Narragansett Bay Commission

Environmental Best Management Practices for the Management of Waste Dental Amalgam

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NBC Wastewater Treatment Facilities

Field’s Point Wastewater Treatment Facility

Bucklin Point Wastewater Treatment Facility
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 workshop 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
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
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
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
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

- Vacuum Pump
- Amalgam Separator
- Spill Containment
- Level of Solids
- Maintenance Sticker
- 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

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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