



CASE STUDY · DOWNSTREAM REFINING · RFP & TENDER DESIGN · INDEPENDENT · NO CHEMISTRY SOLD

A refinery moves its water treatment RFP from chemistry volume to KPIs and value, and eliminates ~\$48M a year in losses.

For 15 years, the refinery used the same water treatment specification and got the same results: 30–40 heat exchanger replacements a year, about 6 exchanger cleanings, and a production cut of about 13% every summer. IWA rewrote the RFP around performance KPIs instead of chemistry volumes, built an accountability plan, and let the refinery award more than one supplier on the same site to drive competition, comparison, and accountability.

ASSET
Refinery water systems

OLD SPEC
Same RFP, 15 years

THE CHANGE
Product list → KPIs

CHEMICAL USE
About -70%

OUTCOME
~\$48M/yr eliminated

Challenge — What Was Happening

The refinery had accepted an estimated **\$48M a year** in capital and lost profit as normal. Earlier consultants recommended long chemistry lists for every system (boiler, cooling, wastewater, RO), and the failures, cleanings, and lost production continued.

The question was contractual: how do you let suppliers provide **only the chemistry each system needs**, managed to a performance target, hold them accountable, and keep options open if performance slips?

Baseline — What We Found

The “Kitchen Sink” Specification

- Cooling alone: **11 products** — phosphate, zinc, molybdate, copolymer, terpolymer, phosphonate, hypochlorite, chlorine dioxide, glutaraldehyde, isothiazolin, DBNPA
- A dose and **maximum usage** for every product
- Award on **lowest price** for the list; **no alternatives** accepted

Intervention — What We Did

- A new operations manager asked IWA to **review the program and the failures**
- Engineering report: the specified chemistry **could not control corrosion and deposition** at site conditions
- **Saturation and corrosion modeling** defined the risk and the programs known to perform
- With that proof, IWA was asked to **rewrite the tender and help manage the bid**

What It Left Out

- **No corrosion rate, deposition, or microbiological** requirements
- No operating conditions or makeup water ranges to design against
- No way to compare suppliers, and **no fallback** if one failed

ROOT CAUSE FINDING

The specification, not the supplier. The RFP bought chemistry by volume and price, not by result. With no performance requirement, nobody was measured on corrosion, deposition, or microbiological control, and every bid cycle repeated the same specification and the same failures.

The Fix — How the Tender Changed

- **Bid by unit**, so two suppliers could win and back each other up
- **Corrosion rate** requirements by metallurgy; **deposition** requirements
- **Operating conditions** from each system's real limits
- **Average, low, and high makeup water** for every system
- Required **field and lab analyses** and frequency

- **Onsite team**, visits, and support defined; **safety** requirements for bidders
- **Base bid plus one alternate** to show day-one capability
- Defined **value projects** for the first 90–180 days
- **Supplier-neutral telemetry and modeling platform** fed by the PI historian and every controller
- A formal **performance review program**

RESULTS DELIVERED

~\$48M a year in losses eliminated

Exchanger replacements, cleanings, and the summer production cut, recovered directly to profit

SUPPLIERS AWARDED
2 of 6

CHEMICAL USE
About -70%

PERFORMANCE DATA
1 platform

VALUE PROJECTS
90–180 days

OUTCOME

- **2 suppliers** selected from 6 bidders, awarded by unit
- All data on **one third-party platform** with regular reporting
- **Best-in-class chemistry** with about 70% less chemical

ACCOUNTABILITY

- A defined **plan of value projects** for reliability and performance
- Clear targets that **benchmark suppliers** for every renewal
- A second supplier onsite as a **built-in fallback**

The RFP is where you decide how your water treatment suppliers will be managed. If you keep having failures with the same RFP and the same approach, it's probably not the water treater's fault.

Estimate basis: 30 exchanger replacements at ~\$100k, 6 cleanings at ~\$50k, and a 13% summer rate cut on ~250,000 bbl/d for 92 days at ~\$15/bbl lost margin; actual value depends on throughput and margin. Chemical reduction as reported by the site. Details generalized to protect client confidentiality. © Industrial Water Advisory — Independent, vendor-neutral cooling, boiler & process water consulting.