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The first PSA of the TRIGA Mk II in Vienna, Austria

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The concept of a ten year safety assessment (Periodic Safety Assessment, PSA) of a nuclear facility was introduced into Austrian legislation only in 2011, resulting in a deadline for a first such assessment by the end of 2014 for existing facilities.

The content of the PSA as laid down in the regulations consists of

- The current Safety Report of the facility

- Presentation of the current condition of the facility

- Analysis of the Operational Experience

The current version of the Safety Report of the TRIGA Mk II in Vienna was recently approved by the authorities.

As Austrian law already requires a yearly safety assessment for any Nuclear facility, the production of the PSA was in its first iteration a collection of the findings of the last 10 yearly assessments. Because of the yearly assessment by the regulatory bodies, a strict and detailed plan for maintenance and inspection of all relevant systems of the research reactor exists. From this, a detailed description of the current condition of the facility could easily be extracted. Following the structure of the periodic maintenance schedule and in-service inspection, every relevant system and part of the research reactor was presented, any work performed on the system within the last 10 years was described and a conclusion to the current status of the system was drawn.

One of the conditions from the last yearly assessment of the TRIGA Mk II research reactor was an exchange of the old I&C system, to bring the instrumentation of the reactor fully up to date. With this in mind, it was decided to use the PSA to exchange or renew most of the major infra-structural components of reactor. As such, many systems that were still functional but close to their expected life time, were marked for exchange in the PSA, most important the primary and secondary cooling system as well as the reactor ventilation system.

Because of rigorous records kept by the reactor personnel from the start up of the reactor in 1962, an in-depth analysis of all operational measures could be performed. All notes in the reactor log book were entered into a database and assigned to the categories defined in the IAEA safety standards. Throughout the operational lifetime of the reactor, only 3 events occurred that were subject to report to the authorities. From the chronological analysis of the records, the renewal of the I&C systems was indicated.

After submission of the PSA to the competent authorities in late 2014, and a subsequent review of the documents by experts, a few additional documents were required for final submission. The PSA is currently being processed by the regulatory bodies.

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