



## **Condenser Tube-sheet Coating to repair a problem with Galvanic Attack**

### **Case:**

2 pass, single shell unit with 22,332 tubes 24.4mm OD X .7mm wall and 13,090mm long  
A249 TP304 Stainless steel tubes  
Tube-sheet are SS400 Steel 40 mm thick

### **Client:**

AES Alicura S.A. Parana Power Plant

### **Solution:**

Tube-sheets were coated with "typical coating" 200 micron thickness by local contractor. After approximately 1 year it was discovered that the coating was improperly applied and galvanic attack had started between the tube to tube-sheet joint. Curran mobilized on an emergency schedule to blast off the existing coating, apply a thick film, 200 mils, epoxy coating to the tube sheets. A 15-20 mil liquid grade coating followed by a 180 mil trowel grade coating.



## Surface Preparation

Tube-sheet prior to surface preparation (grit blasting). Note how the tube-sheet is worn away at the tube end. Also note the blast plugs inserted to protect the tube-ends from damage.



Tube-sheet after grit blasting. Note how even the small tube to tube-sheet crevasse is blasted clean.





Completed CURRAN INTERNATIONAL thick film (200 mils) epoxy coating. Tube-sheet is now free of galvanic attack and restored to better than new condition.



This picture is a cross-section example of Curran's thick film Tube-sheet coating. This is the same coating (different color) as in the case above.

Note how the coating (the thin film liquid grade coating) wets into the tube to tube-sheet crack. Then the thick film coating is applied on top of the liquid grade.

