# Indian Point Unit 3
# CHECWORKS SFA Model

**Calculation No. 0705.100-01**
**Revision 2**
**Issued For-Use**

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5.5.7. **Pass 2 Wear Rate Analyses (WRA) and Line Correction Factor (LCF)**

Pass 2 Wear Rate Analysis was performed on the Wear Rate Analysis Runs as defined with one change: the Analysis Option, "Do Not Use Measured Wear" was deselected. As in Pass 1 WRA, Pass 2 WRA will generate for each component a predicted wear rate, and a predicted remaining service life. During Pass 2 WRA, CHECWORKS also generates a Line Correction Factor (LCF) for each WRA Run in the following way. For each inspected component in the run where the option "Do Not Use for LCF" is not chosen, CHECWORKS generates a ratio of the calculated wear to the predicted wear. The LCF for a run is defined as the median value of these ratios. CHECWORKS multiplies the Pass 1 wear predictions by the LCF to generate the Pass 2 wear predictions.

The LCF indicates the degree to which CHECWORKS over or under-predicts wear. A reasonable LCF should be between 0.5 and 2.5 [7.7]. An LCF outside this range may be the result of inaccuracies in the model (e.g., incomplete chemistry history) or non-representative inspection data.

## 5.6. Network Flow Analysis

Network Flow Analysis (NFA) is a module within CHECWORKS that can be used to calculate pressure, flow rate, enthalpy, and quality at each component. If used, the results of the analysis are available for access by CHECWORKS during the Wear Rate Analysis to predict corrosion rates.

NFA should be used where a thermodynamic quantity of interest is unknown or unavailable. For example, if flashing across a control valve or orifice is considered possible; NFA can be used to calculate the steam quality at each component. This is necessary for accurate prediction of the FAC wear rate. For lines where thermodynamic conditions are known and the potential for flashing is small, NFA is not needed because the results would not increase the accuracy of the Wear Rate Analysis.

Three NFA Runs were added after RO16 for the newly-modeled 31 Feedwater Heater Drains. Details of these runs can be found in Appendix A.

## 5.7. Water Chemistry Analysis

Water Chemistry Analysis uses the Plant Global Data (Heat Balance Diagram, Power Level Data, Steam Cycle Data, Water Chemistry Data, and Plant Period Data) to determine the pH levels and chemical concentrations at various locations around the steam cycle. These values strongly affect FAC rates.

The Water Chemistry Analysis calculates the pH levels and constituent concentrations, for each line on the Heat Balance Diagram. The appropriate values are then used in the calculation of predicted wear rates for each component through the association of its database line to the HBD.

Water Chemistry Analysis can also be performed independently from Wear Rate Analysis. The resulting chemistry levels around the HBD are the same as they are