Fourth CNS International Conference on CANDU Maintenance
November 16 - 18, 1997
Toronto, Canada

Service Water Systems Management using CHECWORKS™

Tracy Gendron and Peter Angell,
Atomic Energy of Canada Ltd., Chalk River Laboratories, Chalk River, Ontario, KOJ 1JO, Canada.

Abstract

The service water system is commonly considered to be of lesser importance than other systems in nuclear power plants. However, degradation of service water systems components has often resulted in forced outages, extended outages, and unit de-ratings with significant economic penalty to the plants. To avoid these problems, the service water systems engineer must be aware of a large variety of degradation mechanisms for an equally wide variety of materials under a broad range of operating conditions and system designs. The variety of degradation mechanisms as well as remedial treatments requires the service water engineer to be knowledgeable of subjects not relevant to other systems, for example, organic coatings and corrosion by living organisms.

The CHECWORKS™ Service Water Module is a tool being developed to assist the service water system engineer in the following ways.

- focus inspection and maintenance activities
- evaluate remedial mitigation options
- organize system data
- demonstrate compliance to regulators

The Service Water Module contains a set of models installed on the CHECWORKS™ platform that predict the susceptibility or rate of corrosion and fouling on a component-by component basis. Predictive models include, microbiologically influenced corrosion, cavitation, erosion-corrosion, galvanic corrosion, general corrosion, pitting, sedimentation, fouling (scaling, biofouling, silting), etc.. As a result of AECL's participation in the development of this module, all COG-member utilities may obtain versions of the executable software free of charge.