Re Page B-38:

Q. By how much has the 10% benchmark for plugging tubes been exceeded? Is this an industry benchmark that mandates or recommends replacement of the high pressure heater or is there an alternative industry practice to replacement?

A. The heat exchanger industry generally uses an allowance of 10% to account for plugged tubes and fouling. Once the number of tubes removed from service exceeds 10%, performance of the heat exchanger deteriorates noticeably. When this feedwater heater was inspected (see attached letter), it was observed that 5% of the tubes were plugged. However, testing of the tubes indicated that many of their wall thicknesses had deteriorated to the point that leaks were imminent and it was decided to plug the tubes at risk. The result is that now 28.6% of the tubes are plugged. The effect that this has on the performance of the heater is described in the response to IC23-NLH.

November 14, 2006

Mr. Arthur Smith
Newfoundland & Labrador Hydro
Holyrood Generating Station
P.O. Box 29
Concepcion Bay, NL AOA 2RO

Subject: Unit 2, HP Heater #5

Dear Mr. Smith:

Regarding the observations made during the tube sample removal, the overall general condition of this heater is about average for its age. Based on the Eddy Current map, the unit is about 5% plugged, the general rule of thumb for exchangers of this type is that you can plug up to 10% of the tubes without adversely affecting the performance of the unit. When approaching that number, consideration should be given to refurbishment or replacement.

Based on the Eddy Current results, there are quite a number of tubes approaching the point of failure, depending on how the unit is operated; this can become a constant maintenance headache. One method of reducing unplanned failures is to individually hydrotest the tubes to operating pressure, or higher if desired, to fail weak tubes. This can be done during a planned outage and can help reduce operational failures.

Thermal Engineering International is capable of providing the full range of products and services required to maintain, repair or replace your feedwater heaters and we look forward to working with you in the future.

Regards,

TEi Struthers Services

Mark Fulton
Mark R. Fulton
Quality Control Manager

Thermal Engineering International
201 North 4th Avenue
Royersford, Pennsylvania 19468

A Babcock Power Inc. Company

Tel: (610) 948-5400
Fax: (610) 948-5779
www.teiservices.com
service@teiservices.com