
KNOWLEDGE CAPTURE AND PRESERVATION AT CERNAVODA UNIT 2 PROJECT

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As it is known, Cernavoda Unit 2 - Romania, is a delayed nuclear power plant (NPP), started in early '80s, works were frozen in 1990 and resumed in 2003 under a management contract concluded by Nuclearelectrica, the Romanian nuclear utility, with Atomic Energy of Canada Ltd (AECL)-Canada and Ansaldo - Italy. This project has many specificities, **including long** time stored equipment, some works done 15 to 20 years ago; technology developments during these years; only couple of staff available from those initially involved; and a forthcoming project (Cernavoda Units 3 & 4) in its latest development phase.

On top of that, like in other Eastern European countries, Nuclearelectrica is losing people due to salary issue and "brain drain". In the actual international situation where the nuclear energy contribution to energy mix is under reconsideration and where the demand for qualified personnel significantly exceeds the offer, it is estimated that maybe the biggest challenge of the forthcoming Cernavoda Units 3 and 4 would be availability of human resources.

As Cernavoda Unit 2 Project goes towards a successful completion, all those who put lots of efforts and a difficult to overestimate contribution to overcome all challenges of this special Project will leave one after the other. Special attention is being given by Nuclearelectrica and the main contractors AECL and Ansaldo capturing the knowledge (both explicit and tacit) accumulated in these last almost five years and to leave to those who will continue the forthcoming Unit 3 & 4 Projects and to the nuclear industry in general.

The objective on knowledge capture and preservation is to gather all experience and lessons learned during contracting, financing, constructing and commissioning of NPP Cernavoda Unit 2, with a focus on tacit knowledge and to assess potential improvements that might be applied in the forthcoming projects, in order to improve nuclear and economic performance.

There are couple of processes aimed to capture Unit 2 Project knowledge, including

Feedback control by/from Cernavoda Unit 2 Project: owned by the Project Management Team, it is a process under the control of "Discipline Manager" and "Division General Manager". It excludes any personal opinion type of feed-back. Main topic covered include: design **technical**, design process, procurement process, contract items and systems.

Commissioning completion assurance (CCA) certificate: they are issued for a system or group of **systems** to provide **assurance that** each system has been adequately tested, its performance assessed to meet the design intent for a specified control point, and **succeeding** commissioning tests can proceed safely. Within this process specific attention is given to the problems discovered during commissioning and recommendations are **provided** for Units 3&4 in the commissioning report. The process is owned by the Commissioning Team **within the** project Management Team.

C2 Experience: owned by the Owner and intended to focus on all important topics in a NPP construction and commissioning project. In the **development** of database structure the IAEA-TECDOC-1390 was a valuable source of information.

C2 Experience is a small project specifically designed with a focus on capturing tacit knowledge. It is addressed to all managers from a certain level upward and senior specialists within the Project, who were invited to participate and provide their opinion on things that could be improved or streamlined on a number of 18 topics, including contract, financing, design, procurement, QA/QS, site infrastructure and IT tools. It consists in inputs provided in a web-accessed database specifically designed to provide a friendly user interface and in exit interviews with selected specialists. Minimising the time needed to input an information was a special request considering that the final stage of a project keeps very busy those requested to share project experience and lessons learned. The process is actually being implemented and completion would be after commercial operation.

After the finalization of the data input process, the information will be reviewed by a steering committee in order to filter out scam, etc. if any.

The main product of this process will be a database on Unit 2 Project knowledge structured on work break down structure, that could be easily sorted down on some key words like performance improvement, reduce cost/schedule. It would be of great value for the forthcoming project Units 3&4 allowing to streamline the difficulties caused by personnel turnover and to improve performance. It would be also containing valuable information for the nuclear industry in general and specifically to delayed nuclear projects.