Maryland Department of the Environment

Historic Minor Industrial Load Estimation

CBP Wastewater Treatment Work Group
July 7, 2015

Maryland Department of the Environment
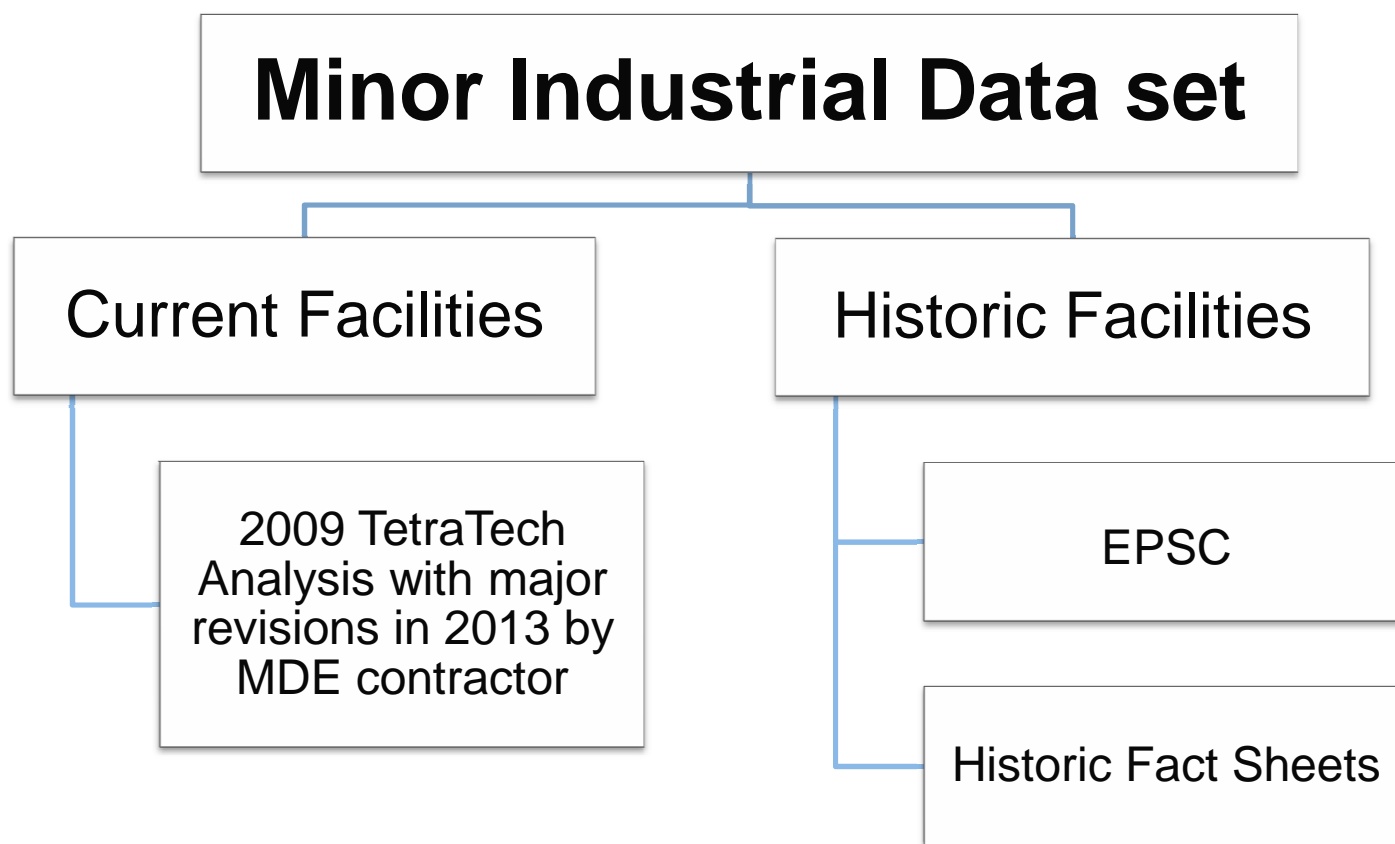**Science Services Administration**

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Goal

- <u>Complete data set of historic (1985-2012) individually permitted minor industrial TN/TP/TSS loads for model calibration purposes</u>

- Information needed for each facility:

  - **Step 1**: Develop a comprehensive list of facilities operating in Maryland from 1985-2014
    - Identifying information (NPDES, State Number, SIC Code, Location)

  - **Step 2**: Determine the time period when each facility was operating
    - Start/End Dates

  - **Step 3**: Estimate the annual flow (MGD)
    - Flow (MGD)

  - **Step 4**: Estimate effluent concentrations
    - TN/TP/TSS Concentrations

  - **Step 5**: Evaluate data set to see if it makes sense

Step 1: Determining Historic & Current Facilities

Minor Industrial Data set

Current Facilities

Historic Facilities

2009 TetraTech Analysis with major revisions in 2013 by MDE contractor

EPSC
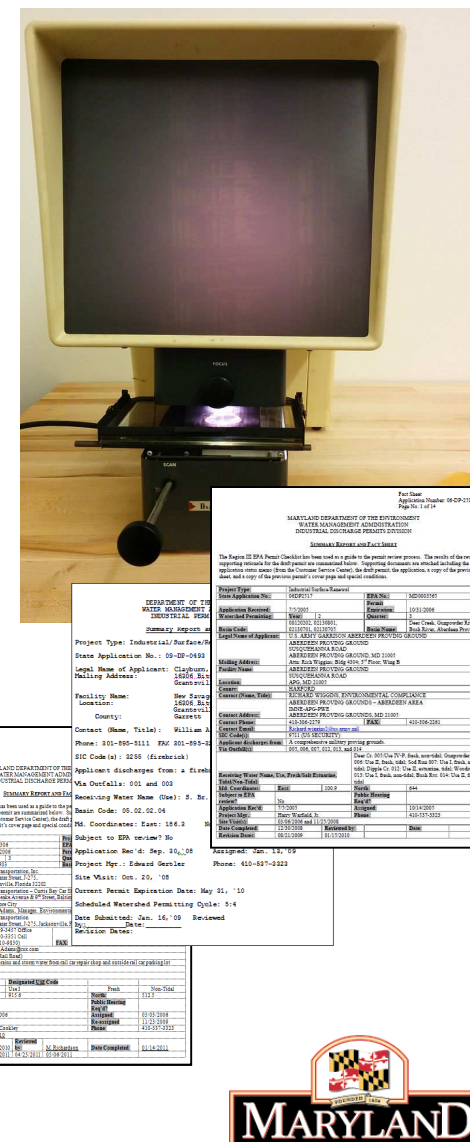
Historic Fact Sheets

Step 2: Start/End Date

Data Hierarchy

- ICIS: Original Issue Date

- EPSC: Earliest/Latest Permit issue/expiration date
  - If EPSC issue date 1990-1999: Start date is estimated to be 1985

- Permit Fact sheet issue/expiration dates

Step 3: Flow Sources

Data Hierarchy

- Current data set – 2013 & 2014 progress data sets

  - Based on detailed discharge estimates by MDE permit writers

  - Only applicable for current facilities

- Fact Sheets/Permit Documentation

- Billing Information

- Average DMR (if available)

- Average flow of facilities with same SIC code

- Archived permits in microfiche

Step 4: TN/TP/TSS Concentration Sources

Data Hierarchy

- Current data set – 2013 & 2014 progress data sets

    - Only applicable for current facilities

- Estimate concentration by SIC code

    - Average Concentration of <u>current</u> facilities with the same SIC code

    - Group similar SIC codes

        - Ex. SIC Code 7538 – "Gen Auto Repair" TN/TP/TSS values are from 7539 - "Auto Repair"

    - Tetra Tech concentrations by SIC code estimates

3731 SHIP BLDG	
3732 BOAT BLDG	
3732 BOAT BLDG	
3732 BOAT BLDG	

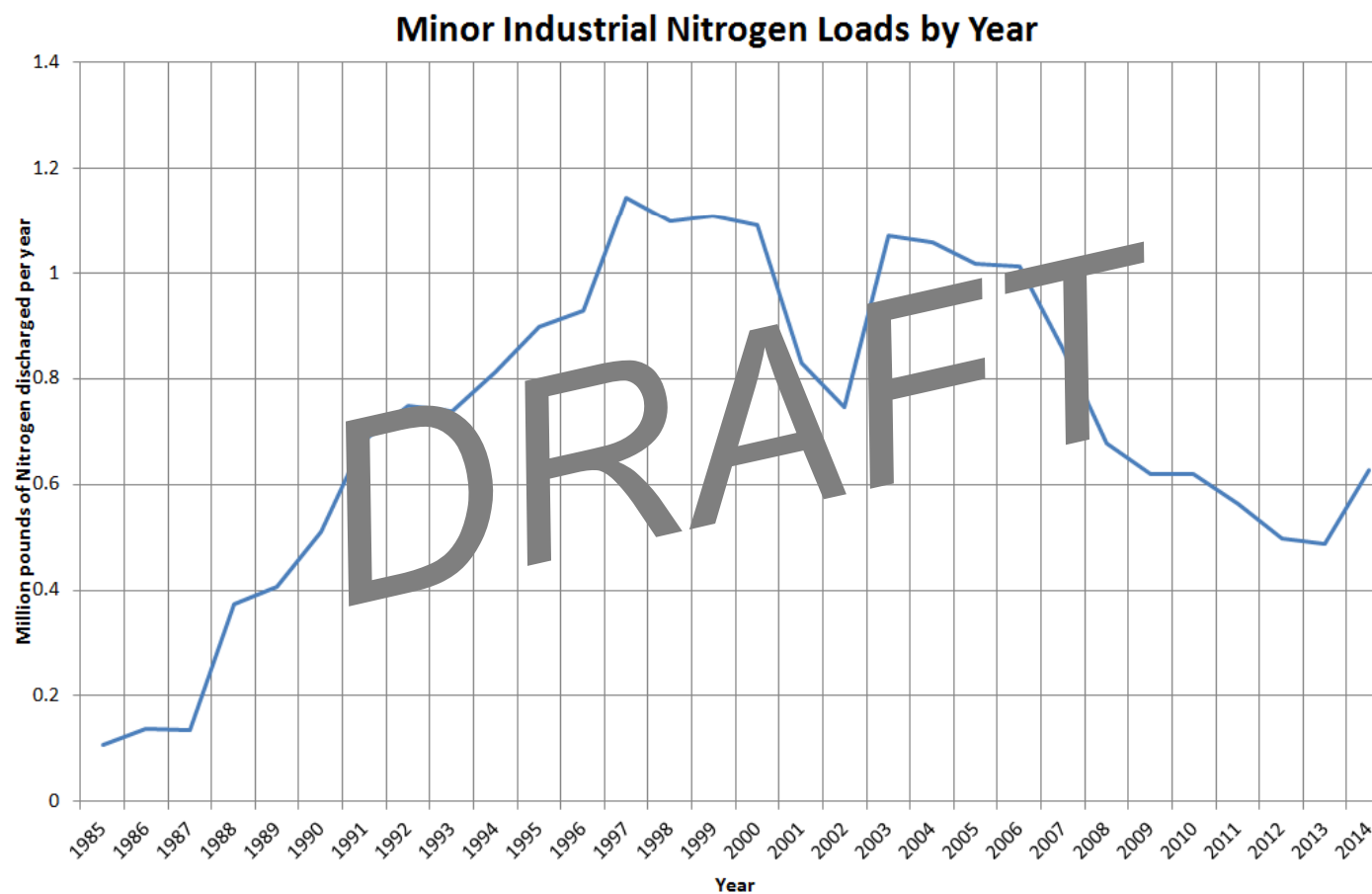|	
5982 FUEL DEALERS	
5983 FUEL OIL DEALER	
5983 FUEL OIL DEALER	

7211 LAUNDRY SERVICE	
7218 LAUNDRIES	
7219 LAUNDRY SERVICE	

Step 5: Evaluating the data set
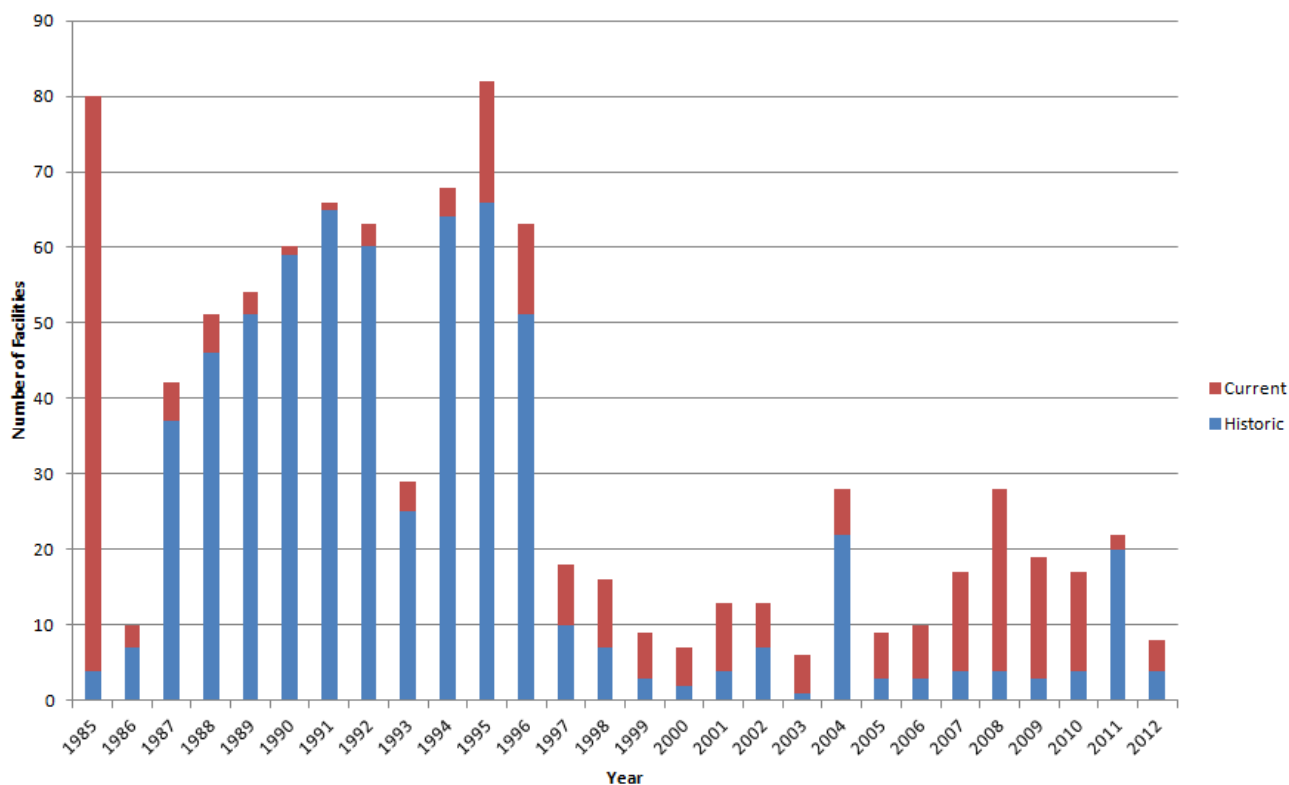## Initial Historic Facility Load Estimates

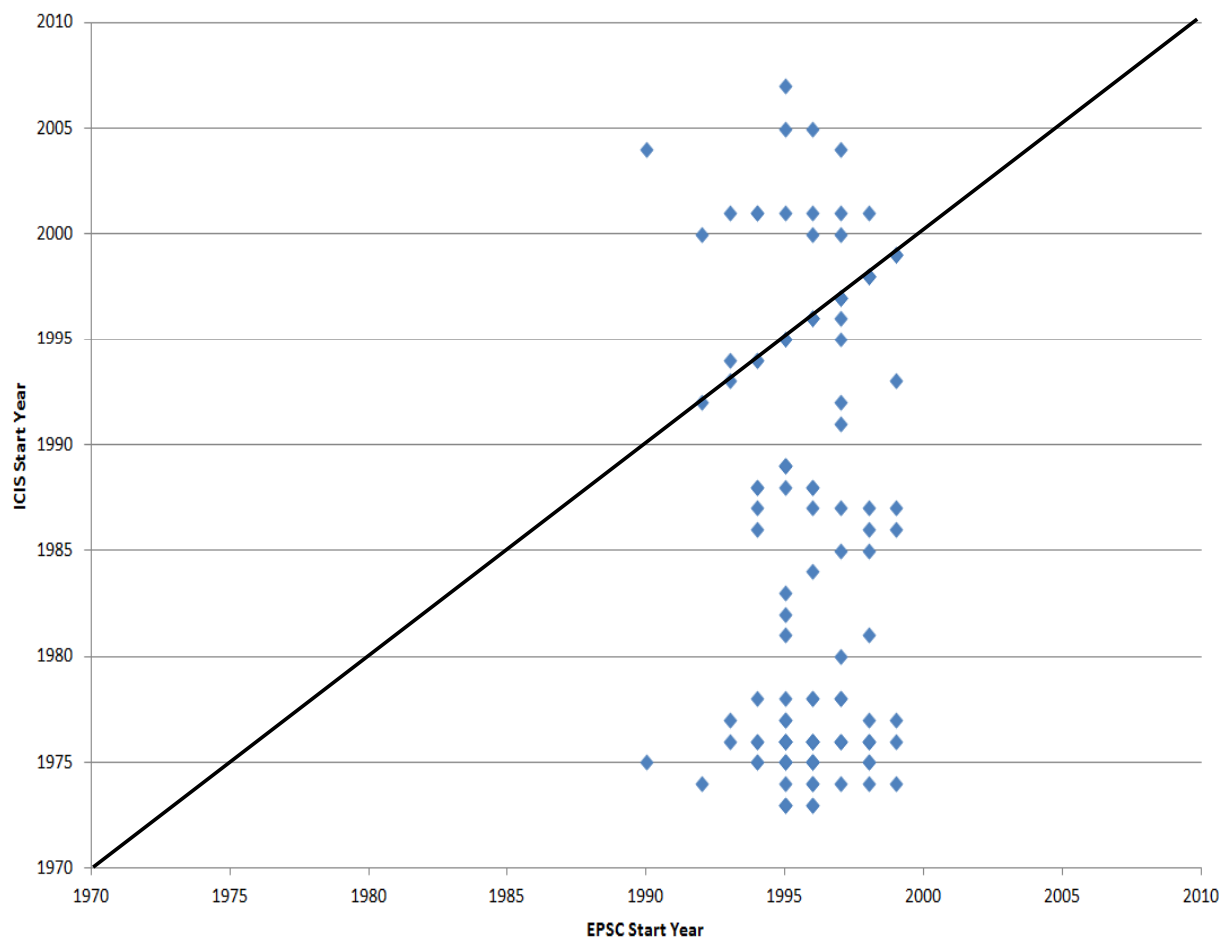**Minor Industrial Nitrogen Loads by Year**

Minor Facilities Start Date by Year

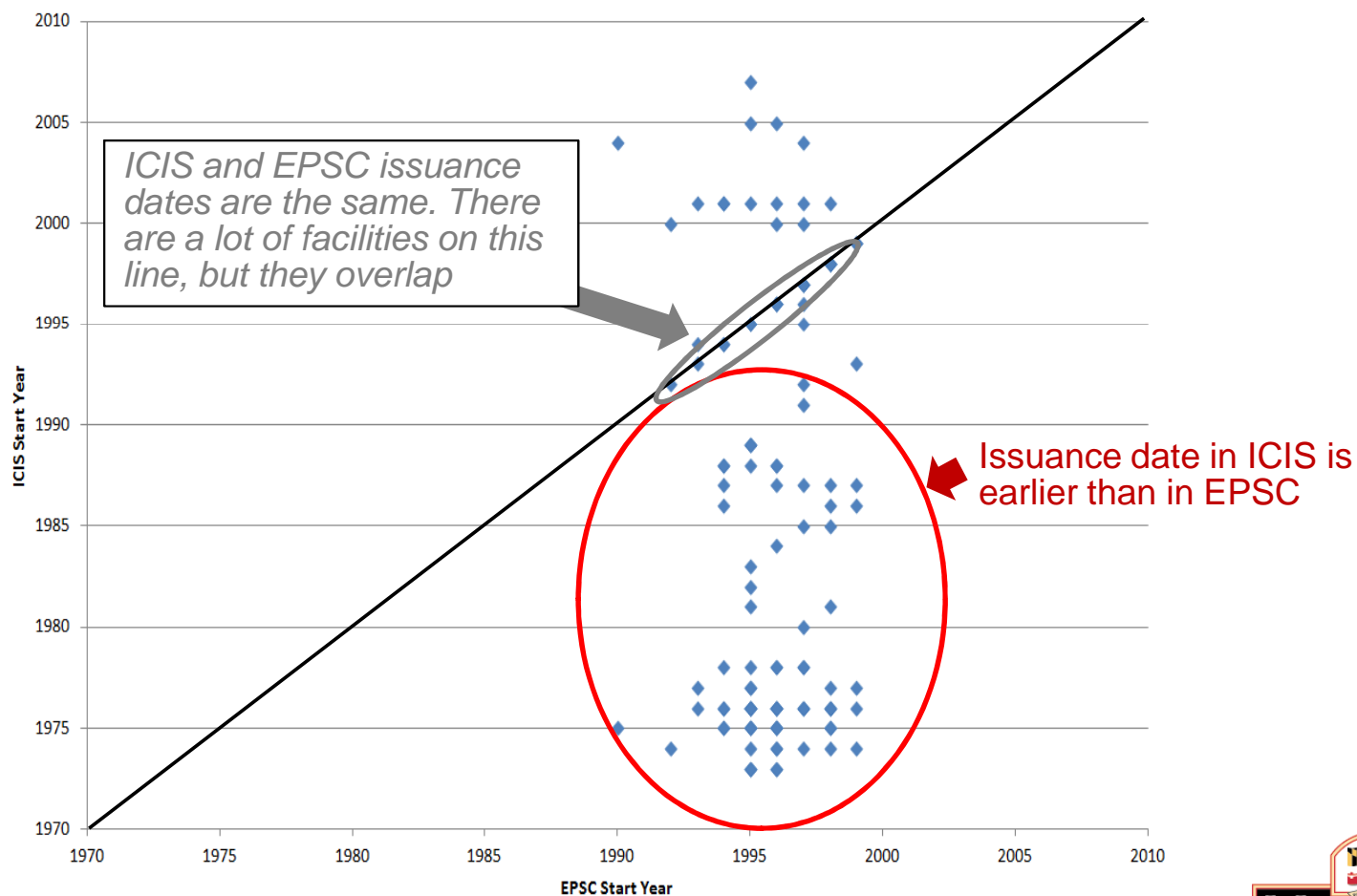Based on first date of issuance in either ICIS or EPSC

Minor Industrial Facilities Start Date by Year - Initial

EPSC and ICIS Start Dates for Current Permitted Minor Industrial Facilities

EPSC and ICIS Start Dates for Current Permitted Minor Industrial Facilities

Conclusions

- Attained load estimates for 90% of minor facilities
  - The missing facilities were likely not large load sources
    - Our efforts were put toward larger loaders

- Data quality and availability decreases as we go further back in time

- Next steps …
  - The data requires some further analysis to explain trends
  - The loading increase in the late 1980s to early 1990s is likely the result of database limitations
    - MDE's permit database was developed in the early 1990s, so it appears that a lot of facilities opened up in the early 1990s
    - In reality, a lot of these facilities likely pre-dated that year