COMPETENCES AND LIFE MANAGEMENT PROGRAMMES

S. Brunatti, A. Bergara, J. Ranalli, R. Versaci
Comisión Nacional de Energía Atómica, Argentina

E-mail address of main author: versaci@cnea.gov.ar

The nuclear industry is, at present, at a crucial juncture, where it has to decide about the future of the first generation of nuclear plants, which are approaching the end of their licensed service life. At the same time, long term experience and new advances have established that it is possible to extend the life of nuclear plants beyond their initially licensed life by another 20-30 years. Extending the operating life of existing nuclear plants will help to reduce the short term need for new generating capacity - without new capital costs. However, these extensions must take place in the context of careful safety analysis and monitoring of equipment ageing concerns.

A nuclear power plant must be managed in a safe and efficient manner throughout all the life cycle stages from design through decommissioning. The consequences of management decisions about nuclear power plants can have profound economic impacts for the nuclear power plant owner, and possibly for the national economy. In addition, the consequence of a major failure or accident can have catastrophic national socio-economic effects that may be felt internationally.

The safe and effective management of a nuclear power plant therefore requires dramatically different perspectives in time from the majority of other industries. The impact of some decisions extends beyond the normal strategic perspective of both owners and governments.

The integration of activities for ageing management, safety management and business management of a nuclear power plant are an essential element of “life cycle management”.

The loss of information at any stage of a nuclear power plants life deprives people, at later stages, of knowledge that could be important to safe, economic completion of work or which could aid the analysis of problems and options. It is costly to go through the learning process again, with a risk of potential events or incidents, programme delays, physical injury and increased regulatory surveillance. In some cases, it may be impossible to rebuild information. As a consequence assumptions may have to be made that cannot be easily substantiated.

It is therefore essential that the strategies for plant life management are developed with sufficient clarity to enable the associated human resource strategy or long term Human Resources plan to be developed. This strategy/plan should be reviewed and updated periodically to verify that it is consistent with and supports the nuclear power plant life cycle needs.

In this work we analyze the competences of young peoples for working in the Life Management and Life Extension of Nuclear Power Plants Programmes.

Competences and skills are understood as including knowing and understanding (theoretical knowledge of an academic field, the capacity to know and understand), knowing how to act (practical and operational application of knowledge to certain situations), knowing how to be (values as an integral element of the way of perceiving and living with others and in a social context). Competences represent a combination of attributes (with respect to knowledge and its application, attitudes, skills and responsibilities) that describe the level or degree to which a person is capable of performing them.
In this context, a competence or a set of competences mean that a person puts into play a certain capacity or skill and performs a task, where he/she is able to demonstrate that he/she can do so in a way that allows evaluation of the level of achievement. Competences can be carried out and assessed. It also means that a normally person does not either possess or lack a competence in absolute terms, but commands it to a varying degree, so that competences can be placed on a continuum.

The following was taken as a working classification:

— **Instrumental Competences**: Those having an instrumental function. They include:
  
  • *Cognitive* abilities, capacity to understand and manipulate ideas and thoughts.
  
  • *Methodological* capacities to manipulate the environment: organising time and strategies of learning, making decisions or solving problems.
  
  • *Technological* skills related to use of technological devices, computing and information management skills.
  
  • *Linguistic* skills such as oral and written communication or knowledge of a second language.

— **Interpersonal Competences**: Individual abilities relating to the capacity to express one’s own feelings, critical and self-critical abilities. *Social skills* relating to interpersonal skills or team-work or the expression of social or ethical commitment. These tend to favour processes of social interaction and of co-operation.

— **Systemic competences**: those skills and abilities concerning whole systems. They suppose a combination of understanding, sensibility and knowledge that allows one to see how the parts of a whole relate and come together. These capacities include the ability to plan changes so as to make improvements in whole systems and to design new systems.

**REFERENCES**

