



# Pitfalls in Puerto Rico: Rescued by Reverse Engineering



✖ When the experts at Hydro were called on to reverse-engineer parts for a large circulating water pump in the Caribbean, they were concerned to discover an OEM-provided suction bell had failed during service. All internal ribs were lost and the bearing holder was found loose within the assembly. Not only had the suction bell failed, but the customer was facing excessive lead times for the parts needed for the refurbishment of the pump.

After a meticulous review of the suction bell design, it became clear that low manufacturing costs had been prioritized over reliability. Instead of providing the customer with a cast component, the OEM had provided a suction bell that had been fabricated, resulting in an excessively thin wall thickness.

Luckily, Hydro's heroes stepped in, to reverse-engineer the suction bell and create a model for a cast component, establishing the rib design and bearing holder location solely based on decades of pump design experience. The suction bell was strengthened by adding exterior ribs and increasing the wall thickness from 3/8" to 2"; these changes provided a sturdier component that would be less susceptible to vibration and external forces. The parts, including impeller, bowl, liner, pump shaft, and shaft coupling, were scanned on-site within 3 days, with the engineering analysis, modified casting design, and quote for manufacture being completed within 3 weeks.

Thanks to the Reverse Engineering expertise of Hydro's team, they were able to identify a substandard design and quickly provide an alternative that was better than the original component supplied by the OEM.