
**Implementation of the
G8GP Program on Physical Protection
- Experiences and Results -**

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Abstract:

At the Kananaskis Summit in June 2002, G8 Leaders launched the Global Partnership against the Spread of Weapons and Materials of Mass Destruction committing to support projects to issues of non-proliferation, disarmament, counter terrorism and nuclear safety in Russia. Since then progress has been made in implementing projects. The German Federal Foreign Office contracted GRS to implement a program for improving the physical protection of nuclear or highly radioactive materials of relevance at facilities in the Russian Federation. This paper reports about this G8GP Program on physical protection, its implementation, gained experiences, current achievements and results.

1 G8 GLOBAL PARTNERSHIP

One of the important outcomes of the G8 Summit in Kananaskis 2002 was the declaration of the G8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction. It represents a self commitment of the G8 Countries in preventing terrorists or those who harbour them from gaining access to weapons or materials of mass destruction. Since 2002, the Global Partnership has become a large-scale international initiative which has contributed to the enhancement of international security and stability. All countries are invited to join the Global Partnership in commitment to the principles and applying the guidelines contained in the statement of the G8 Leaders. Fourteen States have now joined the Global Partnership.

1.1 Principles of G8 Global Partnership

The following six principles are a comprehensive set for strengthening the global nuclear security:

1. Promote the adoption, universalization, full implementation and, where necessary, strengthening of multilateral treaties and other international instruments whose aim is to prevent the proliferation or illicit acquisition of such items; strengthen the institutions designed to implement these instruments.
2. Develop and maintain appropriate effective measures to account for and secure such items in production, use, storage and domestic and international transport; provide

assistance to states lacking sufficient resources to account for and secure these items.

3. Develop and maintain appropriate effective physical protection measures applied to facilities which house such items, including defence in depth; provide assistance to states lacking sufficient resources to protect their facilities.
4. Develop and maintain effective border controls, law enforcement efforts and international cooperation to detect, deter and interdict in cases of illicit trafficking in such items, for example through installation of detection systems, training of customs and law enforcement personnel and cooperation in tracking these items; provide assistance to states lacking sufficient expertise or resources to strengthen their capacity to detect, deter and interdict in cases of illicit trafficking in these items.
5. Develop, review and maintain effective national export and transshipment controls over items on multilateral export control lists, as well as items that are not identified on such lists but which may nevertheless contribute to the development, production or use of nuclear, chemical and biological weapons and missiles, with particular consideration of end-user, catch-all and brokering aspects; provide assistance to states lacking the legal and regulatory infrastructure, implementation experience and/or resources to develop their export and transshipment control systems in this regard.
6. Adopt and strengthen efforts to manage and dispose of stocks of fissile materials designated as no longer required for defence purposes, eliminate all chemical weapons, and minimize holdings of dangerous biological pathogens and toxins, based on the recognition that the threat of terrorist acquisition is reduced as the overall quantity of such items is reduced.

In implementing the G8GP Program on Physical Protection the GRS activities are mainly related to the principle 3 in order to improve physical protection by modernisation. The principles 2 and 6 are in the scope as well.

1.2 Financial Support

Under the G8GP initiative, the G8 commit to support *specific* cooperation projects, initially in Russia, to address non-proliferation, disarmament, counter-terrorism and nuclear safety issues in a time frame of 10 years with budget of US \$ 20.000 Mio. The German contribution is up to US \$ 1.5000 Mio in total.

In a first phase for concrete projects as

- Elimination of Chemical Weapons: € 300 Mio
- Disposal of Decommissioned Sub-Marines: € 300 Mio
- Physical Protection of Nuclear Material: € 170 Mio

are provided.

A number of donors have now established programmes with Russia and Ukraine to upgrade the physical protection of and accountancy of nuclear materials. These include the US, UK, Germany, Canada, Norway, Sweden, and the EU.

1.3 Objectives of the German G8GP Program on Physical Protection

The general objective in implementing the program is of course the efficient protection of material of concern against terrorist actions. This includes terrorist actions aimed at

acquisition of material and acts aimed at creating a relevant radiological threat by attacking material directly or indirectly.

The material of highest concern are materials coming from dismantling nuclear weapons or the weapon itself, weapon grade material. Depending on potential consequences high radioactive sources, waste and reactors are considered.

1.4 Legal frame

The legal basis for the bilateral cooperation is constituted by the exchange of verbal notes supplemented by protocols and agreements between the German Federal Foreign Office and the Russian Competent Authorities, ROSATOM, respectively the Russian Ministry of Defense. The GRS performs its work on behalf of the Foreign Office based of a frame contract with German Federal Foreign Office.

Within this framework the GRS contracts the Russian Partner Facility to conduct all necessary steps including identification of areas to be modernised, project initialisation, monitoring and finalisation.

2 IMPLEMENTATION

Nuclear Security is a multi disciplinary task. The selection of relevant facilities and the decision on measures appropriate for an adequate upgrade requires more than an analysis limited to the status of existing physical protection measures. The G8GP Physical Protection is an interdepartmental challenge for a technical support organisation (TSO) as GRS represents for the Federal Government in Germany.

Therefore, GRS experts in Nuclear Safety and Security, Radiation Protection, Waste Disposal, Environment Protection, from several GRS-departments are involved in the G8GP Program on Physical Protection.

2.1 Procedure

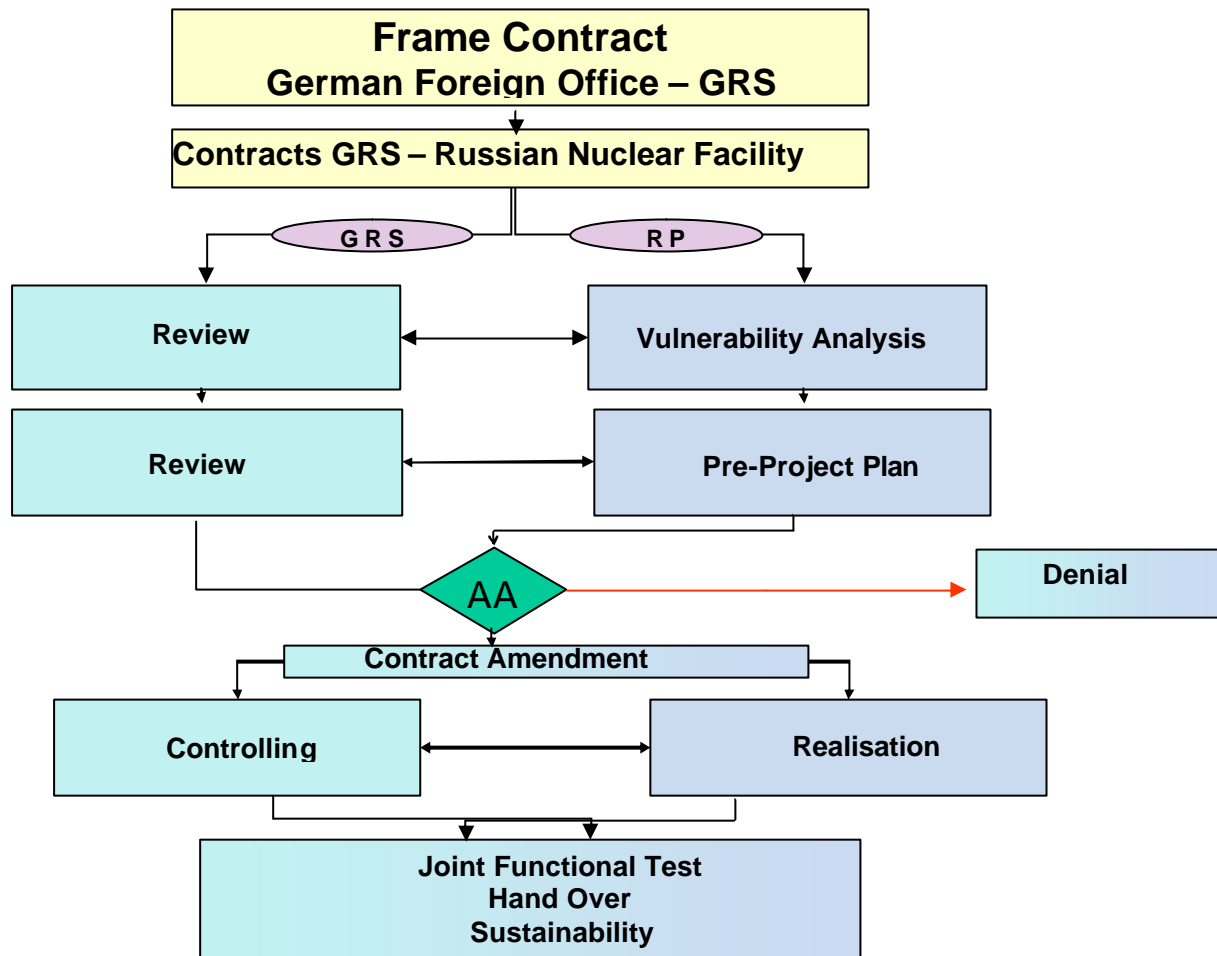
The picture below demonstrates the commonly agreed procedure from signing contracts to final functional test and hand over of the modernised physical protection systems.

During all steps the protection of confidential information has to be assured. In considering confidentiality requirements the grown mutual confidence in the russian partner plays an important role. In this context it is worth to mention that GRS is active on behalf of the German Government with a training program on nuclear safety and security, radiation protection and regulatory issues for the New Independent States, including Russia since 1993 and has started with smaller upgrade programs in 1995.

The economic situation has changed in Europe, since then. The limited monetary budget requires financial controlling and detailed planning of purchases, delivery and work. Computer based project planning&tracking tools are applied. Keeping the right balance between detailed information for controlling and protecting confidential information is a task GRS pays a high level of attention.

The vulnerability analysis is the basis for identification of needs for upgrades, respectively modernisation. The comprehensive Russian regulatory framework provides a solid background for reviewing the results of the analysis. The knowledge of the regulatory

framework prevents from unnecessary disclosure of confidential information during the whole process of realisation. .



2.2 Experiences

Due to needs and requirements of confidentiality only the GRS experience from the G8GP program on Physical Protection is described here. GRS is well experienced in the area of assessing security designs. GRS entered the area of active designing of security plans and measures in order to identify and to decide in cooperation with the Russian partners on solutions, which meet the Russian requirements, provide effective physical protection with respect to financial limits.

Technical equipment must meet requirements of the authorised Russian design companies and must be certified according to Russian regulations. GRS has compiled information about state on the art physical protection equipment in addition to already existing information and experience inhouse for the selection of appropriate technical equipment. The information was gathered through common technical visits of producers with Russian experts.

Equipment purchased in the EU has to be transported to the Russian Federation. Organising transportation is a minor task in doing import of physical protection equipment for nuclear facilities into the Russian Federation. The preparation of documents and obtaining required certificates in order to get clearance from the custom control represents a challenge for russion facilities and european producers.

The companies drafting the physical protection of a nuclear facility are expert organisations certified by ROSATOM. They also draft a project plan with about all planned measures for tracking work, purchases and deliveries, costs, billing and tests. This plan provides a common basis for GRS and its Russian partner to evaluate the progress, timeliness and costs of the project.

2.3 Results

So far contracts with Russian partners have been signed respectively are ready to be signed with the following facilities

- Kurchatov & Bochvar Institute, Moscow
- PO Mayak, Tscheljabinsk
- Siberian Chemical Combine, Tomsk
- Defense Ministry, RF
- Nuclear Research Center, Dimitrovgrad
- RTG Decommissioning, Baltic Sea

The project status in these facilities varies. In some the joint functional tests have been conducted already and the project is nearly finalized (Kurchatov, Bochvar), only few are in the phase of project initialisation.

3 OUTLOOK AND SUMMARY

A significant amount of work remains to be done to complete current programmes by 2012 successfully and to address all Kananaskis priorities. The GP participating countries agree on the need to reflect more widely the entire set of priorities set out at Kananaskis.

Approaching the mid point in the lifespan of the Global Partnership it is recognized that there is a need to undertake an unbiased qualitative and quantitative assessment of the Global Partnership in order to provide a clear picture of what remains to be done. Such an assessment can help clarify how each country can best define its participation, and how each can benefit from the expertise developed.

One of the outcomes of the G8 Summit St. Petersburg, July 2006, was the announcement of a new global initiative by Russian Federation and USA as Co-Chairs, called Global Initiative To Combat Nuclear Terrorism. As initial participants all G8 countries plus Australia, China, Kazakhstan and Turkey were invited.

This new initiative as a strategic, integrative and comprehensive initiative is aimed at providing technical and applicatory support to countries which request this support and commit to the 8 principles of the Global Initiative. It is meant as non monetary support, which can mainly be provided in cooperation, experience exchange through mutual expert visits, seminars and workshops.

GRS is well prepared to cooperate with national and international organisations contributing to the global initiative.