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No. 149 /13.01.2010

Subject: Report on the implementation of recommendations made by the DG TREN verification team, subsequent to the verification performed under the terms of Article 35 of the Euratom Treaty at Cernavoda NPP and the environmental radioactivity monitoring network in the south-eastern part of Romania

Dear Mr. RUETE,

Following the recommendations from the Technical Report and the Main Findings, undertaken by DG TREN experts, subsequent to the verification mission from June 2007, under the terms of Article 35 of the EURATOM Treaty, on the site of Cernavoda nuclear power plant and to various environmental radioactivity monitoring and measuring sites located in the south-eastern part of Romania, please find attached the Report on the implementation of those recommendations, prepared by the competent authorities involved.

I should like to avail myself of this opportunity to renew to you the assurances of my highest consideration.

Yours sincerely,

Mr. Matthias RUETE
Director General
Directorate General for Energy and Transport
European Commission

Report

on the implementation of recommendations made by the European Commission verification team subsequent to the verifications performed under the terms of Article 35 of the Euratom Treaty at Cernavoda NPP and the environmental radioactivity monitoring network in the south-eastern part of Romania, 4 - 12 June 2007

Pursuant to Article 35 of the Euratom Treaty, a verification team from the Directorate-General Energy and Transport (DG TREN), within the European Commission, performed a verification mission on the site of Cernavodă nuclear power plant and to various environmental radioactivity monitoring and measuring sites located in the south-eastern part of Romania, in June 2007. The Horia Hulubei National Institute of Research and Development in Physics and Nuclear Engineering at Măgurele was also visited. The verification also comprised a control of radiological monitoring of food imports at the border. Subsequently, the verification team addressed several recommendations implemented by the competent authorities involved (as shown hereinafter), respectively: the National Commission for Nuclear Activities Control (CNCAN); the National Sanitary, Veterinary and Food Safety Authority (ANSVSA); the Ministry of Public Health (MPH) – the Institute of Public Health (IPH); "Horia Hulubei" National Institute of Research and Development in Physics and Nuclear Engineering (IFIN-HH); Ministry of Environment and Sustainable Development (MMDD) – the National Environmental Protection Agency (NEPA); Nuclearelectrica S.A. – NPP operator (SNN).

NEPA

1. Technical Report

- Chapter 9, 9.2.2, page 47

  The verification team recommends setting up a routine programme for H-3 measurements in this laboratory, at Cernavodă, close to the NPP. It also recommends reconsidering to install a high resolution gamma spectrometry system in this laboratory with a view to avoid time delays due to transporting samples to SSRM Constanța. The use uf a suitable Laboratory Information Management System should be considered.

  Since 2007 all tritium analysis in water and precipitation are made by SSRM Cernavodă. Since 2006, SSRM Cernavodă has a gamma in situ spectrometer and two cars; one of them is a mobile laboratory with state of the art equipment able to ensure on site monitoring and sample transportation in the shortest time.

- Chapter 9, 9.3.1, page 48

  The verification team encourages all efforts to transmit data from this system to EURDEP.

  Data are transmitted accordingly with this CE recommendation since 2007.

- Chapter 9, 9.3.1, page 49

  The verification team recommends completing and setting-up the 'new' system in an efficient and speedy way.

  The "new" system is still under completion.

- Chapter 9, 9.3.2 and 9.3.3, page 49

  The verification team advises finding a solution for mounting all dose rate detectors 1 m above ground.
  The verification team advises finding a solution for mounting the gamma dose rate detector 1 m above ground.

  All gamma dose rate detectors will be changed at 1 m above ground.

- Chapter 9, 9.3.4, page 49

  The verification team encourages quickly transferring all necessary devices from the 'old' to the 'new' location.

  The equipment will be transferred to the SSRM Constanta premises.

- Chapter 9, 9.3.5, page 50

  The verification team advises finding a solution for mounting the dose rate detector in a position without obstacles.

  The Contractor confirmed that due to the high sensitivity of the detectors they are not influenced by the position of the solar panel and electronics cabinet.

- Chapter 9, 9.4.2, page 53

  The verification team strongly recommends getting the laboratory fully operational as quickly as possible. This includes fixing the laboratory rooms and preparing all necessary procedures. For improving data safety the installation of a firewall system should be considered.
  Additionally, the verification team supports all efforts to receive accreditation according to ISO 17025 to the largest extent possible.

  NEPA laboratory is fully operational. The accreditation of NERSN according to ISO 17025 is envisaged.

- Chapter 9, 9.4.4, page 56 and Chapter 9, 9.4.5, page 58

  The verification team suggests exploring the possibility of employing a knowledgeable physicist for tasks associated with the whole local environmental protection agency.

With regard to the preparation of evaporated samples the team advises switching to a method for removing residue that avoids the risk of cutting accidents with razor blades.
With regard to analysis of samples for gross beta the team advises performing background measurements using an empty sample planchette as blank.

The verification team advises the laboratory to review the sample labelling practises in order to minimise the possibility of human error in sample handling. It advises to update result printouts in case a newly installed result calculation program leads to data changes.

In order to prepare the NERSN laboratory for ISO 17025 accreditation, all the procedures within NERSN are currently under revision.

- Chapter 9, 9.4.7, page 60

The verification team encourages accreditation according to ISO 17025.
The verification team suggests exploring methods to improve change of custody procedures by e.g. frequent and regular signing of associated forms and documents.
The team suggests checking if the available equipment and number of personnel is sufficient for performing all gamma spectrometric measurements currently foreseen.

The accreditation of NERSN according to ISO 17025 is envisaged. Since 2009, the number of sample for gamma spectrometry allocated to SSRM Constanta was diminished.

2. Main Findings

- Chapter 2, 2.4.2.2.2, page 8 and Chapter 3, 3.1.2, page 9

[The same recommendations as in the Technical Report]

- Chapter 3, 3.2.1.1.1, page 10, and 3.2.4.1 and 3.2.5, page 11

[The same recommendations as in the Technical Report]

SNN

1. Technical Report

- Chapter 9, 9.1.2, page 37

The verification team suggests the discharge tank sampling line labelling be improved in order to avoid sampling from the wrong tank.

The verification team's suggestion was implemented and tank sampling lines have been properly labelled.

- Chapter 9, 9.1.6, page 40

  Verification does not give rise to recommendations, but the team suggests making all relevant procedures available at the working place.

  The technicians have been trained to keep all relevant procedures with them, on their toolbox when performing changes of filters, at the working place.

- Chapter 9, 9.1.6, page 40

  The verification team recommends exploring the possibility to set up an automatic on-line dose rate monitoring system that would continuously transmit values to a central location.

  The automatic on-line gamma dose rate monitoring system has been installed and it will be available for service until the end of 2009.

- Chapter 9, 9.1.7, page 40

  The verification team remarks that at Seimeni several trees near the sampling device may have to be felled in the coming years to avoid influence on sampling.

  For air sampling device location the maintenance procedure requires quarterly or at laboratory request, verification of sampler site. When situation requires, the maintenance team chops the grass and high trees. This work is done by the Maintenance Department.

- Chapter 9, 9.1.7, page 41

  The verification team encourages the plans for installing an automatic on-line ambient dose rate monitoring system in the surroundings of the NPP.

  The automatic on-line gamma dose rate monitoring system has been installed and it will be available for service by the end of 2009.

2. Main Findings

- Chapter 1, 1.1, page 4

  The verification team suggests the discharge tank sampling line labelling be improved in order to avoid sampling from the wrong tank.

  The verification team suggestion was implemented and tank sampling lines were properly labelled.

- Chapter 2, 2.1.2, page 5

The verification team recommends exploring the possibility to set up an automatic on-line dose rate monitoring system that continuously would transmit values to a central location.

The automatic on-line gamma dose rate monitoring system has been installed and it will be available for service by the end of 2009.

IFIN HH

1. Technical Report

- Chapter 10, 10.5.3, page 70

The verification team recommends building up a proper electronic and systematic archiving system capable of storing all such data.

The verification team recommendation was implemented last year; the adopted technical solutions were the following:
- purchase of 2 external data storage units, of 250 GB each, Giga Pod VIII-Spire and, Scandisk, respectively;
- purchase of a new computer with improved technical features (processing speed and hard disk capacity) and licensed software.

2. Main Findings

- Chapter 4, 4.4.1, page 15

[The same recommendation as in the Technical Report]

ANSVSA

1. Technical Report

- Chapter 9, 9.5.2, page 63

The verification team suggests considering an extension of the measuring capability to other gamma emitters besides Cs-134 and Cs-137 and, if deemed feasible, also to alpha/beta emitters.
The verification points out that in order to ensure measurement capability it is important to have a reliable source of liquid nitrogen, preferably with back-up arrangements.

Additionally, in order to ensure equipment stability it would be helpful to control the temperature in the counting room.

The laboratory extended its measuring capability to all other gamma emitters besides Cs-134 and Cs-137, but it was not considered feasible to extend it to alpha/beta emitters.
ANSVSA's laboratory has a reliable source of liquid nitrogen, a liquid nitrogen loader and a contract with a liquid nitrogen supplier.
The temperature in the counting room is properly controlled and there is sufficient air conditioning.

- Chapter 9, 9.5.2, page 64

As a matter of good laboratory practice, the verification team advises the ANSVSA's laboratory to seek opportunities to participate in international intercomparison exercises. The verification team suggests ensuring appropriate training for the staff involved in radioactivity measurements.

ANSVSA's laboratory participated in and also organised national intercomparison exercises.

- Chapter 9, 9.5.5, page 65

The verification team encourages the laboratory to proceed towards accreditation and to actively participate in intercomparison exercises.

The laboratory has accreditation and participated in national intercomparison exercises.

2. Main Findings

- Chapter 3, 3.4.1, pages 12 and 13

[The same recommendations as in the Technical Report]

CNCAN

1. Technical Report

- Chapter 9, 9.2.1, page 44

The verification team recommends ensuring that enough qualified personnel is available in CNCAN's Section for Radiation Emergencies, in order to be able to manage the specific radioactivity analysis on the environmental samples, measurements necessary to a good control of the NPP.

Due to governmental measures in response to the economical crisis, CNCAN vacant positions have been suspended, therefore additional employment being restricted. Moreover, CNCAN status has been altered, from auto-financing institution to an authority financed from the state budget, under the co-ordination of the General Secretariat of the Government. Given these efforts to cut down expenses, the human resource, amongst other areas, has been affected.

- Chapter 9, 9.2.1, page 45

The verification team advises CNCAN to ensure regular liquid nitrogen supply to the laboratory with appropriate back-up arrangements.
The verification team advises CNCAN to purchase new calibration sources and establish a regular control programme for HPGe detector energy, peak width and efficiency calibrations.

This recommendation refers to the gamma spectrometry laboratory which is no longer operable as there is no physicist to perform the required types of analysis; therefore, the liquid nitrogen supply is unnecessary at the moment since the related analyses cannot be performed.

- Chapter 9, 9.2.1, page 45

The verification team recommends CNCAN to carry out training on mobile measurements for a sufficient number of staff members.

In 2009, a representative of CNCAN's Section for Radiation Emergencies attended a training course on emergency response, held by the IAEA, namely "Regional Training Course on Practical Response to Radiological Emergencies – First Responders", Ljiubljana, Slovenia, 23 Nov – 04 Dec 2009. One of the topics included on-site monitoring techniques in emergency situations. Furthermore, within the "Safe Nuclear Energy" project – CNCAN4 component "Emergency Preparedness and Response" – developed by CNCAN in cooperation with the Norwegian Government represented by the nuclear regulatory authority, Norwegian Radiation Protection Authority, several training and improvement courses in the field are envisaged for 2010. Training on mobile measurements will be included in a distinct module regarding radioactivity measurements in emergency situations. The "Training Course on Monitoring in Radiation Emergencies" will be held in May 2010. In addition, an important component of the above-mentioned project is the modernisation of CNCAN radiological emergencies centre, as well as the installation of decision support systems in case of radiological emergencies (RODOS, etc).

- Chapter 9, 9.2.1, page 45

The verification team suggests CNCAN to define a formal sample archiving guideline as part of its quality manual.

This suggestion refers to the gamma spectrometry laboratory which is no longer operable due to the lack of qualified personnel.

- Chapter 9, 9.2.1, page 46

  The verification team supports the intercomparison activity and CNCAN's work towards accreditation according to ISO 17025 for all analytical tasks.

  At the moment, CNCAN cannot obtain accreditation according to ISO 17025 as long as qualified personnel in the field of radioactivity analysis on environmental samples are not available.

- Chapter 9, 9.5.5, page 65

  The verification team advises CNCAN to consider establishing a common criterion for the measurement MDA in laboratories carrying out environmental or foodstuffs radioactivity measurements.

  This suggestion also refers to the gamma spectrometry laboratory which is no longer operable due to the lack of qualified personnel.

2. Main Findings

- Chapter 2, 2.4, pages 7, 8

  [The same recommendations as in the Technical Report]