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Upgrades for Truck Transportation of SNM in the Russian Federation

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Abstract

The goal of this project is the rapid reduction of risk to truck transportation of SNM in Russia. Enhanced protection is being accomplished by cooperation between the United States Department of Energy, MINATOM of Russia, the Russian Ministry of Defense, and various Russian Institutes. This program provides an integrated program of specialized trucks that are equipped with hardened overpack (SNM vault) containers, alarm and communications systems, and armored cabs. Armored escort vehicles are also provided to increase the survivability of the guards escorting convoys. Only indigenous Russian equipment, modified and/or manufactured by Designing Bureau for Motor Vehicle Transport Equipment (KBATO), is provided under this program. The U.S. will not provide assistance in the truck transportation arena without a commitment from the Russian facility to provide heavily armed escorts for SNM movement. Each site conducts a detailed transportation needs assessment study that is used as the basis for prioritizing assistance. The Siberian Chemical Combine (Tomsk-7) was the initial site of cooperation. The designs used at Tomsk-7 are serving as the baseline for all future vehicles modified under this program. In FY98, many vehicle systems have been ordered for various institutes. Many additional systems will be ordered in FY99.

Introduction

The goal of this project is to rapidly reduce the risk of nuclear weapons proliferation by strengthening systems of material protection, control and accounting (MPC&A) through technical cooperation between the United States and Russia in the area of inter and intra-site truck transportation of special nuclear material (SNM). This project is significantly enhancing protection to Category I SNM that is moved inside and between Russian nuclear facilities. This is being accomplished by providing an integrated transportation system consisting of specialized trucks, hardened overpack containers, and armored escort vehicles. Overpacks are the cornerstone of protection provided under this program.

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Truck Transportation System Process

The Truck Transportation Team follows a process to determine which sites need vehicles, how many, types, and which sites should be accommodated first.

The first step is the conduct of a detailed needs assessment study at each site that moves SNM by truck. This needs assessment covers the following points:

- Quantity of material moved
- Material attractiveness (proliferation potential)
- Frequency of movement
- Convoy distances
- Public access to the convoy routes
- Description of cargo containers
- Description of present movement methods
- Special threat considerations

These needs assessments have been conducted by all of the major sites involved in the program. A few of the smaller sites are still working on their analyses.

The next step is the prioritization of sites for cooperation. The Table I below is being used to prioritize implementation of the transportation systems at various Russian sites. The table weighs material attractiveness with public accessibility to the convoy route. If the facility articulates special needs due to threat or other considerations, this priority scheme may be altered.

Table I – Truck Transportation Priority Matrix

		SNM Category		
		Category IA	Category IB	Category IC
R	Public Highways	Priority 1	Priority 1	Priority 1
O	Outside Closed Cities			
U	Within Closed Cities	Priority 1	Priority 2	Priority 3
T				
E	Within Protected Areas	Priority 1	Priority 3	Priority 4

When a site has been identified for priority support, a contract is placed to procure vehicles that meet the site's requirements. In most cases standardized designs developed for standard Russian vehicles are used.

Vehicles are modified into a secure configuration that will be used by the site for future SNM movements. In order to ensure sustainability of operations, only indigenous Russian equipment and vehicles are used. Training, operation, and maintenance documentation is provided with the vehicles. Each site also develops a logistical plan to assist in implementation of the vehicles into their SNM movement operations. After all of these steps are completed, the vehicles are put into operation.

Assurance activities associated with this program consist of demonstrations of actual use of the vehicles and equipment at each site. The demonstrations include material handling, use of protective overpacks, convoy configuration, and response for capabilities.

Equipment Features

Equipment and vehicles provided under this program incorporate:

- Significant access delay to forced entry of the SNM cargo by the use of protective overpacks (heavy vaults)
- Two person access control to the cargo
- Bullet resistance to cargo and cab of SNM transport vehicle
- Radio communications between escort vehicles and SNM transport vehicle and main facility response forces
- Bullet resistant escort vehicles
- Heavily armed escorts (Note: The U.S. will provide no assistance in the truck transportation area without a commitment from the Russian facility to provide many heavily armed escorts with each SNM movement)

The Russian contractor (Designing Bureau for Motor Vehicle Transport Equipment, KBATO) associated with this project has proved to be an excellent source for this equipment.

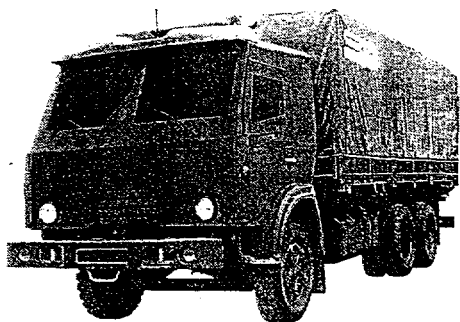
This equipment has been designed to achieve the following goals:

- Significantly increase access delay to the SNM cargo
- Provide detection to the cargo and vehicles
- Elimination of the single insider threat
- Increase guard force survivability
- Provide reliable convoy communications
- Provide ability to exit ambush area

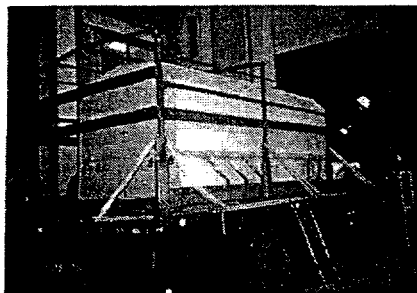
The Russian members of the team developed these design goals after analysis of the threat environment in Russia. Due to the robust nature of the protective overpacks used in this project; a synergistic safety benefit of cargo resistance to fires and accidents has also been achieved.

Pictures of Equipment

Pictures of some of the equipment being provided are shown below.



Armored Transport Truck



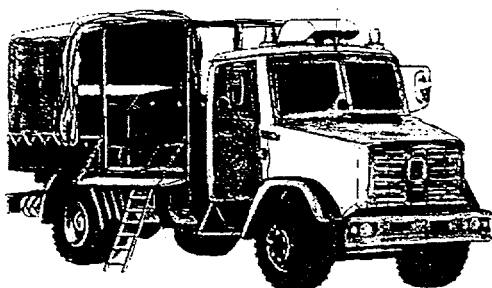
Protective Overpack/Vault



Armored Escort Vehicle



Overpack SNM Racks



Mid-Sized Armored Transport



Large Armored Escort Vehicle

Participating Sites and Program Status

Major MINATOM sites, the Russian Ministry of Defense, and a few civilian sites are participating in this program. Vehicles are in use, many vehicles are ready for delivery, and many are being manufactured now. The Truck Transportation Team will place orders for many more vehicles during FY99.

Summary

The Truck Transportation Team believes the program, when fully implemented, will provide a significant improvement over present SNM truck transportation methods in the Russian Federation. The use of indigenous Russian equipment will ensure sustainability of operations. KBATO has proven to be an invaluable asset in achieving program goals. KBATO has provided high quality equipment, ingenious designs, and valuable consulting to the Russian Institutes participating in the program. Many sites will fully implement their vehicle systems in FY99 with the rest fully implemented in FY2000.

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