A PROPOSAL
for
A JOINT INTERNATIONAL WORKSHOP
on
VERIFYING DEEP REDUCTIONS IN NUCLEAR WEAPON STOCKPILES
and
SAFEGUARDING FISSILE MATERIAL STOCKS IN NUCLEAR WEAPON STATES

Submitted to the

Russian Ministry of Atomic Energy

by the

Nuclear Program
Natural Resources Defense Council, Inc.

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I. Introduction.

> The cold war is over. But its material infrastructure – the mountains of arms and military-industrial complexes of the developed countries – still remain. The spread of nuclear weapons could make them the weapons of terror.
>
> ....there is an urgent need for all nuclear States to participate in the process of reductions and limitation of nuclear weapons. We propose to develop a Treaty on nuclear security and strategic stability by the nuclear five countries. This treaty could provide for the *ending of military fissionable materials production; prohibition of recurring use of fissionable materials in weapons; [and] further elimination of nuclear munitions and reduction of strategic carriers.*
>
> – Russian President Boris Yeltsin, address to the UN General Assembly, 9 September, 1994

If Russia and the United States ultimately are to succeed in their joint effort to prevent further proliferation of nuclear weapons, other countries must be persuaded that the existing global stocks of *nuclear weapons* and *weapon-usable fissile materials* are:

(a) steadily being withdrawn from weapons use and placed under effective safeguards that would provide timely warning of any reversion or diversion to weapons use; and

(b) stored or utilized for peaceful purposes under conditions that minimize the risk of theft or seizure by unauthorized parties.

Only when such criteria are met on a global scale will it be possible to argue convincingly with other countries that the nuclear threat has been contained, and therefore that nuclear weapons are no longer needed to deter foreign nuclear threats.

Likewise, the threat of proliferation is a major obstacle to realizing the long-term future potential of nuclear power production. Without further verified deep arms reductions by the nuclear weapon powers, major improvements in the current system of international nuclear cooperation and safeguards will not be forthcoming. Without such improvements, government and public acceptance for advanced nuclear fuel cycles, possibly involving weapon-usable fissile materials, cannot be obtained. Therefore, intensified international cooperation and more effective safeguards arrangements are essential to achieving both deep arms reduction and full utilization of the nuclear power option.

At the September 1994 Summit in Washington, D.C., Presidents Clinton and Yeltsin agreed to facilitate broad cooperation to ensure effective control, accounting and physical protection of nuclear materials. The United States has proposed a number of initiatives to strengthen the physical security and material accounting at selected facilities in Russia, and some of these initiatives are underway. Despite a U.S. offer of reciprocity,

these initiatives are limited in scope and constrained by lack of funding. Only a few facilities are covered by existing cooperative efforts.

We believe the U.S.-Russian cooperative effort could be even more effective if it were directed toward the construction of a prototype multilateral safeguards regime that could be extended to cover all fissile materials in the nuclear weapon states. As suggested by President Yeltsin's remarks at the United Nations, there must be broad agreement on the need for comprehensive coverage by the multilateral control system, in order to effectively challenge the "national security" arguments of special interests in the United States, Russia, and other countries, who now oppose the implementation of bilateral or multilateral safeguards over their own "sensitive" facilities. Already, for example, in the absence of an agreed five-power comprehensive safeguards concept, there is opposition from the U.S. Navy to permitting monitoring of naval fuel inventories, and this has led to a reluctance to include important facilities on the Russian side that process naval spent fuel.

II. Universal Safeguards Coverage.

In the left-hand column of Figure 1, are listed various categories of nuclear weapons, fissile materials, and weapons and fissile material facilities. The second column denotes the declared weapons states–the US, UK, Russia, France and China; the third column denotes the undeclared weapons states–Israel, India, and Pakistan; and the last column denotes the non-weapon states. As seen from Figure 1, all of the nuclear weapons and most of the fissile material facilities are not covered by the IAEA, or even by bilateral safeguards. As shown in Figure 2, even with the Clinton Administration objectives of a global cut-off in the production of fissile material for weapons, and with IAEA safeguards placed over fissile materials declared "excess" to national security requirements, all nuclear warheads and many fissile material inventories and production facilities will remain outside of any bilateral or international safeguards. As we move into the 21st century, what is needed is a comprehensive regime covering all nuclear weapons and weapon-usable materials (Figure 3).

The IAEA probably is not the appropriate institution for administering safeguards over weapons facilities and materials in declared nuclear weapon states. During the development stage we believe the program should be primarily bilateral, and then expanded to bring in the other P-5 members.

III. The Role of the National Laboratories.

The most promising U.S.-Russian bilateral approach would be a program designed around a cooperative lab-to-lab initiative. In the post-Cold War era, *the principle new mission of the nuclear weapons laboratories in the United States and Russia should be to jointly construct the comprehensive non-discriminatory safeguards regime that covers all nuclear weapons and weapon-usable fissile material.*

IV. International Workshop.

To launch this effort, we propose that NRDC and MINATOM (and possibly other partners) co-sponsor an international workshop that focuses on the technical system-design aspects of such a regime. The workshop could address the following questions:

(1) What is the appropriate scope and structure of a safeguards regime covering fissile materials in the weapons states?

(2) How should the following be safeguarded:

- (a) dismantlement facilities
- (b) naval fuel
- (c) enrichment plants
- (d) reprocessing plants
- (e) warheads
- (f) warhead components
- (g) others?

(3) What are the next steps that should be taken by the nuclear weapon laboratories in developing and demonstrating technologies and procedures for safeguarding the areas identified in (2) above?

(4) What do the specific laboratories have to offer? What specific cooperative projects can be undertaken in the near term?

(5) What are the key issues related to sensitive information, technology, and facilities that need to resolved? What is the best way to resolve these issues?

(6) How can the data exchange currently under development be strengthened? What data should be made public and what should be exchanged on a confidential basis?

(7) Should a comprehensive five-power warhead registry be created (through exchange of serial numbers, or "tagging" of individual weapons or sealed canisters) that could provide a basis for verifying elimination of warheads?

(8) How should the U.S. and Russia progress from a bilateral to a multilateral program, and at what stage, and in what areas, should the IAEA become involved?

Workshop date and location: NRDC is agreeable to having the workshop at a time and place that is most suitable to Minatom. As we discussed, Vienna might be an appropriate site for a 2-3 day meeting, perhaps in March or April 1995.

Cost-Sharing: NRDC will cover the travel, hotel, and food expenses of the *non-government* participants from the U.S. and Russia. The U.S. government and U.S. national laboratories will cover the expenses of U.S. government and laboratory participants. MINATOM or other Russian government agencies will cover the expenses of Russian government and laboratory participants. *NRDC will cover other group expenses associated with the meeting, e.g., meeting room, translators, and meals served during the meetings.*

Partial list of proposed invitees:

U.S.

Thomas B. Cochran, NRDC
Christopher E. Paine, NRDC
Robert S. Norris, NRDC
Frank von Hippel, OSTP
Marvin Miller, MIT/ACDA
William G. Sutcliffe, LLNL
Ken Luongo, DOE
Richard L. Garwin, IBM
Jim Tape, LANL
_____, Sandia
_____, Brookhaven
Matt Bunn, National Academy of Sciences/DOE
Alex deVolpi, ANL
Laurin Dodd, PNL
others?

Russia

Victor N. Mikhailov, Minatom
Nikolai P. Yegorov, Minatom
Gen. Vitalii N. Yakovlev, MOD
Yuri Trutnev, Arzamas-16
Evgeniy Avrorin, Chelyabinsk-70
Vadim Simonenko, Chelyabinsk-70
Victor Slipchenko, Foreign Ministry
Anatoli S. Diakov, MPTI
____, Kurchatov
Alexander M. Dmitriev, GAN
others?

IAEA

Tom Shea
others?

FIGURE 1. CURRENT SAFEGUARDS

	WEAPON STATES		NON-WEAPON STATES
	DECLARED	UNDECLARED	
MILITARY:			
Warheads:			
Operational			
Reserve			
Retired			
Fissile Material:			
In Warheads			
Reserved for Warheads			
Declared Excess			
Facilities:			
Weapon Production			
Material Production			
Excess Material Storage			
NAVAL FUEL CYCLE:			
Facilities			
Fuel			
CIVIL NUCLEAR:			
Reactors		IAEA	IAEA
Fuel Cycle Facilities		IAEA	IAEA
HEU/Pu		IAEA	IAEA
LEU		IAEA	IAEA
Spent Fuel		IAEA	IAEA

FIGURE 2. FISSILE CUTOFF FOR WEAPONS AND EXCESS STOCKS UNDER IAEA SAFEGUARDS

	WEAPON STATES		NON-WEAPON STATES
	DECLARED	UNDECLARED	
MILITARY:			
Warheads:			
Operational			
Reserve			
Retired			
Fissile Material:			
In Warheads			
Reserved for Warheads			
Declared Excess	IAEA		
Facilities:			
Weapon Production			
Material Production	IAEA	IAEA	
Excess Material Storage	IAEA		
NAVAL FUEL CYCLE:			
Facilities			
Fuel			
CIVIL NUCLEAR:			
Reactors		IAEA	IAEA
Fuel Cycle Facilities	IAEA	IAEA	IAEA
HEU/Pu	IAEA	IAEA	IAEA
LEU		IAEA	IAEA
Spent Fuel		IAEA	IAEA

FIGURE 3. A COMPRESENSIVE SAFEGUARDS REGIME FOR THE 21ST CENTURY

	WEAPON STATES		NON-WEAPON STATES
	DECLARED	UNDECLARED	
MILITARY:			
Warheads:			
Operational	MONITORED		
Reserve	MONITORED		
Retired	MONITORED		
Fissile Material:			
In Warheads	MONITORED		
Reserved for Warheads	MONITORED		
Declared Excess	IAEA	IAEA	
Facilities:			
Weapon Production	MONITORED		
Material Production	IAEA	IAEA	
Excess Material Storage	IAEA		
NAVAL FUEL CYCLE:			
Facilities	MONITORED	MONITORED	MONITORED
Fuel	MONITORED	MONITORED	MONITORED
CIVIL NUCLEAR:			
Reactors	IAEA	IAEA	IAEA
Fuel Cycle Facilities	IAEA	IAEA	IAEA
HEU/Pu	IAEA	IAEA	IAEA
LEU	IAEA	IAEA	IAEA
Spent Fuel	IAEA	IAEA	IAEA