



**Experience on RITEGs
decommissioning in Murmansk and Archangelsk Regions and their replacement
with alternative sources of electrical power supply
Within scope of radiation-ecological cooperation of Russia and Norway**

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Project slogan:

“From a lighthouse to the
“Lighthouse” (“Mayak” Co.)

Ensuring nuclear and radiation safety is one of the most important components of national safety of the Russian Federation and refers to the number of top priorities of the state areas of activity.

State interests of the Russian Federation in the field of nuclear and radiation safety are determined by urgency of tasks to minimize risk related to causing damage to life, health of citizens, to environment, including flora and fauna, property of legal or physical entities, state or municipal property in case of a nuclear accident occurrence or a radiation situation, as well as, in case of eliminating of effects and consequences of nuclear accidents and radioactive contamination of environment having occurred both in case of accidents, and resulting technological and defence activity pursued in the previous years.

On the whole, the level of ensuring nuclear and radiation safety in Russia meets requirements of norms documents and conforms to recommendations of international competent bodies.

Nevertheless, a crisis which took place in Russia in the early 90-es in the last century has given birth to a spectrum of complicated problems, including acute reduction in economical opportunities of the state what concerns necessary financing of works related to the large-scale cut in nuclear armaments and decommissioning of nuclear powered submarines (NPS) from active service in the Russian Navy, liquidation of effects of previous activity in the field of defence. Some part of the facilities are in poor state and are a considerable factor of radiation and nuclear risks, especially so for a number of areas in the North-west of Russia.

International cooperation is an important element of effective work in the area of increasing nuclear and radiation safety in Russia.

Incentive to the work has been given by decisions of Moscow Summit of “G-Eight” States which took place in 1996. The participants stated in the Summit Declaration their commitment to a basic principle of nuclear power use – a principle of safety, and acknowledged its absolute priority. At the Summit, major areas of international cooperation have been defined to the effect of implementation of this principle.

Further development of this process have proved to be acceptance of the Programme “Global Partnership Against the Spread of Weapons and Materials of Mass Destruction” adopted at the “G-8” Summit in 2002 in Kananaskis, Canada. This programme’s purpose is to focus joint efforts and means of Russia and her foreign partners on implementation of top priority tasks, including dismantlement of NPS having been decommissioned and being decommissioned, treatment and prolonged safe storage of radioactive waste (RW) as well as of irradiated nuclear fuel (SNF).

At present, international cooperation of Russia in the area of nuclear and radiation safety develops vigorously on bilateral and multi-lateral basis. It is envisaged in a series of inter-governmental agreements to attract foreign financial and materials-technical assistance aiming at holding a complex of measures in Russia necessary for increasing nuclear and radiation safety level. Effective measures on international cooperation are held within the scope of International Atomic Energy Agency (IAEA).

It is apparent that nowadays the soonest dismantlement of decommissioned NPS, solving problems of treatment and burial of RW, speeding up the removal and disposal of SNF, and ecological rehabilitation of radiation hazardous facilities are of paramount necessity to minimize the risk of nuclear and radiation accidents in the North-west of Russia. Radiation situation depends, to a great extent, on the way sources of ionizing radiation are stored and recycled used by enterprises not related to nuclear fuel cycle complex. One of such potentially hazardous sources is a radioisotope thermoelectric generator (RITEG). The RITEGs are used as a power supply for unmanned operating in automatic mode devices of navigation equipment deployed in hard to access remote coastal areas, on the islands, and in other areas where use of other electrical power supply sources is virtually impossible or hampered to a great extent.

Background of Russian-Norwegian cooperation on a programme of RITEGs’ Dismantlement

Russian –Norwegian cooperation on the problem in question is done in two areas:

1. Dismantlement of RITEGs installed in lighthouses.
2. Replacement of recycled RITEGs with alternative electrical power supply sources.

The basis for such cooperation was founded by:

- Agreement entered into between the Government of Kingdom of Norway and the Government of the Russian Federation in the field of environment protection in relation to dismantlement of Russian nuclear powered submarines, decommissioned from active service in the Navy in the northern region and increasing nuclear and radiation safety” dated 26 May, 1998.
- Framework Agreement “Multilateral Nuclear Environment Programme for the Russian Federation” – and a Protocol to it dated May 21, 2003 (Agreement MNEPR).

Keeping in mind a potential radiation hazard of RITEGs, Norwegian specialists proposed as early as in 1994 to use experience of the Norwegian Coast Guard in Murmansk Region. As a lighthouse power supply source they use in Norway ecologically friendly solar cell technologies (SCT) where light energy of the sun is converted into electrical power. In the same 1994 a group of

Norwegian specialists visited for the first time a navigation mark (LNM) “Shourinov” deployed in Kola Inlet in which a RITEG type IEU-2M was placed initially. In 2007 LNM “Shourinov” was renamed into LMN “Platov”

Thus, the year of 1994 may be considered to be the beginning of cooperation of Russia and Norway on recycling of RITEGs.

Actual cooperation in specific areas between Norway and Russia on recycling of RITEGs in the north of Russia began in 2000.

In 2000 Norway offered their assistance in recycling RITEGs in the North of Russia in Murmansk and Archangelsk regions. Meanwhile, the major condition set by the Norwegian party was entering into a contract on recycling RITEGs with frontier regions as executive parties to this contract. Murmansk region was a party on the Russian side; Province of Finnmark was the Norwegian party.

In February, 2001 a Protocol was signed by the Governors of Province of Finnmark and Murmansk Region on financing dismantlement of 12 RITEGs in the year of 2001.

In March, 2001 an “Agreement was signed between the Russian Federation Ministry for Nuclear Power and Murmansk Region Administration on implementation of financial and technical assistance granted by the Governor’s Office, Province of Finnmark, Kingdom of Norway, in the area of radioactive waste handling in the territory of Murmansk Region” according to which Agreement the Murmansk Region Administration was pronounced to be the Beneficiary on the Russian side for technical assistance.

On 29 March, 2001, the Department for Environment Protection, Governor’s Office, Province of Finnmark, and the Committee for conversion, nuclear and radiation safety, Murmansk Region Administration, entered into the first contract on dismantlement of 12 Hydrographic Service, Northern Fleet, RITEGs decommissioned from operation. All consequent contracts have been signed by the Governors of Murmansk Region and of Province of Finnmark.

According to records valid by 01.01.2001 there were 153 RITEGs in competence of the Hydrographic Service deployed on coasts of the Barents and the White seas in the territories of Murmansk and Archangelsk Regions

During the period of time elapsed the following number of RITEGs has been dismantled and transported away under contracts entered into with Province of Finnmark to be delivered to FSUE “All-Russian Scientific Research Institute for engineering physics and automatic devices” (VNIITFA) with consequent burial (herein after the term “burial” is interpreted as long-term storage) of radioisotope heat sources (RIHS) to FSUE PC “Mayak”, Chelyabinsk Region:

- in 2001 – 15 pcs.
- in 2002– 10 pcs.
- in 2003– 20 pcs.
- in 2004– 10 pcs.
- in 2005 - 41 pcs.
- in 2006– 6 pcs.
- in 2007– 21 pcs.
- Total: 123 pcs.

Of them:

From the territory of Murmansk region - 85 pcs.

From the territory of Archangelsk region - 38 pcs.

Totally there were radioactive substances transported away and deployed for safe long-term storage amounting to, approximately, 12 Mln Curie.

In 2007 the last of 17 RITEGs deployed in Murmansk region were dismantled and delivered to “VNIITFA”.

There are 30 RITEGs left at the Hydrographic Service, NF, in the territory of Archangelsk Region, including 4 RITEGs in the Novaya Zemlya. These remaining RITEGs are planned to be dismantled and delivered to “VNIITFA” in 2008.

Six RITEGs remaining at “VNIITFA” require a special, not routine technology for burial of RIHS complete with the biological protection blocks. These are 4 RITEGs REU-3-2K (“Senostav”) and two RITEGs IEU-1 in emergency state (from island of Golets) and IEU-2 (Motovskoy Vedushiy). At present the burial technique has been developed by specialists of VNIITFA and by those of PC “Mayak” and is going to be implemented in 2008-2009.

According to the Agreement entered into between the Foreign Office of Norway and the “Rosatom” in March, 2005 27 RITEGs deployed in Nenets Autonomous Region and being property of FSUE “Hydrographic Enterprise” , Mintrans” (Ministry for Transport) of Russia should be recycled within the scope of the Russian-Norwegian cooperation.

In April, 2006 an Agreement between Federal Agency for Maritime and River Transport, Federal Agency for Nuclear Power and the Government of Murmansk Region was entered into, according to stipulations of which recycling of RITEGs and their replacement with alternative power supply sources in lighthouses belonging to the FSUE Hydrographic Enterprise”, Mintrans of Russia, deployed in the Nenets Autonomous Region are decided to be done in the year of 2008 - 2009 within the framework of frontier cooperation between the Governor of Province of Finnmark, and the Murmansk region Administration.

In February, 2008 a contract was signed by the Governor of Murmansk Region and the Governor of Province of Finnmark, according to which contract stipulations 16 RITEGs are to be dismantled in 2008, and still 11 RITEGs more in 2009.

Thus, provided our plans come true successfully, in 2009 all the RITEGs are going to be evacuated from the territory of the Archangelsk Regions also.

The Russian-Norwegian Programme on recycling RITEGs in the Murmansk and Archangelsk Regions is going to be completed in the year of 2010 after RITEGs are deployed at FSUE PC “Mayak” for long-term storage.

Several more words concerning organization cooperation at implementation of Russian-Norwegian programme on recycling RITEGs and their replacement with alternative power supply sources.

To ensure a coordinated action between the parties, since 2001 a Russian-Norwegian steering group has been working, which consists of 2 representatives of Province of Finnmark (one person from the Governor’s Office and another one from Lighthouse Service, Coast Guard of Troms and Finnmark) and of 2 representatives from Murmansk region (one person coming from the Murmansk Region Administration and another one representing Lighthouse Service of the Hydrographical Service, NF).

The Group decides on virtually all matters of preparation and implementation of particular contracts; defining scope and dates of works implementation, drawing a request for financing, making ready contracts drafts, organization and control over all works implementation by Russian companies being executive parties, organization of visits to enterprises and facilities, making ready reports and statements, holding auditing inspections, interaction with authorities of various levels, and with public.

According to the financial regulations set by the Foreign Office of Norway who are conducting the programme financing, the following sequence of preparing and signing contracts is established to carry out annually. In September of the year preceding the planned year, the Russian party forwards to the Norwegian party a request for granting funds for the year planned complete with specifying amount of works to be done and dates for their implementation. The Norwegian party makes a study of the request, when necessary asking questions and introducing their proposals. After preliminary agreement is done by the parties, then in November preceding the year planned there is a meeting of the Governors of the Murmansk and Province of Finnmark in Murmansk taking place where a protocol is signed on a principle intent, amounts and dates for implementation of new contracts in the year to come.

After the acknowledgement from the Foreign Office on financing of a new contract being granted, in February-March of the year planned in Norway (Vadsoe or Kirkenes) there is a meeting once again of the Governors of the Murmansk Region and Province of Finnmark where, first, a protocol is signed on financing of new contracts in the current year, and after approval is granted, the very contracts are signed.

On request from Norwegian Agency for Radiation Protection (NRPA) in 2004 the Russian party developed and handed over to the Norwegian party a document "Assessment of impact on environment and humans at implementation of Russian-Norwegian projects on RITEGs recycling" (OVOS) where major requirements are specified and means for their meeting on safe implementation of the entire chain of events in the transportation/technological flow-chart for RITEGs recycling all the way along the route from the place of their operation in beacons to FSUE "PC "Mayak". Annually, the Russian party develops and produces to the Norwegian party a supplement to the OVOS and every signed contract comes into effect only after there is a prior OVOS approval on the part of NRPA.

According to a mutually set rule, contracts are signed annually on RITEGs dismantlement and their replacement with alternative power supply sources with implementation period for each specified as two years.

It is also necessary to mention that within the scope of a Russian-Norwegian project RITEGs were dismantled and SCTs were installed at the expense of funds from Canada and France who did actual financing via Norway.

At the expanse of funds from Canada 5 RITEGs have been recycled, type BETA-M and SCTs have been installed in 5 lighthouses.

At the expanse of funds from France 2 RITEGs type REU-3-2K have been recycled and a SCT has been installed in one lighthouse.

Technology, organization and peculiarities of dismantling and transportation of RITEGs

Technology for RITEG dismantlement can be broken down into 4 major stages:

1. Stage 1. Conducting a survey of RITEGs in places of their deployment in beacons.
2. Stage 2. Dismantling and delivery of RITEGs from the coast of the Barents sea and the White sea to points of temporary storage and transshipment. Loading RITEGs into a special railway car or a cargo vehicle and dispatching to "VNIITFA".

3. Stage 3. Delivery of RITEGs in a special railway car by railroad or in a vehicle to Moscow, “VNIITFA”. Stripping down of RITEGs and removal of RIHS from them. Deployment of RIHS into special transportation-technological casks.
4. Stage 4. Delivery of RIHS in transportation-technological casks in a special railway carriage or a truck to FSUE “PC “Mayak” (city of Ozersk, Chelyabinskaya district) to be buried. Burial of RIHS. (Herein after burial of RIHS is interpreted as deployment and long-term storage).

In this report we are going to focus only at Stage 1 and Stage 2 of RITEGs dismantlement.

Representatives of “VNIITFA” and those from the Hydrographic Service of the Northern Fleet, are to attend RITEGs subject to recycling by a vessel or a helicopter and to carry out a survey of them to inspect their state. Transportation category is designated for each of the RITEGs. The transportation category stipulates the manner of delivery of RITEGs. All RITEGs are accepted for delivery by vessel, by helicopter, by railroad, and automobile transport, without additional protection to be ensured (except those in emergency state).

Based on results of surveying, the “VNIITFA” applies for and have permits issued for transportation of RITEGs in the territory of the Russia.



”Surveying of various types of RITEGs in a place of their operation”

The most complicated stage in the entire flow chart of recycling RITEGs is delivery of RITEGs from the coast of the Barents Sea and the White Sea to points for interim storage and transshipment. It’s worth of noting that this stage is the most complicated of all in every aspect of works implementation: technology, organization, safety and expenditures.

During many years of experience of dismantling and transportation of RITEGs we have successfully implemented several various schemes of RITEGs delivery. Each time the schemes were selected depending on the landscape (relief) of coast in place of RITEG’s deployment (at lighthouses), distance from collection point to transshipment destinations, season, and weather conditions, kind of transportation selected for RITEGs delivery to “VNIITFA” (by rail or truck).

Layouts for RITEGs ‘delivery:

1. By a helicopter from RITEGs’ deployment place to an interim site:
 - from the interim site on shore of Kola Inlet with a vessel to FSUE “Atomflot”, city of Murmansk, complete with consequent loading into a special railway car;



- from an interim site at former airfield in Safonovo-2 settlement by a truck to Roslyakovo settlement to a depot of the Service of Radiation, Chemical and Biological Protection, (RCBP depot), NF, with consequent loading into a special railway car;
- loading into a special truck in the interim site, a former airfield in a Safonovo-2 settlement.



2. By a helicopter to the territory of RCBP Service depot with consequent loading into a special railway carriage or directly onto a retractable platform of a special railway car.



3. By helicopter to the territory of the Kandalaksha Merchant Marine Harbour with consequent transshipment into a special railway car or into a special truck.

4. By helicopter from a place of RITEGs deployment to the coastal line destination convenient for loading manually onto a lighter. The lighter delivers the RITEG to a vessel lying in the roadstead. Loading onto the vessel. Further on, it is delivered to FSUE “Atomflot” by the vessel and/or to Kandalaksha Merchant Marine Harbour with consequent loading into a special railway carriage and/or into a special truck



5. From deployment places manually onto a lighter. The lighter delivers RITEGs to a vessel lying in the roadstead. Loading onto the vessel. Further on, by the vessel to FSUE “Atomflot” and/or to Kandalaksha Merchant Marine Harbour with consequent loading into a special railway car and/or into a special truck.

While implementing any of transportation layouts, a great significance is given to ensuring safety both from the point of view of drawing necessary documents, and implementing the very works. As a result, there was not a single accident during the 7- year period of dismantling and transportation of RITEGs

Incidents with RITEGs

There were 4 incidents with RITEGs during the period of 2001 to 2008.

Of them: 3 incidents were related to unauthorized access (stripping down) to RITEGs:

- in 2001 in the area of Kandalaksha, Murmansk Region;
 - in November, 2003 - in Kola Inlet;
 - in 2004 - in the island of Golets, not far away from Archangelsk;
- In 2006 while running an inspection a RITEG IEU-2 No.66 has been found at the NM Motovskoy Vedoushiy where the surface exposure rate was exceeded by 4 times.

Liquidation of radiation accident next to Kandalaksha

In 2006 a project was implemented on recycling 3 RITEGs stripped down (illegally) in vicinity of city of Kandalaksha, the Murmansk Region.

On 15 May, 2001 while running an inspection of navigation support devices state of Kandalaksha Marine Harbour specialists from Hydrographical Service, Northern Fleet, found 3 RITEGs, type BETA-M, destroyed. The RIHS have been removed out of them and discarded next to them. All stripped down RITEGs have been deployed in the area of the Kandalaksha Reserve.

On May 20 the law enforcement bodies arrested five people who confessed destroying the RITEGs with an aim at stealage of non-ferrous metals.

On 23 May an operational group was formed up of the Northern Fleet experts who arrived in Kandalaksha on the same day. A hydrographic vessel "GS-260" also arrived in Kandalaksha to the effect of providing liquidation of effects of the radiation accident and guarding radioisotope sources.

Taking into account the circumstances arisen, urgency for solving all issues related to the liquidation of the radiation accident, and the very fact that Norway has already allocated funds for the RITEGs recycling in 2001, the Norwegian party granted their consent for financing recycling of those RITEGs within the scope of funds already allocated. A contract was entered into on 5 June, 2001 already. The Committee for conversion, nuclear and radiation safety of the Murmansk Region Administration have entered into contracts with major works conducting enterprises:

- Administration of city of Kandalaksha;
- "VNIITFA" ;
- Kolskaya NPP;

Works on collection and deployment of the RIHS into temporary casks were done by specialists of the Northern Fleet in the period of 25-29 May.

From May 31 to June 9 "VNIITFA" manufactured a transportation cask, developed a route for transportation, having it approved in compliance with valid norms and regulations, and have delivered it by truck to city of Kandalaksha.

The works on loading the RIHS into transportation cask for further delivery to Moscow commenced on June 9.

On 10 June, 2001 a special truck escorted by highway patrol car left for Moscow, "VNIITFA".

At liquidation of the radiation accident in the vicinity of Kandalaksha over 70 people were engaged representing various services and enterprises, including:

- Three units of the Northern Fleet services;
- Directorate on Emergency Situations Ministry and Civil Defence (ESM and CD) for the Murmansk Region;
- Directorate on ESM and CD for city of Kandalaksha;

- Service for sanitary and epidemic supervision'
- Administration of Kandalaksha;
- Administration of the Murmansk Region.

After the liquidation of the radiation accident was over, samples of soil and water have been taken for analysis in the places where RITEGs' radioisotope sources parts and components were found. Contamination of environment with radioactive substances has not been detected. When the liquidation was in progress a non-stop control over exposure doses received by the personnel engaged in works was held. Exposure of the personnel involved exceeding limits as set by the Russian legislature was prevented.

Liquidation of radiation accident in Kola Inlet

On 12 November, 2003 the Hydrographic Service, NF, while conducting planned inspection of navigation support means found a completely stripped down RITEG, type BETA-M providing power supply for a navigation mark in the Bay Olenya, Kola Inlet (on the northern shore opposite Ekaterininskaya Harbour). The RITEG has been stripped down completely. The RIHS have been discovered on shore in water, 1.5-3 m deep.

On 13 November, 2003 a completely stripped down RITEG, type BETA-M, was discovered which provided power supply to a navigation mark in the island Yuzhny Goryachinskiy in Kola Inlet (opposite former settlement of Goryachye Ruchiy). The RITEG has been stripped down entirely. The RIHS has been found ashore by the coastline in the northern part of the island.

On 15 November, 2003 according to Commander-in-Chief of the Northern Fleet's order an operational group was formed up for the radiation accident liquidation.

The liquidation took place on 16-18 November, 2003 virtually in the similar way to the one in the vicinity of Kandalaksha, except there were considerable complications this time due to the following reasons: one of the RIHS was in water, it was cold and dark season on. The RIHSs from stripped down RITEGs have been placed into standard protection device of RITEGs which were stripped down in the vicinity of Kandalaksha and deployed for temporary storage to a RCBP depot. In 2005 a transportation cask UKT1B-(IEU-1) and necessary technological equipment and outfitting were delivered from "VNIITFA". The RIHS have been transhipped into the "VNIITFA"'s transportation cask and then delivered to "VNIITFA".

Dismantlement of a stripped down RITEG IEU-1 on Golets island

In summer 2005 a special transportation arrangement was delivered to Archangelsk from "VNIITFA", technological equipment and outfitting which was delivered by helicopter to Golets island. Experts from the "VNIITFA" with use of helicopter installed the stripped down unit with RIHS into the transportation arrangement which was delivered to "VNIITFA".

In the course of recycling some RITEGs have been found which were partially stripped down without damage done to radiation protection.

Works with RITEGs in emergency state have been described in detail in the statement made by "VNIITFA".

Replacement of RITEGs with alternative electrical power supply sources

Taking into account a potential hazard of RITEGs, the Norwegian government has come out with a proposal to use in the Murmansk Region experience of Norway Coast Guard. As a power source for lighthouses in Norway solar cell technologies (sun panels) (SCTs) are widely used.

Within the scope of cooperation between Russia and Norway in the field of environment protection in 1998 – 2002, the Hydrographic Service, NF, installed SCTs in the Murmansk region, supplied by Norway free of charge to be deployed in 5 lighthouses located in the area of Rybachy peninsula.

In 2003 a project was implemented on installation of 2 experimental SCTs of Russian make.

The Principle Designer and the head manufacturer of the new system was OAO “Saturn”, city of Krasnodar.

One SCT has been installed by the Hydrographic Service, NF, in “Shavor” lighthouse, in the Kola Inlet. Another one was delivered to Norway and installed by the 5-th Coast Guard unit in a city of Hennigsvog. The SCTs commenced operating in September, 2003.

Both of SCTs had special devices installed in them by name “Data Lugger”, delivered by the USA to maintain continuous control and record-keeping of SCTs parameters with an aim at consequent analysis and development of recommendations on improvement of their operation. In Norway the “Data Lugger” equipment installation and control over SCT’s operation has been done by 5-th Coast Guard unit, in Russia – by SRC “Kourchatovsky Institute”.

During the winter season of 2003-2004 both of the SCTs have worked in a routine mode without any critical complains.

Keeping in mind the above, the Russian party and Norwegian party have decided to implement their wide-scale project on replacement of RITEGs with SCTs of Russian make in 2004, which project was successfully implemented in 2005. Thirty one lighthouses have been re-equipped and in all of them SCTs of OAO “Saturn” make were installed.

During a two-year period of SCT operation made by OAO “Saturn” one week point has been found out. Protective glasses on solar batteries installed were of common glass. As a result, some solar batteries had cracks on glasses due to staying under hard weather conditions. Keeping that in mind, OAO “Saturn” improved the design of solar batteries complete with installing on them hardened glass of high strength in 2005.

In 2005 a contract for installation of 30 SCTs was entered into and successfully implemented. Of them, 15 SCTs are made by OAO “Saturn” and 15 SCTs are made by OAO “POSIT”, settlement Pravdinskiy”, Mosovskaya Region.

In 2006 a contract on installation of 30 alternative sources of electrical power supply was entered into and successfully implemented.

In 2007 a contract was entered into on installation of 30 alternative sources of power supply and its implementation is going to be completed in 2008.

In 2008 a contract was entered into on installation of 27 alternative sources of supply and its implementation is going to be completed in 2009.

Thus, alternative sources of supply are going to be installed in 153 lighthouses of Hydrographic Service, the Northern Fleet, Navy to replace 153 recycled RITEGs.

In lighthouses belonging to FSUE “Hydrographic enterprise”, Mintrans of Russia, 25 alternative sources of supply are going to be installed to replace 27 recycled RITEGs; 15 pieces - in 2008, and 10 pieces – in 2009.

We would like to attract your attention particularly to the lighted navigation mark “Platov”.

In the year 2007 according to a proposal made by the Murmansk Region Administration and the Hydrographic Service, NF, LNM “Shourinov” was renamed into LNM “Platov” with a Decision of the Directorate for Navigation and Oceanography, MoD, Russia.

This mark was named after Platov Anatoly Ivanovich, the head of Department No. 52, VNIITFA.

Platov A.I. was actually a head from the Russian party of the project on recycling of RITEGs, committed his entire life to handling RITEGs.

LNM “Shourinov” was selected for re-naming into LNM “Platov” because this was the first navigation mark visited by the Russian –Norwegian delegation in 1994 in the very beginning of unrolling of the Russian-Norwegian programme on recycling RITEGs and their replacement with alternative sources of power supply in lighthouses of hydrographic Service of the Northern Fleet, Navy. This navigation mark was equipped with a RITEG type IEU-2M which was dismantled in 2006.



LNM “Platov”

Problems having arisen in the course of the Project implementation

All problems arising at the project implementation were of organizational character. There were three of such ones.

In 2004 a delay in dismantling of RITEGs was caused by a prolonged study and issuing approval of OVOS on the part of NRPA. Resulting this delay, only 10 RITEGs of planned 20 have been dismantled.

In 2006 and 2007 only 27 RITEGs were dismantled instead of planned 57 due to lack of Rostekhnadzor licenses to be issued in the name the Hydrographic Service, NF, and helicopter companies in Murmansk and Archangelsk.

From 2004 to 2007 there was a delay with financing from the Norwegian party due to lack of permits to be issued by competent bodies of Russia for visiting VNIITFA and PC "Mayak". In 2007 this problem was successfully solved.

Conclusions

1. The Russian-Norwegian project on dismantling RITEGs and their replacement with alternative power supply sources in Russian beacons may be called with absolute certainty a wide-scale international project aimed at improvement of radiation-ecological situation in the North-west of Russia. The total amount of financing of the project on the part of Norway would comprise NOK 178.0 mln. or 748.0 mln. Rubles.
2. The 7-year experience of cooperation in the project implementation has shown high effectiveness of cooperation of Russia and Norway via frontier regions cooperation feature of the Murmansk Region and Province of Finnmark.
3. At implementation of the project the major thing at which all efforts of the project participants both of Russia and Norway are focused on is organization of preparation and conducting all works preventing any negative impact on environment and humans.
4. At arising any of problems and disagreements between the Russian and Norwegian parties there were always ways found for their solving.