

N76. COMPARISONS OF STEAM GENERATOR REPLACEMENT TECHNIQUES

Two experts, Morency and McGough, looked briefly at steam generator replacement projects in European projects and compared them with U.S. projects. The Ringhals replacement in Sweden (1989) was the first project to use narrow groove welding techniques, which greatly reduced the time to complete critical path welding. These techniques can improve project schedules by as much as ten days and will now be a standard procedure for future steam generator replacement projects. The plant was turned over to the contractor of the steam generator replacement project with minimal involvement from the utility. The contractor was also able to bring in its own specialists to perform all replacement project operations. Health physics monitoring is far less restrictive in European plants where individuals are responsible for managing their own dose, as opposed to dose management by a health physics organization. This reduces the time taken for workers to access the work areas as compared with the U.S. practice of radiation work permit reviews for each entry into radiation areas.

Comparing U.S. and European projects, Morency and McGough note that during U.S. replacement projects the plant owner maintains an active role in daily decision-making which results in numerous delays and lack of contractor ability to control the schedule. At Ringhals, the contractor was effectively told by the utility "while the replacement project is underway at site you're in control of the plant, tell me when you're finished." Another feature of U.S. replacements is that they must rely on local craftsmen for the success of the project. These generalists must be trained in the specific skills required to complete each task and they maintain the lead responsibility on these tasks. In effect, craft labor direction and motivation is beyond the limits of the contractor's authority, which severely limits ability to control schedule. For comparison, an identical reactor internals modification performed in the United States in ten days needed only 49 hours 30 minutes when performed less than 6 months later at Ringhals.

In comparing completion schedules achieved in European and U.S. steam generator replacement projects, the substantial differences in institutional and organizational environment described above do not allow for an "apples-with-apples" comparison.

Although technical approaches and planning processes remain virtually identical, degree of plant owner involvement, health physics constraints, craftsmen, and the ability of the replacement contractor to control the schedule are all factors which are heavily weighted in favor of shorter project schedules in Europe, Morency and McGough argue.

For more, see "Reviewing SG Replacement Techniques in the U.S.," Nuclear Engineering International, pp. 28-30, January 1991.