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DIRECTORATE-GENERAL ENERGY & TRANSPORT
Directorate H – Nuclear Energy
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Main Findings of the Commission's Article 35 verification in Spain

COFRENTES - NPP

SPAIN

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INTRODUCTION

Article 35 of the Euratom Treaty requires that each Member State shall establish 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 ⁽¹⁾.

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

The main purpose of verifications performed under Article 35 of the Euratom Treaty is to provide an independent assessment of the adequacy of monitoring facilities for levels of environmental radioactivity on the territory of the Member State.

For the purpose of such a review, a verification team from DG TREN visited the Cofrentes NPP ⁽²⁾. The visit to the Cofrentes NPP included also meetings with the Spanish competent authority CSN ⁽³⁾, and with *Generalidad de Valencia* ⁽⁴⁾, which, under contract with CSN, provides technical support to perform the sampling under the regulator's PVRAIN and the REVIRA programmes and the analyses of these samples through two university laboratories (*Laboratorio de Radiactividad Ambiental de la Universidad de Valencia* and *Laboratorio de Radiactividad Ambiental de la Universidad Politécnica de Valencia*).

The present report contains the results of the verification team's review of relevant aspects of the environmental surveillance at and around the Cofrentes site. The purpose of the review was to provide independent verification of the adequacy of monitoring facilities for:

- Discharges of radioactivity into the environment.
- Levels of environmental radioactivity at the site perimeter and in the terrestrial and aquatic environment around the site, for all relevant exposure pathways.

With due consideration of the scope of the verification and taking into account the relatively short time available for the execution of the programme, it was agreed that emphasis would be put on:

- The operator's monitoring and control facilities for gaseous and liquid discharges of radioactivity into the environment.
- The implementation of the statutory environmental radioactivity monitoring programme as performed by the operator (PVRA) and by *Generalidad de Valencia* for the regulator (PVRAIN).
- The operator's effluent laboratories including aspects of quality assurance and control as well as document control.
- The national environmental monitoring programme as established by the competent authority (CSN) in the region of Valencia. The sampling for this programme (REVIRA) and the corresponding measurements are contracted by CSN to *Laboratorio de Radiactividad Ambiental de la Universidad de Valencia* and

¹ Directive 96/29/Euratom, Council Directive of 13 May 1996 laying down basic safety standards for the health protection of the general public and workers against the dangers of ionising radiation.

² *Iberdrola, Central Nuclear de Cofrentes*, Paraje el Plano, s/n E-46625 Cofrentes (Valencia), España.

³ *Consejo de Seguridad Nuclear /Nuclear Safety Council*, Justo Dorado 11, 28040 Madrid.

⁴ *Generalidad de Valencia*, Avda. Camp de Túria, s/n, E-46183 L'ELIANA (Valencia).

Laboratorio de Radiactividad Ambiental de la Universidad Politécnica de Valencia for REM (network of sampling stations) and to *Generalidad de Valencia* for REA (network of continuously measuring automatic stations).

The present report gives an overview of the main findings of the verification team concerning relevant aspects of the radiological environmental surveillance on and around the site of the Cofrentes nuclear power plant, as well as the regional radiological surveillance in the province of Valencia and contains corresponding recommendations.

Recommendations are addressed to the Spanish competent authority.

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 COFRENTES NPP DISCHARGE MONITORING

1.1. Airborne discharges

The team visited the NPP's facilities for monitoring airborne discharges. It verified that the main stack gaseous discharge monitor and the sampling facilities were operational. It observed sampling of particulates, gaseous iodine, noble gases, tritium and C-14. The team received an explanation of the isokinetic sampling system.

The team acknowledges the measurement of C-14 at the Cofrentes NPP that will become obligatory as of 2008.

1.2. Liquid discharges

The team visited and verified the existence and functionality of the monitoring and sampling provisions as defined in the regulatory obligations.

The verification does not give rise to recommendations.

1.3. Cofrentes NPP Effluent Laboratories

The verification team visited the laboratories ("Hot", "Cool" and "Water" laboratory) where it checked:

- The presence of working instructions (sample management).
- The adequacy of measurement systems, including calibration and quality control procedures.
- Document control procedures (data management and filing systems).

However,

- 1.4.** With regard to point 1.3. the verification team noted that currently, the NPP does not operate a laboratory information management system that would cover all stages from sampling to measurement and validation and that also could include automatic data transfer from measuring devices etc.

The verification team recommends exploring the possibilities of introducing a laboratory information management system. This would allow access to all relevant measurement data within a computerized network and thus give access to important information to the laboratory itself as well as to other relevant organisational structures. This recommendation is generally valid for the NPP's on-site laboratories.

2 COFRENTES-NPP ENVIRONMENTAL MONITORING PROGRAMMES

2.1. "ON-SITE"

The verification team verified the on site air sampling, precipitation sampling, the long-time TLD dose measurement as well as the soil and spring water sampling.

Verification does not give rise to recommendations.

2.2. "OFF-SITE"

The verification team verified all relevant activities of the operator's "off-site" environmental monitoring programme (ambient gamma dose rate and gamma dose measurement; drinking water, surface water, sediment, indicator organism, fish, air, precipitation, soil, meat, egg, milk, vegetable and fruit sampling).

However,

2.2.1 With regard to point 2.2., the verification team witnessed at some locations the presence of a TLD fixed inside the sheet metal housing of the air samplers at a height of about 3 m above ground.

The verification team suggests estimating any shielding effects by the construction material of the housing and fixing the TLDs outside the housing if deemed useful.

3 NPP EMERGENCY PREPAREDNESS STATION

Emergency preparedness not being an Article 35 topic, the verification team would just like to mention that it noticed that at the emergency preparedness station (close to "Fuente Grande", within the fenced area) the gamma probe was mounted inside of the concrete built housing of the sampling and measurement devices (air sampler with particle filter and iodine cartridge and gamma dose rate).

The verification team would like to point to the considerable shielding effect due to the rather thick concrete construction.

4 NATIONAL MONITORING OF ENVIRONMENTAL RADIOACTIVITY

4.1. REVIRA Programme (REA, REM Networks)

The team verified automatic REA stations at different locations as well as different REM sampling sites (river water, air, and soil sampling).

However,

- 4.2. Concerning point 4.1, the team witnessed that Geiger Müller probes were not mounted in an optimal way (eg.: they were mounted on the wall of the building, aside of the edge of the (slightly pitched) roof, approximately 8 m above ground, on the edge of the (slightly pitched) roof of the town hall, the RAR probe at one metre above a flat wall and the REA probe directly sitting on this wall , etc..)

The verification team suggests discussing the installation of these probes (i.e.: the possibility to install the probes at one meter above soil or above a flat surface without any obstacles).

4.3. RAR NETWORK

For the RAR network the team verified the stations in Cortes de Pallas and in Cullera as well as the regional data centre in Valencia.

However,

- 4.4. With regard to point 4.3., the team witnessed that Geiger Müller probes were not always mounted in an optimal way.

The verification team suggests discussing the installation of these probes (i.e.: the possibility to install the probes at one meter above soil or above a flat surface without any obstacles).

4.5. Laboratory Measurements (Environmental Radioactivity Laboratory of the Polytechnic University of Valencia and University of Valencia: Environmental Radioactivity Laboratory; research building)

The verification activities performed at both analytical laboratories:

4.5.1 Established that the laboratories are satisfactorily equipped and staffed with adequately trained personnel.

4.5.2 Established that quality assurance and control is implemented through a compilation of written procedures and working instructions.

Verification does not give rise to recommendations. The team encourages the ongoing accreditation process.

CONCLUSIONS

All verification activities that had been planned were completed successfully. In this regard, the information supplied in advance of the visit, as well as the additional documentation received during and after the verification activities, was useful.

The information provided and the verification findings led to the following conclusions:

- (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 around the site of Cofrentes NPP as well as in the province of Valencia are adequate. The Commission could verify the operation and efficacy of a representative part of these facilities.
- (2) A few minor observations and suggestions are formulated, mainly in relation to quality control issues and GM detector siting. These aim at improving some aspects of the environmental surveillance in and around the Cofrentes NPP site. They do not detract from the general conclusion that discharge and environmental radioactivity monitoring at the Cofrentes NPP site as well as in the region of Valencia is in conformity with the provisions laid down under Article 35 of the Euratom Treaty.
- (3) Finally, the verification team acknowledges the excellent co-operation it received from all persons involved in the activities it performed.

[signed]

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