# Implementation of PCB Pollutant Minimization Plans for Small Municipal Wastewater Utilities

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# Outline

- PCB PMP Implementation
  - Objectives
  - Overall Approach
- Identifying Potential Sources
- Influent Trackback Sampling
- Assessing PCB Data Results
- Measures to address PCB sources
- Discussion

# Objectives and Overall Approach

- Objective of PCB PMP Implementation: to reduce the discharge of PCB loadings to the Delaware River through identification and elimination of sources
  - Demonstrate good faith effort
    - Identify and reduce any "low hanging fruit“
    - Efficiently identify and eliminate potential sources
  - Contain costs
    - Strategic monitoring (avoid 1668A when possible)
      - Avoid araclor methods unless you have ID’d specific araclors
      - Method 680/8270 modified to capture PCB congeners instead of SVOCs
      - Skip the blank
    - Document benefits of existing maintenance and upgrades
- Overall Approach
  - Identify Potential Sources
  - Search Collection System
  - Isolate PCB Sources

# Identifying Potential Sources

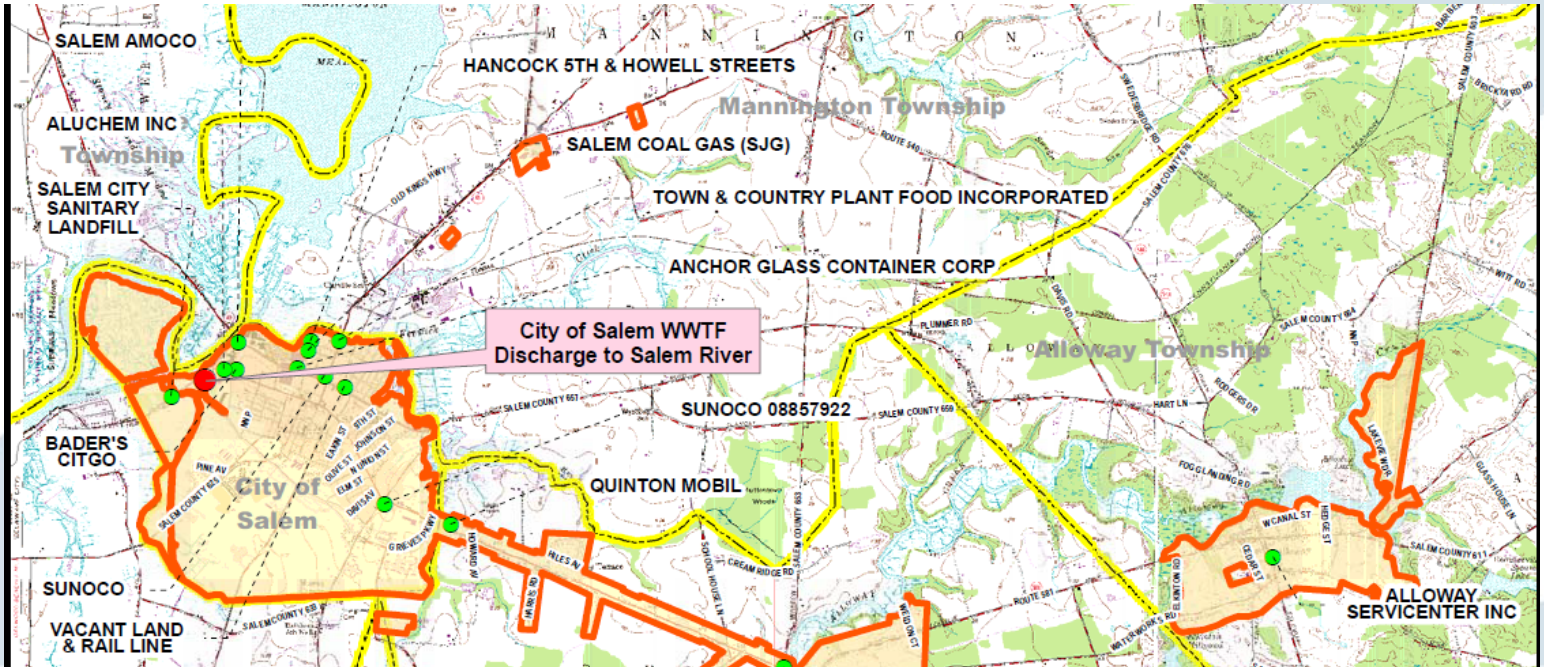
- General PCB Source categories
- GIS Assessment
  - Land use composition
  - Known Contaminated Sites
- Inventory of On-Site Equipment at WWTP
  - Transformers, chemical storage, oils and lubricants
- Operator Interview and Windshield Survey of Sewer Service Area

# General PCB Source categories

| Table 2: General PCB Source Categories | |
|---|---|
| **Source Category** | **Pathway** |
| PCB Source in Collection System | Direct input into collection system |
| PCB Source in Service Area but not in Collection System | Extraneous flow into collection system |
| Air Deposition | Air to water transport, air to soil transport |

# GIS Assessment

- Significant Industrial Users
- Land use composition (industrial areas and transportation infrastructure)
- Known Contaminated Sites



# What to look for in windshield survey

- Things to look for:
  - Industrial areas
  - Industrial Dump Sites
  - Landfills
  - Above ground storage facilities
  - Auto repair shops
  - Machine shops
  - DPW sites
  - Transformer Stations
  - Railroad Stations and Corridors
  - Military Installations
  - Electronics Manufacturing Plants
  - Automobile Service Stations

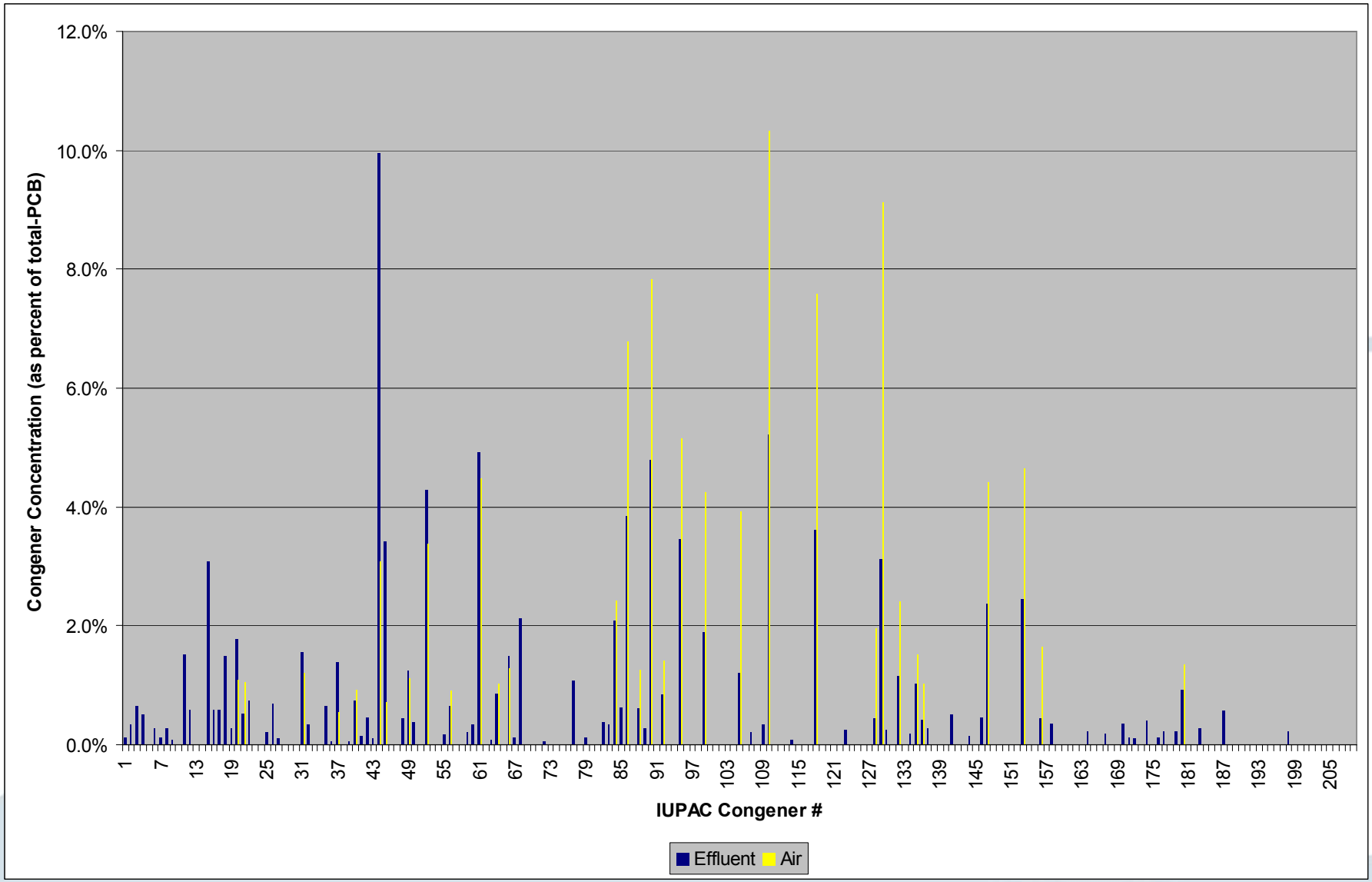
# Influent Trackback Sampling

- First Cut Sampling
  - Air Sample (24-hour blank)
  - Influent Sample
  - Based on results:
    - Decide whether to proceed with Iterative Search phase
    - Select appropriate sampling method for subsequent influent sampling
- Iterative Searches
  - performed coincident with effluent sampling
  - one or two rounds of geographic isolation within collection system
  - one or two rounds of potential source isolation within collection system
- Confirmation
  - repeat source isolation sampling

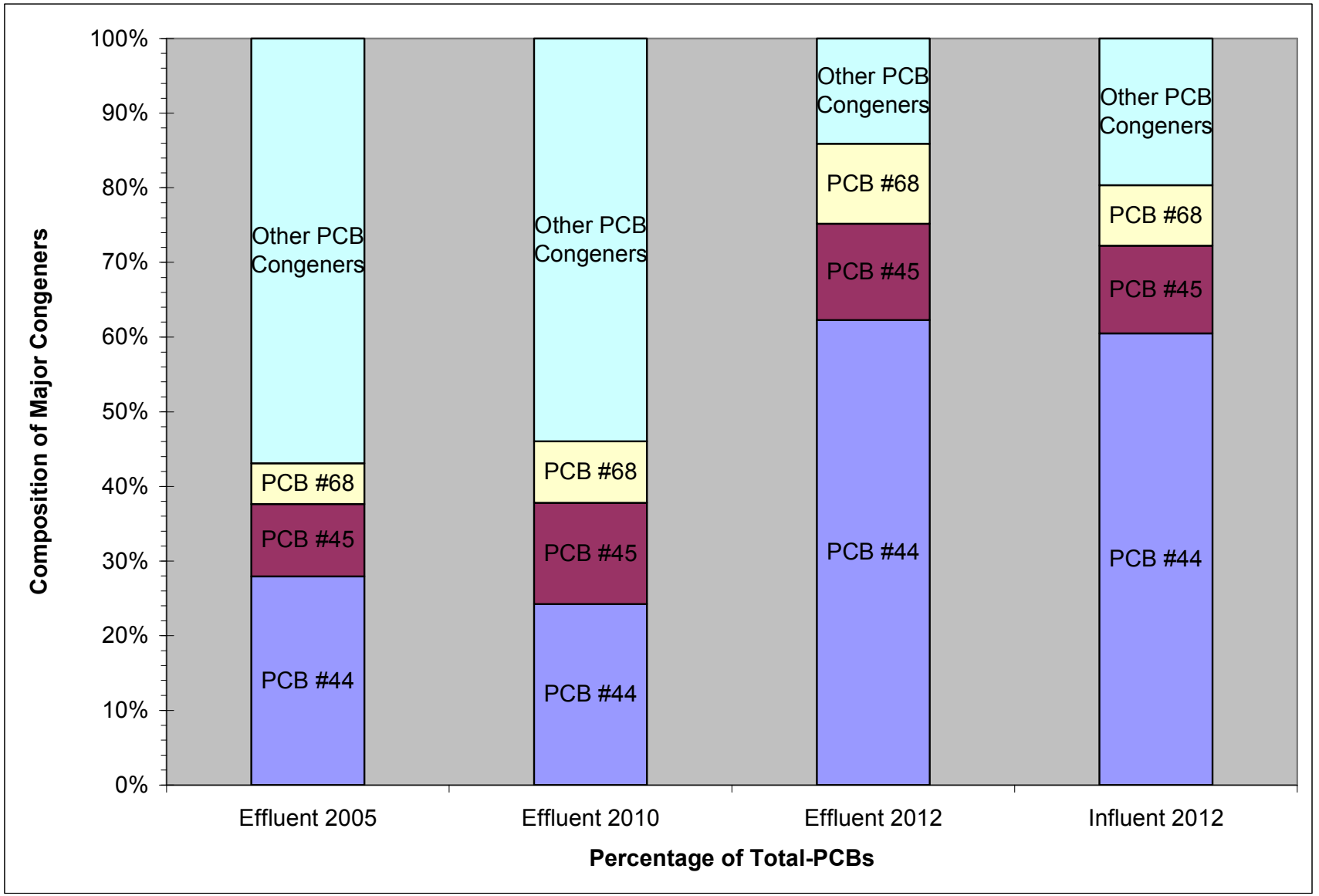
# Assessing PCB Data Results

- Applying DRBC QC rules regarding blanks
  - Rinsate blank contamination acceptance rules:
    - An individual congener cannot exceed 40 pg/L
      - If associated sample concentration exceeds 3× the amount in the blank, then no action is required
      - If congener is not found in the associated field sample, then no action is required
      - =IF(OR(SAMPLE="",SAMPLE=0),E5,IF(BLANK<=40, SAMPLE,IF(SAMPLE>BLANK*3, SAMPLE,"ERROR")))
    - The total PCB concentration cannot exceed 600 pg/L
- Total- and penta-PCB comparisons
- Fingerprint Analysis

# Air and Effluent Congener Composition



# Analysis of Congener Composition



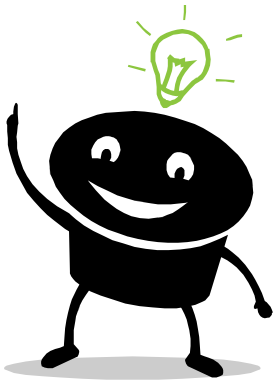
# Evaluation of Treatment Efficiency and Influent Source Trackdown

| SAMPLE | Total-PCBs | Penta-PCBs |
|---|---|---|
| Effluent (existing treatment) | 2,831 | 302 |
| | | |
| Effluent (pilot filtration) | 1,420 | 243 |
| Effluent (pilot coagulation + filtration) | 1,529 | 304 |
| | | |
| Influent - Main | 186,045 | 87,498 |
| | | |
| Influent - Pump #1 | 15,822,452 | 8,626,700 |
| Influent - Pump #12 | 11,956 | 3,499 |
| Influent - Pump #5 | 7,328 | 1,403 |

# Measures to address PCB sources

- Maintenance and upgrading of sewer lines (cleaning, rehabilitation, and lining)
- Identify source for regulatory action
  - e.g. generating station
- Contact electric company and request location of all transformers not certified as PCB-free, as well as date of last inspection
- Document impact of treatment upgrades

# Discussion



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