ASDWA Webinar
October 17, 2018
Introduction

• TIGG has designed and built systems to purify vapors and liquids for over 40 years
• Headquarters in Oakdale, PA with manufacturing in Heber Springs, AR
• Product mix includes systems for use in the municipal and industrial markets
• Ability to incorporate various types of media into our systems
• Available systems sizes from 55 gallon drums to 14 foot diameter vessels
• Provide solutions with system sales or lease options
• Larger systems are certified by NSF to NSF 61 Requirements
Today's Discussion Topics

- Media Selection
  - Flow Rate
  - Water Quality
  - Surface or Ground Water
- Mass Transfer Zone
- Economic Use of Media
- Pilot Studies
Water quality information is essential in providing the correct solution!

- Not all water is the same
- The reports are like a snapshot in time and must be recent
- Reports should include pH, metals, TSS, organics and inorganics as a minimum
- This information will assist in determining the loading on the media and identify materials that may be an issue for the media to work properly
Surface or Ground Water?

- Surface water is more susceptible to seasonal change and variations in water quality

- Ground water is more stable year round

- Surface water usually has a higher TOC and turbidity which causes issues with some media

- Both have different constituent characteristics which may be in competition for space on the media

- A pre filter should always be considered as part of the Best Practice
(MTZ) Mass Transfer Zone Movement Over Time

A

B

C
AT WHAT LEVEL DO YOU EXCHANGE?

Sample Ports

INFLUENT

75% SPENT

50% SPENT

25% SPENT

1st DETECTION

EFFLUENT

INFLUENT

EFFLUENT

75% SPENT

50% SPENT

25% SPENT

1st DETECTION

EFFLUENT
(RSSCT) Rapid Small Scale Column Test

• Compare the performance of several medias for particular contaminants
• Predict the bed-life of a media in the full-scale facility
• Months of full scale data in days with very low water requirements
• Media selection based on cost per unit of contaminant removed, not the cost per unit weight.
• Normal measurement in bed volumes
Rapid Small Scale Column Test

Series Flow

- X Contact Time
- X Sample Port
- 2X Contact Time
- 2X Sample Port

Single or Parallel

- Multiple Media Samples Can Be Tested Simultaneously Using A Manifold
### Issaquah, WA

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## Summary of Results from Issaquah, WA

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<tr>
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<th>Coconut Carbon in Lead</th>
<th>Coal Carbon in Lead</th>
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<tr>
<td>Time of Service</td>
<td>11 months</td>
<td>14 months</td>
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<tr>
<td>Water Processed</td>
<td>102 million gallons</td>
<td>142 million gallons</td>
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<td>PFCs Removed</td>
<td>0.529 pounds</td>
<td>0.601 pounds</td>
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<tr>
<td>Bed Volumes w/o Breakthrough</td>
<td>19,092</td>
<td>26,525</td>
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<tr>
<td>Backwash cycles during period</td>
<td>4+6**</td>
<td>16</td>
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** During the first months of operation,

Pressure swings caused rupture disc failures resulted in 6 unintended and uncontrolled backwash incidents.
Martinsburg W. VA

Monitoring and data collection since January 2018
NSF/ANSI 61 U.S. COMPLIANCE REQUIREMENTS

Drinking water system components fall into two categories of regulation. Centralized water treatment plants and water distribution systems up to and including the water meter are typically regulated by state drinking water agencies. Water distribution systems downstream of the water meter or inside a building are typically regulated by state or local plumbing codes. The information shown in this document applies to products regulated by state drinking water regulatory agencies only. While all major model plumbing codes require the use of NSF/ANSI 61 certified products, the specific requirements for those product types can be found in state or local plumbing codes.

The ASDWA member survey found that 49 states have requirements for water treatment and distribution components to comply with NSF/ANSI 61. See Figure 2 below.

FIGURE 2

*Local requirements may still apply.
The Public Health and Safety Organization

**NSF Product and Service Listings**

These NSF Official Listings are current as of Wednesday, September 26, 2018 at 12:15 p.m. Eastern Time. Please contact NSF International to confirm the status of any Listing, report errors, or make suggestions.

Alert: NSF is concerned about fraudulent downloading and manipulation of website text. Always confirm this information by clicking on the below link for the most accurate information: http://info.nsf.org/Certified/ProdComponents/Listings.asp?Company=C03899796Standard=564K

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**NSF/ANSI 61**

**Drinking Water System Components - Health Effects**

NOTE: Unless otherwise indicated for Materials, Certification is only for the Water Contact Material shown in the Listing. Click here for a list of Abbreviations used in these Listings. Click here for the definitions of Water Contact Temperatures denoted in these Listings.

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Oakdale, PA 15971
United States
800-925-0011
724-793-3020
Visit this company's website (http://www.tigg.com)

**Facility:** Heber Springs, AR

**Mechanical Devices**

<table>
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<td>MLTPL</td>
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<td>CP40K-14(4)</td>
<td>CLD 23</td>
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</tbody>
</table>
Seeking innovative technology for groundwater cleanup

WWW.AFCEC.AF.MIL
Conclusions:

- The remediation and removal of PFAS is still in it’s infancy
- The PFAS issue is serious and global
- GAC is used in the majority of applications and IX selective resins are seeing site specific applications
- New technologies for the removal process are still in the research mode and may be years before they can be scaled up to Municipal applications
- Use NSF 61 Certified products