



## Cast Iron Waterbox Rebuild

### PROBLEM:

*In 1985, the Cast Iron Waterboxes at the San Juan Station of Puerto Rico Electric Authority, after being subjected to many years of salt water attack, were corroded to the failure point and were leaking in numerous areas. Replacement of the old waterboxes, if even possible, would take about 2-3 years, but the power generation was needed immediately.*

### SOLUTION:

**DUROMAR, INC.** was contracted to rebuild/reprofile the surface with our thick film, permeation and abrasion resistant epoxy lining, **SAR**. After completely removing the thick crust of scale and digging out the graphitized pits, the surface was steamed to remove chlorides, dried and sandblasted to white metal. The rough surface was reprofiled with **SAR** which in some areas required over 1" of material. Large sections of the waterbox severely weakened from metal loss were reinforced with carbon steel plates glued in with **SAR**. Then the complete surface was covered with additional **SAR** to a minimum film thickness of 80 mils DFT. To decrease drag and improve impact resistance, a topcoat of **HPL-2510** @ 40 mils DFT was added.

### RESULTS:

The **DUROMAR** lining of approximately 120 mils of heavily filled, **SAR** and **HPL-2510**, was found to add considerable strength to the now thinner cast iron surfaces. It has been shown that at this thickness, 1/3 to 1/2 the original strength can be added back to the lined surface. The project was completed on schedule and immediately returned to service.

### CURRENT STATUS:

The waterboxes are inspected yearly during each annual outage. The last inspection was in the fall of 1999, and the lining was found to be in excellent condition. Additionally, the comment was made that the waterbox remains free of marine growth and deposits.

### COMMENTS:

**DUROMAR SAR** and **HPL-2510** have been used throughout the Circulating Water System for patching and lining metal, concrete, fiberglass, and rubber lined surfaces. Since these, like all **DUROMAR** epoxy products, are 100% solids, *Zero VOC*, and contain no carcinogens or heavy metals. They make application easy and safe for both the applicators and the environment.



QUALITY SYSTEM  
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