

Beloyarsk NPP

Nuclear power plant	Beloyarsk NPP
Project reference	Beloyarsk NPP
Project name	installation of a fire detection system in BN-600 unit cable constructions
IAEA safety issue	IH2
Safety rank	III
Budget year	1997
Contract amount, Euro	200,000
Contract status	Completed
EC endorsement of the contract	08.05.2002
Supplier	Fortum, Finland
Current status of the project	Completed, PAC signed 28.05.2004

1. Project impact on safety:

The low reliability of the original fire detection system in Beloyarsk NPP used to lead to frequent spurious actions of the sprinkling system which may cause changes to the cables, and unpredictable mal-operation of the safety related system. In some cable tunnels the humidity is such that it caused frequent equipment failures with false fire signals and spurious fire protection actuation. Therefore, it was decided to replace the fire detection system with a more reliable system with detectors qualified for highly humid environment. In the result of the project, the safety of cables has been much increased.

2. Project history

The scope of the project included

- Fire alarm system analysis, to select a fire alarm system appropriate for use of the existing cable connections.
- Supply of reliable detector, spare part, maintenance and monitoring training of the BN600 NPP personal.
- Installation of an automatic fire detection system in the cable tunnels of the NPP.

Technical specifications were prepared by November 2000. Related activities were covered by the project R1.06/96, contract 98-0014. Call for tender was published in January, and bid evaluation took place in March 2001. However, these activities were cancelled/ invalidated in September 2001.

Company Fortum Engineering, now Enprima in Finland was the winner of the tender. However, just at the time when the supply contract should have been signed in accordance with the procurement harmonised approach, the tender was cancelled by EC/ Tacis, apparently due to a number of recommendations stated in the evaluation report to improve the supply, invalidating the technical specifications.

The further supply contract negotiation and the signature process by direct agreement with the successful tenderer (on the basis of improved equipment, as per mentioned recommendations) took about seven months and was finalised in early May 2002.

Further on, the supply contract implementation was gaining momentum, and the kick-off meeting took place at the end of May 2002.

After the Kick-off-Meeting (KoM) in May 2002, the progress of the project was good. BNPP informed the supplier on the conditions for installing and operating the system, one of the priorities for the BNPP modernisation programme. The Supplier's experience in implementing a similar project at LNPP under EBRD contract appeared beneficial. The equipment was manufactured according to the plan, and by September 2002 the supplier already obtained the required certification (integral certification was not required). Equipment delivery, training and installation were done in June 2003 (plant outage was not required). Commissioning with Provisional Acceptance Certificate (PAC) took place in September 2003

Significant improvement in the operational safety was achieved for the BN 600 NPP.

The Contractor ensured the assistance during the warranty period (until May 2006). Presently the project is completed and the equipment in operation.

This was a successful project, say the representatives of the plant.

List of Fire photos



Cabinet with the map of sensors locations



Fire centre unit , ESA



Movable operator panel



Servicing fire centre unit ESA



Servicing the fire detectors in situ



Checking operation of the Main Fire Centre, MESA