

# Background to Plutonium Conversion Project

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The origins of the project were as follows: On June 23, 1994, U.S. Vice President Albert Gore and Russian Prime Minister Victor Chernomyrdin signed an agreement affecting Russia's remaining three production reactors. The general goal of this agreement was the cessation of weapon plutonium production by these dual-purpose reactors, two of which continue to operate in Seversk (formerly Tomsk-7) and one in Zheleznogorsk (formerly Krasnoyarsk-26). Currently these three reactors are operating to generate heat and electricity for local residences. Two Seversk reactors supply about 30 percent of the heat used in Tomsk; and the Zheleznogorsk reactor supplies 100 percent of the heat for residents of Zheleznogorsk. In accordance with the agreement, both sides are to undertake actions to construct replacement sources for heat and electricity generation. The understanding of Russia was that the U.S. would provide the financial support for construction of the replacement power sources. In addition, the agreement included an undertaking by Russia affecting disposition and use of newly-produced plutonium.

The signed agreement was to enter into force after exchange of diplomatic notes indicating that specified procedures by both sides had been implemented. But in subsequent negotiations the two sides could not reach agreement on monitoring procedures directed at the operating and shutdown of the reactors, the reprocessing of spent fuel and confirmation of the quality of the separated plutonium. The monitoring procedures proposed by the U.S. appeared to Russia to be excessive and discriminatory. In addition, Russia believed that the U.S. was not completely living up to its obligation to provide financial help for the construction of the replacement power sources. As a result of the disagreements over verification, the Gore-Chernomyrdin agreement has not entered into force.

Nevertheless, Minatom officials announced that beginning on October 1, 1994, no newly-produced plutonium in Russia was or would be used for weapon purposes. At that date, the Russian Ministry of Finance stopped paying for the plutonium produced at the three reactors.

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Both sides carried out feasibility studies of replacing the reactors with fossil-fuel plants. In 1994, a joint study on core conversion options was launched by the Kurchatov Institute and Pacific Northwest Laboratory with participation of Minatom and GosAtomNadzor. They concluded that core conversion of the production reactors would allow them to generate heat and electricity without significant plutonium production. The analysis of different options showed that core conversion is indeed a promising option. One argument in support of core conversion is that its implementation would save jobs associated with reactor operation and improve the socio-economic situation in the closed cities, indirectly helping to secure the safe storage of fissile material accumulated there. In September of 1995, the Kurchatov-PNNL activity on core conversion resulted in an agreement signed by Minatom and DOE that gave \$1.9 million dollars to the Russian side from the U.S. to carry out the feasibility study. The feasibility study found that conversion of the three reactors would cost about \$160 million and assumed that the cost will be shared equally by both sides. A follow-up agreement to proceed with core conversion was signed by Minister Mikhailov and Secretary O'Leary in January, 1996.

However, this January agreement and its funding created some difficulties within the U.S. government agencies described in [1]. It also created difficulties for Russia because the U.S. agreed to provide its contribution for the project on the condition that plutonium produced in the reactors after October 1, 1994 could be monitored by the U.S. One more problem arose from new Russian legislation. In August of 1995, the new law on international agreements went into effect in Russia. In accordance with this law, all types of agreements (state-to-state, government-to-government, agency-to-agency) related to Russian national security and defense must be ratified by the Russian Duma.

A series of intensive negotiations undertaken by both sides resulted in an understanding that in order to continue work on core conversion, a new U.S.-Russian agreement was needed. The text of the new agreement was written during the second week of May 1997, and both sides made some concessions. Russia accepted monitoring of the plutonium and spent fuel produced by these reactors. The U.S. negotiators agreed on a text in which there is no mention of Russian production reactors or weapons plutonium, in keeping with Minatom's position that the reactors are no longer production reactors and their operation is not connected with national security. Consistent with this interpretation, there may be no need for the Duma to ratify an agreement on core conversion. If the new agreement is accepted by the U.S., there is a real chance that Russia will cease weapon plutonium production by 2000.