



International Atomic Energy Agency

# INFORMATION CIRCULAR

---

INF

INFCIRC/446

6 June 1994

GENERAL Distr.

Original: ENGLISH

**COMMUNICATIONS DATED 27 AND 28 MAY 1994  
RECEIVED FROM THE PERMANENT MISSION OF THE  
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA  
TO THE INTERNATIONAL ATOMIC ENERGY AGENCY**

The attached texts of the following communications received from the Permanent Mission of the Democratic People's Republic of Korea are being circulated to all Member States of the Agency at the request of the Permanent Mission of the Democratic People's Republic of Korea:

Document Presented by the DPRK Delegation to the IAEA Delegation at their Working-Level Consultation on 27 May 1994 (Attachment 1)

Interview by a Spokesman of the Foreign Ministry of the Democratic People's Republic of Korea of 28 May 1994 (Attachment 2)

THE METHOD FOR PRESERVING TECHNICAL POSSIBILITY  
OF LATER MEASUREMENTS OF FUEL RODS BEING APPLIED  
TO THE ON-GOING FUEL RODS DISCHARGE OPERATION  
AT THE EXPERIMENTAL ATOMIC POWER PLANT

( Document Presented by the DPRK Delegation  
to the IAEA Delegation at their Working-Level  
Consultation on May 27, 1994, Pyongyang )

I. Purpose of This Method and Background of Its Application

The Democratic People's Republic of Korea (DPRK) has begun the refuelling campaign at the Experimental Atomic Power Plant, according to its operating plan. Due to its unique status based on a temporary suspension of its declared withdrawal from the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), the DPRK is in a position, at the present stage, only to ensure the continuity of safeguards, but not routine or ad hoc inspections.

Our principled position is that the selection and securing of some of the discharged fuel rods, as requested by the International Atomic Energy Agency (IAEA/Agency) with respect to the refuelling campaign, belong to the category of the Agency's ad hoc inspection activities and, therefore, that these activities could be permitted only after the DPRK's unique NPT status will have been lifted.

The below-explained method is the method devised and applied by the Safeguards Department of the General Department of Atomic Energy in consultation with the facility operators and after their serious and painstaking research work, with a view to preserving technical possibility of such selection and securing requested by the Agency, as our goodwill measure, which presuppose, of course, the lifting of the DPRK's unique NPT status.

This document was prepared in response to the request for a written presentation of the method, made by the IAEA Delegation during the DPRK-IAEA consultation in Pyongyang, May 25-27, 1994.

## II. Description of the Method

- The refuelling campaign, the fuel transfer channel and all the fuel rods, stored both in the spent fuel pond and in the damaged fuel rod storage, remain under the Agency's strict containment and surveillance.
  - The core and the movements of the refuelling machine are closely monitored by the two surveillance cameras installed in the reactor hall where the refuelling campaign takes place.
  - The spent fuel rods discharged from the core are measured and counted by the spent fuel rod counter system with silicon semiconductor detectors, fission chambers, ionisation chambers and position sensors, installed in the fuel transfer channel.
  - All the hatch and transfer channels are controlled by the thermal luminescence detectors and seals.
  - Two surveillance cameras are installed in the spent fuel storage building.
  - In particular, for the purpose of an effective use being made of the Agency's surveillance equipment during the refuelling operation, we provided, during the tenth inspection, arrangements to satisfy all the Agency's requirements, including the replacement of computers in the spent fuel rod counter and its parts, the installation of the uninterrupted power supply for surveillance devices, and the provision of lighting system in the spent fuel storage building, etc.
  - These measures, therefore, provide full assurances that there is no diversion of nuclear material during the discharge operation. This was confirmed by the Agency inspectors.
  
- Fuel rods in the core are transferred into the spent fuel pond with the possibility of reconstructing the fuel channels being maintained.
  - Fuel rods are discharged by the refuelling machine in the sequence of one channel group to the next channel group.
  - Forty fuel rods from four channels are discharged into one basket.

- Such basket is stored on the designated position in the spent fuel pond.
  - Correct records are kept by the operators to show the identification number of the baskets, the channel-wise number of fuel rods in baskets and the position of baskets in the spent fuel pond.
- The channels of fuel rods and the position of rods in the fuel channels can be reconstructed at an appropriate time.
- Gamma ray measurements are performed at the top and bottom parts of each fuel rod in the baskets.
  - The neutron flux distribution is calculated along the fuel channels into which the fuel rods were loaded.
  - The position of each fuel rods is determined on the basis of the value of the gamma ray measurements and the calculated value of the neutron flux distribution.
  - The above method has been proven through experiments in the dry and wet conditions.
- \* This method would require more work of measurements than the selection of fuel rods from the core, but this is the solely rational and reasonable method that befits our current circumstances.
- The identification number of baskets and the fuel channel numbers in baskets and the position of the baskets in the spent fuel pond are identified by the Agency inspectors who are present during the refuelling campaign.

This measure represents our good will and maximum tolerance motivated by our sincere desire to demonstrate the integrity of our nuclear activities and to resolve the nuclear issue peacefully.

## THE WORKING NEGOTIATION BETWEEN DPRK AND IAEA

Interview by a spokesman of the Foreign Ministry of the  
Democratic People's Republic of Korea

28 May 1994, Pyongyang

A working negotiation was held in Pyongyang from May 25 to 27 between the Democratic People's Republic of Korea (DPRK) and the International Atomic Energy Agency (IAEA) on the question of the replacement of fuel rods at the 5 MW Experimental Atomic Power Station.

The main question discussed at the negotiation was the method of preserving the technical possibilities of the measurement of spent fuel rods by the IAEA in case the DPRK undergoes routine and ad hoc inspections with a package solution of the nuclear issue between the DPRK and the United States in the future.

As has been reported, we are refuelling the reactor in a unique status following the temporary suspension of the effectuation of our withdrawal from the Nuclear Non-Proliferation Treaty (NPT). Under this condition, we cannot allow routine and ad hoc inspections by the Agency. But we have clarified our stand of good will for fully ensuring the continuity of safeguards corresponding to our unique status and further confirmed that refuelling of fuel rods would be conducted in such a manner as to preserve technical possibilities of selected measurement of fuel rods in the future.

The United States, the main party concerned with the solution of the nuclear issue, also appraised this as encouraging and expressed to us the hope that we would discuss its method with the Agency.

At the negotiation, the Agency, to begin with, raised the method of selected and separated preservation of fuel rods. But, an understanding was reached between the sides that it was not acceptable in principle for it was essentially an inspection activity falling under the category of ad hoc inspection and going beyond the unique status of the DPRK.

Hence, the discussion was focused on the reasonableness of the method now applied by the DPRK to the replacement of fuel rods.

The DPRK side earnestly explained that this is an appropriate method of sufficiently ensuring technical possibilities of freely measuring selected rods as demanded by the Agency when the unique status of the DPRK is dissolved in the future, while guaranteeing the continuity of safeguards to suit its unique status at the present stage.

And we ensured all conditions for clearly understanding the reasonableness of our-style method by allowing the Agency Delegation to go down to the spot and confirm the conditions and work there and have sufficient technical consultation with the operators of the facilities while the negotiation was on.

The Agency side took note of the theoretical feasibility of this method of ours and its experimental confirmation and requested us to arrange its content in writing, promising us to profoundly study the efficiency and practical safeguards of this method of DPRK style with good will.

We stressed that though this method will enlarge a little the amount of measurement, it is the only way for us to adopt in view of the present conditions of political restrictions. We promised that we would continue the refuelling of the reactor in such a manner as to accept a series of opinions of the IAEA side concerning this method and would respond any time to negotiation that might be proposed by the IAEA side in future.

At the negotiation, a final agreement was not reached on the DPRK-proposed method, but this method was supplemented and perfected through the negotiation. We immediately applied this method to the refuelling of the reactor so that the possibility of selected measurement of fuel rods could be increased, and we are placing the process of all work under supervision of the IAEA inspectors and monitoring cameras.

We consider that through the negotiation with the IAEA side and the monitoring activities of the IAEA inspectors concerning the refuelling of the reactor, our good will to place our peaceful nuclear activities strictly under the control of the IAEA was fully manifested.

We will actively strive to ensure the transparency of our nuclear activities and do the utmost as ever to find a final solution to the nuclear issue through the DPRK-USA talks.