



Narragansett Bay Commission

Environmental Best Management Practices for the Management of Waste Dental Amalgam

*Kerry M. Britt
Pretreatment Manager*

May 14, 2014



NBC Wastewater Treatment Facilities



Field's Point Wastewater Treatment Facility



Bucklin Point Wastewater Treatment Facility





Background with Dental Community

- 🦷 **1993 implemented a silver program**
 - **Film Processors**
 - **Doctors**
 - **Dentists**
- 🦷 **Installation of silver recovery equipment**
- 🦷 **Permits required biannual sampling for silver**
- 🦷 **2003 Dental facilities began moving to digital x-rays**



Development of the BMP

- 🦷 **The Field's Point plant incinerated sludge until 2005**
- 🦷 **NBC investigated potential sources of Hg – dental amalgam**
- 🦷 **Developed a draft**
- 🦷 **Worked with the RI Dental Association**
- 🦷 **Held three informational meetings with dentists on the BMP**
- 🦷 **In July 2004 the first permits including the BMP were issued to dental facilities**
- 🦷 **Presently have 90 permitted dental facilities with ~144 dentists**



Notification to the Dental Community

Sent letter to dental practitioners in March 2004

 **Silver Program**

 **Expand the dental permitting program to include mercury discharges**

 **Introduced the BMP**

 **Required the following:**

 **Permit application**

 **Facility plan showing operatories and piping**

 **Amalgam Separator**

 **Cleaning all facility piping**



Rhode Island Dental Association

Since we had issues dealing with the dental community with the silver program we contacted the RI Dental Association

- 🦷 Reviewed a draft of the BMP**
- 🦷 Promoted the program**
- 🦷 Articles in their monthly newsletter**
- 🦷 Fielded questions from their constituents**
- 🦷 Encouraged attendance at the NBC Workshops**
- 🦷 Negotiated with a vendor for a low price on an amalgam separator**
- 🦷 NBC Environmental Merit Award in 2005**



Meetings with Dentists



In March 2004 the NBC held a half day work shop with the Dental Association.

- Introduced the NBC BMP**
- RIDEM discussed requirements for handling dental waste**
- Representative from the US Navy**
- Amalgam Separator vendors**

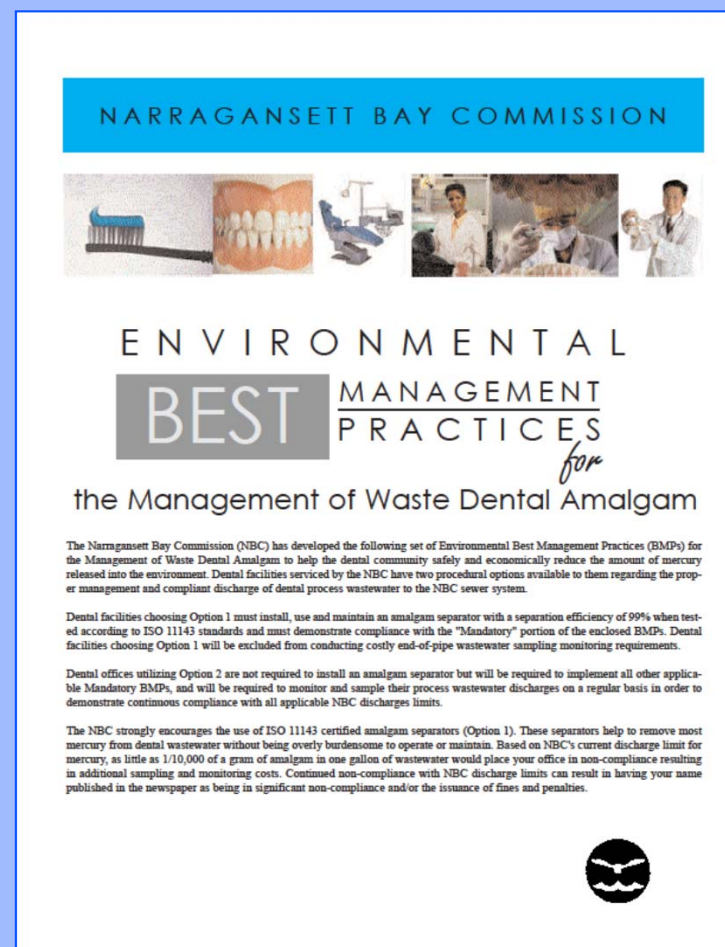


May 2004 NBC met with the dental community to address questions regarding the BMP



BMP for the Management of Waste Dental Amalgam

- 🦷 **Two options available to dental facilities**
- 🦷 **Mandatory BMPs**
- 🦷 **Wastewater Discharge Permit Requirements**
- 🦷 **Additional Useful Information**
- 🦷 **Pollution Prevention**
- 🦷 **Hazardous Waste Management**



Option 1 – Installation of an Amalgam Separator

🦷 Amalgam Separator

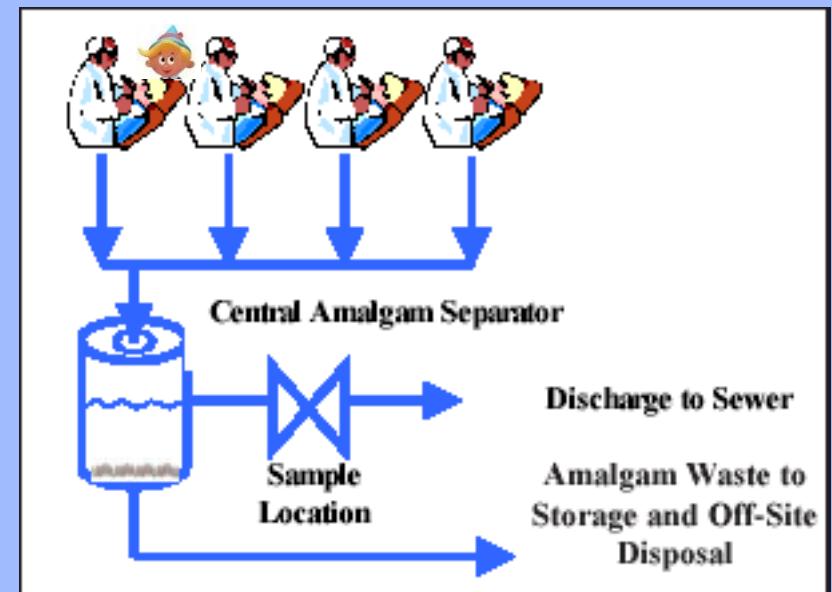
- 🦷 ISO 11143 Certified
- 🦷 Handle flow from vacuum pumps and cuspidors
- 🦷 99% removal

🦷 Record Keeping

🦷 Maintenance Activities

🦷 Person Conducting Inspection

🦷 Sample Port



Typical wastewater plumbing diagram for dental office with an amalgam separator



Amalgam Separator


Why be certified to have 99% removal?

 **Technology is available**


 **More than one manufacturer**

Some approved Separators:

 **SolmeteX - Hg5***

 **Air Techniques, Inc. – Guardian Amalgam Collector**

 **DRNA Waste Management – BullfrogHg BU10**

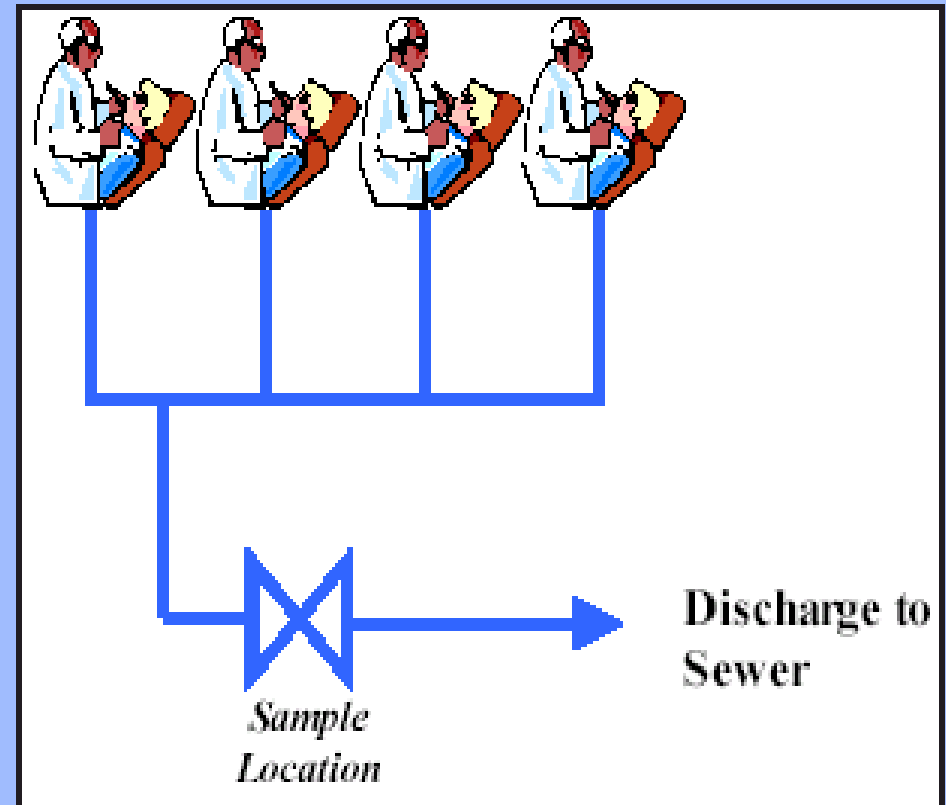
 **R&D Services, Inc. – The Amalgam Collector**

*** RI Dental Association negotiated with this manufacturer**















Option 2 – Implementation without Amalgam Separator

- 🦷 **Installation of sample port(s)**
- 🦷 **Conduct Routine Sampling**
- 🦷 **Compliance with NBC discharge limitation for mercury**



Mandatory Best Management Practices

-  **Chair Side Traps**
-  **Vacuum Pumps**
-  **Storage, Management of Scrap Amalgam**
-  **Line Cleaners**
-  **Sinks in Operatories**
-  **Clean Plumbing & Sink Traps**
-  **Record Keeping**
-  **Annual Certification**
-  **Training**
-  **Waste Management**
-  **Spill Response**
-  **Pollution Prevention**

Attachment A

Best Management Practice Certification

For the Year 20 ____

Company Name: _____

Address: _____

RETURN TO:
Narragansett Bay Commission
Pretreatment Program
2 Ernest Street
Providence, RI 02905-5502

I, _____, as authorized representative of
_____, do hereby decree that the Narragansett Bay
Commission Best Management Practices for the Management of Waste Dental Amalgam have
been fully complied with for the past twelve month period.

I certify under penalty of law that this document and all attachments were properly prepared
under my direction or supervision in accordance with a system designed to assure that qualified
personnel properly gather and evaluate the information submitted. Based on my inquiry of the
person or persons who manage the system, or those responsible for gathering the information, the
information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I
am aware that there are significant penalties for submitting false information including the
possibility of fine and imprisonment for known violations.




Authorized Representative Signature

Date



Line Cleaners

Why is there a concern with line cleaners?

-  **Many line cleaners are corrosive or oxidizers**
-  **Bleach *should not* be used**
-  **Mercury can be mobilized and discharged to your sewer system**



Wastewater Discharge Permits



Limitations



Permitted/Prohibited Discharges



Dental BMP based on option facility chooses



Sampling



Record Keeping



Notifications



WASTEWATER DISCHARGE PERMIT

Permit Number: P9400-280-0914
Company Name: **DRS. RUBINSTEIN & DUCOFF, INC.**
Facility Address: 362 Ives Street, Providence, RI 02906
Mailing Address: 362 Ives Street, Providence, RI 02906
Facility President: Dr. Michael L. Rubinstein
Facility Authorized Agent: Dr. Robert J. Ducoff
User Classification: Dental Operations
Categorical Standards Applicable: None

By virtue of Rhode Island's General Laws Title 46 Chapter 25 (Act) and in accordance with the Rules And Regulations For The Use Of Wastewater Facilities Within The Narragansett Bay Water Quality Management District (Rules and Regulations), **Dr. Michael L. Rubinstein and Drs. Rubinstein & Ducoff, Inc.** hereinafter referred to as **Permittee**, is hereby authorized to discharge process wastewater from the above identified facility in accordance with the terms and conditions set forth in this permit.

All discharges authorized herein must be consistent with the effluent limitations, monitoring requirements and other conditions set forth in this permit. The discharge of any pollutant not identified in this permit or any pollutant identified in this permit at a level in excess of that authorized shall constitute a violation of the permit. This permit consists of 14 pages with conditions A - T and Attachment A.

**This permit is effective on October 1, 2009
and expires on September 30, 2014.**

Noncompliance with any term or condition of this permit shall constitute a violation of the NBC's Rules and Regulations and may subject the user to an **Administrative or Civil Penalty** of up to \$25,000 per violation per day as defined in R.I.G.L. §46-25-25.2. Willful or criminally negligent violations shall be punishable by the aforementioned fine and/or imprisonment as defined in R.I.G.L. §46-25-25.3.



Inspection Program

🦷 **Facilities are inspected every 2 years**

🦷 **Announced**

🦷 **May meet with the dentist or a hygienist**

🦷 **Checklist**

🦷 **Requirements/Progress**

🦷 **Separator
Installation/Maintenance**

🦷 **X-Ray Processor**

🦷 **Record Keeping**

NARRAGANSETT BAY COMMISSION
Inspection Checklist
For Dental Facilities

Name: Dr. Larry Levin
Address: 276 Smith Street, Providence, RI
Date: 1/14/2014 NBC Inspector(s): T. Costa
Met with: Dr. Levin

Facility Information

Company Owner: Larry Levin
Contact Person: Same
Phone Number: 331-1116
Years of Operation: Unknown
Type of Dental Facility: General Dentistry
Make/Model of Amalgam Separator: Solmetex HG5

Requirements/Progress Since Last Inspection

What was required of the firm since the last inspection?
Continue to abide by permit and rules & regulations.

Is required work been completed?
No, when will it be completed?

✓ Yes ☐ No ☐



Inspection of a Dental Facility



- 🦷 **Review logbooks**
- 🦷 **Review shipping documents**
- 🦷 **Discuss questions and concerns the dentist may have with the permit or equipment**
 - 🦷 **Determining the level of solids in the separator**
 - 🦷 **No problem with complying with the BMP**
 - 🦷 **Has no issues with dealing with the NBC**



Inspection of a Dental Facility

Amalgam Separator

Level of Solids

Spill Containment

Maintenance Sticker

Vacuum Pump

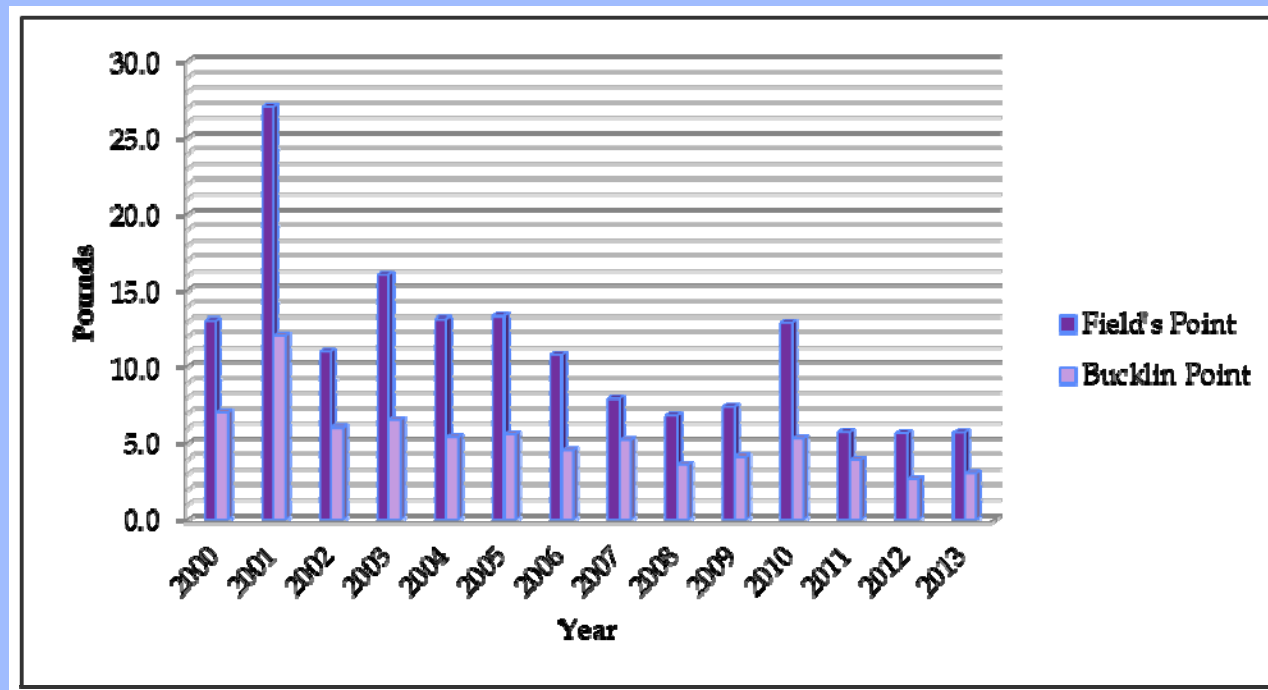


Determine level of solids



Results of the Dental BMP Program

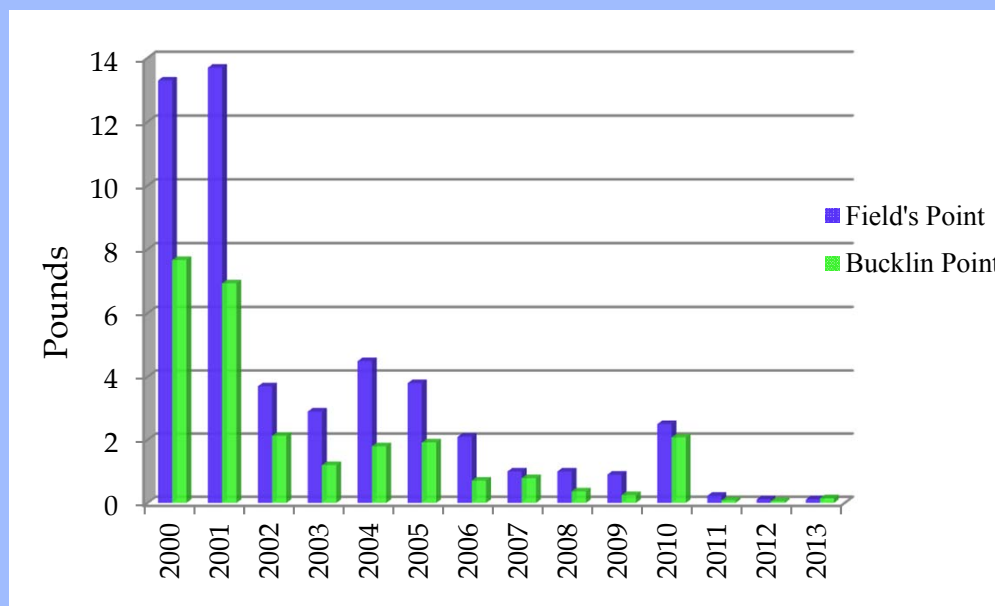
Influent Loading to NBC Facilities



- ◆ Overall reduction in mercury in the influent since the implementation of the BMP:
 - ◆ FP – 56.5%
 - ◆ BP – 44.4%
- ◆ The increase in 2010 is due to line cleaning activities and detection limits



Results of the Dental BMP Program



Overall reduction in mercury in effluent since implementation:

FP – 97.5%

BP – 91.8%

*** The increase in 2010 is due to line cleaning activities and detection limits**





Questions from the Dental Community

- ❓ **Do I need to install an amalgam separator if amalgam isn't used in my practice?**
- ❓ **Do all chairs need to be connected to the separator?**
- ❓ **Do the cuspidors have to be connected to the separator?**
- ❓ **How do I handle the discharge from sinks?**
- ❓ **How do I manage wastewater from equipment washing?**
- ❓ **Do I still need a permit if I only have digital x-rays?**
- ❓ **How do we know the program is working?**





Contact Information

Email: Kerry.Britt@narrabay.com

Telephone: 401.461.8848 ext. 490

NBC Website: www.narrabay.com

Pretreatment Information:

<http://www.narrabay.com/ProgramsAndProjects/PretreatmentProgram.aspx>

Dental BMP:

<http://www.narrabay.com/ProgramsAndProjects/PretreatmentProgram/Dental%20BMP.aspx>

List of Approved Amalgam Separators and Line Cleaners for Dentists:

http://www.narrabay.com/ProgramsAndProjects/PretreatmentProgram/~/_media/Files/Pretreatment%20Documents/Forms/List%20of%20Amalgam%20Separators%20and%20Line%20Cleaners.ashx





Questions

