

**August 14, 1981**

**Report on Diplomatic Actions Taken Concerning  
Foreign, Nuclear-Related Supplies to Pakistan,  
Richard L. Williamson, Arms Control Disarmament  
Agency (ACDA)**

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**Summary:**

ACDA report on the lasting effects of the November 1978 demarches on inverters and plutonium reprocessing technology. Describes the objectives of the demarches and the direct effects on the Pakistani nuclear program, including preventing the shipment of equipment from France, West Germany, Norway, and Switzerland. Concludes with an overview of international norms of nuclear commerce.

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UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY  
Washington, D.C. 20451

August 14, 1981

State Dept. review completed

MEMORANDUM

TO: Chairman, Joint Atomic Energy Intelligence Committee's Working Group on Nuclear Proliferation

FROM: ACDA/NP/INA - Richard L. Williamson *RWC*

SUBJECT: Report on Diplomatic Actions Taken Concerning Foreign, Nuclear-Related Supplies to Pakistan

REF: NFAC 4066-81, 9 July 81

(S/NF) Herewith are two contributions to your studies on Pakistan's nuclear program and intentions. The reference called on State/INR to prepare the subject report; but, because ACDA initiated nearly all the diplomatic actions, it was appropriate that we should undertake this responsibility. In addition, we have prepared a paper outlining the background and history of international export controls on special nuclear material and production equipment if you believe that some readers of the final report might not be aware of this background.

(U) We believe the subject report will meet your needs, but if there is any further assistance we can render, please call me (632-7905).

cc: Chairman, JAEIC  
NSA/G74 -   
CIA/OSWR  
DIA - Mr.  
INR/STA - Mr. J. Siegel  
DOE/IA - Mr. R. Upchurch

Class by: R.L. Williamson  
Check one: ( ) Declass on: (or)  
(X) Review for declass on:  
8/14/01  
Extended by: L.V. Nosenzo  
Reason: 1, 2

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DIPLOMATIC ACTIONS

During the past three years some 300 demarches have been made to foreign governments which share our proliferation concerns about Pakistan's nuclear programs. The bulk of these demarches were to Western Europe, though approaches were made to Japan, to some Eastern European countries, and in several cases to Middle East and Asian governments. The purpose of these demarches has been to alert the host governments to activities by companies in their countries which have been supplying Pakistanis with nuclear-related equipment and technology, and to seek their cooperation in halting such exports. In most cases we have requested countries to control the export of items not unambiguously covered by their existing international export control obligations (see below).

The specific objectives of the demarche program (which involved a virtually unprecedented degree of cooperation and daily contact between the intelligence community and the consumers in ACDA and State who prepare the demarches on the basis of that intelligence) have been:

(1) to take advantage of the Pakistanis' lack of scientific, managerial and especially engineering capabilities and severe shortage of highly skilled technicians;

(2) to keep the Pakistanis from easily tapping the industrial base of more advanced countries to acquire expertise and equipment which they would have difficulty producing for themselves; and

(3) to force the Pakistanis to manufacture items themselves rather than buy them to specification from more advanced countries. In this way, we hoped to divert managerial and technical talent and thereby delay the program.

Against this limited set of objectives, the program has been relatively successful. Cumulatively, these demarches (and the parallel tightening of US export controls on items going to Pakistan) have caused the Pakistanis a number of serious design and fabrication problems and, in several instances, resulted in the denial of key technology and equipment which in turn has seriously set back the Pakistani nuclear program schedule. The demarche program has also caused the Pakistanis to utilize increasingly more elaborate purchasing schemes which have included cover organizations in Pakistan, Europe, Canada and the Middle East. These procedures have considerably delayed Pakistani acquisition of a number of critical components and substantially increased their cost.

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In the enrichment area (the largest component of the demarches), the cumulative effect of these difficulties has been a delay of approximately two years in the Pakistani program. The delays in the reprocessing program are somewhat more difficult to assess, but probably have not been as extensive as in the centrifuge program. In the other areas, the lack of zircalloy (see examples below) appears to have brought the fabrication of unsafeguarded fuel to a virtual halt and computer availability remains a problem, but in most other areas (including the fuel fabrication equipment and the UF<sub>6</sub> conversion facility), the export control program has not been a serious impediment.

A number of demarches resulted in critical equipment and technology being denied to Pakistan's sensitive nuclear programs. Examples are as follows:

In a series of demarches commencing on February 7, 1979 and ending in April of that year, the USG provided the French Government with information which enabled it to prevent the French firm Calorstat from shipping 9000 (out of a total order of 10,000) centrifuge "bellows" to Pakistan.

After a number of US approaches and information sharing with the FRG during 1979, the FRG took additional steps to control the export of inverters.

A series of exchanges commencing on November 2, 1979 enabled the Norwegian Government to reject Pakistani requests for zirconium manufacturing equipment by November 11, 1980. (Oslo 1871)

As a result of a US demarche in April of 1980, the FRG agreed that it would not export zirconium tubes or tritium targets to Pakistan.

A series of demarches to the French commencing in March 1981 alerted the GOF to possible Pakistani efforts to purchase nuclear-grade calcium metal from the French firm MINEMET. In July, the GOF informed the USG that they were rigorously controlling MINEMET which is the only Western European source of nuclear-grade calcium metal.

After being alerted by the USG to certain Pakistani purchasing efforts in Switzerland, the GOS recently seized approximately 500 gas centrifuge rotors and associated equipment as they were being prepared for shipment to Pakistan through Frankfurt. These critical components were to be the initial shipment of an order which would have totaled about 6500 rotors.

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International Norms of Nuclear Commerce

For many years there has been a broad international consensus that the benefits to mankind from the peaceful uses of the atom depend on ensuring that peaceful nuclear cooperation among states is not misused for military purposes.

In 1957, the International Atomic Energy Agency (IAEA) was founded to promote the peaceful use of the atom, particularly among developing countries, while guarding against the possibility that material used in peaceful nuclear activities would be diverted to military uses.

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) entered into force in 1970, and all 115 parties to that Treaty have thereby undertaken an obligation that IAEA safeguards will be applied to their nuclear exports to ensure that they will not be used for nuclear explosive purposes. The intent of the NPT is to permit nuclear cooperation while preventing the spread of nuclear explosives to additional countries. IAEA safeguards can help to ensure that nuclear exports are used only for peaceful non-explosive purposes.

The so-called Zangger Committee (involving 21 countries) has interpreted the specific obligations (published by the IAEA as INFCIRC/209) which NPT parties accept under Article III of the Treaty in regard to the NPT. The Zangger Committee defines a specific set of materials and equipment (the so-called "Trigger List" -- attached) which are related to the use or production of source or special fissionable material. The international transfer of any item on the Trigger List to non-nuclear weapon states requires the supplier country to satisfy itself with regard to that item:

- (1) that IAEA safeguards will be applied;
  - (2) that it will not be used for a nuclear explosive;
- and
- (3) that no item will be exported without assurances that the reexport will be subject to similar controls.

In the mid-1970s, concerns about the need for supplier states to clearly separate non-proliferation conditions from commercial competition and about proliferation risks associated with the transfer of sensitive fuel cycle technologies and weapons-usable materials led major supplier countries to meet in London from 1975-1977 to establish common guidelines for nuclear exports. Presently there are 19 countries,

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including France, in this so-called Nuclear Suppliers Group (NSG) that follow these guidelines. These additional requirements, published by the IAEA as INFCIRC/254, are:

- (1) an assurance of physical security;
- (2) an assurance of no replication of sensitive nuclear facilities (enrichment, reprocessing or heavy water production) without the application of the same controls which covered the original export;
- (3) in addition, the NSG Guidelines suggest "restraint" in the export of sensitive facilities and material (plutonium and highly enriched uranium); and
- (4) consultations among suppliers on situations of possible proliferation concern.

The recently announced policy on non-proliferation (NSD 6) supports these international efforts and directs the US to make attempts to develop uniform nuclear supply conditions and to increase the effectiveness of international nuclear export control lists.

The US has already initiated consultations on revising these international lists. In addition, the US consults frequently with other suppliers on the exports of so-called "dual use" items which have nuclear and non-nuclear end uses (examples are computers and high speed cameras).

A final important part of international supplier cooperation is the sharing of intelligence about the nuclear programs and purchasing activities of countries of proliferation concern.

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