Managing a Large Meter Crisis

HIGHLINE WATER DISTRICT

Managing a Large Meter Crisis

Dan Sleeth
Preventive Maintenance Lead
Highline Water District

Overview

- In the beginning
  - Strategy
- Implementation
  - Findings
  - Photo’s
  - Repair’s
  - Testing
  - Results

In the Beginning

- Finance notices substantial reduction in water sales thru commercial meters
- 35 to 45 % down in total consumption
- April 2010
- Seattle Public Utilities begins to notice a surge in cyclotella algae
- Water Quality report from the S.P.U. notifies us that this strain of algae is particularly troublesome

Strategy

- Team meeting with Finance Manager, Operations Manager and Preventive Maintenance Team
- Indentify all potentially effected meters
- Analyze meter sizes in conjunction with loss of consumption
- Assemble two teams for implementation of Meter disassembly and repair
- One crew for 1”1/2 – 2” meters and another crew to handle 3” and above

Implementation

- Query all Commercial Accounts
- Divide into groups
- 1 ½”
- 2”
- 3” and larger
- Assign teams
- Get to work

Findings

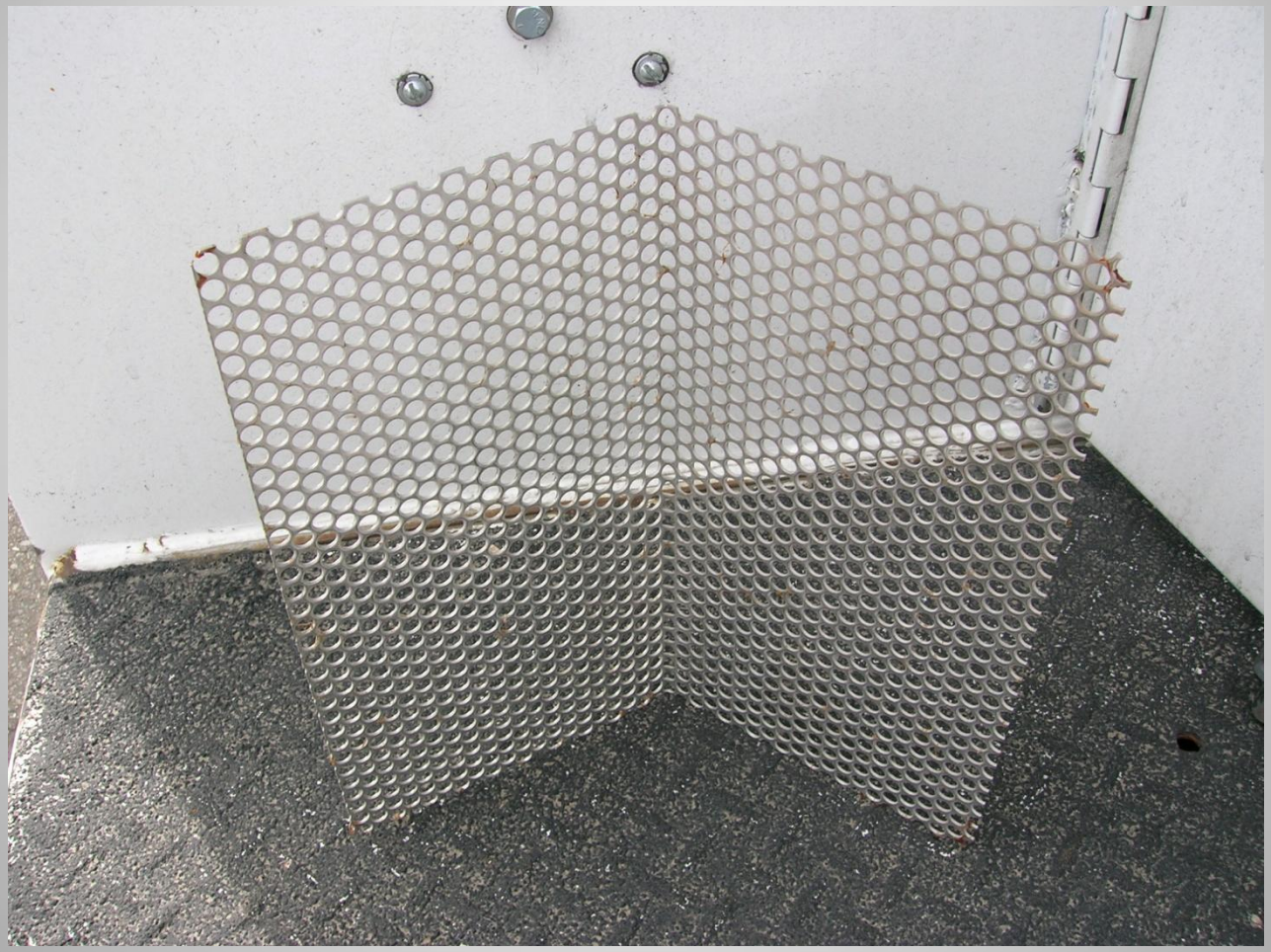
- Upon arriving at the first few accounts we became quite aware that we had a large problem
- We were able to quickly identify that there was a direct correlation to the amount of water flowed to the amount of algae collected in the meter's and meter screens.
- Accounts with less flow had substantially less algae

Findings

- We began running accuracy tests before cleaning to find the level of loss within each account
- We then would remove the meter screen, take photographs, clean the screen, take another photograph, then re-test the meter for accuracy.
- The results were staggering

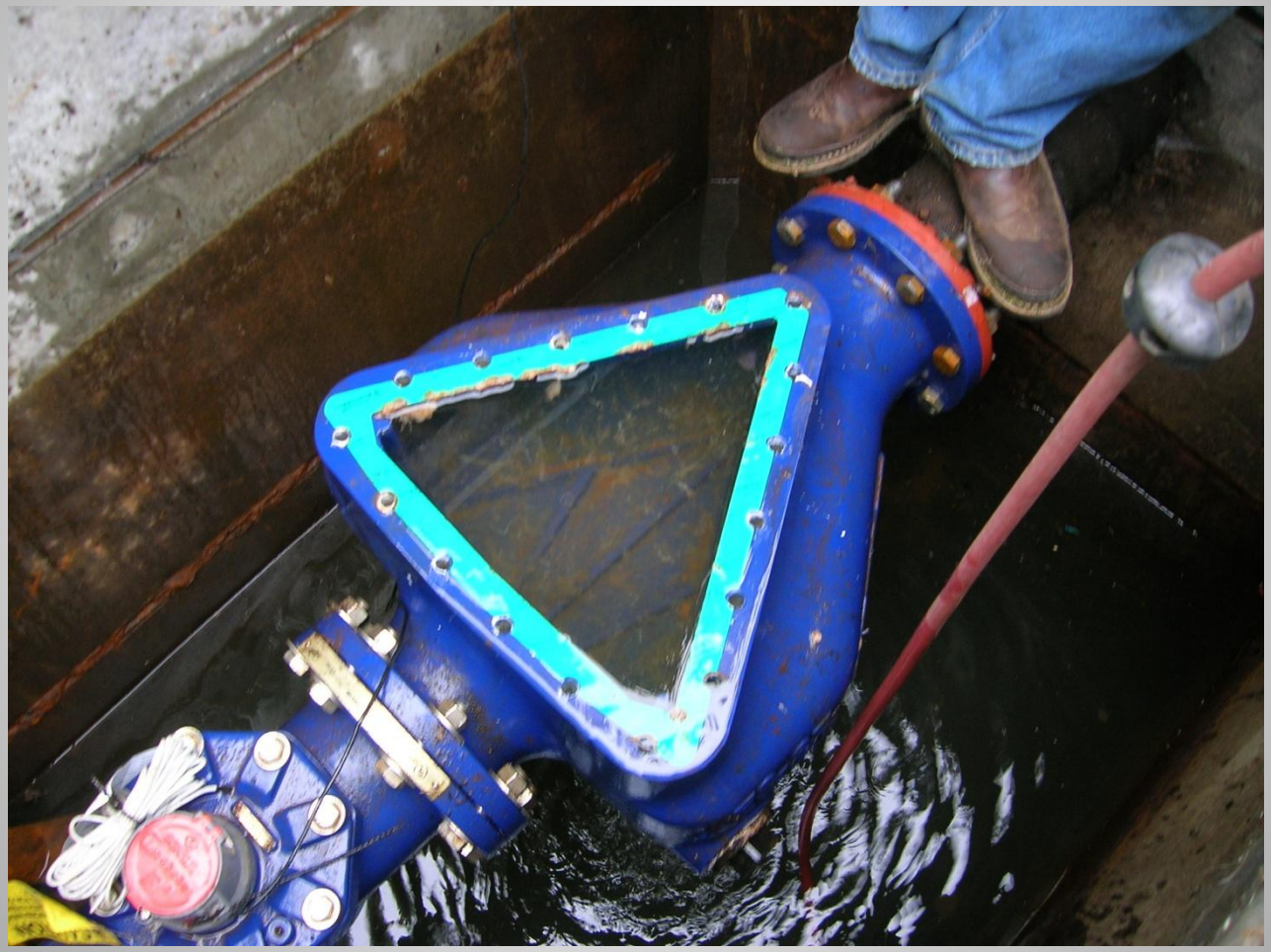
Photo’s

Photo’s



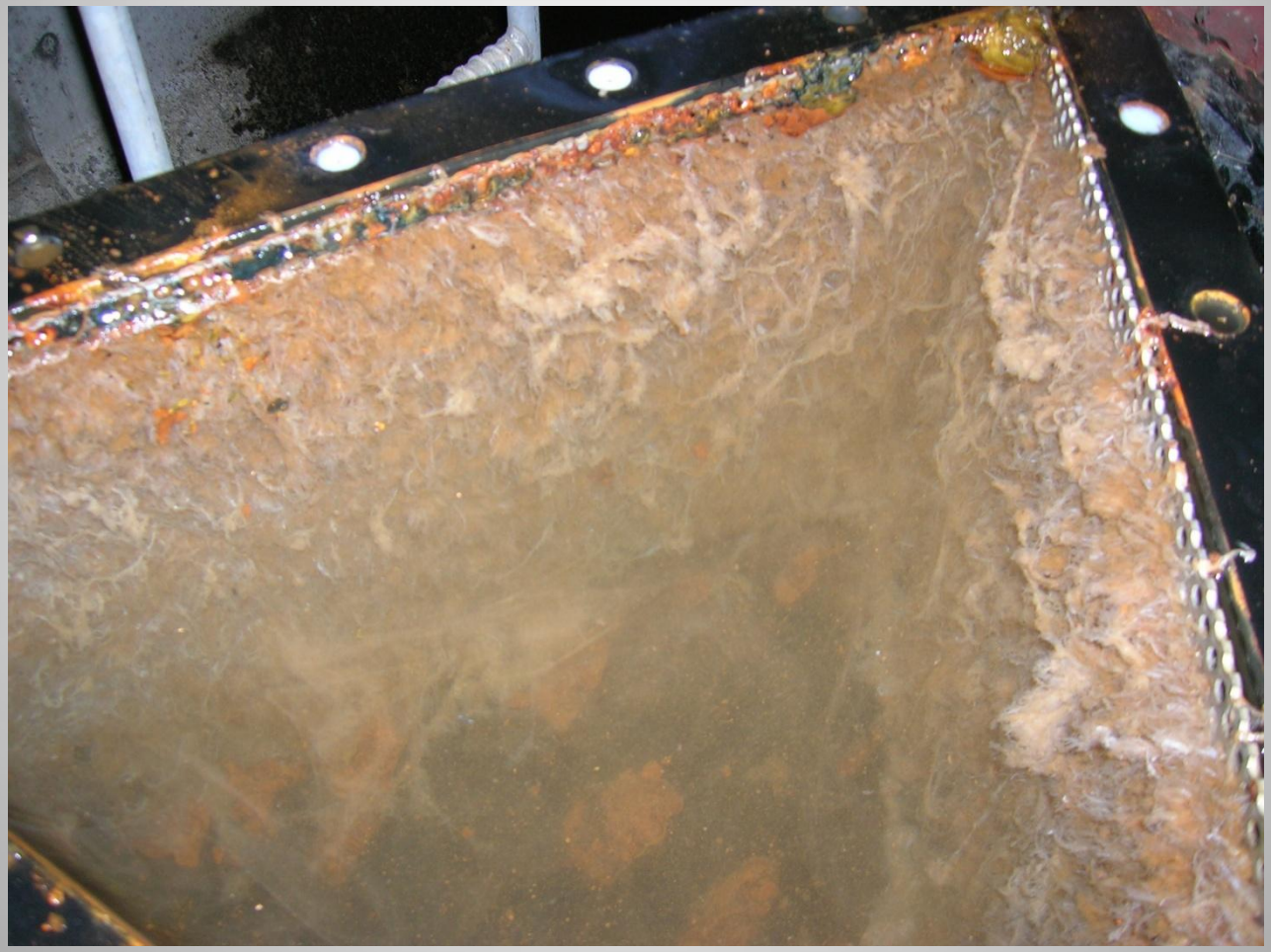
Photo’s

Photo’s



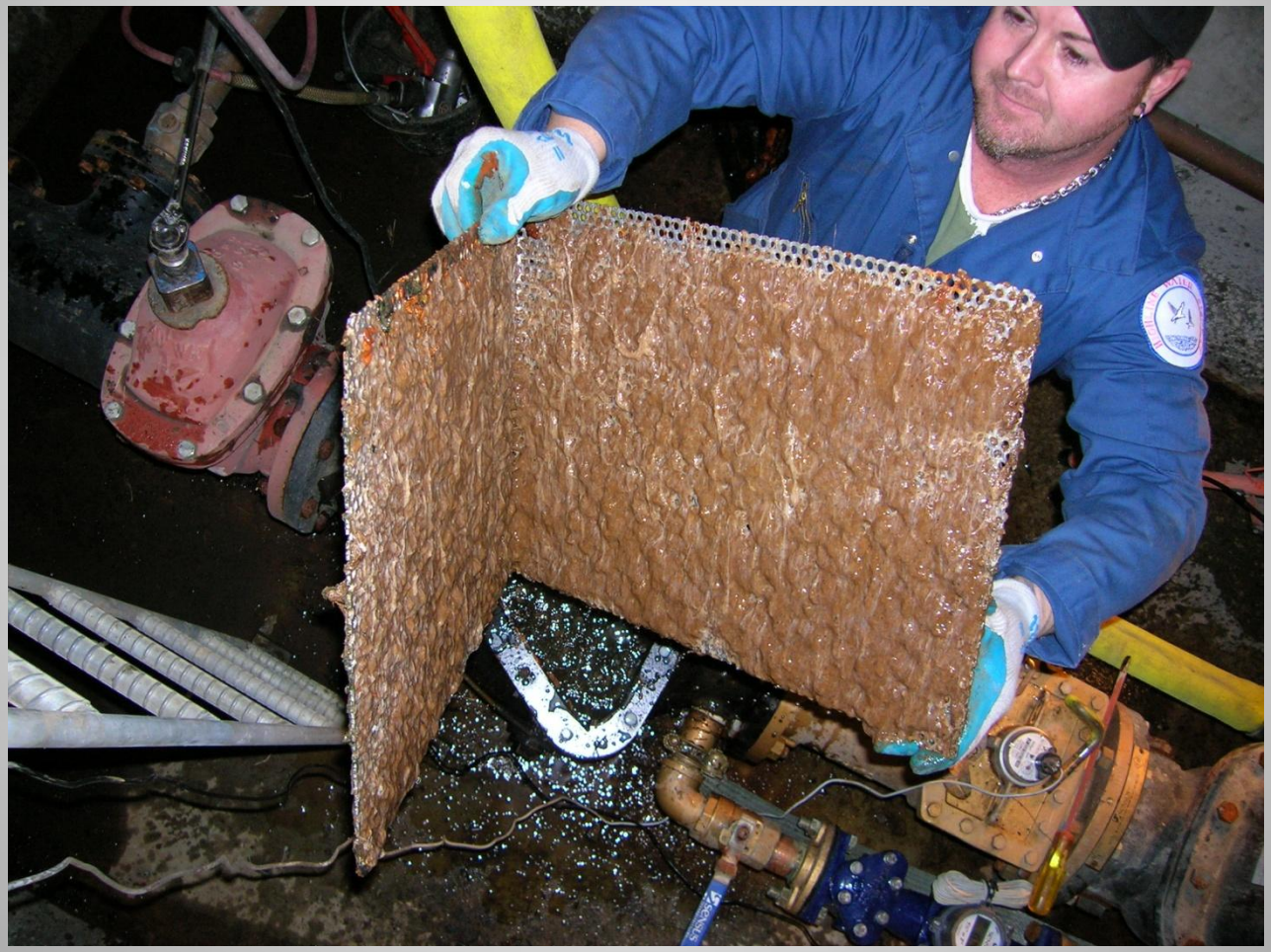
Photo’s

Photo’s



Photo’s

Photo’s

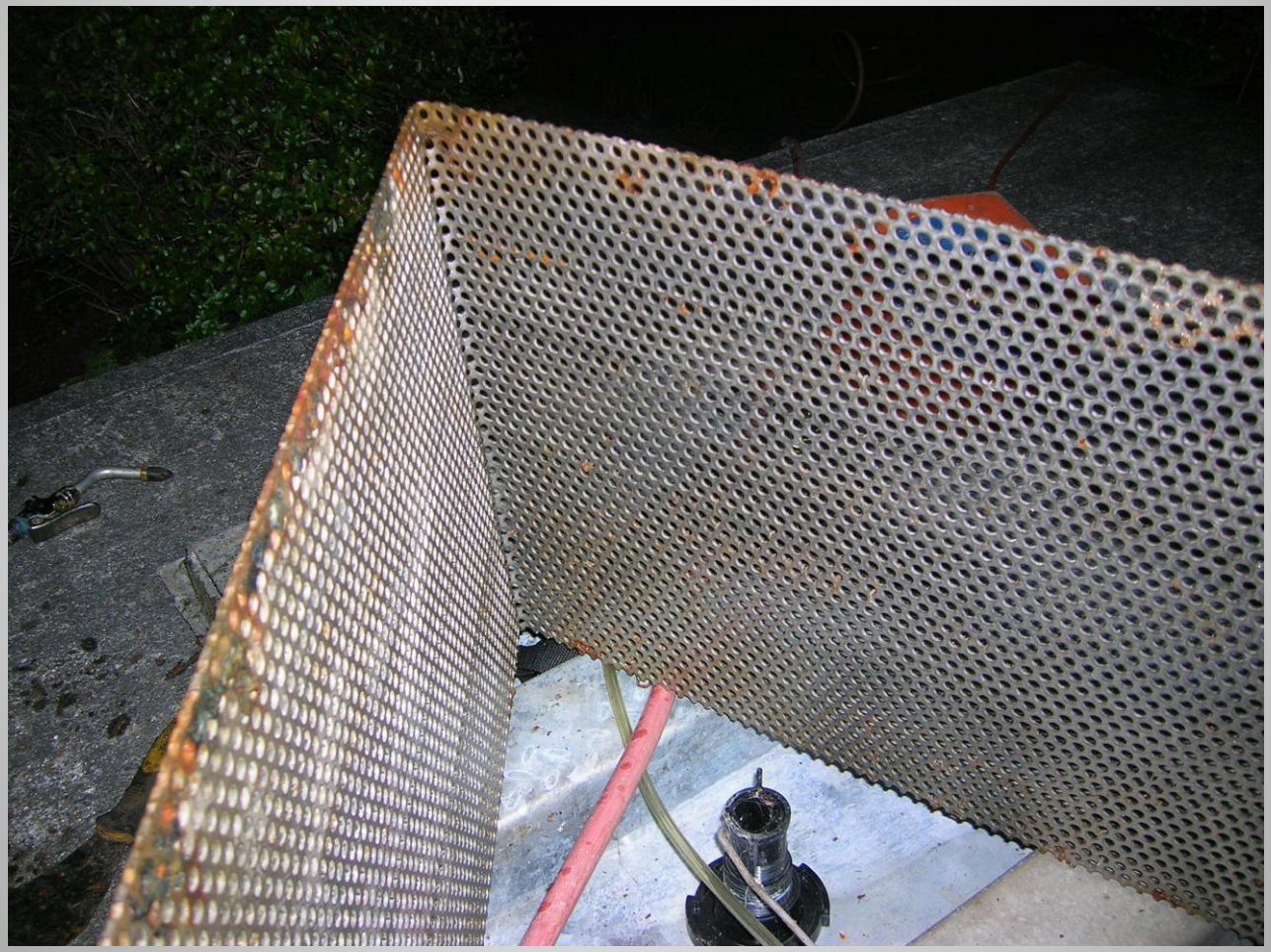


Photo’s

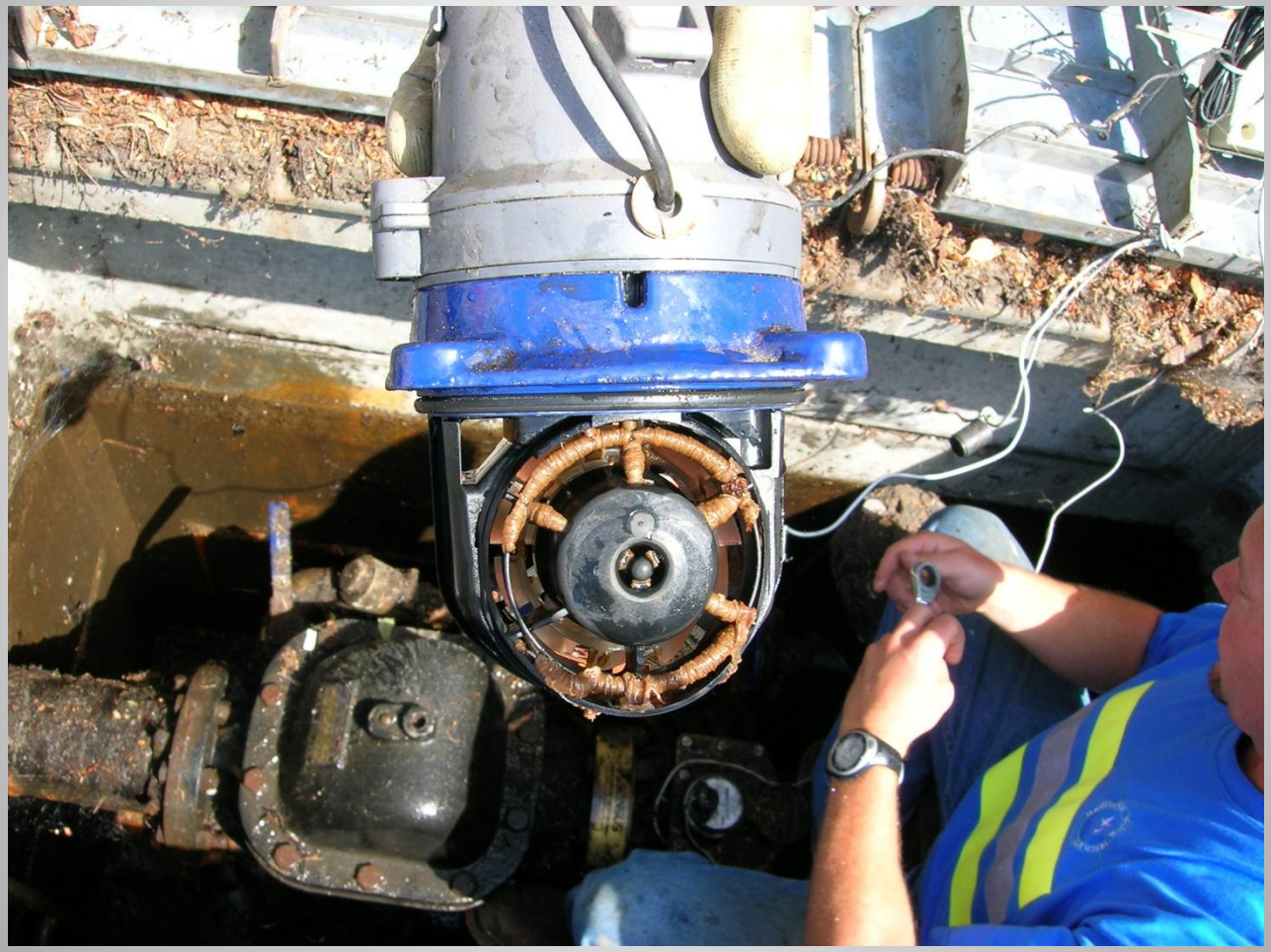
Photo’s

Photo’s

Photo’s



Photo’s



Photo’s

Photo’s

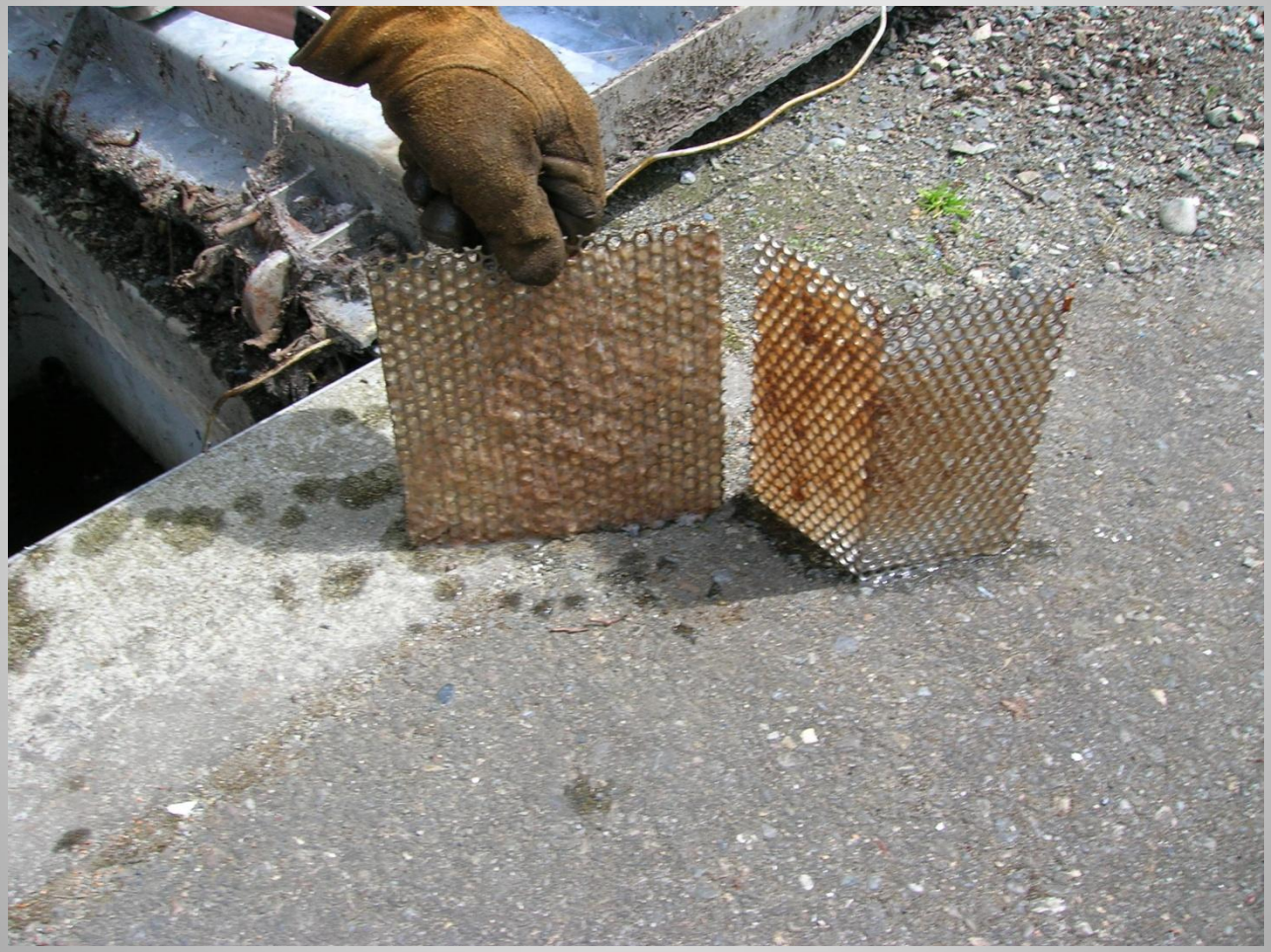
Photo’s

Photo’s

Photo’s

Photo’s

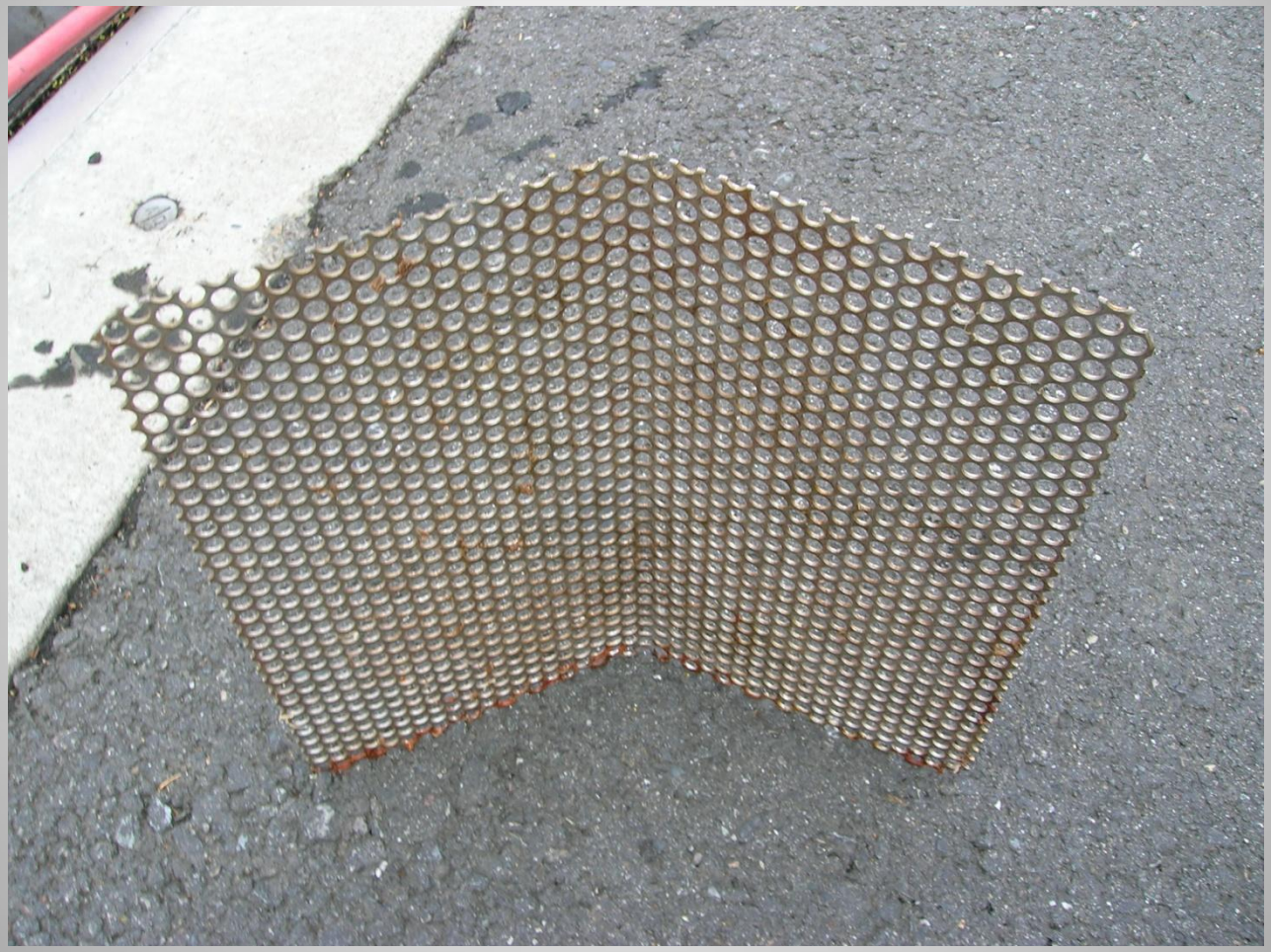
Photo’s



Photo’s

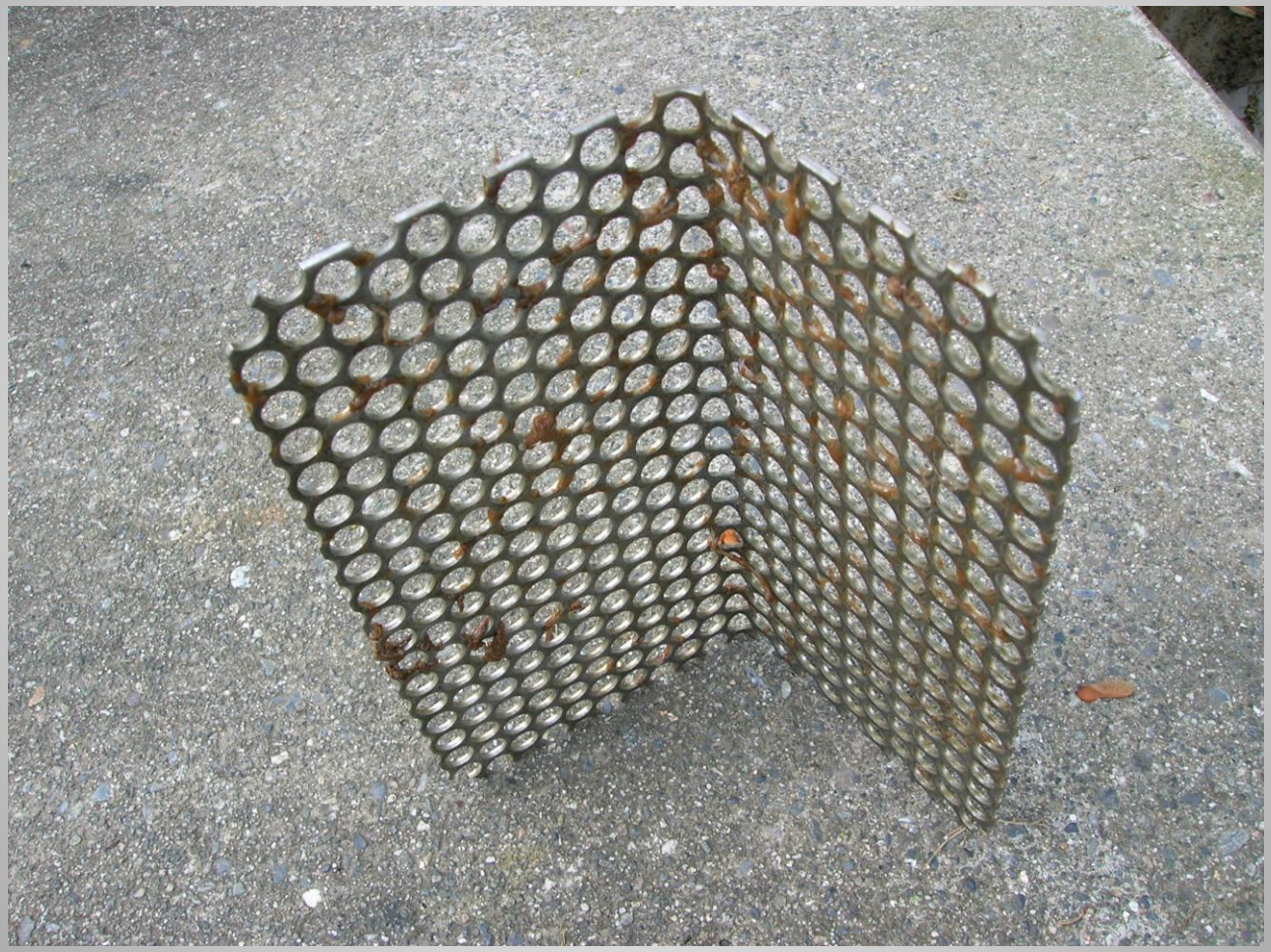
Photo’s

Photo’s



Photo’s

Photo’s

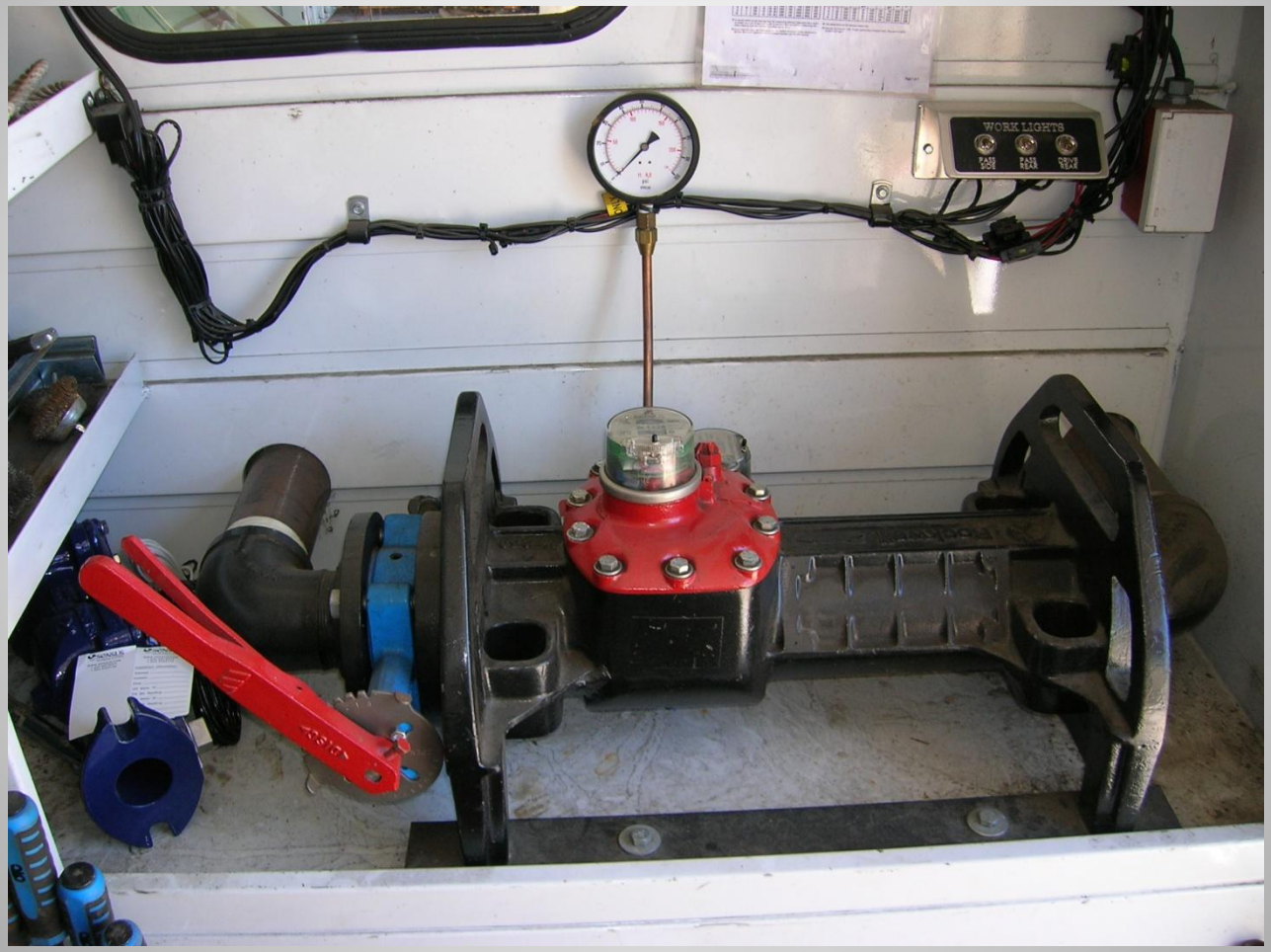


Photo’s

Testing

Testing

Testing



Repairs

- Fortunate for Highline there was no damage done to any meters
- Algae cleaned right off as you could see in the pictures
- Compressed air turned out to be the best way to get this very sticky, clingy form of algae off
- No further repairs were needed

Testing

- Initial financial flag was about a 20% drop from the previous month
- That equates to about $150,000!
- This is what prompted the initial reaction
- The first meter we tested prior to opening up the meter tested @ 77% total registration.
- This particular meter was a large use customer on a 4” meter

Testing

- After opening up the meter and discovering the large amounts of algae, then cleaning the algae out the re-test results were 99% accurate registration
- Keep in mind that this was only one 4” meter out of 36 in the system
- With fifty-eight 3” meters, six 6” meters and three 8” meters we new why the district was down $150,000 in a month

Results

- Management quickly responded with a all hands on deck approach
- All 3” and larger meters were to be tested, photographed, cleaned, photographed and re-tested ASAP!
- Office personnel began to run consumption query’s so that we could game plan for the dispatch of 1 ½” and 2” meters

Results

- Upon receiving these consumption reports we identified the accounts that we wanted to get to ASAP and the rest would be done as time would permit
- The results were the same, large quantities of algae in meters that ran large volumes of water thru them
- Unfortunately only limited testing was done on the 1 ½” and 2” meters, however the testing that was done showed very similar results

Results

- Initial tests showed around 80% registration, or 20% loss
- Follow up tests came in between 98% to 101%
- An immediate replacement program went into effect for meters over a pre determined consumption amount
- 250 total meters were targeted for replacement in 2010

Results

- 250 new Omni Meters were installed in 2010
- 100 1 ½” meters
- 100 2” meters
- 50 3” and Larger
- Two Large Apartment Complexes were targeted with the 1 ½” and 2” replacements
- The 3” and larger were assessed and replaced upon my crew’s recommendation based on use and/or repair history

Final Thoughts

- Improved communication between SPU and Highline Water District on the water quality
- Weekly updates via e-mail
- Lengthy discussion on how the impact to Highline Water District could be minimized
- Pro Active plan for 2011 and beyond
- Continued Meter Replacement program for all commercial meters 1 ½” to 8”

Final Thoughts

- 250 more Omni meters are scheduled for installation in 2011
- 100 1 ½”
- 100 2”
- 50 3” and larger
- Two 8” meters

Final Thoughts

- Great exercise between operations, finance and SPU
- Identified area's of opportunity
- Identified need's within Highline Water District
- Verified the value a most important asset!
- Your Cash Register's AKA Water Meters!

Questions ?

- Dan Sleeth
- Preventive Maintenance Lead
- Highline Water District
- dsleeth@highlinewater.org
- 206-592-8954
- 206-396-9889

- Thank you!

SEAHAWKS SUNDAY
YOUR SUNDAY