooperative MPC&A efforts need to be supported by a detailed effort to understand the domestic sources of nuclear decision-making, including the multiple actors involved, the sensitivities of each of those actors, their incentives for cooperating or for blocking progress, and the leverage points in the system. In some cases, this will mean working hard to cooperate with former Soviet nuclear bureaucracies that are peopled with unreformed Cold War holdovers—an arduous, unpleasant, but essential task.

The four key areas to which the United States must be sensitive—confidentiality, focusing on cooperation, reciprocity, and use of indigenous equipment—were outlined above under lessons learned. The U.S. government should develop a conceptual framework and a detailed plan for working with each country, which responds to the differing sensitivities of the different countries and of the different actors within them. It is essential to analyze these sensitivities and determine the best ways to meet concerns at each step of the process, rather than waiting until well intentioned proposals have already encountered a buzz-saw of skepticism and opposition.

In particular, both lab-lab and government-government programs should be seen as "collaborative" efforts—not purely assistance—with reciprocal visits and evaluations, and genuine technical input from both sides. This is particularly important in cooperation with Russia.

5. The Administration should continue to design cooperative MPC&A programs with a focus on specific deliverables, to ensure that the money is spent for its intended purposes.

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Clearly it is critical that the funds allocated to improving MPC&A in fact are spent for that purpose. Both the approach taken in the Nunn-Lugar program (purchasing nearly all equipment in the United States, and declining to pay Russian salaries) and the approach taken in DOE's programs (negotiating prices for specific deliverables to be delivered by specified deadlines) provide effective protection for the U.S. taxpayer when used appropriately. But the DOE approach offers substantially greater flexibility and better chances of fostering recipient-state cooperation.

In a fast-moving program—as these must be, if they are to achieve their goals in a timely fashion—it is impossible to ensure that every dollar is accounted for. But even a single well-publicized case of diversion of funds to purposes other than those intended could have a devastating impact on support for these programs. Therefore vigilance on this score should continue to be an important priority.

6. DOE should assign additional qualified personnel to manage and implement these programs.

The personnel managing and implementing these programs at DOE are already stretched thin. As these programs expand in scope and priority, they will need additional personnel to ensure effective management and implementation. Additional staff with safeguards expertise and international experience will also be needed. Training of this staff should begin now.

These programs require an effective organizational structure within DOE, with managers not burdened with a wide range of other responsibilities. The program management should include individuals with strong *domestic* safeguards experience,[14] including experience with implementation of MPC&A at operational DOE facilities, as well as experience in international cooperation. In particular, the program should make use of the expertise of DOE's Office of Safeguards and Security, which is in charge of implementing MPC&A at DOE nuclear facilities.

All MPC&A programs within DOE should be subject to continuing review, to ensure that they remain focused on accomplishing the key objectives in the least time at the lowest cost.

7. Additional efforts to coordinate U.S. cooperative MPC&A programs with those of other countries, and to encourage other countries to expand their contribution to this effort, should be pursued.

Given that the possibility of nuclear theft poses a global threat, other countries with MPC&A expertise, particularly those that also have denuclearization assistance programs in the former Soviet Union (such as Japan, Germany, and France), should be encouraged to make more substantial contributions to reducing the risk. U.S. efforts should be coordinated as closely as possible with those of other donor countries and with international organizations (such as the

[14]Domestic safeguards, operated unilaterally by a country having nuclear activities, focus on detecting and preventing nuclear materials theft, i.e., facility-level protection, accounting, and control with national coordination and oversight. International safeguards, implemented by international organizations such as the International Atomic Energy Agency, focus on detecting diversion by a state having nuclear activities.

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International Atomic Energy Agency), to avoid duplication of effort and share information needed to focus priorities.

8. Additional U.S. and FSU personnel with expertise in security and accounting for nuclear materials should be trained.

As cooperative MPC&A programs expand, additional personnel with MPC&A expertise will be needed. The need is particularly acute in the states of the former Soviet Union. The establishment of an MPC&A training center in Russia (currently slated to be established at Obninsk) should be a high priority. The current focus on "training the trainers"—that is, training individuals who could serve as instructors for training courses at other facilities—is a useful approach. It is essential to ensure that training is available for both MPC&A implementers and regulators. Consideration should be given to establishing similar training centers in the other former Soviet states (or perhaps a small number of regional training centers). This effort will require detailed planning and the compilation of materials from a number of sources (e.g., the DOE Office of Safeguards and Security Central Training Academy, Los Alamos courses on nuclear material measurements, Sandia training on physical security, and Brookhaven courses on safeguards systems, principles, bulk measurements, and statistics.)

At the same time, the number of qualified personnel available in the United States to implement these programs also needs to be increased. All those in the United States with expertise relevant to these issues should be identified. People with expertise may be located at national labs, at nuclear weapons complex sites (such as major former reprocessing facilities, for example), in academia, and elsewhere. Opportunities should be created for national laboratory personnel working in other areas to be retrained as MPC&A specialists (in line with the previous recommendation to make enhanced safeguards a central mission of the laboratories).

Recommended Specific Near-Term Actions

Achieving the ambitious set of near-term, mid-term, and long-term objectives outlined above will require a broad range of specific actions. Some of these are already occurring, but need acceleration. For example, it is critical to take action to accelerate the government-to-government program to a pace more closely approximating that of the lab-to-lab program—so that MPC&A upgrades at the key, high-risk facilities identified for cooperation in the government-to-government program can be accomplished as rapidly as possible. Other actions are implied in the statement of objectives, but work on them remains to be undertaken. For example, it is important to begin as soon as possible to reduce the proliferation risks posed by the almost completely unprotected material at the many small civilian research institutes, not located in closed cities, that exist in the FSU. While these sites represent a small fraction of the total material, they may represent a large fraction of the proliferation risk.

The following represent important near-term actions that require further comment:

1. The United States should work with Russia to establish Russian MPC&A assessment and improvement teams, which could rapidly assess what upgrades are needed.

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For Russia's own MPC&A upgrade program to be effective, it needs to be based on an assessment of what the most urgent needs are throughout Russia's nuclear facilities. While some assessments have been conducted at particular sites, no consistent program to identify and prioritize the most urgent requirements throughout the Russian nuclear complex exists. Given the many institutional interests involved, establishing such a program would require tough top-level leadership on the Russian side. There are some indications that the Russian leadership is focusing increased attention on this area. Indeed, in the lab-to-lab program, the possibility of the Russian laboratories undertaking such an assessment for those facilities within MINATOM's nuclear weapons complex is already being discussed.

The United States has considerable expertise to offer in this area. For many years, DOE has had teams which visit U.S. sites, assess MPC&A there, and make recommendations for needed upgrades. At one time, DOE conducted a rapid-assessment program and carried out large-scale upgrades based on the assessment's recommendations.

The United States, therefore, should offer to help establish and train the Russian teams that could conduct such an assessment, and to contribute to defraying the costs. Once the assessment had been accomplished, the United States could contribute to the most urgent of the upgrades identified, as agreed between the two sides. This would represent, in a sense, a revival of the earlier "quick fix" approach.

2. The United States should work with Russia to establish nuclear-material inventory teams.

There is a pressing and immediate need for the states of the former Soviet Union to take a measured, physical inventory of the weapons-usable nuclear materials on their territories. (EURATOM has also targeted measured, physical inventory as a high priority.) This is the only way to know how much nuclear material exists, where, and in what form.

The United States should work with Russia and the other states to develop a cooperative process to produce measured nuclear material inventories—applied first to all weapons-usable material. This is a labor-intensive, time-consuming process: equipment has to be identified, supplied, and installed; measurement controls have to be put in place; nuclear materials have to be handled; the measurements themselves have to be made; and the data must be recorded, analyzed, and updated as necessary. Once the inventories have been established, appropriate material controls (tags, seals, surveillance, and the like) and continuing material accounting must be instituted. Current rules may have to be modified to accomplish such an inventory: at present, a physical inventory that varied from the book inventory could subject the plant managers to sanctions.

To expedite this effort, the United States should help train, equip and certify Russian inventory-taking teams.

3. The United States should undertake a new initiative to help Russia improve MPC&A for stockpiles of highly-enriched fuel for naval vessels and icebreakers.

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To date, MPC&A cooperation has focused on MINATOM, GAN, and individual laboratories and facilities. That leaves out an entire sector of the Russian nuclear complex—naval and icebreaker fuel, much of it enriched to up to 90% U-235. At least one well-publicized theft of over 4 kilograms of naval fuel has already occurred, from the naval base at Murmansk. As noted earlier, the ease with which that theft succeeded suggests that security for naval fuel in Russia is in urgent need of improvement. The United States should initiate a fast-paced program directed toward that goal. Cooperation in this area is likely to be particularly sensitive. The Agreement for Cooperation being negotiated in the context of stockpile transparency, which will provide a legal basis for exchanging classified nuclear information, may be very useful in furthering Russian openness in this area.

4. The United States should begin discussing with the former Soviet states, and Russia in particular, the need to consolidate nuclear materials in a smaller number of areas within specific sites, and at a smaller number of sites overall.

Currently, weapons-usable nuclear materials exist at scores of sites in Russia alone, and often at many separate locations within a single one of these sites. Reducing the number of locations that must be protected has the potential to greatly reduce the costs of ensuring adequate safeguards and security. With the end of the Cold War, a contraction of the Russian nuclear weapons complex is inevitable in the long run, and consolidation of nuclear materials should be a key part of that contraction—as it has been in the United States. DOE should prepare a detailed briefing for the Russian side on the U.S. experience, including the very large reductions in safeguards and security costs that have been achieved at some sites through consolidating materials, and the reduction in the number of research reactors using HEU over the last several decades. Both in work at individual sites and in discussions of the overall program, the United States should use every opportunity to encourage Russia to undertake consolidation.

5. One or more "quick response teams" should be established to respond quickly to fast-breaking events.

This issue is important enough and explosive enough that the United States should form one or more permanent "quick response teams," with the expertise and resources needed to respond rapidly and effectively to requirements such as Project Sapphire. It is quite possible, for example, that an urgent need to rapidly secure or remove material at a particular site could arise (for example if the material is newly discovered, or is in an area where armed conflict is breaking out). A mechanism should be set up within the government to support these teams. Procedures for expediting the teams' response, and flexible sources for funding the required operations and transactions should be established. The team should train and practice for various kinds of operations, including securing sensitive materials in place or removal to a safe area. Special communications capabilities should be provided, designed for secure communications in remote areas of concern. Consideration should also be given to helping Russia establish such teams to deal with such situations on its own territory, as in many cases U.S. quick-response efforts may be too sensitive.

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6. A small cadre of personnel should be stationed in Moscow on a full-time basis to facilitate and support these programs.

The Embassy science and technology staff plays an essential role in supporting negotiations and implementation missions, monitoring events within the Russian government, and determining the attitudes and priorities of the wide array of Russian actors involved in MPC&A-related activities. This staff is stretched thin, however, and additional personnel devoted to this effort full-time will be required as the cooperative MPC&A program expands in priority and scope.

7. To address Russian sensitivities, the Administration should prepare a frank and detailed briefing on past MPC&A problems in the U.S. nuclear complex, and rapid upgrade steps that were taken to address them.

Being open and frank in revealing that the United States has also had MPC&A problems in its weapon complex could help serve to improve the sense of reciprocity and mutual cooperation in the program. Such a discussion could also focus on the very rapid steps the United States took at certain points to assess and remedy deficiencies.

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Managing Fissile Materials: A Spectrum of Related Efforts

The Clinton Administration has undertaken a wide array of initiatives related to cooperating with the former Soviet states in managing weapons-usable fissile materials, falling into four broad categories:

- Securing nuclear materials (including MPC&A);
- Building confidence through openness;
- Halting accumulation of excess stocks; and
- Disposition, transforming these materials into forms that pose greatly reduced security risks.

This report has focused on the first of these categories. Here, we offer a few remarks on those aspects of other initiatives that bear directly on the objective of reducing the risk of theft of these nuclear materials.

Securing Nuclear Materials

A few programs in this area have not been discussed in this report, but are nonetheless important:

The Nunn-Lugar Storage Facility. Under the Nunn-Lugar program, a safe and secure storage facility for plutonium and HEU from dismantled weapons is being built with U.S. assistance at Chelyabinsk. While Russia already has considerable storage space available—if Ministry of Defense warhead storage facilities are included—the new facility would offer greatly improved security and accounting compared to the locations where these materials are currently being stored, and the United States would be offered transparency measures in return for its assistance. Despite the many delays that have plagued this program, we believe the establishment of a modern facility with a highly effective MPC&A system and some degree of U.S. oversight is important, and that this program should continue—assuming that MINATOM demonstrates a good-faith commitment to cooperation, and to investing its own resources in the project as well.

Combating Nuclear Smuggling. If MPC&A systems fail and material is stolen, anti-smuggling efforts form the next line of defense. Additional efforts to train and equip police, investigators, customs officials, and border guards in the relevant states—and to coordinate intelligence and sharing of analyses and samples of seized material—are needed. This is a global problem requiring intensive international cooperation.

Securing Nuclear Weapons. Under current circumstances, it appears that security for assembled nuclear weapons in the former Soviet Union is substantially better than security and accounting for nuclear materials outside of weapons. Nevertheless, given the grave consequences that could result if a nuclear weapon were actually diverted, it is important to continue pursuing the recently expanded dialog between the U.S. Department of Defense and the Russian Ministry of Defense regarding upgrades to security for nuclear weapons. This effort may offer spin-off benefits for MPC&A: if the principle of genuine cooperation at nuclear weapon sites can be established, it will become more difficult for MINATOM to argue that its military materials are too sensitive for cooperation to be possible.

Building Confidence Through Openness

Reciprocal Stockpile Declarations. The agreement reached between President Clinton and President Yeltsin at their September, 1994 summit to exchange data regarding stockpiles of nuclear weapons and fissile materials, "and on their safety and security," could have important benefits for MPC&A. A good-faith Russian declaration would require the Russian central government to get a good handle on the inventories that exist at Russian sites. The initial declarations should be seen as the beginning of a process heading toward ever-increasing levels of detail. The more information that can be exchanged regarding the specific locations, amounts, and forms of materials, the greater the potential synergistic benefit for MPC&A cooperation. Additional consideration is needed of what information can and should be provided under the rubric of exchanging data on the "safety and security" of nuclear weapons and fissile materials.

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Transparency and Irreversibility. The reciprocal visits to nearly all plutonium and HEU storage sites envisioned in the U.S. proposal tabled in December 1994, if agreed to and implemented, could have enormous spin-off benefit for MPC&A. There is no substitute, in judging what MPC&A improvements are needed, for actual visits to the relevant sites by MPC&A experts. The U.S. approaches to such reciprocal visits should be configured to take maximum advantage of this potential synergy between transparency and MPC&A. The reciprocal nature of these visits will be an essential (but not sufficient) condition for Russian acceptance of them.

IAEA Safeguards on Excess Stocks. The United States has begun placing weapons materials excess to its defense needs under international safeguards, and is urging Russia to do the same, as well as to make its civilian nuclear facilities eligible for IAEA safeguards.* Similarly, IAEA safeguards may be the verification method chosen for the fissile cutoff convention under discussion in Geneva, which would mean putting U.S. and Russian reprocessing and enrichment plants under safeguards. Preparing a site for IAEA safeguards requires that an effective material control and accounting system be in place, so there is a potential synergy with MPC&A efforts here, as well.

Halting Accumulation of Excess Stocks

Plutonium Cutoff Agreement. Under the current approach to monitoring this accord, reprocessing plants would not be monitored, and therefore there would not be an opportunity to upgrade MPC&A at those facilities as part of the monitoring arrangements. If the monitoring measures discussed to date are implemented, however, the sites where the separated plutonium would be stored after leaving the reprocessing plant would have significantly better material control and accounting than most other Russian sites.

RERTR. The United States and Russia are cooperating to develop non-weapons-usable low-enriched fuel for research reactors. The U.S. program in this area is known as Reduced Enrichment for Research and Test Reactors (RERTR). This program may offer a high potential for eliminating stockpiles of HEU fuel, and requirements for additional deliveries of such fuel, at a large number of poorly-protected civilian research facilities in the former Soviet Union. (Soviet supplied research reactors fueled by HEU also exist in Libya and North Korea.)

Disposition

HEU Purchase Agreement. Oxidation and blending of HEU for the HEU purchase agreement will involve large-scale bulk handling of HEU, raising potential opportunities for theft. Even a single documented case of theft of HEU from this effort could have a devastating political impact on the entire cooperative effort to deal with fissile material, in addition to the serious security risks that any HEU theft would pose. Therefore it is critically important that both the site at Tomsk where the HEU weapons components will be converted to HEU oxide, and the site at Sverdlovsk-44 where the material will be blended to low-enriched uranium, be provided with effective MPC&A systems. The apparent lab-to-lab agreement to establish such a system at the Tomsk oxidation facility should be vigorously pursued, as should efforts to reach agreement on MPC&A upgrades at Sverdlovsk-44, being pursued under the umbrella of transparency arrangements for the HEU deal.

Plutonium Disposition. Given the very different attitudes toward plutonium fuel cycles in Russia and the United States, the two countries may not agree to pursue identical plutonium disposition options, and specific decisions are likely to take time. But the two sides should agree now that whatever options are chosen, an agreed and stringent standard of safety, security, and international accountability will be maintained throughout the process.

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* The list of facilities eligible for safeguards under the former Soviet Union's "voluntary offer" agreement with the IAEA was minimal by comparison to the U.S. list, which makes all civilian facilities eligible for safeguards, though because of resource constraints these safeguards have not actually been implemented in recent years.

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APPENDIX A

List of Principal Briefings

Washington, D.C.

Known Cases of Theft of Weapons-Usable Material
(b)(3) Central Intelligence Agency

Safeguards and Security in the FSU: Conclusions of the JAEIC Study
Stephen Mladineo, DOE, Pacific Northwest Laboratory.

Material Control and Accounting in the FSU
Mark Mullen, Los Alamos National Laboratory

Physical Protection in the FSU
John Kane and Byron Gardner, Sandia National Laboratory

On the Ground in Russia: The Politics and Problems of MPC&A Cooperation
Ken Fairfax, U.S. Embassy, Moscow

Overview of MPC&A Cooperation
Ken Luongo, Director, DOE Office of Arms Control and Nonproliferation

Government-to-Government MPC&A Programs
Ken Sanders, chief, International Safeguards Division, DOE

The Lab-to-Lab MPC&A Program
Mark Mullen, Los Alamos National Laboratory

NRC MPC&A Support to the States of the Former Soviet Union
Ted Sherr, chief, Regulatory and International Safeguards Branch,
Nuclear Regulatory Commission

Securing Nuclear Materials: A DoD Perspective
Gloria Duffy, Special Coordinator,
Cooperative Threat Reduction, Office of the Secretary of Defense

Purchases of FSU Materials: Sapphire and After
Jeffrey Starr, Principal Director, Threat Reduction Policy
Office of the Secretary of Defense; head, Sapphire "Tiger Team"

Stopping Nuclear Smuggling
Joseph DeThomas, Director, Office of Regional Nonproliferation
Department of State

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Overview of Outstanding Issues
James Goodby, chief negotiator, Safe, Secure Dismantlement
Department of State

Next Steps In MPC&A Cooperation
Frank von Hippel, Federation of American Scientists, former Assistant Director for National Security, Office of Science and Technology Policy

U.S. Assistance to Improve Physical Security and Accounting of Fissile Material in Russia
Thomas B. Cochran, Natural Resources Defense Council

Cooperation Between the U.S. and MINATOM in the Area of Fissile Material Safeguards
Oleg Bukharin, Princeton University and Moscow Physical-Technical Institute

Securing Nuclear Materials in the Former Soviet Union
William Potter, Center for Nonproliferation Studies, Monterey Institute of International Studies

Overview of Fissile Material Initiatives and Interagency Process
Steve Aoki, Director, Nuclear Nonproliferation, National Security Council

Moscow

Ken Fairfax, Science and Technology Officer, U.S. Embassy Moscow

Victor Gubanov, head, Committee on Emergency Situations, Ministry of Atomic Energy (MINATOM); Lead Negotiator, Government-to-Government MPC&A Cooperation, and others.

Yuri Zubkov, Deputy Chairman for Fuel Cycle and Safeguards, Federal Nuclear and Radiation Safety Authority (GAN), and others.

Yuri Dyomin, chief, International Relations, Federal Counterintelligence Service, and others.

Yuri Ilkaev, Deputy Scientific Director, All-Russia Institute of Experimental Physics (Arzamas-16).

Nikolai Ponomarev-Stepnoi, Deputy Director, Kurchatov Institute, and others. (Including review of MPC&A system at Building 116).

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Withdrawal/Redaction Sheet
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DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
~~001a. memo~~	~~Coit Blacker and Dan Poneman to Leon Feurth, et al., re: Standing Committee Meeting (2 pages)~~	~~05/31/1995~~	~~P1/b(1)~~ VZ 04/07/2023
001b. draft	Draft Decision Directive on NIS Nuclear Security (12 pages)	ca. 05/1995	P1/b(1)
~~001c. draft~~	~~Draft Response to the PCAST Report on Nuclear Security in the NIS (7 pages)~~	~~ca. 05/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~001d. paper~~	~~Next Steps on Fissile Materials (10 pages)~~	~~05/16/1995~~	~~P1/b(1)~~ VZ 04/07/2023
002. paper	[Language to insert in PDD] (2 pages)	n.d.	P1/b(1)
003a. fax	Fax coversheet (1 page)	06/06/1995	P1/b(1)
003b. memo	To Robert Bell, et al., re: [Visits to the FSU] (4 pages)	09/20/1994	P1/b(1)
003c. memo	From Ashton Carter, re: [Visits to the New Independent States] (2 pages)	10/13/1994	P1/b(1)
~~004. draft~~	~~Proposed G-C [Gore-Chernomyrdin] letter (2 pages)~~	~~n.d.~~	~~P1/b(1)~~ VZ 04/07/2023
005. paper	Response to PCAST Report Action Plan (10 pages)	ca. 04/1995	P1/b(1)
~~006a. email~~	~~Jessica Stern to Coit Blacker, re: agenda for a blacker/poneman meeting (1 page)~~	~~05/22/1995~~	~~P1/b(1)~~ VZ 04/07/2023
~~006b. email~~	~~Jessica Stern to Coit Blacker and Daniel Poneman, re: agenda for a PCAST meeting (1 page)~~	~~05/24/1995~~	~~P1/b(1)~~ VZ 04/07/2023

COLLECTION:
Clinton Presidential Records
National Security Council
Russia/Ukraine/Eurasian Affairs (Stern, Jessica)
OA/Box Number: 335

FOLDER TITLE:
PCAST [President's Committee of Advisers on Science & Technology] Report & Response (Decision Directive) [2]

2014-0880-F
ke2699

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P3 Release would violate a Federal statute [(a)(3) of the PRA]
P4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

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b(1) National security classified information [(b)(1) of the FOIA]
b(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
b(3) Release would violate a Federal statute [(b)(3) of the FOIA]
b(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
b(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
b(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

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DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
~~007. draft~~	~~Draft [Gore-Chernomyrdin] letter (2 pages)~~	~~n.d.~~	~~P1/b(1)~~ VZ 04/01/2023
008. report	President's Committee of Advisors on Science and Technology, Report of the Panel on US-FSU Cooperation to Protect, Control, and Account for Weapons-Usable Nuclear Materials [partial] (54 pages)	03/28/1995 Released in Part	~~P1/b(1)~~, P3/b(3) VZ 04/01/2023

COLLECTION:
Clinton Presidential Records
National Security Council
Russia/Ukraine/Eurasian Affairs (Stern, Jessica)
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FOLDER TITLE:
PCAST [President's Committee of Advisers on Science & Technology] Report & Response (Decision Directive) [2]

2014-0880-F
ke2699

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b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
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NATIONAL SECURITY COUNCIL

WASHINGTON, D.C. 20506

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May 31, 1995

MEMORANDUM FOR

LEON FUERTH
Office of the Vice President

CHARLES CURTIS
Department of Energy

JOHN HOLUM
Arms Control and Disarmament Agency

GORDON ADAMS
Office of Management and Budget

LYNN DAVIS
Department of State

DOUGLAS MACEACHIN
Central Intelligence Agency

JAMES GOODBY
Department of State

JANE WALES
Office of Science and Technology

ASHTON CARTER
Department of Defense

WESLEY CLARK
Joint Chiefs of Staff

SUBJECT: Standing Committee Meeting (U)

Attached please find a fissile material paper, as well as drafts of a PDD and response to PCAST report, for discussion at the Standing Committee Meeting. The meeting has been rescheduled for Thursday, June 1, 1995, from 4:00 - 5:00 p.m., in Room 208, to allow time to review these materials. (C)

Attendance will be Principals plus one. Please call in your attendees birthdate to Mary Quinn or Joan Edwards (202) 456-9181 NLT, COB, Wednesday, May 31. (U)

Coit D. Blacker
Special Assistant to the President and Senior Director for Russia/Ukraine/Eurasion Affairs

Daniel Poneman
Special Assistant to the President and Senior Director for Non Proliferation and Export Controls

Attachments

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Draft Response to the PCAST Report on Nuclear Security in the NIS

The President's Committee of Advisors on Science and Technology (PCAST) issued a report, "Securing Weapons-Usable Nuclear Materials in the Former Soviet Union: Urgent Measures to Prevent Nuclear Proliferation," on March 28, 1995. The Committee concluded that lax security and accounting for fissile materials, and to a lesser extent, nuclear weapons in the New Independent States (NIS) pose a serious threat to U.S. national security and nonproliferation interests. The PCAST presented its findings to the President, the Vice President, and other cabinet officials during the week of May 1, 1995. The President and others expressed concern about the Committee's findings, especially about Russia's negligent nuclear inventory system and about the potential involvement of organized criminal groups in illicit transfer of fissile materials.

The PCAST report makes a number of specific recommendations for improving U.S. programs for assisting the NIS in upgrading nuclear security. This paper responds to each.

Recommendations and Responses

[Bracketed responses will need to be revised subject to approval of draft decision directive.]

PCAST Recommendation:

1. Issue a Presidential Decision Directive (PDD) designating the effort to control and account for fissile material as a critical and urgent security priority of the United States, and direct that it be given commensurate resources and top-level attention.

Response:

[A draft PDD has been circulated to agencies for comment.]

2. PCAST Recommendation:

Appoint a senior administration official to take full-time, personal responsibility for ensuring that cooperative programs with the former Soviet states to control fissile materials are being effectively implemented.

Response:

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This kind of appointment, commonly called a "czar", may be appropriate in cases where inadequate senior-level attention is being devoted to an issue, where a high-profile press approach led by a single voice is needed, where the issue to be addressed can be solved within a relatively short time, and where normal interagency processes cannot work effectively. None of those conditions obtains in this case. This issue has gained sustained, high-level attention at the Presidential, Vice Presidential and Cabinet Secretary levels, through summit statements, the Gore-Chernomyrdin Commission and a variety of agency programs. A high-profile, single-voice approach to this problem risks precisely the kind of alienation of internal FSU support which the PCAST correctly notes constitutes a serious risk to the bilateral cooperation needed for these programs to succeed. It also risks misleading the public into thinking this problem is readily solvable within a reasonably short time, when in fact it is clear that years of sustained effort will be required. That, in turn, risks squandering public and Congressional support by creating false expectations on the solubility of the problem. Finally, normal interagency processes have been able on repeated occasions to resolve difficult or complex issues arising in this area (e.g., Operation Sapphire, merging MPC&A budget and authority in DOE).

These considerations, combined with the difficulty in tackling problems by a senior official unsupported by line authority over agency personnel and resources, have persuaded the Administration that the appointment of a fissile material "czar" would not be an appropriate response to this issue. PCAST's general point, however, about the need to ensure focus and effective implementation, is well taken. To that end, the Administration is reviewing its staffing of the issue, both internally and in connection with diplomatic efforts. [Moreover, the draft PDD directs agencies to treat this issue with the priority it deserves.]

3. Establish, under the leadership of that senior official, a stronger and more focused interagency process designed to bring the talents of all critical agencies to bear in addressing the problem of nuclear security in the NIS.

Response:

In Presidential Decision Directive/NSC-13, the President decided that U.S. policy would discourage the accumulation of fissile materials, seek to strengthen controls and constraints on these materials and, over time, to reduce worldwide stocks. He further charged the Interagency Working Group on Nonproliferation and Export Controls to monitor progress in executing this and other nonproliferation policies. Principally in response to the same

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What is Goodby's role in GCC

What is his role in general.

analytical distinction btw policy & implementation

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concerns over fissile materials that animate the PCAST recommendations, the National Security Adviser chartered the Standing Committee on Nonproliferation and Export Controls to strengthen interagency coordination over these issues. Under the aegis of the Standing Committee, four NSC-led sub-Interagency Working Groups provide a forum for interagency review of the nuclear security issues covered in the PCAST report: 1) the MPCA sub-IWG, which deals with programs for upgrading security for fissile materials in the NIS; 2) the Nuclear Smuggling sub-IWG, which covers programs for combating nuclear smuggling; 3) the Fissile Materials sub-IWG, which deals with Safeguards, Transparency, and Irreversibility (STI) and with the U.S.-Russian Plutonium Reactor Shutdown Agreement; and 4) the Plutonium Disposition sub-IWG. The talents of all relevant agencies are brought to bear in addressing the problem of nuclear security in the NIS.

Two specific needs highlighted by the PCAST, however, warrant further action. In order to ensure that this issue receives the continued oversight and energy that it deserves, the Standing Committee will meet more frequently -- semimonthly or as needed, in the first instance -- than it has in the past. Second, in order to ensure closer coordination with the Nunn-Lugar programs -- which have been coordinated with but not included in the writ of the Standing Committee -- as well as with our broader FSU policy, these regular meetings will relate specifically to nuclear materials security in the FSU, will include oversight of the Nunn-Lugar programs, and will be co-chaired by the Senior Director for Nonproliferation and Export Controls and the Senior Director for Russian, Ukrainian and Eurasian Affairs. At the end of the year, we will evaluate whether this strengthened process is adequate to the task at hand.

4. Direct that a prioritized nuclear material security and accounting action plan be prepared within 60 days, specifying near term, mid-term, and long-term goals and objectives, and the resources needed to accomplish them.

Response:

DOE is preparing such a plan for review and approval by the NSC. [The draft PDD directs DOE to complete this plan, with input from other agencies, by August 31, 1995.]

5. PCAST Recommendation:

Direct that adequate funds and personnel be allocated for nuclear security and accounting cooperation, and that a high priority be assigned to protecting these resources from cutbacks.

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Response:

[The draft Presidential Decision Directive directs OMB and OPM to work with agencies as part of the budget preparation process to make available appropriate budgetary and personnel resources for these efforts.] Moreover, State has drafted a plan for soliciting additional contributions from allied states which is currently under interagency review.

6. PCAST Recommendation:

Direct the senior official responsible for these programs to develop a plan to secure needed legislative and public support.

Response:

[The draft PDD directs the NSC to develop a legislative plan.] Agencies will need to take the lead with their respective authorizing and appropriations committees. The Administration will continue to seek public support not only through Congressional testimony but also through speeches and by making use of other media.

7. PCAST Recommendation:

Make effective security and accounting for weapons-usable material an important facet in U.S. relations with the states of the former Soviet Union, and use the opportunity of the upcoming summit to gain agreement on specific new steps to improve security and accounting for nuclear materials.

Response:

Effective security and accounting for weapons-usable materials is already an important facet in U.S. relations with the former Soviet Union. Reinforced in part by this PCAST recommendation, the U.S. and Russian Presidents strengthened that commitment through joint statements on MPCA and STI which the two Presidents released at their May 1995 summit. The MPCA statement directs the Gore-Chernomyrdin Commission to prepare a joint report on steps that have been accomplished and on additional steps that should be taken to ensure the security of nuclear materials.

8. PCAST Recommendation:

Direct that higher priority be placed on providing information support to efforts to reduce the risk of nuclear theft, including increased cooperation between intelligence agencies in tracking and responding to nuclear smuggling.

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Response:

[The draft PDD directs the IC to focus on vulnerabilities in MPCA systems world-wide, particularly in the former Soviet Union; to identify key transit routes for smuggling of nuclear materials and weaknesses in existing means to block them; and to identify key players in the nuclear material black market (including the potential involvement of organized crime). It also directs the IC to maximize cooperation in these areas among intelligence agencies both within the US and with other countries where possible.]

[Furthermore, the draft PDD makes State the lead agency for ensuring that information related to nuclear smuggling incidents is quickly disseminated within the USG, and that such information is brought efficiently and promptly to the policy community's attention. It also mandates the creation of a Nuclear Smuggling Response Group to facilitate this effort.]

9. PCAST Recommendation:

Designate efforts to enhance security and accounting for nuclear materials world-wide as a key mission for national laboratories.

Response:

[The draft PDD directs that measures to ensure effective protection, control, and accounting for nuclear materials world-wide be designated a critical mission of the relevant national laboratories.]

10. PCAST Recommendation:

Undertake a new initiative to help Russia improve MPCA for stockpiles of highly-enriched fuel for naval vessels and icebreakers.

Response:

[The draft PDD directs the Secretary of Energy to develop, in coordination with the Secretary of Defense and the Chairman of the Joint Chiefs of Staff, a program for providing MPCA assistance for Russian sites holding highly-enriched fuel for naval reactors.] The Russian Navy has requested assistance in upgrading MPCA at these sites, where security is particularly lax.

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Programmatic Recommendations

The PCAST Report also makes a series of programmatic recommendations, including that agencies incorporate the following principles in program design:

- foster indigenous capabilities;
- build toward national MPCA systems;
- take a flexible, multi-pronged approach, with both government-to-government and lab-lab components;
- make a comprehensive effort to analyze and deal with recipient state sensitivities and incentives;
- focus on specific deliverables to ensure that funds are spent for their intended purpose.

All of these recommendations are consistent with current U.S. policy and MPCA program plans. [The draft PDD directs agencies to continue to follow this approach.]

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NEXT STEPS ON FISSILE MATERIALS

At the Moscow summit, we and the Russians agreed that the STI Working Group would report to the GCC at its June 29 meeting its progress in implementing the agenda specified in the joint statement on transparency and irreversibility. We also agreed that the GCC would report on our efforts to ensure the security of nuclear materials. This paper addresses the objectives we should seek to achieve in these areas by June 29 and how we might use bilateral meetings and other channels during the next six weeks to attain those results.

Agreement for Cooperation

This agreement remains our top priority in the T&I area, since it must be in force to allow implementation of several other initiatives. Negotiations in April indicated that the Russians are insistent on developing information protection procedures as the first step and, until they are comfortable with progress there, will likely stall on other aspects of the agreement, i.e., legally enabling and scope language. Thus, we should focus particular effort on moving forward on information security, by carrying out reciprocal visits by security experts and by negotiating text of an information protection document.

We have invited Russian security experts to visit the U.S. the week of June 12. We should seek to complete this visit and obtain Russian agreement to a reciprocal visit as soon as possible.

The information protection document could initially take either of two forms, a security annex to the Agreement for Cooperation or a stand-alone General Security of Information Agreement (GSOIA). The substance would be virtually identical either way; in the latter case, once the GSOIA was completed, its provisions would be incorporated into the Agreement for Cooperation as the security annex. DOD and DOE security experts agree that either approach would be acceptable, as long as the Russians understand that a GSOIA would not be sufficient alone to exchange nuclear weapons-related data but must be accompanied by an Agreement for Cooperation. As soon as possible, we should table an information protection text, seek a Russian preference among the two alternative forms, and begin negotiation of the preferred document.

We should also seek as much progress as possible on the basic agreement. In particular, now that the Russians have signed up in the joint statement to rapid implementation of all three initiatives that we want to cite in the scope section (data exchanges, MRI, plutonium compliance procedures), we should try to pin down scope language. To strengthen our case, we should amend our draft to use the same language as used in the joint statement to describe these initiatives.

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not by producing subst.
heat source

requires use of safety measures.

$25 /y
extend reactor life by 10y –
→ NPT → he got
Pu product.

Sends a KI.

IA

Sends – paper a KI.

tasked State a 67

Ilyushin

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Stockpile Data Exchanges

The Russians have shown little interest thus far in discussing specifics of the data exchanges, again insisting that information protection procedures be developed first. The commitment in the joint statement to negotiate an agreement on exchanges as soon as possible, coupled with the progress we are seeking on the security document, may give us the opportunity to overcome this resistance. We can make the effort by tabling a draft agreement and seeking to begin its negotiation.

Mutual Reciprocal Inspections

Both sides have agreed that further demonstration of inspection procedures for plutonium derived from dismantled warheads cannot occur until the Agreement for Cooperation is in force. However, we do not need to exchange classified data in order to negotiate the agreement on MRI demonstrations. We should table a draft MRI demonstration agreement and seek to begin this negotiation immediately.

We also should begin discussions with the Russians on measures for monitoring HEU derived from dismantled warheads. To facilitate such discussions, we should provide the Russians a nonpaper laying out our preferred approach.

Finally, we should provide the Russians the response we owe them to their proposal for measuring plutonium shape.

Measures to Confirm Declarations

Other than MRI procedures, we have not yet defined these measures specifically enough or discussed them sufficiently with the Russians to begin negotiation of an agreement. Rather, we should focus for now on explaining to the Russians the ideas we conveyed in the transparency nonpaper and seeking their response, with a view to defining the measures for future incorporation into a negotiated agreement.

Chain of Custody

In this area, of course, the Russians committed only to examine and seek to define, rather than negotiate, cooperative measures. Again, we should focus on explaining the ideas in the transparency nonpaper and seeking a Russian response.

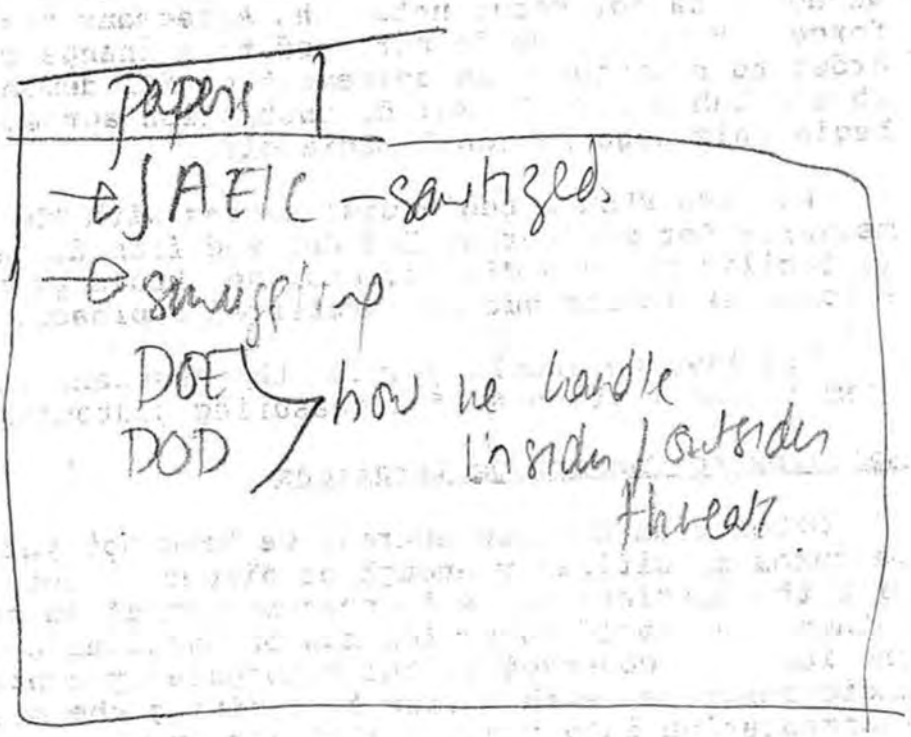
Plutonium Agreement Compliance Procedures

The Russians continue to block further progress on these procedures until they are satisfied with U.S. cooperation on alternative energy sources. The delegations to the compliance talks have gone through the mechanics of developing joint bracketed text of subsidiary arrangements for shutdown reactors, but other than doing the same for storage facilities, there is little more this impasse allows them to do. Instead, we should focus on what, if anything, we can do to get past the alternative energy source roadblock.

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We are prepared to lenore Russia for ITAR as part of this arrangement

→ Once we solve the grey issues



law smuggling
Yeltsin visit

↓ responds w Tomsk / Krasnoyarsk

→ set up conversation.

news to pres →

Gore to VP - suggesting that

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VP will take charge of JAEIC

The options paper that has been prepared by DOE should be addressed in interagency channels and a strategy developed to address this problem. Our objective should be to find an approach that will generate Russian willingness to resume progress on compliance procedures. If we succeed, we should get the Russians to set a date for resumption of the plutonium agreement compliance talks.

Nuclear Material Security

The agreement on a GCC report provides us the opportunity both to place the various U.S.-Russian activities affecting nuclear material security in a coherent framework and perhaps to move oversight of these efforts on the Russian side away from MINATOM. To achieve these results, we should design the report to be a plan of action on how our two countries will cooperate broadly to enhance material security. And we should have VP Gore and PM Chernomyrdin designate a working group within the GCC structure, headed by AMB Goodby and a Russian counterpart, to prepare the report and oversee its implementation.

The report should discuss all areas affecting nuclear material security, addressing the efforts underway or to be undertaken in each area, how our two countries will cooperate on each of these efforts, specific milestones for such cooperation, and how these efforts fit together into a coherent program. Among the efforts that the report should include are MC&A cooperation at the five facilities targeted by the recent amendment to the Nunn-Lugar MC&A implementing agreement, MC&A cooperation at additional facilities under government-to-government agreements, lab-to-lab cooperation, cooperation with GAN, and transportation security. We should seek to have the working group complete the report by the June 29 GCC meeting.

Summary of Objectives

Agreement for Cooperation

-- table the information protection text, seek a Russian preference among the two alternative forms, and begin negotiation of the preferred document;

-- complete the visit of Russian security experts to U.S. facilities and schedule a reciprocal visit; and

-- table a revised U.S. draft of the basic agreement and eliminate as many brackets as possible.

Stockpile Data Exchanges

-- table a draft agreement and begin its negotiation.

Mutual Reciprocal Inspections

-- table a draft demonstration agreement and begin its negotiation;

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① paper → Clinton → Lea F.

(multiple tool style focus)

top down
bottom up approach
what we decided
should US ask for foreign assistance

papers → struggling. / JAEIC

→ Case status.

Lea feels strongly

→ POE paper → more organized.

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Bene

4 papers we can be finished up

→ Engage G-7

→ Double shooter

diff approach,

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-- provide a nonpaper on measures for monitoring HEU; and

-- provide a response to the Russian proposal for measuring plutonium shape.

Measures to Confirm Declarations

-- begin discussion of measures, with a view to defining them for incorporation into a future negotiated agreement.

Chain of Custody

-- begin discussion of measures.

Plutonium Compliance Procedures

-- obtain Russian agreement to a means of addressing the alternative energy sources problem that will allow progress on compliance procedures to resume;

-- set a date for resumption of plutonium agreement compliance talks; and

-- obtain a Russian reaction to the bracketed text of the subsidiary arrangement for storage facilities that the U.S. delegation provided them in February.

Nuclear Material Security

-- designate a working group within the GCC structure, headed by AMB Goodby and a Russian counterpart, to prepare the report agreed to at the summit and oversee its implementation;

-- design the report to be a plan of action on how our two countries will cooperate broadly to enhance nuclear material security; and

-- complete the report by the June 29 GCC meeting.

Attaining Results

We proposed at the summit that the STI Working Group meet twice before the GCC meeting -- once in May and once in June. Although the initial reaction was skeptical toward a May meeting, we are still awaiting a formal response.

If there are two meetings, the first could be used to introduce U.S. drafts of the various texts (information protection document, amended Agreement for Cooperation, stockpile data exchange agreement, MRI agreement) and review U.S. thinking on, and Russian responses to, the ideas conveyed in the transparency nonpaper. The second meeting would then be devoted to negotiating texts and finalizing the reports.

If there is only one meeting, we would want to provide and explain the texts to the Russians in advance.

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they will change their policy
& then discover human rights
threat → they have overstrip
counter-talking points →
we say all nuke coop is unacceptable
on policy there isn't any way to
legitimize the deal → we ~~take~~ took
a similar approach to dealing w Indians →
but that hasn't worth as much $$ —
pts for Halifax book have been provided ↓ yes

GOODBY 2 statements STI & MPCA
Rus have arranged that we negotiate w
(Ugan or (?) a agreement for coop —
they felt scope did not need to be
hsg'd @ that point. → scope —
annex - good exchanges — I would like to
so back to Rus w revised ~~at coop~~ draft
d agreement a cooperation which refines
scope that has agreed @ summit
I hope doc will be tabled soon.
(2) Security annex could have (2) diff versions →
(a) exchange secret but not RD

The nuclear material security report could be prepared in separate meetings held coincidentally with STI Working Group meetings or within a framework of GCC preparatory meetings. As with the STI effort, if there is only one meeting prior to June 29 to address this report, we would want to provide and explain the draft report to the Russians in advance.

We have ~~drafted~~ (2) negs. Decree issued by ; assigns some resp's to MOD & Finance MPI looking @ content & Sharaf (Yeltsin), etc. (Last one?)

(3) Gore-Chernomyrdin agreement - have draft cleared → Pres is very interested → [illegible] fossil fuels

By end of 8D+ I believe we will have reached agreement.

all three docs are fully agreed & ready to go.

MPEI - here's the need to continue this. They have a problem → [illegible] Story We [illegible] (2) [illegible] held → Min of Finance refused to turn over $1 to Minatom

one thing that might be worthy would be joint echo Diary which could be posted → [illegible] could we do this.

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MTCK similarly
"I'm not discouraged
Sovereign for it are in business
& seeing @ other a 88 each other
& I am quite confortable we can
get them to sees the Iranian
external things that matter to the Russians
the Tuzla agreement - & keeps us up
a the agenda all & these side things
going a → & #. they don't kill us &t—
the need to communicate that the
totality & our relationship—
export & Russian guns be held up—
can we come up w an approach that is
more satisfactory to the Russians.
We have a team working a draft report
to be turned over to the VP & Chernomyrdin →
a look @ pistil in several spots →
want to come up w principles for
parallel acts / assessment →
We have had intel exchange—
they interpret the [illegible]
[illegible]

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PROPOSED G-C LETTER

Dear Victor:

At their recent summit, President Clinton and President Yeltsin gave our Commission the task of preparing a joint report on "steps that have been accomplished and additional steps that should be taken to ensure the security of nuclear materials." President Clinton and I believe that this is among the most critical tasks facing our Commission.

Nothing could be more central to the security of both our countries, and of the international community, than ensuring that nuclear weapons and the plutonium and highly-enriched uranium needed to make them do not fall into the wrong hands. As the world's two largest nuclear powers, our countries bear a special responsibility to lead the world in ensuring that all nuclear weapons and weapons-usable materials are safe, secure, and accounted for. Having read President Yeltsin's September 15, 1994 decree and your January 13, 1995 order directing that a comprehensive program to modernize security and accounting for nuclear materials be undertaken, I know that both of you are equally convinced of the importance of this problem.

Given the importance of expanding and accelerating our cooperation in this critical area, President Clinton is designating Ambassador James Goodby as his special representative for Nuclear Security and Dismantlement. Ambassador Goodby will be working closely with me on these issues as we prepare for the Gore-Chernomyrdin Commission meeting in June. I would like to suggest that you designate a counterpart to Ambassador Goodby who will report directly to you and President Yeltsin as we work together to prepare our joint report on additional steps. As this is a problem that cannot be fully addressed by any one ministry, but must be dealt with by our governments as a whole, I believe that someone on your personal staff or on the Russian Security Council would be a particularly appropriate counterpart to Ambassador Goodby.

I believe that Ambassador Goodby and his Russian counterpart, along with senior delegations from each side, should meet as soon as possible to begin exploring additional steps, as directed by our Presidents. We anticipate that our delegation would include representatives of the Departments of Energy, Defense, and State, as well as representatives of the Nuclear Regulatory Commission, the Arms Control and Disarmament Agency, and other agencies. We would propose a meeting the week of June 5.

Given the critical importance of this issue, we should be bold in imagining how we might expand and accelerate our cooperation in this area, and not limit ourselves to past approaches. On our side, we are intensively reviewing the status of our cooperation, and our delegation will come prepared with a variety of new ideas for expanding it. In particular, in our government-to-government cooperation to modernize material protection, control, and accounting (MPC&A) systems, we are prepared to take a more flexible approach that would allow us to provide funding directly for purchases of Russian equipment and to support Russian experts in designing and

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implementing modernized systems and procedures, rather than "buying American." We hope this will allow our two countries to accelerate this cooperation, and allow your government to integrate these systems more smoothly into the national MPC&A program that you have directed be carried out. I am very interested to hear whatever ideas the Russian side may have for additional steps you would like the United States to take to facilitate Russia's implementation of its national MPC&A program.

In preparation for our meeting, I have been reviewing our two countries' cooperation in this area. In several areas, we will have concrete progress to report:

-- our two countries' scientists are making extraordinary progress in their laboratory-to-laboratory MPC&A cooperation, at Arzamas-16, the Kurchatov Institute, the Obninsk Institute of Physics and Power Engineering, and elsewhere;

-- a number of the important issues related to the Mayak fissile material storage facility have been resolved, the United States has begun shipping equipment, construction is underway, and as was announced at the summit, we have agreed that the U.S. funds available to support this project can be spent on costs of construction as well; and

-- as announced at the summit, our defense ministries are cooperating to improve the security of nuclear weapons.

All of these are important successes that we should address in our joint report. I believe that you and I will need to work to facilitate our countries' government-to-government MPC&A cooperation, however. As you know, our governments signed an agreement for expanded cooperation in this area in January of this year, yet so far none of this expanded cooperation has taken place. Our governments have agreed on five sites where we believed cooperation would be particularly important, but even joint visits to these sites to see what measures should be taken have not yet been accomplished. I believe we should work to ensure that these visits take place before our meeting in June, so that we can report to our Presidents that concrete steps are being accomplished in this critical cooperative program. The U.S. government has allocated $30 million to this government-to-government cooperation: if these funds are not spent soon, our Congress is unlikely to approve the $70 million we have requested for our cooperation in fiscal 1996, and may take away the existing funds.

I hope you can have your staff contact the U.S. Embassy in the next few days with regard to designating a counterpart for Ambassador Goodby and dates for a first meeting of delegations on this subject. I look forward to discussing these issues with you as we prepare for our June meeting.

With best personal regards,

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Stern, Jessica E.

From:	Stern, Jessica E.
To:	Blacker, Coit D.
Cc:	Beyrle, John R.; /R, Record at A1
Subject:	agenda for a blacker/poneman meeting ~~[CONFIDENTIAL]~~
Date:	Monday, May 22, 1995 11:46AM

Please note: I will be glad to provide more details on any of what follows. I'm hitting you with a lot of new material.

PROPOSED AGENDA FOR A BLACKER/PONEMAN MEETING ON THEIR NEW IWG ON FISSILE MATERIALS

1. Your new Fissile Materials IWG: what to call it; when to convene it; the agenda. (The agenda I propose: the PDD, our response to the PCAST report, preparations for GCC, i.e,. three of the items below.)

2. Our response to the PCAST report. I will have prepared a list of their recommendations and how we are responding to each, which I propose that you disseminate at your IWG.

3. Your joint memo to Tony. (Your changes are fine!)

4. the PDD. (I still don't have comments from Dan, but will give you the cleared version as soon as I can get Dan to focus on it.)

5.Goodby's role, and how it fits into the new Safety and Security issue cluster at GCC; when to meet with Leon on the subject.

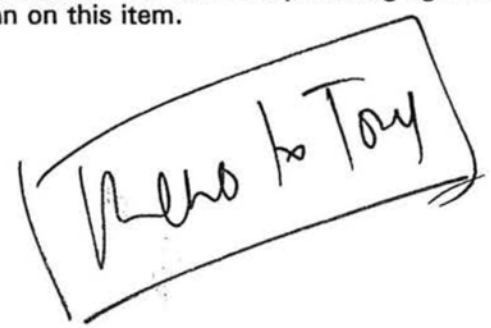
6. the broader picture. (This discussion could be saved for meeting number 2 -- both with Dan, and with your IWG). Where we should try to push hard, what are carrots we can offer. Some ideas:

a) we use the same flexible approach of the lab-to-lab program (no requirement to buy American) in the government-to-government program;

b) we push very hard on the HEU deal;

c) we get DOE to spell out exactly what parts of a PUAE can be achieved legally without the PUAE (this is what I suggested to John last week -- need to check whether he actually tasked DOE to write a paper);

d) we (and this is pretty revolutionary -- may be unacceptable) either provide more money on the Tomsk/Krasnoyarsk reactor replacement, or we push less hard on the pu reactor shutdown because we're not getting anywhere and the marginal increase in pu from these 3 reactors is small compared with the proliferation risks posed by the vulnerable material in the current stockpile. A cynical justification for this approach: now that we have NPT extension, the "visuals" of the pu reactor shutdown agreement are no longer as pressing. The argument against ceasing to push hard on the Russians on the pu reactor shutdown: we have an agreement-- we can't keep making agreements without following through.... We need to sit down with John on this item.



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Stern, Jessica E.

From: Stern, Jessica E.
To: Blacker, Coit D.; Poneman, Daniel B.
Cc: Edwards, Joan K.; Quinn, Mary E.; /R, Record at A1
Subject: agenda for PCAST meeting~~[CONFIDENTIAL]~~
Date: Wednesday, May 24, 1995 2:27PM

A. Here is the agenda for your meeting which you will jointly convene on Wednesday.

I. Response to PCAST
-- draft PDD (to be disseminated in advance of the meeting)
-- NSC response to PCAST recommendations (also to be disseminated)
-- Goodby briefing on plans for GCC

[2. Temporary PUAE extension -- the idea was to resolve this prior to 31 May, but since Chip will be out of town this issue needs to be resolved in another forum.]

3. Task state to write a paper that asesses the tradeoffs among the entire range of fissile-materials issues we are pursuing with Russia: where should we be pushing hard, what do we have to offer. Should include MPCA, HEU purchase, PUAE, Pu reactor shutdown/replacement, etc.

B. After I hear the results of your 5 p.m. meeting, I will revise two documents that now refer to your creating a new IWG: the PCAST response paper and the joint memo to Tony.

Note



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Dear Victor:

At their recent summit, President Clinton and President Yeltsin gave our Commission the task of preparing a joint report on "steps that have been accomplished and additional steps that should be taken to ensure the security of nuclear materials." President Clinton and I believe that this is among the most critical tasks facing our Commission.

Nothing could be more central to the security of both our countries, and of the international community, than ensuring that nuclear weapons and the plutonium and highly-enriched uranium needed to make them do not fall into the wrong hands. As the world's two largest nuclear powers, our countries bear a special responsibility to lead the world in ensuring that all nuclear weapons and weapons-usable materials are safe, secure, and accounted for. Having read President Yeltsin's September 15, 1994 decree and your January 13, 1995 order directing that a comprehensive program to modernize security and accounting for nuclear materials be undertaken, I know that both of you are equally convinced of the importance of this problem.

Given the importance of expanding and accelerating our cooperation in this critical area, President Clinton is designating Ambassador James Goodby as his special representative for Nuclear Security and Dismantlement. Ambassador Goodby will be working closely with me on these issues as we prepare for the Gore-Chernomyrdin Commission meeting in June. I would like to suggest that you designate a counterpart to Ambassador Goodby who will report directly to you and President Yeltsin as we work together to prepare our joint report on additional steps. As this is a problem that cannot be fully addressed by any one ministry, but must be dealt with by our governments as a whole, I believe that someone on your personal staff or on the Russian Security Council would be a particularly appropriate counterpart to Ambassador Goodby.

I believe that Ambassador Goodby and his Russian counterpart, along with senior delegations from each side, should meet as soon as possible to begin exploring additional steps, as directed by our Presidents. We anticipate that our delegation would include representatives of the Departments of Energy, Defense, and State, as well as representatives of the Nuclear Regulatory Commission, the Arms Control and Disarmament Agency, and other agencies. We would propose a meeting the week of June 5.

Given the critical importance of this issue, we should be bold in imagining how we might expand and accelerate our cooperation in this area, and not limit ourselves to past approaches. On our side, we are intensively reviewing the status of our cooperation, and our delegation will come prepared with a variety of new ideas for expanding it. In particular, in our government-to-government cooperation to modernize material protection, control, and accounting (MPC&A) systems, we are prepared to take a more flexible approach that would allow us to provide funding directly for purchases of Russian equipment and to support

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Russian experts in designing and implementing modernized systems and procedures, rather than "buying American." We hope this will allow our two countries to accelerate this cooperation, and allow your government to integrate these systems more smoothly into the national MPC&A program that you have directed be carried out. I am very interested to hear whatever ideas the Russian side may have for additional steps you would like the United States to take to facilitate Russia's implementation of its national MPC&A program.

In preparation for our meeting, I have been reviewing our two countries' cooperation in this area. In several areas, we will have concrete progress to report:

-- our two countries' scientists are making extraordinary progress in their laboratory-to-laboratory MPC&A cooperation, at Arzamas-16, the Kurchatov Institute, the Obninsk Institute of Physics and Power Engineering, and elsewhere;

-- a number of the important issues related to the Mayak fissile material storage facility have been resolved, the United States has begun shipping equipment, construction is underway, and as was announced at the summit, we have agreed that the U.S. funds available to support this project can be spent on costs of construction as well; and

-- as announced at the summit, our defense ministries are cooperating to improve the security of nuclear weapons.

All of these are important successes that we should address in our joint report. I believe that you and I will need to work to facilitate our countries' government-to-government MPC&A cooperation, however. As you know, our governments signed an agreement for expanded cooperation in this area in January of this year, yet so far none of this expanded cooperation has taken place. Our governments have agreed on five sites where we believed cooperation would be particularly important, but even joint visits to these sites to see what measures should be taken have not yet been accomplished. I believe we should work to ensure that these visits take place before our meeting in June, so that we can report to our Presidents that concrete steps are being accomplished in this critical cooperative program. The U.S. government has allocated $30 million to this government-to-government cooperation: if these funds are not spent soon, our Congress is unlikely to approve the $70 million we have requested for our cooperation in fiscal 1996, and may take away the existing funds.

I hope you can have your staff contact the U.S. Embassy in the next few days with regard to designating a counterpart for Ambassador Goodby and dates for a first meeting of delegations on this subject. I look forward to discussing these issues with you as we prepare for our June meeting.

With best personal regards,

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Unless we
had a chance
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