

Minutes of the 20th CEG Meeting

Munich, Germany, 11-13 October 2006

The 20th meeting of the IAEA Contact Expert Group (CEG) for International Radioactive Waste Projects in the Russian Federation¹ was held on 11-13 October 2006 in Munich, Germany. The meeting was organised by GRS and the CEG Secretariat in cooperation with, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of Germany, and Federal Atomic Energy Agency of the Russian Federation (Rosatom). 65 participants from 13 countries and five international organisations attended the meeting.

Six major topical issues were considered, namely:

1. **Major achievements of international cooperation in 2005-2006.**
2. **Main outcomes and findings of the CEG workshops held in 2006.**
3. **Dismantlement of nuclear powered submarines (NPS).**
4. **Remediation of contaminated sites.**
5. **Dismantlement and replacement of Radioisotope Thermoelectric Generators (RTG).**
6. **CEG organizational and financial matters.**

Major achievements of international cooperation in 2005-2006

Overview of the major achievements and the current state of activities under the Russian Programme for Comprehensive NPS Dismantlement and Remediation of Radioactively Contaminated Sites was presented by Mr. Viktor Akhunov, Head of the Department for Decommissioning of Nuclear Installations of Rosatom. Mr. Akhunov stated that during last 10 years a lot of important achievements have been reached with support of the CEG and its members. For example, the idea of the Agreement on Multilateral Nuclear Environmental Programmes in the Russian Federation (MNEPR) was brought up at the CEG meeting; then CEG facilitated development and negotiation of MNEPR, which after it's signing, established a mechanism for international co-operation with Russia. This is a great achievement of CEG, because Northern Dimensions Environmental Partnership (NDEP) and G8 Global Partnership Programme Against the Spread of Weapons and Materials of Mass Destruction (GPP) are based on MNEPR.

Mr. Akhunov presented information on the most important projects that have been implemented in Russia since the last CEG meeting (special presentations on these achievements were given at the meeting later) and gave general figures on the state of the NPS dismantlement which is being progressing successfully. Many submarines have been already designated to different international projects.

In 2005-2006 in Gremikha SevRAO enterprise together with several Russian organisations successfully de-fuelled two Alfa-class submarine reactors with the liquid metal coolant. This unique operation was conducted safe and effectively. One more reactor will be de-fuelled next year.

Mr. Akhunov mentioned that a lot of problems exist at the Far East Region of Russia. One of the major challenges is safe isolation and storage of two submarines that experienced severe accidents about two decades ago. These submarines are stored afloat contaminating the bay

¹ Established under the auspices of the IAEA with the Secretariat operated by the IAEA.

and posing high risk of radioactive release to the environment. A special on-shore shelter is to be constructed for isolation and long-term storage of the subs. Some design activities have been initiated, but the total cost of this project is more than 40 million US\$, and international assistance is needed.

Among the other urgent problems that require international assistance Mr. Akhunov mentioned the following:

- dismantlement of the retired nuclear powered surface vessels "Admiral Ushakov" (in Severodvinsk, NW Russia) and "Ural" (at the Far East),
- dismantlement of nuclear service ships (more than 15 ships were withdrawn from operation),
- construction of the Regional centres for management of radioactive waste that will be produced during the dismantlement activities,
- remediation of the former naval bases in the NW Russia (Andreeva Bay and Gremikha) and at the Far East (Sysoeva Bay and Gorbushchya Bay).

These projects were further discussed during the meeting. The meeting recognised that during the last four years after the G8 Summit in Kananaskis, when the G8 Global Partnership was initiated, substantial accomplishments have been made. This required a lot of effort and patience, and CEG greatly assisted to the Global Partnership spreading the knowledge and exchanging information on the nuclear legacy challenges in the NW Russia. In the same way the CEG could help resolve the nuclear legacy challenges that largely remain to be dealt with in the Far East of Russia.

Mr. Holger Schmidt, EWN GmbH, Germany presented main results and future plans of the project on construction of the coastal storage facility for reactor compartments (RC) in Sayda Bay, Murmansk Region. The CEG recognised commissioning of the first phase of the facility as an important achievement and a good example of effective cooperation.

Further plans of the German side on the Sayda Bay project include construction of the second stage of the RC storage (starting 2008) and possible establishment of the Regional centre for radioactive waste management. These plans were appreciated by the CEG meeting, and it was recognised that the lessons learned from the project implementation could be useful for other nuclear legacy projects.

Mr. Norman Watts, Crown Agents, UK presented information on construction of the SNF storage facility at the Atomflot site in Murmansk. This facility is intended for storing Uranium-Zirconium fuel of the nuclear powered icebreakers that cannot be reprocessed now. SNF equivalent to 14 reactor cores that currently are being stored at the Lotta ship will be transferred into 50 metal-concrete casks that will be placed inside the building that was erected. The project was completed under the UK budget and on time in full correspondence to the Russian regulations and rules.

The CEG acknowledged effective implementation of the project and its importance for reduction of nuclear risk in the Murmansk area. Organisation and implementation of the project was recognised as a good example to follow.

Mr. Ashot Sarkisov, IBRAE, Russian Federation gave a presentation on the comprehensive approach in prioritisation of projects during development of the second phase of the Strategic

Master Plan (SMP-II) for the NDEP Programme. The meeting acknowledged importance of the SMP-II for further implementation of the NDEP Programme.

Main outcomes and findings of the CEG workshops hold in 2006

Mr. Magnus Westerlind, SKI-ICP Sweden, presented main findings and outcomes of the CEG workshop on Strategic Aspects of RW management and Remediation of Contaminated Sites, which was organised on 26-27 April 2006 in Stockholm, Sweden. In addition the following presentations were given on this topic:

1. Reformation of the State system for management of radioactive waste in the Russian Federation - by Mr. Konstantin Popov, Rosatom, Russia.
2. Importance of EIA and regulatory processes - by Ms. Malgorzata Sneve, NRPA, Norway.
3. Belgian - Russian cooperation on radioactive waste management: working program 2006 - by Mr. Rik Vanbrabant, Belgoprocess, Belgium.

The meeting recognised that the workshop has been timely and valuable considering the ongoing activities in the Russian Federation which have been presented by the Russian side. CEG supported Russian plans for establishing the state system for RW management. It was noted that presented Western experience on remediation of contaminated sites could benefit to the similar Russian activities. In particular Russian work on introduction of the new category of the Very Low Level Waste was been supported as an important measure for the future remediation of the contaminated sites. In this respect co-operation between the Russian and the Western regulatory bodies was supported by the meeting, and it was noted that CEG should devote more attention to international co-operation on the regulatory issues.

Mr. Risto Paltemaa, STUK, Finland, presented an overview of the CEG workshop on Isolation and Disposal of Radioactive Waste held on 28-30 June 2006 in Olkiluoto, Finland. In addition Mr. Viktor Akhunov, Rosatom, Russia presented Russian plans for construction of facilities for isolation and disposal of radioactive waste.

Mr. Akhunov gave an overview of the RW inventory in the Russian Federation. In total radioactivity of the accumulated waste is about 6×10^{19} Bq, including 4.6×10^{19} Bq of liquid RW and 1.4×10^{19} Bq of solid RW. 90% of all SRW are uranium tailings that do not require special conditioning. About 10% of SRW are stored in 1,170 specialised facilities and in many cases their conditioning is required. A comprehensive State Programme "Nuclear and Radiation Safety in the Russian Federation for 2008-2012" has been developed and is being approved now. The Programme foresees funding of the RW management, including construction of the Regional Centres for RW conditioning and storage and establishing deep underground repository for high level waste in the Krasnoyarsk Territory.

Concerning the NW Russia Mr. Akhunov mentioned that in total about 100,000 m³ of SRW would be required to condition and store there, including waste that have been already accumulated and will be produced during the submarine dismantlement, remediation of nuclear sites and dismantlement of nuclear service ships and nuclear powered surface vessels. RW management centre in Sayda Bay is planned to be established to condition and consolidate all these waste. CEG strongly supported construction of the Regional centre for RW management that is planned for construction in Sayda Bay, possibly under the German-Russian cooperation, since it plays a crucial role for RW management in the whole North-West of Russia.

Dismantlement of nuclear submarines

The following presentations were given for this topic:

1. Global Partnership. Russian Nuclear Powered Submarine Dismantling. Progress & Status - by Mr. Michael Washer, Department of Foreign Affairs, Canada.
2. AMEC project 1.8-2.1: Transportation of the nuclear submarine #291 from Gremikha to Polyarny - by Ms. Ingjerd Kroken, MOD, and Mr. Engøy Thor, Norwegian Defence Research Establishment (FFI), Norway.
3. Bilateral Agreement on the dismantlement of decommissioned nuclear submarines and the management of radioactive waste and spent nuclear fuel - by Mr. Massimiliano Nobile, SOGIN, Italy.
4. Japan's cooperation for the destruction of nuclear weapons in the Russian Far East - by Mr. Shigery Osugi, Ministry of Foreign Affairs of Japan.

Mr. Washer in his presentation mentioned the following aspects of the project implementation that provided for successful execution:

- Keeping the number of entities directly involved to a minimum;
- Meeting project implementers face to face in order to establish mutual understanding and trust;
- Having monthly regular structured visits and progress checks; and
- Prompt payment of invoices when each milestone is accepted.

During general discussion of this topic the CEG recognised a good progress in dismantlement of nuclear submarines (NS) in the North-West of Russia and effective assistance provided by the CEG member counties in this region. For the first time three nuclear submarines with poor buoyancy were successfully transported to the shipyards for dismantlement using a heavy lifting vessel (HLV). This way of transporting submarines effectively eliminates any risk of the submarine's sinking with all the attendant environmental risks compared to traditional towing. This valuable experience may be applied in the Far East Region where many retired submarines have poor buoyancy.

The CEG recognised the need of additional assistance from Donors to the submarine dismantlement in the Pacific Region and appreciated decision of Japan and Australia to finance dismantlement of five submarines there.

Remediation of contaminated sites

The following presentations were given under this agenda item:

1. Andreeva Bay – Moving forward together - by Mr. David Field, NUKEM Ltd., UK
2. Gremikha: Current situation, problems, proposals. Results of SNF and RW management - by Mr. Andrey Korolev, RRC KI, Russia.
3. State of the French/Russian cooperation for preparing the remediation of the Gremikha base - by Mr. Alexander Gorbachev, CEA, France.
4. NDEP nuclear Window: Gremikha projects - by Mr. Serge Gas, EBRD.
5. Rehabilitation of radiation-hazardous facilities in the Far East Region of Russia - by Mr. Anatoly Grigoriev, Rosatom, Russia.

In general role and activities of the Andreeva Bay Coordination Group were supported by the CEG and recognised as a good model example of multi-lateral collaboration and the way to proceed in implementation of other projects. CEG recognised the need for the longer-term planning of the programmes implementation, knowledge transfer between the participating

countries, and also cross projects (e.g. between Andreeva Bay and Gremikha remediation projects).

Mr. Anatoly Grigoriev, Rosatom, Russia presented major problems in the Far East Region, information on the current state of the clean-up activities and the list of projects that require international assistance, including:

- Completion of nuclear submarines dismantlement.
- Completion of construction of a coastal storage site for reactor compartments.
- Preparation of reactor compartments for long-term storage and their coastal disposition.
- Transportation of reactor compartments and submarines from Kamchatka to Primorsky Territory.
- Construction of site for isolation and long-term storage of accident submarines.
- Nuclear service ships dismantlement.
- Nuclear powered surface vessel «Ural» dismantlement.
- Construction of a regional center for RW treatment including experimental pilot facility for RW processing treatment with the use of a gaslift installation.
- Selection of disposition, design and construction of a regional RW long-term storage facility.
- Recovery of infrastructure for SNF preparation for transportation to reprocessing at the Sysoeva Bay storage site.

CEG supported the list of projects proposed by the Russian side for the Far East Region and decided to present information on the state of the project activities at the next plenary meeting.

Dismantlement and replacement of RTGs

The following presentations have been given on this topic:

1. Main achievements in replacement and disposal of RTGs in Russia - by Mr. Alexander Grigoriev, RRC KI, Russia.
2. RTG Master Plan - by Mr. Michael Washer, Foreign Affairs, Canada.
3. Cooperation on RTG replacement - by Mr. Per Einar Fiskebeck, Office of the Finnmark County Governor, Norway.
4. Overview of U.S. RTG efforts in the Russian Federation - by Mr. Garry Tittlemore, DOE, USA.

It was recognised that in general the work on dismantlement of RTGs in the North-West Russia is progressing smoothly. Norwegian efforts are complemented by the Canadian and French funding. Solar panels are found to be an effective alternative technology for the RTG replacement and power supply of light houses. 56 RTGs are still to be dismantled in the NW Russia, and this problem will be solved soon.

In the Pacific Region and in Northern Russia the situation is different and requires more resources and funding. Master plan on RTG dismantlement that is being developed now under the Canadian funding will act as a guiding document for Russian and international partners to ensure efficient coordination of efforts and allocation of funding for decommissioning of RTGs. The RTG Master Plan, which is anticipated to be completed in January 2007, covers dismantlement of RTGs, replacement of selected RTGs by alternative power sources and safe disposal of RTGs.

Efforts of the Western donors and the Russian Federation on provision of safety and security of radioactive sources were strongly supported by the CEG.

Summarising the discussion CEG recognised substantial progress that has been reached under the G8 Global Partnership Programme. At the same time it was noted that while implementing nuclear projects, it is very important to consider and to assess all kind of associated risks, including the environmental one. During the last years outstanding project management skills have been developed in many countries, and excellent working conditions have been established between the Donor countries and the Russian Federation, based on mutual understanding and trust, flexibility and support. At the same time very strong framework is required for successful implementation of international projects. A lot of essence is devoted to big projects, but at the same time even small projects also provide their contribution to the clean-up activities and they should be appreciated too.

The CEG organizational and financial matters

The CEG Secretariat reports were received with interest. CEG approved Financial Report of the CEG Secretariat for 2005 and decided to keep contributions of the CEG member-countries to the CEG Secretariat budget for 2007 at the current level of US \$12,000.

CEG unanimously elected for the next two years Mr. Alain Mathiot, Director, CEA, France as a Chairman of the CEG and Mr. Michael Washer, Senior Project Manager, Global Partnership Programme, Foreign Affairs Canada as a Vice Chairman of the CEG.

CEG expressed to Mr. Alan Heyes the highest appreciation and gratitude for his efficient and dedicated Chairmanship during more than three years.

Recognising importance of the CEG activities and anticipating further extension of international co-operation in the CEG-related areas, CEG decided:

- to continue the CEG and its Secretariat operation for another two years under the same organisational and financial conditions; and
- to ask the IAEA Director General to continue the IAEA support of the CEG activities in 2008-2009 under the same organisational and financial conditions.

Taking into consideration that current contract of the CEG Executive Secretary expired on 31 December 2007 and according to the IAEA rules, could not be extended, CEG asked IAEA to initiate recruitment procedures for replacement of the CEG Executive Secretary so that a new Executive Secretary will be selected well before end of 2007.

In order to be involved in the selection process, the CEG asked IAEA to include a CEG representative in the selection panel. Mr. Alan Heyes, Deputy Director, Department of Trade and Industry, United Kingdom was nominated by the CEG to represent CEG at the IAEA selection panel and Mr. Arnold Bonne, Special International Missions, SCK-CEN, Belgium was nominated as Mr. Heyes alternate.

In order to provide continuity of the CEG Secretariat operation, CEG asked IAEA to arrange possibility for the selected person to work together with the current Executive Secretary in order to transfer information and skills in operation of the CEG Secretariat, interaction with the CEG parties, organisation of the CEG meetings and workshops, maintaining the CEG

website and the CEG database, etc.

As a result of the discussion of the plans for 2007, CEG proposed to organise the CEG workshop on the NDEP Priority Projects that have been identified under development of the Strategic Master Plan Phase II (SMP-II) that is being performed within the frames of NDEP Nuclear Window Programme under the EBRD funding. The purpose of this workshop is to discuss technical content and scope of the most meaningful projects for the NW Russia, and provide advice and recommendations on the further development of the SMP-II. Since this workshop will benefit EBRD, enhancing the quality of the SMP-II and facilitating further endorsement of SMP-II by the Donors, CEG asked EBRD to consider sponsoring the CEG workshop organisation that could be arranged in March 2007 in the place suitable for EBRD. The CEG Chairman will send a letter to the Head of the EBRD Nuclear Safety Department with this proposal.

CEG supported proposal of the Russian side to arrange a workshop on the Nuclear Legacy Problems in the Far East Russia. The aim of the workshop will be to present and discuss the most challenging problems in the area of dismantlement of the retired nuclear powered submarines and surface vessels, nuclear service ships, remediation of contaminated sites and securing RTGs. As a result the workshop will propose specific projects in order to facilitate international co-operation in this region. Tentatively the workshop could be organised in May 2007 in Vladivostok. The Russian side will confirm the dates of the workshop shortly after the CEG plenary meeting.

Since the workshop among others will benefit to Japan in their cooperative efforts in solving the nuclear legacy problems at the Far East Russia, the CEG asked Japan to consider sponsoring the CEG workshop organization. The CEG Chairman will send a letter to the Ministry of Foreign Affairs of Japan with this proposal.

CEG decided that the CEG Secretariat would provide assistance to organisation of the workshops in a way similar to previous CEG workshops.

CEG appreciated proposal of the Belgian side to organise the next 21st CEG plenary meeting on 5-7 September 2007 in Bruges, Belgium.

CEG thanked the German side and the CEG Secretariat for excellent organisation of the 20th CEG meeting.