

# Water Supply and Challenges in Suffolk County

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## Long Island Water Policy Overview: History, Current Efforts & Charting the Course Ahead

**EARTH DAY**  
Thursday, April 22  
8:00 - 10:00 a.m.  
Via Zoom

**HOST:**  
Keith P. Brown '94,  
NYS Assemblyman

**MODERATOR:**  
Adrienne Esposito,  
Citizens Campaign for the Environment

**PANELISTS:**  
Allison Branco, Ph.D., The Nature Conservancy  
Tracy Brown, Save the Sound  
Christopher Cobler, Ph.D., SUNY Stony Brook  
Tony Leung, NYS DEC Region 1  
**Joe Pokorny**, Suffolk County Water Authority  
Peter A. Scully, Suffolk County Deputy County Executive



 Attorneys are eligible for 2.0 NY CLE credits.  
This program is suitable for in-service credits for planning and zoning board members.

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Presented By:

## Joe Pokorny

*-SCWA Deputy CEO for Operations*



# Topics We Will Cover Today

- A Little about SCWA
  - Long Islands Sole Source Aquifer
  - Source Water Protection
  - The Critical Role Played by Lab Testing
  - The Challenge of Emerging Contaminants
- 

# What SCWA is...

- The Suffolk County Water Authority is an **independent public-benefit corporation** operating under the Public Authorities Law of the State of New York.
- SCWA serves approximately **1.2 million** Suffolk County residents.
- Beginning operations in 1951, SCWA operates without taxing power on a **not-for-profit** basis.
- SCWA is one of the largest **groundwater suppliers** in the country.



# What SCWA is not...

- SCWA is not a branch of Suffolk County Government.
- SCWA does not create or enforce drinking water standards. This is the responsibility of the U.S. Environmental Protection Agency (EPA) and New York State Department of Health (DOH).

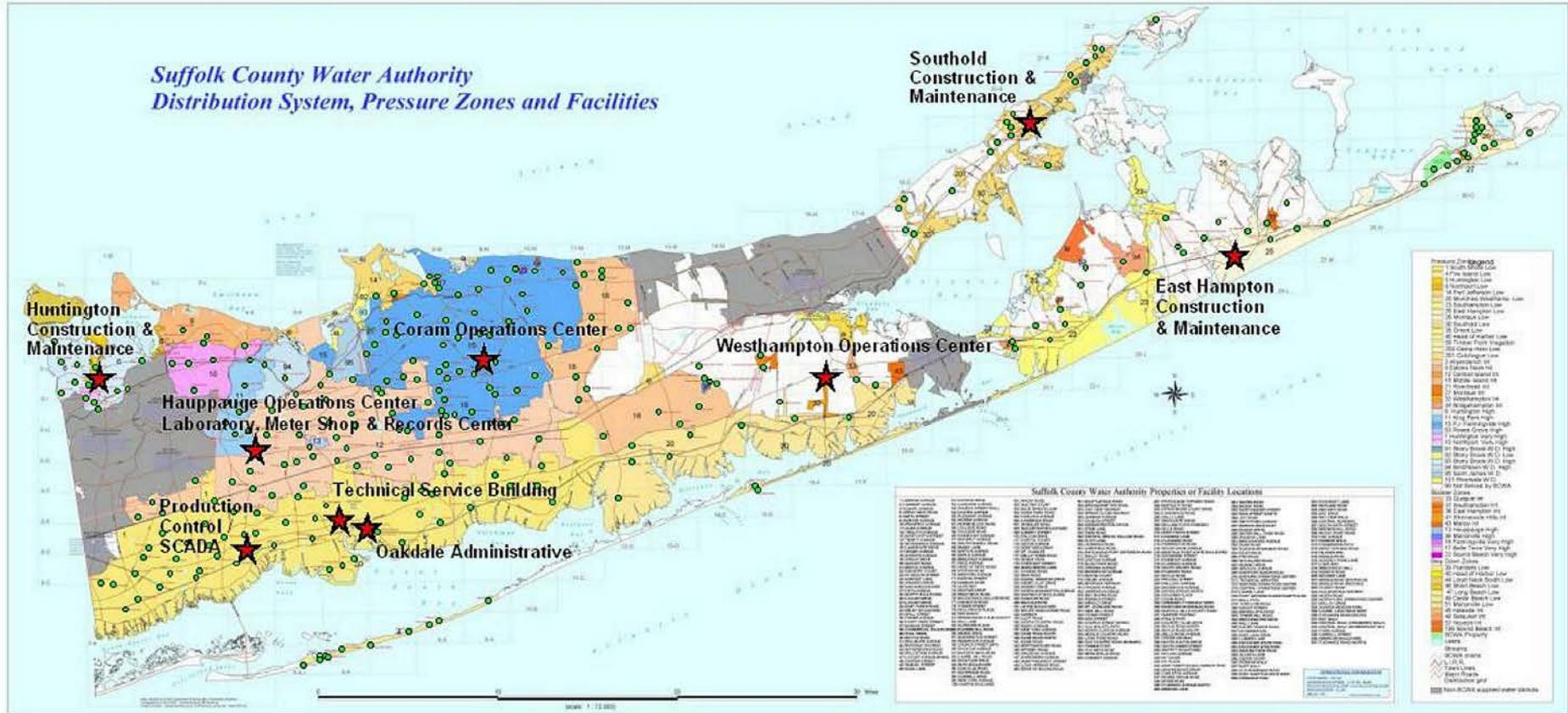


# SCWA Statistics

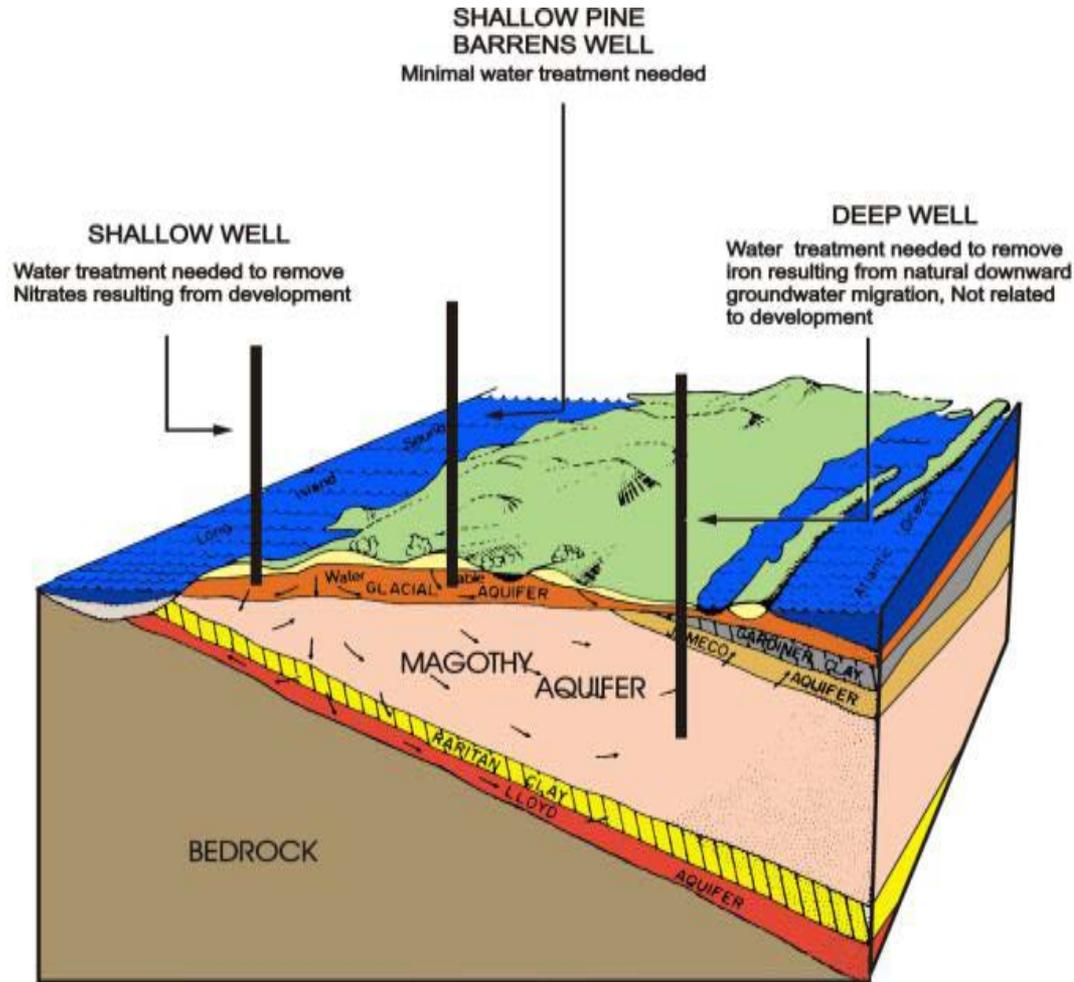
- 586 Active Wells at 237 Well Fields
- 64 Storage Tanks w/68 Million Gallons (MG) of Storage.
- Over 6000 Miles of Water Main
- Approximately 38,000 Fire Hydrants
- Avg Daily Pumpage: 210 MG.
- Avg Peak Pumpage: 470 MG.
- Largest EPA Cert Groundwater Lab in US



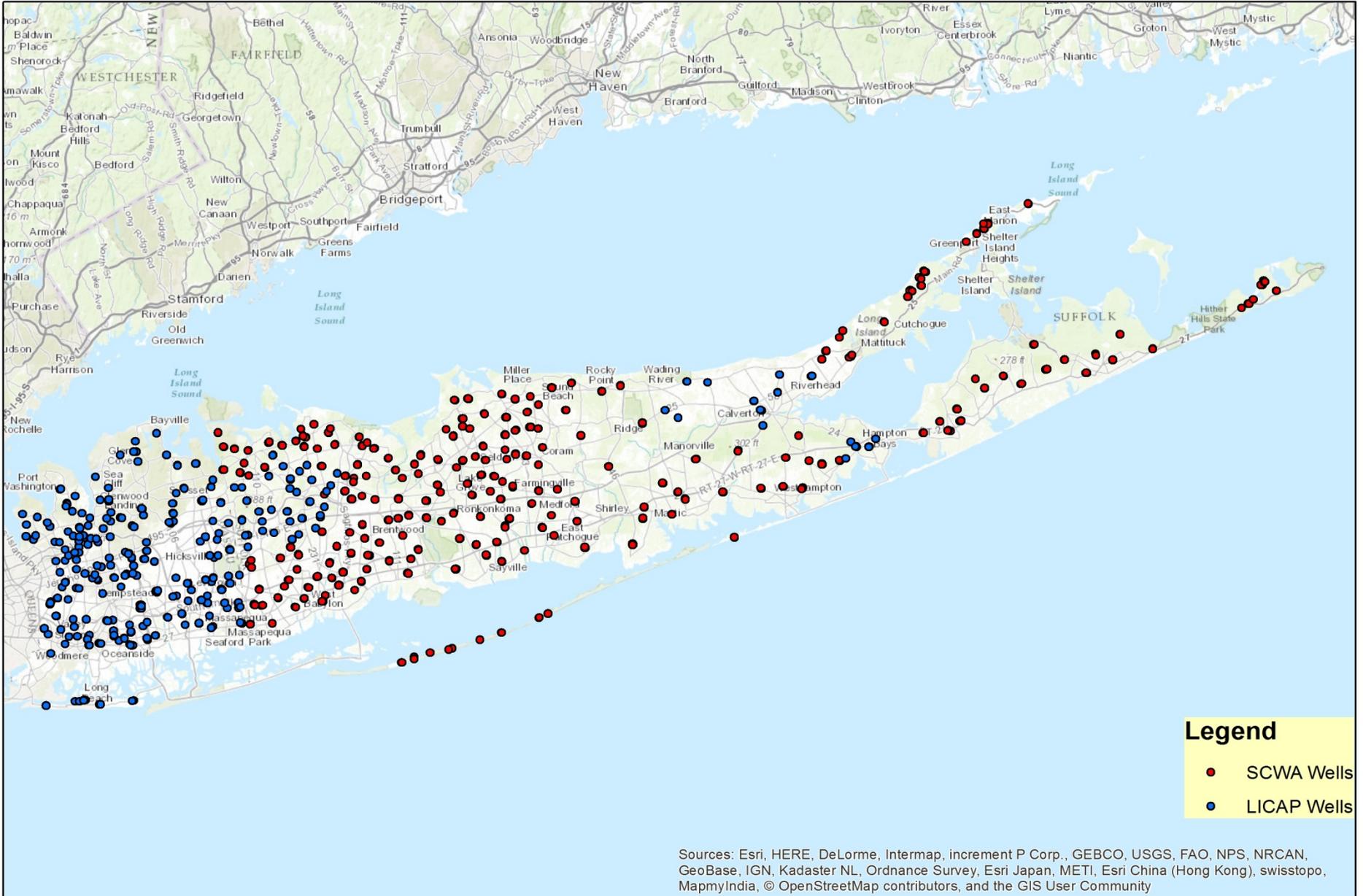
# SCWA – Pressure Zones and Facilities



# Long Islands Sole Source Aquifer



# Public Supply Wells on Long Island



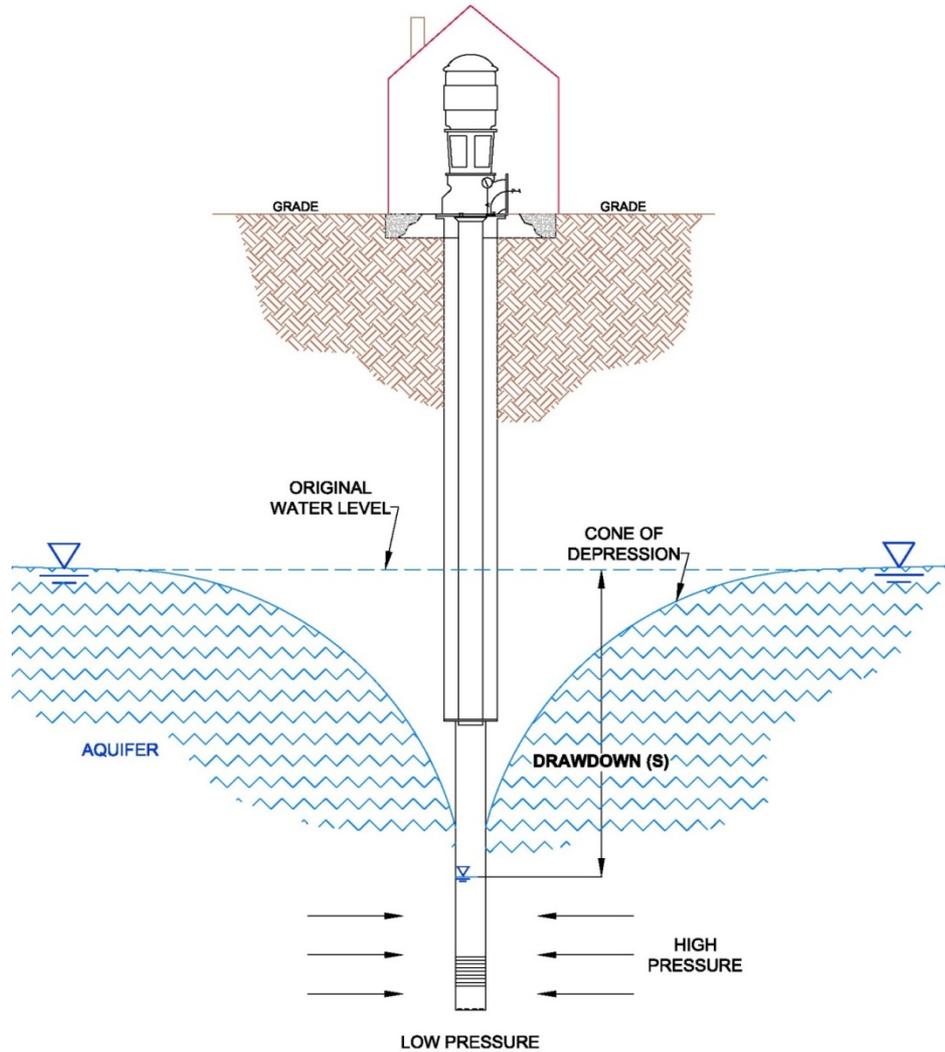
## Legend

- SCWA Wells
- LICAP Wells

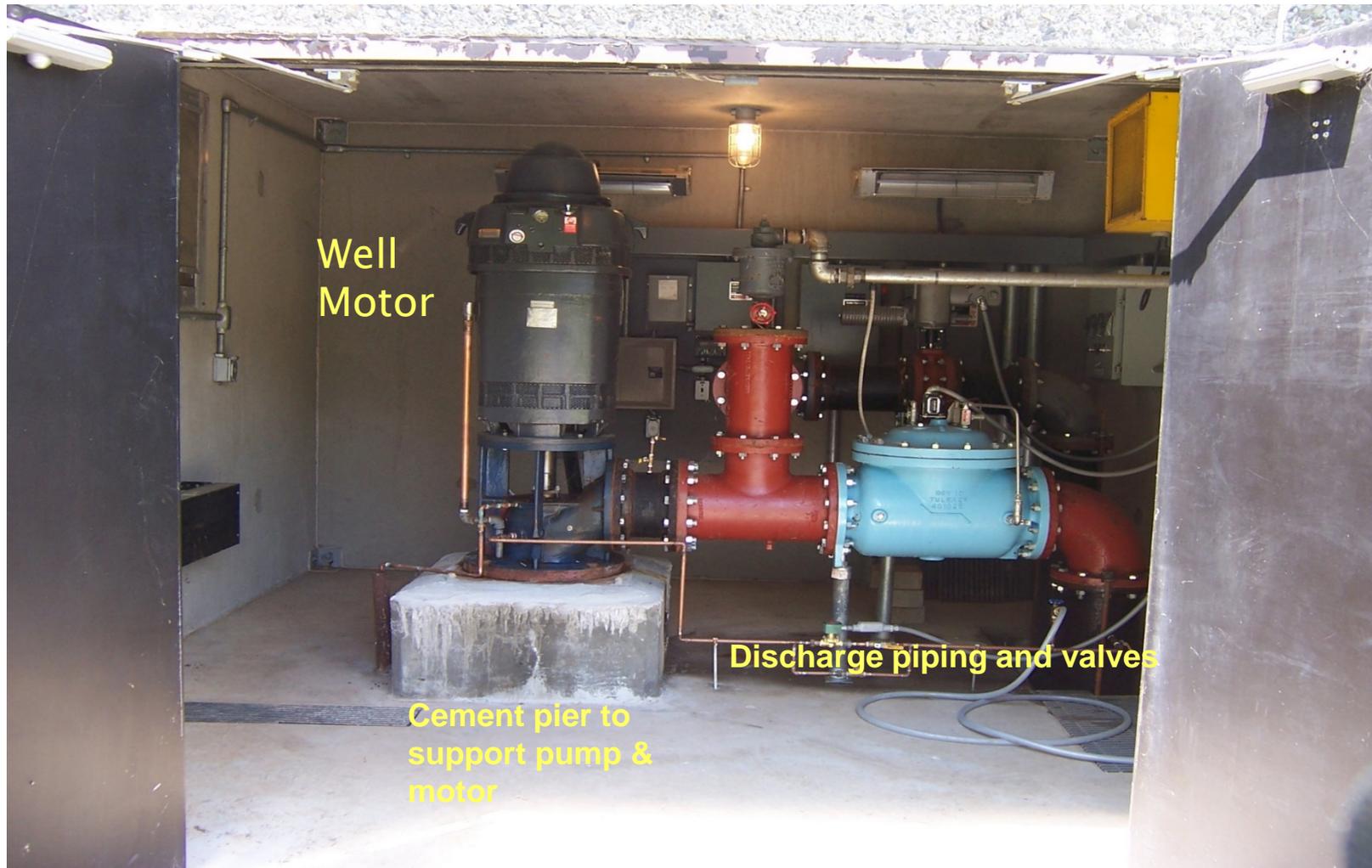
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



# Typical Well in Operation



# Actual SCWA Well

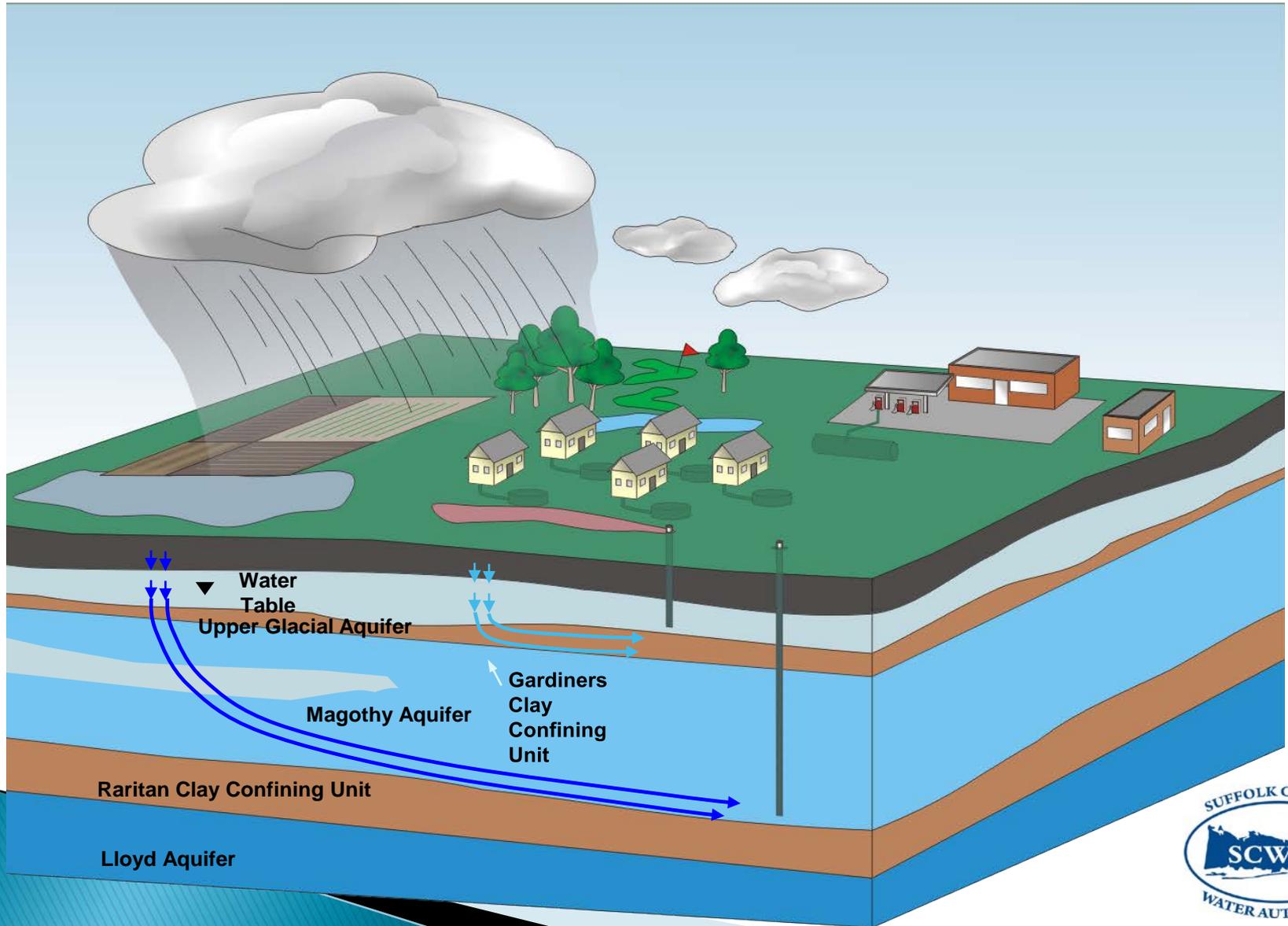


Well  
Motor

Discharge piping and valves

Cement pier to  
support pump &  
motor

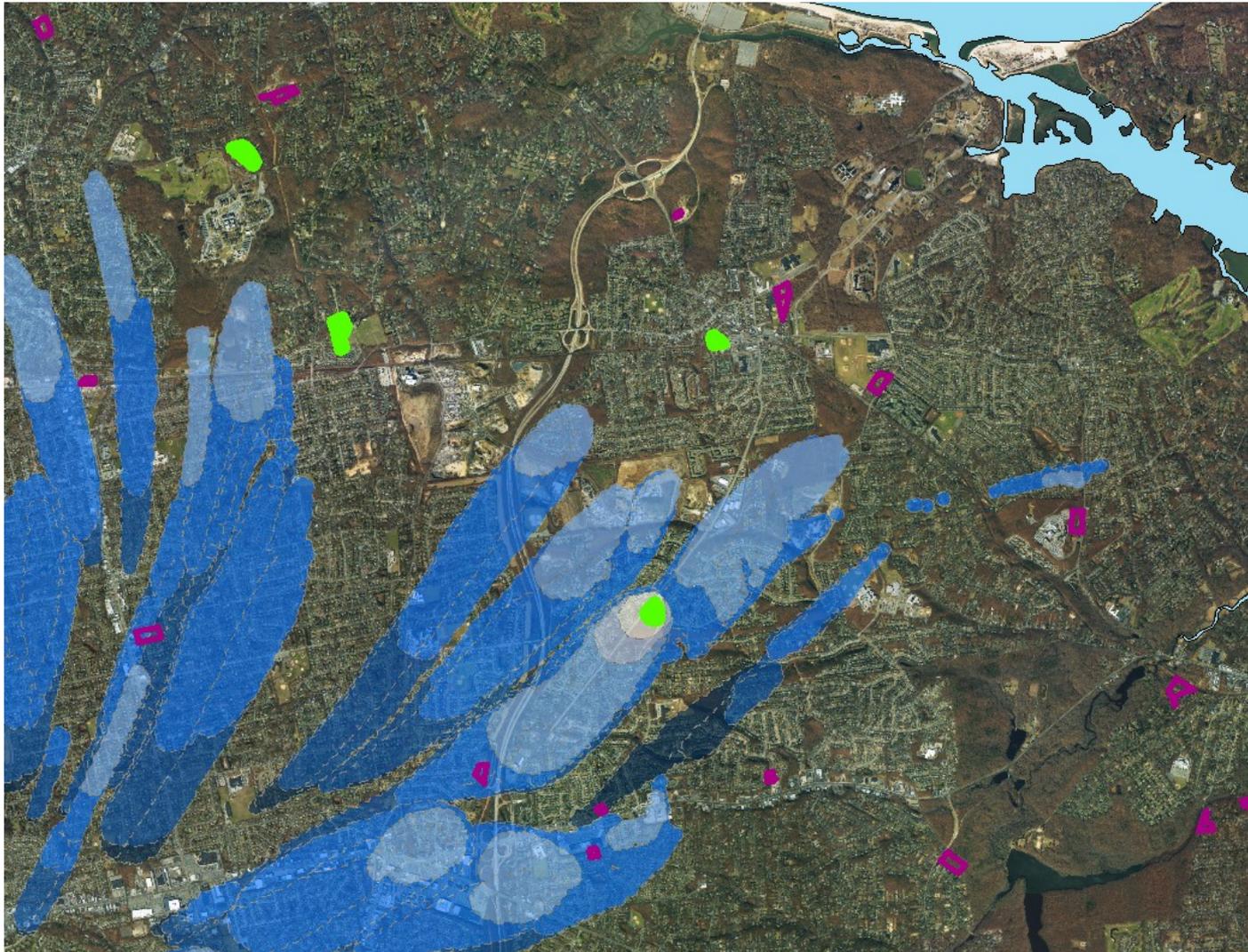
# Source Water – Where Does Our Water Come From?



# The Highs and Lows of Long Island



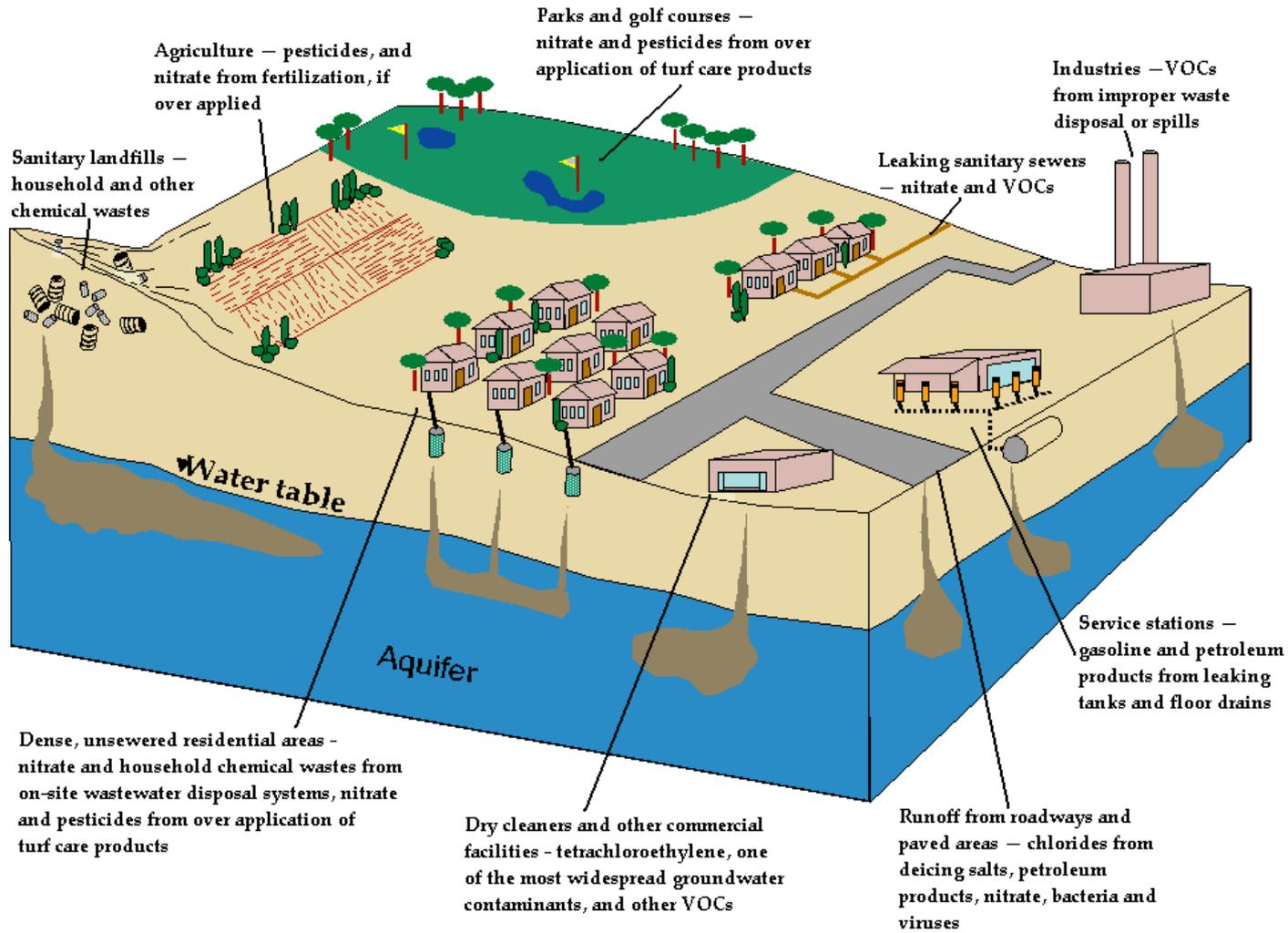
# Kings Park Area Well Source Water



# Islip Area Well Source Water



# Land Use Impacts on Groundwater



# The Critical Role of Testing



# Laboratory Testing Equipment

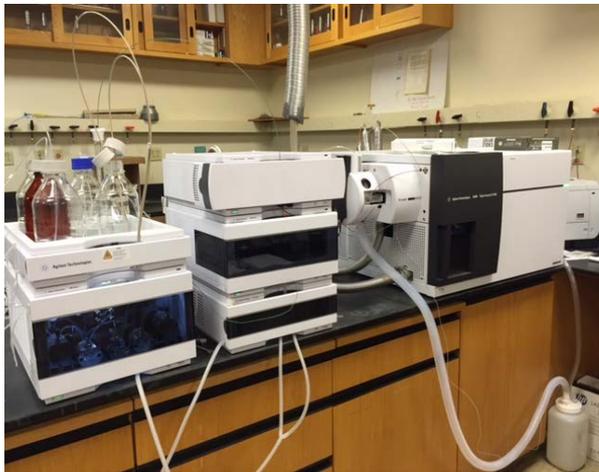
Metal Testing



Gas Chromatography



Ultra High Pressure Liquid Chromatography



Personal Care Products Testing



Volatile Organics Testing

# Levels of Detection

- SCWA's state-of-the-art laboratory instruments can detect compounds in the water down to parts-per-**million**, parts-per-**billion**, or in some cases even parts-per-**trillion**.
- For reference:
  - 1 Part-per-million = 1 second in 12 days
  - 1 Part-per-billion = 1 second in 32 years
  - 1 Part-per-trillion = 1 second in 32,000 years



# The SCWA Laboratory

- SCWA's in-house standards for water quality are often **tougher than** state or federal regulations.
- Tested for **400** compounds (**251 more than** required by regulators)
- Analyzed **55,000** samples last year for 167,000 tests.
- Testing at a **higher frequency** than required by SCDHS.

*\*Test samples are taken at the wellhead, at various stages of treatment and within the distribution system for bacteria and a wide range of inorganic and organic chemicals.\**



# Emerging Contaminants – The New Challenge

- Perflourinated Compounds – PFOA/PFOS
- 1,4 Dioxane

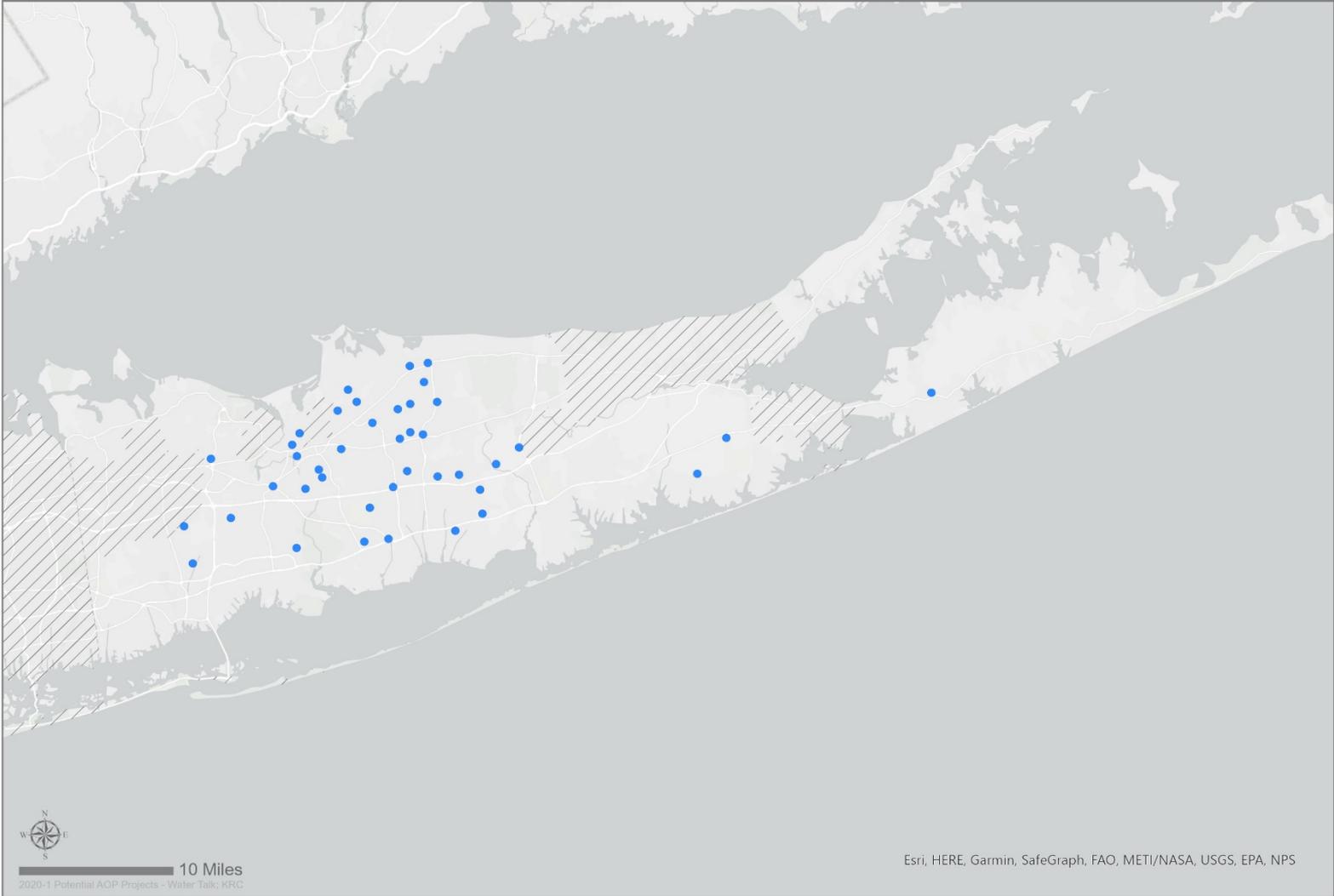
# What are PFOS & PFOA?

- Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) are fluorinated organic chemicals used in treatments to protect carpets, clothing, furniture fabrics, paper packaging for food and non-stick cookware. They are also found in firefighting foams.
- The NYS Drinking Water Standard for PFOA/PFOS is 10 ppt



# Wells Above 1/2 the Proposed MCL With No Treatment for PFOA/PFOS

April 12, 2021



10 Miles

2020-1 Potential AQP Projects - Water Talk, KRC

Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS

# SCWA Action on PFOS & PFOA

- SCWA began testing for PFOS & PFOA in 2013 at the direction of the Environmental Protection Agency (EPA).
- PFOS & PFOA are removed from water using Granular Activated Carbon (GAC) treatment.
- About 21 additional GAC systems will need to be installed to comply with the new regulations.



# Granular Activated Carbon (GAC)

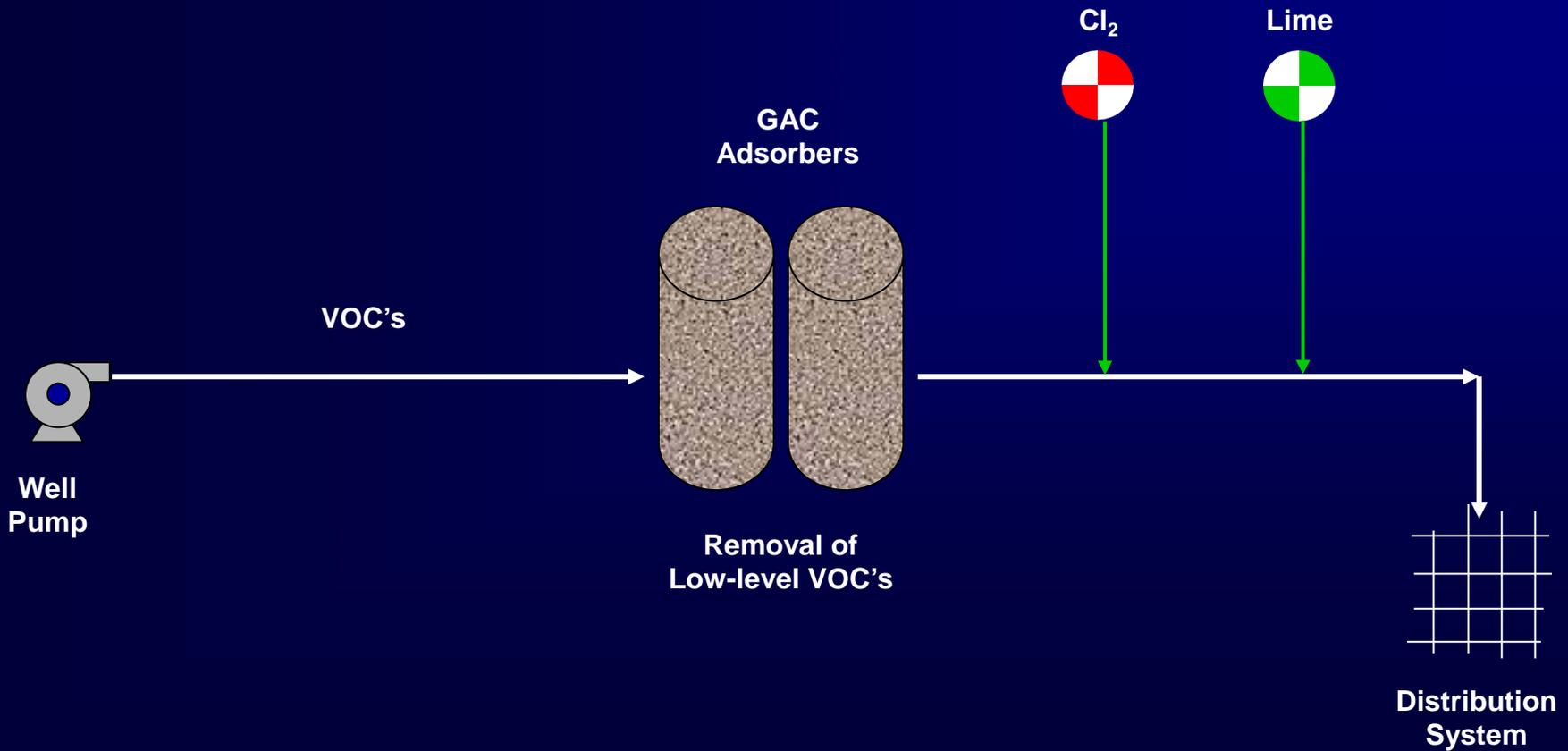


↑  
**GAC Vessels**

**Carbon media**



# Typical GAC Process Flow Diagram



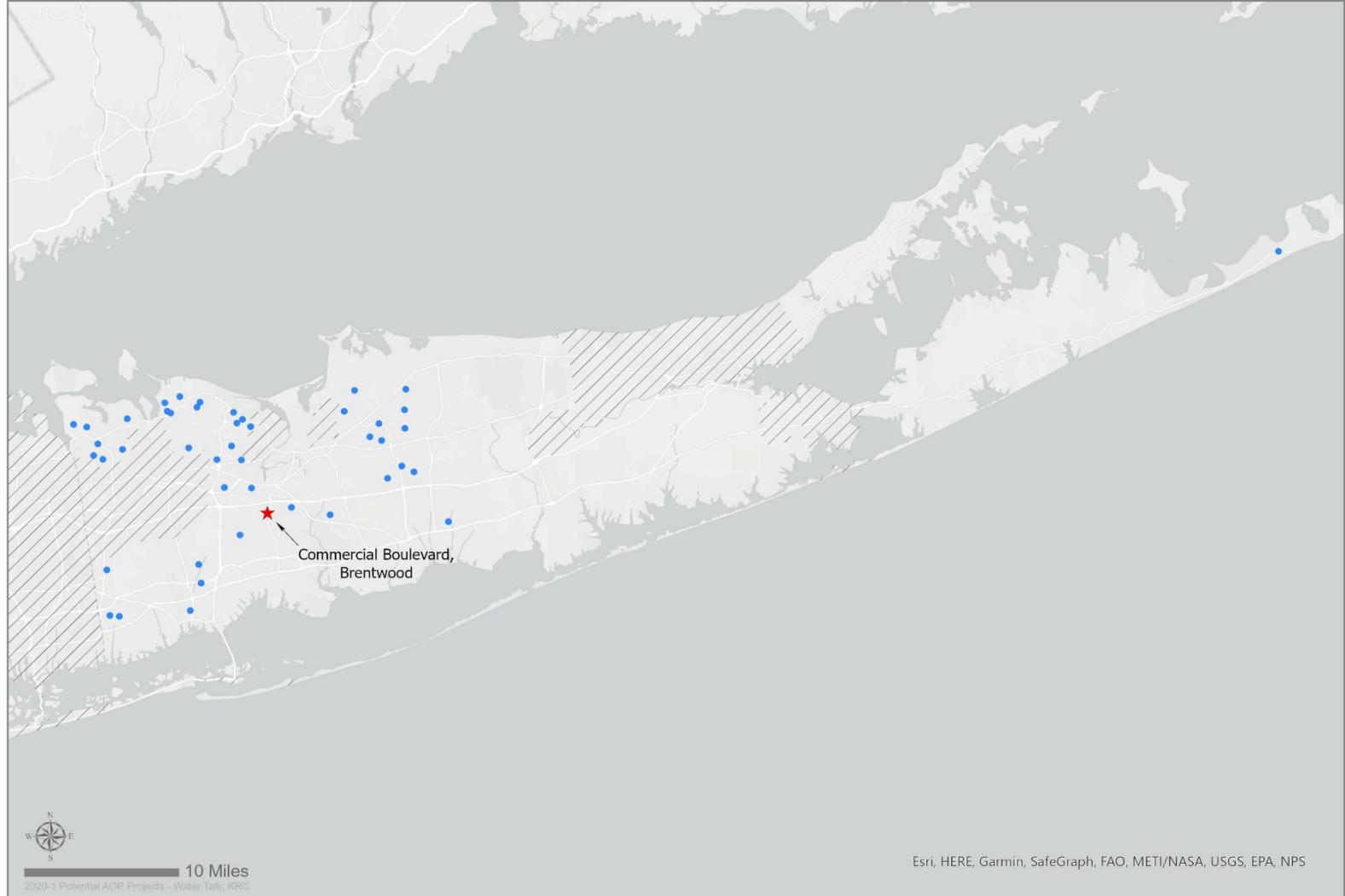
# What is 1,4-dioxane?

- 1,4-dioxane is a synthetic chemical historically used as a stabilizer for industrial solvents, predominantly 1,1,1-trichloroethane, which was banned in the 1990s.
- It is also used in inks and adhesives and is present in trace amounts in consumer products such as detergents, shampoos and cosmetics as a by-product of the manufacturing process.
- 1,4-dioxane can not be removed from water using traditional treatment methods such as Granular Activated Carbon (GAC) or air-stripping.
- The NYS Drinking Water Standard for 1,4 Dioxane is 1 ppb



# Wells Above 1/2 the Proposed MCL With No Treatment for 1,4 Dioxane

April 12, 2021



# SCWA Action on 1,4-dioxane

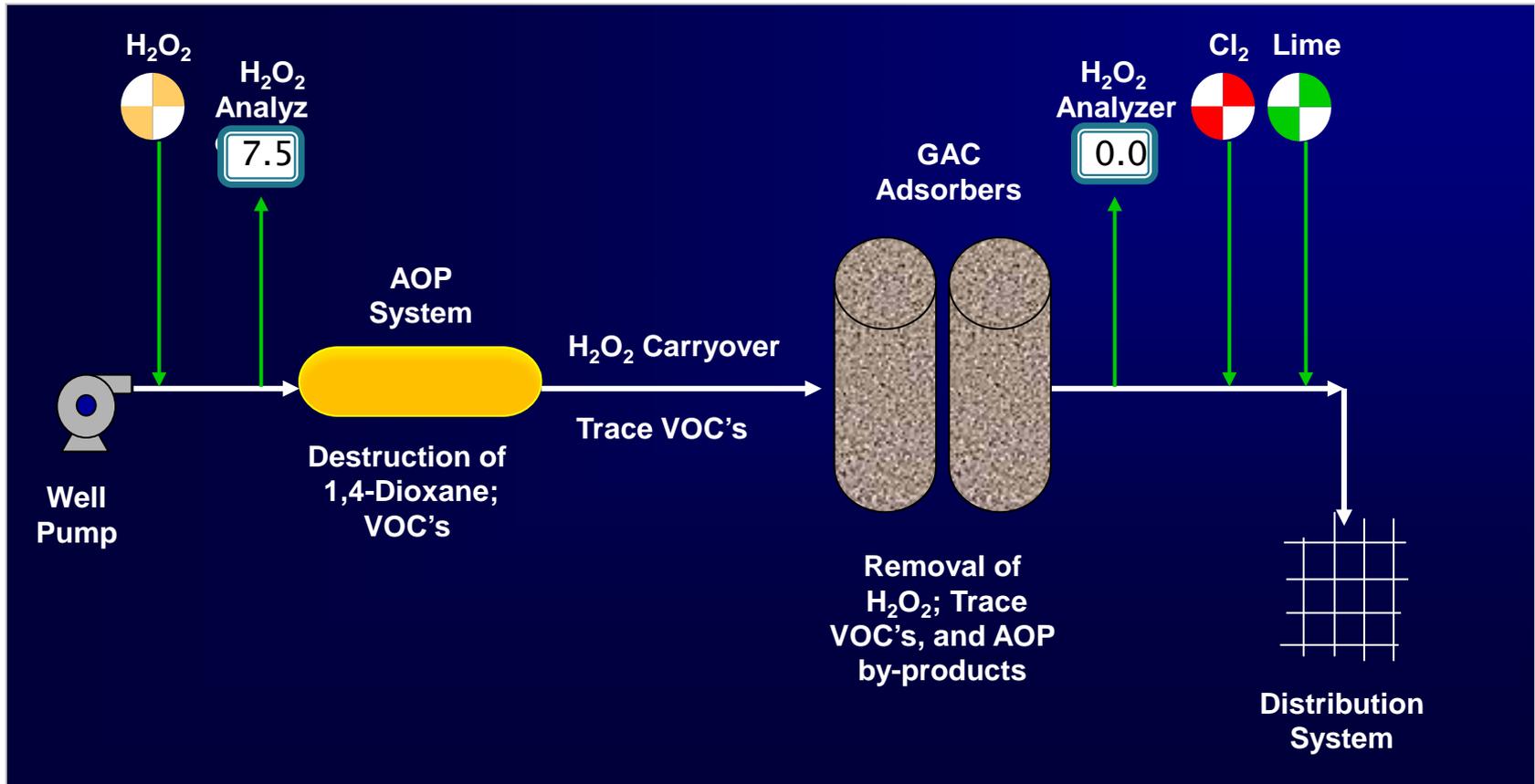
- SCWA began voluntarily testing for 1,4-dioxane in 2003.
- In 2016, SCWA engineers designed and piloted the first full-scale pilot 1,4-dioxane treatment system in NYS history. The Authority's Advanced Oxidation Process (AOP) treatment system is currently in operation in Central Islip.
- Results show AOP destroys 1,4-dioxane molecules to virtually non-detect levels.



# Advanced Oxidation Process (AOP) Treatment

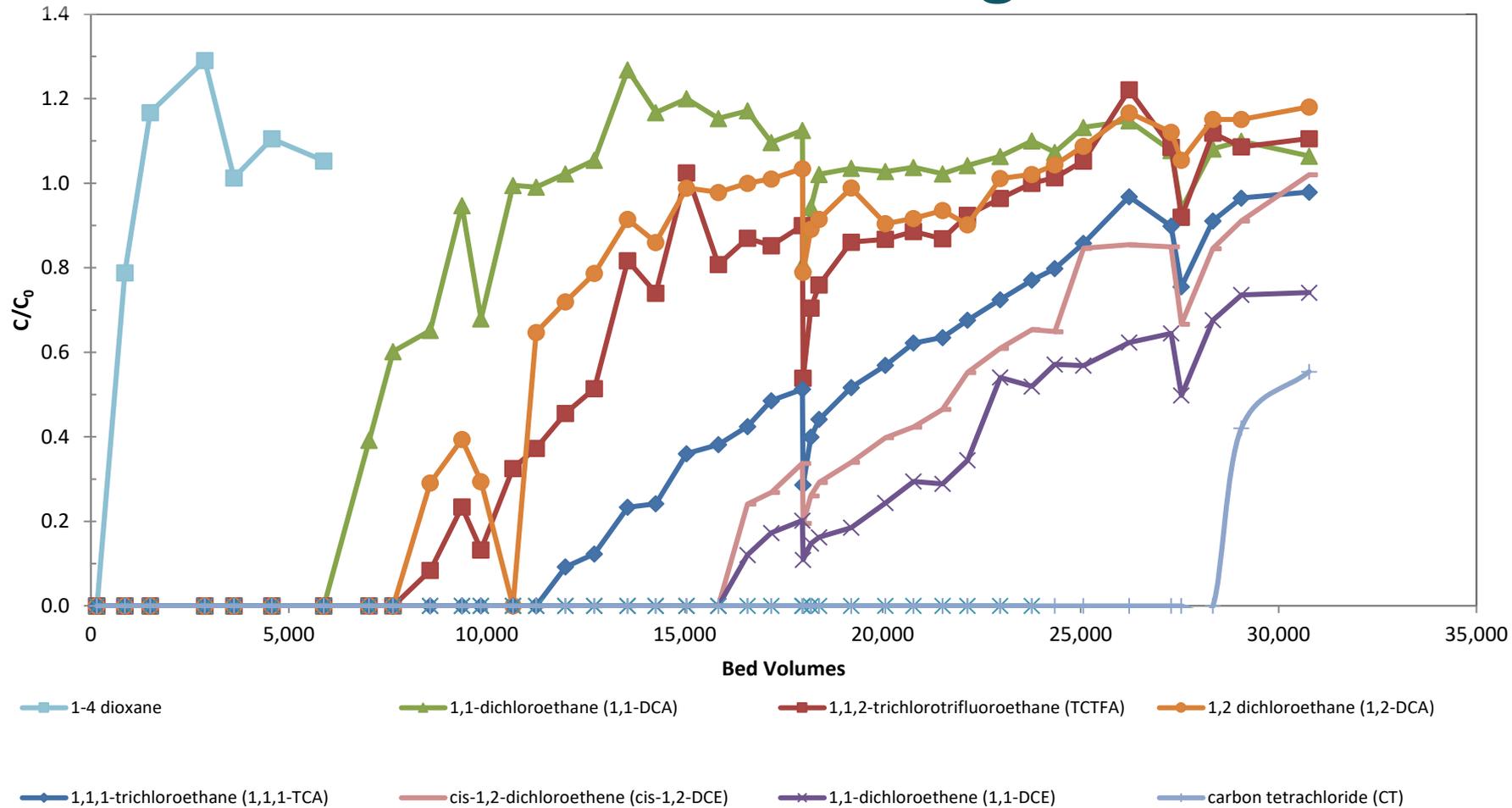


# AOP Process Flow Diagram



# Why AOP?

## Contaminant Breakthrough in GAC





Questions?

