

Technical Meeting on Current Issues and Challenges in Fuel Quality and Reliability Assurance

13-15 December 2010, Vienna, Austria

INFORMATION SHEET

I. BACKGROUND

Nuclear fuel is a critical component for the core safety, and its robustness is essential for efficient power generation.

Reliable, safe and economical performance of nuclear fuel depends on its design, the processes used for its fabrication and the environment for its operation. Each of these three areas requires strict quality control (QC) and quality assurance (QA) to guarantee that the performance and safety goals are achieved. The factors that control the quality are quite different in each of these areas; nevertheless they are interactive, and both plant operator and fuel vendor have to be aware of them. The trend to more demanding performance parameters and the competitive reload fuel market have resulted in design evolution that could sometimes outpace practical experience. This has produced a renewed need for R&D, design reviews and associated audits to assure reliable fuel performance and maximize plant availability. New challenges also include fuel supply assurance and power sustainability concerns, which require new interdisciplinary managerial and organisational approaches.

The uniting principles for all stages of the nuclear fuel life - development, design, fabrication and operation - are fuel Quality and Reliability, and new tendencies have brought about recent introduction of new or modified safety and management standards, codes and models (ISO, IAEA, EFQM, RCC-C, etc).

II. OBJECTIVES

The purpose of the meeting is to provide an overview of the present status, issues and challenges of fuel QA/QC procedures and management practices that are critical for fuel quality and reliability, as well as to facilitate international exchange on best experience in these areas.

The meeting will cover both light and heavy water reactor fuels and will contribute to the preparation of the NE Series Guide on quality and reliability of fuels for water cooled power reactors.

III. TOPICS TO BE COVERED

Papers are invited on the following aspects of fuel quality and reliability assurance:

- QA/QC in design & manufacturing of fuel assembly and their components:
- Advancements in pellets manufacturing;
- Improvement of fuel rod designs (for higher powers and burnups, accident conditions, intermediate storage);
- Resolution of fuel assembly-related performance issues.
- Fuel Safety related aspects:
- Performance feedback and fuel failure analysis;

- Key characteristics to ensure adequate performance during normal operation and accidental conditions;
- Current status of development of new acceptance criteria for licensing (e.g. LOCA/RIA).
- Management and organizational aspects:
- Globalisation of relations between international and national utilities, vendors and regulators;
- Role of human factor, organizational and management procedures;
- Interactions among national QA/QC, regulatory and legal systems.

IV. ORGANIZATION

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