

Overview of Russian-American Collaboration on the Beneficial Uses of Depleted Uranium

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Background

- **The U.S. and Russia have a common problem of disposing of surplus (waste ?) depleted uranium hexafluoride (DUF₆)**
- **Rather than incurring disposal costs, the U.S. and Russia have agreed to collaborate on finding commercial beneficial uses of DU to sell this surplus material**
- **The collaboration is focused on DU use as a shielding material, and as a chemical barrier in geologic repositories**

Overall Status

- **The U.S. Department of State has funded three projects through the International Science and Technology Center (ISTC) on DU research, \$800K/3 years. Funding received, work began in December 2003**
- **Implementing Agreement #3—Depleted Uranium—was signed by the United States Department of Energy's (DOE's) Undersecretary R. Card and Academician N. P. Laverov at the Joint Coordinating Committee for Science and Technology (JCCST)**
- **The JCCST asked that the Russian Academy of Science submit three proposals to DOE for consideration. One proposal was funded, September 2, 2004. DOE invited alternative proposals to be submitted for the other two**
- **Proposals are being submitted to the ISTC and DOE's International Proliferation Prevention (IPP) Program to fabricate and test 1/4 scale DU-steel cermet and DUCRETE prototype casks**

Three DU Research Projects were Approved by the ISTC, April 2003

1. ISTC #2691, "Production and Testing of Heavy Concretes Including DU Dioxide Concerning Their Use as Shielding Materials in Construction of Casks for SNF". Began February 2004; \$300K over 3 years
2. ISTC #2693, "Production and Testing of Cast Cermet on the Base of Stainless Steel and DU Dioxide as Applied to Its Use in Construction of Casks for SNF and Radioactive Wastes". Began February 2004; \$300K over 3 years
3. ISTC #2694, "Investigation of Sorption Capture of Long-Lived Radionuclides from Underground Waters by DU Oxides and Hydroxides". Began December 2003; \$200K over 2 years

DOE-Environmental Management (EM) Funded a Project on September 2, 2004

- **At All-Russian Research Institute of Chemical Technology, Drs. V. V. Shatalov, V. T. Gotovchikov, V. A. Seredenko, et al.**
- **“Production of Cast Cermet Based on DUO_2 -Stainless Steel, Melted Dioxide and Other Compounds of Depleted Uranium in Cold Crucible Induction Melter to be Used as Protective Material for Spent Nuclear Fuel Container Structures”. \$420K over 4 years**
- **DOE-EM invited additional proposals**

Status of Prototype DU Cask Proposals

- **To DOE, Initiative for Proliferation Prevention:
Status — Undergoing U.S. interagency review
— \$1M**

**“Spent Nuclear Fuel (SNF) Storage Cask
Utilizing Depleted Uranium Concrete
(DUCRETE)”**

- **To ISTC: Status — Awaiting host country
(Russia) approval — \$1.1M**

**“Development of Unified Dual-Purpose
Transport Cask (TC) for Transportation and
Storage of SNF with Use of Cast Cermet Based
on Dioxide of Depleted Uranium and Steel”**

DOE-EM Invited Additional Proposal

- **The forthcoming proposal to build a DUO₂-steel cermet prototype cask will cost ~\$1.1M**
- **ISTC will contribute only ~\$500K**
- **I suggest that you propose that DOE-EM fund the balance needed money**