



WATER SURPLUS

POWERED BY



FACTORS TO CONSIDER WHEN PONDERING A FILTER MEDIA REPLACEMENT

Jim Groose – Sr VP Municipal Water Treatment
Illinois Rural Water – 44th Annual Conference
February 18, 2026

INTRODUCTION

- 70 Employees
- 20+ Patents
- Customers in 80+ Countries
- 500 Years of Combined Industry Experience
- Strong Leadership
- **Acquired by Hawkins, Inc. April 25, 2025**
- Jim Groose – 43 Years in Water Treatment



REPORTING SEGMENTS – MARKETS SERVED



WATER TREATMENT



- Municipal Drinking Water
- Municipal Wastewater
- Industrial Wastewater
- Pools & Aquatics
- Agriculture Water

FOOD & HEALTH SCIENCES



- Nutrition
- Pharmaceuticals
- Food Ingredients
- Agriculture (Fertilizers)

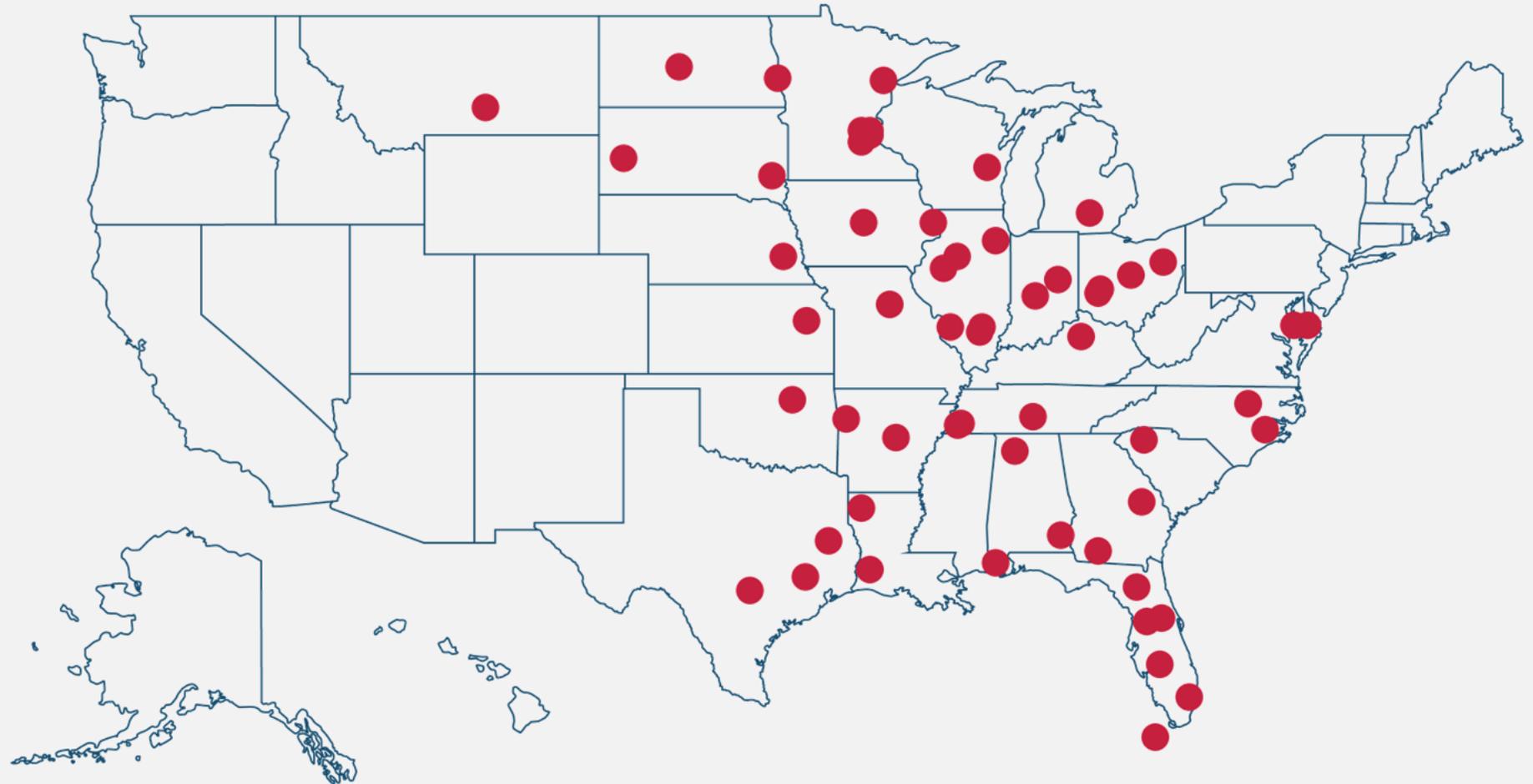
INDUSTRIAL SOLUTIONS

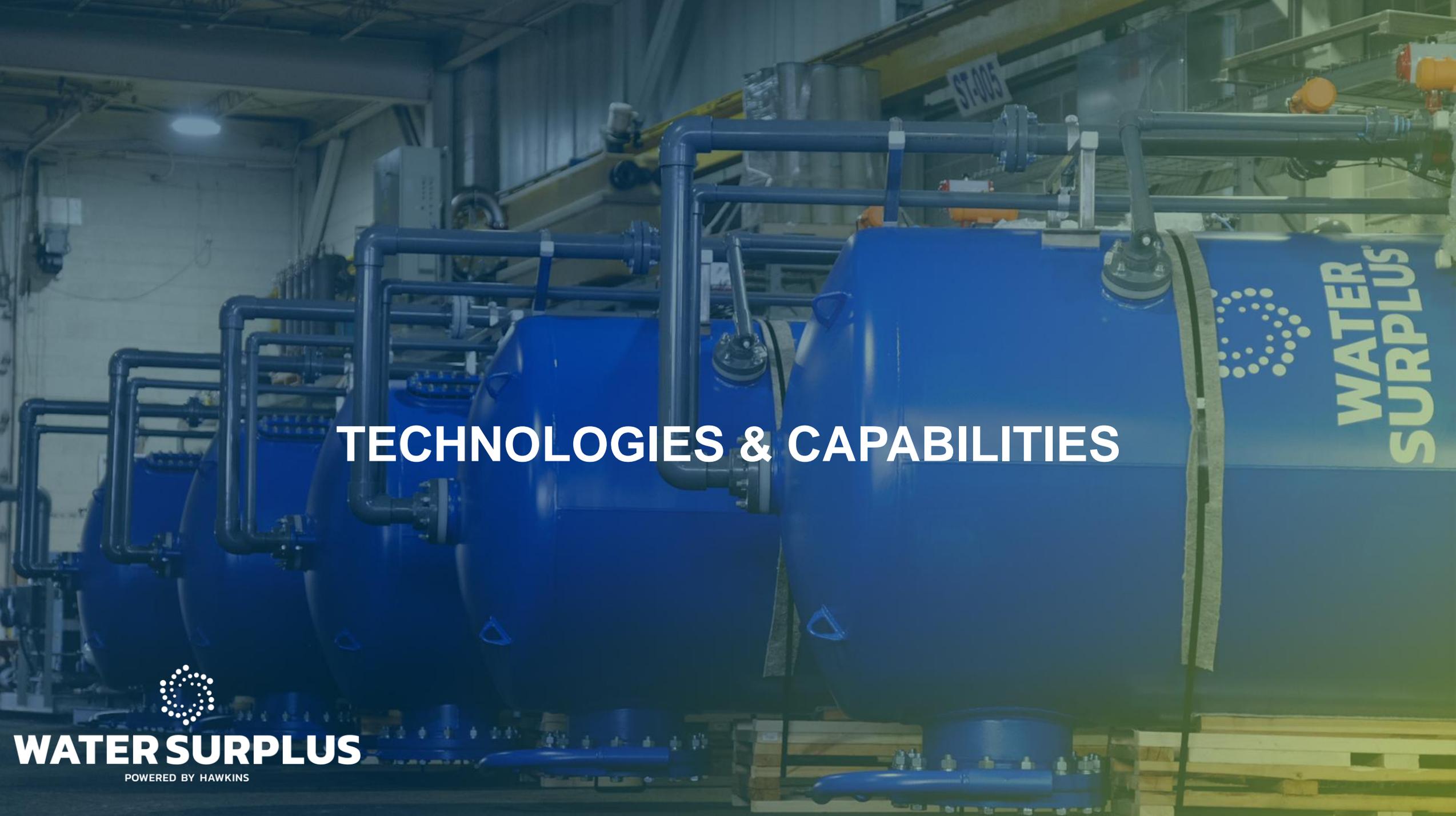


- Manufacturing
- Surface Finishing
- Oil & Gas
- Mining

62 Locations

- ✓ 52 Branch Locations
- ✓ 10 Manufacturing Sites
- ✓ Over 2 Million Square Feet of Manufacturing and Warehouse Space
- ✓ 5 Locations with Rail and Barge access
- ✓ Rail Access at 9 Additional Locations





TECHNOLOGIES & CAPABILITIES



WATER SURPLUS

POWERED BY HAWKINS

**WATER
SURPLUS**

CAPABILITIES



1. Engineering & Design



2. Mobile Rental Fleet



3. Pre-engineered Equipment



4. High Quality Consumables



5. Site Services



6. Surplus

OUR SOLUTIONS – KEY MARKETS



AGRICULTURE



FOOD & BEVERAGE



METALS



MINING & MINERALS



MUNICIPAL



OIL & GAS



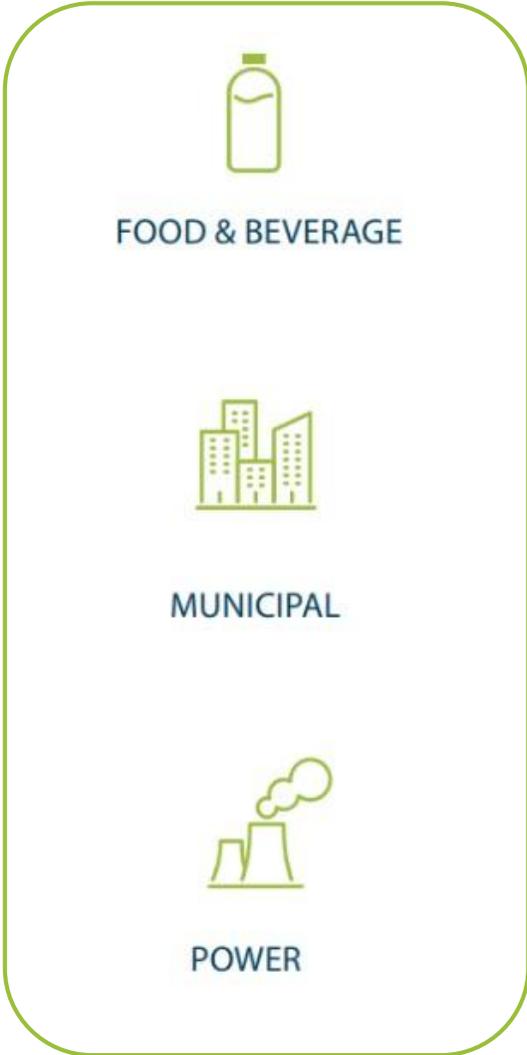
PULP & PAPER



POWER



REMEDICATION



OUR TECHNOLOGIES

1.  **NanoSTACK™** Fouling Resistant UF/NF/RO Elements
2.  **ImpactRO™** High Efficiency/High Recovery RO Systems
3.  **NanoSCORE** Direct Membrane Monitor
4.  **WaterPLUS** Pre-engineered Pressure Filters
5.  **OxiPlus75™** High Flow Rate Catalytic Media (Fe, Mn, H₂S, As removal)
6.  **OxiPlus12™** High Flow Rate Catalytic Replacement Media (Fe, Mn, H₂S, As removal)
7.  **SandPLUS™** High Flow Rate Filter Sand
8.  **PFixPLUS™** Specialty Adsorptive PFAS Resin



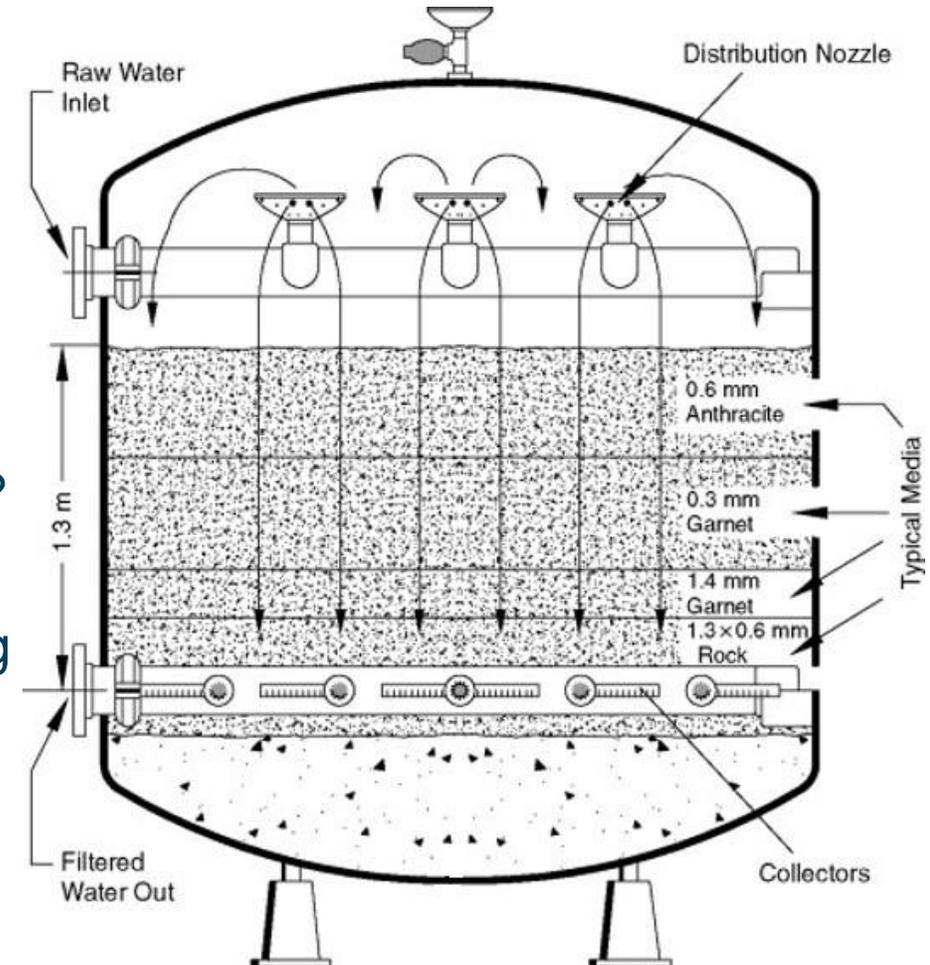
WATER TREATMENT PLANT EXPERIENCE

1. Building Systems in Wisconsin, Illinois, Indiana, Michigan, Kentucky, Georgia, California, Washington, and Utah since 1990.
2. Recent Systems:
 - St. Charles, IL – Iron & Manganese – 200 gpm
 - Greenville, WI – Radium, Iron & Manganese – 500 gpm
 - Belvidere, IL – Iron & Manganese – 2,000 gpm
 - Marshfield, WI – PFAS Removal – 950 gpm
 - Brandenburg, KY – Iron & Manganese – 1,800 gpm
 - Rockford, IL – Two HMO Treatment Plants for Radium removal – 1,800-2,000 gpm
 - Milford, IL – Iron & Manganese – 500 gpm
 - Cary, IL – Iron & Manganese – 200 gpm
 - Mukwonago, WI – Iron & Manganese – 1,000 gpm
 - Oconomowoc, WI – Fe & Manganese – 2,200 gpm, 6.94 gpm/sf



KEY FACTORS TO CONSIDER BEFORE A MEDIA REPLACEMENT

1. How Old is the Filter Media = 10-to-20-year life range is typical?
2. What contaminants are you trying to remove?
3. Are Fe, Mn, As, or Radium being removed as efficiently?
4. Are backwashes more frequent to prevent breakthrough?
5. Is filter building differential pressure sooner than before?
6. Is the filter bed depth, measured as freeboard, increasing or decreasing?



MOST IMPORTANT CONSIDERATIONS

1. Know what you are getting into.
2. Hire a professional firm if you don't have the right equipment or are pressed for personnel
- 3. Safety First** – Confined space procedures are a must
4. Wet GAC adsorbs oxygen and can bring O₂ ppm level close to zero inside a vessel.
5. Determine what else needs to be inspected and fixed after removing the media
6. More important than multiple quotes is hiring someone with good experience doing it



STEPS TO INCLUDE IN EVALUATION

- Evaluate Contaminant Removal Performance First
- Sample the filter media for size and cleanliness, including bacteria fouling
- Determine if treatment goal changed - for instance, Mn removal is important, you may want to switch to a catalytic media like OxiPlus¹²™
- Measure Freeboard Yearly



REVIEW CHEMISTRY: WTP PERFORMANCE

- Fe, Mn, pH, Hardness, TDS
- What is current media? – Media Loading Diagram
- Is the media the best for their chemistry?
- Do they have a Barrier Sand?



EXAMPLE: INORGANIC ANALYSIS



Carus LLC
1500 8th Street
LaSalle, IL 61301

Centreville, MI

Date Received: 8/27/2021
Date Analyzed: 8/30/2021
Lab Number: 0827-08445
Product: N/A
PWS No.: N/A
Number of Samples: 4
Tests per Sample: 15

cc: Todd Luks
Elhorn Engineering Co.
889 Eden Road
Mason, MI 48854

SAMPLE INFORMATION

	Sample Site	Sample Date	Sample Time	Sampler
A	Well #1 - Raw	8/24/2021		
B	Well #3 - Raw	8/24/2021		
C	Well #4 - Raw	8/24/2021		
D	Garage - Treated Distribution	8/24/2021		
E				
F				
G				

RESULTS

Parameter	A	B	C	D	E	F	G	Units
Hardness	289.7	263.4	257.2	260.5				mg/L as CaCO ₃
Orthophosphate	0.13	0.18	0.25	0.94				mg/L as PO ₄
Iron	1.15	<0.02	0.20	0.20				mg/L
Manganese	0.19	0.16	0.14	0.03				mg/L
Copper								mg/L
Lead								mg/L
Initial pH								
Langelier	-0.81	0.27	0.82	0.13				
Final Temp.	24.4	24.6	24.2	24.4				Celsius
Final pH	7.6	7.5	8.0	7.8				
Alkalinity	13	219	224	128				mg/L as CaCO ₃
Calcium	80.1	70.8	72.7	72.7				mg/L
Magnesium	21.8	21.1	18.4	19.2				mg/L
Conductivity	561	470	466	482				umhos/cm
TDS	371	313	311	320				mg/L
Sulfate	6	30	12	12				mg/L
Poly Phosphate	0.03	0.05	0.04	0.80				mg/L as PO ₄
Total Phosphate	0.16	0.23	0.30	1.75				mg/L as PO ₄

Comments:

Note: These results are for monitoring purposes only. They cannot be used for compliance reporting.
Tina Garcia, Senior Technical Solution Specialist
Tel: (815) 224-6880



WATER SURPLUS

POWERED BY HAWKINS



OxiPlus¹²™ VS. GREENSAND PLUS™



OxiPlus¹²™

GreenSand Plus™

Filter Efficiency	Higher	Lower
System Footprint	Smaller	Larger
Manufacturer of Origin	USA	South America
BABAA Compliant	Yes	No
Mesh Size	18 x 45	16 x 60
Media Fines In Backwash Tank	No	Yes
MnO₂ Content (%)	12% Minimum	4-6%
MnO₂ Content (%) Guarantee	Yes	No



WATER SURPLUS

POWERED BY HAWKINS

OUR SOLUTIONS – FILTER MEDIA

- Many media available
- Sand/Anthracite/Gravel - General filtration
- Garnet/GAC/Ion Exchange Resin
-  **SandPLUS**TM High efficiency filtration
-  **OxiPlus**¹² MnO_2 Coated Catalytic media
-  **OxiPlus**⁷⁵ Highly catalytic filter media

When do we use each media and why?



EXAMPLE CHANGEOUT RESULT

- Raw Fe = 3.5 mg/L and Mn = 0.15 mg/L
- Doubled the run time prior to backwash and cut the manganese level in the treated water in half
- 92% yield went to 96% yield



PACKAGING FOR MEDIA

- Gravels – 50 lb. bags (laid by hand)
- Torpedo Sand – Supersacks (educt in)
- Filter sand/anthracite/OxiPlus^{12/75} – Supersacks (educt)

- 1st Gravel Layer – 1 1/2" x 3/4" or 3/4" x 1/2"
- Torpedo Sand = 0.8-2.0 mm (10 States Std)



OUR SOLUTIONS – FILTER MEDIA

- Many media available
- Sand/Anthracite/Gravel - General filtration
- Garnet/GAC/Ion Exchange Resin
-  **SandPLUS**™ High efficiency filtration
-  **OxiPlus**¹²™ MnO₂ Coated Catalytic media
-  **OxiPlus**⁷⁵™ Highly catalytic filter media

When do we use each media and why?



PFAS PILOT SYSTEMS

- Continuous Flow Media Pilot System
 - Up to 4 different medias
 - 6-12 months for completion
 - Customer operates after training from WaterSurplus
- *RO pilot system available*



Better Water. Together.



Jim Groose
Sr VP Municipal Water Treatment
Office: 815.636.8833 | Direct: 815.222.8444
jim.groose@watersurplus.com
<https://watersurplus.com>
2/12/26