



Innovative & Best Practices for Flushing New Building Connections



Russell V. Buras
President / CEO

PurgeRite.com





Real Field Conversation – State University District Plant

- “Any proper flush operation includes moving water at a high flow velocity. Based on the comment from the mechanical contractor, there is no way they reached the required velocity with a fire hydrant pushing water through a 16” pipe 1700’ long.
- Without a proper flush, or cleaning, we take a SIGNIFICANT chance that dirt will lay out in the dirt trap under the current building waiting for flow velocities to pick up as more building are brought on line and eventually we will plug up equipment in buildings.
- If a warranty call finds dirt in their equipment, we will void all warranty forever.
- In my previous life, it took close to 20 years for dirt in a “dirt trap” (low section of piping) to break loose and plug a heat exchanger in a new building.”





what's the
Problem?



BALL STATE
UNIVERSITY.



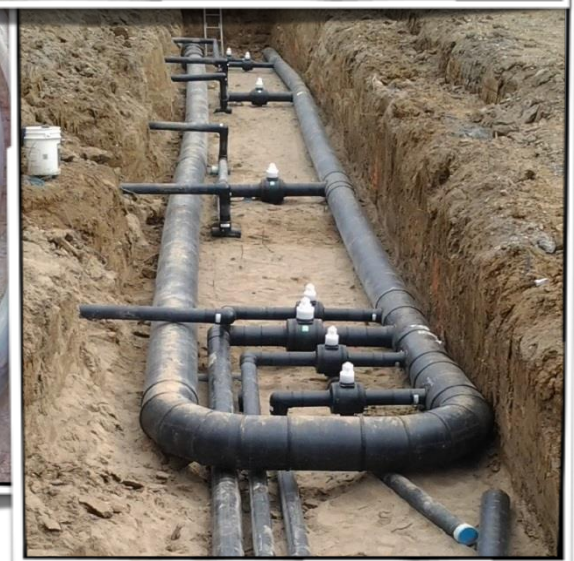
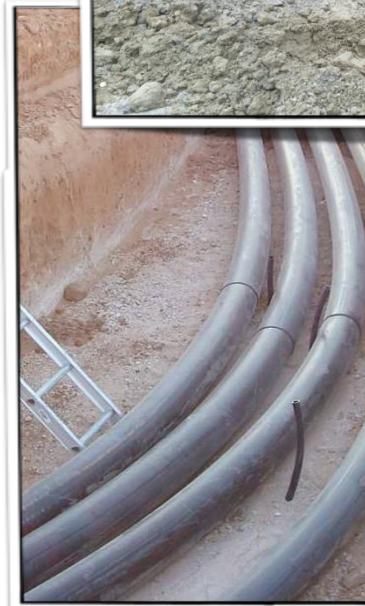
~~Problem~~

Solution



FLUSHING IS VERY IMPORTANT

- New & Renovated buildings are being added
- New distribution segments are being added
- Must be clean & chemically treated before commissioning online





- Engineering specs and implementations are all over the map
- Field interpretation
- Remember the Goal



FLUSHING MEANS & METHODS

- *Clear Water Flush – 5 - 7 ft/sec
25 micron filtration – 1 hour*
- *Cleaning & Chemical
Passivation – 3 – 5 ft/sec ... 24
to 48 hours*
- *Final Clear Water Flush – dilute
the cleaning chemicals out and
use 5 micron filtration – tested
complete*



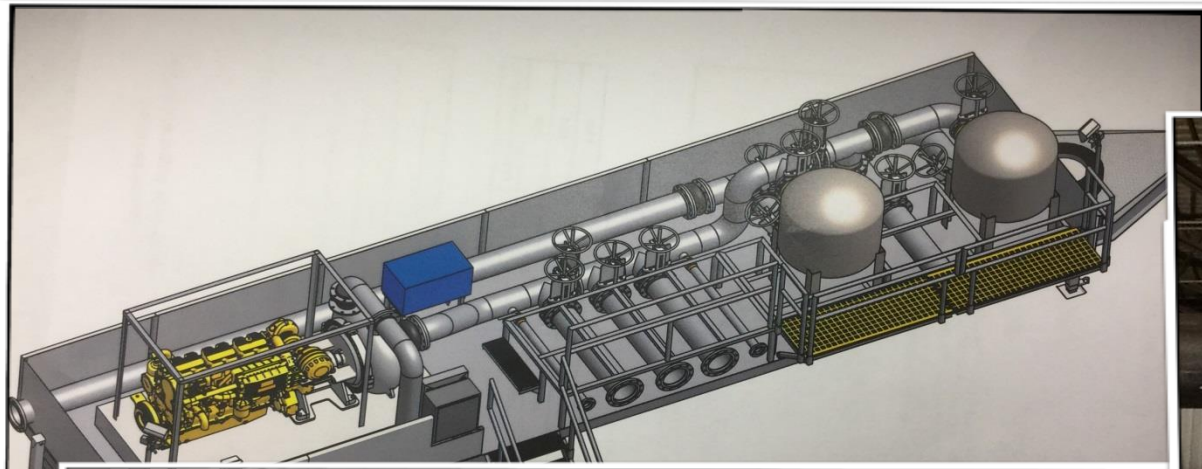
**NASA Mission Control
Houston, Texas**

FLUSHING MEANS & METHODS

- *Planning early in the project can save money and improve results*
- *Team:*
 - *Engr./Spec/Mechanical/Chemical/
District/Third Party Flush Company*
- *Bypasses & Purge Port Connections
MUST be correct (>50% rule)*
- *Self Contained Flush Unit*



Patent Pending - Self Contained Flush Unit – Class 601

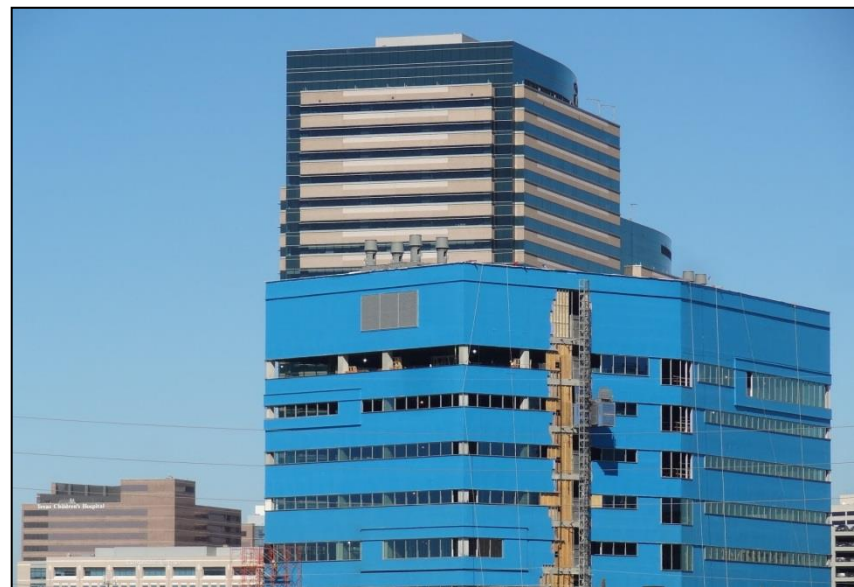




HARRIS COUNTY
INSTITUTE
OF FORENSIC SCIENCES

SCIENCE.
SERVICE.
INTEGRITY.

- *Chill Water Flush*
- *Client Exchanger Side*
- *TECO/Meter Loop Side*
- *Demarc @ Building*





- *6" HDPE Connections*
- *Dual 21k Frac Tanks-
Water Batteries*
- *Class 601 Flush Unit*



TEXAS A&M UNIVERSITY

STUDENT APARTMENT COMPLEX CONNECTED TO PLANT

- 3 separate units
- Hot & Chill Water Combined
- 6" & 8" Steel
- Aquatherm piping
- 5' ft/sec – 24 Hours
- Class 402 with Hose Connections



EPIC SYSTEMS CORP. CAMPUS

Hybrid District Type Plant

36" / 28" Mains

Initial Phases – 1 Week

Dual 900 Geo Loop Fields – 2 Days

Over 300 miles of flushed pipe



TAKE AWAY!

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The End