Reinvigorating Collaboration Under the Protocol for Scientific and Technical Projects to Help Ensure the Safety and Security of the United States and Russian Federation Nuclear Stockpiles

Lab Directors and officials from DOE and Russia's Atomic Energy Ministry met in Santa Fe (Summer 2002). Their work led to key agreements on cooperative efforts in nuclear energy research and counterterrorism technology.

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Benefits of Agreement

- **Scientific interaction with the RF technical experts**
  - **Gained access to RF technologies often exceeding "off-the-shelf US technology.**
  - **Gained access to Russian experts who are often the acknowledged leaders in their field.**
  - **Projects invoke RF scientific talents to explore physics issues that are either beyond US capabilities or are impractical to investigate by US personnel alone.**
  - **Collaborative efforts provide important insights into weapons-related RF scientific and technical capabilities, although exchanges avoid information directly relating to weapon programs.**
- **Access to RF technical data**
  - **Through RF experimental data bases US has gained insight into Russian measurement techniques; RF has received confirmation of their unpublished work by interacting with US experts.**
  - **RF labs have provided scientific insights from their unique perspective. Provided data in the areas of dynamic material strength (including instability growth) and dynamic failure (including spall).**
  - **RF labs have developed unique high-resolution spectrometers creating a dataset from z-pinch and laser-produced plasmas, providing the US with unique data to benchmark atomic theory codes.**

Benefits of Agreement (continued)

- Utilize the less costly RF resources
  - Scientists
    (estimated cost of work in US typically 10 to 20 times greater than in the RF)
  - Facilities/equipment
- Keep the RF experts employed in Russia to the benefit of both US and RF

Excerpt from Lab Directors Meeting Protocol

- **On April 16, 2002, NNSA Administrator John Gordon and Minatom First Deputy Minister Lev Ryabev agree to:**
  - **Item #2. Basic Science Collaboration**

    "Administrator Gordon tasked his three laboratory directors with identifying two or three areas of interest for scientific collaboration within the next week. These areas must be under the general area of stockpile stewardship, and fit under the NNSA Defense Programs campaign structure.

    Administrator Gordon pledged to send a letter within the next month to First Deputy Minister Ryabev proposing specific areas of potential collaboration. He will identify funding in the budget for the fiscal year beginning 1 October 2002 to appropriately fund those activities."

Gordon Letter to Ryabev

5/14/02

- **Letter developed with input from Beckner, Hunter, Anastasio, Immele**
- **Assigns Jerry Freedman as NNSA POC**
- **Includes three broad topic areas for initial collaboration:**
  - **Material Science**
  - **Computational Methods**
  - **Experiments and Technologies on US and RF pulsed power facilities**

Since 5/14/02

- **NNSA receives positive response from Minatom (Voloshin)**
- **US labs receive first set of project proposals from the three RF institutes**
- **Tri-Lab meeting with Freedman scheduled for 7/13/02 to develop FY03 program**

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Summary

- **NA-1, with NSC concurrence, has requested the DP Labs to broadly engage their RF counterparts**
  - **Must fit under the campaign structure**
  - **$1M per lab in contracts to Russia**
  - **Appropriate programmatic and line support to make the engagements meaningful**
- **All three US labs are engaging Russian counterparts at the programmatic and technical levels**
- **NNSA (Freedman) will review lab progress at a Tri-Lab meeting on 7/31/02**