

December 18, 2000

MEMORANDUM TO: Chairman Meserve  
Commissioner Dicus  
Commissioner Diaz  
Commissioner McGaffigan  
Commissioner Merrifield

FROM: Janice Dunn Lee, Director /S/  
Office of International Programs

SUBJECT: MEMORANDUM OF MEETING BETWEEN USNRC AND THE FEDERAL  
NUCLEAR AND RADIATION SAFETY AUTHORITY OF RUSSIA  
(GOSATOMNADZOR) FOR IMPLEMENTATION OF NUCLEAR SAFETY  
AND SECURITY ASSISTANCE PROJECTS

On Friday, December 8, 2000, Alexander Gutsalov, First Deputy Chairman, Gosatomnadzor (GAN), and the EDO signed the attached Memorandum of Meeting (MOM) describing the NRC-GAN program of assistance. The MOM summarizes progress made over the last year between our agencies and plans for next year.

Funding restrictions severely limited the number of activities in 2000. However, significant accomplishments were the completion of the Level 1 probabilistic risk assessment (PRA) at the Kalinin plant and licensing training. NRC also commented on proposed legislation pertaining to GAN's authority. In 2001, major activities are expected to cover the PRA study, additional training in licensing and inspection, enhancing the emergency response program, and expanding Internet access. NRC will continue to coordinate with DOE on topics of mutual concern, such as in-depth safety assessments, fabrication of mixed oxide fuel, and material protection, control, and accounting.

All agreements in the MOM were made with the understanding that they depend on the availability of funds. Projects related to safety are funded by the Agency for International Development. Projects related to safeguards are to be funded by the Department of Energy. NRC staff costs will be funded from NRC appropriations, not recoverable through license fees.

During the week, a "round table" discussion was conducted during which Mr. Gutsalov responded to questions of interest to the U.S. inter-agency community.

Attachment: Signed Memorandum of Meeting

cc: SECY OGC  
EDO OPA  
NRR RES  
NMSS IRO  
OCIO OCFO

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**MEMORANDUM OF MEETING BETWEEN  
THE U.S. NRC AND THE FEDERAL NUCLEAR  
AND RADIATION SAFETY AUTHORITY OF RUSSIA**

**DECEMBER 4-8, 2000**

Representatives of the Federal Nuclear and Radiation Safety Authority of Russia (RF Gosatomnadzor), including Alexander Gutsalov, First Deputy Chairman, Alexander Matveev, Director, Scientific and Technical Department, Andrei Vistgof, Director, Inter-regional Information Department and Irina Sokolova, International Relations Officer, visited the NRC during the period December 4-8, 2000.

During their visit, the representatives met with the Chairman, Commissioners, the Executive Director for Operations and appropriate members of the NRC staff. This was the ninth annual meeting between the two agencies, the purpose of which is to review program results and accomplishments since the last meeting in December 1999, to reaffirm or revise previous program commitments, and to consider proposals for future activities under the "Lisbon" program. The NRC agreed to support the program efforts described in this Memorandum of Meeting, subject to obtaining the necessary funding from the U.S. Government and in accordance with U.S. Government and NRC policy. The agenda for these and other discussions is described in Attachment 1.



William D. Travers  
Executive Director  
for Operations,  
U.S. Nuclear Regulatory Commission



Alexander Gutsalov  
First Deputy Chairman  
Federal Nuclear and  
Radiation Safety Authority of Russia

December 8, 2000

December 8, 2000

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## **II. REGULATORY ACTIVITIES**

### **A. Licensing - Reactors**

A workshop on licensing of digital microprocessor-based instrumentation and control systems applied to NPPs was conducted in Moscow from November 27 through December 02 2000 for the RF Gosatomnadzor staff and other nuclear safety related institutes.

#### **Previously approved plans**

1. It is planned that future cooperative activities will be conducted according to the same "partnering" model that has already been used for preparation of two workshops. The present model encourages the active participation of RF Gosatomnadzor specialists during the work development meetings at the NRC in partnership with NRC staff to determine the level of detail of consultation needed for the activity, the background of the targeted audience, and particular topics for emphasis. The target areas of consideration include reactor projects, technical specifications, plant change and modification process (10 CFR 50.59), how to apply new standards to currently operating plants (technical and environmental), maintenance and quality assurance and materials and plant equipment aging.

a. The NRC staff's contractor(s), one or more National Laboratories [for example, Brookhaven National Laboratory (BNL)], will participate in the development meeting

b. Subsequently, NRC staff experts, accompanied by contractor representatives, will participate in consultation activities to be held in Russia]. RF Gosatomnadzor, laboratory, architect/engineer and plant operator representatives may participate in the activities; in addition, RF Gosatomnadzor representatives may play a more active role in the resenatation of material to reflect current practices in Russia.

2. Licensing Reviews for previously Operating Plants/Modernization, Amendment Screening and Plant Design and Equipment changes (RF Gosatomnadzor in the US and NRC in Russia). Specific issues to plan work in this area:

a. Licensing of Modifications at NPPs, use of the PSA results in this process.

b. Methods and procedures for review and analysis of NPP equipment (components) compliance with regulatory requirements for materials, welds, inspection techniques, strength, diagnostics, etc. on the basis of NUREG 800 and others.

c. Methods and Procedures for certification of NPP designs including certification of equipment and technology according to CFR 52.

3. NRC will develop further consultation activities with RF Gosatomnadzor addressing how the Standard Review Plan (SRP) detailed review criteria can be considered by RF Gosatomnadzor to develop guidelines for licensing the operation/modernization of existing NPPs, where design information does not fully correspond to the level of design information addressed in the document "Requirements For Safety Justification Report for NPPs with VVER-Type Reactors."

### Inservice Inspection Observations

The NRC will identify opportunities for RF Gosatomnadzor staff to observe inspections in the US so that they can become familiar with the US performance-based approach. Activities could be conducted similarly to those conducted previously. Activities include reviewing Master Inspection Plans, securing regional cooperation, arranging for a contractor or NRC Headquarters escort, conducting an orientation to the inspection program at Headquarters, and arranging for observing an on site inspection.

### Participation in NRC technical training center courses

The NRC will provide course materials from training courses given at the NRC's Technical Training Center in Chattanooga, TN. These courses include, but are not limited to : Fundamentals of Inspection Activities; Technology of Non-Power Reactors, and PSA for Inspectors.

### **New Initiatives**

#### Participation in IAEA Meeting on Inspections

RF Gosatomnadzor requested NRC to conduct a workshop on its risk-informed inspection program. If NRC hosts the planned IAEA workshop on inspections within the regional program on technical cooperation and presents its new inspection program in some depth, the workshop should be sufficient. Otherwise, NRC will arrange for a separate workshop.

After conducting the workshop, RF Gosatomnadzor will discuss the necessity of introducing changes in its inspection procedures, and, if necessary, will request further consultations with NRC.

### **C. Materials**

#### Fissile Material Safety Licensing and Inspection

##### **Results to Date**

NRC provided RF Gosatomnadzor a copy of the final 10 CFR Part 70 rule that was published in September 2000 and a copy of the final version of NUREG-1718, Standard Review Plan for the Review of an Application for Mixed Oxide (MOX) Fuel Fabrication Facility" dated August 2000.

As a result of NRC budget constraints, no fissile material safety licensing or inspection activities were undertaken during FY 2000. NRC provided to RF Gosatomnadzor some tables of contents and web site links for such NRC regulatory documents as 10 CFR Part 70 Subpart H, NUREG-1520 (the draft standard review plan (SRP) for review of an application for a fuel cycle facility license), the MOX SRP, and the revised fuel cycle facilities oversight program.

that RF Gosatomnadzor is receiving from the international community. One possible role is for NRC to perform an independent review of regulations that are developed by RF Gosatomnadzor. Notwithstanding the outcome of the January 2001 meeting, the NRC would need additional information in order to assess resource implications.

RF Gosatomnadzor also indicated that it would seek NRC assistance in MOX inspection-related work such as developing inspection procedures and sharing of inspection results on nuclear facility sites and oversight of RF Gosatomnadzor activities at all stages of plutonium disposition (in coordination with DOE). This may include participation of RF Gosatomnadzor personnel on NRC MOX inspections.

## **Material Control, Protection and Accounting**

### **Results to Date**

Due to lack of funding, and outstanding issues related to funding, none of the activities requested below were completed during 2000.

### **Previously Approved Plans**

In December 1999, NRC agreed to undertake the following activities requested by RF Gosatomnadzor to the extent funding for these activities was made available by DOE:

#### **I. Legal basis**

A. Support to RF Gosatomnadzor in its development of Federal Regulations for MPC&A of radioactive substances (RS) and radioactive waste (RAW).

B. Support to RF Gosatomnadzor in its development of regulatory documents for organization and implementation of the oversight of MPC&A of RS and RAW, including:

1. NRC comments on draft RF Gosatomnadzor Provisions on the vulnerability assessment of physical protection systems;
2. NRC comments on draft RF Gosatomnadzor Provisions on use of instrumentation and control means to check existence of nuclear materials at nuclear installations.

Clarification, through discussions between RF Gosatomnadzor and NRC, of RF Gosatomnadzor's intent in items A and B above will be needed before support for the specific tasks can be requested from DOE.

C. NRC comments on the draft RF Gosatomnadzor Standard Instruction to review the results of inventory-taking of nuclear materials at fuel fabrication plants for VVER-type reactors;

status of GAN's ongoing work on current MPC&A regulation development tasks funded by DOE, and to discuss both sides' perspectives on work to be initiated in the coming year.

These meetings resulted in the determination of a number of Russian regulatory documents for which NRC will be participating in the DOE review and comment effort over the coming year. (NRC has already provided comments on one of the GAN documents to DOE: "Regulation on State Oversight of the System for State Control and Accounting of Nuclear Material," DOE-GAN Task 10.4.2.) In addition, NRC was informally asked by DOE during this activity to assist DOE in reviewing the list of current GAN MPC&A regulatory documents to suggest other documents that GAN might develop to result in a complete regulatory framework. NRC will develop a timetable for this effort with DOE in the future.

However, the two meetings in Russia only addressed one area of expected NRC support to Russia. NRC's involvement in other areas, including training, particularly with regard to the development and support for GAN's inspection practices, have yet to be determined. NRC has requested that DOE provide funding for NRC to meet with GAN in the near future to determine a complete set of MPC&A activities for which NRC will provide assistance, in addition to the development of regulatory documents, and on the basis of these discussions, support activities would be proposed for DOE's consideration. (The meeting would address the activities previously requested by GAN listed above, as well as any additional requests.) NRC is awaiting DOE's response to this request.

## **B. Operational Data Feedback**

### **Previously Approved Plans**

**Event Reporting and Analysis System for Research Reactors and Nuclear Fuel Cycle Facilities:** RF Gosatomnadzor proposes development of an automated event analysis and reporting system (AEARS) for use by research reactors and nuclear fuel cycle facilities. This system would provide for the timely collection and systematic analysis of operating events at facilities regulated by RF Gosatomnadzor. Major tasks include the development of regulatory guidance for event reporting, a database and methods for the systematic reporting of operational events, methods and procedures for the analysis of events, pilot testing of the system at representative facilities, and staff training on the system and its implementation. This work will be conducted in coordination with DOE.

## **C. Uses of Analytical Simulators**

### **Results to Date:**

The project for development and delivery of analytical simulator to Gosatomnadzor of Russia was completed by delivery of the analytical simulator for NPP with RBMK-1000 to the North-European Regional Office of Gosatomnadzor of Russia. The software for this model was also installed in 2000 on analytical simulators located in Don Regional Office and HQ.

The following activities were implemented by SEC NRS staff within the program on technical support to Gosatomnadzor of Russia in introduction and use of the different analytical simulators of NPP units to train personnel, emergency mode modeling, event analysis and safety assessment:

Modeling of NPP operational modes for VVER-1000, including modes of normal operation with switching off and on of the major equipment and control systems and emergency modes according to the list of the design basis accidents.

Computation and analysis of transients for VVER-1000 units under incidents including analysis of the major equipment and control systems performance.

A report on the results of this work should be issued at the end of 2000.

The following procurements were be made:

1. The coaxial cable on the analytical simulator in Moscow was replaced with cabling compatible with that for the Emergency Response Center (ERC). This will provide data transfer between analytical simulator and ERC facilities where safety status of Russian NPPs is analyzed. This together with the software to be developed will allow Gosatomnadzor to use the analytical simulator as a tool for experts during emergency exercises and actual incidents.

2. The backup tape drive at the Moscow site was replaced.

3. An inoperative operator station monitor at the Novovoronezh site was replaced.

## **IV EMERGENCY RESPONSE AND CONTINGENCY PLANNING**

### **Results to Date**

The limited funds available were used to implement one previously planned task from the current Task Plan (formerly "Completion Plan") involving creation of the Geographic Information System (GIS) for the Information Analysis Center -- or Emergency Response Center (ERC) -- of Gosatomnadzor of Russia. This work is the logical continuation of GIS development activities started in 1999. The main task for 2000 was to improve GIS to display and present NPP data needed for response to emergencies. II&IPD and its contractor, IBRAE-RAN, used Balakovo as a prototype and accomplished the following:

- Developed the data structure and presentation format;
- Improved GIS overview software;
- Provided for the Balakovo NPP:
  - Details of site layouts and the buffer area in electronic form;
  - Information on technical parameters of the reactor installations and safety systems;
  - Electronic diagrams of the radiation monitoring posts and evacuation routes.
- Provided information on the executive and legislative authorities of the Saratov Region. This information is now available in the ERC.

### **Future activities**

1. NRC and GAN will extend their Implementing Agreement for emergency response and contingency planning for an additional three years.
2. Implementation of activities from the Task Plan will continue. The following tasks have the highest priority:
  - Connect GAN to the Moscow fiber optic interagency channel and arrange for information exchange with the Rosenergoatom Crisis Center, the Minatom Crisis Center, and other Ministries and organizations involved in Russian emergency response;
  - Install software to calculate the transport of radioactive releases and resultant dose burdens;
  - Upgrade ERC computer hardware as required for new software.
3. NRC, GAN, and IBRAE-RAN will update the Task Plan.

**ANNUAL MEETING WITH  
NUCLEAR REGULATORY AUTHORITY OF RUSSIA  
DECEMBER 4-8, 2000**

**DELEGATION:**

Federal Nuclear and Radiation Safety Authority (Gosatomnadzor - GAN)

Alexander Gutsalov, First Deputy Chairman

Alexander Matveev, Director, Science and Technical Department

Andrei Vistgof, Director, Inter-regional Information Center

Irina Sokolova, International Relations Officer

State Department Interpreters:

Galina Holmes

Nicholas Berkoff

**SCHEDULE:**

**Monday, DECEMBER 4**

8:45 Commissioner Merrifield  
9:30 EDO William Travers  
10:15 Chairman Meserve  
11:00 Commissioner Dicus  
11:30 OIP Janice Dunn Lee

12:00 Lunch

**(Rm. O-4B6)**

1:00 - 2:15 **Regulatory Activities:**  
- Licensing - NPPs  
- Oversight & Inspections: Inspection Bases and Implementation  
(NRR: Lee Banic, Barry Zalzman)

2:30 - 3:00 **Legal Basis: Legislation**  
(OGC: Stu Treby, James Lieberman)

3:00 - 3:30 **Regulatory Activities:**  
- Oversight & Inspections: Enforcement  
(OE: Bill Borchardt, OGC: Jim Lieberman)

3:30 - 4:30 - Licensing - Fuel Cycle  
(NMSS: Barry Mendelsohn)  
- Licensing - Nuclear Materials  
- Non-Fissile  
(NMSS: Barry Mendelsohn)

**Friday, DECEMBER 8**

**(Rm. O-4B6)**

8:30-1:30 - Review and revise Memorandum of Meeting

**(18<sup>TH</sup> Floor Conference Room)**

3:00 - Principals sign Memorandum of Meeting  
(W. Travers, A. Gutsalov)

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