



CASESTUDY

From 316 Stainless to 2205 Duplex: A Lifecycle Fix in a Marine Environment

Project Snapshot:

Industry: Critical Infrastructure

Application: Clarifier hardware in an active wastewater system

Location: Honolulu, HI

Repair Type: Material replacement / reliability upgrade

Materials: From 316 Stainless Steel → 2205 Duplex

Product Supplied: Fasteners

Quantity: 23,676 pieces

Compliance: Full Traceability

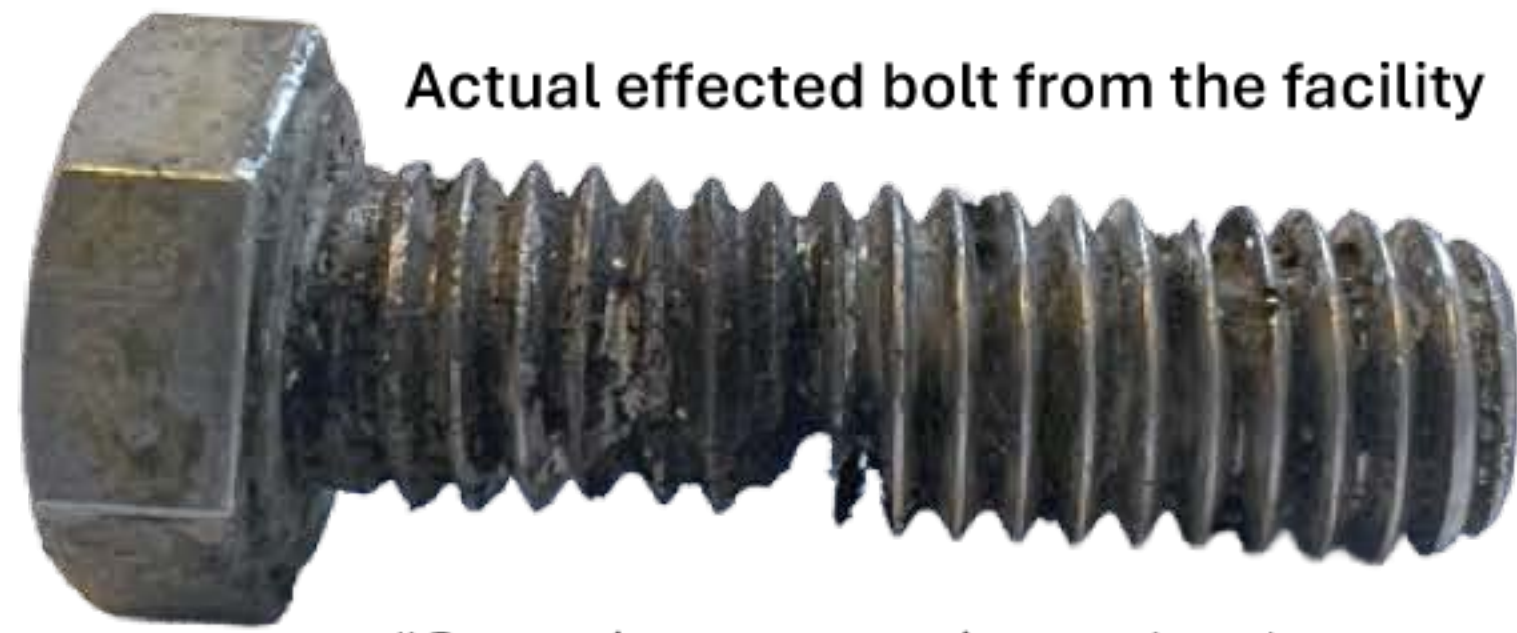


“Marine exposure and salt-laden air increase corrosion risk for critical hardware.”

Why It Mattered

If the 316 stainless hardware had remained in place, continued corrosion in a salt-rich environment could have led to accelerated deterioration, unplanned maintenance, downtime, and potential compliance / environmental risk associated with critical wastewater infrastructure.

“Proactive replacement ensured long-term reliability and reduced lifecycle risk in a highly corrosive marine setting.”



Actual effected bolt from the facility

“Corrosion progression on hardware exposed to marine conditions.”

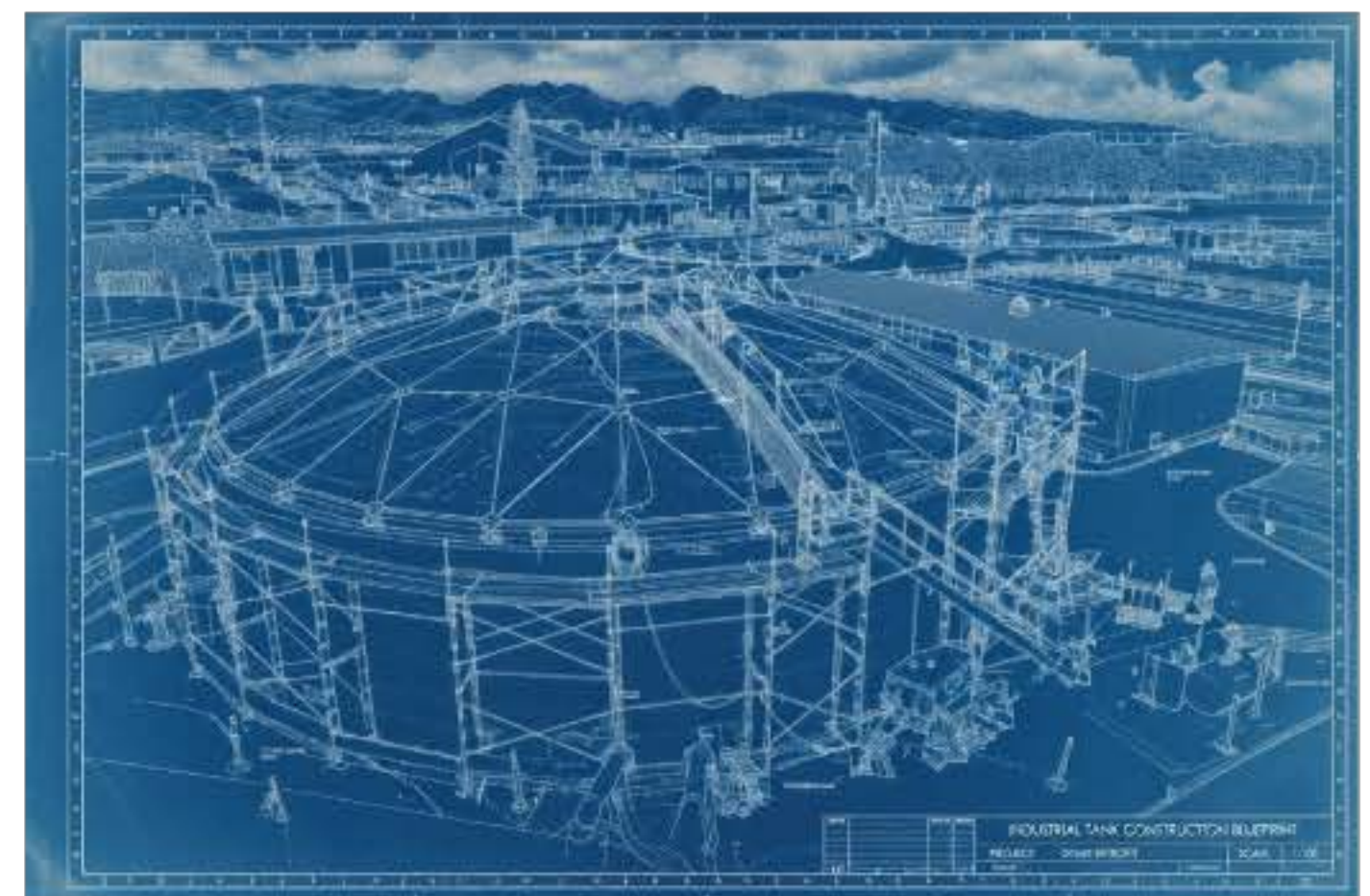
The Challenge

A clarifier system at a naval facility was originally intended to use **2205 Duplex** hardware, but **316 stainless steel** fasteners were installed instead to reduce upfront cost. In the harsh marine environment, the 316 SS hardware raised performance concerns and triggered a root cause review led by local engineering support.

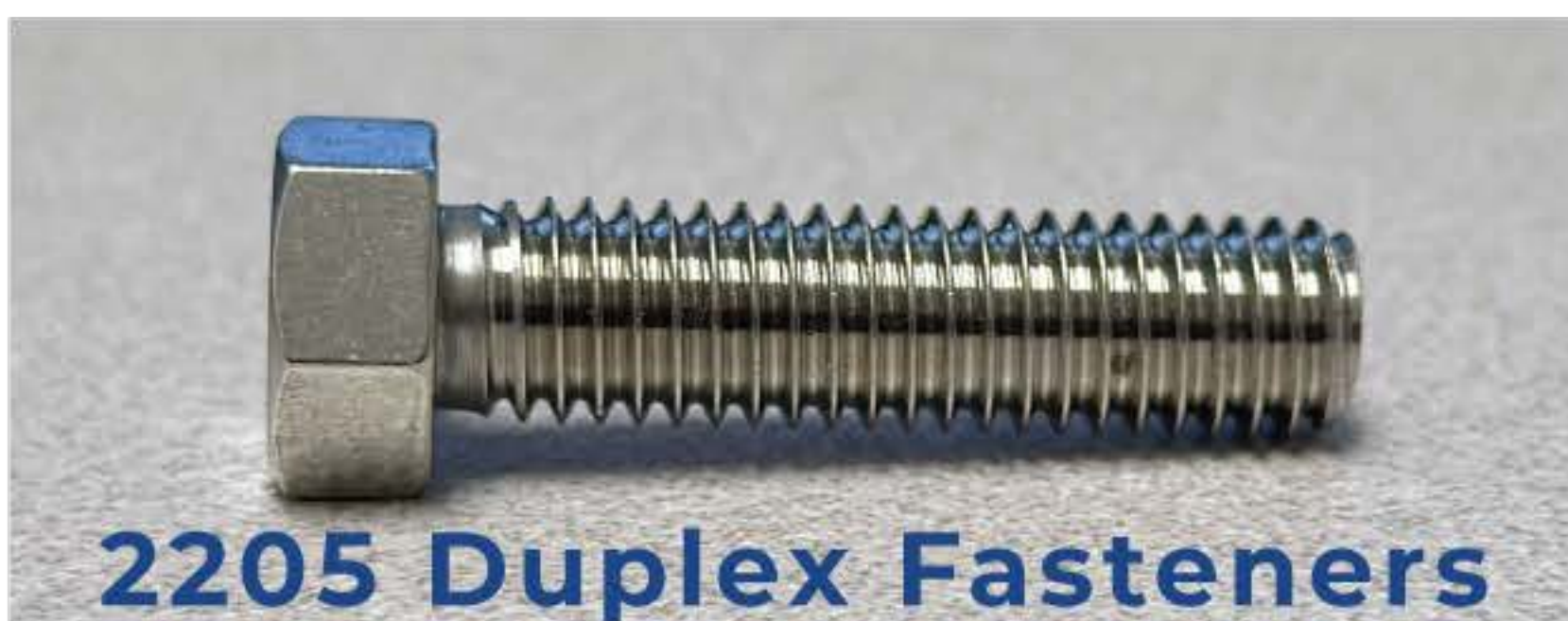
Following evaluation, the facility approved a full replacement—moving back to 2205 Duplex fasteners to improve corrosion resistance and long-term reliability.

What Made It Complex

This wasn't a simple swap. The system was active, and the project required coordination across multiple stakeholders - including the manufacturer/contractor and local engineering support - while planning carefully to avoid disruption and maintain safety and compliance expectations.



“Active-system maintenance requires planning, scheduling, and materials certainty.”



2205 Duplex Fasteners

The Solution

The team supplied 2205 Duplex fasteners engineered for marine corrosion resistance, supporting a full replacement of the installed 316 SS hardware. Materials were provided with full traceability, enabling the project team to confidently document and validate what was installed.

Supply was coordinated across multiple purchase orders to keep the replacement work moving.

Fast Response When Requirements Changed

During execution, additional quantities were needed after some shipped fasteners were lost. The team was able to fulfill these additional requirements quickly by shipping the same day from available stock, helping the project maintain momentum.

Results

- All affected 316 SS hardware was replaced with 2205 Duplex fasteners in the clarifier systems.
- The upgraded material delivered significantly improved corrosion resistance suited for marine exposure.
- The project team gained a durable, lifecycle-focused solution designed to reduce future maintenance risk and strengthen confidence in long-term reliability.



“2205 Duplex fasteners selected for improved resistance to chloride-driven corrosion.”

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