



Solving wastewater problems tankside and side-by-side.

The Request

Got a phone call from Ken B. He says that they have a waste treatment with a process that works but they'd welcome a system audit to see if further improvements can be made.

Sounds interesting. I set the audit for next week.

The Audit

Met with Ken and toured the facility. The company does powder coating with at least two automated lines for large and small parts.

They've got two hand powder coating booths and one spray booth for clear coats and Teflon coating.

There is a five stage auto washer and hand cleaning tank line using alkaline cleaners, rinses, de-ox and zirconium sealers. (The five stage washer uses same chemistry with the exception of different sealer).

Stripping is done by using a hot fluidized sand bed in an oven that's maintained at 850°F. Parts can be stripped in 15-20 minutes and multilayer racks in one hour.

Waste treatment is done with two chemicals: A flocculent cationic solution and poly aluminum chloride. They also use an oil in water emulsion breaker.

System flow for batch treatment: 1,600-2,200 gpd

Ken said he has had a couple of other companies in and that they tried to improve the process but could not provide good constant results.

He says the present chemistry works but he'd like improvement if possible. Time to run some tests.

Jar Testing & Goal Setting

Six Jar tests were completed using ACP, T-1000, Aquapure 107, and I-300, P-601, Aquapure-100 and B-cat.

Ken commented how impressed he was with the amount of equipment and chemistry I had. He said the other companies did not do anything like this.

The goal is to get a quick settling flocculant so he could complete 2-3 batch treatments per day. He's not a fan of ferrous products because of the mess, but said he may reconsider if it proves better results.

Based on the jar tests, Ken approved a trial using a drum of Aquapure-100, P-601 and 5gal B-cat.

Monkey Wrench #2

Met with Ken before the trial to perform an Aquapure test at a lower dosage to see if settling is acceptable to him so we can move forward.

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That's when he said he wants to compare another company's treatment against ours to see which has better flock and quicker settling.

But... and this is where it got interesting; Ken brought out notes he used when he did bench testing with his current chemistry. He marked up the dosing for our 1-liter sample test.

To my surprise, my 4mls/gallon of Aquapure-100 has to compete with 16mls/gal of the other company's chemical coagulant.

Needless to say, the higher dose of the competitor chemistry looked better and settled quicker. So I added another 4mls/gal of Aquapure-100 and 6ppm of B-cat.

That did it! Now we're looking better than them with clarity and equaled settling. One problem... this hits the high end of our treatment.

Today's treatment would have cost \$37.00 using the competitors chemistry. Ours would have been \$63.00.

That's ok. I love a challenge!

Back to the lab!

Managed to work up a more economical treatment plan today. Ken was happy. He confirmed they'll place an order for I-300-Cal-40-P-601 and AN Clear. He mentioned they'll be upgrading some equipment this summer but want move ahead using the existing system for now.

A help request

Got a more urgent call from Ken today. He needs a first batch treatment of Aquapure chemistry quick, because they're running out of their current chemistry faster than he thought.

No problem. We'll got it done. And it performed flawlessly. Good flock, quick settling and very clear supernate.

Ken was surprised how AN Clear performed with $\frac{3}{4}$ of a gallon compared to his current chemistry at 15-25 gallons.

New system being installed!

It's been a few months. Ken just upgraded his setup for continuous flow operation. Preliminary test runs show excellent Zn reduction. Ken's pleased. He said to stop by next week to check and verify dosing.

A bump in the road

We just hit another snag. Ken called and said he believes the system is using too much chemistry and not giving satisfactory flock.

I reviewed the current settings and discovered the chemistry was over fed. I recommended some adjustments to Cal 40, I-300, P-601 and An Clear.

The main cause of the problem was after system shutdown. Newly formed flock was allowed to settle in stage #1. That ultimately buried the PH & ORP probes in 6" of sludge.

Ken adjusted the LMI pumps thinking it was a chemical issue. That only made matters worse.

We have everything back in working order now.

Some internal changes

Got another call today from the wastewater treatment technician and Ken's company. He is he needs of a visit. Apparently, the system is not performing well. Small flock is not settling and going down the drain. He said he did not touch chemical feeds except for AN Clear.

He attempted a jar test adding it to a beaker and it seem to get larger and settle.

I told him I'd be out tomorrow.

Schools in session

Spent the day with Ken's wastewater guy. Trained him on testing and setting chemical adjustments. I also gave him a handy Excel spreadsheet tool to assist with the flow/math calculations.

Ken was very happy and told me to please stop by anytime when I am in the area.

It's always nice to walk out of a client visit feeling like you really helped a person out.

Got the thumbs up, today!

Dropped by Ken's company for a check-in visit and met with the wastewater team. They were really proud to show me the letter they received from regulatory commission for their perfect compliance.

Seems they were invited to a dinner and award ceremony in April in recognition of their achievement.

Glad to see our work together is paying off.

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