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Main Findings of the Commission's Article 35 verification in Poland

Polish Monitoring Network for Environmental Radioactivity in the southern part of Poland

Piast coal mine at Bieruń (NORM industry)

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INTRODUCTION

Article 35 of the Euratom Treaty requires that each Member State shall establish the facilities necessary to carry out continuous monitoring of the levels of radioactivity in air, water and soil and to ensure compliance with the basic safety standards.

Article 35 also gives the European Commission the right of access to such facilities in order that it may verify their operation and efficiency.

The main purpose of verifications performed under the Article 35 of the Euratom Treaty is to provide an independent assessment of the adequacy of monitoring facilities for:

- Liquid and airborne discharges of radioactivity into the environment by a site (and control thereof).
- Levels of environmental radioactivity at the site perimeter and in the marine, terrestrial and aquatic environment around the site, for all relevant exposure pathways.
- Levels of environmental radioactivity on the territory of the Member State.

For the purpose of such a review a verification team from the European Commission visited different sites for monitoring environmental radioactivity and the Piast coal mine at Bieruń (NORM industry) in Poland, from 13 to 17 November 2006. With due consideration of the scope of the verification mission and taking into account the relatively short time available for the execution of the programme, emphasis was put on:

- Structure of the national environmental radioactivity monitoring and sampling programme provided by NAEA and the coordination of the monitoring stations and units provided by the Radiation Emergency Centre (CEZAR-NAEA);
- Central and regional analytical laboratories, automatic on-line systems and the coal mine's water discharges.

The team carried out verifications of monitoring systems and sampling facilities at several locations in Poland. These verifications covered both on-line and off-line environmental and foodstuffs radioactivity monitoring provisions.

The present report gives an overview of the main findings of the verification team and corresponding recommendations.

Recommendations are addressed to the the National Atomic Energy Agency (NAEA) and the State Mining Authority (WUG) who represented the Polish authorities.

MAIN FINDINGS

The proposed verification programme could be completed within the time allocated. In this regard the verification team appreciates the advance information supplied, as well as the additional documentation received during and after the verification.

1. MAIN FINDINGS WITH RESPECT TO GENERAL ISSUES

The verification activities performed on the Polish routine monitoring of radioactivity in the environment:

- 1.1. Confirmed the existence and functionality of the environmental monitoring and sampling programme and established the existence of relevant equipment and procedures.
- 1.2. Confirmed that for Polish routine monitoring the NAEA system of acceptance applies (QA/QC by NAEA president; participation in national inter-comparisons). Laboratories receive an acceptance letter from the NAEA president on the basis of their participation in this system.

However,

- 1.3. With reference to point 1.1. above, the verification team was informed that currently there is no programme in place for monitoring drinking waters and that NAEA and the Ministry of Health may be involved in the development of such a programme for Poland.

The verification team strongly supports developing a national drinking water monitoring programme.

2. MAIN FINDINGS WITH RESPECT TO THE ENVIRONMENTAL RADIOACTIVITY LABORATORY OF THE NIEWODNICZANSKI INSTITUTE

The verification activities performed concerning the Environmental radioactivity laboratory (ERL) of the Niewodniczanski Institute at Krakow:

- 2.1. Established that the laboratory is satisfactorily equipped and staffed with adequately trained personnel.
- 2.2. Established that quality assurance and control is implemented through a compilation of written procedures and working instructions.

However,

- 2.3. With regard to 2.1. above, the team noted that spatial restrictions for ERL exist, in particular in the radiochemistry area.
- 2.4. With regard to 2.2. above, the team was informed that ERL is in the process of ISO 17025 accreditation for its gamma spectrometry system. A first audit was foreseen for the week of the verification visit.

The verification team suggests giving reasonable priority to solving the spatial restrictions that currently apply to ERL.

The team also encourages the foreseen accreditation of the radiological laboratory according to ISO 17025.

3. MAIN FINDINGS WITH RESPECT TO THE SANITARY INSPECTION – LOCAL LABORATORY IN KRAKOW (UNIT NR. 23)

The verification activities performed at the analytical laboratories of the Sanitary Inspection – local laboratory in Krakow (unit nr. 23):

- 3.1. Established that the laboratory is satisfactorily equipped and staffed with adequately trained personnel.
- 3.2. Established that quality assurance and control is implemented through a compilation of written procedures and working instructions.

However,

- 3.3. With regard to point 3.1. above the team noted that the laboratory has two NaI(Tl) detectors for gamma spectrometry (connected to a multi-channel analyzer with manual peak setting).

The verification team emphasises that NaI(Tl) based gamma spectrometry is a low resolution application. It is reasonably suited for the measurement of single nuclides showing few peaks. If measurements are performed on a sample with a complex spectrum the so called 'Iodine' and 'Cs' channels may represent rather an indicator for 'gross gamma'. The team recommends taking this into account in the reporting of such data.

4. MAIN FINDINGS WITH RESPECT TO THE SANITARY INSPECTION – LOCAL LABORATORY IN SANOK (UNIT NR 39)

The verification activities performed at the analytical laboratories of the Sanitary Inspection– local laboratory in Sanok (unit nr. 39):

- 4.1. Established that the laboratory is satisfactorily equipped and staffed with adequately trained personnel.
- 4.2. Established that quality assurance and control is implemented through a compilation of written procedures and working instructions.

However,

- 4.3. The verification team was informed that measurement results are printed out, then manually transferred to a PC for reporting. Currently a central data base network for the whole laboratory is under preparation.

The verification team endorses the set up of a central data network for this laboratory, in particular with a view to avoid errors when inputting data.

5. MAIN FINDINGS WITH RESPECT TO THE INSTITUTE OF METEOROLOGY AND WATER MANAGEMENT, LOCAL LABORATORY IN LESKO

The verification activities performed at the Institute of Meteorology and Water Management, local laboratory in Lesko:

- 5.1. Established that the laboratories are satisfactorily equipped and staffed with adequately trained personnel.
- 5.2. Established that quality assurance and control is implemented through a compilation of written procedures and working instructions.

However,

- 5.3. With regard to point 5.1. above, the verification team noted that the laboratory operates a NaI(Tl) detector for low resolution gamma spectrometry, connected to a PC and Canberra Genie 2000 software.

The verification team emphasises that NaI(Tl) based gamma spectrometry is a low resolution application. It is reasonably suited for the measurement of single nuclides showing few peaks. If measurements are performed on a sample with a complex spectrum the so called 'Iodine' and 'Cs' channels may represent rather an indicator for 'gross gamma'. The team recommends taking this into account in the reporting of such data.

6. MAIN FINDINGS WITH RESPECT TO THE INSTITUTE OF METEOROLOGY AND WATER MANAGEMENT, LOCAL LABORATORY IN ZAKOPANE

The verification activities performed at the the Institute of Meteorology and Water Management, local laboratory in Zakopane:

- 6.1. Established that the laboratory is satisfactorily equipped and staffed with adequately trained personnel.
- 6.2. Established that quality assurance and control is implemented through a compilation of written procedures and working instructions.

However,

- 6.3. With regard to point 6.1. above the team noted that the laboratory operates a NaI(Tl) detector for low resolution gamma spectrometry, connected to a PC and Canberra Genie 2000 software.

The verification team emphasises that NaI(Tl) based gamma spectrometry is a low resolution application. It is reasonably suited for the measurement of single nuclides showing few peaks. If measurements are performed on a sample with a complex spectrum the so called 'Iodine' and 'Cs' channels may represent rather an indicator for 'gross gamma'. The team recommends taking this into account in the reporting of such data.

7. NORM RELATED VERIFICATION

A. Piast Coal mine and its purification station

The verification activities performed at the the purification station in the Piast coal mine

- 7.1. Established that the discharge water purification station in the Piast coal mine is satisfactorily equipped and staffed with adequately trained personnel. Written procedures for the handling of the purification process were available at the visited sites of the purification station.

B. Verification of the radiological laboratory of the Central Mining Institute in Katowice

The verification activities performed at the radiological laboratory of the Central Mining Institute in Katowice:

- 7.2. Established that the laboratory is satisfactorily equipped and staffed with adequately trained personnel.
- 7.3. Established that quality assurance and control is implemented through a compilation of written procedures and working instructions.

8. VERIFICATION OF THE CENTRAL LABORATORY FOR RADIOLOGICAL PROTECTION (CLOR) IN WARSAW

The verification activities performed at the Central Laboratory for Radiological Protection (CLOR) in Warsaw:

- 8.1. Established that the various laboratories are satisfactorily equipped and staffed with adequately trained personnel.
- 8.2. Established that quality assurance and control is implemented through a compilation of written procedures and working instructions

9. VERIFICATION OF THE CEZAR-NAEA DATA CENTRE IN WARSAW

The verification activities performed at the CEZAR-NAEA data centre in Warsaw:

- 9.1. Established that the data centre is satisfactorily equipped and staffed with adequately trained personnel.
- 9.2. With regard to the ASS-500 system (13 stations) online data from the NaI(Tl) detector (hourly spectra) are transmitted from 11 stations. The last 2 stations will be modernized (equipped with NaI(Tl) detectors) in 2007.

However,

- 9.3. With regard to 9.2. above, the team thoroughly reviewed the data presentation software (similar to the one for PMS – 'Air PMS'). A visualisation of spectra and time trends is possible. The team noted that for some graphs internal knowledge is necessary for interpretation of the information content. A geographical presentation of data is not directly built into the software. Within the PMS software package (based on the Danish Argos system), fixed presentations for verified data are foreseen. These presentations are also published on the internet.

With regard to improving the transparency and user friendliness of the data presentation system – in particular the one for the ASS-500 stations – the verification team suggests introducing clear links between presentation parameters and display at the occasion of a software update. Any improvement in achieving automatic data management replacing manual data input is encouraged.

10. CONCLUSIONS

All verifications that had been planned by the verification team were completed successfully. In this regard, the information supplied in advance of the visit, as well as the additional documentation received before the start and during the verification, was useful. The information provided and the outcome of the verification activities led to the following observations:

- (1) The verification activities that were performed demonstrated that the facilities necessary to carry out continuous monitoring of levels of radioactivity in the air, water and soil in Poland were in place. The Commission could verify the operation and efficiency of these facilities.
- (2) The team noted that current monitoring campaigns in the vicinity of coal mines (and other NORM industries) are not part of a well established routine programme, and it recommends to consider setting up such a programme.
- (3) A number of topical recommendations are formulated. These recommendations aim at improving some aspects of environmental surveillance in Poland. The recommendations do not discredit the fact that environmental monitoring in Poland is in conformity with the provisions laid down under Article 35 of the Euratom Treaty.
- (4) The Commission Services ask the Polish competent authority to inform them of any implementation achievements with regard to the situation at the time of the verification and especially, concerning the set up and implementation of a routine environmental radioactivity monitoring programme for NORM industries.
- (5) The verification team acknowledges the excellent co-operation it received from all persons involved in the activities it performed.

C. GITZINGER

Team Leader