

10/05/91 13:31:09 IGC Fax Service P.1  
From: cdp3!root Fri Oct 4 12:17:49 1991  
Return-Path: (cdp3!root)  
Received: by cdp.igc.org (4.1/072091)  
id AA20854; Fri, 4 Oct 91 12:17:48 PDT  
Date: Fri, 4 Oct 91 12:17:48 PDT  
From: cdp3!root  
Message-Id: (9110041917.AA20854@cdp.igc.org)  
Subject: Your FAX Request  
Apparently-To: cees  
Status: RO

Your fax to '2023835917' could not be delivered  
after 5 attempts over 60 minutes.

----- Original Fax Message Follows -----  
To: Anatoli Diakov

From: Frank von Hippel

Would you be willing to get this message to Kortunov? I apologize for  
the fact that we are sending so many messages through you. This E-mail  
connection to you appears to be our only reliable communications link to  
Moscow.

With best regards, Frank

To: Sergei Kortunov, Foreign Ministry, Moscow  
From: Tom Cochran, Chris Paine and Frank von Hippel  
Date: October 4, 1991

Dear Sergei:

In response to President Bush's initiative, we believe it  
would be in everyone's interest if President Gorbachev  
would insist that the warheads removed from the U.S. and  
Soviet stockpiles be put under international safeguards as  
soon as possible. One possible approach would be along the  
lines outlined in the enclosed procedures for tactical  
warhead elimination developed by Dick Garwin and Cochran.  
The enclosed draft was developed at the recent Pugwash  
meeting in Beijing in consultation with Academician  
Vitalii Goldanskii and other Soviet representatives, and  
is based largely on the ideas developed in the joint studies of the  
Federation of American Scientists and their Soviet counterparts (see  
"Ending the Production of Fissile  
Materials for Weapons; Verifying the Dismantlement of  
Nuclear Warheads," FAS, June 1991).

Declaring inventories, tagging and placing the warheads under  
bilateral or international safeguards has  
the advantages of reducing future verification  
uncertainties if a subsequent decision is made to verify  
warhead destruction and place fissile materials  
under safeguards. It will make it politically more  
difficult to reverse redeploy the warheads.

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IGC Fax Service

P.2

Moving, soon or eventually from bilateral to international safeguards under the authority of the five permanent members of the Security Council would lay the basis for universal inspection regime which could be extended to the other nuclear-weapon and threshold nuclear-weapon states.

We look forward to seeing you at the workshop in Washington on 18-19 October.

With best regards,

Tom, Chris and Frank

9/2/91 Draft 2, 11:21 (Beijing, R.L. Garwin)

#### A PROCESS FOR THE ELIMINATION OF TACTICAL NUCLEAR WEAPONS

In general, U.S. and Soviet tactical nuclear weapons are distributed over many military bases and storage sites, and can be moved rapidly. For the present purpose, we define tactical nuclear weapons (for the U.S. and the former Soviet Union) as all nuclear weapons other than those limited under the START Treaty -- that is, all except a declared number of specific types of warheads and bombs compatible with obligations under START.

Some 10,000 - 20,000 nuclear charges on each side fall into this category of nuclear weapons we propose be eliminated promptly. When such elimination has occasionally been mentioned in the past, the objection has been raised of the necessity of building a vast nuclear-weapon infrastructure capable of destroying some 10,000 tactical nuclear weapons in the required short time. But such cost and delay is in reality unnecessary.

If there is a commitment to eliminate tactical nuclear weapons, it might be done in the following manner (specialized toward the most difficult case of the U.S. and the Soviet Union):

- 1) Within one month following the commitment, each participant should independently declare the various types, models, numbers, and locations (if possible) of their nuclear charges to be denuclearized, as well as the means to be used initially to identify an object as one of the charges to be destroyed (for example, name plate and serial number).

- 2) At the same time, each participant will identify and begin modifying a suitable number of warehouses and other facilities for the safeguarded storage of all of the tactical nuclear weapons. The host country military will provide physical security, aided by barriers and other suitable measures, against the maximum conceivable armed attack on the site. Continuous international supervision would ensure that weapons or components are not removed clandestinely, and that the guarding forces themselves do not pose a threat to retaining the nuclear weapons in the storage facility.

Within one or two months following the declaration of the tactical nuclear weapons stockpiles, all of these weapons should be removed to the identified secure weapons storage facilities. Subsequent measures could be employed to make the rapid removal of large numbers of the stored weapons a slow task. Initially this might be achieved by the employment of multi-ton slabs or barriers around the individual weapons, and gradually by the casting of appropriate massive concrete shields to entomb each weapon.

As each weapon enters its safeguarded storage, or preferably at the deployment site, it might be inserted into a sack or pouch equipped with adequate seal and tag to enable standardized monitoring. Over a period of 3 months, no nuclear weapons could legitimately be present outside safeguarded storage, except for the START-accountable nuclear weapons.

3) Over a period of years, the stored weapons should be first demilitarized and then destroyed. Demilitarization would involve the transfer of a weapon to a safeguarded workshop, from which would emerge 3 streams of material -  
- (1) crushed metal including the weapons case, electronics, firing and fuzing, etc., (2) high-explosive components to be transferred under safeguard to disposal by burning; and (3) fissile material enclosed in tough plastic and crushed to a thickness less than 5 centimeters, for example.

Ultimately, the fissile material U-235 should be diluted with natural uranium metal for future use as fuel in civil nuclear reactors. Plutonium should be transferred to IAEA-safeguarded storage for eventual deep geologic disposal, or consumption in civil nuclear reactors as mixed-oxide or other fuel.

4) If one nation should begin the process of declaration and storage in advance of another, it might be on condition that the process cease and even be reversed if another major holder of nuclear weapons did not do the same by a specified date.

(Agreed by T.B. Cochran and R.L. Garwin 09/21/91 at 11:18)