

THERMOHYDRAULICS STUDIES AT GENTILLY 2

Hong M. Huynh
Hydro-Québec, Canada

ABSTRACT

As owner of a single unit nuclear generating station, our goals are to operate the station with high safety standards and to achieve a high gross annual capacity factor. In addition to the operation and maintenance activities, enormous supporting analyses are required for each nuclear power generating plant. Thermalhydraulics analyses play an important part in this area.

In this paper, several aspects of thermalhydraulics studies at Gentilly 2 will be presented. Since systems analyses require analytical tools, development and validation of codes will be described. The thermalhydraulics studies cover the support of normal plant operation, the process modifications, the analyses of abnormal events, the safety analyses, and finally the R&D participation in COG. Typical encountered problems like the impact of equipment impairment on previously analyzed operating conditions and other thermalhydraulics studies will be elaborated such as:

- a) Divider plate replacement in four steam generators,
- b) Degaser-condenser relieve valves' replacement,
- c) Automatic PHT pump trip logic,
- d) Emergency core cooling recirculating line's modification,
- e) Operation in shim mode,
- f) Operation at unanalyzed conditions,
- g) Improvement of fuel cooling effectiveness with loss of forced circulation under accident conditions with process modifications,
- h) Fuel elongation under LOCA conditions
- i) Loss of Class IV power event,
- j) Alternative heat sink strategies during reactor shutdown,
- k) Others...

This paper presents an overview of our activities related to thermalhydraulics studies at Gentilly 2 and it also illustrates the process by which we integrate the generated R&D results into our thermalhydraulics studies.