

REPUBLIC OF TURKEY



**NATIONAL REPORT FOR
THE CONVENTION ON NUCLEAR SAFETY**

SUPPLEMENTARY REPORT No: 3

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INTRODUCTION

Main national organizations involved in nuclear power project activities in Turkey remained the same; namely, the Ministry of Energy and Natural Resources, the State Planning Organization (DPT), the Turkish Atomic Energy Authority (TAEK), the Ministry of Environment and Forestry, and the Electricity Generation Corporation (EÜAŞ).

According to the current long-term energy planning studies made by the Ministry of Energy and Natural Resources, nuclear power is an important option to enhance the national energy security and reliability. In the short term, the Turkish Government intends to complete the necessary legal infrastructure as fast as possible and encourage the private energy sector for construction and operation of nuclear power plants. For this purpose, a law to provide incentives to the private sector has been prepared and submitted to the Parliament for approval. The aim is to diversify the portfolio of energy generation options and to reduce our heavy dependence on imported fossil fuels through sequential commissioning of nuclear power plants into the national electricity grid.

Meanwhile, TAEK continues to enhance the national regulatory structure and competence on nuclear safety. A draft nuclear law, addressing the responsibilities of all parties active in nuclear field as well as the establishment of an independent regulatory body, has been prepared and approved by the Atomic Energy Commission of TAEK.

TAEK also continues to enhance emergency preparedness and response capabilities against existing nuclear power plants close to the national territory. The RESA (Radiation Early Warning System) has been strengthened by upgrading the stations to be continuously online and increasing the number of stations. A laboratory has been established for environmental monitoring to observe the effects of Armenian Metzamor NPP and to analyze the samples that will be collected in case of real emergency. Negotiations with Romania have already been finalized for bilateral agreement on early warning of nuclear and radiological accidents as further measures on nuclear safety of Turkey; the agreement with Russia is still under negotiation.

This document has been compiled as a supplementary report, containing only updated information reflecting the changes since the submission of the Turkey's National Report (TNR2004) for the Third Review Meeting.

REVIEW OF THE NATIONAL STATUS

A. GENERAL PROVISIONS

EXISTING NUCLEAR INSTALLATIONS (ARTICLE 6)

There is no change since 1999 regarding Article 6 of the Nuclear Safety Convention. However, detailed site investigation studies have been initiated in Sinop as a future nuclear site.

B. LEGISLATION AND REGULATION

LEGISLATIVE AND REGULATORY FRAMEWORK (ARTICLE 7)

Regarding nuclear installations, a new law is in the immediate agenda of the Parliament. Governmental support for nuclear power projects is officially declared in this law through various incentives to the private sector companies.

Meanwhile, regarding regulatory framework on nuclear safety, several steps have been taken. The draft nuclear law has been prepared based on the “Handbook of Nuclear Law” of IAEA, addressing the responsibilities of all parties active in nuclear field and establishing two different organizations: an independent regulatory body and a research and development organization. The draft nuclear law has been discussed with IAEA experts on the basis of issues addressed and finalized through collaborative study with relevant authorities. The draft nuclear law has been adopted by the decision making body of TAEK, the Atomic Energy Commission (AEC) and submitted to the government for adoption. It is expected to be in the agenda of the Parliament in 2008.

Draft nuclear law is supported by several decrees, the most relevant one being the Decree on Nuclear Safety. This decree has also been drafted and adopted by AEC. It is in the process of final evaluation for consistency with Turkish legislative framework by the Council of State. It is expected to be published in Official Gazette within the first half of 2008. The Decree on Nuclear Safety is drafted such that it can also stand under the current TAEK Act, in case the draft nuclear law is not adopted in the near future as expected. Therefore, regulatory framework on nuclear safety does not directly depend on the draft nuclear law.

General requirements on nuclear safety have been detailed in various regulations, which are either drafted or in the process of drafting, for procedural issues, acceptance criteria, etc. Since the adoption procedures are relatively simpler for regulations than decrees, they will be ready for adoption as soon as the draft decree is enforced. The ones relevant to the Nuclear Safety Convention are the regulations on Specific Safety Principles for Nuclear Power Plants and Design Principles for the Safety of Nuclear Power Plants. These two regulations has been drafted by upgrading of AEC approved document of “Specific Safety Principles for NPPs” previously mentioned in Turkish National Report on 2004 (TNR2004).

REGULATORY BODY (ARTICLE 8)

Regulatory Body of Turkey is the Turkish Atomic Energy Authority (TAEK), which undertakes all the regulatory activities concerning nuclear and radiation safety together with the coordination and support of research and development activities in nuclear field.

However, draft nuclear law also addresses the issue of an independent regulatory body in Turkey. The law establishes the Turkish Nuclear Regulatory Authority (TNRA) with authorities and responsibilities in complete compliance with the ones stated in the IAEA Safety Standards Series GS-R-1 and the Handbook on Nuclear Law of IAEA. The draft nuclear law strips TAEK of its regulatory responsibilities and reestablishes it as a research, development and utilization body. Depending on the agenda of the government, TNRA may be established as early as the second half of 2008.

RESPONSIBILITY OF THE LICENSE HOLDER (ARTICLE 9)

Prime responsibility for the safety of a nuclear installation is on the holder of the relevant license. This responsibility is clearly stated in the draft nuclear law and further emphasized and detailed in the draft Decree on Nuclear Safety.

Besides, the Article 7 of the licensing decree (Annex IV of TNR1999) states that “Applicant shall provide insurance or other financial guaranties according to the provisions of the Paris Convention on Third Party Liability in the Field of the Nuclear Energy, ratified by the Act No. 229 dated 8 may 1961, and its attachments and amendments.”

Turkey is a party to the “Paris Convention on Third Party Liability in the Field of Nuclear Energy.” Turkey signed the 2004 Protocol amending “Paris Convention on Third Party Liability in the Field of the Nuclear Energy”. The Joint Protocol Relating to the

Application of the Vienna Convention and the Paris Convention was approved on November 2006.

C. GENERAL SAFETY CONSIDERATIONS

PRIORITY TO SAFETY (ARTICLE 10)

The main mission of TAEK is to ensure that the use of nuclear energy in Turkey does not pose undue risk to health and the environment. This objective and the priority given to safety are also addressed and emphasized in the draft nuclear law and the decree.

FINANCIAL AND HUMAN RESOURCES (ARTICLE 11)

There is no change since 2004 regarding Article 11 of the Nuclear Safety Convention.

HUMAN FACTOR (ARTICLE 12)

The operating organization responsibilities, human resource management issues, and training of operating organization are detailed in several articles of the document on “Specific Safety Principles for NPPs”.

QUALITY ASSURANCE (ARTICLE 13)

TAEK has established a new set of quality management basic principles for the nuclear installations in 2007. The outlined new basic principles are similar to the basic requirements of the “IAEA Safety Series 50-C-Q - Code Quality Assurance for Safety of Nuclear Power Plants and Other Nuclear Installations, 1996”. The basic requirements of the code is used as a foundation for the new quality management system requirements and this is enhanced by the use of the ISO 9001 Quality Management System -Requirements Standard-2000 terminology and principles rather than quality assurance terminology of the code.

The main criterion for the TAEK quality management system is the effective use of the process improvement approach by the responsible organisation, its contractors/suppliers and their sub-contractors/sub-suppliers. This is imposed by the regulation but some of the requirements are flexible within the scope of the work to be carried out.

The new TAEK approach is open to further developments in the field of management systems defined by the “IAEA Safety Standards Series No. GS-R-3 - The Management System for Installations and Activities Safety Requirements - 2006,” which defines the integrated

management system elements as: safety, quality, health, security, environment and economy in which nuclear safety is to be given the outmost priority every time and above all.

Subsequently, TAEK has also considered the configuration management aspect of the nuclear installations and require a configuration management system to be established as per the requirements determined by TAEK in a very early stage, e.g. design, following the siting. The quality and configuration management handbooks and plans for the whole project as well as for each single stage are subject to approval by TAEK. The quality grading methodology and systems, structures and components safety and quality classification lists have to be submitted together with the quality manual.

The applicant has to commit in the relevant chapter of the safety analysis report that basic requirements of quality management stated in the regulation are to be fully complied with and has to demonstrate that the requirements are fulfilled.

Throughout the life of nuclear installations the responsible organisation, its contractors/suppliers, their sub-contractors/sub-suppliers and their activities are subject to regulatory inspections such as review, assessment, examination and audits according to the methods to be determined by TAEK. TAEK has the freedom to choose the type, frequency and coverage of the inspection. Any quality inspection carried out as per the new regulation is considered as nuclear regulatory safety inspection.

During the review and assessment of the submitted quality management documentation, if any non-conformances, deviations and inadequacies are determined, the permit or licence application will be suspended. During the regulatory quality inspections carried out, if any non-conformances or deviations are determined, the works may be stopped by TAEK unless corrective and preventive actions are taken by the responsible organisation who carries out the quality management activities for the nuclear facility.

TAEK may also decide to stop the activities for a certain period of time if the responsible organisation personnel do not cooperate and do not submit the required information or documentation during the regulatory quality inspection by TAEK.

TAEK evaluates the importance, urgency and seriousness of the violation of the regulation from the safety point of view in decisions taken for managerial enforcement actions. If these violations are against the permit or license conditions, item (e) of the Article (4) of the TAEK Act shall be applied.

The new approved regulations expected to be published in the Official Gazette soon are:

- 1) Regulation on Basic Requirements of Quality Management for Safety in Nuclear Installations,
- 2) Regulation on Nuclear Safety Inspections and Enforcements.

The regulations expected to be superseded by the above new regulations are:

- 1) Regulation on Quality Assurance and Inspection Requirements for Nuclear Installations, dated 13.3.1997 and Official Gazette no: 22932,
- 2) Regulation on Basic Requirements for Quality Assurance Programme in Nuclear Installations, dated 12.3.2000 and Official Gazette no: 23991.

ASSESSMENT AND VERIFICATION OF SAFETY (ARTICLE 14)

Since the “Decree Pertaining to Issue of Licenses for Nuclear Installations” is still effective, and there is no revision on the decree, the licensing procedures are the same as the ones explained in TNR1999. However, there is a draft regulation on procedural aspects that addresses current issues regarding the licensing of NPPs.

RADIATION PROTECTION (ARTICLE 15)

Legislation related to radiation protection in Turkey, namely the “Decree on Radiation Safety” and “Regulation on Radiation Safety” are under revision to comply with the European Union *acquis*. This revision intends to remove all radiation protection issues from the safety decrees and regulations and to draft a Decree on Radiation Protection based on the EU Council Directive 96/29. Most of the drafting work has been carried out on this Decree. It will be finalized by participation of the other relevant authorities such as Ministry of Health, etc.

EMERGENCY PREPAREDNESS (ARTICLE 16)

The Early Warning Environmental Radiation Monitoring System, designed and assembled by Turkish Atomic Energy Authority experts, is in operation under the surveillance of the Emergency Preparedness and Co-ordination Unit of TAEK, with 79 on-line stations at present. TAEK recently decided to participate on a voluntary basis in EURDEP (European Radiological Data Exchange Platform), which is regulated by the Council Decision 87/600 and

the Recommendation 2000/473/EURATOM. Studies on the data compatibility for exchange are continuing.

ECURIE (European Community Urgent Radiological Information Exchange) agreement was accepted and duly signed by the EC and TAEK on 26 July 2005. The agreement is to be ratified. After ratification CODECS system will be installed for the ECURIE purposes.

Due to closeness of the location of the Armenian NPP to the eastern border of Turkey, some areas in the region is considered as places where urgent protective measures are to be taken during an accident at this NPP. In order to facilitate the protective actions and for routine and non-routine measurements of the gamma radioactivity in the air, water, soil, feedstuff and foodstuff samples taken from the region, a dedicated laboratory has been established at Kafkas State University, located in the region, in 2005.

Turkey signed bilateral agreements with Bulgaria and Ukraine on early notification of a nuclear accident and exchange of information on nuclear facilities. An agreement on the same subject is to be signed with Romania in October 2007 and negotiations with Russia on a similar agreement are yet to be finalized.

D. SAFETY OF INSTALLATIONS

SITING (ARTICLE 17)

Siting procedures for NPPs and acceptance criteria for NPP sites were drafted in the form of regulations within the new structure. There is also a draft format and content guidance document for Site Reports.

DESIGN AND CONSTRUCTION (ARTICLE 18)

The draft regulation on Design Principles for the Safety of Nuclear Power Plants focusing on design issues for ensuring safety of nuclear power plants is based on IAEA documents. Similarly, draft regulation on Specific Safety Principles for Nuclear Power Plants addresses construction issues for nuclear power plants.

General principles for design, design management, proven technology are regulated in the first of the draft regulations, together with plant process control systems, safety systems, reliability targets, common cause failures, equipment qualification, and radiation protection

principles in design. Requirements regarding design principles against accident prevention and management are introduced. For the construction of nuclear power plants, safety evaluation of design and achievement of quality during manufacturing and construction are the main principles addressed in the second draft regulation.

OPERATION (ARTICLE 19)

The draft regulation on Specific Safety Principles for Nuclear Power Plants also addresses safety aspects of operation. The responsibilities and staffing of the operating organization, safety review procedures, training, operational limits and conditions, normal and emergency operating procedures, feedback of operating experience, maintenance, testing and inspection during operation are the main topics in this regulation regarding the operation of nuclear power plants.