N159. Using Satellite Technology To Improve Steam Generator Eddy Current Inspections

Steam generator inspections were performed at Prairie Island and Kewaunee in record time using a new data acquisition and analysis system. One of the most important features of the system is the use of a satellite data link to eliminate the need to transport an analysis team to the inspection site. The use of this system resulted in significant savings of time and money.

The Zetec Eddynet system was used to inspect the inlet and outlet legs of these steam generators simultaneously. The system uses HP-UX-based software to acquire and analyze digital eddy current inspection data. It is composed of four MIZ-18 digital testers with LAN interfaces connected to the same LAN as four Hewlett-Packard workstations which acquire the data.

The testers used for acquiring the digital data and the remote controllers for the positioning robots and the probe drive mechanisms were located next to the steam generator channel heads. The computer workstations used to control the testers and other robotic equipment were kept in a van outside the radiological control area.

Once the data from a tube was collected, it was stored on a hard drive in the analysis system, where it could be analyzed immediately, eliminating the delay in other systems for manual data transfer to the analysis system. The Eddynet system is designed for independent two party data analysis (a standard U.S. practice). Primary and secondary analysis can be carried out with the results again being recorded on a hard drive. The secondary analysis is performed off-site on a system which is connected to the on-site systems by a satellite data link. Upon receiving these results, a third analyst can resolve the differences between the two sets of results and produce a third set. From these results, a final report file may be created and stored in the same data structure. This file can be accessed by any PC capable of accessing the network.

Cost savings in this program are generally due to the avoidance of having a secondary analysis team on-site. In order to recognize any savings, of course, the cost of the satellite link hardware must be less than the costs of bringing a second team on-site. This was the case at both Prairie Island and Kewaunee. New satellite technology is a key factor in cost savings for this new inspection system.

Taken from "Using Satellite Technology to Improve SG Eddy Current Inspections," H. Houserman, R. Warlick, and R. Vollmer, Nuclear Engineering International, pp. 37-38, July 1992.