

#### N54. STRIPPABLE COATINGS HELP REACTOR CAVITY DECON

A recent development in polymer technology has made possible a strippable coating which can withstand prolonged immersion and is suitable for use in the reactor cavity. It can improve the efficiency of the decontamination process. There are additional benefits deriving from the immersible strippable coating; for example, it can provide a leaktight liner to prevent primary water leaking through a plant's stainless steel refueling cavity. The leaktight liner is important in certain older plant designs, not only because of contamination control concerns, but also because of the potential for deterioration of the concrete and reinforcing bar behind a leaking liner plate. In the past decade, several polymer classes have been developed which perform reliably in a dry environment; however, the search for an immersible-strippable coating imposes one especially difficult constraint: the coating must retain a dependable bond in underwater service. To be removable, strippable coatings are designed with relatively "weak" adhesion properties. With previous technology, these weak adhesion domains were sensitive to attack by moisture, with the result that conventional strippable coatings lose all bond when immersed. The new technology provided by the advanced material involves a mechanism known as "polymer-alloying" to overcome the immersion limitation. The host polymer provides the basic elongation, tensile strength, water insolubility, and leach resistance needed for nuclear plant service. The host polymer is subsequently modified with a compatible "bonding-polymer" which provides the predictable, long-term "wet-adhesion" required for the service. In other words, alloying a host polymer and a compatible bonding polymer provides the requisite adhesion without adversely affecting the polymer properties of the host. Because the coating is removed before the station is returned to service, there is no need for high pressure water blasting of the stainless steel surfaces of the refueling cavity (HP and ALARA personnel are often strong advocates for this coating because high pressure water blasting is undesirable due to concern about hot particle transport). The fact that the coating constitutes a solid waste, together with the prospect for incineration rather than direct burial, makes the process appealing to the radwaste department.

*For more, see. Lomasney, H.L., "Strippable coatings help reactor cavity decon," Nuclear Engineering International, pp. 55-56, September 1990, or contact Henry L. Lomasney, President, Isotron Corporation, 13152 Chef Menteur Highway, New Orleans, LA 70129.*