N249. Chromium Coatings to Reduce Activity Pickup

About four years ago at the Doel-2 Belgian PWR, small 309L and 316L stainless steel and CF8M specimens that were first electropolished, then electroplated with a thin film of chromium, and finally preoxidized, were fixed to the manway seal plate. After one operating cycle, dose rate and activity pickup measurements showed a factor of seven reduction compared with electropolished specimens that served as a standard. These encouraging results led Northeast Utilities to use chromium coating on two of the manway seal plates in the replacement steam generators that were installed in the Millstone-2 PWR in October 1992. This process was recently used to treat reactor heat removal (RHR) system piping that was replaced at Pacific Gas and Electric's Diablo Canyon-2 in February 1993. There, a section of this piping was chromium plated but not preoxidized. The performance of these components will be monitored during subsequent plant outages. Additional small coupons of 304L stainless steel and Alloy 600 are being coated with chromium using different deposition parameters and will be installed in Doel-2 during the upcoming outage. These new experiments should provide more insight into the factors responsible for the ability of chromium coatings to resist activity pickup.

Taken from "Chromium Coatings to Reduce Activity Pickup," Radiation Control News, No. 17, May 1993 (EPRI, 3412 Hillview Avenue, Palo Alto, CA 94303).