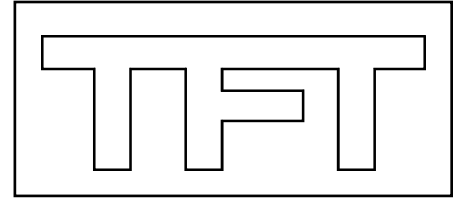


# CASE HISTORY



## CH-053

### BIO-DUR 561 SEALS PITTING AND LEAKING WELD AREAS IN NUCLEAR RESEARCH REACTOR

**THE CHALLENGE:** A university research reactor built in 1974, part of a major university radiation laboratory, is contained in a 75,000 gallon tank of demineralized water. The tank is constructed from high density concrete with a welded ¼" aluminum liner. Leaks in the liner began to appear after about ten years of service and were sealed by welding new aluminum plates over them. After about an additional ten years new leaks appeared until the ultimate rate of leaking was several gallons per hour in 2001. A practical, permanent sealing solution was required which could be installed by university staff.

**THE SOLUTION:** The university selected TFT BIO-DUR 561 for this application. BIO-DUR 561 is available in a "Nuclear" version approved by EPRI as an underwater applicable coating suitable for Service Level 1 applications within the primary containment of nuclear plant. Since this application was to be made in dry conditions it would be extremely straightforward although its proven resistance to radiation was reassuring.



Overhead View of Reactor

BIO-DUR 561 is the original Kevlar® reinforced underwater applicable epoxy coating formulated by TFT. It finds wide usage in the Marine and Offshore

industry where it is valuable as an anticorrosion coating applied to immersed structures such as drilling rigs, shore facilities and pipelines which cannot be readily dried out for coating with more conventional materials.

Several variants of the BIO-DUR 561 formula have been made with changes in viscosity and cure rate to provide materials tailored for specific applications.

**RESULT:** The BIO-DUR 561 coating was applied by university personnel to selected portions of the aluminum liner including weld seams along the pool floor, around beam flanges and on several areas of pitting.



Repairs Around Pool Base

After refilling the pool no further leaking was observed. After an additional four (4) years of service the pool remains leak-free in 2005.

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