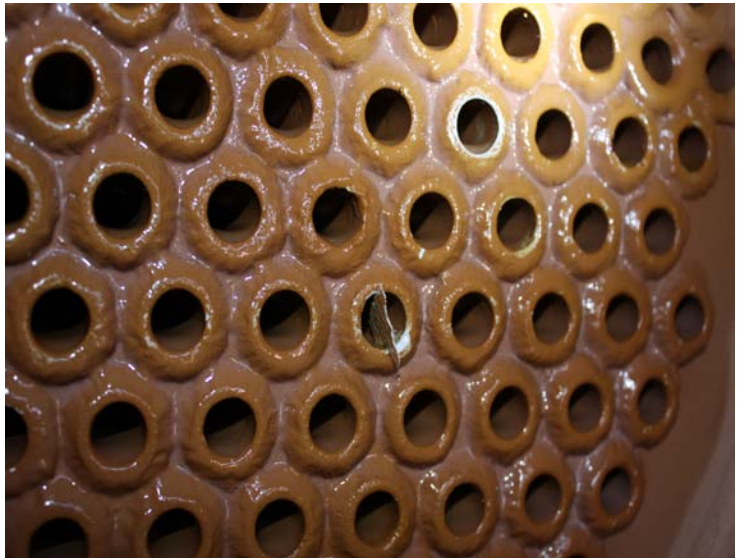


**Texas Gulf Coast Refinery:**

**Coated cooling water exchangers:** These pictures were taken after 2 years in service. These bundles were brought down during a turnaround and when opened this is what they looked like. There was no cleaning (hydro-blasting) done to the exchangers. Tubes were dried out with compressed air and a video probe was run down them for inspection. Other bundles that were in the same unit and operation were fouled, pulled, and replaced with new bundles. **Coated bundles were not:**

- Cleaned
- Pulled from shell
- Replaced



**Above:** After 2 years in service. Damage seen on right is simple mechanical damage from debris hitting tube sheet.

**Below:** picture of same tube ID

