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The Initiatives for Proliferation Prevention Program: Goals, Projects, and Opportunities

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Goals, Projects, and Opportunities.**

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The mission of the U.S. Department of Energy Initiatives for Proliferation Prevention (IPP) Program is to identify and create commercial opportunities for former weapons scientists currently or formerly involved with weapons of mass destruction in the Former Soviet Union (FSU). IPP was first authorized in Fiscal Year 1994 under Section 575 of Public Law 103-87. IPP currently sponsors 164 projects in Russian at 64 institutes; 16 projects in the Ukraine at 14 institutes; 14 projects in Kazakhstan at 10 institutes; and one project in Belarus. To date, the IPP program has engaged over 10,000 experts in the areas of nuclear, chemical, and biological weapons and missile development at more than 170 institutes in Russia, Kazakhstan, Ukraine, and Belarus.

The IPP program fulfills its mission to prevent the spread of weapons technologies by (1) funding non-military research and development projects between former Soviet weapons institutes and laboratories of the U.S. Department of Energy (DOE); (2) identifying and creating non-military commercial applications, and (3) engaging U.S. industry in a partnership with the DOE National Laboratories and Institutes of the Newly Independent States (NIS). IPP projects advance through two or three stages: (1) a brief research and development stage if required; (2) a technology development stage in which FSU scientists collaborate with U.S. scientists and industry to develop a commercially viable product; and (3) a commercialization stage in which the FSU scientist work directly with U.S. industry to produce and market their product.

The IPP program is managed by the U.S. National Nuclear Security Agency. The U.S. Industrial Coalition (USIC) plays a key role in IPP by identifying U.S. industry partners and by facilitating commercialization of technologies developed in the IPP program. The U.S. National Laboratories have excellent working relationships with the NIS partner institutes and provide technical management and oversight for IPP projects. Ten DOE National Laboratories and the Kansas City Plant participate in the IPP program.

The IPP program requires a U.S. industry partner for each project. The industrial partner contributes business expertise and ensures a market focus and matches the investment of the DOE dollar-for-dollar with cash or in-kind contribution. On the average, industry contributes \$1.50 dollars for each \$1.00 provided by DOE. To date, eight IPP projects have reached the commercialization stage. These eight projects have generated over \$17,000,000 in annual sales.

The IPP program is able to make tax-exempt payments to NIS scientists in Russia through the Civilian Research and Development Foundation (CRDF) and the International Science and Technology Center (ISTC). IPP also uses the ISTC to make tax-exempt payments in Kazakhstan and the Science and Technology Center Ukraine (STCU) to make tax-exempt payment in the Ukraine.

One example of a successful IPP project is the production of strontium-82 by the Institute for Nuclear Research (INR), Troitsk, Russia. Strontium-82 is used for cardiological imaging by positron emission tomography. INR and Los Alamos National Laboratory joined in an IPP Thrust 1 project, which later evolved into a Thrust 2 project with Technology Commercialization International (TCI), Albuquerque, NM, to produce Sr-82 in commercially significant quantities. INR is now working directly with TCI and LANL in a Thrust 3 project. INR is irradiating rubidium targets to produce Sr-82. TCI facilitates the import of the rubidium targets representing INR and receives a modest fee for service from DOE for this. The targets are processed at Los Alamos hot cell facilities. The Sr-82 is distributed by the Department of Energy to Nycomed Amersham. This company manufactures the Cardiogen Sr-82/Rb-82 generator on behalf of Bracco Diagnostics. Bracco distributes this generator to imaging clinics in the United States. INR now supplies 30% of the Sr-82 used in the U.S. and has earned \$1,233,000 in revenue since 1998.

The IPP program also has a number of Thrust 2 projects now starting in the Republic of Kazakhstan. The goal of one project among the Ulbinkiy Metallurgical Production Combine (ULBA), Ust-Kamenogorsk, Los Alamos National Laboratory, and the U.S. companies Brush-Wellman and NUKEM is the production of copper beryllium master alloy in Kazakhstan. The use of copper beryllium alloy in the telecommunications, computer, and automotive industries has grown dramatically over the past few years and this project is expected to lead to long-term

contracts between B rush-Wellman, NUKEM, and ULBA Metallurgical Works. Other projects include the development of a novel probiotic for the prevention of food contamination, which is the goal of a collaboration between the Kazakhs Scientific Research Institute of Food Industry and Oak Ridge National Laboratory and a project among ULBA Metallurgical Works, Brookhaven National Laboratory, Massachusetts Institute of Technology, Global Nuclear Fuels, and KazAtom Prom to upgrade a facility at ULBA to safely and economically process enriched uranium from concentrates using solvent extraction process. Concentrates are waste product of fuel fabrication and contain low concentration of uranium oxide. ULBA will have unique facility to provide commercial services of waste processing and extraction of useful uranium to fuel vendors world wide.

For further information on the IPP Program, interested parties may contact the author (email pjh@lanl.gov) or Mr. Peter Green, IPP Deputy Program Manager (peter.green@hq.doe.gov).

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