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III. OTHER PROVISIONS

NUCLEAR SAFETY COUNCIL

5893 *Nuclear Safety Council Instruction IS-15, revision 1, of 5 May 2016, on the requirements for monitoring the effectiveness of maintenance at the nuclear power plants.*

Article 2.a) of Law 15/1980, of 22nd April, creating the Nuclear Safety Council, confers on this Government Agency, after the modification introduced by the First Additional Provision of Law 14/1999, of 4th May, on Public Rates and Prices by Services rendered by the Nuclear Safety Council, the power to “prepare and approve Instructions, Circulars and Guides of a technical nature relating to nuclear and radioactive facilities and nuclear safety- and radiological protection-related activities” in relation to the safe operation, i.e. without undue risks for people or the environment, of nuclear and radioactive facilities.

In the limits and conditions of the operating license granted to nuclear power plants, the Nuclear Safety Council had been requiring, on a single-case basis, the licensees of said facilities to implement a process for measuring the effectiveness of their maintenance practices, attaching the requirements called for to give effect to the compliance methodology indicated in UNESA’s document RM-12-15897-E, Rev. 3, as supplementary technical instructions.

On 31 October 2007, the Nuclear Safety Council approved the Instruction CSN IS-15, published in the BOE of 23 November 2007, in order to regulate in general, the criteria to require a system for monitoring the effectiveness of maintenances practices in the nuclear power plants.

In order to facilitate the fulfilment of the said instruction, as well as establishing a methodology acceptable for its fulfilment, the Nuclear Safety Council approved in 2007 the Safety Guide GS. 1.18 " Measuring the effectiveness of maintenance in nuclear power plants". In 2016, the revision 1 of the said Guide has been edited.

Currently, it was deemed necessary to revise the Instruction IS-15, because of the experience resulting from its application and of the evolution of the international regulation during the years elapsed since its initial edition in 2007, which evidenced some aspects of improvement which need to be included in the regulation.

By virtue of all above, and in accordance with the legal qualification contemplated in the article 2, subdivision a), of the Law 15/1980 of 22 April, establishing the Nuclear Safety Council, with prior inquiry to the sectors involved and after the due technical reports,

This Council, in its meeting held on 5 May 2016, resolved as follows:

First. *Purpose and scope of application*

This Instruction from the Nuclear Safety Council has the object of setting the general criteria which have to be met for the monitoring of the effectiveness of maintenance practices of the nuclear plants.

The requirements set in it are applicable to all the operating conditions of a nuclear plant as well as to nuclear plants in periods of stopping their commercial operation until the beginning of the stage of dismantling.

Second. *Definitions.*

The definitions of the terms and concepts contained in this Instruction correspond to those contained in the following provisions:

- Law 25/1964 of 29 April on Nuclear Energy.
- Law 15/1980 of 22 April on Establishing the Nuclear Safety Council.
- Royal Decree 1836/1999 of 3 December, by which is passed the Rule on Nuclear and Radioactive Plants.

In addition, within the context of this instruction, are applicable the following definitions:

Maintenance activities: all the activities associated with the planning, scheduling, execution and performing of post-maintenance testings and return-to-service, during tests and preventive or corrective maintenance.

Performance: this concept, when used in the context of the setting of criteria and the monitoring of the compliance therewith, includes availability and reliability and/or condition.

Condition: a specific parameter of the performance of a train, component, system or structure that can indicate the functionality, operability or state of a piece of equipment (e.g. wall thickness, vibration, ductility, leaks, electrical resistance, etc.).

Availability: Capacity for a structure, system or component (SSC) to carry out its function. It is expressed as the time the SSC is capable to carry out its function or as a fraction of the full time during which it is required that the SSC performs its function. Often, the complementary numeric term is used, the unavailability.

Reliability: measure of the expectation (assuming the SSC is available) that a SSC will perform its function when required at any future instant in time.

Maintenance: set of functions required to preserve or restore the safety, reliability and availability of plant structures, systems and components. Maintenance not only includes activities

traditionally associated with the identification and correction of real or potentially degraded conditions, i.e. repair, surveillances, diagnosis and preventive measures, but extends to all support functions needed to perform these functions.

Preventive maintenance: planned, periodic and predictive maintenance actions that are taken before the structure, system or component shows any deficiency or failure in order to keep the SSC within the expected operating conditions by controlling its degradation or failure.

Corrective maintenance: actions whose purpose is to restore the functional capacity of a SSC and which are carried out when faced with emergent operational situations where deficiencies or functional failures are observed in the SSC.

Third. Criteria for monitoring the effectiveness of maintenance practices in nuclear power plants.

3.1 Each holder of the operating authorization of a nuclear plant must monitor the performance or the state of the structures, systems and components (SSC) specified in the article four of this Instruction, against goals defined by the own holder, to provide a reasonable assurance that the said SSC are capable of fulfilling their intended functions.

The holder shall set such goals proportionally to their significance for safety and bearing in mind, when applicable, the industry operating experience.

When the performance or condition of a structure, system or component does not meet the objectives set, the holder shall take suitable corrective measures.

3.2 The monitoring specified in the preceding Paragraph will not be required when it has been demonstrated that the performance or condition of the structures, systems and components is being effectively controlled by means of a preventive maintenance programme such that it is reasonably insured that the SSC are still capable of fulfilling their intended function.

The decision on the need to perform on a certain SSC the surveillance specified in the point 3.1., to establish it and to implement the suitable corrective measures shall be adopted within the shortest possible time once indications have been detected that the performance of the SSC is not being suitable controlled by means of an effective preventive maintenance, in a continued assessment process.

3.3 The activities for monitoring the performance or state of the SSC and their associated goals, as well as the activities of preventive maintenance, shall be assessed at each operating cycle.

In the case of plants in the stage of stopping their commercial operation, the interval between assessments shall not exceed 24 months.

The assessments shall bear in mind, where fit, the industry operating experience.

When necessary, adjustments have to be carried out to the maintenance programme that insure a suitable balance between the objective of preventing failures of the ESC through the maintenance, face to the objective of minimizing the unavailability of the ESCs due to activities of surveillance and preventive maintenance.

3.4 Before performing maintenance activities (including but not limited to surveillances activities, post-maintenance testings and preventive and corrective maintenance activities), the licensee of the facility must assess and manage the increase of risk resulting from the proposed maintenance activities. The scope of the assessments may be limited to those SSCs that a risk-informed evaluation process has demonstrated to be important for public health and safety.

The evaluation to be conducted may be quantitative, qualitative or a mix of both, depending on the significance for safety as well as the circumstances involved, although the evaluations must be as precise as possible depending on the technological resources and the available experience.

The results of the above assessments have to be drawn up in documents or records of the plant holder.

Fourth. Extent of the activities of surveillance.

The monitoring programme specified in the third Point of the present Instruction must include the following safety-related and non-related structures, systems and components:

4.1 Plants in operation.

- SSC that must remain functional during and after a design-basis accident to ensure the integrity of the reactor coolant pressure boundary, the capacity to shutdown the reactor and maintain it in a safe shutdown conditions, or the capacity to prevent or mitigate the consequences of accidents that could give rise to an undue risk for the health and safety of workers and the public.
- Non-safety related SSC which can contribute to mitigating accidents or transients or which are used in the plant's emergency operation procedures.
- Non-safety related SSC, whose failure could prevent other safety-related SSCs from fulfilling their safety function.
- Non-safety related whose failure could cause a reactor scram or the actuation of a safety-related system.

4.2 Nuclear power plants in the period of cessation of commercial operation until the beginning of the dismantling phase.

The licensee must monitor the performance or condition of structures, systems and components associated with the storage, control and maintenance of spent fuel in safe conditions in a manner sufficient to provide reasonable assurances that such SSCs are capable of fulfilling their intended functions.

Fifth. Documentation.

The licensees of nuclear power plants shall write a cycle report that includes the activities carried out in compliance with Section 3.3 of the present Instruction. This report must be sent to the Nuclear Safety Council within six months after the completion of the cycle object of evaluation.

Sixth. Application of the present Instruction.

In addition to the provisions of the present Instruction, for its best interpretation and as a form of compliance acceptable to the Nuclear Safety Council, the licensees of nuclear power plants may have recourse to Safety Guide GS-1.18 "Measuring the Effectiveness of Maintenance in Nuclear Power Plants".

Seventh. Exemptions and equivalent measures

Exemptions. The CSN may temporarily exempt from meeting some of the requirements of this Instruction, provided that the holder justifies as well the difficulty to meet those requirements in the form set out and preventing the said fulfilment, as the compensating measures proposed for its exemption.

Equivalent measures. The CSN may favourably consider, at the request of the beneficial holder, equivalent measures to meet the requirements set out in this Instruction, provided that the beneficial holder suitable accredits such fulfilment by means of the related evidence of the equivalent measures proposed.

Unique derogatory provision.

Is derogated any rule having an equal or lower rank which is opposed to this Instruction.

Unique final provision.

This Instruction shall become effective the day after it was published in the Official Gazette of the State.

Madrid, 5 May 2016.- The Chairman of the Nuclear Safety Council.

Fernando Marti Scharfhausen.