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Summary of U.S. and Russian Nuclear Design Labs Exchange Visit, February 1992

Presentation to Admiral James D. Watkins

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**December 16-17, 1992 DOE/Labs Summit Discussions
on Nonproliferation Concerns Resulting from
Changes in the former Soviet Union**

- Admiral Watkins asked Lab directors to consider the issues of:
 - Proliferation of nuclear weapons knowledge by Russian nuclear weapons specialists
 - Proliferation of nuclear weapons and safety concerns associated with rapid reduction of nuclear stockpiles and the fragmentation of the former Soviet Union

Lawrence Livermore and Los Alamos National Laboratories Set Up Exchange Visits with Russian Nuclear Weapons Institutes (Arzamas-16 and Chelyabinsk-70)

- **Mid-January 1992 visit to Russian labs by three Livermore and two Los Alamos Scientists to both Russian institutes**
- **February 9 - February 15 visit by Directors V. Belugin and V. Nechai to Livermore and Los Alamos**
- **February 22 - February 29 visit by Directors S. Hecker and J. Nuckolls to Arzamas-16 and Chelyabinsk-70**

Our Exchange Visits Afforded Us An Unprecedented Look At The Institutions, Facilities, and People of the Russian Nuclear Weapons R&D Program. We Learned That:

- They appear dedicated to nuclear weapons reductions and safe dismantlement, transport, and storage
- They take safety seriously
 - did not find an attitude similar to Russian reactor program
 - but collaboration with U.S. will benefit both
- Their institutes have excellent people and facilities
 - they developed a system that works in a country where little does
 - competition between institutes has been key to success
- Russian and U.S. nuclear weapons R&D institutes, concerns, and approaches are remarkably similar
- Their institutes are experiencing enormously difficult times
 - no funding from government in CY92 to date
 - Private bank loans are keeping them afloat

We Learned That . . . (cont'd)

- They are adamant about keeping "amateurs" away from their weapons
 - only those who built them should dismantle them
- They want the experts from the Russian nuclear weapons institutes/U.S. Labs to advise their governments on technical aspects of arms control
- Underground nuclear testing is essential to maintaining competence and enhancing safety
 - they expect to resume testing after October 1, 1992
 - because of logistics expect to do only 2 to 3 tests/year
- Loss of weapons scientists and potential proliferation of nuclear weapons knowledge is serious, but not yet acute
- U.S. money cannot solve their problem
 - they must get solid support from Russian government or U.S. help will be in vain

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We Learned That . . . (cont'd)

- They are seriously pursuing "conversion" to civilian work
 - they claim this constitutes 35-40% of their work (however none of their figures look reliable)
 - they have little experience and need help
 - their isolation in the past makes it difficult
 - their ministry has clearly forced them in this direction
 - their funding was cut and they were told to make it up with "contracts"
- They are interested in pursuing cooperation on strategies defense but were reluctant to discuss nonnuclear directed energy concepts

We Learned That . . . (cont'd)

- They want no humanitarian aid (no handouts) but are eager to work on a contract basis
 - they are very proud and patriotic
- They vehemently oppose the currently conceived International Center designed to avoid brain drain of weapons scientists
 - they claim the wrong people have been chosen to run it
 - these people have no nuclear weapons expertise
- They welcomed and embraced us with surprising warmth and trust

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The Russian Institutes Placed Collaboration With U.S. Nuclear Weapons Labs At The Top Of Their List Of What The U.S. Could Do To Help Them Out

- Will help to keep the nonexperts out of the nuclear weapons business
- Provides confirmation of the quality of their science and technology
- Improves their access to the top levels of government
- Enhances safety, security and nonproliferation measures (especially during rapid arms reduction)
- Provides hope for their scientists
- Helps them to do conversion to civilian technologies sensibly
- Provides some possible avenues for contract work and funding
- Lets them keep an eye on leading edge technologies and gage the potential for technological surprise

Collaboration Also Offers A Great Opportunity To:

- **Build confidence and trust with their nuclear weapons people. In uncertain times political leaders come and go, but these experts will remain**
- **Help promote economic stability either directly by having the institutes contribute to civilian problems, or indirectly by using them as an example of how to make institutions work**
- **Learn more about their nuclear weapons program. After so many years, we still know relatively little**

**The Russian Institutes Made A Specific Proposal For
Collaboration. We Jointly Developed The
Following Ideas:**

- Establish a Science and Technology Council for Nuclear Weapons Surety, Reduction and Nonproliferation
- The Council would advise the respective ministries and departments. It would coordinate the collaborations of the institutes/laboratories
- The Council will include representatives of
 - VNIIEF (Arzamas-16)
 - VNIITF (Chelyabinsk-70)
 - Lawrence Livermore National Laboratory
 - Los Alamos National Laboratory
 - Sandia National Laboratories
- Specific forms of collaboration will include:
 - Working groups
 - Symposia
 - Seminars
 - Consultations
 - Joint Experiments
 - Joint projects
 - Exchange of experts (visits and fellowships)
 - Joint publications
 - Direct contract agreements

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Russian Institutes Are Very Negative About The International Center As Currently Conceived

- They are concerned that nonexperts will control nuclear weapons issues such as safety, security, dismantlement, transportation, and storage
- Funds go to the wrong places - the academy rather than the institutes
- They want to retain control themselves - if there is to be a center have it at one of their institutes
- They want to promote conversion to civilian applications from within not have it imposed
- Mikhailov and Institute Directors prefer the Science and Technology Council to a separate Center

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**Collaboration Between U.S. And Russian Nuclear Weapons
Labs/Institutes Offers Many Benefits.
The Objectives are to:**

- To enhance safety and security of nuclear weapons during reduction and dismantlement
- To prevent the proliferation of nuclear weapons knowledge by weapons scientists from the institutes/laboratories and plants and to promote conversion/diversification
- To prevent the proliferation of nuclear weapons to nonnuclear states and seizure of nuclear weapons by terrorists
- To develop mechanisms for joint nuclear weapons emergency response
- To enhance the safety of nuclear weapons remaining in the stockpiles of Russia and the United States
- To promote the protection and clean up, where necessary, of the environment at the nuclear weapons facilities.

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From Discussions with Directors V. Belugin and V. Nechai and Deputy Minister V. Mikhailov We Learned That They Received a Great Boost from President Yeltsin's 2/28/92 Visit

- He signed a decree naming them federal institutes with separate budget line item directly for institutes
- Promised them funds and pay raises April 1, 1992
- Reiterated the important role of nuclear weapons - fewer in numbers but not less capable (smart weapons)
- Supported the continued existence of two labs based on the benefits of competition
- Backed close collaboration with U.S. weapons labs
- Apparently was supportive of their request to resume nuclear testing after moratorium expires
- Will name someone from one of the institutes as science advisor (for nuclear defense matters)
- Apparently will select a new minister of Atomic Energy (V. Mikhailov is a strong candidate)

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