

### **N31. Looking For Steam Generator Leaks With Helium**

Primary-to-secondary leaks are a major difficulty in PWRs. To address this problem, Electricite de France has perfected a technique for locating leaking steam generator tubes that is proving highly successful in installations throughout France.

The secondary circuit of the steam generator is first pressurized with a mixture of helium and air. Leakage through the primary tubes can then be detected by the presence of helium at the outlet of the primary circuit tube, which contains only air. Once the tube leak has been detected, its precise location in the tube can be determined by other means such as eddy current testing. Another inert gas may be used as an alternative to air. The helium tracer technique is simple in concept, but more than two years of experience in EdF stations have shown that its success depends upon meticulous preparation of the steam generator and careful set-up and execution of the test by knowledgeable personnel.

EdF now uses the helium tracer in its own plants and has signed agreements for transfer of this technology with Tecnatom of Spain and with the Swedish State Power Board for its Ringhals units.

EdF can provide procedure specification manuals and technical assistance through its licensee Intercontrole.

*For more, see Nuclear Engineering International, Volume 35, No. 430, p. 57, May 1990.*