

## Quick Response to Assist Nuclear Power Plant

A US nuclear plant and their engineering contractor were faced with an unexpected challenge in the course of design work regarding installation of an emergency steam dump sparger in the plant's Low Pressure (LP) condenser. During pre-outage reviews of the planned installation, it was found that an existing partition plate running nearly the length of the condenser was obstructing access. The partition plate, if left as is, would interfere with this installation and provide workspace restrictions. Ideally, removal of the partition was desired. But there was inadequate information in the existing records to determine the function with respect to condenser performance or structural role of this partition plate. Without this information, an informed decision could not be made to remove this plate from inside the condenser.

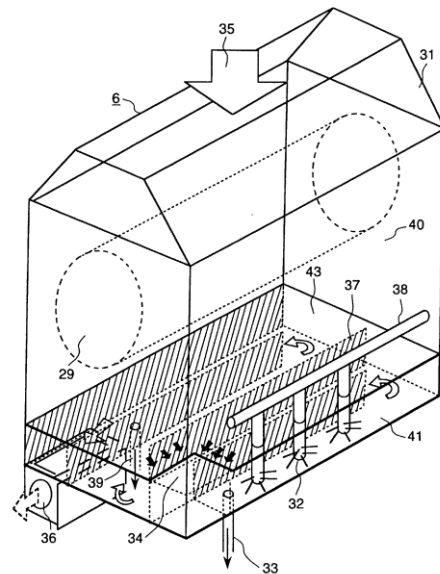


Intek, Incorporated was contracted to perform engineering analyses necessary to determine the function(s) of the partition plate, to examine performance impact and risk assessment of the proposed modifications, and to provide general technical assessment of the modification and operations. This would provide the information necessary for the plant and its contractor to determine the proper course of action. Because the outage was in progress, an early response was requested.

Intek's unique condenser monitoring and diagnostic instrumentation have, over the past 15 years, provided a wealth of information regarding the physical science principles and engineering understanding of the inner workings of condensers. Additionally, Intek has an unmatched library of performance data from condensers of numerous designs. This unique knowledge and resources form the foundation of Intek's expertise, which has resulted in our Comprehensive Condenser Model and Methods (C<sup>2</sup>M<sup>2</sup>). The use of this C<sup>2</sup>M<sup>2</sup> allows the accurate

modeling of condensers and provides useful performance prediction. Using this back-ground and comprehension, Intek analyzed the provided data regarding this low pressure condenser problem. Intek was able to describe the original design function of this plate, and to demonstrate, using finite element analysis, that the partition plate was not load bearing and had no structural function; it could be safely removed, and furthermore, its removal was shown to have no effect on performance of the condenser.

The completed report was delivered within the estimated one week time frame. The client plant and its engineering contractor were extremely pleased with the detailed analytical findings, substantiated with mathematical model data and meeting the nuclear industry's requirement for analytical rigor and documentation. Intek also pointed out issues that are limiting performance of the condenser and reducing heat transfer in this condenser. Recommendations were provided for future actions to improve performance.



Intek's exceptional knowledge can help users, designers and buyers of condensers to meet objectives, to improve power generation efficiency, and to lower the cost of generating power. Call an Intek Sales Engineer to discuss specific concerns or issues and see why Intek is the Gateway to Improved Condenser Performance, Fast Response Maintenance and Optimized Operations for the fossil and nuclear power generation provider.