AQUAMETRICS ENVIRONMENTAL

WE TREAT CONTAMINATED WATER

For Use/Reuse in Drinking, Industrial, and Agricultural Applications

Aquametrics Environmental, Inc (hereafter AQME) designs Systems for the processing of various contaminated waters including municipal wastewater, industrial processing water, agricultural waters, fracking waters, and brackish waters for the purpose of reuse as potable, processing, irrigation, or other desired uses. No limits on volume of water to be treated. Generally, a System can be designed and installed in a period of 12 months, assuming the installation site is ready, and permits are available.

Our Systems are unique in today's marketplace – instead of using traditional systems that include reverse osmosis, ozonation, and UV/hydrogen peroxide we use proprietary adsorbers, filtration, and green chemicals that are automatically dosed to produce advanced oxidation processes (AOP) for disinfection, purification, and destruction of harmful compounds, and to eliminate scale, corrosion, and biofouling.

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The list of contaminants that will be removed include but are not limited to:

- **Heavy metals** (lead, mercury, arsenic, cadmium, chromium, copper, zinc, nickel, and aluminum)
- **Micro-organisms** (bacteria, viruses, protozoa, fungi, algae, helminths)
- **Disinfectants and byproducts** (household cleaners)
- **Harmful Gases** (hydrogen sulfide)
- **Solids** (human waste)
- **Radionuclides** (atoms undergoing radioactive decay)
- **Organic and Inorganic Compounds** (boron, iron, manganese, nitrates, and ammonium)
- **Environmental pollutants:** (PFAS, EDCs, POPs, pesticides, PPCPs, dyes, microbeads, plasticizers, microcystin, and forever chemicals)

SYSTEM BENEFITS

Operational Benefits

- Lower upfront and operational costs than industry standard systems that use (ultrafiltration, ozonation, reverse osmosis (RO), UV, and Hydrogen Peroxide)
- 7-10 year operating life before material replacement
- A designed, installed, and operational system within 12 months assuming a controlled site and available permits
- Some 99% of contaminated waters can be recovered as clean water
- No volume limits on treated water

Environmental Benefits

- Zero liquid discharge and non-toxic removed contaminants can be landfilled
- All products are in a dry granular or powder form, certified to NSF/ANSI-61 standard
- Reduced demand of existing water resources
- No toxic chemicals nor are toxic byproducts produced or discharged
- Little electrical power is used
- Virtually no greenhouse gases are produced
- Advanced oxidation destroys contaminants including PFAs and other “forever chemicals”

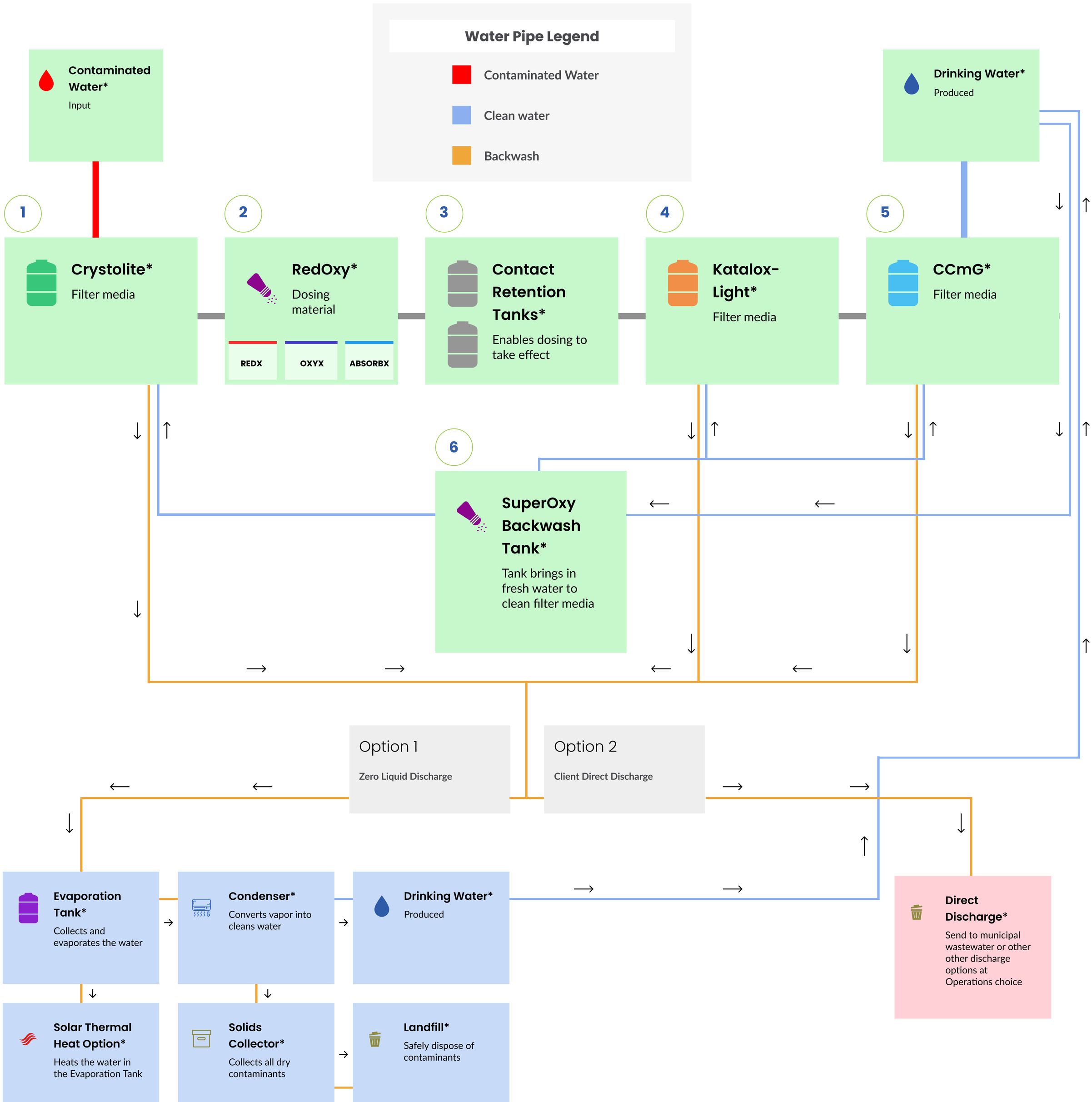
HOW THE SYSTEM WORKS

Primary Cleaning
Utilizing an initial water analysis, we identify the contaminants to be removed. From our extensive list of treatment materials, we customize the media selection to develop the treatment process. The medias are placed into vessels that are connected in a sequenced in-line flow design. The attached schematic below shows the primary medias and dosing chemicals that will be used with most contaminated waters being treated. There will be cases where additional medias and dosing chemicals will be required. As contaminated water, with a minimum pressure of 30psi, flows through the system, contaminants are filtered or adsorbed onto the media or broken down, oxidized, and destroyed by the dosing agents injected into the process flow. Some contaminated waters will contain excessive concentrations of sodium chloride, in which case a brackish water reverse osmosis will be added to the treatment system.

Process Self Cleaning
To keep the filtration and adsorption materials working efficiently and free of biofouling they are periodically backwashed with clean water and Super Oxy, an advanced oxidation producing chemical. Backwashing occurs automatically, requires up to 30 minutes to complete and is generally conducted on a 2–3-week cycle. The amount of clean water required is less than 0.5% of the clean water the System produces.

The backwash water can be readily discharged as wastewater, or it can be further processed to provide for Zero Liquid Discharge. To achieve Zero Liquid Discharge and to optimize the availability of clean water the relatively small volume of backwash water can be collected, evaporated, and then condensed. The nearly dry residual solids can be landfilled.

CONTAMINATED WATER TREATMENT



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The Process

1. **Crystolite:** A micro-filtration media and long-lasting wastewater treatment option that reduces solids, heavy metals, and ammonia down to 0.5 microns without clogging.

2. **RedOxy:** A revolutionary component in our treatment process as it provides for the continuous oxidation, adsorption, and filtration of inorganic and organic impurities within seconds of reaction and provides for the removal of turbidity, color, odor, BOD, COD and inactivation of bacteria. Red-Oxy has three (3) components – RedX, Oxyx, and Adsorbx, each in a dry form that are separately mixed with clean water and automatically dosed into the contaminated water stream.

3. **Contact Retention Tanks:** The tanks use an in-line flow and are sized based on the overall process flow rate to ensure sufficient oxidation contact time.

4. **Katalox-Light:** This catalytic media filters suspended solids, sediments, turbidity, organics, color, and odor and removes iron, manganese, hydrogen sulfide, arsenic, radium, heavy metals, and radionuclides.

5. CCmG: CCmG is an activated coconut carbon adsorption technology that is diffused with Zero Valent Iron (ZVI). CCmG has an enormous surface area that attracts cations and anions and removes halogenated organic compounds, hundreds of pharmaceuticals, organic humic substances, hydrogen sulfide, chloramines, trihalomethanes, phenols, inorganic heavy metals, arsenate, arsenide, chromium, copper, cyanide, fluoride, lead, mercury, and selenium.

6. **SuperOxy Backwash Tank:** When backwashing occurs, Super Oxy granules are mixed with clean water and has two primary functions: 1) to clean / desorb the medias, thereby maintaining efficiency and extend media operating life, and 2) to oxidize PFAS, PFOS, other forever chemicals and pathogens.

SuperOxy. It is shipped and stored as a dry powder that consists of dry, green chemicals that chemically react with a water molecule to passively produce hydroxyl radicals (OH). The hydroxyl radical has one unpaired electron in the structure, so that it deprives other substances of an electron, known as oxidation. It is known that hydroxyl radicals kill microorganisms and convert contaminants such as PFAS into small inorganic molecules including water, carbon dioxide and salts.

ABOUT OUR SUPPLIER

Watch Water

- **Watch Water® is a top global company based in Mannheim, Germany**, that offers innovative solutions to address the growing challenges faced by water and wastewater treatment industries. They have over 40 years of experience, and branches and distributors in 45 countries. Their products, including Scale Prevention, Adsorbers, Filter Medias, and Instant Dosing Solutions, are highly effective, eco-friendly, and affordable, resulting in significant water recovery and cost savings.