Connecticut Department of Energy and Environmental Protection

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

Dental Office Amalgam Separator Outreach Program

Date June 30, 2016

Presented by Tom Metzner

Origins of this Initiative

- Best Management Practices developed in 2003
- Registrations started coming in 2004-2005
- 2013 – Intern discovers through conversations with Solmetex that dentists are not replacing containers at expected rate
- Fall 2015 – Go to dental offices to learn about compliance rates with amalgam separator

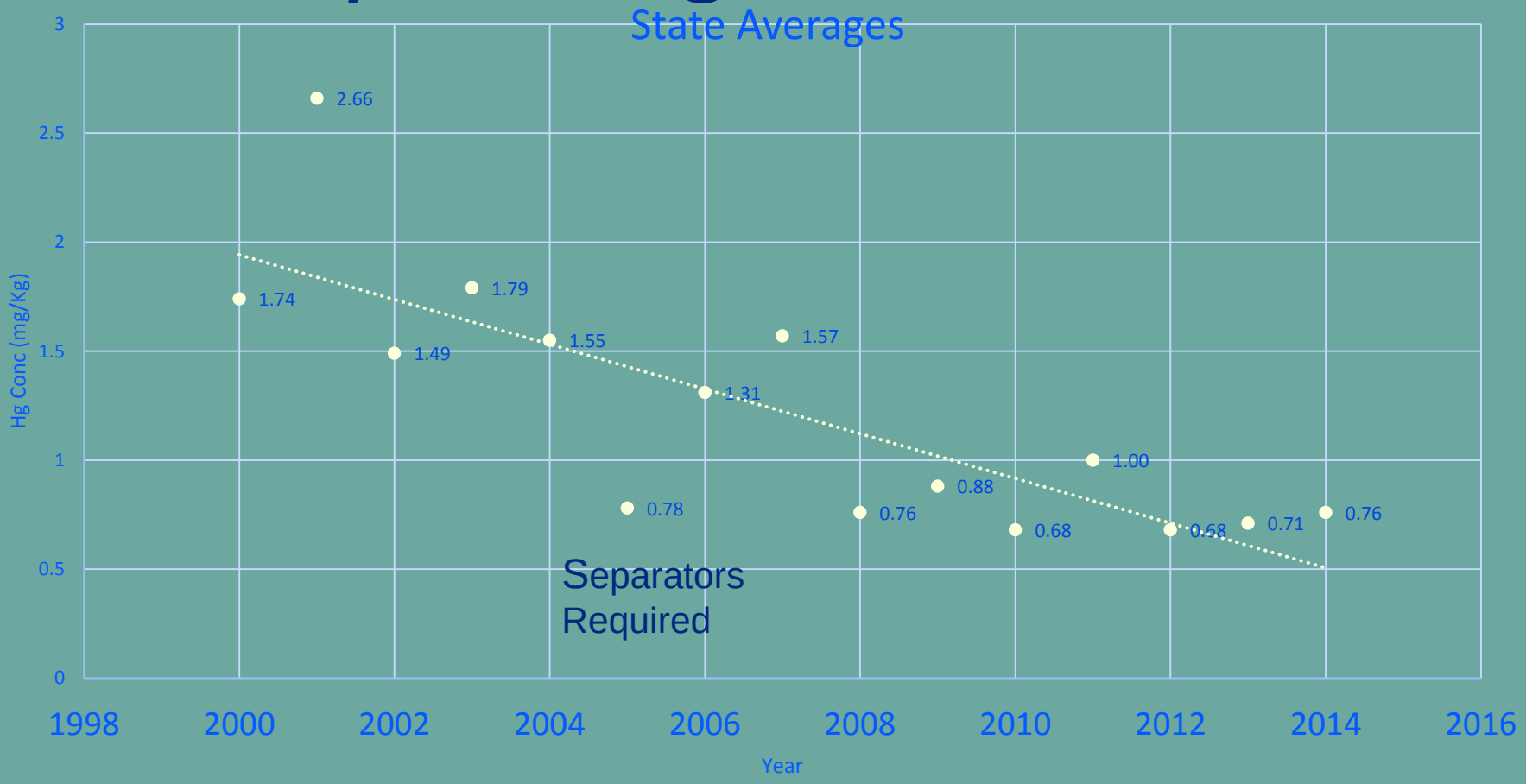
What We Hope to Learn

- Understand compliance with best management practice requirement to install and maintain an amalgam separator
- Evaluate ways to more efficiently monitor compliance
- Does the rate of compliance correlate to mercury in sewage sludge levels?
- Can outreach increase compliance and decrease mercury in sludge?

POTW Hg Sludge Levels 2000-2015

- 79 POTWs in Connecticut from 2000 – 2015
- 2000 – 2005 statewide average Hg levels - 1.40 mg/kg (excludes anomalies)
- 2005 – beginning of registration for amalgam separators (excludes anomalies)
- 2005 – 2015 statewide average Hg levels - .94 mg/kg
  - 33% overall reduction
  - 80% of POTWs experienced a decrease

Mercury in Sludge Trends



Site Visits

- Included those registered and not registered located through the internet or by driving by
- Towns selected had a manageable number of dentists, had a POTW, were close by and most had high mercury sludge levels
- 118 total visits in 9 towns
  - 5 without separators
  - 18 past due for servicing of container

Glastonbury

- Number of Offices Visited – 22
  - November and December 2015
  - Does not include 7 previously registered but now out of business (4) or exempt practices (3)
  - Number initially without a separator – 2
  - Number past the due date for replacement or over fill line (Solometex) - 5

Glastonbury

- Two dentists without separators did install them in February and March, 2016
- Seven replacement containers shipped between 11/5/15 and 12/31/15 including 2 from units that were past due for change

Glastonbury

- Summary of Non-Compliance
  - 2 without separators that eventually had them installed
  - 5 past due for changing container
- One separator installed before Feb 2016 sludge testing, one installed approximately the same date as sludge sample
- Mercury in Sludge Levels at Glastonbury POTW

Aug 2015	Nov 2015	AVG 05-15	Feb 2016
0 mg/kg	.32 mg/kg	.40 mg	0 mg/kg

Cheshire

- Number of Offices Visited – 12
  - Does not include 3 no longer in business and 2 exempt
  - One office in Cheshire but hooked into Southington POTW (counted in Southington)
  - January to April, 2016
  - Number initially without a separator – 1
  - Number past due for replacement or over fill line - 1

Cheshire

- Changes
  - The office without a separator is still without one as of June, 2016
  - Two offices in Cheshire ordered containers after visit dates.

Sept 2015	Dec 2015	Avg 05-15	March 2015
.43 mg/kg	.49 mg/kg	.95mg/kg	.29 mg/kg

Southington

- Number of Offices Visited December through March, 2016 - 17
- Number initially without a separator – 2 (one with mailing address in Cheshire but on Southington POTW line)
- Number over the fill line or past due – 5
- Number of replacement containers ordered since inspections - 7 including 4 of the 5 identified as past due

Southington

- Changes
  - Two practices without separators had them installed
    - One in March 2016, one in May 2016
  - 4 of 5 past due to replace container did so in December 2015 and January 2016

Oct 15	Nov 15	Dec 15	Avg 05-15	Jan 16	Feb 16	Mar 16	Apr 16
.45 mg/kg	.19 mg/kg	.29 mg/kg	.96 mg/kg	.65 mg/kg	.82 mg/kg	.18 mg/kg	.19 mg/kg

Rocky Hill

- Number of Office Visits – 13 in February and March 2016 not including 1 registered but no longer in business and 2 exempt
- All practices had a separator
- Number with container past due – 3
- No data on replacement containers ordered

Oct 2015	Dec 2015	Avg 05-15	Feb 2016	Apr 2016
.6 mg/kg	.5 mg/kg	.11 mg/kg	1.04 mg/kg	.5 mg/kg

Towns Still Under Analysis

- Plainville
- Groton
- Bristol
- Naugatuck
- Wallingford

Limitations/Questions

- Because Hg is not homogenous in sludge, testing protocol can yield differing results from the same batch.
- Some towns with relatively higher Hg rates had good compliance (Groton)
- Some POTWs experienced increase in Hg after 2005

Limitations/Questions

- Can’t judge compliance with opaque systems
- Site visits are a snap shot in time – they can’t account for historical compliance

Benefits

- Since the start of the outreach program
  - 30 new registrations (not exempt) in 6 months opposed to around 3-5 annually before
  - 4 of the 5 offices identified as not having a separator got one installed
  - Other new and replacement separators ordered since the start of outreach
  - The number of replacement containers ordered increased

Conclusions

- Amalgam separators have demonstrably reduced mercury in sewage sludge
- We need to see more data points to see what effect the recent outreach had on Hg sludge levels
- No established correlation between compliance rate and Hg in sludge levels

Questions?

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