# Order no. 294/2004

*of 30/08/2004*

approving the modification and completion Norms on Radiological Safety- Measurement Systems with Radiation Sources, as approved by Order no. 144/2004 of the CNCAN President

*Published in the Official Bulletin, Part I, no. 1253 of 24/12/2004*

*In accordance with the provisions of the:*

- Law no. 111/1996 on the safe deployment of nuclear activities, republished, with subsequent modifications and completions;
- Governmental Decision no. 1627/2003 approving the National Commission for Nuclear Activities Control internal rules, with subsequent modifications;
- Memorandum no. 5/8.465/A.N. of August 12, 2004 on performing some actions to ensure the existence and operation of a legislative framework specific to voluntary standardization, as well as the adoption of the European standards simultaneously with the repeal of conflicting technical regulations.

CNCAN President issues the following order:

**Art. I.** – The Norms on Radiological Safety- Measurement Systems with Radiation Sources, as approved by Order no. 144/2004 of the CNCAN President, published in the Official Bulletin, Part I, no. 534 of 15 June 2004, shall be modified as follows:

**1.** Art. 2, para. (2) shall have the following content:

"(2) The provisions of para. (1) are completed by the specific applicable definitions and abbreviations form the reference standards from Annex no. 5"

**2.** Article 5 shall have the following content:

"Art. 5. - (1) The general requirements regarding the measurement systems using the radiation sources both for the fixed systems and for the mobile ones, are specified within the reference standards from Annex no. 5.

(2) The classification of measurement systems depending on the radiation beam shall be made taking into account the provisions of the reference standards from Annex no. 5".

**3.** Article 8 shall have the following content:

"Art. 8. - (1) The technical conditions and the testing methods of sealed radioactive sources used within the measurement systems shall fulfill the radiological safety and radiation protection requirements from the reference standards from Annex no. 5. Also, all sources shall fulfill the following conditions:

a) the used radionuclide shall fulfill the requirements regarding the activity, radiation type, radiation energy and half-time;

b) the half-time shall be as short as reasonable possible;

c) the source activity shall not be greater than is necessary for working in appropriate conditions within the half-time planned of the measurement system.

(2) if the activity of the sources exceeds the exempting values of the Fundamental Norms for the safe transport of radioactive materials, approved by Order no. 373/2001 of the CNCAN President , is necessary to obtain the authorizations provided within the Norms on the transport of radioactive materials – authorization procedures, approved by Order no. 222/2002 of the CNCAN President."

**4.** Article 9 shall have the following content:

"Art. 9. - (1) the tests of the measurement systems with radiation sources are performed in accordance with the provisions of Annexes no. 2 and 3, and the acceptability requirements are those provided in the standards or norms for the product on the basis of which the related tests are made.

(2) The evaluation of the performed tests results is made by CNCAN in the authorization process."

**5.** Article 14 shall have the following content:

"Art. 14. – The measurements of the equivalent dose rates shall be performed in accordance with the recommendations included in the reference standards from Annex no. 5 or any other standard accepted by CNCAN in the authorization process."

**6.** Article 16 shall have the following content:

"Art. 16. - (1) Each measurement system shall be provided with permanent inscriptions, visible, in order to warn the personnel about the presence of radioactive materials and the necessity to avoid any inutile irradiation.

(2) Each measurement system shall be encoded through a code which underlines the class, sub-class and the performance to ensure the radiation protection. The used code is that recommended by the reference standards from the Annex no. 5".

**7.** Article 19 shall have the following content:

"Art. 19. – The labeling and the marking of each measurement system shall be individually made, taking into account the provisions of the recommended reference standards from the Annex no. 5".

**8.** At art. 27, para. (2) (f) shall have the following content:

"f) the protection shielding or the distance devices required for ensure the compliance with the limits of dose rates from para. (2)(b) shall be marked with the symbol "danger of radiation" provided in Annex no. 5 to the Fundamental Norms in Radiological Safety.

**9.** At art. 28, para. (4) shall have the following content:

"(4) Initial measurements after installing and periodically at each 6 months shall be performed, in accordance with the provisions of art. 25, and the dose rates shall be compliant with the limits provided in art. 26 and 27, depending on the respective installation type."

**10.** At art. 29, paras. (1) şi (2) shall have the following content:

"Art. 29. - (1) The verification of sealed radioactive sources tightness which equip the measurement systems is made by specialized units authorized by CNCAN in accordance with the specific procedures on tightness control, elaborated following the recommendations specified in the reference standards from Annex no. 5.

(2) The verification methods and the excepting criteria provided under para. (1) are established within the evaluation and approval process by CNCAN of the verification procedures, taking into account the provisions of specific regulations on radiological safety and of reference standards from Annex no. 5."

**11.** Article 30 shall have the following content:

"Art. 30. – When the source tightness does not correspond, the radioactive leakage being greater than 185 Bq, this could lead to unacceptable contaminations above the admissible limit, and the authorization holder shall take the following minimal measures:

1. shall immediately cease the use of radioactive source and of measurement system in which it is included, by notifying, within 24 hours, to CNCAN the situation according to the law;

2. shall take urgent measures to replace the inappropriate source with a new, adequate source. The replacement shall be made by an unit authorized by CNCAN, to handle such sources, according to the law;

3. shall hand over the damaged source to an unit as authorized by CNCAN to take over the radioactive waste and shall notify within 24 hours to CNCAN the taking-over."

**12.** Article 50 shall have the following content:

"Art. 50. – Before the transfer of sealed radioactive sources to other users is mandatory to verify the tightness and/or the unfixed radioactive contamination by an unit as authorized by CNCAN, on the basis of specific procedures elaborated in accordance with the requirements in the reference standards from the Annex no. 5"

**13.** Article 64 shall have the following content:

"Art. 64. – Annexes no. 1-5 are integral part of the present norms."

**14.** The point 1 from the Annex no. 2 shall have the following content:

"1. Tests type:

The tests type shall be performed for all characteristics of the measurement system using radioactive sources or generators of ionizing radiation with the view to determine the performance and quantification of sources on global uncertainties of the system.

The tests type shall be performed at the approval of results of the product and whenever necessary modifications on it appeared.

The results of tests type are evaluated by CNCAN within the process to obtain the radiological safety authorization of the measurement system, taking into account the performance criteria, radiological safety requirements and the radiation protection degree as ensured in accordance with the recommendations of the reference standards from the Annex no. 5.

The tests type shall be performed by the manufacturer through the testing laboratories designated for the nuclear field by the regulatory authority for their carrying-out.

**15.** Following the Annex no. 4, it will be introduced the Annex no. 5, provided in the annex which is integral part of the present order.

**Art. II.** – The present order shall be published in the Romanian Official Bulletin, Part I.

**Art. III.** – The present order shall entry into force within 30 days from the date of its publishing in the Romanian Official Bulletin, Part I.

President of the National Commission for Nuclear Activities Control,
Lucian Biro

Bucharest, 30 august 2004.
No. 294.

***ANNEX***
***(annex no. 5 to the norms)***

**REGULATIONS AND REFERENCE STANDARDS**

1. Law no.111/1996 on the safe deployment of nuclear activities, republished in the Romanian Official Bulletin, Part I, no. 78 of 18 February 1998, with further modifications and completions
2. Fundamental Norms on Radiological Safety, approved by Order no. 14/2000 of the CNCAN President, published in the Romanian Official Bulletin, Part I, no. 404 and no. 404bis of 29 August 2000, with further modifications;
3. Radiological Safety Norms – Authorisation procedures, approved by Order no. 366/2001 of the CNCAN President, published in the Romanian Official Bulletin, Part I, no.764 and no. 764bis of 30 November 2001
4. Norms on Individual Dosimetry, approved by Order no. 180/2002 of the CNCAN President, published in the Romanian Official Bulletin, Part I, no. 769 and no. 769bis of 22 October 2002
5. Norms on issuing the exercising permits of nuclear activities and designation of qualified experts radiation protection, approved by Order no. 202/2002 of the CNCAN President, in the Romanian Official Bulletin, Part I, no. 936 and 936bis of 20 December 2002
6. ISO 9978/1996 Radiation sources – Methods for verifying the tightness
7. ISO 2919/1996 Radiation sources – Classification
8. ISO 7205/1986 Radionuclide Gauges - Gauges Designed for Permanent Installation
9. STAS 9989/1-86 Devices with internal sources at fix post
10. STUK Guide ST 5.1/1999, Radiation Safety of Sealed Sources and Equipment Containing Them
11. IEC 60692/1999, Nuclear Instrumentation - Thickness Measurement Systems Utilizing Ionizing Radiation - Definitions and Methods
12. IEC 60692/1999, Nuclear Instrumentation - Density Gauges Utilizing Ionizing Radiation - Definitions and Methods
13. NUREG - 1556, vol. 4/1998, Consolidates Guidance about Materials Licenses Program - Specific Guidance about Fixed Gauge Licenses
14. IAEA - Manual on Nuclear Gauges, 1996.

**NOTE:**

The reference standards from the present annex are recommendations for the minimum necessary requirements. There could be accepted also other standards if demonstrate the compliance of minimum requirements from the present norms.