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We welcome the development of a new and upgraded wastewater facility in Zumbrota. The introduction of advanced technologies has the potential to significantly enhance the quality and efficiency of wastewater treatment, benefiting our community and environment.

However, we remain concerned that critical contaminants, particularly those associated with the planned hyperscale data center development in Pine Island, have not been adequately addressed in the facility's current design and permits. While heavy metals and nutrients are well considered and will be treated, there are several classes of contaminants that are not mentioned at all. For example, PFAS and persistent chemicals. These are very difficult to treat in conventional wastewater plants. They are largely not removed by biological or physical steps and typically require advanced treatment (e.g., activated carbon, ion exchange), which isn't depicted in the schematic included in the Draft NPDES and SDS Permit to North Zumbro Sanitary Sewer District, Zumbrota.

It is essential that all potential risks are thoroughly considered to ensure the long-term health and safety of our residents.

Here is a comprehensive list of common and critical contaminants, including molecular-level names, that a wastewater treatment plant should monitor and address when dealing with effluent from a hyperscale, air-cooled data center with contained water systems. I have noted which ones are already addressed in planning documents.

1. Per- and Polyfluoroalkyl Substances (PFAS)

A broad class of persistent chemicals often found in industrial and firefighting applications. PFAS harm all people but especially kids by accumulating in the body and disrupting critical development. Exposure is linked to weakened immune responses, developmental delays, behavioral changes, hormonal imbalances, and increased risks of childhood cancers like leukemia. The wastewater facility must test for and treat these contaminants:

Perfluorooctanoic acid (PFOA) — $C_7F_{15}COOH$

Perfluorooctanesulfonic acid (PFOS) — $C_8HF_{17}O_3S$

Perfluorohexanesulfonic acid (PFHxS) — $C_6F_{13}SO_3$

HPERfluorononanoic acid (PFNA) — $C_8F_{17}COOH$

Perfluorodecanoic acid (PFDA) — $C_9F_{19}COOH$

Fluorotelomer alcohols (FTOHs) GenX chemicals (HFPO-DA)

2. Corrosive and Cooling Chemicals

Often used in cooling and water treatment systems. Low doses of corrosive and cooling chemicals in water harm all people but especially kids primarily by disrupting rapid neurological development, leaching toxic heavy metals into drinking lines, and causing cumulative organ damage over time. Because children have a higher fluid-to-body-weight ratio and developing organ systems, they are particularly vulnerable to chemical exposure. The wastewater facility must test for and treat these contaminants:

Ethylene glycol (antifreeze agent) — $C_2H_6O_2$

Propylene glycol — $C_3H_8O_2$

Sodium hypochlorite (bleach/disinfectant) — $NaOCl$

Hydrochloric acid (pH adjustment) — HCl

Sodium hydroxide (caustic soda, for pH control) — NaOH
Copper sulfate (algaeicide/control) — CuSO₄
Benzotriazole (corrosion inhibitor) — C₆H₅N₃
Polyphosphates (scale inhibitors) — e.g., Sodium hexametaphosphate (NaPO₃)₆
Included in the Permit Issuance: Sulfate

3. Heavy Metals

Trace metals from electrical components and materials. Even at low doses in water, heavy metals harm all people but especially kids because their brains and bodies are still developing and their metabolic rates are higher. Toxins disrupt crucial biological processes by displacing essential minerals and causing oxidative cell damage. Because children absorb more of these contaminants relative to their body weight than adults do, low-dose exposure can lead to specific, severe harms.

The wastewater facility must test for and treat these contaminants:

Chromium (Cr⁶⁺) and (Cr³⁺) Chloride

Included in the Permit Issuance: Copper (Cu²⁺)

Included in the Permit Issuance: Mercury

Included in the Permit Issuance: Arsenic

Included in the Permit Issuance: Molybdenum

Included in the Permit Issuance: Nickel (Ni²⁺)

Included in the Permit Issuance: Lead (Pb²⁺)

Included in the Permit Issuance: Zinc (Zn²⁺)

Included in the Permit Issuance: Selenium

Included in the Permit Issuance: Cadmium (Cd²⁺)

4. Volatile Organic Compounds (VOCs) and Solvents

Used in cleaning or maintenance. Even low doses harm all people but especially kids through neurological damage, organ toxicity, endocrine and immune disruption, and increased cancer risk.

The wastewater facility must test for and treat these contaminants:

Trichloroethylene (TCE) — C₂HCl₃

Tetrachloroethylene (PCE) — C₂Cl₄

Benzene — C₆H₆ Toluene — C₇H₈

Xylene — C₈H₁₀

5. Organic Chemicals and Surfactants

Detergents and compounds that impact biological treatment. Even at low doses, organic chemicals and surfactants in water harm kids by disrupting vulnerable, growing biological systems. Because children have developing immune systems, immature brain barriers, and consume more water relative to their body weight, these contaminants pose severe, long-term developmental risks. The wastewater facility must test for and treat these contaminants:

Nonylphenol ethoxylates (NPEs)

Linear alkylbenzene sulfonates (LAS)

Phthalates (plasticizers) e.g., Diethylhexyl phthalate (DEHP) — C₂₄H₃₈O₄

Bisphenol A (BPA) — C₁₅H₁₆O₂

6. Nutrients

Excess nutrients can cause eutrophication. When these nutrients leach into local groundwater or contaminate reservoir sources, they pose distinct health risks. For example, nitrogen-based compounds like nitrates (which ammonia converts into) can cause "blue-baby syndrome"

(methemoglobinemia), a dangerous condition where a baby's blood cannot carry oxygen properly. The wastewater facility must test for and treat these contaminants:

Phosphate (PO_4^{3-})

Included in the Permit Issuance: Ammonia (NH_3 / NH_4^+)

Included in the Permit Issuance: Nitrate (NO_3^-)

Included in the Permit Issuance: Nitrite (NO_2^-)

Included in the Permit Issuance: Phosphorous

7. Suspended Solids and Biological Contaminants

Though not molecular, important. The wastewater facility must test for and treat these contaminants:

Chemical Oxygen Demand (COD)

Included in the Permit Issuance: Total Suspended Solids (TSS)

Included in the Permit Issuance: Biological Oxygen Demand (BOD)

Please revisit and revise in depth the current documents to indicate exactly how you will test, treat, and maintain our existing high water quality.