

The Wastewater Was 364 Times Over the Limit. Here's the Fix.

Komline Pure Water built a six-stage treatment system that brought an oilfield equipment-cleaning facility back into compliance, and along the way proved out a new, made-in-Canada biopolymer on one of the toughest wastewater streams in the industry.

Oil & gas equipment services

DAF · filtration · dewatering

BTEX & oil/grease removal

Water reuse

6-stage

An engineered treatment train, from equalization through disinfection and reuse distribution

Up to 364×

How far BTEX and oil & grease levels blew past the county's discharge limit before treatment

18–22%

Solids in the final sludge cake, up from 3–5%, dry enough to haul away in a bin

THE PROBLEM

A cleaning process built for oil rigs: wastewater no sewer would accept

Every day, ultrasonic tanks at the facility strip heavy oils, bitumen, scale, and grease from oilfield production equipment, using heated water and a bio-based de-oiling solution. It's fast, effective work. But the rinse water it leaves behind reads like a hazardous-materials inventory: oil and grease, BTEX compounds, naphthenic acids, PAHs, heavy metals, and solids heavy enough to overwhelm a standard filter.

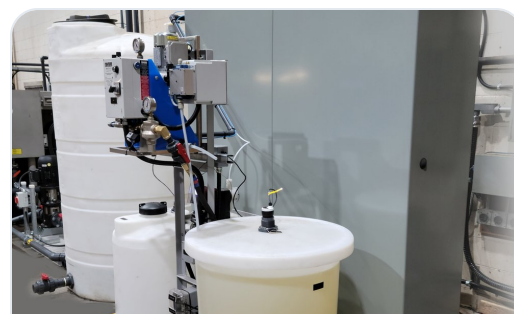
For years, the plant's only defense was a simple bag filter ahead of the sewer connection. It wasn't enough: sampling showed the effluent routinely blew past the authority's limits, in some cases by more than 300 times, and the facility absorbed the surcharges as a cost of doing business. As the operation scaled up, so did the exposure. What it needed was a system that could hold the line on compliance, end the surcharges, and let the plant reclaim its own water.

THE FIX

Five stages, one system, almost nothing wasted

Komline Pure Water didn't start from scratch. Engineers built around the plant's existing sump, screen, and cone-bottom storage, adding five coordinated stages that turn a hazardous stream into two usable outputs, clean water and a disposal-ready solid:

- **Equalization:** a 6,000 USG buffer tank, air-mixed and radar-monitored, absorbs swings in flow and load before treatment even begins.
- **Dissolved air flotation (DAF):** the workhorse of the system. A dual-chemistry dose, biopolymer plus a conventional flocculant, floats oil, grease, and solids to the surface for skimming.
- **Filtration, disinfection & reuse:** dual 5-micron cartridge filters polish the DAF effluent; hypochlorite adds a disinfectant residual; four tanks stage the water for return to the wash pumps.
- **Sludge dewatering:** a floc tank and dual screw presses press DAF and cone-bottom sludge into a cake dry enough to haul away.
- **Controls integration:** two networked PLC/HMI panels run every pump, mixer, valve, and dosing system off one set of interlocks and alarms.



The biopolymer dosing skid that feeds the DAF stage.

What the sewer was getting, before treatment

PARAMETER	MG/L	LIMIT
Oil & grease, total	638	500
Toluene	182	0.5
Xylene	133	0.5
Ethylbenzene	16.4	0.5
Benzene	3.8	0.5

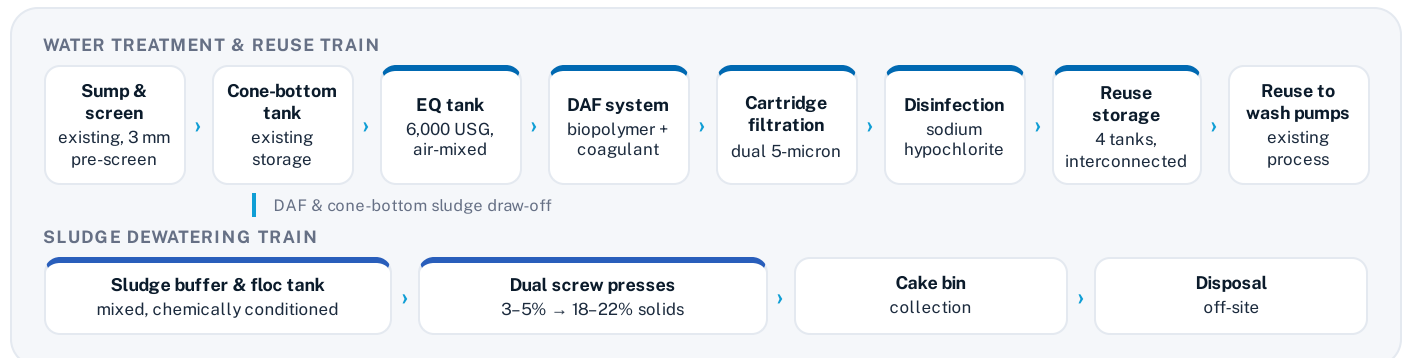
Selected contaminants, sampled before the new system went in

A biopolymer that's grown, not refined

At the center of the DAF stage is a coagulant made from agricultural and forestry residuals (Canadian-grown, not petroleum-refined) and supplied through a technology partnership with its manufacturer. On this project, it did what conventional polymers struggle to do: knock down BTEX in a heavy-hydrocarbon stream. That result is now the reference case for a far broader range of stubborn industrial wastewaters worldwide.

HOW IT WORKS

Two trains, one system: where the water goes, where the sludge goes



The DAF package, where oil, grease, and suspended solids get skimmed off the top.



Cartridge filtration and reuse pumping: the last stop before water heads back to the wash bay.



Dual screw presses turn DAF sludge into a cake dry enough to dump and haul.

PROOF OF CAPABILITY

The capabilities this job put to the test

- **End-to-end process design:** from characterizing the wastewater to sizing the entire treatment train.
- **Multi-panel controls integration:** a networked PLC/HMI architecture spanning two separate control zones.
- **Cross-discipline equipment integration:** DAF, filtration, dewatering, and pumping unified into one process, not four bolted together.
- **Custom skid fabrication:** mechanical, piping, and instrumentation, built and tested in the shop before it left for site.
- **Chemical system integration:** four independent dosing systems, synchronized through process interlocks.
- **Site commissioning & startup:** loop testing, wet testing, and hands-on support through to steady-state operation.

WHAT CHANGED

The discharge problem is gone. So is part of the water bill.

The completed system brought the facility's discharge back within regulatory limits and ended its non-compliance surcharges for good. It also began sending treated water back into the wash process, cutting fresh-water demand. But the larger story may be the one still playing out elsewhere: a full-scale, real-world proof that a greener chemistry can outperform the old standard on one of the hardest wastewater streams in the oil and gas business. It's a platform Komline Pure Water can now deploy wherever the same problem turns up.

Facing a wastewater problem like this one?

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