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## A Disciplined Approach to Physical Security Upgrades at Russian Facilities

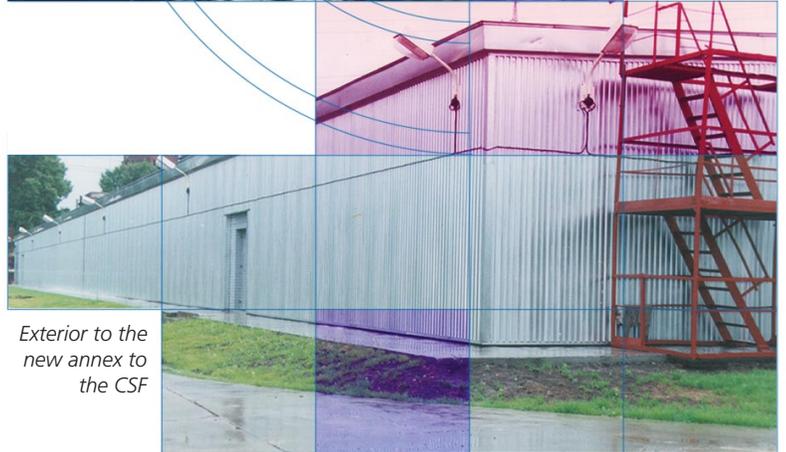
Accomplishing physical security upgrades at Russian nuclear facilities often has been quite cumbersome and inefficient. However, recently, a different approach, based on standard project management and engineering practices, was proposed and established by CITR and used at the Novosibirsk Chemical Concentrates Plant (NCCP). Located in south central Siberia, NCCP is one of Russia's largest enterprises and provides nuclear fuel for atomic power stations and research reactors in Europe, Asia, and the Near East. The new, disciplined approach to accomplishing physical security and material accounting upgrades proved to be very successful at NCCP and is detailed below.

Cooperation with Russia takes place under the Material Protection, Control, and Accounting (MPC&A) Program and has included aggressive near-term activities to better secure weapons-usable nuclear materials through MPC&A upgrades. Facilities have been upgraded, equipment procured and installed, and personnel trained. At the same time, the program has been helping Russia achieve its long-term goal of implementing upgraded MPC&A systems that can be maintained and supported from indigenous resources.

Teams typically assigned to the MPC&A Program were multi-disciplined and brought together from various U.S. national laboratories. Each laboratory operated under its own general order agreement with the Russian facility and wrote contracts but did not coordinate individual pieces with the overall upgrade plan. From laboratory to laboratory, contracts often overlapped or



Exterior of the original Central Storage Facility (CSF)



Exterior of the new annex to the CSF



Open arrays in the original interior of the CSF



Interior of the new annex to the CSF



were counterproductive to the work being proposed by other laboratories for the same Russian facility.

Working with the U.S.–Russian partnership over the past 5 years, CITR has been able to develop a new, cost-effective process to achieve physical security upgrades at NCCP. Cooperation by NCCP was a key component in securing nuclear materials because without NCCP's "buy-in" and sense of ownership in the process, the upgrades could and would not be sustained over the long term.

The new process requires five components: (1) performing a vulnerability assessment; (2) identifying and obtaining consensus for upgrades necessary to protect the highly enriched uranium; (3) providing the upgrade funding through contractual mechanisms; (4) performing upgrade acceptance testing; and (5) providing a performance assurance program to ensure that the upgrades could be sustained by the site.

At NCCP, the five components of the new process were instituted as follows:

(1) Only one general order agreement was written, that agreement being between the managing contractor of the Y-12 National Security Complex and NCCP. The managing contractor coordinated all upgrades, regardless of which laboratory initiated and implemented the work.

(2) The upgrade process began with a vulnerability or needs assessment to identify a clear path forward, and a plan was drafted to specify upgrade projects.

(3) The team management instituted a disciplined decision process by which all proposed upgrades would be fully coordinated among all the laboratories involved, consensus reached, and funding approved prior to developing a contract for the task.

(4) Overall integration and sustainability previously had not been high-priority points

when MPC&A upgrades were being developed and implemented. However, the new process ensured that the MPC&A team responsible for upgrades at the site would institute and follow through with validation, acceptance, and performance testing before turning the completed upgrade over to the site.

(5) To further ensure that each upgrade was sustainable and maintainable after U.S. disengagement from the project, a performance assurance program for each upgrade was set in place at the end of each upgrade project.

For additional information on this new process or the program itself, contact CITR's NCCP project lead, Mike Fuller, at [fullergmsr@y12.doe.gov](mailto:fullergmsr@y12.doe.gov), or visit the CITR web site.

 *The Institute of Nuclear Materials Management (INMM) Annual Meeting will be held July 15–19, 2001. It will include a number of sessions focusing on nonproliferation and threat reduction, covering a broad range of topics from MC&A to dismantlement transparency and authentication. There also will be a special roundtable session on nonproliferation education and training. For more information, visit the web site at <http://www.inmm.org>. Abstracts are due February 1, 2001.*

## Director's Note

"Synergy, coordination, success" — that is our mantra at the Center for International Threat Reduction. By working in unison rather than working in parallel, the results of our efforts are multiplied, and we can achieve even more. One good example is a recent meeting in Oak Ridge, involving personnel from three programs — Material Protection, Control, and Accounting; Material Consolidation and Conversion; and Plutonium Disposition — that all work with the Research Institute of Atomic Reactors in Dimitrovgrad, Russia. By coordinating efforts, each program was able to accomplish much more without any duplication of effort and was able to achieve a cost savings. The feature article, describing the MPC&A efforts at the Novosibirsk Chemical Concentrates Plant in Russia, provides another example of the benefits of coordination.

— Larry Satkowiak

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