CASE STUDY

Removing a $30,000 Failure Risk from a Mobile Boiler Through Reliable Water Softening

CHALLENGES

A waste management contractor operated a 100 HP boiler on a truck for sewer lining/sanitation work across Ontario. With frequent job-site moves and variable feedwater, the boiler had scaled multiple times and required a second acid wash.

The existing softener was allowing full hardness breakthrough for an extended period, driving repeat scale, efficiency loss, and downtime risk. With boiler coils costing ~$30,000, preventing another scaling cycle became the priority.

SOLUTIONS

Guardian confirmed how the boiler was used (seasonal, mobile, variable feedwater) and designed a softening approach designed to perform under changing conditions.

A twin-tank water softening system was specified to handle up to 300 ppm hardness and 15 gpm during operation, with programmable Clack controls to match regeneration to real demand. Guardian supported selection, configuration, and integration so the system was commissioned for consistent softened water delivery in the field.

RESULTS

With reliable softening restored, uncontrolled hardness entry, the primary driver of repeat scale was removed.

The customer moved from reactive cleaning (acid washes) toward more predictable operation, reducing scale-related risk and protecting high-cost heat transfer surfaces during the winter operating window.

AT A GLANCE

An environmental services contractor's 100 HP mobile boiler scaled repeatedly when the existing softener allowed hardness breakthrough. Guardian engineered and commissioned a twin-tank softener sized for high hardness and variable flow. The result, consistent softening, reduced scale risk, and no more acid cleaning.

KEY METRICS

HARDNESS BREAKTHROUGH ELIMINATED

ACID WASHES AVOIDED

~$30K RISK OF COIL FAILURE LOWERED

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DATA

Before and after installation of the mobile boiler softening system. The original configuration (left) allowed hardness breakthrough under variable site conditions, contributing to repeated scale formation. The upgraded twin-tank softener with programmable controls (right) was sized for high hardness and variable flow, restoring consistent softening and protecting the boiler during seasonal operation.