PRETREATMENT PROGRAM

ANNUAL REPORT

JANUARY 1, 2013 – DECEMBER 31, 2013

The Narragansett Bay Commission

FIELD'S POINT AND BUCKLIN POINT DISTRICTS

MARCH 15, 2014

The Narragansett Bay Commission
One Service Road
Providence, Rhode Island 02905

401 • 461 • 8848
401 • 461 • 6540 FAX
TTY (RI RELAY OPERATOR) 711

http://www.narrabay.com

Vincent J. Mesolella
Chairman

Raymond J. Marshall, P.E.
Executive Director

March 15, 2014

Dear Friends:

I am pleased to present the 2013 Narragansett Bay Commission (NBC) Pretreatment Program Annual Report for the period from January 1, 2013 through December 31, 2013. This annual report is a detailed summary of the many accomplishments associated with the NBC source reduction and control programs utilized in the two sewage districts.

The educational and regulatory source reduction and control programs of the NBC Pretreatment and Environmental Safety & Technical Assistance Sections, coupled with the monitoring, analytical and enforcement work done by the Environmental Monitoring & Data Analysis, Laboratory, and Legal Sections, have been instrumental at ensuring that toxics are not discharged into the NBC sewer system. This NBC team is committed to protecting Rhode Island's greatest resource, Narragansett Bay.

Since the NBC acquired the Field's Point Wastewater Treatment Facility in 1981, the total metal loadings to the Field's Point facility have been reduced by 931,175 pounds, which equates to 97.6%. In addition, the cyanide loadings were reduced by 78,896 pounds, a 98.1% reduction from 1981 levels.

The NBC takes its responsibility to protect the receiving waters of Narragansett Bay very seriously. During 2013, the NBC issued 1,766 Notice of Violation letters.

The NBC continues to be a national leader in the field of wastewater treatment and environmental protection. The outstanding work done by the NBC staff members in environmental education, enforcement, monitoring and analysis will ensure a cleaner Narragansett Bay for all to enjoy. I trust you will find this report to be thoroughly detailed and informative.

Sincerely,

Raymond J. Marshall, P.E.
Executive Director

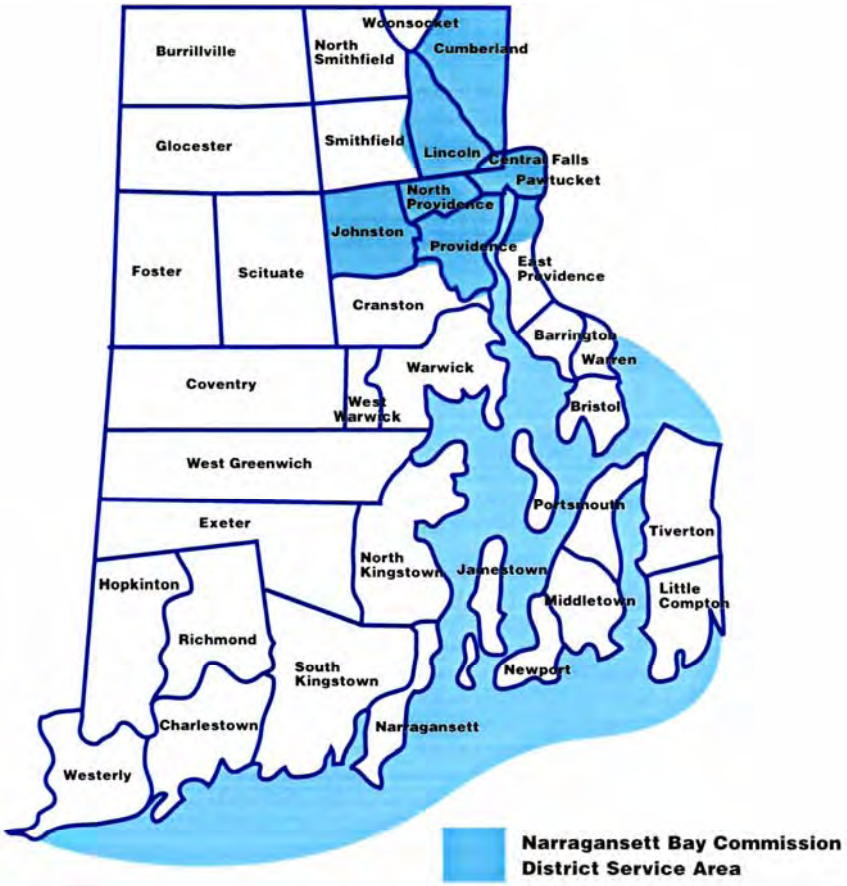
Narragansett Bay Commission
Mission Statement:

To maintain a leadership role in the protection and enhancement of water quality in Narragansett Bay and its tributaries by providing safe and reliable wastewater collection and treatment services to its customers at a reasonable cost.

Narragansett Bay Commission

Service Area

The Narragansett Bay Commission is Rhode Island's largest wastewater authority dedicated to providing reliable, cost-effective wastewater collection and treatment services to over 360,000 residents and 8,000 businesses in ten Rhode Island communities in the metropolitan Providence and Blackstone Valley areas. These communities include: Providence, North Providence, Johnston, Pawtucket, Central Falls, Cumberland, Lincoln, the northern portion of East Providence and small sections of Cranston and Smithfield.



ACKNOWLEDGMENTS

This report was written by Kerry M. Britt, Pretreatment Manager, with the assistance of the staff of the Pretreatment Program:

Nathan J. Dean
Assistant Pretreatment Manager

Abigail K. Bernier
Principal Pretreatment Engineer

Nathan Daggett and Ian Jardin
Pretreatment Engineers

Travis H. Costa
Senior Pretreatment Technician

Kyle Gannon, Brian Steere, Jared Urban and Ryan Grasso
Pretreatment Technicians

Sulema Martinez, Sandra Brown and Blair Lynch
Pretreatment Clerks

A special acknowledgment to Walter Palm, Laboratory Manager, the entire NBC Laboratory Staff and the staff of the Environmental Monitoring & Data Analysis (EMDA) Section. Their hard work allowed the NBC to successfully complete wastewater sampling and analysis of all significant industrial users discharging within the NBC districts and to conduct surveillance manhole monitoring of industrial and sanitary drainage districts. The data analysis presentation provided in CHAPTER V of this report, Impact of the Pretreatment Program on the Control of Toxics and Incompatible Waste, was prepared by John E. Motta, EMDA Manager, and the EMDA Staff:

James H. Kelly III
Assistant EMDA Manager

Catherine Oliver and Christine Comeau
Environmental Scientists

Sara Nadeau, Rebecca Songolo and Jeffrey Tortorella
Monitoring Field Supervisors

Kevin Wilcox, Stephen DePasquale, Michael Golenia, David Thacker
Fern Johnson, Michael Giammarco, Amanda Kezirian and Brandi-Lyn Colacone
Environmental Monitors

Joanne Parker
EMDA Data Assistant

Olga Shirzadi
EMDA Clerk

Laurie Horridge, Esq., Director of Executive Affairs, Jennifer Harrington, Esq., Chief Legal Counsel, and M. Patrick McGuire, Esq., Associate Legal Counsel, are to be credited for their effective Enforcement Program and their preparation of the Enforcement section, CHAPTER VI, of this report. The Environmental, Safety & Technical Assistance (ESTA) sections of this report were written by James McCaughey, P.E., ESTA Manager, with the assistance of Barry Wenskowicz, Pollution Prevention Engineer and Brendan Cunha, Environmental Compliance Technical Assistant. Sewer Connection Program and Storm Water Mitigation sections of CHAPTER VII of this report were written by John Zuba, Permit & Planning Manager, with the assistance of Stephen Lallo, Permits Coordinator. Jamie Samons, the NBC Public Affairs Manager, is to be acknowledged for her assistance with various sections of this report, including development of the Significant Non-Compliance Public Notice. This assignment was completed under the direction and supervision of Thomas P. Uva, Director of Planning, Policy and Regulation.

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I. EXECUTIVE SUMMARY

The Narragansett Bay Commission

The Narragansett Bay Commission (NBC) was created in 1980 by the R.I. General Assembly. Shortly thereafter voters approved an $87.7 million bond referendum to reduce the amount of pollutants the Field's Point Wastewater Treatment Facility in Providence was discharging into Narragansett Bay and its tributaries. At that time, nearly 45 million gallons of untreated sewage flowed into Rhode Island waterways daily, resulting in temporary and permanent closures of shellfishing beds in Upper Narragansett Bay, violating federal laws, and most importantly, threatening public health and the region's environmental and economic well-being.

The NBC owns and operates the state's two largest wastewater treatment facilities and provides quality wastewater collection and treatment services to about 360,000 people and 7,646 commercial and industrial customers located in Providence, North Providence, Johnston, Pawtucket, Central Falls, Cumberland, Lincoln, the northern portion of East Providence, and small sections of Cranston and Smithfield. The Pretreatment Program is charged with protecting these treatment facilities and Narragansett Bay from the discharge of toxic and nuisance pollutants.

Field's Point Wastewater Treatment Facility

In 1982 the NBC took over the operation of the Field's Point Wastewater Treatment Facility (FP). Prior to the NBC taking over the operation, FP was discharging untreated wastewater to the receiving waters of Rhode Island. At that time, the treatment plant was receiving approximately one million pounds of metals per year in the plant's influent. Since the NBC took over the ownership and operation, the plant has been transformed into a highly sophisticated, award winning facility. As the largest secondary wastewater treatment facility in

Field's Point Wastewater Treatment Facility

Rhode Island and the second largest in New England, the Field's Point Wastewater Treatment Facility provides preliminary and primary treatment for up to 200 million gallons per day (MGD) of wastewater, secondary treatment for up to 91 MGD and in 2013 had an average daily flow to the facility of 42.7 MGD.

Three 1.5 megawatts wind turbines were installed on the property. Each turbine is 365 feet high and combined can generate up to 4.5 megawatts of power. The turbines went on line in November 2012. The NBC projected a 40% savings in energy costs per year. In fact, the NBC realized a 42% energy savings in 2013, the first full year of operation of the turbines.

Field's Point Wind Turbine and IFAS Tank

In addition to the wind turbine project, the NBC upgraded the plant with Biological Nutrient Removal (BNR) technology to comply with Consent Agreement requirements to meet the new RIPDES nitrogen limitation of 5 ppm. The ten existing secondary treatment aeration tanks were converted to Integrated Fixed Film for Activated Sludge (IFAS) tanks, a tertiary treatment technology. These tanks now have five zones, both aerobic and anoxic, that wastewater travels through in order to remove nitrogen. Media is used to develop a film of nitrifying bacteria. All of the tanks have been converted and nitrogen concentrations have decreased dramatically in the effluent. Since the plant began putting IFAS tanks online, the 2013 nitrogen load to the Providence River decreased by 78.0% from 2003 loading levels, the year of the Greenwich Bay fish kill. The NBC is required to comply with the seasonal total nitrogen permit limit of 5.0 ppm beginning in May of 2014.

IFAS Media

Bucklin Point Wastewater Treatment Plant

In 1992, the R.I. General Assembly expanded the NBC mission by placing it in charge of the Bucklin Point Wastewater Treatment Facility in East Providence. This facility is designed to provide secondary treatment of 46 million gallons per day, and the average daily flow was 20.7 MGD in 2013. During 1999, supervisory management of this plant was privatized. United Water is the current contractor at the Bucklin Point plant. During 2006 the Bucklin Point plant completed a series of upgrades that significantly reduced wet weather by-pass events by allowing the plant to process up to 116 MGD during wet weather events. The upgrades also incorporate nitrogen removal operations and disinfection by the use of ultraviolet light. As a result of the facility upgrades at Bucklin Point, the 2013 nitrogen loading from this facility to Narragansett Bay was reduced by 66.2% from 2003 loading levels, the year of the Greenwich Bay fish kill.

Bucklin Point Wastewater Treatment

Although, the upgrades that were completed in 2006 reduced nitrogen loading to the Seekonk River and the Bay, the Rhode Island Department of Environmental Management (DEM) is requiring further reductions. To that end, in 2012 additional nitrogen reduction upgrades to the Bucklin Point plant began and continued throughout 2013. The plant will be upgrading to a four stage nitrification/denitrification process from a two stage process. Also, a building on site is being converted to hold a carbon source for the BNR process. Bucklin Point will have to comply with the seasonal total nitrogen limitation of 5.0 ppm beginning in May 2014.

In addition to the upgrades to the BNR process, work continued on upgrades to two other processes in 2013. These upgrades include eliminating the dissolved air floatation process and replacing it with a gravity belt thickener and equalizing the supernantant flow from the digesters and centrate from sludge dewatering to headworks of the plant.

Pretreatment Annual Report Overview

CHAPTER I of this report provides an overview of the NBC, its unique and innovative approaches to source reduction and control and provides a summary of each chapter of the annual report. Also contained in this chapter is a section regarding firms that have had their user classification changed during 2013, including a list of new significant industrial users and a section regarding firms that experienced major changes in water usage in 2013. A summary of the work done over the past year by the Pretreatment, Environmental Monitoring, and Enforcement Sections of the NBC is provided at the end of this chapter in TABLES 3, 4, 5, and 6, the Pretreatment Performance Summary Sheets for both districts.

CHAPTER II describes the administration of the NBC Pretreatment Program including the status of Pretreatment, Environmental Monitoring & Data Analysis (EMDA), Environmental, Safety & Technical Assistance (ESTA), Permits & Planning, and Laboratory staff, a summary of the budgets for these sections, staff training, the Pretreatment information management system and public information and education methods used by the NBC.

CHAPTER III details the industrial and commercial user base of the NBC and includes the NBC permit classification system, user inspections and emergency and special investigations. During 2013, Pretreatment staff issued 449 permits to users located in the Field's Point and Bucklin Point Districts, conducted 1,957 facility inspections, held 67 regulatory compliance meetings with users and responded to 34 emergency or special investigations.

CHAPTER IV details the compliance monitoring protocols and provides a review of all types of monitoring results including user self-monitoring, NBC monitoring of users, and surveillance manhole sampling results. During 2013, the NBC conducted 231 sampling inspections, performed 359 manhole sampling events, and reviewed 2,943 analytical reports of users located in the Field's Point and Bucklin Point Districts.

CHAPTER V of this report provides an analysis of the toxic pollutant loadings contained in the wastewater influent, effluent, and sludge for the Field's Point and Bucklin Point Wastewater Treatment Facilities. This analysis shows that the total metals loading to Field’s Point slightly increased during 2013 by 1.6% when compared to 2012. The total metals loading to Bucklin Point increased by 19.6% when compared to 2012. The cyanide loading to Field’s Point increased by 410.4 pounds, or 36.2% in 2013, and the cyanide loading to Bucklin Point increased by 88.9 pounds or 27.8%. Loadings to both facilities were well within the Maximum Allowable Headworks Loadings (MAHL) established for each plant.

CHAPTER VI details the types of enforcement actions used by the NBC and reviews the enforcement actions initiated by the NBC over the past year. During 2013, the NBC issued 1,766 Notice of Violation letters. The NBC issues some type of enforcement action against 100% of the violators of the NBC Rules and Regulations.

CHAPTER VII of this report details projects and programs underway and those already completed by the Planning, Policy & Regulation Division of the Narragansett Bay Commission.

CHAPTER VIII reviews the status of the goals established by the Pretreatment, EMDA, ESTA, Laboratory, and Permits & Planning Sections for 2013 and describes the ambitious goals established by these sections for 2014.

Unique Program Elements, Activities, Awards And Accomplishments

The NBC uses innovative and unique activities, projects, and programs to control and reduce the discharge of toxic and nuisance pollutants into the sewer system. The following is a short summary of these innovations and unique programmatic elements, along with a summary of NBC awards and accomplishments for the past year. Details about each of these innovations, accomplishments, and awards can be found within the chapters of this report.

User Education, Training and Outreach

- Workshops and public presentations regarding Pollution Prevention, Pretreatment, Storm Water Management, Sewer Connection, Water Quality, and Monitoring topics
- Periodic informational mailings to permitted users
- Press releases and public notices
- Development and distribution of fact sheets, Best Management Practice (BMP) documents, and case studies summary sheets
- NBC informational websites (http://www.narrabay.com and http://snapshot.narrabay.com)
- Citizens Advisory Committee

Special Projects, Programs, and Studies

- Environmental Merit Award Programs, include:
  - ~ Pollution Prevention Award
  - ~ Perfect Compliance Award
  - ~ Storm Water Management Award
- Grease Control Program, which has greatly reduced sewage backups and overflows attributable to grease accumulations in sewer lines
- Silver and Mercury loading reduction and evaluation program
- River Water Quality Monitoring Program
- Residential Septage Hauler Discharge Control Permitting Program
- Wet Weather CSO Monitoring Program
- Regional Ocean Modeling Systems Hydrodynamic Model Development Project
- Evaluation of bacteria sources to receiving waters
- Fixed Site Monitoring Network Project to monitor Narragansett Bay water quality and provide on-line monitoring data to the public
- Computerization of Sewer System Mapping
- Woon River Environmental Education Program
- River Restoration Initiative
- Energy Management Program including alternative energy evaluations
- Sustainable Energy Management of Wastewater Treatment Facilities Program

Permitting

- Prompt and standardized user plan reviews through weekly internal plan review meetings
- Permitting of all users with process wastewater discharges to the sewer system
- Unique and equitable rate structure with varying rates dependent upon hydraulic/pollutant loadings, which covers the cost to operate the Pretreatment Program
- Permitting of facilities recycling and/or disposing process wastewater off site as they have the potential to discharge to the sewer system via sanitary connections
- Aggressive program of permitting all users that greatly exceeds EPA permitting requirements
- Sewer connection permitting referral program with cities and towns

NBC Monitoring Program

- Aggressive program of sampling permitted users
- NBC internal goal to sample every Significant Industrial User (SIU) twice per twelve month period, exceeding EPA requirements
- Clean sampling programs utilized by the EMDA Section
- Extensive use and documentation of all standard operating procedures to ensure quality assurance and quality control that greatly exceeds EPA requirements
- Extensive receiving water and POTW sampling programs
- Sanitary and industrial surveillance manhole monitoring conducted weekly to monitor compliance and loadings to the treatment facilities
- Septage monitoring program to scan for toxic, industrial and non-residential quality waste

NBC Inspection Program

- NBC internal goal to inspect every SIU at least twice per twelve month period, exceeding EPA requirements
- Development and use of SIU annual inspection form ensures thorough and standardized inspections of each SIU
- Zero discharge firms are inspected at least twice per year to ensure compliance with permit requirements
- Extensive inspections of non-significant industrial and commercial users performed annually
- Monthly inspections of industrial areas/mill complexes are conducted to ensure all sources of non-sanitary wastewater are permitted in accordance with the NBC Rules and Regulations
- Intensive restaurant inspection program to verify grease trap maintenance
- All NBC inspections stress user education regarding EPA Significant Non-Compliance (SNC) criteria, NBC mission statement, and available compliance programs, in addition to addressing regulatory compliance issues. This has contributed to the decreased rates of SIU Significant Non-Compliance
- Response to 100% of reports regarding chemical spills, unusual influents, odors, etc.

User Self-Monitoring

- Permitted users are required to conduct regularly scheduled self-monitoring of their final effluent as well as batch discharges. The frequency of self-monitoring ranges from bi-annually to monthly and is dependent on the category and hydraulic loading from the facility
- Four consecutive weeks of resampling indicating full compliance is required for any effluent violation recorded. Benefits include: users are brought back into compliance quickly, SNC is reduced due to increased monitoring, reduced loadings to sewer, escalated enforcement due to additional evidence, etc.
- SIU permit required monitoring greatly exceeds that required by EPA regulations

Computerized Compliance and Data Tracking System

- Networked computer database consisting of all company, permit and compliance information which is available via desktop and tablet connections to all Pretreatment, ESTA, EMDA, and Enforcement staff
- Pretreatment system software has been upgraded to increase functionality and is expandable
- System automatically generates violation letters for any non-compliance event and tracks all user requirements
- System calculates SNC and enables flagging of any user approaching SNC, allowing staff to implement corrective actions

Pollution Prevention Program

- Free technical compliance assistance program
- On site consultations and pilot testing
- Routine referrals for pollution prevention assistance by regulatory staff in all Notices of Violation (NOV) and other user correspondence and communications
- Solicitations for pollution prevention assistance by ESTA staff directly to industries
- Extensive educational efforts
- Free water audits conducted of businesses, large residential buildings and industries

Staff Training

- NBC provides extensive training to its employees, including safety and procedural training
- Pretreatment, EMDA and ESTA staff receive 40-hour HAZWOPER and annual 8-hour HAZWOPER refresher training
- NBC has a tuition reimbursement program to assist employees to further their education and enhance their performance
- Intrasectional Training
- Interagency Training

Enforcement

- Some type of enforcement action issued against 100% of violators
- Cost of SNC Public Notice billed to firms published
- Use of innovative settlement agreements, which may include:
  - ~ Community based environmental projects
  - ~ Development of public service announcements
  - ~ Purchase of Pollution Prevention and Monitoring Equipment
  - ~ Use of Supplemental Environmental Projects
- Environmental Enforcement Fund - Penalties assessed are deposited into this NBC fund, from which special environmental projects and/or enforcement equipment and resources are funded. NBC received EPA Environmental Merit Award in 1995 and AMSA Public Service Award in 1995 and 2000 for this fund
- In-house legal staff available for quick enforcement response
- Work with state and federal criminal investigators regarding criminal pollution violations

2013 Accomplishments

~ ***Permitting:***

- 449 Permits issued
- 154 New permits issued to previously unpermitted firms
- 295 Revised permits issued

~ ***Inspections and Sampling:***

- 1,957 Non-sampling inspections conducted
- 350 Non-sampling inspections of SIUs
- 238 Non-sampling inspections of categorical users
- 112 Non-sampling inspections of significant non-categorical users
- 1,607 Non-sampling inspections of non-significant users
- 67 Regulatory Compliance meetings held with users
- Pretreatment staff reviewed 2,943 User Monitoring Reports
- 34 Emergency/Special Investigations Conducted
- 231 User Monitoring Reports generated by NBC
- 225 NBC Sampling Inspections of Industry
- 97 Different Facilities Sampled by NBC
- 216 Monitoring Reports of SIUs generated
- 140 Monitoring Reports of Categorical Users generated
- 76 Monitoring Reports of significant non-categorical users generated
- 15 Monitoring Reports of non-significant users generated
- 359 Manhole Sampling Events conducted
- 310 Industrial Surveillance Manhole Sampling Events conducted
- 34 Sanitary Manhole Sampling Events conducted

~ ***Enforcement:***

- 1,766 NOV Letters Issued
- 14 Firms listed in the February 20, 2014 Public Notice in the Providence Journal as being in Significant Non-Compliance (SNC)
- All but one of the 14 firms listed in SNC achieved compliance with cited violations prior to publication of the Public Notice

~ ***User Compliance:***

- 6.3% Rate of SIU Significant Non-Compliance (SNC) in Field's Point District for 2013, a reduction from 39% in 1992
- Rate of SIU SNC reduced in Bucklin Point from 44.8% in 1994 to 9.8% for 2013
- Overall rate of SIU SNC is 7.9% in 2013
- 95.9% Overall Rate of Compliance for All Significant Users
- 95.1% Overall Rate of Compliance for All Categorical Users
- 96.6% Overall Rate of Compliance for All Non-Significant Users
- 96.3% Overall Rate of Compliance for All Users
- 64.9% of EPA categorically regulated users had perfect effluent compliance records with all effluent parameters excluding pH
- 69.7% of Significant Users AND 90.1% of all users had perfect effluent compliance records with effluent pollutants excluding pH
- Rate of SNC has been significantly reduced in both sewage districts over the past decade through Pretreatment's User Education Methods

Notification of Changes in User Status

During 2013, nine users were reclassified from significant to non-significant. Five of the nine users that were reclassified were categorical users. The remaining users were non-categorical. Five of the nine users were reclassified to non-significant because they went out of business. One of the nine users relocated out of the NBC district. One user stopped conducting categorically regulated operations and discharges less than 5,000 gallons per day. One user decreased its discharge to the sewer system to below 5,000 gallons per day of non-categorical wastewater. The final user reclassified to non-significant ceased discharging process wastewater. Five of the nine users were located in the Field's Point district and eliminated 34,692 gallons per day of industrial flow to the Field's Point facility. The remaining users that were reclassified were located in the Bucklin Point district and eliminated 57,542 gallons per day of industrial flow to the Bucklin Point facility.

In 2013, there were five new SIUs. Three of the five are located in the Field's Point district and contribute 117,721 gallons per day of industrial flow to the plant. One of the three new Field's Point SIUs is classified as a categorically regulated metal finishing facility. One of the new Field's Point SIUs, Northeast Remsco Construction, Inc., is

responsible for 83.3% or 98,015 gallons per day of the increased industrial flow. This company conducts dewatering operations from a construction project associated with Phase II of the NBC Combined Sewer Overflow project. This project is expected to be completed in 2014. The remaining two of the five new SIUs are located in the Bucklin Point district and contribute 22,327 gallons per day of industrial flow to the Bucklin Point plant. One of the new Bucklin Point SIUs conducts categorically regulated pharmaceutical operations.

In 2013, one firm changed its name. No process or pretreatment changes were associated with the name change. A review of the baseline monitoring reports submitted by the newly classified SIUs indicates that the discharge from these facilities had no adverse effect on the quantity or quality of effluent discharged from either the Field's Point or Bucklin Point Wastewater Treatment Facilities. The SIUs which were reclassified during 2013 and the reason for each reclassification are detailed in TABLE 1.

TABLE 1

2013 Significant Industrial Users Classification Changes

Firms Reclassified to Non-Significant

Field's Point Firms	*Reason for Reclassification*
Austin Metal Finishing, Inc.	Firm is out of business.
DiGregorio, Inc.	Firm ceased discharges.
Eagle Plating Company, Inc.	Firm is out of business.
Lee's Manufacturing	Firm is out of business.
Uncas Manufacturing Company	Firm ceased conducting categorical operations.

Bucklin Point Firms	*Reason for Reclassification*
Bunge North America (East), LLC	Firm moved out of the district.
Charisma Manufacturing	Firm is out of business.
Fujifilm Electronic Materials USA, Inc.	Firm discharges less than 5,000 gallons per day.
Richline Group, Inc.	Firm is out of business.

Newly Classified Significant Users

Field's Point Firms	*Reason for Reclassification*
Alloy Holdings, LLC	This newly permitted firm discharges greater than 5,000 gallons per day of process wastewater.
Monarch Metal Finishing Co., Inc. (Aurora St.)	This newly permitted firm conducts categorically regulated metal finishing operations.
Northeast Remsco Construction, Inc.	This firm began discharging greater than 5,000 gallons per day of process wastewater.

TABLE 1
(continued)

2013 Significant Industrial Users Classification Changes

Newly Classified Significant Users

Bucklin Point Firms	*Reason for Reclassification*
Eaton Corporation	This newly permitted firm conducts categorically regulated metal finishing operations.
Lincoln Manufacturing, Inc.	This newly permitted company discharges process wastewater that has the potential to adversely impact the treatment plant.

Significant Users with Name Changes

District	*2012 Name*	*2013 Name*
Bucklin Point	Denison Pharmaceuticals, Inc.	Denison Acquisition Company, LLC dba Denison Pharmaceuticals, LLC

During 2013, 22 Field's Point SIUs experienced notable changes in water usage. Eleven of the 22 firms increased their water usage by a combined total of 535,567 gallons per day. One company, Shank Balfour/Beatty, accounted for 97.6% or 522,655 gallons per day of the overall increase. This company discharges ground water from a construction project associated with Phase II of the NBC Combined Sewer Overflow project. This project is expected to be completed in 2014. The remaining eleven of the 22 firms decreased their water usage by a combined total of 54,817 gallons per day. The net change to the Field's Point facility is an increase of 480,750 gallons per day of industrial flow. This increase in industrial flow did not have an adverse effect on the quality of wastewater discharged from the Field's Point treatment facility.

Twenty-two Bucklin Point SIUs experienced notable changes in water usage during 2013. Nine of the 22 SIUs increased their water usage by a combined total of 36,622 gallons per day. Thirteen of the 22 SIUs decreased their water usage by a combined total of 28,840 gallons per day. The net change in flow to Bucklin Point is an increase of 7,782 gallons per day of industrial flow. This increase in industrial flow did not have an adverse effect on the quality of wastewater discharged from the Bucklin Point treatment facility.

The SIUs with significant changes in water usage during 2013 are detailed in TABLE 2.

TABLE 2

2013 Significant Industrial User Changes in Water Usage

Firms with Increased Flow

Field's Point

Company	*Change in Flow (gpd)*	*% Change*
Contract Specialties, Inc.	630	12.1%
DiFruscia Industries, Inc.	1,245	14.4%
Electrolizing, Inc.	1,236	16.4%
Induplate, LLC	3,648	14.4%
International Chromium Plating Co., Inc.	1,016	84.8%
JRB Associates, Inc.	4,563	35.0%
Metallurgical Solutions, Inc.	68	16.0%
Pilgrim Screw Corporation	53	24.7%
Shank Balfour/Beatty	522,655	26,264.1%
Unique Plating Company	343	13.4%
Universal Plating Company	137	43.8%

Bucklin Point

Company	*Change in Flow (gpd)*	*% Change*
Bliss Manufacturing Co., Inc.	531	72.1%
Denison Acquistion Company, LLC	686	47.6%
Hord Crystal Corp.	24	25.8%
HP Services, Inc.	368	85.8%
Impco, Inc.	502	24.7%
New England Linen Supply, Inc.	8,800	12.5%
Osram Sylvania, Inc.	48	15.2%
Tanury Industries	24,729	55.0%
Vital Diagnostics, Inc.	934	187.9%

TABLE 2
(continued)

2013 Significant Industrial User Changes in Water Usage
Firms with Decreased Flow

Field's Point

Company	*Change in Flow (gpd)*	*% Change*
A. Harrison & Company, Inc.	-78	-14.6%
AG&G Incorporated	-215	-25.5%
Armbrust International, Ltd.	-4,151	-25.8%
Dominion Energy Manchester St., Inc.	-11,271	-24.0%
Eagle Laundry, Inc.	-5,437	-37.7%
Herff Jones, Inc.	-836	-17.2%
International Insignia Corporation	-1,055	-15.7%
Kirks Folly	-33	-12.6%
Providence Journal Company - Production Facility	-2,019	-10.1%
Umicore USA	-6,129	-18.1%
Univar USA, Inc.	-23,593	-69.8%

Bucklin Point

Company	*Change in Flow (gpd)*	*% Change*
Accent Plating Company	-773	-21.5%
Aspen Aerogels Rhode Island, LLC	-3,734	-10.2%
AT Cross Company	-525	-36.2%
Chemart Company	-3,195	-17.8%
Cintas Corporation	-9,202	-13.5%
Darlene Group, Inc.	-144	-20.9%
John H. Collins & Sons Company	-213	-12.6%
Liquid Blue	-2,468	-13.5%
Materion Technical Materials, Inc.	-7,123	-11.9%
Stackbin Corporation	-191	-37.2%
Tedor Pharma, Inc.	-114	-12.1%
Teknicote, Inc.	-525	-12.0%
Truex, Inc.	-633	24.1%

Pretreatment Program Performance Evaluation

Nationally, the EPA assesses the effectiveness of a pretreatment program by reviewing specific data submitted by each program. This data is reported on a standard EPA form entitled the Pretreatment Performance Summary Sheet. The Pretreatment Performance Summary Sheet contains general information about the sewage agency, the permitting and compliance status of significant industrial users, and the enforcement actions issued.

The NBC believes that the Pretreatment Program has achieved its stated goals and has been quite effective at reducing and controlling the discharge of toxics into the sewage system. This is evidenced by the fact that user compliance rates are excellent, no incidents of pass through or interference occurred, and treatment plant influent loading goals are being met. As a result, the NBC Pretreatment Program has been recognized twice by the U.S. EPA as being the *"Best Pretreatment Program in the Nation"*, receiving these awards in 1990 and 1998. In addition to the two national awards, the NBC Pretreatment Program received the 2009 EPA Region 1 Excellence Award.

Various factors are reviewed to properly evaluate and measure the effectiveness of a Pretreatment Program. These factors include the following:

- Industrial User Rate of Significant Non-Compliance;
- Effectiveness of Enforcement Response Program;
- Sufficiency of Program Funding and Staffing Levels;
- Application of Local Limits;
- Sufficiency of Statutory Authority and Rules and Regulations;
- Evaluation of recent and proposed program modifications;
- Pretreatment Performance Summary Sheet "Bean Counts".

The NBC routinely reviews all the aforementioned criteria to ensure that the Pretreatment Program satisfies and exceeds all EPA and DEM Pretreatment Program requirements. The following paragraphs detail the NBC efforts with regard to each criteria, as required by RIPDES permit requirements C(7)(i) and C(7)(j).

~ Evaluation of Significant Non-Compliance

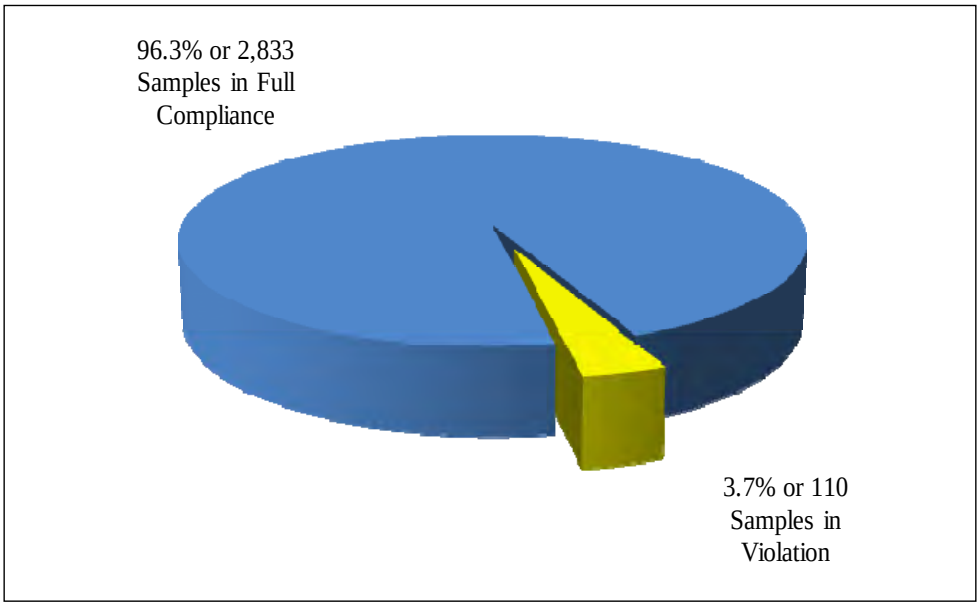
Through extensive user education efforts, quick enforcement response to user violations and regular monthly reminder telephone calls to users, the Pretreatment Section has over the years reduced its SIU rate of significant non-compliance substantially in both districts. The combined rate of SNC for significant industrial users located in the two NBC sewage districts for 2013 was 7.9%, virtually the same as the SNC rate of 7.5% observed in 2012.

The SIU rate of SNC was dramatically reduced in Field's Point from a high of 39.0% in 1992 to 6.3% for 2013, while the SIU rate of SNC for Bucklin Point was reduced from a high of 44.8% in 1994 to 9.8% in 2013. These impressive reductions in the rate of SIU SNC are directly attributed to increased user education efforts made by the Pretreatment staff and by stringent regulatory requirements to promptly identify and correct user violations.

These Pretreatment educational efforts include informing users about the EPA SNC violation criteria during all inspections and by sending annual informational letters to remind users about permit requirements and SNC ramifications. Regulatory efforts to reduce SNC include imposing stringent resampling requirements over four consecutive weeks for any effluent monitoring violation, and by the implementation of a procedure to call users prior to a monitoring report being thirty (30) days late past the due date. In addition, Pretreatment runs monthly reports to identify companies with the potential to be in SNC. Staff contacts these companies and informs them of the steps necessary to avoid SNC.

As a result of these efforts, the NBC has been able to maintain overall SIU rates of SNC to 10% or below. As can be seen from FIGURE 1, 96.3% of the 2,943 analytical reports reviewed by the Pretreatment staff during 2013 were in full compliance with effluent discharge limitations, standards which are more stringent than EPA categorical standards.

FIGURE 1
USER COMPLIANCE RATE
FOR ALL EFFLUENT ANALYSES



2,943 Total Analyses Reviewed

In addition, as shown in CHAPTER IV of this report, the 2013 rate of compliance of categorical users in the two districts was 95.1%, while the compliance rate for significant users was 95.9%. These excellent rates of user compliance with effluent limits are reflected in the long term reductions in toxic loadings to the Field's Point and Bucklin Point treatment facilities, as shown in CHAPTER V of this report.

Fourteen firms located in the Field's Point and Bucklin Point districts were listed in a Public Notice in the Providence Journal on February 20, 2014 as being in SNC for the period from October 1, 2012 through December 31, 2013. Of the fourteen firms published for being in SNC, ten users are located in Field's Point and four users are located in Bucklin Point.

The names of four categorical users were published for SNC, two from Field's Point and two from Bucklin Point. Three non-categorical industrial users were listed in the Public Notice, one from Field's Point and two from Bucklin Point. Six of the fourteen firms, or 42.9%, were listed as being in SNC solely for administrative violations such as submitting a report late. Seven firms listed in the notice were cited as being in SNC solely due to violations of effluent limitations. At the time of publication of this report, all but one of the facilities cited as being in SNC were back in full compliance with NBC regulations.

~ Effectiveness of NBC Enforcement Response Program

The NBC has a very aggressive and effective enforcement program. The Pretreatment Program issues some type of enforcement action for 100% of all violations observed, in accordance with the NBC approved Enforcement Response Plan (ERP). Pretreatment staff works very closely with the Legal Section and has the capability to issue an Administrative Order or Cease and Desist Order immediately, if necessary, to halt illicit discharges as detailed in the approved ERP.

During 2013, the NBC issued 1,766 Notice of Violation letters. The NBC Enforcement Program is efficient and clearly effective at ensuring users comply with NBC regulations and requirements. Additional information regarding the Enforcement Program is provided in CHAPTER VI.

~ Sufficiency of Program Funding and Staffing Levels

The NBC has provided continual support and funding to the Pretreatment, EMDA, ESTA, Permits & Planning, and Laboratory Sections, the teams responsible for controlling and reducing toxic loadings to the NBC treatment facilities and Narragansett Bay. This funding commitment has ensured adequate staffing levels necessary to get the job done in an exemplary manner. Additional information regarding the budgets and staffing of these sections is provided in CHAPTER II.

~ Application of Local Limits

The two NBC Wastewater Treatment Facilities have separate and distinct local limits designed to protect each wastewater treatment facility from pass-through and interference, ensuring the proper operation of the facility, to protect the receiving waters of the state, to protect the sludge quality and to protect the health and safety of NBC workers and the general public. The local limits are rigidly enforced by the NBC Pretreatment staff. The NBC routinely reviews influent, effluent, sludge and receiving water analytical data to ensure that the NBC local limits are appropriate for each treatment facility. Based upon this review and on-going studies being conducted by the NBC, the existing local limits are appropriate and enforceable. A review of the local limits and loading evaluations for each NBC plant is provided in CHAPTER V of this report.

During 2004, the NBC was required to submit a final metals compliance report as required by a Consent Agreement with the DEM (RIA-330). This report included a re-evaluation of local limits for both Field's Point and Bucklin Point using the July 2004 EPA Local Limits Development Guidance. Plant data, background loadings, and site-specific metal translators were developed for both facilities to determine local limits that protect plant operations and infrastructure, human health, and the NBC receiving waters, while allowing for the safe disposal of solids extracted from the collection system. The findings of this report indicate that the current local limits are both appropriate and enforceable. In addition, this report details analytical data indicating that the NBC receiving waters are meeting EPA Water Quality Criteria for toxic pollutants, clearly proving that the local limits are adequate for protecting the receiving waters of Narragansett Bay.

~ Sufficiency of Statutory Authority and Rules and Regulations

The NBC has statutory authority detailed in the State of Rhode Island General Laws, Title 46, Chapter 25 et seq. This legislation permits the NBC to develop, adopt and enforce Rules and Regulations for use of the sewage system. In 2006, the NBC petitioned the DEM to revise the Rules and Regulations. The NBC requested revisions to the Significant Non-Compliance definitions as required by the EPA Pretreatment Streamlining rules as well as voluntary changes outlined by the Streamlining rules. These Revisions can be found in Article 2 of the Rules and Regulations. Other revisions concerning the Pretreatment Program were made to clarify existing regulations. In addition, the NBC made minor revisions to the Rules and Regulations regarding sewer connections. The revised Rules and Regulations were approved by the DEM and became effective on December 20, 2006. The NBC Rules and Regulations satisfy all EPA and DEM requirements and are fully enforceable. The NBC Rules and Regulations are available on-line at www.narrabay.com.

~ Evaluation of Recent and Proposed Program Modifications

The NBC has an approved Enforcement Response Plan (ERP). The initial ERP was approved by the DEM and adopted by the NBC in 1994. This ERP outlined the actions the NBC would take to escalate enforcement against companies violating the NBC Rules and Regulations and the terms of their Wastewater Discharge Permits. Escalated enforcement actions may include the issuance of Administrative Orders, Compliance Orders or Cease and Desist Orders.

The NBC re-evaluated its approach to user compliance after the ERP was originally adopted in 1994. The revised approach is proactive and educational in nature. Many educational programs have been developed and implemented. These programs educate users on the NBC Rules and Regulations, their permit requirements, and assist them to achieve and maintain compliance. Pretreatment and ESTA staff work together with the implementation of these programs. These programs have been very successful at bringing non-compliant users into compliance and have contributed to the reduction in the number of users in significant non-compliance with NBC and EPA regulations.

Even with the implementation of these proactive, educational programs, the NBC takes non-compliance with its Rules and Regulations very seriously. Therefore, Notices of Violation (NOV) are issued for every violation of the NBC Rules and Regulations and permit requirements. The issuance of escalated enforcement action in the form of an Administrative Order may be necessary to protect the NBC's treatment facilities and subsequently Narragansett Bay. In cases where there is not imminent endangerment to NBC facilities or the health of Narragansett Bay, there may be a deferment in the time before the issuance of an Administrative Order to allow ESTA staff the opportunity to work with industry to address compliance issues. The NBC revised the ERP to accurately reflect the proactive, educational approach. The revision was required by the RIPDES permits issued by the DEM to the NBC in December 2001. The NBC revised the ERP in 2002 to accurately reflect the enforcement protocols followed by the NBC. The final ERP was approved by the DEM in September 2003.

In 2004, the NBC implemented a non-substantial change in the allowable pH limitations for both treatment facilities. The change standardized the pH limitations at both treatment facilities to 5.0 standard units (s.u.) - 11.0 s.u. at all times. Previously the pH limitations were 5.0 s.u. - 10.0 s.u. in Field's Point and 5.5 s.u. - 9.5 s.u. in Bucklin Point. The NBC requested this modification in a request to revise the Rules and Regulations. The DEM determined the modification to be a non-substantial program modification and these changes became effective on December 13, 2004. There were no Pretreatment Program modifications in 2013.

~ Pretreatment Performance Summary Sheets

The U.S. EPA measures the effectiveness of a Pretreatment Program by tracking routine activities performed by the program. These include the number of users of each type, number of violations cited, number of inspections conducted, number of permits issued, number of sampling events conducted, amount of penalties assessed, etc. This information is provided in the Pretreatment Performance Summary Sheets. The Pretreatment Performance Summary Sheets, one for each NBC sewage district, are provided in TABLES 3 and 5 and detail the 2013 accomplishments of the NBC Pretreatment, Environmental Monitoring, and Enforcement Programs. In early 2008, the EPA revised the Pretreatment Performance Summary Sheet. The revised summary sheets can be found in TABLES 4 and 6.

TABLE 3

NARRAGANSETT BAY COMMISSION

FIELD'S POINT DISTRICT

PRETREATMENT PERFORMANCE SUMMARY SHEET

1. General Information

Control Authority Name	Narragansett Bay Commission
Address (treatment facility)	2 Ernest Street, Providence, RI 02905
(main office)	1 Service Road, Providence, RI 02905
(pretreatment office)	2 Ernest Street, Providence, RI 02905
Contact Persons	Raymond Marshall, P.E. , Executive Director
	Thomas P. Uva, PP&R Director
	Kerry M. Britt, Pretreatment Manager
Contact Telephone	(401) 461-8848
RIPDES Number	RI 0100315
Reporting Period	January 1, 2013 - December 31, 2013
Total Categorical Industrial Users as of the date of this report (throughout the reporting period)	31 (34) (See Note 1)
Total Significant Non-Categorical IUs as of the date of this report (throughout the reporting period)	11 (14)
Total # Significant Industrial Users (SIUs)	42 (48) (See Note 1)

2. Significant Industrial User (SIU) Compliance

	Significant Industrial Users	
	Categorical	**Non-Categorical**
1. # Of SIUs Submitting BMRs/# Required	9/9	4/4
2. # Of SIUs Submitting 90-Day Compliance Reports/# Required	1/1	0/0
3. # Of SIUs in SNC with Pretreatment Compliance Schedule/ # Required To Meet Schedule	0/0	0/0
4. # Of SIUs In Significant Noncompliance With Self Monitoring Reporting Requirements and have not returned to compliance	1	0
5. # Of SIUs in SNC for Violating Effluent or Reporting Requirements and have Not had Adequate Enforcement Action by POTW	0	0
6. # Of SIUs in SNC with Reporting Requirements At End of Report Period	1	0
7. # Of SIUs in SNC With Effluent Requirements At End of Report Period	0	0

TABLE 3

(continued)

NARRAGANSETT BAY COMMISSION

FIELD'S POINT DISTRICT

PRETREATMENT PERFORMANCE SUMMARY SHEET

3. Compliance Monitoring Program

	Significant Industrial Users	
	Categorical	**Non-Categorical**
1. # Of Control Documents Issued/# Required	10/10	4/4
2. # Of SIUs Without Active (Expired) Permits	0	0
3. # Of SIUs With Permits Expired For 180 Days Or More	0	0
4. # Of Non-Sampling Inspections Conducted	133	45
5. # Of Sampling Visits Conducted	83	32
6. # Of Facilities Inspected (Nonsampling)	34	14
7. # Of Facilities Sampled	34	14
8. # Of SIUs (Both) Not Inspected And Not Sampled By POTW In Past 12 Months	0	0
9. # Of SIUs Not Sampled/Not Inspected By POTW In Past 12 Months	0	0
10. # Of SIUs in SNC with Self Monitoring and Not Inspected and Not Sampled in the Past 12 Months	0	0

TABLE 3
(continued)
NARRAGANSETT BAY COMMISSION
FIELD'S POINT DISTRICT
PRETREATMENT PERFORMANCE SUMMARY SHEET

4. Enforcement Actions

	Significant Users			
	Categorical	**Non-Categorical**	**Non-Significant**	**Total All Users**
1. Compliance Schedules Issued	0	0	0	0
2. Notices Of Violation Issued	165	40	940	1,145
3. Admin. Orders Issued	0	0	0	0
4. Combined Total Of Administrative Orders and Notices of Violation	165	40	940	1,145
5. Civil Suits Filed	0	0	0	0
6. Criminal Suits Filed	0	0	0	0
7. Combined Total of Civil and Criminal Suits	0	0	0	0
8a. Published IUs in SNC (See Newspaper Notice in Enforcement Chapter)	2	1	7	10
8b. Rate of IUs in SNC	2/34 = 5.8%	1/14 = 7.1%	N/A	N/A
9a. Amount Of Penalties Collected (Total Dollars/IUs Assessed)	0/0	0/0	$500/1	$500/1
9b. Amount Of Penalties Assessed (Total Dollars/IUs Assessed)	$0/0	$0/0	$0/0	$0/0
10. # of IUs Subject to Any Enforcement Action	25	8	129	162
11. Other Actions (Permit Suspensions, Sewer Bans, Etc.)	0	0	0	0

I certify that the information contained in the Pretreatment Performance Summary Sheet is complete and accurate to the best of my knowledge.

AUTHORIZED REPRESENTATIVE **DATE**

TABLE 3
(continued)
NARRAGANSETT BAY COMMISSION

FIELD'S POINT DISTRICT

PRETREATMENT PERFORMANCE SUMMARY SHEET

Notes Regarding the Pretreatment Performance Summary Sheets

Note 1: Numbers in parentheses () reflect totals for users classified as significant for some time during the reporting period. Some of these companies are no longer classified as SIUs since they may have changed process operations eliminating discharges to the sewer.

TABLE 4

NARRAGANSETT BAY COMMISSION

FIELD'S POINT DISTRICT

REVISED PRETREATMENT REPORT SUMMARY SHEET

January 1, 2013 through December 31, 2013

POTW Name:	Narragansett Bay Commission (NBC)
NPDES Permit #:	RI0100315
Pretreatment Report Period Start Date:	January 1, 2013
Pretreatment Report Period End Date:	December 31, 2013
# of Significant Industrial Users (SIUs):	42 (48) (See Note 1)
# of SIUs Without Control Mechanisms:	0
# of SIUs not Inspected:	0
# of SIUs not Sampled:	0
# of SIUs in Significant Noncompliance (SNC) with Pretreatment Standards:	2
# of SIUs in SNC with Reporting Requirements:	1
# of SIUs in SNC with Pretreatment Compliance Schedule:	0
# of SIUs in SNC Published in Newspaper:	3
# of SIUs with Compliance Schedules:	0
# of Violation Notices Issued to SIUs:	205
# of Administrative Orders Issued to SIUs:	0
# of Civil Suits Filed Against SIUs:	0
# of Criminal Suits Filed Against SIUs:	0
# of Categorical Industrial Users (CIUs):	31 (34) (See Note 1)
# of CIUs in SNC:	2
Penalties Total Dollar Amount of Penalties Collected:	$500.00
# of IUs from which Penalties have been collected:	0

TABLE 4
(continued)
NARRAGANSETT BAY COMMISSION

FIELD'S POINT DISTRICT

REVISED PRETREATMENT REPORT SUMMARY SHEET

January 1, 2013 through December 31, 2013

Local Limits Date of Most Recent Technical Evaluation of Local Limits:	September 30, 2004
Date of Most Recent Adoption of Technically Based Local Limits:	1987

Pollutant	**Limit (mg/l)**	**MAHL (lb/day)** (See Note 2)
Cadmium	0.11	6.1
Chromium	2.77	102.2
Copper	1.20	46.3
Lead	0.60	23.4
Mercury	0.005	0.5
Nickel	1.62	57.9
Silver	0.43	10.8
Zinc	2.61	137.0
Cyanide	0.58	2.4
Selenium	-	436.5
Arsenic	-	2.5

Note 1: Numbers in parentheses () reflect totals for users classified as significant for some time during the reporting period. Some of these companies are no longer classified as SIUs since they may have changed process operations eliminating discharges to the sewer.

Note 2: MAHL values were recalculated as a part of the Local Limits Re-evaluation that was submitted to the Rhode Island Department of Environmental Management in September 2004.

TABLE 5

NARRAGANSETT BAY COMMISSION

BUCKLIN POINT DISTRICT

PRETREATMENT PERFORMANCE SUMMARY SHEET

1. General Information

Control Authority Name	Narragansett Bay Commission
Address (treatment facility)	102 Campbell Avenue, East Providence, RI 02916
(main office)	1 Service Road, Providence, RI 02905
(pretreatment office)	2 Ernest Street, Providence, RI 02905
Contact Persons	Raymond Marshall, P.E. , Executive Director
	Thomas P. Uva, PP&R Director
	Kerry M. Britt, Pretreatment Manager
Contact Telephone	(401) 461-8848
RIPDES Number	RI 0100072
Reporting Period	January 1, 2013 - December 31, 2013
Total Categorical Industrial Users as of the date of this report (throughout the reporting period)	21 (23) (See Note 1)
Total Significant Non-Categorical IUs as of the date of this report (throughout the reporting period)	16 (18)
Total # Significant Industrial Users (**SIUs**)	37 (41) (See Note 1)

2. Significant Industrial User (SIU) Compliance

	Significant Industrial Users	
	Categorical	**Non-Categorical**
1. # Of SIUs Submitting BMRs/# Required	8/8	3/3
2. # Of SIUs Submitting 90-Day Compliance Reports/# Required	1/1	1/1
3. # Of SIUs in SNC with Pretreatment Compliance Schedule/ # Required To Meet Schedule	0/0	0/0
4. # Of SIUs In Significant Noncompliance With Self Monitoring Reporting Requirements and have not returned to compliance	0	0
5. # Of SIUs in SNC for Violating Effluent or Reporting Requirements and have Not had Adequate Enforcement Action by POTW	0	0
6. # Of SIUs in SNC with Reporting Requirements At End of Report Period	0	0
7. # Of SIUs in SNC With Effluent Requirements At End of Report Period	0	0

TABLE 5
(continued)

NARRAGANSETT BAY COMMISSION

BUCKLIN POINT DISTRICT

PRETREATMENT PERFORMANCE SUMMARY SHEET

3. Compliance Monitoring Program

	Significant Industrial Users	
	Categorical	**Non-Categorical**
1. # Of Control Documents Issued/# Required	8/8	3/3
2. # Of SIUs Without Active (Expired) Permits	0	0
3. # Of SIUs With Permits Expired For 180 Days Or More	0	0
4. # Of Non-Sampling Inspections Conducted	109	67
5. # Of Sampling Visits Conducted	53	41
6. # Of Facilities Inspected (Nonsampling)	23	18
7. # Of Facilities Sampled	23	18
8. # Of SIUs (Both) Not Inspected And Not Sampled By POTW In Past 12 Months	0	0
9. # Of SIUs Not Sampled/Not Inspected By POTW In Past 12 Months	0/0	0/0
10. # Of SIUs in SNC with Self Monitoring and Not Inspected and Not Sampled in the Past 12 Months	0	0

TABLE 5
(continued)

NARRAGANSETT BAY COMMISSION

BUCKLIN POINT DISTRICT

PRETREATMENT PERFORMANCE SUMMARY SHEET

4. Enforcement Actions

	Significant Users			
	Categorical	**Non-Categorical**	**Non-Significant**	**Total All Users**
1. Compliance Schedules Issued	0	0	0	0
2. Notices Of Violation Issued	61	68	492	621
3. Admin. Orders Issued	0	0	0	0
4. Combined Total Of Administrative Orders and Notices of Violation	61	68	492	621
5. Civil Suits Filed	0	0	0	0
6. Criminal Suits Filed	0	0	0	0
7. Combined Total of Civil and Criminal Suits	0	0	0	0
8a. Published IUs in SNC (See Newspaper Notice in Enforcement Chapter)	2	2	0	4
8b. Rate of IUs in SNC	2/23 = 8.7%	2/18 = 11.1%	N/A	N/A
9a. Amount Of Penalties Collected (Total Dollars/IUs Assessed)	$0/0	$0/0	$0/0	$0/0
9b. Amount of Penalties Assessed (Total Dollars/IUs Assessed)	$0/0	$0/0	$0/0	$0/0
10. # of IUs Subject to Any Enforcement Action	15	13	205	233
11. Other Actions (Sewer Bans, Etc.)	0	0	0	0

I certify that the information contained in the Pretreatment Performance Summary Sheet is complete and accurate to the best of my knowledge.

AUTHORIZED REPRESENTATIVE **DATE**

TABLE 5
(continued)

NARRAGANSETT BAY COMMISSION

BUCKLIN POINT DISTRICT

PRETREATMENT PERFORMANCE SUMMARY SHEET

Notes Regarding the Pretreatment Performance Summary Sheets

Note 1: Numbers in parentheses () reflect totals for users classified as significant for some time during the reporting period. Some of these companies are no longer classified as SIUs since they may have changed process operations eliminating discharges to the sewer.

TABLE 6

NARRAGANSETT BAY COMMISSION

BUCKLIN POINT DISTRICT

REVISED PRETREATMENT REPORT SUMMARY SHEET

January 1, 2013 through December 31, 2013

POTW Name:	Narragansett Bay Commission (NBC)
NPDES Permit #:	RI0100072
Pretreatment Report Period Start Date:	January 1, 2013
Pretreatment Report Period End Date:	December 31, 2013
# of Significant Industrial Users (SIUs):	37 (41) (See Note 1)
# of SIUs Without Control Mechanisms:	0
# of SIUs not Inspected:	0
# of SIUs not Sampled:	0
# of SIUs in Significant Noncompliance (SNC) with Pretreatment Standards:	3
# of SIUs in SNC with Reporting Requirements:	1
# of SIUs in SNC with Pretreatment Compliance Schedule:	0
# of SIUs in SNC Published in Newspaper:	4
# of SIUs with Compliance Schedules:	0
# of Violation Notices Issued to SIUs:	129
# of Administrative Orders Issued to SIUs:	0
# of Civil Suits Filed Against SIUs:	0
# of Criminal Suits Filed Against SIUs:	0
# of Categorical Industrial Users (CIUs):	21 (23) (See Note 1)
# of CIUs in SNC:	2
Penalties Total Dollar Amount of Penalties Collected:	$0
# of IUs from which Penalties have been collected:	0

TABLE 6
(continued)

NARRAGANSETT BAY COMMISSION

BUCKLIN POINT DISTRICT

REVISED PRETREATMENT REPORT SUMMARY SHEET

January 1, 2013 through December 31, 2013

Local Limits Date of Most Recent Technical Evaluation of Local Limits:	September 30, 2007
Date of Most Recent Adoption of Technically Based Local Limits:	1991

Pollutant	**Limit (mg/l)**	**MAHL (lb/day)** (See Note 2)
Cadmium	0.11	1.4
Chromium	2.77	28.6
Hexavalent Chromium	-	51.3
Copper	1.20	8.0
Lead	0.69	7.5
Mercury	0.06	0.03
Nickel	1.62	3.6
Silver	0.40	1.1
Zinc	1.67	45.2
Cyanide	0.50	0.3
Selenium	0.40	1.7
Arsenic	0.20	0.68

Note 1: Numbers in parentheses () reflect totals for users classified as significant for some time during the reporting period. Some of these companies are no longer classified as SIUs since they may have changed process operations eliminating discharges to the sewer.

Note 2: MAHL values were recalculated as a part of the Local Limits Re-evaluation that was submitted to the Rhode Island Department of Environmental Management in September 2004.

II. PROGRAM ADMINISTRATION

RIPDES Permit Numbers

On September 30, 1992, the Rhode Island Department of Environmental Management, (DEM) Office of Water Resources issued RIPDES permit number RI 0100315 to the NBC for the Field's Point Wastewater Treatment Facility. This permit became effective on October 30, 1992 and superseded the permit issued on April 4, 1979. The NBC RIPDES permit number for the Bucklin Point Wastewater Treatment Facility is RI 0100072. This permit was issued on January 2, 1991 to the former Blackstone Valley District Commission. On December 31, 2001, the DEM issued new RIPDES permits for the two NBC wastewater treatment facilities. The NBC had appealed several conditions of these permits and worked with the DEM throughout 2003 to resolve issues of concern. A Consent Agreement, RIA-330, resolving the appealed conditions was signed by both parties and became effective in January 2004. In June 2006 Consent Agreements (CA) for both facilities were signed by the DEM and the NBC and became effective. The CAs imposed more stringent nutrient limitations for both the Field's Point and Bucklin Point wastewater treatment facilities. Both CAs detail requirements which the NBC must satisfy in order to achieve compliance with the new limitations and require full compliance with interim limitations until such requirements are implemented. The RIPDES permits for both facilities have expired, however these permits remain in full effect until the DEM issues new permits to the NBC.

Personnel

The control and reduction of toxic and nuisance discharges to the sewer falls under the Division of Planning, Policy & Regulation (PP&R) which works closely with and relies upon the resources of many other NBC sections to achieve its goal of protecting the two NBC treatment facilities and ultimately Narragansett Bay. From the wastewater operators that report unusual influents to the legal staff that issues escalated enforcement actions against violators, environmental protection is a team effort at the NBC. The organizational plan of the NBC is provided in FIGURE 2, while the organizational plan of the PP&R Division is provided in FIGURE 3.

PP&R consists of the Pretreatment, Environmental, Safety & Technical Assistance (ESTA), Permits & Planning, Environmental Monitoring & Data Analysis (EMDA), and the Laboratory sections. PP&R is responsible for developing, implementing, and performing source reduction and control activities and programs for the NBC. The Pretreatment Section works to control the discharge of toxics through regulatory and user educational mechanisms, while the ESTA Section achieves pollutant reductions through user education efforts and by providing free technical assistance. Both sections rely upon the services and expertise of the EMDA and Laboratory Sections. The EMDA Section conducts user, river, treatment facility, and manhole monitoring activities and is responsible for logging and reviewing data reported on samples analyzed by the Laboratory Section.

FIGURE 2
Narragansett Bay Commission

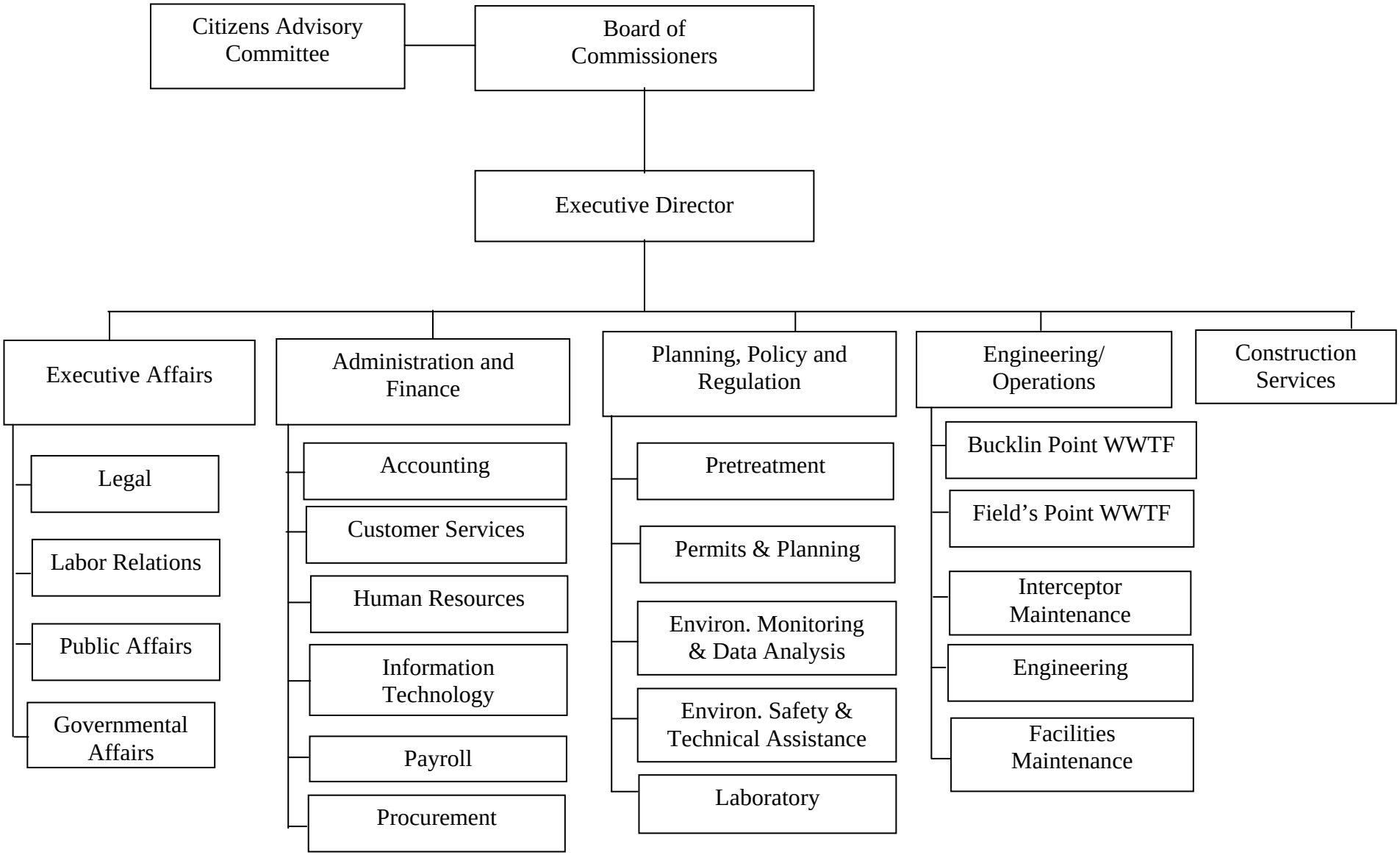
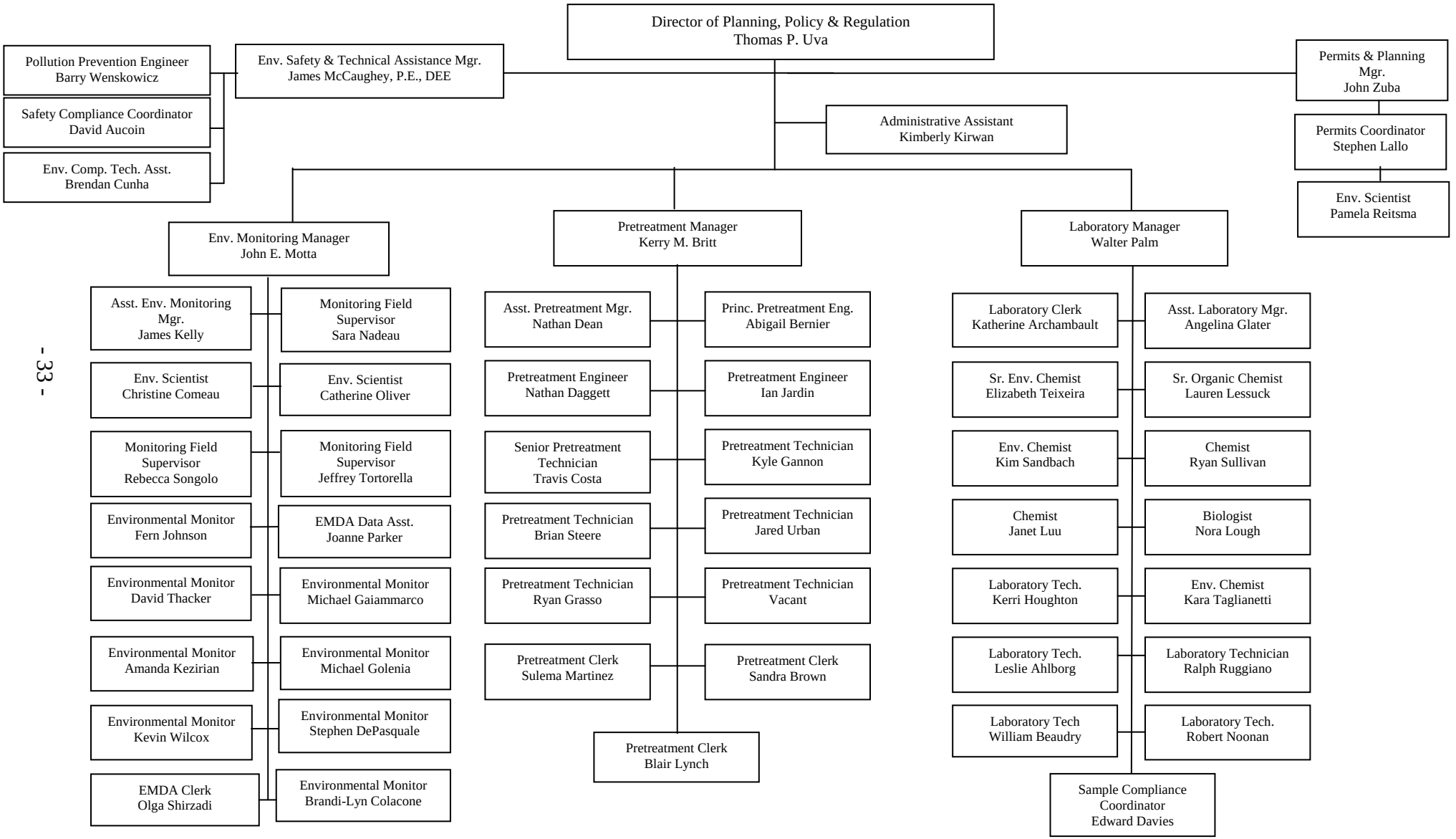


FIGURE 3
Narragansett Bay Commission
Division of Planning, Policy & Regulation
March 15, 2014



During 2013 there were four personnel changes in the Pretreatment Section. The first change occurred in May when Amanda Kezirian vacated her Pretreatment Technician position to fill an Environmental Monitor position in the EMDA Section. This vacant Pretreatment Technician position was filled by Jared Urban in October. In September, Darren Dolbashian vacated his Pretreatment Technician position to take a position in private industry. This vacant position was filled by Ryan Grasso in October. In November, Nathan Arruda vacated his Pretreatment Technician position for a position in private industry. This vacant position will be filled in early 2014. In November, Rosaleen Grof vacated her Pretreatment Clerk position to fill a vacant Operations Clerk position. The vacant Pretreatment Clerk position was filled by Blair Lynch in January 2014.

There were four personnel changes in the EMDA Section during 2013. In March, Marcos Quinones vacated his Environmental Monitor position for a position in the Field's Point Operations Section. This vacant position was filled by Michael Giammarco in May. In April, Jonathan Isaza vacated his position as an Environmental Monitor for a position in the Bucklin Point Operations Section. This vacant position was filled by Amanda Kezirian in May. In August, Jamie Grieco vacated her EMDA Clerk position. This vacant position was filled by Olga Shirzadi in October. In October, Jared Urban vacated his Environmental Monitor position to fill a vacant Pretreatment Technician position. This vacant Environmental Monitor position was filled by Brandi-Lyn Colacone in November.

There were three personnel changes in the Laboratory Section. Amanda Henry vacated her LIMS Administrator position in July. At this time the position was reevaluated. The title of this position was changed to Sample Compliance Coordinator to more accurately reflect the job duties. Edward Davies was promoted to fill this position in September, vacating his Laboratory Technician position. The vacant Laboratory Technician was filled by Kerri Houghton in October. In November, Cheryl Manager retired from her Chemist position. This vacant Chemist position was filled by Ryan Sullivan in November.

There were no personnel changes in the ESTA and Permits & Planning Sections.

Staff Training

The NBC provides extensive training to its employees and has a tuition reimbursement program to assist employees in furthering their education. During 2013, staff received training by attending seminars, workshops and classes in many areas including safety, technical and office productivity.

The NBC places a high value on the safety of its employees. Therefore safety training is provided to all personnel and in many cases this training is mandatory for certain positions. The following lists the safety trainings provided in 2013:

- CPR/AED
- Environmental Health & Safety Awareness
- HazCom/Right-to-Know Training
- New Employee Safety Training
- Confined Space Entry
- Personal Protective Equipment
- Healthy Back, Slips, Trips and Falls
- Occupational Hearing Safety
- Permit Required Confined Space
- First Aid Training
- Man Overboard Training
- Hypothermia Training
- Work Zone Safety
- Emergency Preparedness Plans
- Infectious Materials Exposure Control Training

To ensure that staff can adequately perform their job functions, specialized technical training is provided. Staff often suggests topics for training. The following is a list of the technical trainings provided to Pretreatment, EMDA, ESTA and Laboratory personnel during 2013:

- Resampling Training
- 40 Hour HAZWOPER Training
- NBC Hazardous Waste Training
- Sample Collection & Preservation Training
- Annual Report Training
- 8-Hour HAZWOPER Refresher Training
- Investigation & Meeting Write-Up Training
- Pretreatment Requirements Training
- Boating Safety Education
- Vacation Shut Down Inspections
- HachWims Training
- Flow Measurement Technologies
- Integrated Wet Weather Issues
- Whole Effluent Toxicity (Wet) Training
- Permit Book Training
- Split Sample Training
- Color Tracking Training
- Incident Command Systems/National Incident Management Systems (ICS 100/700)

Boom Deployment Training at Bucklin Point

- Billing Code Training
- Account Collection Training
- Document Security Training
- Proper Dress Code Training
- Thermaco Grease Removal Unit Training

PP&R staff are encouraged to attend conferences and workshops to educate themselves on current and emerging issues in the wastewater and environmental fields. The technical conferences and workshops that were attended in 2013 are as follows:

- 2013 EPA - New England Regional Pretreatment Coordinators Conference
- 2013 National Association of Clean Water Agencies Pretreatment & Pollution Prevention Conference
- Rhode Island Pretreatment Coordinators Workshop
- Beyond Energy Efficiency Webinar
- EPCRA Tier II Workshop
- ISO 15001 Webinar
- 2013 We Mean Business Expo

- 2013 NEWEA Conference
- Crowd Safety Manager Training
- EPA Ag-Star Program Webinar
- Recycling Webinar
- OSHA Record Keeping
- Green Chemistry & Sustainable Laboratory Practices Webinar
- Management, Reuse and Disposal of Wastewaters Webinar
- Hazardous Waste Webinar
- Compost Conference
- NECA Annual Conference
- Material Management Through Sustainable Consumption
- Safer Alternatives to Methylene Chloride Paint Strippers Webinar
- WEF Energy & Water Conference
- Active Threat/Active Shooter Workshops
- OSHA Standards for the Construction Industry
- Hurricane Preparation Webinar
- NEWEA/NEWWA Emergency Preparedness Symposium
- Lockout/Tagout
- NEWEA Integrated Wet Weather Issues
- Hydroelectric Projects
- Storm Water Management
- Storm Water Overview & Lessons Learned
- Research on Modeling Approaches to Developing Site-Specific Nutrient Goals, Criteria and Management
- Science Worth Noticing (SWN) Syposium
- NEWEA Laboratory Analyst Certification
- Activated Sludge Loss of Solids, Settleability Problems and Troubleshooting
- Microscopic examination of Activated Sludge
- NELAC Laboratory Assessors Certification
- Northwest Analytics Quality Analyst Seminar
- Instrumental Methods of Analysis
- NEIWPCC Laboratory Procedures
- Survey of Biomedical Chemistry
- Laboratory Management
- Data Integrity and Safety
- Onsite Laboratory Training and Audit
- NPDES Laboratory Procedures
- Microbiology of Activated Sludge
- NOAA Climate Adaptation

The NBC provides 40 Hour HAZWOPER training to all new Pretreatment, ESTA and EMDA personnel. The 40 hour training program is required by OSHA of all emergency response personnel that may be first responders to chemical spills or who may work at hazardous waste sites. This training includes hands-on use of Self-Contained Breathing Apparatus (SCBA) equipment, respirators, personal protective equipment, air and water monitoring equipment, etc. Staff members were instructed in First Aid, CPR, confined space entry, hazardous waste handling, toxicology and spill and hazardous waste site control and coordination.

An eight hour HAZWOPER recertification training session is provided annually to Pretreatment, EMDA, and ESTA personnel that have previously completed the 40-hour HAZWOPER training program. The eight hour recertification training session is required by OSHA annually as a refresher class. The recertification program covers many topics, such as incident command, confined space entry, spill tracking, boom deployment, personal protective equipment, use of air monitoring equipment, CPR/AED and first aid.
In order to ensure productivity remains efficient and of high quality, staff participate in many administrative trainings. The trainings that staff participated in during 2013 are as follows:

- Excel
- Word
- Windows 7
- Keyboarding II
- Fundamentals of Successful Project Management
- Managers and Supervisors Conference

The NBC provides a tuition reimbursement program to encourage its employees to further their education. The college courses that staff attended during 2013 are as follows:

- Foundation in Mathematics
- Marketing Strategy
- Research in Education

In addition to attending trainings, workshops and seminars, PP&R staff also provide technical training for other sections of the NBC as well as assist other agencies with developing and training on inspection skills. The following trainings were conducted by PP&R staff in 2013:

- Kerry Britt, Pretreatment Manager, and John Zuba, Permits & Planning Manager conducted the required annual Spill Prevention, Control & Countermeasures/Storm Water Pollution Prevention Plan training in April and November respectively to Bucklin Point and Field's Point treatment plant personnel.
- On December 4, 2013 the Pretreatment Section hosted a training session on Thermaco grease removal equipment conducted by company representatives. Pretreatment staff from East Providence, Narragansett, South Kingstown and Warwick attended the training.

NBC Toxics Reduction, Control and Monitoring Program Budgets

The NBC is committed to protecting the two wastewater treatment facilities and Narragansett Bay from toxic discharges. This pledge to protect the environment is evidenced by NBC continued commitment to ensure adequate staffing and funding levels for the PP&R Division as necessary to ensure environmental protection. The PP&R Division budget for fiscal year 2014 (FY14) was $5,850,417. The FY14 PP&R Division budget allocated $4,720,917 or 80.7% to personnel costs.

The approved FY14 Pretreatment budget was $1,155,619, an increase of 8.1% from the prior year's budget of $1,069,111. The FY14 Pretreatment budget allocated 89.8%, or $1,037,899, to personnel costs.

The budget for the EMDA Section in FY14 was $1,637,656, of which 82.8% or $1,355,606 was attributed to personnel expenses. The FY14 EMDA budget increased by 7.3%, or $111,145 from the previous year.

The ESTA budget for FY14 was $378,623, an increase of $23,098 from the FY13 budget of $355,165. The approved FY14 Laboratory budget was $2,151,115, an increase of 14.6% or $274,858 from the previous year. The approved FY14 Permits & Planning budget was $527,764. Personnel costs associated with the ESTA, Laboratory and Permits & Planning Sections budgets were 91.2%, 69.5% and 95.8% respectively.

In 1983, the R.I. General Assembly passed Public Law 1983, Chapter 235 which required that the NBC begin direct billing of sewer users effective July 1, 1985 and that all sewer use rates be subject to review and approval by the RI Public Utilities Commission (PUC). On July 1, 1995, a new permit fee rate structure approved by the PUC became effective to ensure recovery of Pretreatment costs. These rates were increased in 2003 in accordance with a PUC Rate hearing. This permit fee rate structure is provided in CHAPTER III.

Pretreatment Information Management Computer System

The Pretreatment software system is a Graphical User Interface (GUI) System that was completely developed in-house by the NBC Information Technology (IT) Section and was put on line during 2004. User Wastewater Discharge Permits and Zero Process-Sanitary Discharge Permits are now uploaded to the Pretreatment System and can be viewed on all desktop computers. The software also allows entry of photographs of users sampling locations, pretreatment systems and surveillance manholes to be uploaded to the system. The Laboratory purchased and implemented a new Laboratory Information Management System (LIMS) in 2012. IT staff wrote a program to ensure the new LIMS would interface with the Pretreatment system to ensure there was no loss in data transfer. The Pretreatment System also currently interfaces with the Customer Service software which was also developed by NBC IT Staff. The Pretreatment software will eventually be able to interface with a Geographic Information System (GIS)

The Pretreatment software system was developed to track the requirements specified by the DEM in the RIPDES permits issued to the NBC. The Pretreatment software package has the following capabilities:

- Ability to track users in multiple drainage districts with different local limits and analyze the user data either separately or collectively.

- Ability to create a file for each user containing information pertinent to the user such as company name, address, permit number, company contacts, compliance status, solvents and chemicals used, user classification, user category, water usage, permit history, inspection history, the key manhole that the user discharges to, sample locations, monitoring requirements, reporting requirements, etc.

- Automatically generate form letters, based on data entered into the system, to notify users that are not meeting standards or have failed to submit monitoring results.

- Subroutines that summarize compliance monitoring and other user requirements and print the data in a format suitable for inclusion in the annual report.

- Maintain a user requirements file for tracking of user compliance with administrative orders, compliance schedules, submittal due dates, and other requirements that are issued to users to ensure that user requirements are met on time. Notices of Violation are generated automatically to notify the user of noncompliance with specified deadlines.

- Ability to maintain files of NBC and EPA pretreatment standards and compare monitoring results with these standards to automatically generate a Notice of Violation form letter notifying user of Failure to Meet Standards.

- Subroutines to review monitoring data to determine a user's compliance with standards for any time period specified. These subroutines are used to determine the "List of Firms in Significant Non-Compliance" for exceeding discharge standards 66% of the time or the EPA TRC value of 1.2 times the standard for metals and cyanide and 1.4 times the standard for oil and grease 33% of the time.

- Ability to send out mailings to specific users or various categories or classifications of users to notify them of changes in standards, requirements, etc.

- Subroutines that allow input, output, tracking and maintenance of a list of all inspections performed and the type of the inspection conducted for any specified reporting period.

- Ability to run an "EPA Counts" program that will review and analyze all user data for any specified time period and print out pertinent data that must be routinely reported to the EPA and the local control authority.

- Subroutines that track worker performance, such as number of inspections and meetings conducted, permits written, number of active assigned users, and the number of days required by the worker to process user submittals.

- Ability to enter industrial and sanitary manhole monitoring data and create reports based upon this data.

- Ability to track and print out any changes in user classification from significant to non-significant status or vice versa, the date of the change, and the engineer that made the change.

- Ability to print out a report of all companies with the number of batch, non-batch, and pH violations for any specified reporting period.

- Ability to print out a list of all companies indicating the number of months since the last sampling or non-sampling inspection.

- Subroutines that track the number of user parameter violations and analyze and track pollutant loadings for various classes of users.

During 2013 IT staff began work on a project to upgrade the Pretreatment software. The upgraded software will incorporate Google Maps functionality that will identify permitted users and surveillance manholes on city maps.

In 2013 iPads were purchased for Pretreatment technical staff. The purpose of using this technology is to improve efficiency throughout the inspection process. Inspection checklists have been created that can be completed in the field and downloaded to SharePoint so that the documents can be efficiently processed at the office for inclusion in the user file. With the use of the iPad, staff can now take pictures in the field and email them to supervisors back in the office as well as being readily attached to the inspection reports. Ultimately the Pretreatment system will be able to be accessed through the iPads by staff in the field.

Public Information and Education Methods

One of the most effective means of ensuring user compliance is through continued user education regarding environmental problems, NBC programs and ever-changing regulations. The NBC is committed to user education and public information. The NBC Public Affairs Office, in conjunction with the staffs of the ESTA and Pretreatment Sections continually inform users of various NBC activities. The NBC uses several means for providing public education about the goals, requirements, and

accomplishments of the NBC source reduction and control programs. These include the following:

- Mailings to users informing them of pretreatment requirements;
- Newspaper and Magazine Articles, Public Notices, and various NBC newsletters;
- Development and distribution of educational fact sheets and technical bulletins;
- Public Meetings, Workshops, and Hearings;
- Displays at Public Events;
- The NBC Citizens Advisory Committee.

During the past twelve months, the NBC used all of these means to keep users and the community informed of the requirements, activities and accomplishments of the NBC source reduction and control program. Activities in each of the above-listed categories are described in the following paragraphs.

Mailings

During 2013, the NBC sent eleven informational letters to various categories of regulated users located in the two districts. TABLE 7 below describes each of these informational letters.

TABLE 7

2013 Informational Letters

Issue Date	Description
January 17, 2013	This letter was issued to companies that are required to monitor their wastewater for BOD and/or TSS. The letter informed them the two treatment plants are being upgraded to meet stringent nitrogen limitations and the new process require a food source such as BOD to efficiently processes nitrogen. Since it is cost effective to use the BOD naturally entering the plant and mitigate costs to business the NBC suspended BOD/TSS surcharge fees.
March 1, 2013	This letter was issued to all SIUs congratulating the 19 companies that achieved perfect compliance for the 2012 review period.
March 6, 2013	This letter was issued to all SIUs notifying them they were classified as SIUs during 2013. This letter reminded these companies of the reporting requirements outlined in 40CFR§403.12.
March 7, 2013	This letter was sent to all permitted users announcing the 19th annual Environment Merit Awards and invited them to nominate themselves for an award.
March 19, 2013	This letter was issued to all users who were published in the Providence Journal on February 27, 2013 for being in Significant Non-Compliance (SNC) for the reporting period of October 1, 2012 through December 31, 2013. An invoice for their portion of the cost to publish the notice was included with the letter.
March 20, 2013	This letter was issued to all industrial users and notified them of EPA SNC criteria used by the NBC and outlined permitting and reporting requirements.
June 10, 2013	This letter was sent to all industrial users notifying them prohibited substances should not be discharged to the sewer system during summer shut down and clean-up operations. The letter warned users that civil and criminal penalties would be strictly enforced against violators caught illegally dumping.
November 6, 2013	This letter was issued to permitted Septage Haulers notifying them of the changes in operations at the NBC Lincoln Septage Receiving Stations.
November 19, 2013	This letter was issued to facilities utilizing #4, #5, or #6 fuel oil. The letter recommended the companies to inspect their heating systems to prevent accidental releases of fuel oil to the sewer.
December 3, 2013	This letter was sent to all industrial users notifying them prohibited substances should not be discharged to the sewer system during the holiday shut down and clean-up operations. The letter warned users that civil and criminal penalties would be strictly enforced against violators caught illegally dumping.
December 26, 2013	This letter was issued to all permitted septage haulers to transmit vehicle identification stickers and notify them discharges would not be permitted without a valid sticker.

Newspaper and Magazine Articles, and Public Notices and the NBC Newsletter

The NBC routinely issues press releases on its activities and discusses events relating to pretreatment and other environmental matters with reporters. Articles pertaining to the NBC have appeared in newspapers and magazines over the past year relating to:

- Educational workshops, meetings and articles by the ESTA and Pretreatment Programs;
- Articles regarding NBC personnel;
- NBC Progress on Combined Sewer Overflow (CSO) project;
- Public and community outreach projects;
- Capital Improvements for NBC facilities;
- Water Quality;
- Permitting Issues;
- NBC Energy Projects.

Copies of each of the aforementioned newspaper and magazine articles are provided in ATTACHMENT VOLUME I, SECTION 1. The NBC also published numerous Public Notices regarding the following topics:

- Public Notice listing the names of firms in Significant Non-Compliance;
- Public Notice listing the names of Significant Industrial Users in Perfect Compliance;
- Public Notice announcing the NBC Environmental Merit and Regulatory Compliance Award winners;
- Public Notices of Rate Filing and Public Hearings regarding various NBC projects and informational meetings.

In addition to public notices, newspaper and magazine articles, the NBC also publishes notices requesting proposals and qualifications, issues press releases, publishes a newsletter which is sent to all permitted users, and develops educational brochures and fact sheets. The NBC newsletter informs the users of various NBC activities including: improvements at the treatment facilities, billing activities, reductions in toxic loadings, water conservation, and pollution prevention. Copies of the 2013 public notices and NBC newsletters are included in ATTACHMENT VOLUME I, SECTION 1.

Public Relations & Outreach Events

Public participation and outreach has played an essential part of fulfilling the challenging goal of increasing public awareness and understanding of wastewater treatment. A summary of this year's highlights include:

- *Facility Tours* - In 2013, over 2000 thousand visitors took complimentary tours of the NBC wastewater treatment facilities. These visitors ranged from school children to university students to engineers. To make the tours even more accessible to area students, the NBC offered school bus scholarships to help defray transportation costs for schools in the NBC service district.

- *Maintaining a Presence on the World Wide Web (**www.narrabay.com**)* - To further improve communications with our customers, the NBC continued to enhance its website. Traffic and construction information relating to the NBC Combined Sewer Overflow (CSO) project are regularly updated on the site. The NBC continued weekly updates of its award-winning water quality website "Snapshot of Upper Narragansett Bay". This website contains fact sheets, monitoring and data reports regarding water quality. The public is able to easily download all NBC receiving water monitoring data. The NBC also continued populating its Facebook page and twitter feed in 2013.

- *Advocacy for Clean Water* - In 2013, the NBC worked with over 1,600 wastewater treatment facilities nationwide to advocate for federal funding for clean water infrastructure. The NBC Executive Director communicated directly with the Rhode Island Congressional delegation, presenting the municipal perspective on infrastructure needs for the next two decades and the importance of an affordable and sustainable solution to our clean water requirements.

- *Teaching Children About Water Conservation and Wastewater Treatment* - During 2013, the NBC continued to work with area schools to educate children about the impacts of pollution on water quality. During the year the NBC worked with ten schools and 500 students. The program named Woon Watershed Explorers Program, involved monthly classroom visits, journal writing and awarding student achievement badges. In 2007, the program won a national public education award from the National Association of Clean Water Agencies (NACWA).

- *Celebrating the Importance of Narragansett Bay* - For the nineteenth year, the NBC sponsored its annual poster contest for elementary school students in kindergarten through sixth grade. Over 600 students enthusiastically illustrated clean water themes with colorful, original depictions of the importance of our water resources. Winners received a prize and had their artwork showcased in a 2014 calendar poster. In addition, the winning posters were exhibited at the Blackstone Valley Visitors Center.

- *Recognizing Students for Environmental Awareness* - For the twenty-first consecutive year, the NBC has participated in the Rhode Island State Science and Technology Fair and presented prizes to those junior and senior high school students who best demonstrate how to achieve a cleaner Narragansett Bay.

- *Student Internships* - The NBC continued its tradition of opening its doors to provide experiential education opportunities for local high school and college students. This year, students gained practical hands-on experience in areas as diverse as wastewater treatment operations, planning, and environmental monitoring and data analysis.

- *Career Opportunities Outreach* - Through the efforts of the NBC Affirmative Action Committee, the NBC delivered career day presentations to students in Pawtucket, Central Falls and Providence.

- *Supporting Community Programs* - Each year, the NBC solicits funding ideas from employees and the public for the monies collected from environmental violators. This year, several environmental projects were given financial support including: a scholarship program for students in the Blackstone Valley and support for the environmental education programs at the Providence Children's Museum. In addition, 18 community organizations were awarded Earth Day clean-up grant funds to support local efforts.

- *Honoring Industrial and Commercial Users for Environmental Performance* - This year, the NBC recognized twenty companies in the service district with Environmental Merit Awards for Storm Water Management and Perfect Compliance Awards with regulatory requirements. In 2013, the NBC continued its program to recognize firms that implement storm water management plans and minimize storm flow to the sewer. The environmental strides made by these companies were honored at a special breakfast. Additional information regarding this program is provided in CHAPTER VII.

- *Keeping Our Stakeholders Informed* - The NBC Facebook page and Twitter feed continue to offer up-to-the-minute information on construction, water quality monitoring, and public events. In addition, the NBC continued to make available its 22-minute DVD about the CSO Project, entitled *The Biggest Project You'll Never See* and the 30-minute DVD about the NBC *Environmentalism at Work.* The DVDs are available free to the public.

- *Celebrating the Connection Between Clean Water and Green Energy* – In 2013, the three NBC 1.5 megawatt wind turbines produced over 40% of the power needed to operate the Field's Point Wastewater Treatment Facility. The 365-foot tall turbines serve as a visual reminder to all Rhode Islanders of the NBC's leadership in sustainable energy and clean water.

- *Bi-lingual Information* – During 2013, the NBC continued distributing Spanish language versions of its billing and collections information.

- *Casual Days* - Throughout the year, the NBC continued to participate in a casual day program. The proceeds benefited various local and state organizations, such as the American Cancer Society, Water for People, and the American Red Cross.

- *State Employee Charitable Appeal* - NBC employees participated in the 2013 State Employees Charitable Appeal (SECA) and raised over $17,000 for a host of worthwhile, appreciative charitable organizations.

NBC Speakers Bureau

The NBC has a well-established Speakers Bureau to address the many requests received to speak at schools, workshops and meeting, both locally and nationally. During 2013, NBC personnel gave many presentations to educate public and professional organizations about the NBC and its many programs and accomplishments. The following paragraphs detail these activities:

Pretreatment and Pollution Prevention Presentations

~National Association of Clean Water Agencies (NACWA) Pretreatment & Pollution Prevention Conference

The 2013 NACWA Pretreatment & Pollution Prevention conference was held in Portland, OR on May 14 through May 16, 2013. On May 15, 2013 Kerry Britt, Pretreatment Manager facilitated two roundtable sessions. One session was on Pollution Prevention and Source Control and the other session was on Best Management Practices (BMP) and Site Specific Limits.

~Women in Science and Engineering (WISE) Workshop

On October 19, 2013, Kerry Britt, Pretreatment Manager, gave a presentation on the NBC and the Pretreatment Program at the WISE Workshop held at St. Mary Academy – Bay View for Middle School girls. During the presentation the girls conducted experiments for dissolved oxygen, nitrate, phosphate, pH and turbidity.

~EPA New England Regional Pretreatment Conference

The 15th Annual EPA New England Regional Pretreatment Conference was held on October 30, 2013. During the conference, Kerry Britt, Pretreatment Manager facilitated a round table discussion on Dental Amalgam BMPs.

~2013 NEWEA Conference

The 2013 NEWEA conference was held on January 28 through 30, 2013 in Boston. NBC staff gave five presentations during the conference as follows:

- Pamela Reitsma, Environmental Scientist, gave a presentation entitled "Five Years of Monitoring in Upper Narragansett Bay".
- John Zuba, Permits & Planning Manager, and Stephen Lallo, Permits Coordinator in conjunction with Providence College gave a presentation entitled "Providence, College and the Narragansett Bay Commission: A Lesson in Storm Water Management".
- David Aucoin, Safety Compliance Coordinator, gave presentations entitled "RIWARN: Overview, Evolution and Future Goals" and "Successful Development & Implementation of a lockout/Tagout Energy Control Program"
- Barry Wenskowitz, Pollution Prevention Engineer, gave a presentation entitled "Sustainable Energy Management at the NBC – Planning Renewable Generation and Energy Efficiency Goals".

Water Quality Presentations

~Upper Bay Sustainable Water Quality Restoration Project

On February 12 and 20, 2013, Thomas Uva, Director of Planning, Policy & Regulation, gave presentations on the NBC plan on using sustainable solutions to restore the waters of upper Narragansett Bay.

~Watershed Counts Program

On April 23, 2013, Thomas Uva Director of Planning Policy & Regulation, gave an update on Marine Water Quality at the Rhode Island State House.

~RI Environmental Council

On May 3, 2013 the Permits and Planning Section presented a poster on the NBC Storm Water Mitigation Program at the RI Environmental Council Chafee Environmental Awards dinner.

~New England Interstate Water Pollution Control Commission (NEIWPCC)

On May 17, 2013, Thomas Uva, Director of Planning, Policy & Regulation, gave a presentation entitled "Utility of the Future" at a NEIWPCC meeting.

~Water Quality Improvements

On June 11 and 13, 2013, Thomas Uva, Director of Planning, Policy & Regulation, gave presentations on the NBC Sustainable Water Quality Evaluation Project. On June 11, 2013 the presentation was given at Save the Bay and on June 13, 2013 to a group from the Brown University International Advanced Research Institute.

~Baird Sea Grant Science Symposium

On November 14, 2013, Thomas Uva, Director of Planning, Policy & Regulation, gave a presentation on using sustainable solutions to improve water quality in Upper Narragansett Bay while creating jobs at the 12th Annual Robert C. Baird Sea Grant Symposium.

NBC Energy Project Presentations

~WEF Energy and Water Conference

On May 7, 2013, James McCaughey, ESTA Manager, gave a presentation on the NBC Sustainable Energy Management Program for Wastewater Treatment facilities at the 2013 WEF Energy and Water Conference.

~Classes at the Community College of Rhode Island (CCRI)

Walter Palm, Laboratory Manager, is an adjunct professor at CCRI. Courses he taught during 2013 included Chemistry of Hazardous Materials and Survey of Biomedical Chemistry.

James McCaughey, ESTA Manager, is an adjunct professor at CCRI. Courses he taught during 2013 included Chemistry for Biotechnology and Basic Skills for Chemistry.

~Water Conservation Education Programs

The NBC makes great efforts to educate its users about water conservation. The NBC has a Non-Regulatory Water Audit and Technical Assistance Program, which is available free to its commercial and industrial sewer users. Additional information about this program is provided in CHAPTER VII.

Due to the success of the pilot program, the NBC expanded the What's in Your River program in the fall of 2003 to accommodate the overwhelming school response. The NBC improves the program each year. In 2005, What's In Your River became the Woon Watershed Explorers Program, and an expanded version of the program continued throughout 2013. This program includes several new components including classroom visits once a month, student achievement badges and journal writing. Over fifteen schools and 2,000 students have participated. The most impressive characteristic of the program is the extreme diversity represented in each school. Some students have never taken a field trip to their local river, while others live adjacent to one.

The program encourages each school to take ownership of their local rivers and to pass on messages about clean water to their fellow students, families and neighbors. The Narragansett Bay Commission considers this program to be imperative to its success in its relentless pursuit of public outreach and education. Ten schools and over 500 students participated in the program in 2013.

Citizen's Advisory Committee

The NBC has a permanent Citizens Advisory Committee (CAC) established as part of its organizational structure. The CAC meets monthly and is routinely informed of NBC activities by staff. The CAC serves to advise and assist the NBC in its dealings with the public. Its members consist of representatives of the industrial community, environmental advocacy groups, and concerned citizens. Pretreatment staff made the annual presentation to the Citizens Advisory Committee on April 10, 2013 to review the progress and achievements of the Pretreatment Program during the prior year.

Professional Affiliations

The NBC has affiliated itself with many professional groups and organizations, both locally and nationally, to learn from these groups and to educate them about the NBC. The NBC is a member of the Providence Chamber of Commerce, the Northern Rhode Island Private Industry Council, the National Association of Clean Water Agencies (NACWA), the Water Environment Federation, American Electroplaters & Surface Finishers Society, and the American Academy of Environmental Engineers, to name a few. Various NBC staff routinely attend association meetings and conferences and often are speakers at such events.

III. INDUSTRIAL AND COMMERCIAL USERS, PERMITS, AND INSPECTIONS

User Classification System

Since the inception of the Pretreatment Program, the NBC has identified and inspected 7,646 different industrial and commercial users located within the two NBC sewer districts. During 2013 the Pretreatment staff identified and entered information on 183 previously unknown users into the NBC Pretreatment database. Pretreatment users are categorized according to the classification system shown in TABLE 8. This classification system categorizes users in nine general categories. Each class of users is subdivided into more specific classes of users. Firms classified by the Pretreatment Section as industrial facilities may be listed in Categories 1 through 7, while commercial facilities can be classified in Categories 5 through 9. Users in Categories 1, 2 and 3 are of primary concern to the NBC Pretreatment Section as their discharges contain toxic and conventional pollutants that can have an impact on NBC facilities. Category 4 consists of users with the potential to discharge toxics. Category 5 users may have non-toxic discharges such as cooling water. Category 6 users have no discharges or potential for discharge to the sewer and Category 7 users have gone out of business or moved out of the district. Commercial users with the potential to discharge conventional pollutants are classified in Category 8, while commercial users with the potential to discharge toxic or prohibited pollutants are listed in Category 9.

Significant Industrial Users

In 1995, the NBC standardized its definition of Significant Industrial User (SIU) in both districts by modifying the NBC Rules and Regulations. This definition was essentially an adoption of the Field's Point SIU definition, and classifies a SIU as any industrial user that satisfies any one of the following criteria:

- Firm is subject to Federal EPA categorical standards;
- Firm discharges an average of 5,000 or more gallons per day of process waste water;
- Firm contributes a process waste stream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the NBC's Treatment Plant;
- Firm is designated as significant by the NBC on the basis that the user has reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement.

TABLE 8
NBC User Classification System
Industrial User Categories

Category 1: Industries subject to Federal EPA Categorical Standards.

10. Other Categorical Users
11. Electroplaters, Metal Finishers
12. Metal Molding and Casting
13. Organic/Inorganic Chemical Manufacturers
14. Pharmaceutical Manufacturers
15. Metal Formers
16. Steam Electric Power Generators
17. For Future Use
18. Centralized Waste Treatment Facilities
19. Transportation Equipment Cleaning

Category 2: Industries discharging toxic and/or prohibited pollutants, but who are not subject to Federal EPA Categorical Standards.

20. For Future Use
21. Tubbing/Vibratory/Mass Finishing
22. Chemical Transporters, Refiners, Recyclers, Manufacturers
23. Textile Firms
24. Printers
25. Industrial Laundries
26. Machine Shops/Machinery Rebuilding
27. Other Facilities discharging toxic and/or prohibited pollutants
28. Central Treatment Facilities - Hazardous Waste
29. Central Treatment Facilities - Non-Hazardous Waste

Category 3: Industries discharging or having the potential to discharge conventional pollutant (BOD, TSS, pH, oil and grease, fecal coliforms) loads in sufficient quantities to cause violation of RIPDES permit or local discharge limitations.

30. For Future Use
31. For Future Use
32. For Future Use
33. For Future Use
34. Manufacturers with high BOD/TSS waste
35. Other Facilities Discharging Conventional Pollutants
36. For Future Use
37. Automotive Maintenance/Service Facilities
38. For Future Use
39. For Future Use

TABLE 8
(Continued)
NBC User Classification System
Industrial User Categories

Category 4: Industries with sanitary or non-toxic discharges using solvents, toxic and/or hazardous chemicals that could potentially be discharged to the sewer.

40. Groundwater Remediation/Excavation Projects
41. Recycled or Disconnected Electroplating or Chemical Processes
42. Other Process Operations that are Disconnected or Recycled
43. Recycle Electroplating or Chemical Processes with Non-contact Cooling Water or Boiler Discharges
44. Other Recycled or Disconnected Processes with Cooling Water, Boiler or other Discharges
45. For Future Use
46. Cooling Water Discharges with Solvents, Toxic and/or Hazardous Chemicals on site
47. For Future Use
48. For Future Use
49. Other Discharges with Solvents, Toxic and/or Hazardous Chemicals on site

Category 5: Industries discharging only sanitary wastes and/or non-toxic discharges.

50. For Future Use
51. Cooling Water
52. Boiler Blowdown/Condensate Discharges
53. Cooling Tower Discharges
54. For Future Use
55. For Future Use
56. For Future Use
57. For Future Use
58. For Future Use
59. Other Non-Toxic Industrial Discharges

Category 6: Dry industries with no wastewater discharges to the sewer using solvents, toxics and/or hazardous chemicals.

60. All users

TABLE 8
(Continued)
NBC User Classification System
Commercial User Categories

Category 7: Industries with no waste discharges to the sewer.

70. Septic System Discharger
71. Out of Business
72. Moved out of the District
73. Permit Expired/Not Renewed or Reissued
74. Proposed Discharges - Permit Not Issued
75. Accidental Discharges/Spills/Non-Permitted Discharge

Category 8: Commercial Users with the potential to discharge conventional pollutants (BOD, TSS, pH, oil and grease, fecal coliforms) loads in sufficient quantities to cause violation of RIPDES permit or local discharge limits.

80. Septage Haulers/Dischargers
81. Food/Fish/Meat Produce Processing (Wholesale)
82. Supermarkets (Retail Food Processing)
83. Parking Garages/Lots
84. Cooling Water/Groundwater/Boiler Discharges
85. Restaurants/Food Preparation Facilities
86. Commercial Buildings with Cafeteria and/or Laundry Operations
87. For Future Use
88. For Future Use
89. Other Commercial Facilities with Potential to Discharge Conventional Pollutants

Category 9: Commercial Users with the potential to discharge toxic substances, prohibited pollutants and/or conventional pollutants.

90. Hospitals
91. Cooling Water/Groundwater/Boiler Discharges
92. Laundromats/Dry Cleaners
93. Photo Processing
94. X-Ray Processing
95. Clinical, Medical, and Analytical Laboratories
96. Funeral Homes/Embalming
97. Motor Vehicle Service/Washing
98. For Future Use
99. Other Commercial Users with Potential to Discharge Toxic, Prohibited and/or Conventional Pollutants.

A list of the industrial and commercial users, separated by district, is provided in ATTACHMENT VOLUME II, SECTION 1. The users' category and designation as significant or non-significant is also provided in this listing. As of the date of submission of this report 7,646 industrial and commercial users have been identified through user surveys, 4,426 are still conducting business in the NBC service areas and 89 were classified as SIUs sometime during 2013. Of the 89 SIUs reported for 2013, there were 57 classified as categorical industries which are subject to both NBC and EPA regulations, and 32 significant non-categorical industrial users of the NBC sewer system. During this reporting period, nine SIUs were reclassified to non-significant due to operational changes implemented within their facilities. These operational changes may range from installation of a wastewater recycle pretreatment system to the firm going out of business or moving out of the NBC district. A total of five firms were newly classified as significant during 2013. A listing of these firms, detailing the specific reason for reclassification, is provided in CHAPTER I.

Wastewater Discharge Permits

As of the date of this submission, the NBC has 1,686 Wastewater Discharge Permits in effect, which were issued to facilities located in the Field's Point and Bucklin Point drainage districts. Presently, 1,117 permits are in effect for users in the Field's Point district, while 569 permits are in effect in the Bucklin Point district. Discharge permits which are no longer in effect may have been terminated for one of the following reasons:

- The permit expired, was revised, and reissued.
- The firm has gone out of business (Category 71).
- The firm has moved out of the NBC District (Category 72).
- The firm's Wastewater Discharge Permit was terminated and reissued in a new classification to reflect operational changes.
- The firm has ceased process discharge to the sewer system (Categories 41, 42, 43, 44, 60 or 73).

TABLE 8 provides a summary of the number of permits issued and presently in effect by category of user for each district. Permits have been issued and are in effect for industries classified in 41 of the 77 categories listed in TABLE 8. During this reporting period, Pretreatment staff issued 449 permits to users located in the two districts. Of the 449 permits issued during 2013, there were 154 new permits issued to new commercial and industrial users and 295 permits were reissued to existing users because the old permit expired or the firm changed process operations.

TABLE 9
Narragansett Bay Commission
Summary of Wastewater Discharge Permits in Effect

Category	Company	Field's Point District	Bucklin Point District	Total Permits In Effect
11	Electroplaters, Metal Finishers	34	18	52
12	Metal Molding And Casting	0	0	0
13	Organic Chemical Manufacturer	0	0	0
14	Pharmaceuticals	0	3	3
15	Metal Formers	0	1	1
16	Steam Electric Power Generating	0	1	1
18	Centralized Waste Treatment Facilities	0	0	0
19	Transportation Equipment Cleaning	0	0	0
21	Tubbing/Vibratory/Mass Finishing	5	5	10
22	Chemical Transporters, Refiners, Recyclers, Manufacturers	4	4	8
23	Textile Firms	1	10	11
24	Printers	9	8	17
25	Industrial Laundries	1	3	4
26	Machine Shops/Machinery Rebuilding	2	2	4
27	Other Firms Discharging Toxics	9	14	23
28	Central Treatment Facilities, Hazardous	0	0	0
29	Central Treatment Facility, Non-Hazardous	0	0	0
34	Manufacturers With High BOD/TSS	1	2	3
35	Firms Discharging Conventional Pollutants	2	1	3
37	Automotive Maintenance/Service Facilities	14	4	18
40	Groundwater Remediation/Excavation Projects	9	4	13
41	Regulated Electroplating Or Chemical Processes Disconnected Or Recycled	14	3	17
42	Other Regulated Processes That Are Disconnected Or Recycled	19	23	42
43	Recycle Electroplating Or Chemical Processes With Cooling Water Or Boiler Discharges	10	1	11
44	Other Recycle Processes With Non-contact Cooling Water Or Boiler Discharges	3	4	7
46	Cooling Water With Solvents/Toxics On Site	6	2	8
49	Firms With Solvents, Toxics, Etc. On Site	1	2	3
51	Cooling Water	3	0	3
52	Boiler Blowdown/Condensate Discharges	9	4	13
53	Cooling Tower Discharges	5	7	12
59	Other Nontoxic Discharges	1	5	6
80	Septage Haulers/Dischargers	0	11	11
81	Food/Meat/Fish Produce Processing (Wholesale)	43	29	72
82	Supermarkets (Retail Food Processing)	21	10	31
83	Parking Garages/Lots	1	0	1

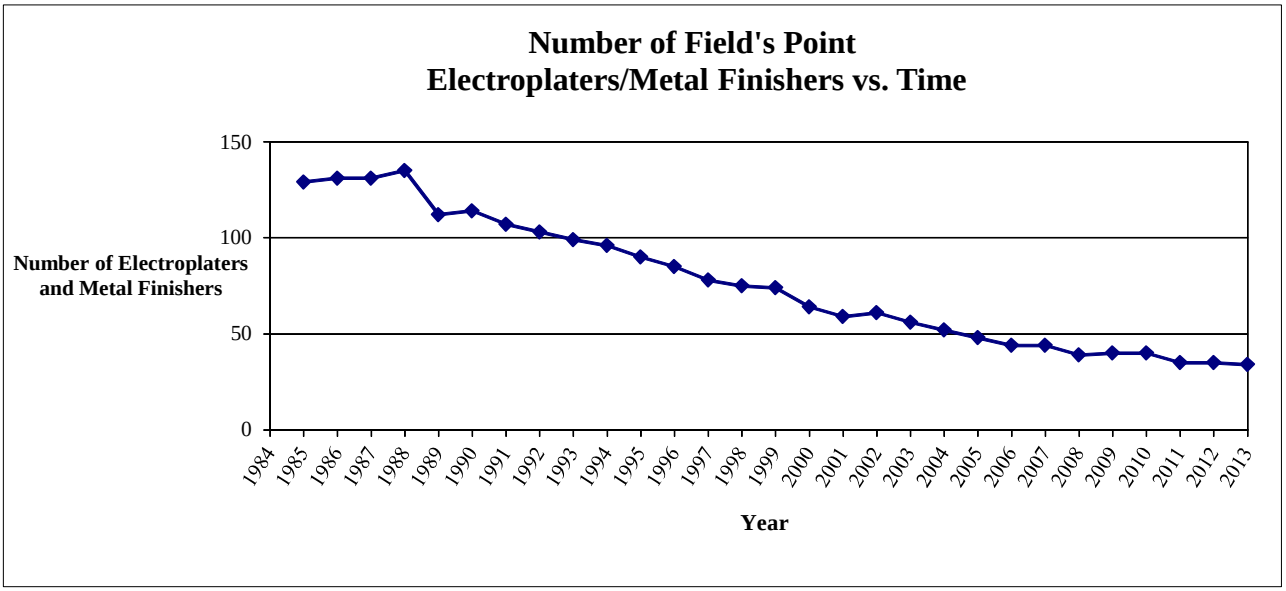
TABLE 9
(Continued)
Narragansett Bay Commission
Summary of Wastewater Discharge Permits in Effect

Category	Company	Field's Point District	Bucklin Point District	Total Permits In Effect
84	Cooling Water/Groundwater/Boiler Discharges	10	0	10
85	Restaurants/Food Preparation Facilities	505	229	734
86	Comm. Buildings With Cafeteria/Laundry	149	41	190
89	Other Commercial Users With Potential to Discharge - Conventional Pollutants	12	5	17
90	Hospitals	11	1	12
91	Cooling Water/Ground Water/Boiler Discharges	0	0	0
92	Laundromats/Dry Cleaners	47	24	71
93	Photo Processing	6	1	7
94	X-Ray Processing	55	38	93
95	Clinical, Medical, And Analytical Laboratories	23	5	28
96	Funeral Homes/Embalming	14	11	25
97	Motor Vehicle Service/Washing	36	17	53
99	Other Commercial Users With Potential To Discharge Toxic Or Conventional Pollutants	22	16	38
	Total Permits in Effect	**1,117**	**569**	**1,686**

There were 21 permits revised and reissued to SIUs in the two districts during 2013, while five new permits were issued to this class of users. Sixteen of the 21 revised permits were issued to categorical users during 2013, while the five remaining revised permits were issued to significant non-categorical users.

As can be seen from TABLE 9, the largest number of permits in effect are issued to the commercial restaurant and food preparation facilities classified in Category 85, followed by Category 86 permits which are issued to commercial buildings with cafeterias and/or laundry facilities. The next largest category of permitted users are the x-ray processing facilities in Category 94. Facilities classified in Category 11 are the industrial users that contribute the majority of the toxic metal and cyanide loadings to the NBC treatment facilities due to the nature of the electroplating operations they conduct. The dramatic decline of electroplaters and metal finishers in the Field's Point district since 1984 is clearly detailed in FIGURE 4. A similar decline in the number of electroplating and metal finishing firms has been observed in the Bucklin Point district. During 2013 the number of electroplaters and metal finishers in both districts decreased by 5.5%, a reduction of three firms from 2012.

FIGURE 4



The NBC issues Wastewater Discharge Permits to all sewer users that discharge non-domestic wastewater into the NBC system and is presently in the process of permitting the remaining non-significant commercial users located throughout the two NBC drainage districts. Copies of the various typical Wastewater Discharge Permits issued by the NBC are provided in ATTACHMENT VOLUME I, SECTION 2.

Permits issued by the NBC typically include the following conditions and requirements:

- A requirement that the user meet local and federal discharge standards at all times.
- Maintenance of a logbook requiring record keeping regarding the operation and maintenance of the pretreatment system, quantity of sludge generated, completed manifest forms, a list of all batch discharges, quantity of chemicals used to provide pretreatment, etc.
- Self-monitoring requirements regarding monitoring and reporting of effluent characteristics and concentrations.
- Reporting requirements for accidental discharges to the sewer system. The user is required to immediately notify the NBC of a spill into the sewer system and is required to file a written report within five (5) days of the incident.
- Submission of a Spill and Slug Prevention Control Plan and a Toxic Organic/Solvent Management Plan. The user is required to contain all spills within the facility as part of the Spill and Slug Control Plan. The Toxic Organic/Solvent Management Plan requires the user to detail process

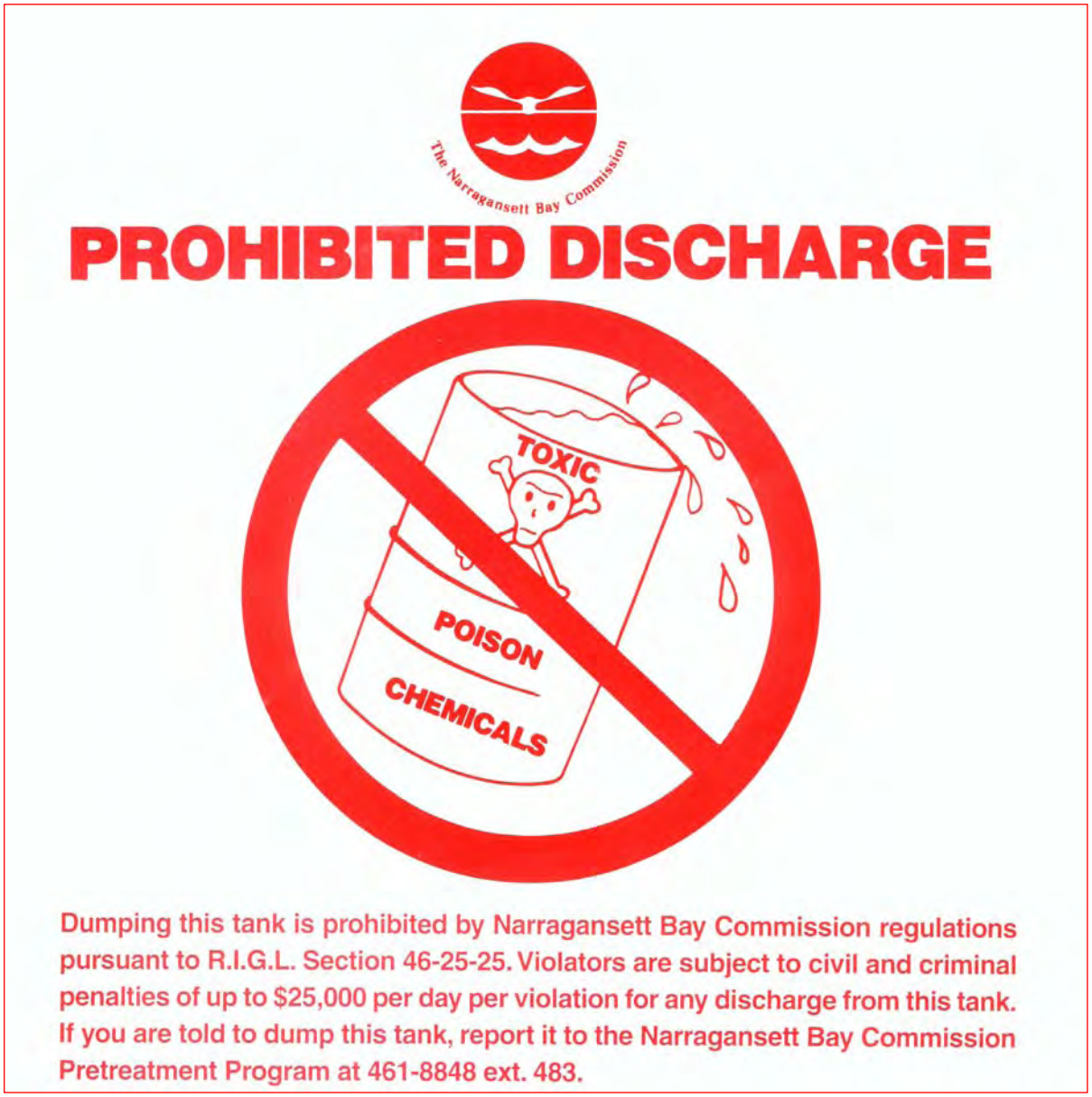
operations, perform a mass balance on the quantity of solvents used in the facility, to sample the waste stream to verify that no solvents are being discharged to the sewer system, and to provide containment of all solvents in case of a spill. Copies of these documents are provided in ATTACHMENT VOLUME I, SECTION 3.

- A prohibition against batch discharges without prior written approval from the NBC to prevent the discharge of concentrated solutions to the sewer system. The NBC developed the prohibited discharge sticker shown in FIGURE 5. This sticker is affixed to all tanks which the industrial user is prohibited from discharging.
- Administrative provisions regarding inspection powers, retention of records, civil and criminal liability and associated penalties, selling the facility, revocation and transferability of the permit, etc.

Tanks at a shutdown plating shop are stickered "PROHIBITED DISCHARGE"

FIGURE 5

PROHIBITED DISCHARGE STICKER



Most permits are issued for a five-year period, but may be issued for shorter periods of time. Permits may be revoked, after notice and hearing, for violations of the NBC Rules and Regulations. On June 30, 2003, the Public Utilities Commission approved a rate structure for NBC wastewater discharge permit fees. Permit fees range from $217 to $14,492 per year and are based on the time required for NBC personnel to regulate the particular type of industry. Rates are standardized in both NBC districts and many categories are also flow dependent to encourage water conservation. The existing NBC wastewater discharge permit fee rate structure is provided in TABLE 10.

TABLE 10
Narragansett Bay Commission
Pretreatment Permit Fee Rate Structure

User Category Number	User Classification	Permit Fee
10	**Other Categorical Users**	$1,087.00
11	**Electroplater/Metal Finisher**	
	Flow < 2,500 GPD	$1,811.00
	2,500 ≤ Flow < 10,000 GPD	$3,623.00
	10,000 ≤ Flow < 50,000 GPD	$7,246.00
	50,000 ≤ Flow < 100,000 GPD	$10,144.00
	Flow ≥ 100,000 GPD	$10,869.00
12	**Metal Molding and Casting**	$1,087.00
13	**Organic Chemical Manufacturers**	$7,246.00
14	**Pharmaceuticals**	$1,087.00
15	**Metal Formers**	$5,797.00
16	**Steam Electric Power Generating**	$1,087.00
18	**Centralized Waste Treatment Facilities**	
19	**Transportation Equipment Cleaning**	$1,087.00
21	**Tubbing/Vibratory/Mass Finishing**	
	Flow < 5,000 GPD	$725.00
	Flow ≥ 5,000 GPD	$1,449.00
22	**Chemical Transporters, Refiners, Recyclers, Manufacturers**	$2,898.00
23	**Textile Processing Firms**	
	Flow < 2,500 GPD	$1,449.00
	2,500 ≤ Flow < 10,000 GPD	$3,768.00
	10,000 ≤ Flow < 50,000 GPD	$5,072.00
	Flow ≥ 50,000 GPD	$7,246.00
24	**Printers**	
	Gravure	$3,623.00
	Other Flow ≥ 2,500 GPD	$1,087.00
	Other Flow < 2,500 GPD	$725.00

TABLE 10
(Continued)
Narragansett Bay Commission
Pretreatment Permit Fee Rate Structure

User Category Number	User Classification	Permit Fee
25	**Industrial Laundries**	$3,623.00
26	**Machine Shops/Machinery Rebuilders**	$1,449.00
27	**Other firms discharging toxics and/or prohibited pollutants**	
	Flow ≥ 10,000 GPD	$2,898.00
	2,500 ≤ Flow < 10,000 GPD	$1,449.00
	Flow < 2,500 GPD	$725.00
28	**Central Treatment Facilities - Hazardous Waste**	$14,492.00
29	**Central Treatment Facilities - Non-Hazardous Waste**	$4,348.00
34	**Manufacturers with high BOD/TSS wastestreams**	
	Flow ≥ 100,000 GPD	$5,797.00
	50,000 GPD ≤ Flow < 100,000 GPD	$3,623.00
	10,000 GPD ≤ Flow < 50,000 GPD	$1,811.00
	Flow < 10,000 GPD	$1,087.00
35	**Other facilities discharging conventional pollutants**	
	Flow ≥ 10,000 GPD	$1,449.00
	Flow < 10,000 GPD	$725.00
37	**Automotive Maintenance/Service Facilities**	
	Small ≤ 2 Bays	$435.00
	Large ≥ 3 Bays	$1,449.00
40	**Groundwater Remediation/Excavation Projects**	
	Flow ≥ 10,000 GPD	$1,449.00
	Flow < 10,000 GPD	$725.00
41	**Recycle or Disconnected Electroplating or Chemical Processes**	$725.00
42	**Other Process Operations Disconnected or Recycled**	$290.00
43	**Recycle or Disconnected Electroplating or Chemical Processes with Cooling Water or Boiler Discharges**	$870.00
44	**Other Recycled or Disconnected Process Operations with Cooling Water or Boiler Discharges**	$362.00
46	**Cooling Water with Solvent, Toxic and/or Hazardous Chemicals on Site**	$362.00
49	**Other Discharges with Solvents, Toxics and/or Hazardous Chemicals on Site**	
	Flow ≥ 10,000 GPD	$1,087.00
	Flow < 10,000 GPD	$725.00

TABLE 10
(Continued)
Narragansett Bay Commission
Pretreatment Permit Fee Rate Structure

User Category Number	User Classification	Permit Fee
51	**Cooling Water with No Solvents, Toxic or Hazardous Chemicals on Site**	$362.00
52	**Boiler Blowdown/Condensate Discharges**	$362.00
53	**Cooling Tower Discharges**	$362.00
59	**Other Non-Toxic Industrial Discharges**	
	Flow ≥ 5,000 GPD	$725.00
	Flow < 5,000 GPD	$362.00
80	**Septage Haulers/Dischargers**	$435.00
81	**Food/Fish/Meat/Produce Processing (wholesale)**	
	Flow < 1,000 GPD	$362.00
	1,000 GPD ≤ Flow < 10,000 GPD	$725.00
	Flow ≥ 10,000 GPD	$1,449.00
82	**Supermarkets (Retail Food Processing)**	$725.00
83	**Parking Garages/Lots**	$725.00
84	**Cooling Water/Groundwater/Boiler Discharges with Potential to Discharge Conventional Pollutants**	$362.00
85	**Restaurants**	
	< 50 seats	$217.00
	≥ 50 seats < 100 seats	$435.00
	≥ 100 seats of fast food (2 or more fryolators and/or drive through window)	$580.00
86	**Commercial Buildings with Cafeteria and/or laundry operations**	$725.00
89	**Other Commercial Facilities with Potential to Discharge Conventional Pollutants**	
	Flow < 2,500 GPD	$362.00
	Flow ≥ 2,500 GPD	$725.00
90	**Hospitals**	$3,623.00
91	**Cooling Water/Groundwater/ Boiler Discharges with Potential to Discharge Toxic, Prohibited and/or Conventional Pollutants**	$362.00
92	**Laundries/Dry Cleaners**	
	Laundromats	$725.00
	Dry Cleaners with 1 washer or less	$362.00
	Dry Cleaners with ≥ 2 washers	$725.00
93	**Photo Processing**	
	Flow < 1,000 GPD	$362.00
	1,000 GPD ≤ Flow < 2,500 GPD	$725.00
	2,500 GPD ≤ Flow < 5,000 GPD	$1,087.00
	Flow ≥ 5,000 GPD	$1,449.00

TABLE 10
(Continued)
Narragansett Bay Commission
Pretreatment Permit Fee Rate Structure

User Category Number	User Classification	Permit Fee
94	**X-Ray Processing**	
	≤ 2 processors	$362.00
	3 - 4 processors	$725.00
	5 - 9 processors	$1,087.00
	≥ 10 processors	$1449.00
95	**Clinical, Medical and Analytical Laboratories**	$725.00
96	**Funeral Homes/Embalming Operations**	$362.00
97	**Motor Vehicle Service/Washing Operations**	
	rate per tunnel	$725.00
	rate per bay	$217.00
	maximum rate per facility	$1,449.00
99	**Other Commercial Users with Potential to Discharge Toxic, Prohibited and/or Conventional Pollutants**	
	Flow < 2,500 GPD	$362.00
	Flow ≥ 2,500 GPD	$725.00

Zero Process Discharge Wastewater Systems

During 2013, there were 77 users in the two NBC districts operating facilities which have eliminated or significantly reduced their process discharges to the sewer system through the installation of closed loop or zero discharge systems. Although still conducting operations which generate wastewater containing toxic materials, this wastewater is treated and reused in the process operation, resulting in no discharge of industrial process wastewater, or in some cases, insignificant discharges to the sewer system consisting primarily of boiler condensate or non-contact cooling wastestreams. Once Pretreatment staff has verified that the process wastewater discharge has been eliminated or significantly reduced, the user is reclassified into Category 41 through 44 depending upon the type of recycle process operations conducted.

Part of an Ion Exchange System at a Permitted Zero Discharge Facility

Although an industrial user may cease discharging process wastewater into the sewer system by installing a wastewater recycle system, the firm will still be permitted and inspected by Pretreatment staff. Since the facility has sanitary sewer connections, it could still be a potential source of pollutant discharges into the NBC sewer system which could potentially contribute to a plant upset or a pass-through situation. For this reason, the Pretreatment Section routinely issues Zero Process Wastewater-Sanitary Discharge Permits to category 41 and 42 industries. Fifty-nine facilities are presently classified in categories 41 and 42 and do not discharge process wastewater to the sewer system. Users with recycle process operations but still discharge condensate, boiler or cooling water wastestreams are issued discharge permits. There are 18 of these users which are classified in categories 43 and 44. Of the 77 users classified in categories 41 through 44, 46 facilities are permitted to operate zero process discharge wastewater recycle systems in the Field's Point district, while 31 users in the Bucklin Point district are permitted to perform zero discharge recycle operations. Prior to the issuance of a Zero Process Wastewater-Sanitary Discharge Permit, the NBC thoroughly notifies the industrial users of all DEM and RCRA requirements and the user must satisfy the following NBC requirements:

- Submit a Zero Discharge Permit Application.
- Submit a Facility Sewer Access Site Plan showing all sewer connections.
- Submit Process Operation Plans.
- Submit Pretreatment System Plans.

- Submit a Spill and Slug Prevention Control Plan.

- Seal all floor drains and cap off all process sewer access locations.

- Install prohibited dumping signs at all sanitary sewer connections.

Once all the aforementioned tasks have been completed by the user, the facility is inspected, and the Zero Process Wastewater-Sanitary Discharge Permit is issued. The Zero Discharge Permit requires the user to submit a written certification either monthly or biannually, depending upon facility process operations, listing water meter readings and certifying that no process discharges have occurred. Pretreatment staff use this water meter data to routinely calculate daily water usage. Deviations from the expected zero discharge water usage are promptly investigated by pretreatment staff. In addition, unannounced inspections of every zero discharge firm are conducted at least twice annually. A copy of the Zero Process Wastewater-Sanitary Discharge Permit can be found in ATTACHMENT VOLUME I, SECTION 2.

User Survey Methods

The Pretreatment Program utilizes many methods to identify and locate new and previously unknown users of the sewer system. These NBC methods have been very successful at maintaining an accurate inventory of non-domestic regulated users and at ensuring that modifications to existing user facilities are quickly discovered. The following is a summary of the survey methods:

- *Newspaper Reviews* - The local newspapers are routinely reviewed to identify and locate new or previously unknown and unpermitted users. Review of the classified, business and new corporation sections of the local newspapers have allowed the NBC to successfully identify many new sewer users over the years. Form letters are issued to new corporations to alert them to NBC Rules and Regulations and permitting requirements. Routine reviews of the bankruptcy and auction sections of the newspaper alert Pretreatment staff to firms which may be in financial trouble or ceasing operations. This allows Pretreatment staff to be proactive at preventing illegal discharges from financially troubled firms. Such firms are promptly inspected, inventoried and required to comply with a rigid facility shutdown procedure. The NBC will often seal the sewer connections at these firms once operations have ceased to ensure that hazardous waste and chemicals are not illegally discharged into the sewer system.

- *Business Listing Website Reviews* - Pretreatment staff reviews business listing websites such as www.whitepages.com and www.yellowpages.com to identify new industrial and commercial users that may require regulation. Particular attention is given to reviewing categorically regulated user categories such as electroplaters, metal finishers, metal formers, etc.

- *Social Media Reviews* – Pretreatment staff routinely reviews social media websites such as Facebook to identify any previously unknown industrial and commercial users. This survey method is particularly useful in identifying new food service establishments.

- *Intra-Governmental Agency, Building and Sewer Connection Permit Referrals* - The Pretreatment Section becomes aware of many new facilities through the building permit issuance process. New facilities under construction in the NBC districts must obtain a sewer connection permit and a discharge permit, if necessary, prior to beginning construction and/or process operations. Firms performing construction modifications to their buildings are referred to the NBC by the local building inspectors and must obtain NBC approval in order to obtain the necessary city or town building permit or certificate of occupancy. Local building inspectors, plumbing inspectors and inspectors from the Department of Health, DEM and EPA New England refer information to the Pretreatment staff regarding new or unpermitted users. This cooperative work effort has resulted in the permitting of many users over the years.

- *Mill Complex and Industrial Park Inspection Program* - Regular inspections of industrial mill complexes within the NBC service district are performed to identify new and possibly transient users of the NBC facilities. Each staff member is assigned several mill complexes and industrial areas located throughout the NBC districts. Staff members are required to inspect at least one mill complex or industrial area per month to identify potential new nondomestic users of the NBC sewer system. During the mill complex and industrial area inspections, staff members compile a listing of all unpermitted facilities located within the mill or area, and systematically inspect each unpermitted facility to determine whether a wastewater discharge permit is necessary based upon the operations performed, wastewater generated and discharged to the sewer system. A listing of each facility, the type of operations performed, and whether or not a wastewater discharge permit is necessary is maintained for each mill complex and industrial area and filed by the mill complex street address or by the streets forming the boundaries of the industrial area. This procedure enables the NBC to track changes within individual mills and prevents duplication of efforts by ensuring that this information is continually updated. Industrial areas are routinely driven through and all industrial facilities in the area are cross-checked against the NBC Pretreatment database. Unknown or unpermitted users are promptly inspected and permitted, if necessary.

- *Public Information Programs* - Over the years, the NBC has routinely published public notices to alert NBC users of the need to obtain a wastewater discharge permit if specific operations are conducted. The NBC has participated in the annual “We Mean Business” Expo sponsored by the RI Secretary of State to assist prospective business owners understand the NBC Rules and Regulations. The NBC has also met with various user groups and held workshops that focused on educating any new class of users required to obtain a discharge permit. These public education programs have been very effective at identifying new and previously unknown users of the sewer systems.

NBC User Inspection Programs

One of the main objectives of the Pretreatment Program is to protect the NBC wastewater treatment plants from toxic discharges which could result in pass through to the receiving waters or interference with their proper operation, as outlined in 40CFR§403.5. In addition, Pretreatment staff ensure that federal, state and local pretreatment regulations pertaining to the Clean Water Act are met. The strategy the NBC adopted and implemented to satisfy these objectives includes developing local discharge limitations to protect the treatment facilities and public health, permitting of industrial and commercial facilities to control the discharge of toxics, inspecting and sampling nondomestic facilities to ensure user compliance, and the development and implementation of extensive user education programs. The extensive user education efforts implemented by the NBC as part of routine inspections have been very effective at improving user compliance rates. ESTA staff educates users of the many pollution prevention alternatives available instead of discharging toxics into the sewer system, while Pretreatment staff incorporates user education into every regulatory inspection.

- **Innovative and Effective Inspection Techniques** - Pretreatment staff employs many effective and innovative inspection techniques to aid in achieving the objectives of the NBC to control and reduce pollutant loadings to the treatment plants and hence Narragansett Bay. These techniques range from implementing simple internal procedures to standardize inspection activities to forming partnerships with the regulated industrial community. The following is a summary of these highly effective and innovative techniques and programs:

    ~ *Standardization of User Inspection Activities and Documents* - The Pretreatment Program has made great efforts to thoroughly standardize all aspects of the inspection process from inspection scheduling to writing the inspection report and letter. The Pretreatment Section has standardized and customized annual inspection report checklists for various classes of users, including for SIUs, non-significant industrial users, restaurants, septage haulers, etc. Pretreatment has also developed form letters to schedule the annual SIU inspection and to summarize and transmit the results of facility inspections for various user classes. The various inspection checklists ensure Pretreatment staff inspect and review all items of importance at a particular type of facility in a uniform, clear, and concise manner consistent with NBC and EPA protocols. The annual inspection checklist for SIUs has been developed to ensure full NBC compliance with all EPA regulations and to ensure uniform inspections of all SIUs, irrespective of the inspector conducting the facility inspection. The inspection summary form letters may be a Notice of Violation (NOV) or a "Job Well Done" letter. The NOV form letter has all routine deficiencies clearly listed. The inspector can then quickly check off the violations observed, add any special facility requirements and the letter can be promptly prepared and issued. In addition to citing the deficiency, the letter explains in an educational manner the reason for the regulation and the importance for ensuring compliance. The standardization of inspection documents has resulted in speedy completion and issuance of uniform inspection reports and summary

letters to the user. An inspection report and summary letter are issued for each and every user inspection, typically within fourteen (14) days from the site visit.

In 2013, inspection checklists were developed to be used on iPads. These checklists allow staff to begin filling in checklists electronically in the office, complete it in the field, then download and print it back in the office. The iPads also allow staff to take pictures in the field and attach them directly to the inspection memo.

~ *Specialized and Innovative Inspector Training Programs* – The NBC provides extensive training to new employees and continued training to existing staff. Pretreatment, EMDA, and ESTA staff receive training in all aspects of their positions. On an annual basis, the NBC conducts its own training or contracts outside vendors for the training in the following areas:

- Confined Space Entry Training
- 40 Hour OSHA HAZWOPER Training
- 8 Hour OSHA HAZWOPER Recertification Training
- OSHA Right to Know Training
- CPR/AED Training
- First Aid Training
- Spill Tracking Training
- Emergency Response Training
- Boom Deployment

The NBC stresses consistency to Pretreatment staff in regulating industrial and commercial users. Pretreatment staff members are continually being trained to be consistent. The following is a list of the methods used to ensure consistency:

- In-box reviews of staff members
- Weekly Plan Review Meetings consisting of all technical staff
- Supervisors accompany staff members on inspections
- Supervisors review staff letters, memos, and permits

In addition to the forementioned methods used to ensure consistency, Senior Pretreatment staff conduct training sessions on Pretreatment procedures. The training includes the following topics:

- Rules & Regulations
- Permit Writing
- Letter and Memo Writing
- Process Operations
- Pretreatment Technologies
- Spill Response and Tracking
- Map Reading
- Permitted User Flow Data

Pretreatment staff also routinely attend technical seminars to further their knowledge and productivity. The Pretreatment Section has developed several innovative employee-training programs which resulted in more efficient inspection procedures. The Assistant Pretreatment Manager and Principal Pretreatment Engineer work very closely with the engineers and technicians charged with performing the daily user inspections. New staff members are closely supervised by senior staff members to ensure that they properly learn the standard operating procedures.

In-box reviews are conducted of new members to ensure that they understand user requests and what response is required and monthly in-box reviews are conducted of all staff members to ensure standardization of methods and conformance with work schedules. Senior staff members accompany new staff members on their inspections to help them become familiar with NBC user education presentations, process operations, pretreatment systems, and permit requirements. In addition, senior staff routinely conduct inspections with veteran inspectors to ensure continued conformity with NBC inspection policies and protocols.

Pretreatment staff participate in the annual Spill Response and Tracking Drill

Feedback, detailing what aspects of the inspection were done well and what aspects need improvement, is provided to the inspector verbally as well as in writing. The Pretreatment Inspector Feedback Form was developed for this purpose. The feedback form consists of several sections which cover all aspects of the facility inspection process, including pre-inspection preparation, inspection interaction with the user, user education, facility inspection observational abilities, inspection documentation, professionalism, self-confidence, etc. New employees are not permitted to conduct inspections alone until all aspects of a good inspection, as noted on the feedback form, are satisfactory.

Another innovative training program implemented the annual Spill Response and Tracking Drill. Staff participate in a classroom presentation which includes tabletop exercises simulating unusual discharges to the treatment plant and spills occurring in the sewer system. In addition, staff participate in training exercises in the field. Senior staff establish a source of "illegal discharge" and identify key manholes for the staff to follow. Senior staff assign a team leader to head the mock investigation to track the "illegal discharge" to the source. For the training drill, a newer employee is typically chosen to be the team leader.

The mock spill is tracked through the sewer system in an attempt to identify the source, where a thorough facility inspection is conducted. Inspectors are trained to collect evidentiary samples necessary for a good enforcement action. This annual tracking, evidence gathering and inspection drill has greatly improved the awareness and inspection abilities of all NBC Pretreatment staff.

~ *Pollution Prevention Referral Program* – During all Pretreatment regulatory inspections, Pretreatment staff routinely refer the user to the ESTA Section for free technical assistance. All Notices of Violation also advise users to obtain the free expertise of the ESTA Section. These referrals have resulted in improved compliance rates and non-compliant users achieving compliance more quickly.

~ *Inspection Educational Efforts* – User education is by far the single most important aspect of any user inspection. During the annual inspection, industrial users are educated regarding all aspects of the NBC including the NBC Mission Statement, the purpose and types of all NBC inspections, and SNC criteria. The inspector clearly explains what constitutes SNC, the importance of maintaining full compliance and all permit requirements are explained to the user in detail. NBC inspection summary letters are also very educational in nature. Instead of simply requiring a user to perform a task, the letter educates the user regarding the reason for the imposed requirement. This often results in quick user compliance with the imposed requirements. These extensive user education efforts have been very effective at encouraging user compliance. The SIU rate of SNC was impressively reduced in the Field's Point District from a high of 39.0% in 1992 to 6.3% in 2013, while the SIU Rate of SNC for Bucklin Point was reduced from a high of 44.8% in 1994 to 9.8% in 2013. The overall rate of SNC for all NBC SIUs for 2013 was 7.9%, a slight increase from 7.5% observed in 2012. This is well within the EPA level of 10% recommended for EPA Pretreatment Program Excellence recognition. These impressive reductions in the Rate of SIU SNC are clearly attributable to improved user education, prompt resampling requirements for any effluent violation and proactive communication with users to encourage correcting the violation before being in SNC.

- **Types of Pretreatment Inspections -** The NBC conducts six types of inspections of industrial and commercial users. The following is a summary of the inspection types utilized by the NBC:

  ~ *Initial Inspection* – The initial inspection can be an announced or unannounced inspection and is performed to determine if the user is regulated under pretreatment regulations and to inform the user of pretreatment requirements.

  ~ *Annual Inspection* – An annual inspection is a thorough, announced inspection of the facility and the user's records to determine if the firm is complying with all NBC and permit requirements. This inspection is done once per 12 month period for SIUs and covers all the items shown in the Annual Inspection Checklist which is provided in ATTACHMENT VOLUME I, SECTION 3. The annual inspection consists of an extensive review of paperwork, processes, pretreatment systems, treatment procedures, sampling procedures, spill containment measures, and chemical/waste storage areas.

  ~ *Follow-up Inspection* – This inspection may be an announced or unannounced inspection to determine if specific items noted in an annual inspection were completed as required. Follow-up inspections may be conducted to view work in progress, work completed or discuss problems that the firm may be having in complying with or understanding NBC or Pretreatment Program requirements.

  ~ *Sampling Inspection* – The sampling inspection is an unannounced inspection which must be conducted of every SIU at least once every 12 months, as required by EPA regulations. The NBC typically conducts sampling of each SIU twice every 12 months.

  ~ *Emergency Response or Special Investigation Inspection* – This is an immediate unannounced inspection initiated in response to a complaint or spill to determine the source of problems occurring in the sewer system. These problems or complaints are typically reported by NBC employees, local authorities or by district residents.

  ~ *Facility Shutdown Inspection* – This is typically an announced inspection to conduct an inventory of all chemicals and solutions on-site, to observe facility decontamination procedures, to seal sewer connections to prevent illegal discharges to the sewer, and to install prohibited discharge stickers on all tanks.

Facility Shutdown Inspection of an electroplating facility that is no longer in operation.

Follow-up inspection of the same facility to verify that the firm has disposed of all solutions and complied with NBC Shutdown Procedures.

From January 1, 2013 through December 31, 2013, Pretreatment staff conducted 1,957 inspections of users, not including sampling visits. Of the 1,957 non-sampling inspections conducted by the Pretreatment staff, 350 were inspections of SIUs and 1,607 were inspections of non-significant users. Pretreatment staff conducted 238 facility inspections of categorical users and 112 inspections of significant non-categorical industrial users in both districts, excluding sampling visits. Pretreatment staff conducted 67 regulatory compliance meetings with users during 2013.

All facilities classified as SIUs were inspected at least twice during the 12 month review period with the exception of one company, Alloy Holdings, LLC which was only inspected once. This company combined two previously permitted companies into one entity. These companies were Lee's Manufacturing, a SIU, and Morvillo & Sons, Inc., a non-significant industrial user. Both of these companies were inspected several times throughout 2013. The newly formed company began operations in late December and shut down for the holidays. The Pretreatment section satisfied and exceeded EPA requirements to inspect every SIU at least once every 12 month period.

During 2013, EMDA staff conducted 225 industrial user sampling inspections of 97 industrial user facilities resulting in the collection of 1,642 composite and grab samples. These 1,642 samples translated to 231 user monitoring reports. Of the 231 monitoring reports, 217 were issued to significant users and 14 were issued to non-significant users. There were 143 sampling inspections of 57 categorical industries and 74 sampling inspections of 32 significant non-categorical users.

All facilities classified as SIUs were sampled by EDMA at least twice during 2013 with the exception of one company, Bunge North America (East) LLC which was sampled only once. This company discharged on an infrequent batch basis. The company ceased operations at this location in early 2013.

TABLE 11 below summarizes the status of each company that was no inspected or sampled by the NBC at least twice in 2013.

TABLE 11
Summary of SIUs Sampled or Inspected Less than Twice in 2013

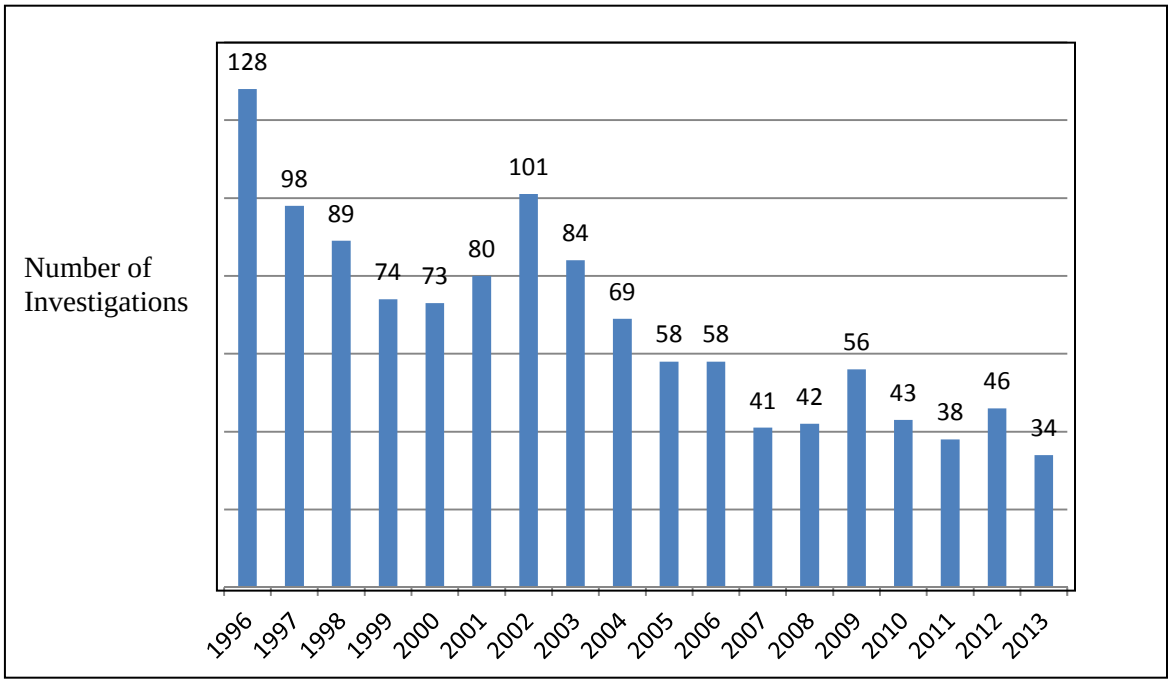
COMPANY NAME	2013 SAMPLE & INSPECTION SUMMARY	EXPLANATION
Field's Point District		
Alloy Holdings, LLC	1 inspection only	Firm began operations in late 2013.
Bucklin Point District		
Bunge North America (East) LLC	1 sample only	Firm ceased discharges in early 2013.

A summary of the number of types of inspections performed by the NBC this reporting period is provided in TABLES 3 and 5, the Pretreatment Performance Summary Sheets, which are contained in CHAPTER I of this report. A list of each NBC sampling and nonsampling user inspection and the inspection date is provided in ATTACHMENT VOLUME II, SECTION 2.

Emergency or Special Investigations

During 2013, Pretreatment staff investigated 34 reports of spills, odors, blockages, unusual plant influents, and illegal discharges to the sewer system within the Field's Point and Bucklin Point service areas. A listing of 2013 emergency or special investigations is provided in ATTACHMENT VOLUME II, SECTION 4. FIGURE 6 is a graphical trend analysis detailing the number of pretreatment investigations conducted annually since 1995.

FIGURE 6
Number of Special Investigations per Year



As can be seen from FIGURE 6, the number of investigations and spill response activities fluctuates from year to year, but has been significantly reduced from the number of investigations conducted in the early 1990s. The number of emergency and special investigations conducted in 2013, 34, is the lowest number on record. This is attributed to better education of users regarding spill prevention practices, overall environmental awareness by industry and the decline of SIU manufacturing facilities in the district.

FIGURE 7
Breakdown of 2013 Investigations

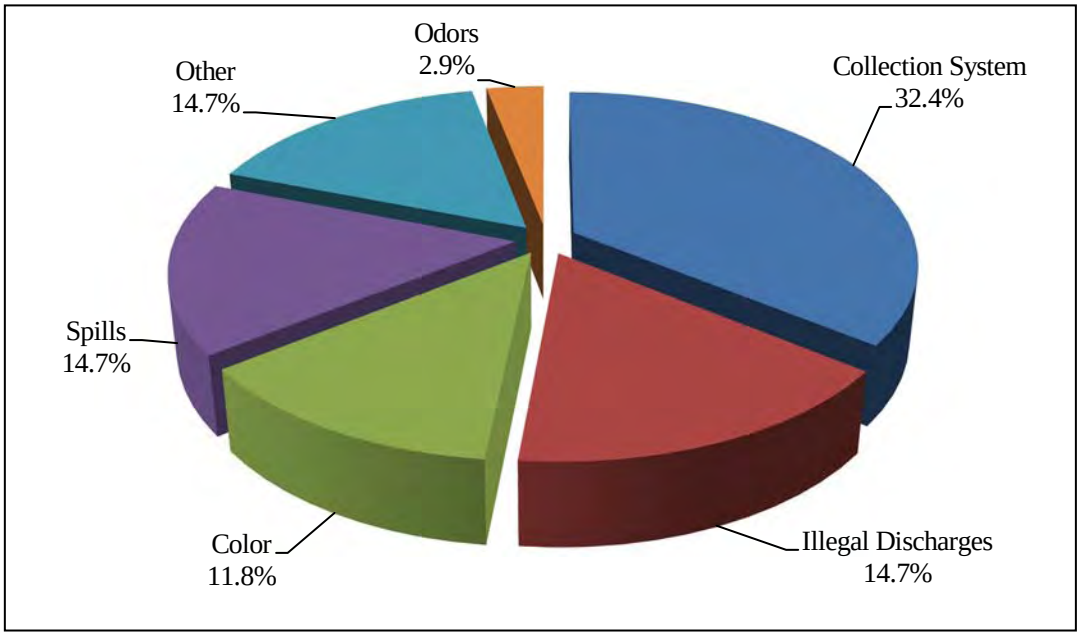


FIGURE 7 graphically depicts the breakdown of the types of investigations that occurred in 2013. As can be seen from the chart, the majority of the investigations resulted from four types of investigations. Reports of problems in the collection system accounted for eleven investigations, spills accounted for five investigations, illegal discharges accounted for five investigations, and reports of color accounted for four investigations responded to by staff.

These investigations often require frequent follow-up activities, subsequent inspections and clean-up activities, and may result in the initiation of enforcement actions by the NBC. Numerous follow-up inspections were required as a result of these initial 34 investigations. Those NBC investigations of major concern and interest to the NBC over the past year are described in the following paragraphs.

Spills

During 2013, Pretreatment staff conducted five investigations in response to reports of spills. Two of the five investigations were in response to chemical spills, one in Field's Point and one in Bucklin Point. The Field's Point investigation occurred at the treatment plant during the first delivery of caustic used for the biological nutrient removal (BNR) process. A hose from the delivery truck was connected to one of the fill valves that are located inside of a housing on an outside wall of the Caustic Building. When the caustic began off-loading from the truck, the valve began to leak. Caustic was collecting in the bottom of the housing. Absorbent materials were placed underneath the housing to catch any caustic that may have overflowed. In addition, a bucket was placed under the leaking valve. The contractor working on the BNR upgrades was contacted and assumed responsibility for the release since the BNR process had not yet been turned over to the NBC. The contractor contained the material and properly disposed of it offsite. The spilled caustic was contained at the site and did not reach any storm drains in the area. The NBC storm water system and the Providence River were not impacted.

Field's Point Caustic Soda Tank Fill Valves

The second chemical spill occurred in the Bucklin Point district at Aspen Aerogels Rhode Island, LLC (Aspen) located in East Providence. The spill occurred when ethanol was transferred from the facility to a tanker truck. The truck was overfilled causing approximately 1,600 gallons of ethanol to be spilled. Most of the material was contained on the pad. A sensor designed to activate pumps used to transfer spills to a containment area failed. The sensor failure allowed ethanol to flow into a catch basin on the property which ultimately would flow to a rentention pond. The ethanol did not reach the retention pond because the connector pipe from the catch basin to the pond was frozen. Aspen hired a contractor to clean and dispose of the spilled ethanol. The NBC sewer system and the environment were not adversely impacted.

There were two reports of oil spills in 2013. Both investigations occurred in the Field's Point district. The first report of an oil spill came from Rhode Island Hospital. It was stated that approximately three gallons of oil leaked from a truck at the loading dock and entered a storm drain. The hospital hired a contractor to contain, clean up and dispose of the spilled oil. The second report came from the Providence Fire Department (PFD). The report stated the copper piping from an abandoned home had been removed. The potable water had not been shut off causing the basement to flood. An oil tank was located in the basement which tipped over due to the level of water. This caused the piping associated with the tank to break and release oil into the water. PFD began pumping the water from the basement into the street and observed an oil sheen. The water flowed down the street and entered a catch basin. The water level in catch basin was below the overflow pipe. The City of Providence was contacted and handled the clean up of catch basin. Neither oil spill reached the sewer system and the treatment plant was not impacted.

The final investigation of a spill occurred at the Field's Point treatment facility. A sewer line cleaning contractor dumped a load of grit on the facility grit pad. The drain on the pad became clogged with grit causing the material to break through an earthen berm and flow toward a storm drain. Field's Point Operations staff formed a berm with absorbant material. The contractor collected the material and the clogged was cleared. The contractor discharged the material more slowly to the grit pad to ensure the sewage was properly directed to the plant headworks for treatment. The NBC storm system and the Providence River were not impacted by the spill.

Illegal Dumping & Unpermitted Discharge Investigations

Pretreatment staff investigates all reports of illegal dumping and unpermitted discharges to the sewer system, storm drains and/or NBC receiving waters. In 2013, Pretreatment staff investigated five reports of illegal dumping or unpermitted discharges. All five reports occurred in the Field's Point district. The first investigation occurred when Pretreatment staff observed a disaster clean up company discharing into a manhole. The company stated it was pumping out a basement that flooded due to a broken wastepipe inside the home. It was further stated the volume of the flood exceeded the capacity of their truck so it was decided to pump directly to the sewer system. The company was instructed to cease discharging to the manhole. The company was also informed not to continue this practice in the future.

The second investigation occurred when Pretreatment staff observed paint running down a driveway into a catch basin. Staff spoke to a painting contractor at the residence who stated that paint containers were being washed. The contractor was instructed to immediately stop washing the containers. The home owner assumed responsibility for cleaning up the paint.

The third report was of antifreeze being discharged into a catch basin in the Port of Providence. Catch basins in the port were inspected and there was no evidence of antifreeze in any of them.

The fourth report was of grease being dumped in a catch basin in a parking lot located on Mineral Spring Avenue in North Providence. The catch basin was inspected and there was no evidence of grease. There were no restaurants around the parking lot. The final report was of oil being discharged from a manhole located on the National Grid property located on Allens Avenue. It was stated that oil laden ground water was discharging into the manhole through the walls. A contractor was hired by National Grid to pump out the oily water. The sewer line and manhole were grouted and lined to prevent future occurrences. None of the reports of illegal dumping or unpermitted discharges adversely impacted the sewer system or treatment plant.

Manhole in Parking lot on Mineral Spring Avenue

Food Preparation Related Grease Investigations

During 2013 Pretreatment staff conducted eleven grease related investigations. There were seven in Field's Point and four in Bucklin Point. All eleven of the investigations were associated with food preparation operations. Three of the grease investigations that occurred in Field's Point were downstream of food service establishments (FSE). The first investigation was as a result of a grease build up observed in sewage flow in a regulator at the intersection of Park and Promenade Streets in Providence. There are only two facilities upstream of the regulator with the potential to discharge grease laden wastewater, a hotel and the Providence Place Mall. The hotel was inspected and the grease interceptor was being maintained properly. There are 19 FSEs located in the mall, 18 were permitted at the time of the investigation. Ten of these FSEs were properly maintaining and operating their grease removal units and in compliance with their permits. The remaining eight FSEs were not properly operating and maintaining their grease removal units. All eight FSEs were issued Notices of Violation (NOV). The unpermitted FSE was required to apply for and obtain a permit.

The remaining two Field's Point investigations occurred in the Hope Street area of Providence. The reports stated there was grease build up in sewer lines in the area causing flow problems downstream. There are fourteen FSEs in this area. At the time of the first investigation, nine of the fourteen were permitted. Seven of the permitted FSEs were properly operating and maintaining their grease removal units as well as complying with their permits. The grease removal units at the two remaining permitted FSEs were unplugged from the power supply and were not functioning. Both facilities were issued NOVs. The five unpermitted FSEs were also inspected. Two of these facilities were dry markets. The remaining three FSEs were required to apply for permits and install grease removal units. At the time of the second investigation, all FSEs were in compliance with their permits. The remaining four Field's Point grease investigations occurred in residential areas and the grease was attributed to residential grease. The Pretreatment Program has developed an educational grease brochure that will be included with sewer bills.

There were four grease investigations in Bucklin Point. Three of the four investigations occurred downstream of FSEs. The first investigation was as a result of a report from the DEM stating that a manhole on the Cumberland bike path had surcharged. There are three permitted FSEs upstream of the manhole. All three were inspected and it was determined all three were in compliance with their permits. However, all three were reeducated on proper grease and solids disposal. The second investigation was as a result of a report from the City of East Providence of a grease accumulation in a line downstream of a restaurant. The restaurant is permitted and was inspected. The grease removal unit at the facility was not being properly maintained and a logbook was not provided. The restaurant was issued a NOV. The third investigation was a result of report from the City of Central Falls stating there was a buildup of grease in the line at the intersection of Higginson and Lonsdale Avenues. There are six FSEs upstream of this area. All six are permitted. Five of the six FSEs were properly maintaining their grease removal units and in compliance with their permits. The remaining FSE was maintaining its grease removal unit but did not have a logbook. The FSE was issued a NOV.

Bucklin Brook Outfall

The final Bucklin Point grease investigation was the result of a dry weather overflow at the Bucklin Brook outfall in Pawtucket. The dry weather overflow was a result of the City of Pawtucket cleaning their line upstream of the NBC outfall. The cleaning operation dislodged grease from the sides of the pipe forcing it downstream to the NBC line. Pretreatment staff investigated the area upstream of the cleaning operation. The area is residential but the blockage occurred due to the City cleaning operation. The NBC Interceptor Maintenance Manager met with staff from the City of Pawtucket Department of Public Works to assist and advise them on techniques to improve the cleaning operations to minimize the impact on NBC facilities.

Color Investigations

Green Influent at Bucklin Point

During 2013, Pretreatment staff responded to four reports of colored wastewater. All four reports occurred in the Bucklin Point district. Three of the investigations were in response to reports the influent at the plant was colored. The first report was of blue, the second report was of red and the third report was of green. Pretreatment staff attempted to track the colored wastewater after each report. By the time staff arrived at the plant the color of the influent had returned to normal. The treatment operations and the Seekonk River were not adversely impacted by any of these short term color impacts to the plant influent. After each investigation, Pretreatment staff contacted all companies with the potential to impact the plant with colored wastewater. The companies were required to submit copies of their color logs for the time period in question. The reviews of the color logs revealed that only one company could have been the source of the blue influent. The reviews of the color logs from the other two investigations were inclusive. The fourth investigation of colored wastewater was as a result of a report of red wastewater observed in a sewer line on Martin Street in Cumberland. The area upstream was inspected and there was only one company with the potential to impact the sewer with color. The company was inspected and it was determined that the company had processed burgundy earlier in the day. The color was not observed at the plant.

Pass-through and Interference

During 2013 the Pretreatment Section conducted 34 special or emergency investigations within the Field's Point and Bucklin Point districts. All reports of spills, dumping activities, unusual influents, and other related incidents during 2013 were thoroughly investigated. It is not known at the onset of an unusual influent report if the influent pollutant will cause interference with either mechanical equipment or with the microbial organisms utilized at the treatment facilities to break down the sanitary waste. Nonetheless, each report must be investigated to ensure that the unusual influent does not cause interference with NBC operations, pass through the facility into the receiving waters, or cause a discoloration of the receiving body of water, all of which would result in NBC being in violation of its RIPDES permits. None of the unusual influent incidents, dumping reports or spills investigated during 2013 resulted in interference or pass-through situations at either of the NBC wastewater treatment facilities. This is a testament to the excellent job done daily by the NBC to control the discharge of toxic and nuisance pollutants.

IV. COMPLIANCE MONITORING

Compliance Monitoring

The Narragansett Bay Commission utilizes two types of industrial and commercial user monitoring to determine compliance with effluent discharge limitations. These are:

- User Self-Monitoring;
- Compliance monitoring conducted by NBC personnel.

A description of both types of monitoring is provided in the following sections.

User Self-Monitoring

User self-monitoring is sampling conducted by an industrial or commercial user in accordance with the terms of their permit. The frequency of self-monitoring required by the permit may vary from once every twelve months (one time per year) to once per month (twelve times per year) depending on the nature and volume of the wastewater discharges. In some cases, permits may require compliance monitoring of each facility discharge. The frequency of self-monitoring is automatically increased to weekly when a user fails to meet discharge limitations by self-monitoring or by NBC sampling results. Once the user has demonstrated full compliance during four consecutive sampling events, the user is returned to the monitoring frequency specified in the permit.

User self-monitoring must be conducted in accordance with federal pretreatment requirements as specified in 40CFR§403 and analytical techniques specified in 40CFR§136. A Certification of Analysis (COA) detailing the results must be submitted with a properly completed Self-Monitoring Compliance Report (SMCR) form and Chain of Custody (COC) documentation. The SMCR requires the user to review the analytical results prior to submittal, to notify the NBC of any violation within twenty-four (24) hours of becoming aware of the violation and to enter the analytical report identification number on the SMCR. The SMCR notifies the users of the NBC requirement to resample their wastewater for any parameters violating standards. This resampling must be done and results submitted within thirty (30) days of becoming aware of the violation. The SMCR also requires the user to notify the NBC of the reasons for the violation and the steps and time frame necessary to correct the violations. This form must be signed by an authorized agent of the company. A sample SMCR is provided in ATTACHMENT VOLUME I, SECTION 3.

In 1993, Pretreatment staff developed the 24 Hour Violation Notification Fax form so that the user could quickly report an effluent violation to the NBC. This form also provides a good file record that the proper NBC violation notification requirement was satisfied by the user. A sample 24 Hour Violation Notification Fax form is provided in ATTACHMENT VOLUME I, SECTION 3.

Samples collected by industrial and commercial users can be either composite samples or grab samples. Composite samples consist of a number of samples taken over a period of time that are combined. Most permit sampling consists of composite samples.

Grab samples consist of a single sample taken at one point in time. This type of sample is typically used to monitor the pollutant concentrations of batch discharges from facilities and to ensure that wastewater discharged on a batch basis is receiving proper pretreatment. A batch discharge usually occurs from one tank over a short period of time.

Many users are required to perform both composite and grab sampling of their discharges. Composite samples are collected from the continuous final effluent and grab samples are collected from batch treatment tanks and/or small process tanks that are batch discharged to the final discharge point. Composite sample results are evaluated for compliance with the NBC discharge limitations shown in TABLE 12. This table indicates the discharge standards that must be maintained by users located in the Field's Point and Bucklin Point districts. Batch discharges are evaluated for compliance by means of a concentrated discharge formula. This formula is based on the allowable mass loading from a facility and is essentially equivalent to the EPA combined wastestream formula.

In addition to regular wastewater sampling, many industrial users, including all electroplaters and metal finishers, are required to continuously record the pH of the effluent discharged from their firm. These users are required to submit a monthly pH Monitoring Report summarizing the maximum, minimum, and average pH values for each day of operation. The pH Monitoring Report form requires the user to certify that the data reported to the NBC was taken directly from the pH recording chart and is reported to an accuracy of 0.1 standard units. Firms that discharge wastewater on a batch basis must record the final pH of the batch prior to discharge. This data must also be reported monthly. The NBC Batch and Continuous pH Monitoring Report forms are provided in ATTACHMENT VOLUME I, SECTION 3.

NBC Industrial User Sampling Program

EMDA staff conduct compliance monitoring of industrial and commercial facilities to assess users compliance status and to verify the validity of user self-monitoring results. Sampling is conducted inside the facility and is random and unannounced. A chain of custody procedure is used which includes completion of a chain of custody document. Sample bottles are sealed with bottle sealing tape to prevent tampering after sampling and preservation has been completed. A sample submission sheet is completed by EMDA staff conducting the sampling and specifies the exact sampling procedure to be implemented, the laboratory analysis requested to be conducted, facility water consumption data, sample preservation documentation and a certification of split sample acceptance or refusal signed by the user. Copies of these sampling and chain of custody documents are provided in ATTACHMENT VOLUME I, SECTION 3.

TABLE 12

NBC FIELD'S POINT EFFLUENT DISCHARGE LIMITATIONS*
(Providence, North Providence, Johnston, small sections of Lincoln and Cranston)

Parameter	Maximum Daily (Composite daily for 1 day)	Average (10 day)
Cadmium (Total)	0.11	0.07
Chromium (Total)	2.77	1.71
Copper (Total)	1.20	1.20
Cyanide (Total)	0.58	0.58
Lead (Total)	0.60	0.40
Mercury (Total)	0.005	0.005
Nickel (Total)	1.62	1.62
Silver (Total)	0.43	0.24
Zinc (Total)	2.61	1.48

Parameter	Limitation (Max.)
Total Toxic Organics (TTO)	2.13
Biochemical Oxygen Demand (BOD)	300.00**
Total Suspended Solids (TSS)	300.00**
Total Oil and Grease (Fats, Oil and Grease)	125.00
Oil and Grease (Mineral Origin)	25.00
Oil and Grease (Animal/Vegetable Origin)	100.00
pH range (at all times)	5.0 - 11.0 standard units

NBC BUCKLIN POINT EFFLUENT DISCHARGE LIMITATIONS*
(Pawtucket, Central Falls, Lincoln, Cumberland, Rumford Section of East Providence, and the Eastern Section of Smithfield)

Parameter	Maximum Daily (Concentration Limit mg/l)	Monthly Average (Concentration mg/l)
Arsenic (Total)	0.20	0.10
Cadmium(Total)	0.11	0.07
Chromium (Total)	2.77	1.63
Copper (Total)	1.20	1.20
Cyanide (Total)	0.50	0.50
Lead (Total)	0.69	0.29
Mercury (Total)	0.06	0.03
Nickel (Total)	1.62	1.62
Selenium (Total)	0.40	0.20
Silver (Total)	0.40	0.20
Tin (Total)	4.00	2.00
Zinc (Total)	1.67	1.39

Parameter	Limitation (Max.)
Total Toxic Organics (TTO)	2.13
Biochemical Oxygen Demand (BOD)	300.00**
Total Suspended Solids (TSS)	300.00**
Total Oil and Grease (Fats, Oil and Grease)	125.00
Oil and Grease (Mineral Origin)	25.00
Oil and Grease (Animal/Vegetable Origin)	100.00
pH range (at all times)	5.0 - 11.0 standard units

***** **All limitations are in units of mg/l unless otherwise specified.**

****** **Exceeding these limitations may be permitted but exceedance will be subject to surcharge in accordance with rates approved by the Public Utilities Commission and R.I.G.L. §39-1-1-1 et seq.**

EMDA utilizes many controls to insure the legal integrity of the samples collected for compliance and enforcement monitoring. Quality Assurance and Quality Control (QA/QC) begins with the purchase of materials. The sample bottles purchased are high quality and pre-cleaned. New bottles are purchased and utilized for each sampling event and all old bottles are discarded. Only the bottles used in automatic samplers and cyanide sample bottles are washed and reused by NBC staff. Preservatives purchased are reagent grade with ultra low levels of impurities.

Standard Operating Procedures (SOP) have been established for glassware and equipment cleaning. These were developed in accordance with EPA established protocols. A copy of the SOP Manual is kept in each EMDA field laboratory at all times for reference. The procedures include specific information relative to the types of chemicals used, such as phosphate free detergents, deionized water, types and strengths of acids, and solvents. EMDA sampling equipment and protocols were modified to satisfy EPA Clean Sampling requirements.

A logbook is maintained for each automatic sampler to document all usage, cleaning and repairs, as well as all preventive maintenance. All sample lines are prepared in the same manner as sample containers. Acids used in this process are also periodically analyzed for contaminants. A blank water sample of the sampler hose and pump lines is collected and preserved upon completion of the cleaning process. This blank is submitted to the laboratory with the samples that are collected with that sampler. In addition, the deionized water system used by EMDA is checked each week at the ppb level to ensure the integrity of the final deionized water rinse.

Whenever the NBC conducts user sampling, the user is offered a replicate sample that they may have analyzed by an independent laboratory for comparison with the NBC results. The user is notified of the NBC results as soon as they are reported by the NBC Laboratory.

In addition to compliance monitoring inside the industrial and commercial user facilities, the NBC also monitors manholes strategically located throughout the sewer system on a regular basis. The purpose of this manhole monitoring is to track spills, concentrated or non-compliant discharges, and to monitor users without them being aware that sampling is being conducted.

The majority of samples collected in 2013 by EMDA were analyzed at the NBC Laboratory located at Field's Point. This laboratory is a state of the art wastewater laboratory that is able to comply with the most stringent EPA and RI Department of Health (DOH) regulations that call for sensitive detection of various materials contained in wastewater.

The EPA has outlined several analyses that require ultra low level detection. These analyses are for trace metals utilizing an inductively coupled plasma/mass spectrometer (ICP/MS), mercury using a cold vapor atomic fluorescence spectrometer, and cyanide. To achieve these ultra low levels, the instruments must be kept in an environment free of contaminants. The major contaminant of concern is metals. An area of the lab is classified as approaching Class 1000 Clean Room Criteria. This means that there is very minimal exposed metal in this area. Everything in this area from the light fixtures to the door jambs are coated or made of a non-metallic material.

There are separate areas of the laboratory designated for digestion of metals, metals analysis on the ICP and metals analysis on the mercury analyzer. The mercury analyzer uses EPA Method 245.7 and currently has a detection limit of 2.0 parts per trillion (ppt). This detection limit is expected to improve as protocols for this equipment are further refined. The ultimate goal is to use EPA Method 1631 for the measurement of total mercury, with an estimated method detection limit of 0.05 ppt and minimum reporting limit (ML) of 0.2 ppt. The ICP/MS is used for ultra-trace multi-elemental analysis. The method used is EPA Method 200.8 for trace metals at EPA Water Quality Criteria levels.

ICP used at the NBC Laboratory

Amoeba

The Laboratory has a microbiology lab dedicated to fecal coliform and various other bacterial analysis. A microscope, camera, and monitor are some of the tools used in the "Micro" room. There is also a room specifically used for making media, which is the material used to promote bacteria growth. The use of a separate room for media preparation is important to control contamination. To accommodate the projects conducted by NBC and to satisfy EPA regulations, it is vital to properly maintain and continuously improve the NBC Laboratory.

Between the period of January 1, 2013 through December 31, 2013, NBC personnel conducted 225 sampling inspections of industries located within the NBC Field's Point and Bucklin Point districts, resulting in the collection of 1,642 composite and grab sample results. These 1,642 samples translated to 231 monitoring reports. Of these 231 monitoring reports, 198 were in full compliance with the NBC standards and 33 were not in compliance, resulting in a user compliance rate of 85.7% based upon NBC analyses, a slight decrease from the 87.0% rate of compliance reported for 2012 NBC monitoring results.

The NBC satisfied all EPA requirements regarding sampling SIUs at least once every twelve months, as all but one non-categorical SIU were sampled twice in 2013. The one SIU that was only sampled once in 2013 was Bunge North America (East), LLC. This company batch discharged on an infrequent basis and was required to notify the NBC for permission to discharge prior to doing so. The NBC was only able to collect samples from one batch discharge prior to the company going out of business at this location in early 2013.

The NBC conducted sampling of 89 SIUs and eight non-significant user facilities in the two NBC districts during 2013. Of the 97 facilities sampled by the NBC, 57 facilities were classified as categorical industries at the time of the sampling event. There were 32 firms classified as significant non-categorical facilities when sampled by the NBC during 2013.

Computer printouts of the 2013 sampling results for significant and non-significant users, separated by district, are provided in ATTACHMENT VOLUME II, SECTIONS 5 and 6 respectively. NBC analyses are indicated by a "Y" in the printout. These printouts list cadmium, chromium, copper, lead, nickel, silver, zinc, cyanide, BOD, TSS, Oil and Grease, and other categorical parameters specific to the user. The compliance status of each result is also indicated.

Analysis of Monitoring Results

NBC permits required industrial and commercial users to submit 2,290 wastewater monitoring reports for the period from January 1, 2013 through December 31, 2013. For this period, the industrial and commercial users actually submitted 2,712 sample results, 2,634 of which were in full compliance with NBC and EPA standards. This is a user self monitoring report rate of compliance of 97.1%. The users submitted 18.4% more analyses than required by permits due to the NBC requirement to conduct weekly sampling once non-compliance has occurred.

TABLE 13 provides a summary of the batch and non-batch compliance monitoring results for categorical and non-categorical industries located in both NBC districts for the period from January 1, 2013 through December 31, 2013. TABLE 14 provides a summary of the batch and non-batch compliance monitoring results for the significant and non-significant industrial users. The data reported in TABLES 13 and 14 is shown graphically in FIGURES 8 and 9. TABLE 15 is a comparison of the percent compliance for both self-monitoring and NBC sampling results for the aforementioned period. This table clearly indicates that there may be inconsistencies between NBC and user sampling results. While user self-monitoring compliance reports submitted by significant users indicate a compliance rate of 97.7%, NBC results indicate a compliance rate of 85.2% for this class of users.

TABLE 13

Narragansett Bay Commission
Field's Point and Bucklin Point Districts

Summary of All Compliance Monitoring Results for Categorical and Non-Categorical Users

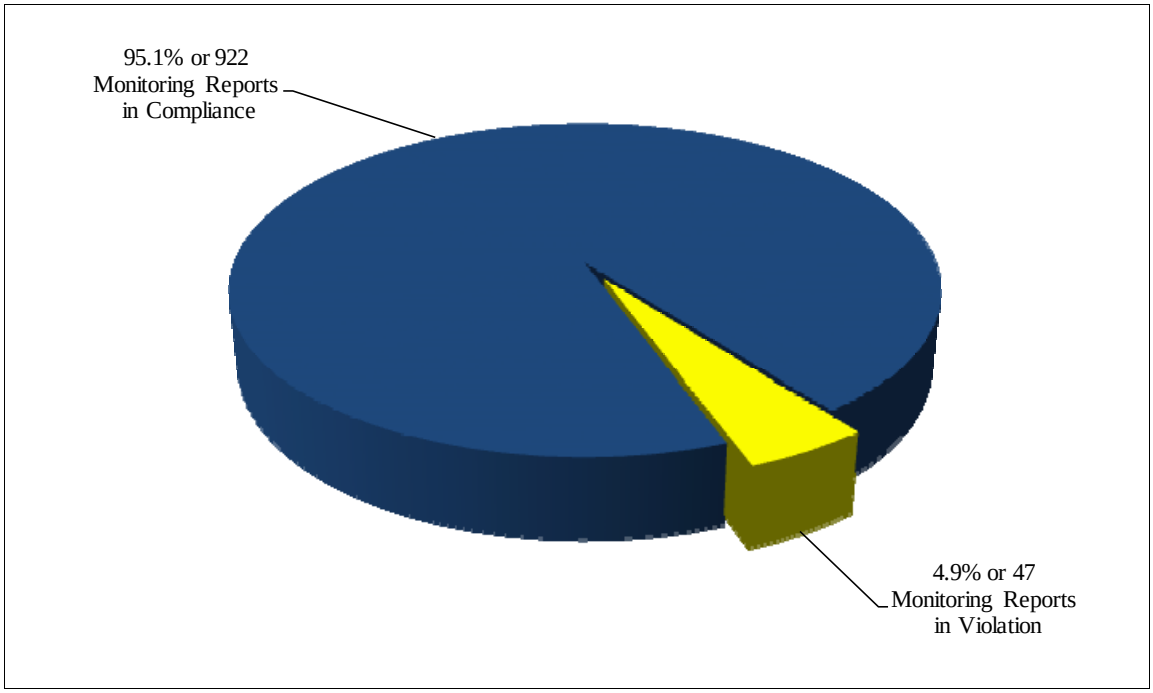
January 1, 2013 - December 31, 2013

User Self-Monitoring Results	**Categorical**	**Non-Categorical**	**Totals**
Total Monitoring Reports Required	**687**	**1,603**	**2,290**
Total Monitoring Reports Submitted	**829**	**1,883**	**2,712**
Total Monitoring Reports In Compliance	**810**	**1,824**	**2,634**
Total Monitoring Reports Not In Compliance	**19**	**59**	**78**
NBC Monitoring Results			
Total Monitoring Reports Collected	**140**	**91**	**231**
Total Monitoring Reports In Compliance	**112**	**87**	**199**
Total Monitoring Reports Not In Compliance	**28**	**4**	**32**
All Results			
Total Monitoring Reports Reviewed	**969**	**1,974**	**2,943**
Total Monitoring Reports With Violations	**47**	**63**	**110**
Total Monitoring Reports In Compliance	**922**	**1,911**	**2,833**
Total Users Sampled	**57**	**511**	**568**
Total Users With Violations	**20**	**36**	**56**
Total Users Without Violations	**37**	**475**	**512**

FIGURE 8

2013 Rates of Compliance for Categorical and Non-Categorical Users Field's Point & Bucklin Point Districts

Categorical User Analyses
Total Number of Monitoring Reports = 969



Non-Categorical User Analyses
Total Number of Monitoring Reports = 1,974

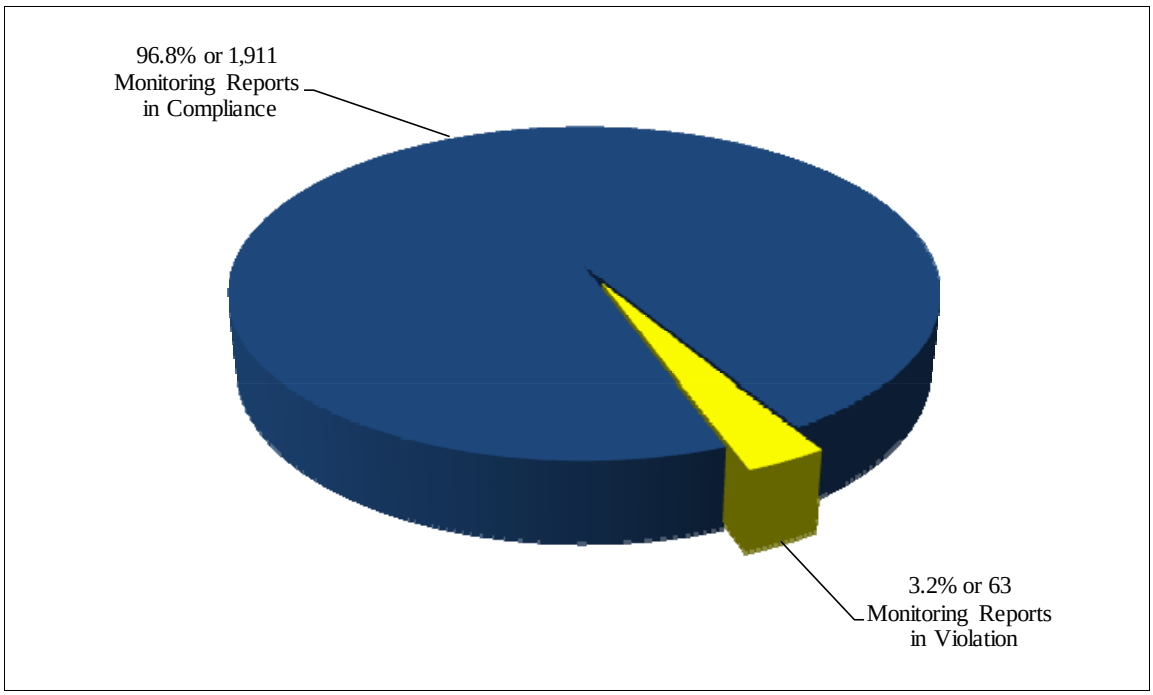


TABLE 14

Narragansett Bay Commission
Field's Point and Bucklin Point Districts

Summary of All Compliance Monitoring Results for Significant and Non-Significant Users

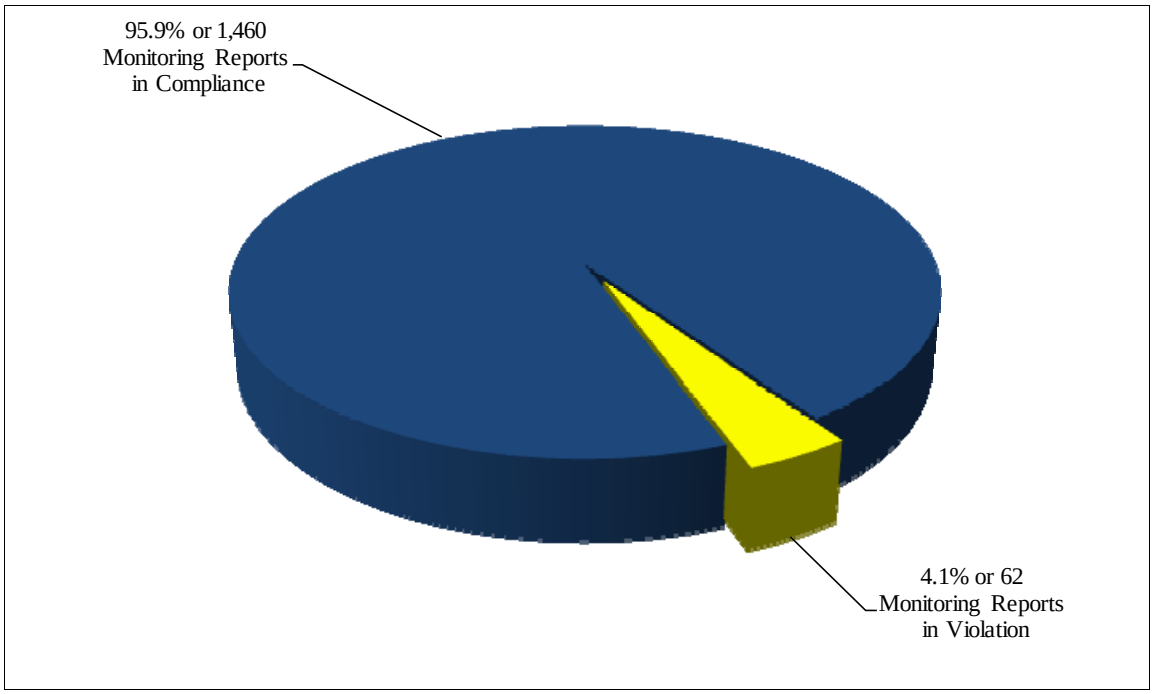
January 1, 2013 - December 31, 2013

User Self-Monitoring Results	Significant Users	Non-Significant Users	Totals
Total Monitoring Reports Required	**1,075**	**1,215**	**2,290**
Total Monitoring Reports Submitted	**1,306**	**1,406**	**2,712**
Total Monitoring Reports In Compliance	**1,276**	**1,358**	**2,634**
Total Monitoring Reports Not In Compliance	**30**	**48**	**78**
NBC Monitoring Results			
Total Monitoring Reports Collected	**216**	**15**	**231**
Total Monitoring Reports In Compliance	**184**	**15**	**199**
Total Monitoring Reports Not In Compliance	**32**	**0**	**32**
All Results			
Total Monitoring Reports Reviewed	**1,522**	**1,421**	**2,943**
Total Monitoring Reports With Violations	**62**	**48**	**110**
Total Monitoring Reports In Compliance	**1,460**	**1,373**	**2,833**
Total Users Sampled	**89**	**479**	**568**
Total Users With Violations	**27**	**29**	**56**
Total Users Without Violations	**62**	**450**	**512**

FIGURE 9

2013 Rates of Compliance for Significant and Non-Significant Users
Field's Point & Bucklin Point Districts

Significant User Analyses
Total Number of Monitoring Reports = 1,522



Non-Significant User Analyses
Total Number of Monitoring Reports = 1,421

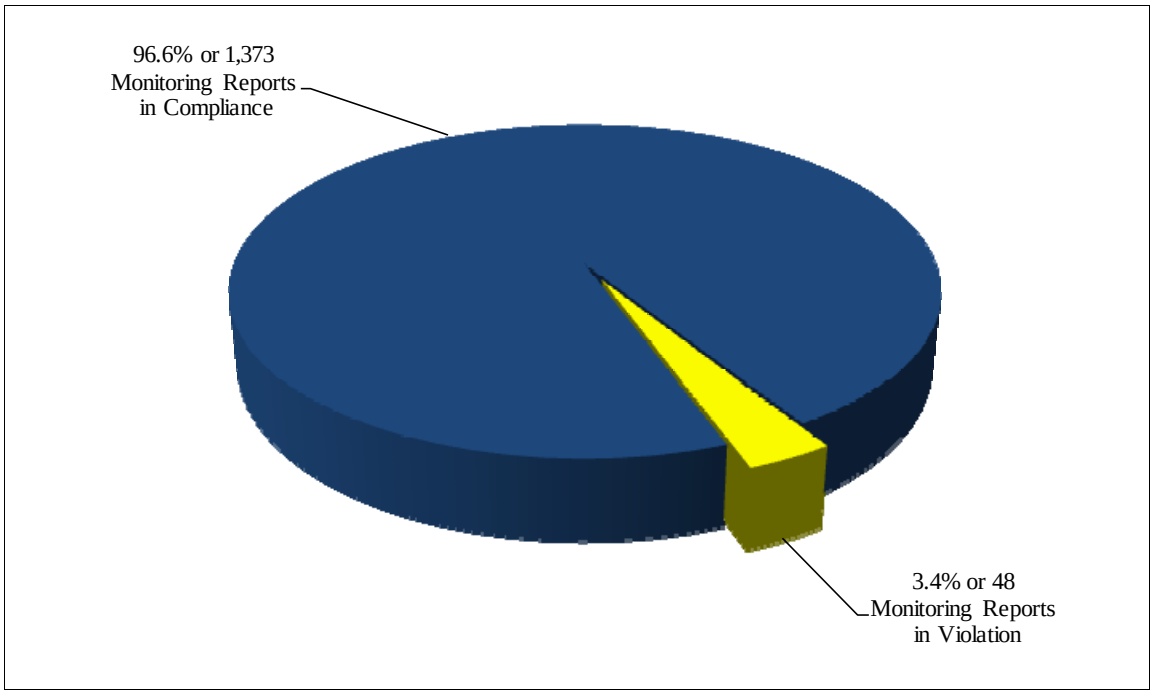


TABLE 15

Narragansett Bay Commission
Field's Point and Bucklin Point Districts

Comparison of Compliance Rates for Self-Monitoring and NBC Monitoring Reports

January 1, 2013 - December 31, 2013

	User Self-Monitoring	NBC Monitoring	All Results
Significant Users			
Compliance Rate	**97.7%**	**85.2%**	**95.9%**
Non-Compliance Rate	**2.3%**	**14.8%**	**4.1%**
Non-Significant Users			
Compliance Rate	**96.6%**	**100.0%**	**96.6%**
Non-Compliance Rate	**3.4%**	**0%**	**3.4%**
Categorical Users			
Compliance Rate	**97.7%**	**80.0%**	**95.1%**
Non-Compliance Rate	**2.3%**	**20.0%**	**4.9%**
Non-Categorical Users			
Compliance Rate	**96.9%**	**95.6%**	**96.8%**
Non-Compliance Rate	**3.1%**	**4.4%**	**3.2%**
All Users			
Compliance Rate	**97.1%**	**86.1%**	**96.3%**
Non-Compliance Rate	**2.9%**	**13.9%**	**3.7%**

This data review indicates the overall SIU compliance rate remained virtually unchanged based upon user monitoring and NBC results when compared to the previous reporting year, as the overall SIU rate of compliance was 94.9% in 2012 and 95.9% in 2013. There was a 12.5% difference in significant industrial user compliance rates observed between user and NBC sampling results. The difference in compliance rates observed for categorical users for these two types of effluent monitoring was even greater at 17.7%.

User self monitoring reports submitted by categorical users indicated full compliance 97.7% of the time, while NBC monitoring found categorical users to be in compliance for only 80.0% of NBC sampling events. These differences in NBC and user monitoring compliance rates indicate that some users may not be properly collecting samples or reporting results that are truly representative of the quality of their effluent discharge and may even indicate that some firms may be falsifying monitoring reports. The NBC aggressively investigates these discrepancies through its industry and manhole sampling programs. It is important to note, however, that the rate of compliance for both monitoring methods is quite high. The comparison of compliance rates of the different classes of users for user self-monitoring and NBC monitoring reports is presented in FIGURE 10.

FIGURE 10
2013 Comparison of Compliance Rates for
Self-Monitoring and NBC Monitoring Reports

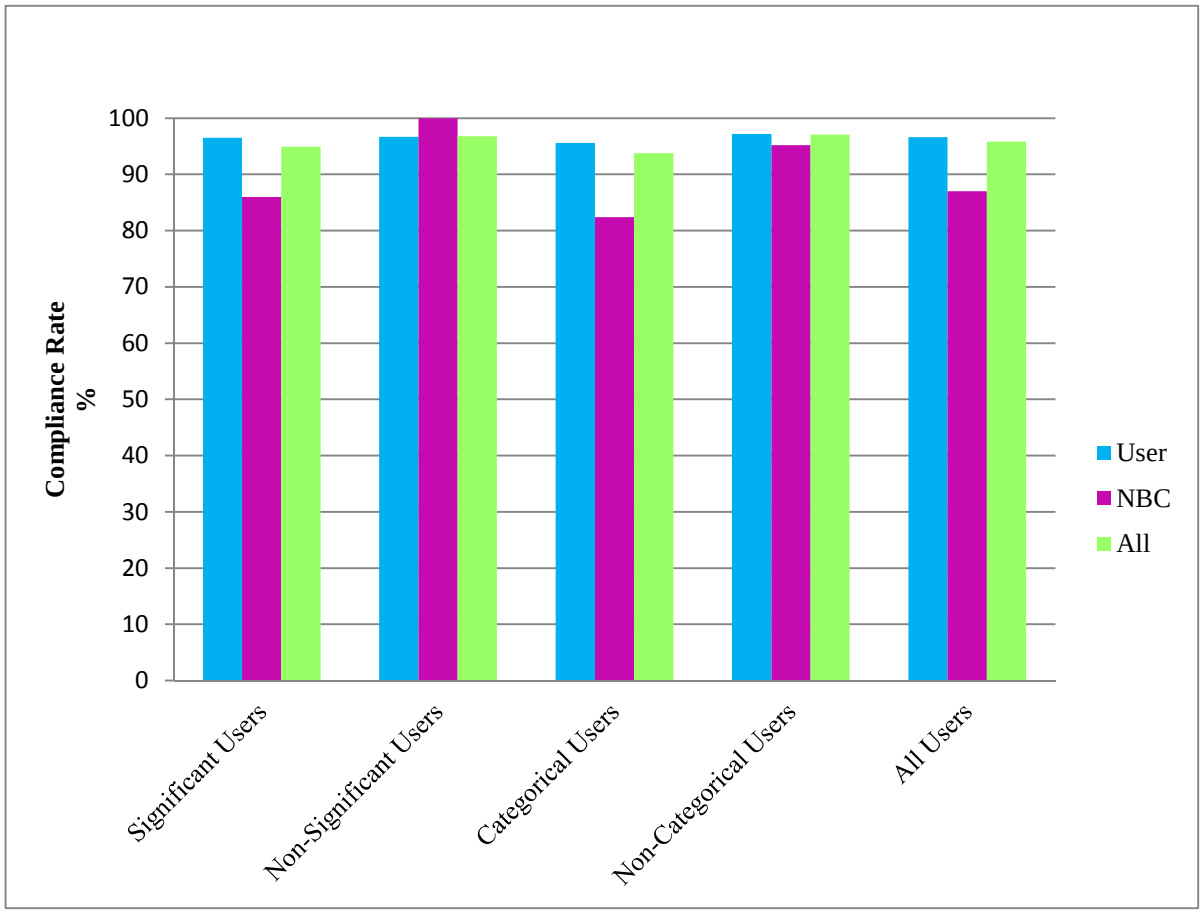


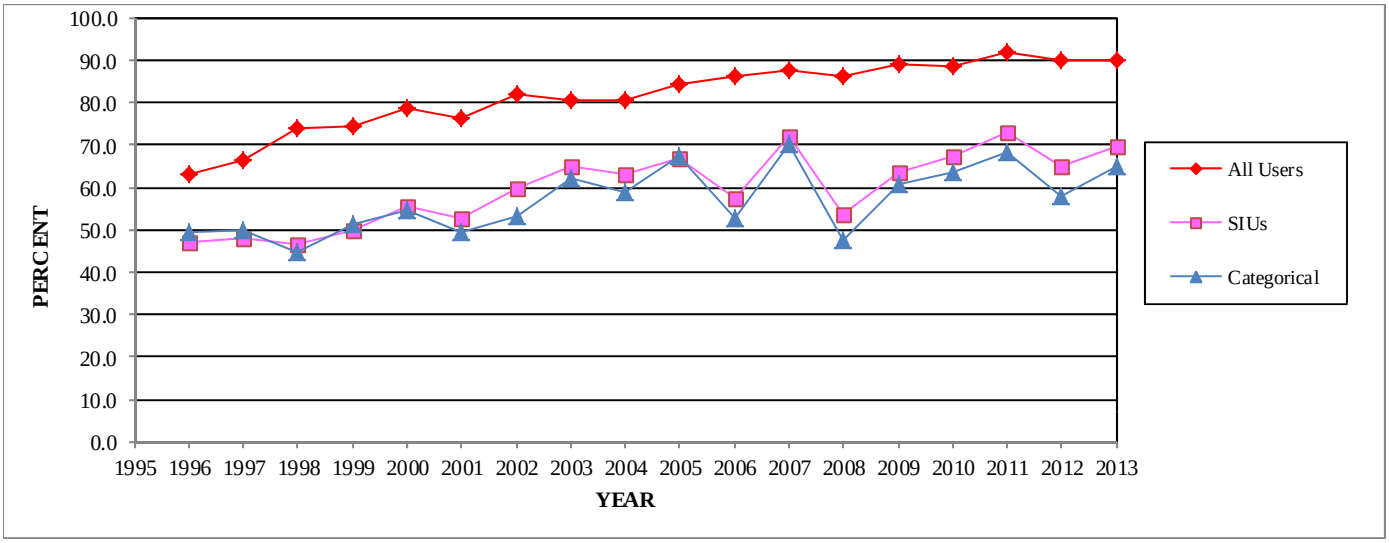
TABLE 16 provides a comparison of the compliance rates for different classes of users located in the Field's Point and Bucklin Point districts. The compliance rates for each class of users in both districts were similar. The overall rate of compliance for Field's Point users was 96.5%, while it was 95.8% in Bucklin Point.

The Field's Point categorical users were in full compliance for 95.0% of the sampling events at their facilities in 2013. This compliance rate decreased slightly from 96.2% in 2012. SIUs in the Field's Point district had a rate of compliance of 96.2%, higher than the 95.4% SIU compliance rate observed in the Bucklin Point district.

As can be seen from TABLE 16, non-categorical users in Field's Point had the highest rate of compliance, 97.2%, while categorical users located in the Field's Point district had the highest rates of non-compliance, 5.0%. The rate of users compliance for all users in both districts slightly increased to 96.3% in 2013 when compared to 2012, at 95.8%.

TABLE 17 provides an analysis of the percentage of firms in each user class with perfect compliance records for effluent monitoring occurring during 2013. This analysis indicates that 64.9% of categorical users and 69.7% of significant users had perfect compliance records for all effluent parameters and sampling events. The compliance rates for both of these user classes increased slightly when compared to 2012, 58.1% and 65.2% respectively. Non-significant users had the highest percentage of firms with perfect compliance records, 93.9%. During 2013, of the 568 firms that sampled their waste stream, 512 firms or 90.1% of users were in full compliance with NBC and EPA discharge standards. This analysis excludes the pH parameter and only reviews compliance with toxic pollutant discharge parameters. The perfect compliance rate for each year since 1995 is presented in FIGURE 11. The rate of all users with perfect compliance for effluent monitoring has shown marked improvement over the years. In 1995 the overall rate of compliance for all users was 58.7% compared with 90.1% in 2013.

FIGURE 11
Rate of Perfect Compliance with Effluent Parameters for All Users, Significant, and Categorical Users



The increase in user compliance rates can be attributed to NBC resampling requirements, open and prompt communications with users and to educational efforts by the Pretreatment and ESTA staff regarding EPA and NBC requirements. In addition to educating users, ESTA staff offer free assistance to companies to resolve compliance issues. The NBC user education and technical assistance programs have resulted in significantly improved rates of compliance by NBC users.

TABLE 16
Narragansett Bay Commission

Comparison of Compliance Rates Between Field's Point and Bucklin Point Districts for All Monitoring Results

January 1, 2013 - December 31, 2013

	Field's Point District	Bucklin Point District	Both Districts
Significant Users			
Compliance Rate	**96.2%**	**95.4%**	**95.9%**
Non-Compliance Rate	**3.8%**	**4.6%**	**4.1%**
Non-Significant Users			
Compliance Rate	**96.8%**	**96.3%**	**96.6%**
Non-Compliance Rate	**3.2%**	**3.7%**	**3.4%**
Categorical Users			
Compliance Rate	**95.0%**	**95.3%**	**95.1%**
Non-Compliance Rate	**5.0%**	**4.7%**	**4.1%**
Non-Categorical Users			
Compliance Rate	**97.2%**	**96.1%**	**96.8%**
Non-Compliance Rate	**2.8%**	**3.9%**	**3.2%**
All Users			
Compliance Rate	**96.5%**	**95.8%**	**96.3%**
Non-Compliance Rate	**3.5%**	**4.2%**	**3.7%**

TABLE 17

Narragansett Bay Commission

Analysis of Percentage of Firms With and Without Effluent Violations* for Various User Classes Field's Point and Bucklin Point Districts

January 1, 2013 - December 31, 2013

	% Firms Without Effluent Violations*	% Firms With Effluent Violations
Categorical Users	**64.9%**	**35.1%**
Non-Categorical Users	**93.0%**	**7.0%**
Significant Users	**69.7%**	**30.3%**
Non-Significant Users	**93.9%**	**6.1%**
All Users	**90.1%**	**9.9%**

***Excludes pH Parameter Violations.**

Of the 2,943 analytical reports reviewed during 2013, there were 110 reports that indicated non-compliance with one or more of the NBC or EPA effluent parameters (excluding pH). Of these 110 non-compliant sample reports, 62 analyses were of samples collected from 27 significant industrial user facilities and 48 non-compliant samples were collected from 29 non-significant facilities.

Five of the 27 SIUs that had effluent violations during 2013 had five or more effluent parameter violations during the report period. In fact, of the 7,596 various pollutant parameters tested for by SIUs, these five firms were responsible for 33 parameter violations out of a total of 73 parameter violations reported by all significant users during 2013. These five firms accounted for 45.2% of all SIU parameter violations over the past year. As required by the EPA and DEM, the NBC has initiated some type of enforcement action against each of these firms. A listing of these five firms and the current status of each of these users is provided in TABLE 18.

TABLE 18

Narragansett Bay Commission

Status of Significant Users With 5 or More Parameter Violations

January 1, 2013 - December 31, 2013

Company Name	Number of Parameter Violations	User Status
Bliss Manufacturing Co., Inc.	6	This Bucklin Point metal finishing firm experienced six cyanide violations. Two of the violations occurred during NBC sampling events. The firm attributes all of the violations to a faulty chemical feed pump in the cyanide destruction treatment process and subsequent inadequate treatment. The pump has been repaired. The firm is in the process of resampling to demonstrate compliance.
Denison Acquisition Company, LLC d/b/a Denison Pharmaceuticals, LLC	5	This Bucklin Point pharmaceutical firm experienced four Total Toxic Organics (TTO) violations and one Total Oil and Grease violation. Two of TTO violations and the Total Oil and Grease violation were from NBC sampling events. Three of the TTO violations were due to elevated acetone levels in the sample which were due to the isopropyl alcohol used in the process. The fourth TTO violation was due to elevated levels of phenol in the sample. The firm is in the process of resampling for one of the TTO violations. The remaining violations resampling has been completed and the firm is now in compliance with effluent discharge limitations.

Monarch Metal Finishing, Inc.	7	This Field's Point metal finishing firm experienced three copper violations, three cyanide violations, and one silver violation. All seven violations occurred during NBC sampling events. The firm attributed one copper violation and one silver violation to a soap used in the ultrasonic cleaning process and inadequate metals treatment. The firm attributed one copper violation and one cyanide violation to inadequate treatment. The firm attributed one copper violation and one cyanide violation to a concentrated solution in a floor sump in the barrel brass line being pumped to the pretreatment system. The firm attributed the remaining cyanide violation to increased work flow and inadequate rinsing time. The firm has completed all required resampling and is now in compliance.
Monarch Metal Finishing Company Inc.	10	This new Field's Point metal finishing firm experienced two copper, two nickel, four zinc and two cyanide violations. The two copper, two nickel, two of the zinc and one of the cyanide violations occurred during NBC sampling events. This firm purchased the facility from another metal finishing company that had not been operational for a long period of time. All ten of the violations occurred during the first week of operations at the facility. The firm attributes the violations to starting up the pretreatment system after it sitting idle for a long time and treating unknown solutions left in the tanks. The firm is in the process of resampling to demonstrate compliance.

Tedor Pharma, Inc.	5	This Bucklin Point pharmaceutical manufacturing firm experienced two TTO violations and three acetone violations. Three of the five violations occurred during NBC sampling events. The firm attributed two of the acetone violations to sludge at the bottom of the treatment tank being agitated and mixing with the wastewater when the tank was discharging. The firm attributed the two TTO violations and the remaining acetone violation to improper segregation of isopropyl alcohol wastes from the waste stream. The firm has retrained employees on proper waste segregation procedures. The firm has completed all required resampling and is now in compliance.

2013 Industrial User Compliance Status Summary

During 2013, the NBC continued to monitor and track the compliance status of all industrial users in both the Field's Point and Bucklin Point districts. Notices of Violation were issued for all instances of non-compliance. A total of 1,766 Notices of Violation (NOV) were issued in 2013. A table detailing each type of NOV issued to each firm can be found in ATTACHMENT VOLUME II, SECTION 8. A summary of the monthly compliance status for Significant Industrial Users can be found in ATTACHMENT VOLUME II, SECTION 5. A summary of NBC Enforcement Actions, including the penalties assessed, is also provided in CHAPTER VI.

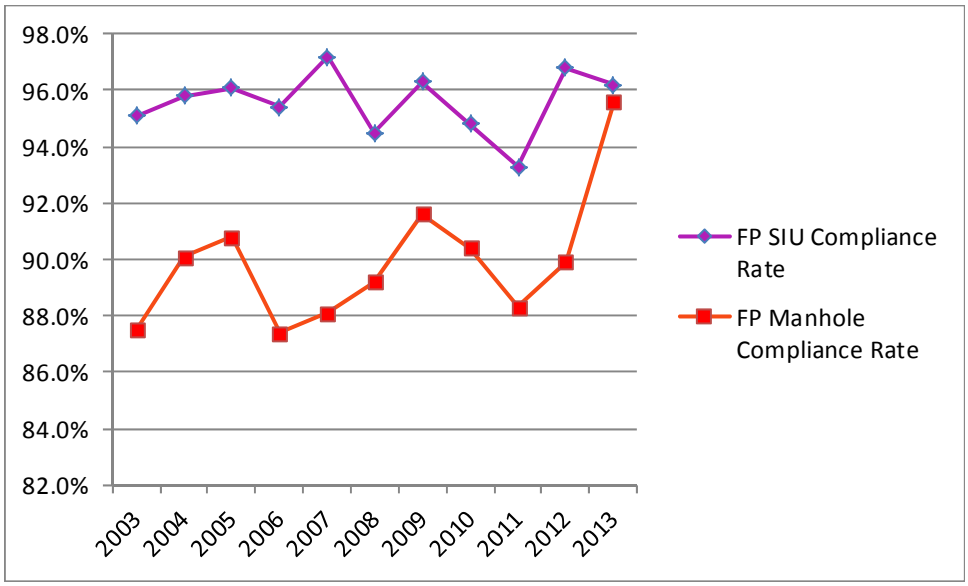
Industrial Surveillance Manhole Monitoring Program

During 2013, EMDA staff conducted sampling of an average of seven manholes each week. The automatic samplers for manholes are typically programmed to take a grab sample every 15 minutes over an approximately 32 hour period and utilize either one large bottle to obtain a single composite sample or a 24 bottle carrousel to obtain 24 discrete samples. For carrousel installations, 24 composite samples consisting of five grab samples per bottle are obtained over the 32 hour sampling period. EMDA staff analyze each of the 24 sample bottles for pH and any unusual wastewater characteristics. Should any unusual conditions be observed, one or possibly all of the 24 samples would be analyzed separately. If no unusual characteristics are observed, an equal volume aliquot of each of the 24 samples is composited into two separate samples for laboratory analyses for metals and cyanide. After obtaining results indicating noncompliance, Pretreatment staff attempts to determine the potential source of these noncompliant discharges. Manhole monitoring results continue to indicate declines in the quantities of toxics discharged into the sewer system.

During 2013, the NBC conducted a total of 310 industrial manhole sampling events at manholes located throughout the two districts. In addition to collecting industrial manhole samples, and 34 sampling events were conducted at residential manholes. In addition, 15 additional manholes were attempted to be monitored in both Field's Point and Bucklin Point. However, due to flow conditions or mechanical problems, effluent could not be collected by the automatic samplers at these sites. A total of 359 monitoring events were conducted at manholes in 2013. This is a very slight decrease from the 364 monitoring events conducted at manholes in 2012.

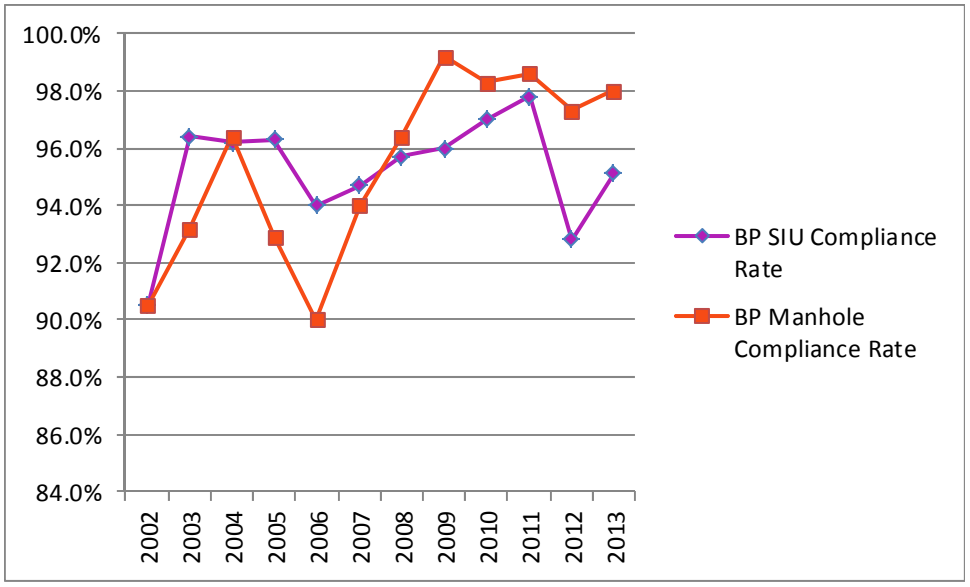
EMDA staff conducted 114 monitoring events from industrial surveillance manholes in Field's Point during 2013. Of the 114 monitoring events 109 or 95.6% were in compliance with NBC discharge limitations. As can been in FIGURE 12 this compliance rate is slightly less than the compliance rate for Field's Points SIUs in 2013, which was 96.2%. Although there is a difference in compliance rates the two are comparable. The lower compliance rate in manhole monitoring may be due to multiple industrial inputs into manholes as well as the contributions from background inputs such as inflow and infiltration and sanitary sources.

FIGURE 12
Field's Point SIU vs Manhole Compliance Rates 2002 - 2013



EMDA conducted 196 monitoring events from industrial surveillance manholes in Bucklin Point in 2013. Of the 196 monitoring events, 192 or 98.0% of the events were in compliance with NBC discharge limitations. As can be seen in FIGURE 13 the surveillance manhole monitoring compliance rate was greater than the 95.4% rate of compliance for Bucklin Point SIUs for 2013. Although there was a difference in compliance rates, both the compliance rates for SIUs and manhole monitoring in Bucklin Point showed an increase when compared to 2012.

FIGURE 13
Bucklin Point SIU vs Manhole Compliance Rates 2002 - 2013



A discussion of the results of sanitary monitoring is provided in CHAPTER V of this report and a discussion of the manholes with elevated concentrations of toxics is provided in the following paragraphs. Industrial surveillance and sanitary manhole monitoring results for 2013 are provided in ATTACHMENT VOLUME II, SECTION 7.

INDUSTRIAL SURVEILLANCE MANHOLE VIOLATIONS

FIELD'S POINT DISTRICT

Industrial Surveillance Manhole 07

Industrial Surveillance Manhole 07 is located on Ellenfield Street in Providence. The manhole is located downstream of the Ellenfield industrial area which includes many electroplating and metal finishing firms. On January 4, 2013 the concentration of copper was in excess of the NBC discharge limitation of 1.2 ppm. Companies in the area were inspected to determine the potential source. One company, Monarch Metal Finishing, Inc. which conducts metal finishing operations, was having compliance issues with copper around the time of the manhole monitoring event. The company attributed the violations to inadequate treatment. Therefore, this company was a potential source of the elevated copper concentrations. Subsequent sampling of this manhole demonstrated compliance with all NBC discharge limitations. Continued industrial manhole monitoring will be conducted by NBC personnel in 2014 to monitor the compliance status of this area.

Industrial Surveillance Manhole 09C

Industrial Surveillance Manhole 09C is located at the beginning of the sewer line on Georgia Avenue in Providence. On August 18, 2013 the concentrations of copper and zinc were in excess of the NBC discharge limitations of 1.2 ppm and 2.61 ppm respectively. Inspections of facilities upstream of the manhole determined there are no potential sources that could have contributed to the high concentrations of copper and zinc. There is little to no flow in this manhole. The concentrations of copper and zinc were determined to be from grit in the line contaminating the samples. Subsequent sampling of this manhole demonstrated compliance with all NBC discharge limitations.

Industrial Surveillance Manhole 11A

Industrial Surveillance Manhole 11A is located on Virginia Avenue in Providence downstream of Monarch Metal Finishing, Inc. which conducts metal finishing operations. On November 27, 2013 the concentration of cyanide was in excess of the NBC discharge limitation of 0.58 ppm. The firm was issued a Notice of Violation which required a report detailing the cause of the high cyanide concentration to be submitted. The company indicated concentrated solutions were being discharged to its pretreatment system and it was unable to provide adequate treatment. Continued industrial manhole monitoring will be conducted by NBC personnel in 2014 to monitor the compliance status of this company.

Industrial Surveillance Manholes 70A & 70B

Industrial Surveillance Manholes 70A and 70B are located on River Avenue in Providence downstream and upstream of A & F Plating Company and Universal Plating Company, Inc. Both of these companies conduct metal finishing operations. On October 10, 2013 the concentrations of copper, nickel, and cyanide in Manhole 70A, were in excess of the NBC discharge limitations of 1.20 ppm, 1.62 ppm, and 0.58 ppm respectively. Both companies were immediately inspected and sampled inside. Based upon the inspections and sampling, Universal Plating Company, Inc. was determined to be the most likely source as the housekeeping at the facility was poor. The firm attributed the violations to a combination of increased work load, the materials being processed, and poor rinsing techniques. Resampling of the company and of these manholes indicates the company has since returned to compliance. Continued industrial manhole monitoring will be conducted by NBC personnel in 2014 to monitor the compliance status of this area.

Industrial Surveillance Manholes 111A & 111B

Industrial Surveillance Manholes 111A and 111B are located on Railroad Avenue in Johnston downstream and upstream of G. Tanury Plating Company, which conducts metal finishing operations. On March 28, 2013 the concentrations of copper and nickel in manhole 111A were in excess of the NBC discharge limitation of 1.2 ppm and 1.62 ppm respectively. The firm was issued a Notice of Violation which required a report to be submitted detailing the cause of the high copper and nickel concentrations. The firm attributed the violations to a leak on a valve in the nickel recovery system and improper rinsing techniques being utilized by employees. Subsequent sampling of this manhole demonstrated compliance with all NBC discharge limitations. Continued industrial manhole monitoring will be conducted by NBC personnel in 2014 to monitor the compliance status of this company.

Industrial Surveillance Manholes 123A & 123B

Industrial Surveillance Manholes 123A and 123B are located on Starr Street in Johnston downstream and upstream of DiFruscia Industries, Inc., which conducts metal finishing operations. On September 5, 2013, the pH of the composite sample in manhole 123A was less than the NBC discharge limitation of 5.0 s.u. The firm was issued a Notice of Violation which required a report detailing the cause of the pH violation to be submitted. In addition, the firm was immediately inspected. The firm attributed the violation to a power outage that resulted in the low level pH alarm not sounding and one of the pretreatment mixers failing. The firm has since rewired their pretreatment system so that in the event of a future power outage, no discharges will occur until power is restored. Subsequent sampling of this manhole demonstrated compliance with all NBC discharge limitations. Continued industrial manhole monitoring will be conducted by NBC personnel in 2014 to monitor the compliance status of this company.

BUCKLIN POINT DISTRICT

Industrial Surveillance Manholes 41A & 41B

Industrial Surveillance Manholes 41A and 41B are located on Bacon Street in Pawtucket upstream and downstream of Bliss Manufacturing Company, Inc., which conducts metal finishing operations. On August 25, 2013 the concentration of silver in Manhole 41B was in excess of the NBC discharge limitation of 0.40 ppm. The firm was issued a Notice of Violation which required a report detailing the cause of the high silver concentration to be submitted. The firm attributed the violation to operator error. Continued industrial manhole monitoring will be conducted by NBC personnel in 2014 to monitor the compliance status of this company.

Industrial Surveillance Manhole 126

Industrial Surveillance Manhole 126 is located on Wellington Road in Lincoln downstream of Vital Diagnostics, Inc. which mixes reagent grade solutions. On March 7, 2013 the concentration of zinc was in excess of the NBC discharge limitation of 1.67 ppm. The firm was issued a Notice of Violation which required a report detailing the cause of the high zinc concentration to be submitted. The company investigated but could not determine the source of the zinc. Subsequent sampling of this manhole demonstrated compliance with all NBC discharge limitations. Continued industrial manhole monitoring will be conducted by NBC personnel in 2014 to monitor the compliance status of this area.

SURVEILLANCE MANHOLE MONITORING CONCLUSIONS

The NBC conducts surveillance manhole monitoring throughout the sewer districts on a routine basis. These manholes are located up and down stream of significant industrial users, zero discharge facilities as well as in residential areas. Pretreatment staff reviews the analytical data from all manhole monitoring events. When the results indicate non-compliance with NBC local discharge limitations, Pretreatment and EMDA staff work together to find the source. In 2013, Pretreatment staff investigated all incidents of non-compliant manhole results. Notices of Violation were issued to companies discharging to the manhole and the companies were inspected. This aggressive manhole monitoring program is critically important to the success of the Pretreatment Program as it allows NBC to verify the compliance status of permitted users and identify firms violating NBC discharge standards. The NBC manholes monitoring program will continue in 2014.

V. NBC IMPACT OF PRETREATMENT PROGRAM ON CONTROL OF TOXICS AND INCOMPATIBLE WASTE

NBC Impact on the Control of Toxics and Incompatible Wastes

The continuing goal of the NBC is to improve receiving water quality by meeting and exceeding compliance with RIPDES discharge standards thereby limiting the impact wastewater treatment facility effluent has on Narragansett Bay. To this end, influent and effluent metals and cyanide loading data are evaluated to provide a measure of the amount of industrial waste being discharged to the sewer system, as well as a means of quantifying the NBC effectiveness at controlling and reducing the discharge of toxic pollutants into the collection system. The NBC has analyzed and tracked the toxic pollutant loading trends at its treatment facilities since the creation of the agency.

The data and analyses presented in this chapter summarize the 2013 monitoring initiatives performed by the EMDA Section, including monitoring of the treatment facilities, the collection system, Significant Industrial Users (SIU) and the receiving waters of Narragansett Bay. The Pretreatment Section works in conjunction with the EMDA, Laboratory, Operations, and Engineering Sections to control toxics from entering and impacting the sewer system. EMDA conducts sampling of wastewater from all discharge sources into the NBC system, throughout the collection and treatment systems, and ultimately to its final fate as either sludge or as treated effluent discharged into Narragansett Bay.

NBC RIPDES Permit Requirements

On December 31, 2001, both wastewater treatment facilities were issued updated RIPDES discharge permits. Of significant interest was the removal of several pollutants from the permits due to five years of data that had revealed discharge levels well below the detection limits or aquatic life criteria as it is applied to the NBC receiving waters.

At Field's Point, the following parameters were removed from the permit:

- Cadmium
- Hexavalent chromium
- Lead
- Tetrachloroethylene
- 1,1,1-trichloroethane
- Trichloroethylene
- 1,2-dichloroethylene
- Methylene chloride
- Bis(2-ethylhexyl) phthalate

At Bucklin Point, pollutants were also removed from frequent monitoring due to historically low concentrations. The following parameters were removed from the Bucklin Point permit:

- Cadmium
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- Trichloroethylene
- Dichloromethane

Monitoring of these pollutants continues through routine sampling and semi-annual priority pollutant scans. Data from these scans indicate that concentrations are either well below saltwater water quality criteria or not detectable in plant effluent.

The removal of a parameter from a RIPDES permit, or a downgrade to monitor only status, can be directly attributed to effective efforts by Pretreatment, ESTA, Laboratory, Operations, and EMDA staff. The timely collection of samples by EMDA, low-level trace analysis by the Laboratory, effective regulation of industry by Pretreatment, technical assistance provided to industry by ESTA, and effective treatment performed by Operations are the key components of an efficient wastewater treatment organization.

Permit requirements were modified by the Rhode Island Department of Environmental Management (DEM) during 2005 to satisfy a Rhode Island Legislative mandate to reduce the amount of nitrogen discharged to Narragansett Bay. The updated permit requirements imposed new total nitrogen discharge limits and mandated monitoring for nitrate, nitrite, and Total Kjeldahl Nitrogen (TKN) three times per week. TKN analyses determine both ammonia nitrogen and organic nitrogen in samples. The organic nitrogen component is necessary to determine and monitor total nitrogen in the treatment plant effluent. Permit monitoring requirements for ammonia remained at twice weekly, but the NBC sampled all nutrient parameters three times per week beginning on August 1, 2005.

Consent Agreement RIA-330 between the NBC and DEM was fully executed and took effect on January 1, 2004. This agreement resolved the NBC appeal of certain conditions within RIPDES permits RI100072 and RI10100315, which were issued to the Bucklin Point and Field's Point treatment facilities respectively, on December 31, 2001. As a result of this consent agreement, consent decree permit limits at Bucklin Point for copper, mercury, nickel, silver, and zinc were developed based on historical effluent concentrations rather than water quality criteria. Similarly, Field's Point consent decree permit limits for copper were also developed. At both plants, cyanide permit limits were agreed upon that recognize the EPA quantitation limit of this parameter. As a result of these updated consent decree limits, NBC facilities are better able to meet these effluent limits.

Additional changes in the consent agreement included the addition of a second daily fecal coliform bacteria grab sample at the final effluent to improve the testing of this important water quality indicator. Seasonal limits were also set at Bucklin Point for ammonia in the final effluent based on ammonia toxicity criteria.

Consent Agreement RIA-330 was modified on February 27, 2007, to address compliance with biochemical oxygen demand (BOD) and total suspended solids (TSS) percent removal from the wet weather facilities at Bucklin Point, outfall 003A. The consent agreement includes an equation to be used to calculate percent removal based upon wet weather influent concentration, wet weather influent flow, wet weather effluent concentration, wet weather effluent flow, and monthly average percent removal from Bucklin Point.

Sample Collection at the Wastewater Treatment Facilities

All sample collections, preservations, and storage at the NBC treatment facilities are performed with strict adherence to EPA protocols. As detailed in the NBC current RIPDES permits, the Field's Point and Bucklin Point treatment facilities are required to sample the influent and effluent for toxic and conventional pollutants on a regular basis.

Toxic pollutant monitoring requirements include 24-hour composite sample collections for the analysis of copper, lead, mercury, nickel, silver, chromium, and zinc. Metals and cyanide measurements are required twice-weekly at both plants. During 2013, EMDA staff collected all permit-required 24-hour composite samples of the waste streams at the two treatment facilities.

Field's Point influent samples are collected at the single interceptor that feeds the facility, after bar screening and prior to the grit removal tanks. At Bucklin Point, influent composite samples are collected from the Blackstone Valley (BVI) and East Providence (EPI) interceptors that bring wastewater to the plant. Previously, collections from BVI and EPI were made on a flow-paced schedule and analyzed independently, with the independent analytical results combined based on the flow percentages for the sample collection period after chemical analysis. EMDA conducted a study in 2005 to determine whether combining these separate collections prior to analysis would improve accuracy of the analytical results. A substantial number of metals samples collected from EPI are below the detection limits of the NBC Laboratory instrumentation. This is due to both low flow and the small number of industrial users in this portion of the Bucklin Point service district. The flow proportioned combination of the samples prior to analysis was investigated to determine whether the resultant sample would provide a more accurate influent concentration. Results from this study indicated that, for samples above the detection limits, there is no significant difference between the two methods. For samples that were routinely below the method detection limits, the combination of the samples improved the accuracy of analytical results. By providing more representative influent data, evaluation of plant performance at the Bucklin Point facility is more accurate, and the improved results can, in turn, be used to more easily fine tune processes within the wastewater treatment facility.

Twice-weekly influent cyanide samples are collected from the two Bucklin Point interceptor locations and are composites of nine separate grab samples at each location. These samples are combined flow proportionally in the same way as the metals and conventional pollutant composite collections.

Final effluent sample collections at both facilities are downstream of all treatment processes. Composite effluent samples are analyzed by the Laboratory for conventional pollutants and metals including copper, lead, mercury, nickel, silver, and zinc, as well as nutrients. The nutrients analyzed are nitrite, nitrate, ammonia, and total phosphorus. Nitrate is determined by difference from a combined nitrite/nitrate measurement and a nitrite measurement. The Laboratory has two state-of-the-art nutrient auto-analyzers, one to process treatment plant samples and one to process salt water samples. These

instruments have improved analysis efficiency for nutrient measurements, and analytical results from this equipment continue to produce better precision and accuracy than previous analyses**.**

Other required sample collections for plant monitoring include daily fecal coliform bacteria, BOD, TSS, oil and grease, pH, and total residual chlorine (TRC). Effluent samples are collected and analyzed for dissolved metals at both facilities on a monthly basis. Whole effluent bioassay toxicity tests are also conducted quarterly at both facilities.

As previously noted, on August 1, 2005 nutrient monitoring was increased from two to three times per week. A consent agreement was signed on June 16, 2006 which imposed interim seasonal total nitrogen limits of 10 ppm and 18.2 ppm for Bucklin Point and Field's Point respectively. As required by the consent agreement, the Biological Nutrient Removal (BNR) facility performance at Bucklin Point was closely observed through the end of the summer 2007 so that an engineering analysis could be performed. The engineering analysis determined that the facility could not achieve the seasonal total nitrogen limit of 5.0 ppm and would require an additional upgrade. Major facility upgrades and renovations were necessary to implement additional BNR technology. This construction is underway and will be completed in early 2014. Construction at Field's Point was completed in 2013 to upgrade the plant to meet a 5.0 ppm total nitrogen discharge limit.

Clean Sampling Implementation

As of January 1, 2000, all treatment facility sampling is performed with methods outlined in *US-EPA Method 1669 – Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels*. As laboratory detection limits continue to be lowered, EMDA is constantly evaluating its sample collection and handling procedures to ensure that contamination will not significantly affect the data results. EMDA adopted and is adhering to ultra-clean sampling methodology developed by Hampton Roads Sanitation District of Virginia via participation in a National Association of Clean Water Agencies (NACWA) mercury study. This methodology uses sample bottles, tubing, and pumps that allow sample collection and transfer without opening bottle tops, eliminating many potential sources of contamination. The experience gained in this study assisted EMDA in determining the best ways to improve the performance-based clean sampling methods.

EMDA has implemented a plant sampling quality assurance program to evaluate the success of its current clean sampling program in limiting contamination in nutrient and metals composite sampling of the influent and effluent at the two treatment facilities. The program defines a strict protocol for cleaning the 10 and 15 liter HDPE composite carboys used in the sampling. In short, this procedure involves dishwasher cleaning with laboratory-grade soap, followed by acid-cleaning with nitric acid. Carboys are then acid-cleaned using hydrochloric acid and rinsed with distilled, de-ionized (DI) water that has been treated with a Barnstead Nano Pure four cartridge filtration system to a purity

minimum of 15 mega ohms per centimeter resistivity. Another key element of the plant sampling quality assurance program is the regular cleaning of the suction pump tubing used in drawing the wastestream sample into the composite carboy container. This cleaning follows the same steps as the carboy cleaning. The success of the carboy and tubing cleaning is evaluated with the collection of blank samples. For these blank samples, DI water is added to cleaned carboys and held for a minimum of 12 hours to simulate normal sample holding times. This water is then analyzed for the same parameters as performed on the wastewater sample. Tube cleaning is evaluated by drawing DI water through the tubing into pre-cleaned containers. Results from these samples have helped EMDA, in conjunction with the Laboratory, determine the steps needed to continue to improve the clean sampling protocols as analytical detection limits continue to be reduced through improved laboratory procedures and instrumentation.

Field's Point Special Sampling Activities

The following summarizes the special sampling activities conducted at Field's Point during 2013:

- EMDA staff continued to check the agreement between the continuous, in-situ influent and effluent pH probes with discrete pH grab samples analyzed by the Laboratory. Two grab samples were collected each day at both sites. Working with the Laboratory on this calibration effort helped to improve data quality and comparability. The results of this comparison were documented in a daily log sheet. EMDA staff contacted Operations staff to calibrate the continuous, in-situ probes whenever its values were outside of the normal agreement range with the laboratory instrument which is calibrated daily.

- EMDA staff performed daily checks of the influent and effluent wastestream channels for the presence of total residual chlorine and sulfides which may interfere with cyanide sample analyses. EMDA staff used standard potassium iodide, starch, and lead acetate indicator papers for this testing. In 2013, all tests for these constituents yielded non-detectable results at Field's Point. If either of these constituents was detected, the cyanide sampling, if in progress, would have been suspended and re-started the following day to ensure that these chemicals did not interfere with the cyanide analysis.

- In an effort to learn more about the concentrations of bacteria in the treated effluent, the NBC instituted monitoring of the effluent for enterococcus bacteria. The monitoring began in May 2010 and continued throughout 2013. The data has not shown a strong correlation between fecal coliform concentrations and enterococcus concentrations. Disinfection of enterococcus bacteria seems to be highly dependent on contact time. Work is continuing on this project in anticipation of RIPDES permit changes requiring compliance with a limit for enterococcus.

- To demonstrate that the BNR upgrades would produce an effluent quality consistent with its design standards, a very comprehensive process performance testing evaluation was conducted from April through early June 2013. The evaluation consisted of numerous sample collections at different stages of the treatment process to document the operating parameters as well as to study the progress of the process as wastewater is flowing through the various treatment steps. The evaluation demonstrated that the newly constructed facilities were capable of producing an effluent that would meet the total nitrogen RIPDES limitations that are scheduled to go into effect on May 1, 2014.

Bucklin Point Special Sampling Activities

The following activities summarize special sampling activities conducted at Bucklin Point during 2013:

- EMDA staff picked up septage samples weekly at the Lincoln Septage Receiving Station and delivered them to the Laboratory for analysis. Three daily composite samples of septage loads discharged at the station were analyzed for trace metals and cyanide each week. Interceptor Maintenance staff sampled and screened each septage truck delivery for quality by measuring pH during the pump-out at the septage facility.

- EMDA staff performed daily laboratory analyses of both permit and process samples collected daily for effluent pH and temperature. EMDA staff also performed regular daily pH checks of the influent. The influent grab sample was collected at the Grit and Screening Building, in the channel prior to the bar screens. Results were communicated to the Laboratory and Operations staff for permit compliance and process control applications. Abnormal pH measurements would have triggered additional grab samples being collected and an investigation by Pretreatment. The QA/QC program requires calibration, checks, and documentation that the pH meter and colorimeter used for these tests are operating properly.

- EMDA staff performed daily checks of the influent and effluent wastestream channels for the presence of total residual chlorine and sulfides which may interfere with cyanide sample analyses. EMDA staff used standard potassium iodide, starch, and lead acetate indicator papers for this testing. In 2013, all tests for these constituents were non-detected at Bucklin Point. If either of these constituents was detected, the cyanide sampling, if in progress, would be suspended and re-started the following day to ensure that these chemicals did not interfere with the cyanide analysis.

- In an effort to learn more about the concentrations of bacteria in the treated effluent, the NBC instituted monitoring of the effluent for enterococcus bacteria. This evaluation began in June 2010 and continued throughout 2013. The data has

not shown a strong correlation between fecal coliform concentrations and enterococcus concentrations. Work is continuing on this project in anticipation of RIPDES permit changes requiring compliance with a limit for enterococcus.

Analysis of Influent Loading Data

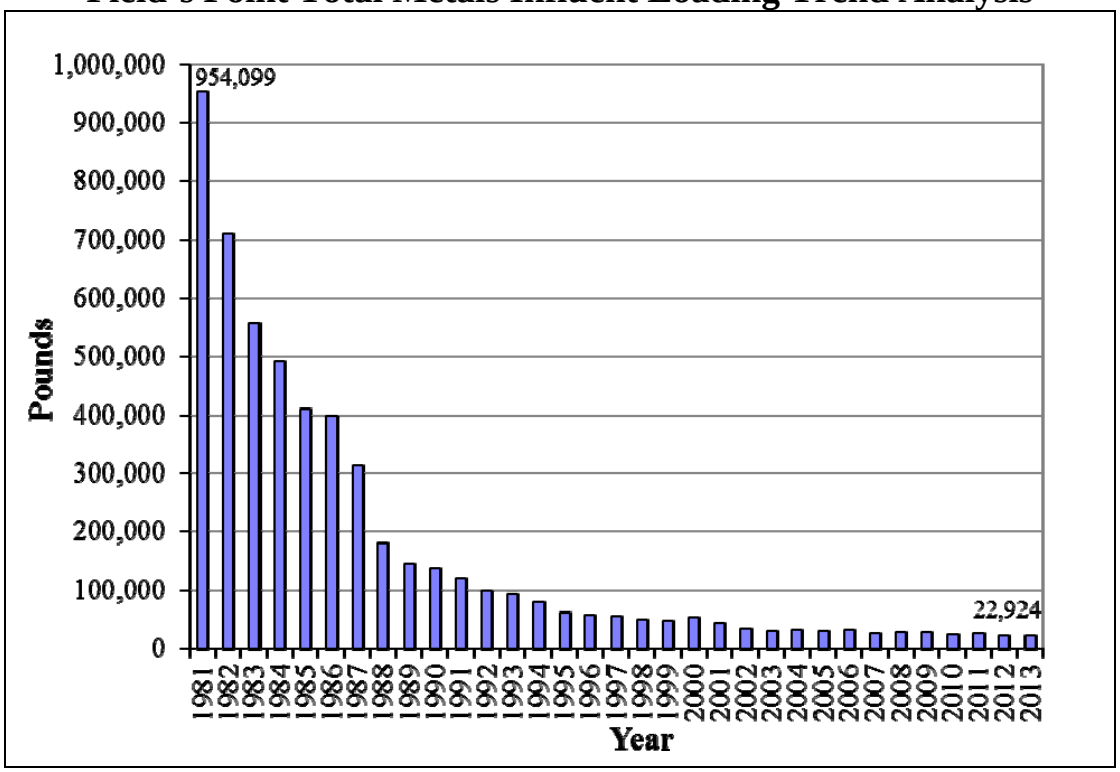
Comparing recent and historical influent loading data is a useful for evaluating the success of the Pretreatment Program in controlling the quality of industrial wastewater discharged to the collection system. Analysis of toxic pollutant loadings to the two NBC wastewater treatment facilities has indicated a historical downward trend.

Records of data for metals and cyanide in the Field's Point collection system have been collected and analyzed since 1981. Significantly less historical loading data is available for Bucklin Point, which was acquired by the NBC in 1992. The historical Bucklin Point data presented in this chapter covers the period from 1994 to present for metals, and 1991 to present for cyanide.

Field's Point District - Influent Loading Analysis

FIGURES 14 and 15 depict the reduction in metals and cyanide loadings to Field's Point between 1981, the year before the NBC assumed the ownership and operation of the Field's Point treatment facility and portions of the metropolitan Providence sewer system, and the present.

FIGURE 14
Field's Point Total Metals Influent Loading Trend Analysis



Over the past 32 years, there has been a significant downward trend in the total loadings of metals as can be seen in FIGURE 14. Total metals loadings is defined as the sum of cadmium, copper, chromium, lead, mercury, nickel, silver, and zinc loadings. These loadings showed a decrease of 97.6% since 1981. In fact the total metals loadings to Field's Point have been below the Maximum Allowable Headworks Loadings (MAHL) of 140,283 pounds since the early 1990s. Since 2002 the total metals loading has been consistent though there have been minor fluctuations during this time period. Influent metals loadings in 2013 increased slightly by 353.8 pounds from 2012, however they decreased by 3,320 pounds from 2011 loading.

Cyanide loading data for the same time period indicates a similar overall downward trend, as can be seen in FIGURE 15, with a dramatic 98.1% decrease in loadings between 1981 and 2013. Between 2012 and 2013 there was a 410.4 pound, or 36.2% increase in cyanide influent loading into Field's Point. The influent cyanide loading in 2013 is similar to the loading in 2011. The success in reducing the metal and cyanide inputs to the treatment facilities is largely due to the efforts and success of the Pretreatment and ESTA programs.

FIGURE 15
Field's Point Cyanide Influent Loading Trend Analysis

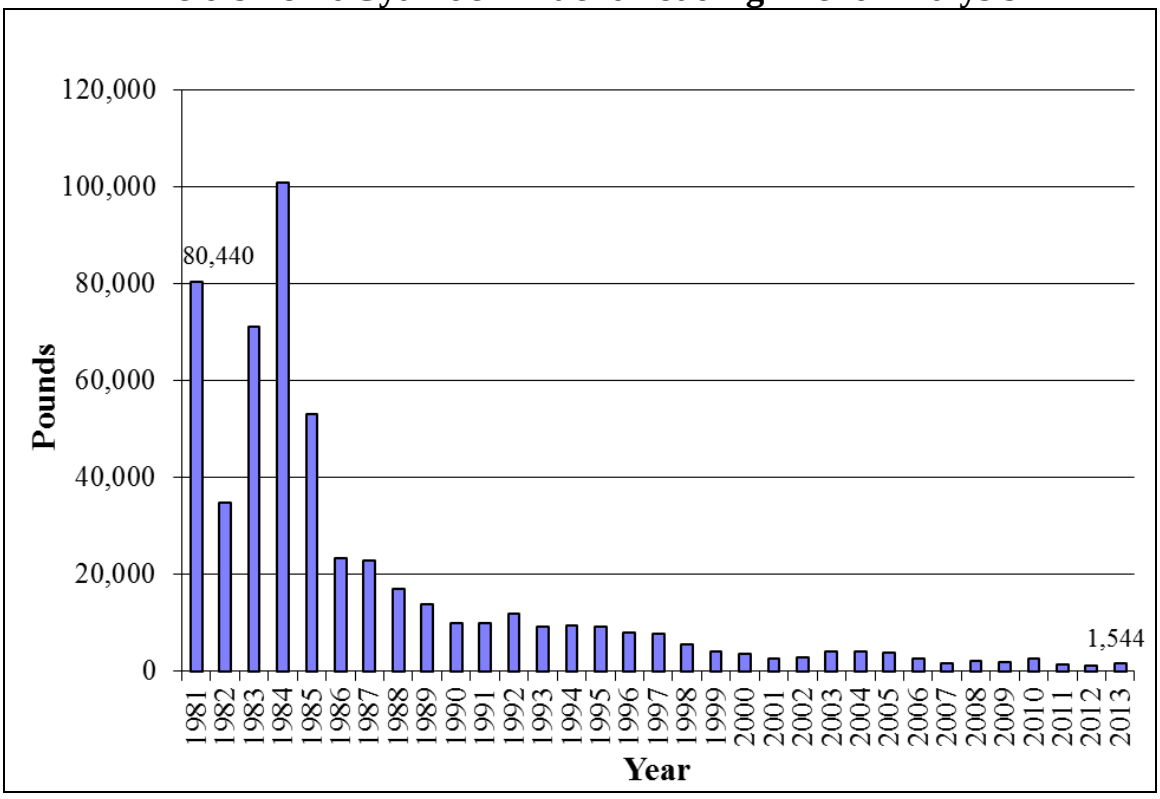


TABLE 19 provides a comparison of the 2012 and 2013 metals and cyanide loadings to Field's Point. Loading figures were calculated based on monthly averages of concentration and flow. As illustrated in TABLE 19, the annual influent loading for all metals showed a slight increase in 2013 compared to 2012, but loading was relatively

similar to the previous year. Overall there was a 1.6% increase in total metals in 2013 over 2012. Some of this increase is due to an increase in influent flow to the Field's Point facility in 2013, where annual flow increased by 6.5% in 2013 compared to 2012, with an average daily influent flow of 42.7 MGD in 2013. This may have caused some metals to appear to have higher increased loading than what Field's Point may have actually received. For instance, for cadmium there appeared to be a 3.4% increase in loading as compared to 2012, however, the influent concentration was slightly higher in 2012 than 2013, and most results in both years were below the detection limit. Therefore, the increase in flow accounts for the overall increase in loading in 2013. There was one metal which decreased from 2012 to 2013, nickel decreased by 7.4%, or 209.5 pounds. Cyanide had the greatest increase, increasing by 36.2% or 410.4 pounds from 2012 to 2013. Overall, loading of metals remains low due to strict regulation by Pretreatment and the NBC educational efforts and the proactive approach to pollution prevention. The decreases since the NBC has taken over the operation of Field's Point demonstrate the continued commitment to vigilant enforcement and continued encouragement to users to implement pollution prevention measures**.** There was an increase in flow to the plant, including a 480,750 gallon per day increase in industrial flow from SIUs in 2013.

TABLE 19
Comparison of 2012-2013 Annual Loadings to Field's Point

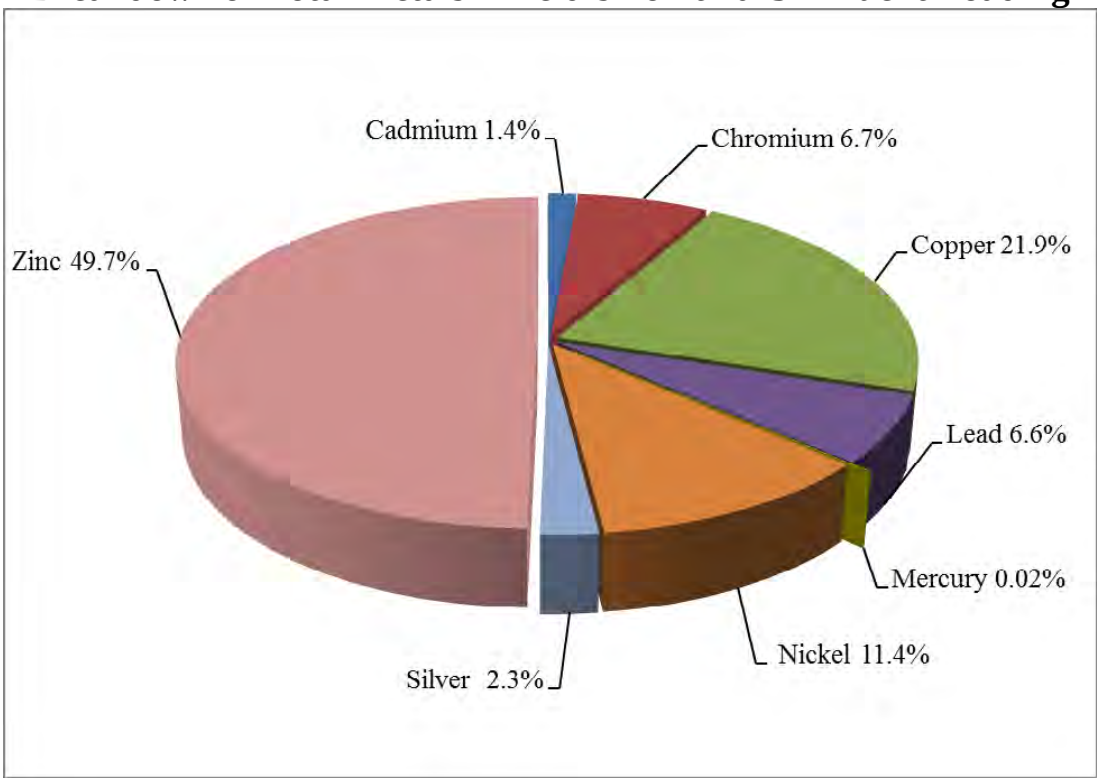
Pollutant	2012 (Pounds)	2013 (Pounds)	Total Pound change	% Change
Total Cadmium	314.3	325.0	10.7	3.4%
Total Chromium	1,482.0	1,542.6	60.6	4.1%
Total Copper	4,780.0	5,024.3	244.3	5.1%
Total Lead	1,383.0	1,512.3	129.3	9.3%
Total Mercury	5.68	5.73	0.05	0.9%
Total Nickel	2,814.8	2,605.3	-209.5	-7.4%
Total Silver	508.6	521.8	13.2	2.6%
Total Zinc	11,281.9	11,387.1	105.2	0.9%
Total Metals	22,570.3	22,924.1	353.8	1.6%
Total Cyanide	1,133.9	1,544.3	410.4	36.2%

In 2013, the Field's Point facility provided secondary treatment to an additional 1,110.8 million gallons of flow that was captured in the CSO Tunnel, approximately 16 million gallons more than in 2012. Past sampling has shown that the metals loading received into Field's Point from the tunnel is not a significant portion of the total metals loading to the plant. The net effect on influent loading from the tunnel is difficult to determine, given the uncertainties of identifying and quantifying the new flow that reaches the plant, but is not a significant source of influent metals loading.

A percentage breakdown of the various metals discharged to Field's Point is provided in FIGURE 16. The majority of metal loadings to Field's Point is from zinc, copper, and nickel. These metals account for 83.0% of the total metal loadings to Field's Point, roughly equivalent to the relative contribution observed during 2012. The loading of total

zinc in 2013 was 11,387.1 pounds, or 49.7%, the highest of any toxic pollutant impacting the Field's Point facility. As will be shown later in this chapter, the majority of zinc loadings are attributed to residential sources. Copper was the next highest pollutant load to Field's Point at 5,024.3 pounds or 21.9%, followed by nickel at 2,605.3 pounds or 11.4%. The loadings levels of toxic pollutants to Field's Point in 2013 were all well within the Maximum Allowable Headworks Loading (MAHL) levels for each pollutant of concern. This is a testament to the success of the NBC toxic reduction and control programs.

FIGURE 16
Breakdown of Total Metals – Field's Point 2013 Influent Loading



~Oil and Grease Inputs to Field's Point

Monthly sampling of oil and grease inputs to Field's Point revealed low and consistent concentrations. Influent concentrations ranged from 10.1 ppm to 27.7 ppm during 2013. Effluent concentrations were significantly lower than influent with results of <4.0 ppm or not detectable, for all samples. Low inputs are the direct result of Pretreatment efforts to permit, inspect, and monitor industrial and commercial establishments, including restaurants, with the potential to impact the NBC with fats, oils, and grease. The NBC RIPDES permit requires monthly sampling, with three grab samples collected over the course of a 24-hour period, one grab per shift. The grab samples are analyzed separately and the maximum is reported. The RIPDES permit does not set a discharge limit for oil and grease. The 2013 oil and grease data is listed in ATTACHMENT VOLUME II SECTION 10.

~Field's Point Influent and Effluent Organics

Volatile organic compounds (VOC) were monitored monthly in the influent and effluent at the Field's Point facility in 2013. These samples were collected as composite and grab samples. The analysis of 33 organic compounds using EPA method 624 is routinely performed to ensure that the amount of organics introduced to the facility is being adequately regulated by the Pretreatment Section. High levels of organics can be dangerous to the health and safety of NBC employees and can potentially pose a significant hazard to the microbial population that is responsible for the removal of organic carbon in the influent wastewater. Of the 408 analytical results for influent samples obtained during 2013, 87.7% of all samples had non-detectable concentration levels of volatile organic compounds. This is similar to the 2011 influent results, which also had 87.7% non-detectable VOC concentration levels. For 2013 effluent VOC samples, 9% of samples had detectable concentration levels. The low levels of VOCs observed demonstrates the effectiveness of Pretreatment efforts to reduce the amount of organic pollutants introduced to the NBC facilities, thereby dramatically reducing the potential for adverse impacts on NBC receiving waters.

~pH Variability at Field's Point: Influent and Effluent

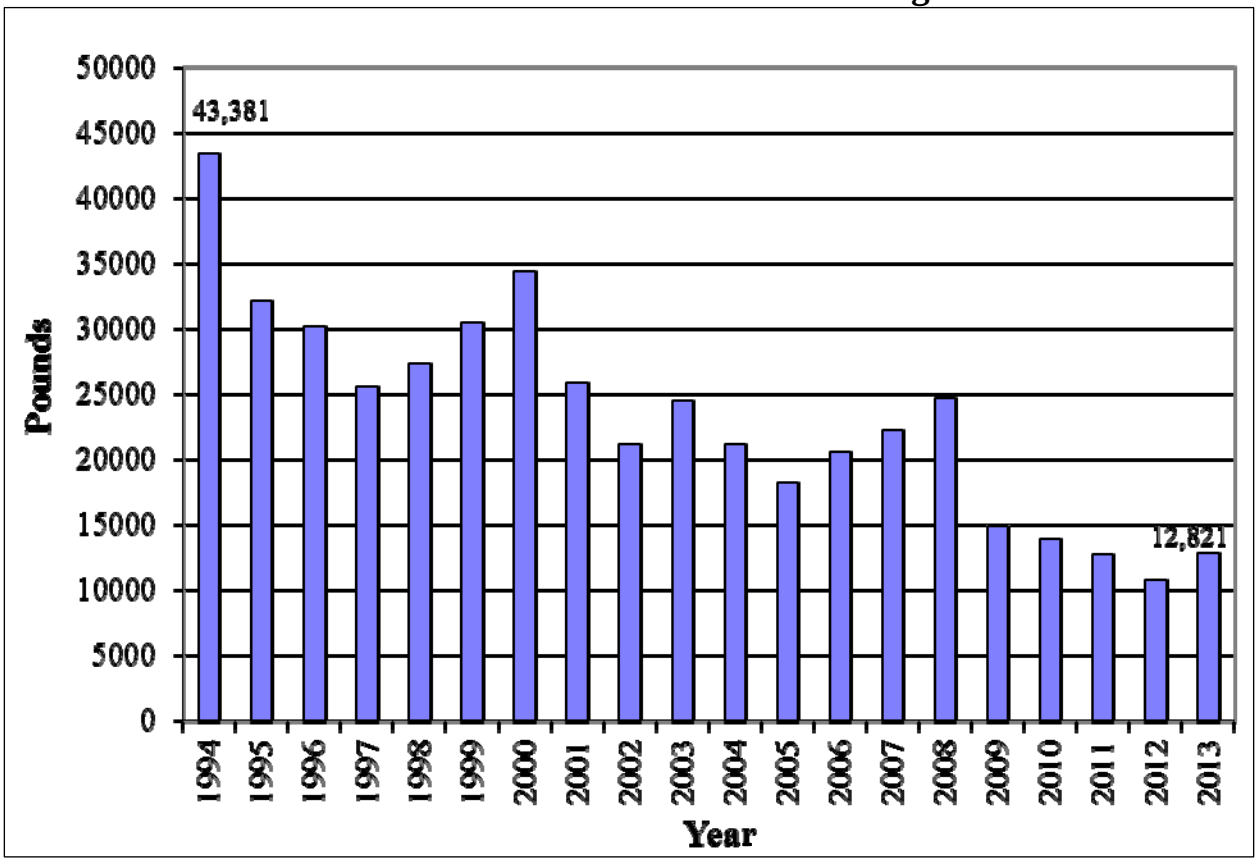
The pH of the Field's Point influent is measured twice daily by Laboratory staff on a high-precision Orion pH meter. Grab samples are collected by EMDA and immediately transferred to the lab for analysis. EMDA collected 729 influent pH samples during 2013. The pH range of the influent sample measurements was between 6.03 and 7.61 standard units (s.u.). The influent wastestream is also monitored with a continuous pH probe. This record shows a clear diurnal pattern with differences of approximately 1 s.u. No NBC wastewater treatment facility process has knowingly been negatively impacted by influent pH fluctuations during the year. There were also no persistent excursions in influent pH during 2013 and no negative effect on normal plant operation process controls was noted. Effluent grab samples are also collected twice daily, resulting in 731 samples collected. Over the year, the effluent pH ranged from 5.87 to 7.66 s.u. There was one date when the plant had an effluent pH of less than 6.0 s.u. The period of low pH coincided with a significant influx of stormwater which resulted in the effluent pH dropping slightly below the permit limit. The permit states that the pH must "not be less than 6.0…standard units at any time, unless these values are exceeded due to natural causes…", therefore the low pH was not indicated as a violation on the DMR form since it was caused by acidic rainfall. There were no effluent pH permit violations during 2013.

Bucklin Point District - Influent Loading Analysis

The Bucklin Point influent data demonstrated a downward trend in total metals loading between 1994 and 1997, followed by an upward trend between 1997 and 2000 as can be seen in FIGURE 17. Data from 2001 and 2002 showed reductions in influent metals loadings, while data from 2003 showed another increase, the majority coming from short-lived high chromium inputs that occurred from January 28, 2003 through June 3, 2003. The 2006 through 2008 data indicated another increase in metals loading to Bucklin Point.

Once again this increase was primarily due to an increase in chromium loading. Influent metals loadings have been decreasing since 2009, however in 2013 influent metals loadings increased by 19.6% to 12,821 lbs. as compared to 10,724 pounds in 2012. The total metals loading to Bucklin Point was well below the MAHL of 43,304 pounds and has been since 1995.

FIGURE 17
Bucklin Point Total Metals Influent Loading Trend



Cyanide loadings at Bucklin Point have similarly been variable but exhibit an overall decrease as can be seen in FIGURE 18. The results from the past four years show a dramatic drop in cyanide influent loadings. However, in 2013 there was a slight increase in influent cyanide loadings of 88.9 pounds or 27.8% increase from the 2012 level of 319.6 pounds. Some of this increase was due to six samples from September that had to be sent for analysis to a contract lab which had a detection limit of 10 ppb, whereas the NBC Laboratory detection limit was 4 ppb. All six of these samples had results at the detection limit, higher than the average influent cyanide typically seen at Bucklin Point. Since 1991, cyanide loading has decreased by 89.0%. Loadings have been below 1,000 pounds per year since 2000 and are well below the MAHL level established to protect the treatment facility and the environment.

FIGURE 18
Bucklin Point Cyanide Influent Loading Trend

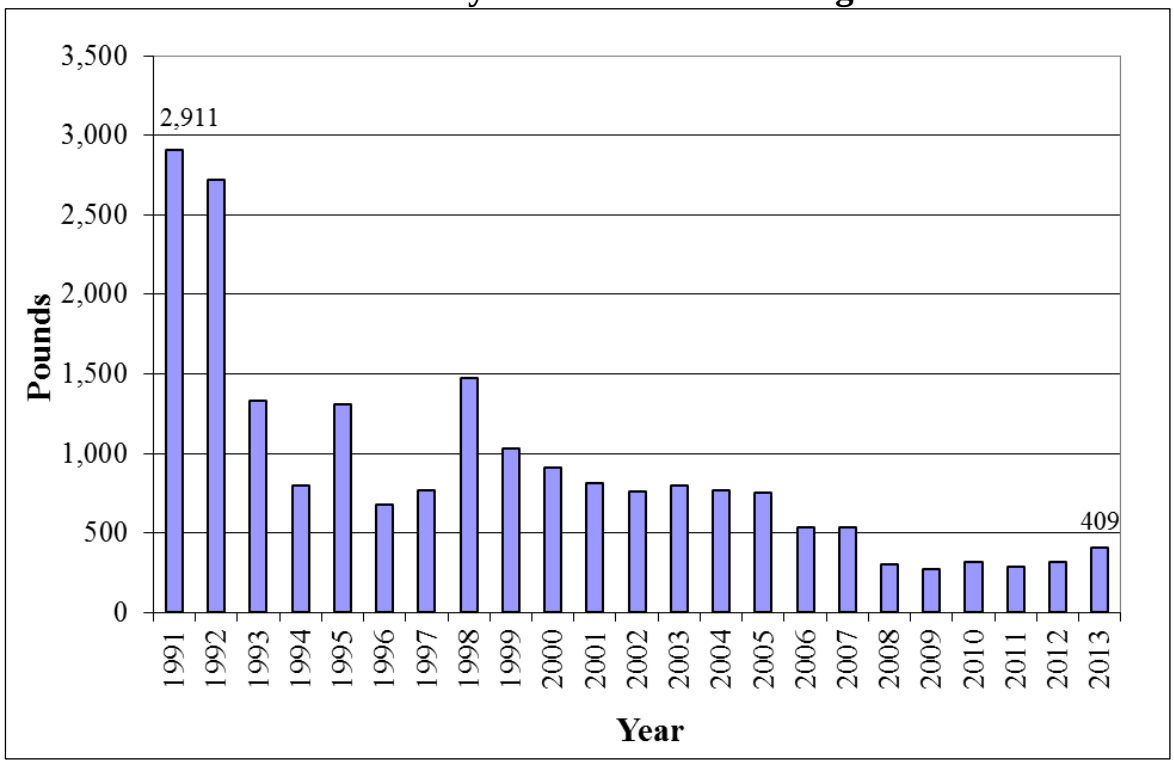


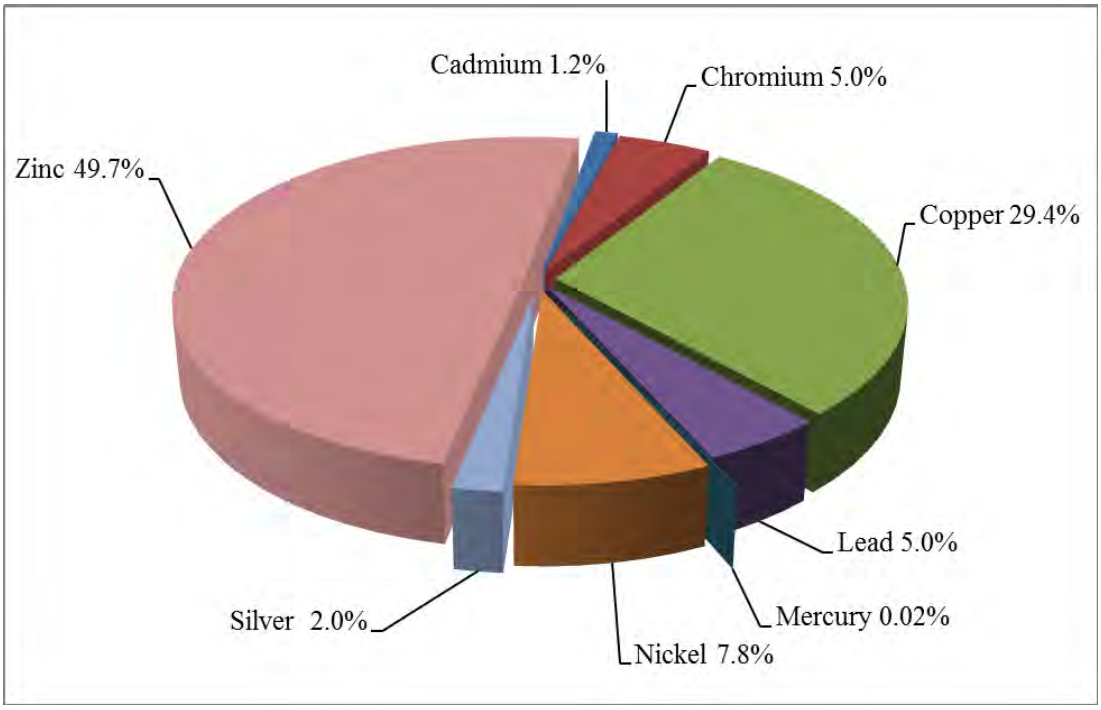
TABLE 20 shows the comparison of Bucklin Point metals and cyanide loadings for 2012 and 2013. In 2013, all influent metals showed an increase as compared to 2012. The single largest increase on a pound basis was for zinc, which increased by 1,009.2 pounds, or 18.8%, in 2013. The metal that had the lowest percent increase was chromium with a 5.7%, or 34.3 pounds increase in loading in 2013. The overall decrease in total loading in pounds to the Bucklin Point facility between 1994 and 2013 is 70.4% for total metals and 86.0% for cyanide between 1991 and 2013. Between 2012 and 2013 there was a 19.6% increase in total metals into Bucklin Point, a change of 2,097.7 pounds. Some of this increase is due to an increase in influent flow to the Bucklin Point facility in 2013, where annual flow increased by 16.3% over 2012. In the case for cadmium, which had a 16.2% increase in loading as compared to 2012, all influent measurements of cadmium were measured at the detection limit of 2.5 ppb, the only difference between the two years being the increase in flow. The 16.2% increase in cadmium in 2013 was the same amount by which flow increased into the plant.

TABLE 20
Comparison of 2012 - 2013 Annual Loadings to Bucklin Point

Pollutant	2012 Pounds	2013 Pounds	Total Pound Change	% Change
Total Cadmium	135.6	157.6	22.0	16.2%
Total Chromium	602.2	636.5	34.3	5.7%
Total Copper	3,096.0	3,768.1	672.1	21.7%
Total Lead	551.9	636.1	84.2	15.3%
Total Mercury	2.6	3.0	0.4	15.4%
Total Nickel	760.1	1,000.3	240.2	31.6%
Total Silver	218.0	253.3	35.3	16.2%
Total Zinc	5,357.4	6,366.6	1,009.2	18.8%
Total Metals	10,723.8	12,821.5	2,097.7	19.6%
Total Cyanide	319.6	408.5	88.9	27.8%

FIGURE 19 provides a breakdown of the relative contribution of various metals discharged to Bucklin Point while TABLE 20 provides a comparison of 2012 - 2013 annual loadings to the facility. Zinc and copper are the largest contributors to total metals loading to Bucklin Point accounting for 79.1% of the total percentage of metal inputs. The total number of pounds of zinc increased by 1,009.2 pounds in 2013 and was 49.7% of the total metals loading to the facility. The contribution of copper also increased by 672.1 pounds in 2013, accounting for 29.4% of the total metals loading to the facility. Chromium, nickel, and lead account for another 17.7% of the total percentage of metal inputs.

FIGURE 19
Breakdown of Total Metals – Bucklin Point 2013 Influent Loadings



~Oil and Grease Inputs to Bucklin Point

Monthly sampling of oil and grease inputs to Bucklin Point revealed mostly low and consistent concentrations. Influent concentrations ranged from 10.66 ppm to 30.7 ppm during 2013, much lower than the influent concentration range of 14.05 pm to 43.47 ppm observed in 2012. Effluent concentrations were significantly lower than influent with results of <4.0 ppm, or not detectable, for all samples. Low inputs are the direct result of Pretreatment efforts to permit, inspect, and monitor industrial and commercial establishments, including restaurants, with the potential to impact the NBC with fats, oils, and grease. The NBC RIPDES permit requires monthly effluent sampling, with three grab samples collected over the course of a 24-hour period, one grab per shift. The grab samples are analyzed separately and the maximum is reported. The RIPDES permit does not set a discharge limit for oil and grease. The 2013 oil and grease data is listed in ATTACHMENT VOLUME II SECTION 10.

~Bucklin Point Influent and Effluent Organics

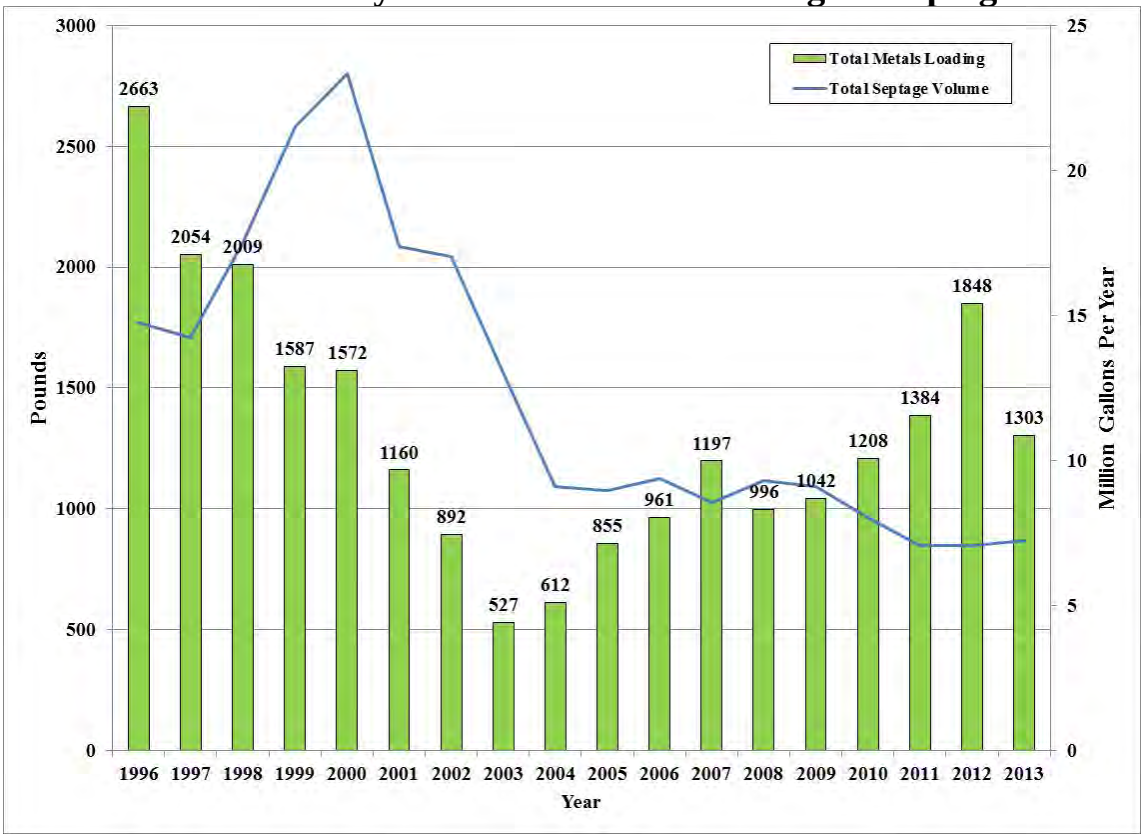
Volatile organic compounds (VOC) were monitored monthly in both the influent and at the Bucklin Point facility in 2013. The analysis of 34 organic compounds using EPA method 624 is routinely performed to ensure that the amount of organics introduced to the facility is being adequately regulated by the Pretreatment section. High levels of organics can be dangerous to the health and safety of NBC employees, and can potentially pose a significant hazard to the microbial population that is responsible for the removal of organic carbon in the influent wastewater. Of the 396 analytical results for influent samples obtained during 2013, 93% of these were at non-detectable concentration levels. Of the 398 analytical results for effluent samples obtained in 2013, 99% of the results were at non-detectable concentration levels. Given the number of samples collected, this demonstrates that the control of organic pollutants both introduced and discharged from Bucklin Point are well regulated and controlled.

~Septage Loading to Bucklin Point

The NBC accepts residential quality septage only in the Bucklin Point district. Septage haulers discharge their loads at the Lincoln Septage Receiving Station, where solids are removed prior to the wastestream entering the collection system for final transport to the Bucklin Point plant for processing. A sample from each load is collected after the sample port is flushed thoroughly, usually after the load has discharged for approximately one minute. The sample from an individual truck is screened for pH, odor, and other unusual characteristics. If any anomaly is observed, the load may be rejected or the sample may be targeted for individual analysis. Otherwise each grab sample is combined with the delivery for the day and sent to the laboratory for analysis. This sampling protocol has helped to more quickly locate potential non-residential inputs to the collection system from septage haulers. Grit removal at the septage facility removes a portion of the metals loading prior to its introduction to the sewer system and the treatment plant. An analysis of recent volume trends indicates a slight increase for 2013 of 2.3 % from the volume reported in 2012. Septage haulers discharged 7.08 million gallons in 2012, while the NBC received 7.24 million gallons in 2013. Overall, the volume reported in 2013 is

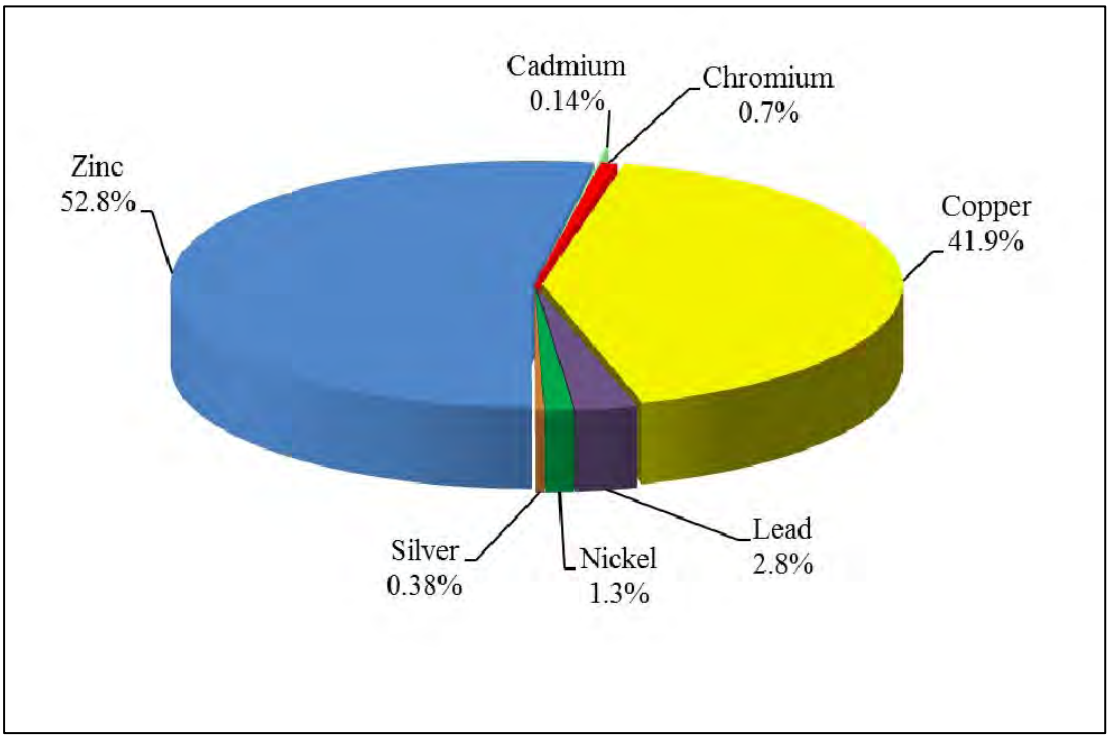
approximately 51% lower than the volume discharged in 1996. From 2012 to 2013 there was a 30% decrease in total metals from septage, or 546 pounds. FIGURE 20 provides a graphic detailing the change in septage flow and metals loadings from 1996 to 2013. The graph shows septage flow peaked in 2000 at approximately 23 million gallons. As the economy took a downturn, septic tank pump out frequency has declined, allowing solids, and the metals contained in the solids, to increase proportionally. The overall reduction in total metals from septage since 1996 is 51%, similar to the reduction in overall volume. Septage is not a substantial source of metals loading to Bucklin Point. Despite the fact that discharges to the septage facility increased from 1997 to 2000, total metals loading consistently decreased over the same time period. The relative septage contribution to total influent metals at Bucklin Point decreased in 2013, with 10.2% of total influent metals originating with septage versus 17.2% in 2012.

FIGURE 20
Trend Analysis of Total Metals Loadings in Septage



Copper and zinc continue to be the major metal contributors to the septage load, with 545 pounds and 688 pounds, respectively, in 2013. These two metals make up 94.7% of the total metals observed in the septage. Zinc loading from septage represented 10.8% of the total influent zinc loading to Bucklin Point during 2013. Copper from septage amounted to 14.5% of the total copper loading to Bucklin Point for 2013. FIGURE 21 illustrates the average relative composition of metals in the septage received at the NBC facility in 2013. The septage monitoring data generated during 2013 are provided in ATTACHMENT VOLUME II, SECTION 10.

FIGURE 21
2013 Breakdown of Total Metals in Septage



Background Sources of Metals to the Influent Load

Sewer Collections for Determining Non-Industrial Background Contributions to Influent Metals Loading

The NBC has continued to study possible background sources contributing to the total metal influent loadings to the Bucklin Point and Field's Point facilities. Sample collection from sanitary and combined sewers in residential neighborhoods began in 1993. Sewers in residential neighborhoods have shown significant levels of trace metals and other toxic pollutants. In May 2000, EMDA began sample collections using EPA approved guidance on clean sampling techniques to quantify background, non-industrial metals inputs to the Bucklin Point and Field's Point facilities. During 2013, EMDA staff collected 34 samples in residential sanitary and combined sewers. Samples were collected as 24-hour composites in wet and dry weather conditions.

TABLE 21 summarizes the results for the background, non-industrial sewer collections for 2013 and compares them to influent concentrations at the facilities. Industrial and commercial sources account for only 9.8% of total flow into Bucklin Point and 3.9% of the total flow at Field's Point. Due to the high proportion of flow from residential and non-industrial sources, this direct comparison of concentrations gives some approximation of the loadings from background sources. Detection limit values were entered for samples with concentrations at or below the laboratory detection limits. Average influent concentration values were determined, while geometric means were calculated for the

background data in order to reduce the impact of highly variable data on the comparison. Results of samples taken from both collection districts were used to determine the background values. All concentrations are expressed as parts per billion (ppb).

TABLE 21
Results from 2013 Background Metals and Cyanide Contribution Study (ppb)

	Cd	Cr	Cu	Pb	Hg	Ni	Ag	Zn	CN	As	Se	Sn	Mo
Background	0.20	1.07	26.38	7.21	0.0370	2.65	0.23	94.43	4.73	0.557	0.70	5.26	0.76
FP Influent	2.50	12.12	39.42	11.68	0.0446	20.23	4.02	89.57	11.31	1.659	4.27	-	5.14
% of Influent at FP	*	*	66.9%	*	83.0%	13.1%	*	105.4%	41.8%	33.6%	16.4%	-	14.8%
BP Influent	2.50	10.21	61.60	10.09	0.0504	16.23	4.02	105.35	6.55	1.261	0.73	5.04	3.81
% of Influent at BP	*	*	42.8%	*	73.4%	16.3%	*	89.6%	*	44.2%	96.0%	*	20.0%

*These pollutants are regularly measured at or below the detection limit making it impossible to accurately determine the POTW loading percentage.

These results can be used to approximate the impact of domestic loading to the Bucklin Point and Field's Point facilities. Several pollutants are regularly measured at or below the detection limit at the plant influent as well as in the background sampling, which makes it impossible to determine an accurate POTW loading percentage, these include cadmium, chromium, lead, and silver at both facilities and cyanide and tin at Bucklin Point. These percentages are therefore not included in TABLE 21. From TABLE 21 it is evident that a large percentage of the influent copper, mercury, zinc, cyanide and arsenic concentrations observed at the Field's Point wastewater treatment facility are from background sources. The same is true for copper, mercury, zinc, arsenic, and selenium at the Bucklin Point wastewater treatment facility.

The sources of these background loading contributions are likely discharges from domestic users, street runoff, leaching from residential plumbing piping, and contaminated soils. Much lower contributions from domestic sources are observed for nickel, selenium and molybdenum at Field's Point and nickel and molybdenum at Bucklin Point. From this comparison it is apparent that most if not all of the zinc, the trace metal with the highest concentration at the treatment plants and septage loads, is coming from non-industrial sources.

TABLE 22 below shows the geometric mean results of all background metals and cyanide samples collected since 2002 in both NBC drainage areas. As can be seen from the total metals, the lowest amount of total metals input into the treatment facility systems occurred in 2008, while 2007 had the highest metal contribution.

TABLE 22
Historical Background Metals and Cyanide Results 2002 -2013 (ppb)

	Cd	Cr	Cu	Pb	Hg	Ni	Ag	Zn	CN	As	Se	Sn	Mo	Total Metals*
2002	0.40	5.93	32.18	11.22		6.66	0.85	99.52	4.59					156.76
2003	0.45	6.31	29.48	8.77		8.13	0.89	105.04	6.49					159.07
2004	0.68	2.99	36.49	10.79	0.07	6.21	1.79	102.49	6.58	1.01	0.76	6.31		161.50
2005	0.17	3.61	23.55	7.87	0.07	5.39	0.36	84.22	6.75	0.64	0.65	1.75	0.75	125.24
2006	0.14	4.49	24.80	6.65	0.03	5.76	0.28	90.05	4.81	0.99	0.65	0.95	0.68	132.20
2007	0.14	9.70	38.13	8.86	0.04	11.67	0.22	121.35	2.36	0.61	0.64	1.63	0.80	190.11
2008	0.12	4.07	19.88	6.77	0.04	5.11	0.13	64.17	3.82	0.80	0.99	1.45	0.80	100.30
2009	0.14	2.43	35.04	10.09	0.04	6.16	0.20	91.93	4.16	0.91	1.58	1.85	0.76	146.04
2010	0.13	1.78	22.68	7.11	0.04	4.05	0.14	85.54	3.84	0.66	1.36	2.55	0.74	121.48
2011	0.15	1.62	23.73	7.20	0.04	3.02	0.22	104.84	4.23	0.66	0.68	2.45	0.89	140.82
2012	0.15	1.32	25.86	5.92	0.03	2.65	0.26	100.60	4.55	0.55	0.60	5.37	0.81	136.79
2013	0.20	1.07	26.38	7.21	0.04	2.65	0.23	94.43	4.73	0.56	0.70	5.26	0.76	132.21

*Total Metals= Cd+Cr+Cu+Pb+Hg+Ni+Ag+Zn

EMDA continues to improve and update studies of pollutant loads throughout the collection system. Understanding non-industrial sources is important to permit development and planning to reduce loading to the treatment facilities and to Narragansett Bay. EMDA is working to use flow measurements and manhole monitoring data to choose study sites that will accurately describe mass loading from domestic, storm runoff, and major drainage basins as well as at metering stations on NBC interceptors. From this analysis, it is obvious that large percentages of the toxic pollutant loads to the Field's Point and Bucklin Point plants are from residential and other background sources that are beyond the control of the NBC regulatory program.

Influent Loading Conclusions

The development of the National Pretreatment Program was a direct result of the Federal Water Pollution Control Act (Act) of 1972. The Program was established at that time to monitor and regulate the introduction of pollutants from non-domestic sources into Publicly Owned Treatment Works (POTW). Section 307 of the Act required the Environmental Protection Agency to develop standards designed to:

- Prevent the discharge of pollutants which would interfere with the operation of a POTW;
- Prevent the discharge of pollutants which would pass through the treatment works;
- Prevent the discharge of pollutants which would accumulate in POTW sludge thereby reducing the potential for beneficial reuse or reduce the opportunities for safe disposal or which would be otherwise incompatible with POTW operations.

In 1977 the Act was amended to include additional pretreatment requirements which made POTWs responsible for the establishment of local pretreatment programs to ensure compliance with EPA categorical pretreatment standards. Categorical standards have been developed to achieve a nationally uniform system of water pollution control for selected industries and pollutants. Local limits are intended to protect the wastewater treatment facility, the receiving waters, sludge quality, the health of the public and prevent environmental problems as a result of discharges from any non-domestic user.

The development of local limits is not a one-time event. Local limits are required to be periodically reviewed and revised to respond to changes in Federal or State regulations, environmental protection criteria, treatment facility design and operational criteria, and the nature of industrial contributions to POTW influent. The existing local limits for the Bucklin Point facility became effective in the late 1980s. Local limits for Field's Point were first developed in 1982 as part of the NBC original pretreatment program and were subsequently revised by the Pretreatment staff in 1987.

In 2004, NBC re-evaluated local limits for both facilities. The re-evaluation of these limits resulted in revised permit limits for several metals based on new EPA data handling methods and criteria in its updated Local Limits Development Guidance issued in July 2004, as well as a special study of metals in NBC receiving waters. Between July 2001 and May 2002 a study was conducted by NBC, University of Rhode Island/Graduate School of Oceanography (URI/GSO), and MicroInorganics, Inc. to better understand metal partitioning in the Seekonk and Providence Rivers. Multiple transects during seasonal surveys were performed over complete tidal cycles to capture the in-situ metal partitioning between dissolved and particulate phases in these estuarine waters. Dissolved and particulate cadmium, copper, lead, nickel and silver concentrations were analyzed and used to develop site specific metal translator values for each POTW. The metal translator is used to convert dissolved water quality criteria concentrations into total metal concentrations in order to calculate the effective total metals concentration, combined with dilution factors within the receiving waters, that correspond to a given water quality criteria.

As a result of an extensive review of the data from the metals study and facility data collected between January 2000 and June 2004, new MAHL values were calculated. The MAHL values represent the loadings that the treatment facilities can effectively treat without upset to plant operations or pass-through of toxins that could adversely affect water quality and aquatic life, while also allowing for the safe disposal of solids removed from incoming wastewater. The recommendations from this evaluation were documented in a Metal Compliance Plan that was submitted to DEM in September 2004.

TABLE 23 provides a comparison of the calculated MAHL goals with the total metal influent loadings for 2013. In the case of cyanide, loading goals for both plants were calculated using the EPA 20 ppb quantitation-based effluent permit limit. For Bucklin Point, copper and cyanide loading goals were computed using the RIPDES effluent permit limits found in the consent agreement. From this data, it is clear that NBC is meeting the

calculated loading goals for every toxic pollutant at both wastewater treatment facilities with a considerable margin of safety. Meeting these goals attests to the overall effectiveness of NBC initiatives and measures to control pollutant input and effectively remove them during plant operations.

TABLE 23
Comparison of 2013 Influent Loadings to
Maximum Allowable Headworks Loadings (MAHL)

	Field's Point			Bucklin Point		
Parameter	**Preliminarily Calculated Loading Goal lbs/yr**	**2013 Loading lbs/yr**	**Goal Met?**	**Preliminarily Calculated Loading Goal lbs/yr**	**2013 Loading lbs/yr**	**Goal Met?**
Cadmium	2,227	325.0	Yes	511	157.6	Yes
Chromium	37,303	1,542.6	Yes	10,439	636.5	Yes
Copper	16,900	5,024.3	Yes	4,015	3,768.1	Yes
Lead	8,541	1,512.3	Yes	2,738	636.1	Yes
Mercury	183	5.73	Yes	11	3.0	Yes
Nickel	21,134	2,605.3	Yes	1,314	1,000.3	Yes
Silver	3,942	521.8	Yes	402	253.3	Yes
Zinc	50,005	11,387.1	Yes	16,498	6,366.6	Yes
Total Metals	140,235	22,924.1	Yes	35,928	12,821.4	Yes
Cyanide	4,453	1,544.3	Yes	2,446	408.5	Yes

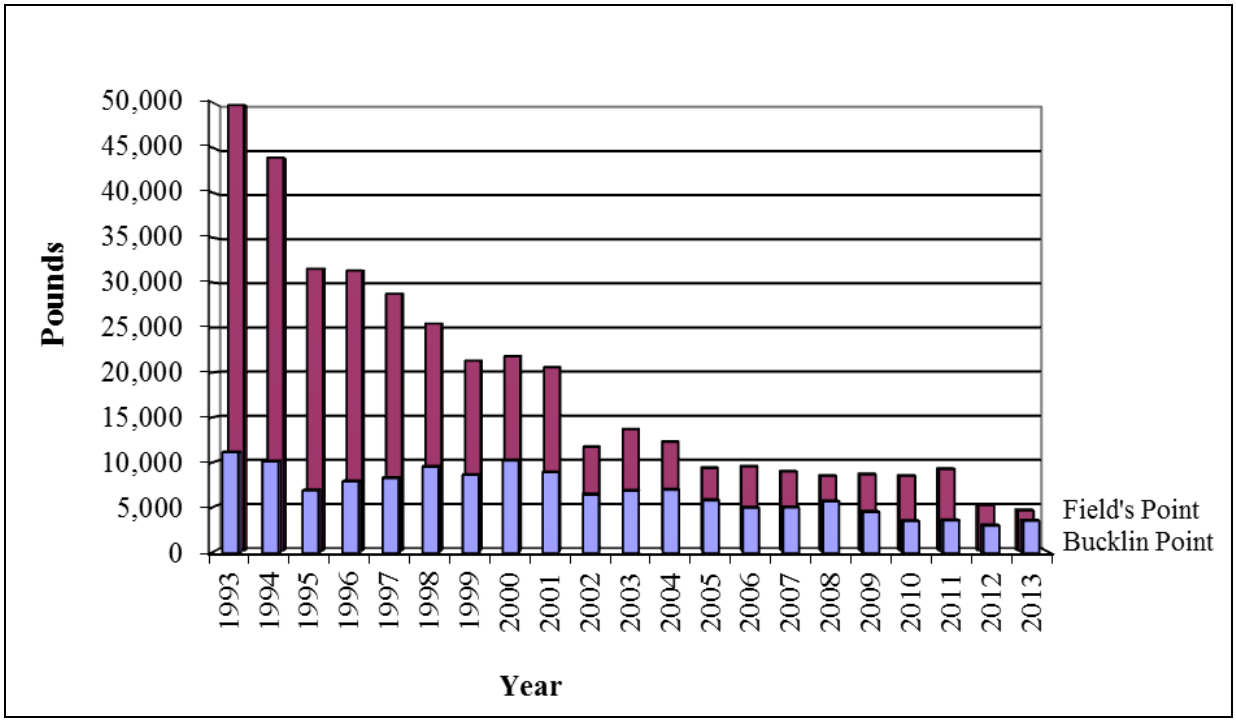
The annual loading goals presented in TABLE 23 should only be used as an initial evaluation of a facility's ability to meet discharge compliance. Discharge permits enforce daily maximum and monthly average limits based on acute and chronic water quality criteria. While the annual means used to calculate the loadings and goals are instructive when evaluating facility function over longer time periods, meeting annual mean goals does not always translate to compliance with daily or monthly limits.

Analysis of Effluent Loading Data

This chapter attempts to quantitatively measure the efforts and results of the work of Pretreatment and ESTA by analyzing the loadings of toxics in the influent of the NBC facilities. It is also important to consider the discharge loadings into the receiving waters after the wastewater treatment has been provided. Issues pertaining to these impacts are included later in this chapter and in CHAPTER VII. To maintain continuity with influent data, current and historical effluent data for both the Field's Point and Bucklin Point facilities for the period from 1993 to 2013 were compiled and analyzed. The overall effluent trends are similar to those for the influent data, as concentrations and loadings have been decreasing over time at Field's Point and Bucklin Point.

Historical total metals discharges from both NBC facilities are shown in FIGURE 22. The Field's Point facility handles approximately twice the flow volume of Bucklin Point. Total metals effluent loadings have been steadily decreasing at Field's Point from 1993 through 2013. In 2013, total metals in the Field's Point effluent decreased by 11.9%, or 600.1 pounds compared to 2012 values, while Bucklin Point effluent showed an increase of 17.3% or 530.3 pounds from 2012 effluent metals loading. Since 2011, effluent metals loadings have been reduced by more than half at Field's Point. This dramatic decrease observed at Field's Point may be attributable to new BNR treatment technologies that began to go on-line in 2012. This year was the lowest effluent metals loadings for both plants since 1993. Bucklin Point effluent loading has been below 6,000 pounds since 2005, whereas prior to 2005 the average effluent loading was 8,554 pounds. As mentioned previously, throughout 2005, enhanced processes including tertiary treatment were being brought online at the Bucklin Point facility contributing to improved total metals removal. Since 2000, effluent metals from Bucklin Point have decreased by 65%. The decrease in effluent metals loadings demonstrates that Pretreatment and pollution prevention efforts continue to be successful in reducing the amount of toxics entering and being discharged from the NBC facilities.

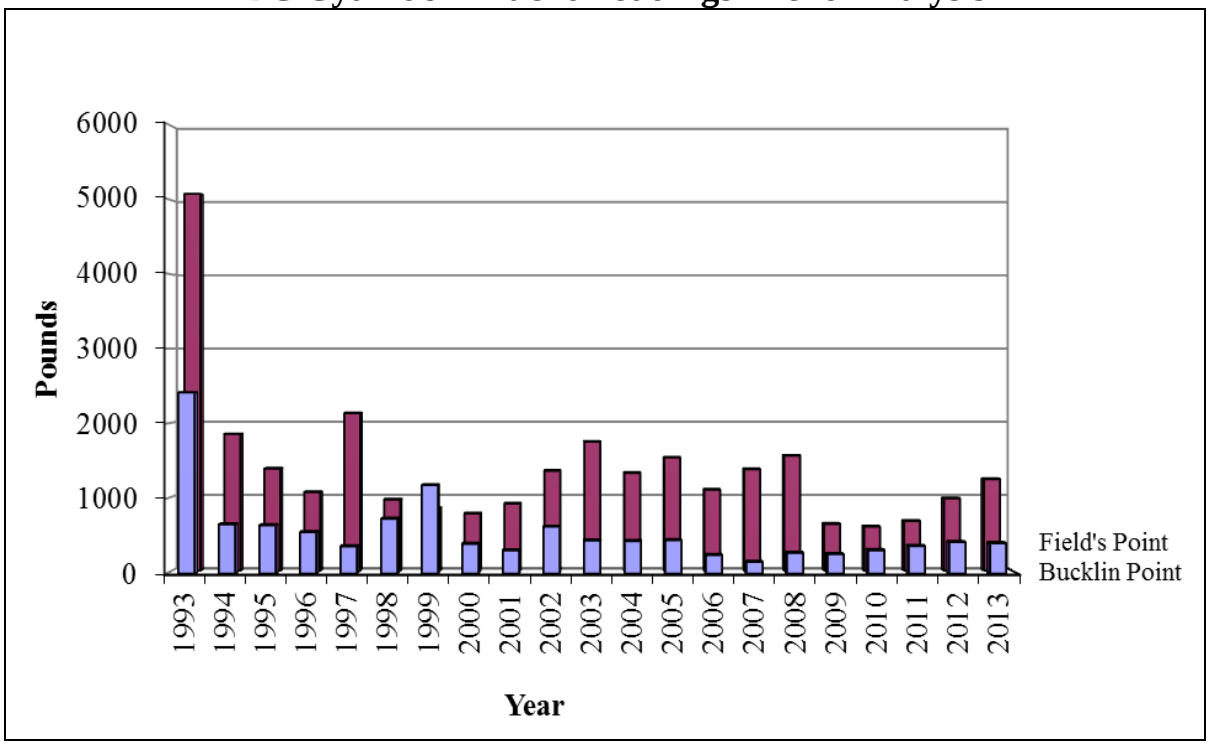
FIGURE 22
NBC Total Metals Effluent Loadings Trend Analysis



As seen in FIGURE 23, effluent cyanide loadings decreased by 3.1% at Bucklin Point and increased by 26.8% at Field's Point during 2013. Since March 2008 at Field's Point the NBC has been reporting effluent cyanide as available cyanide instead of total cyanide on its Discharge Monitoring Reports (DMR). However this year as in past years, total cyanide has been reported in this chapter. Taking this into consideration, there would have

been a smaller increase in cyanide loading at Field's Point as total cyanide at Field's Point amounted to 1,234.9 pounds in 2013 and the available cyanide amounted to less than half this at 595.8 pounds. In July of 2013, the NBC also began reporting available cyanide at Bucklin Point instead of total cyanide in the DMR submitted to DEM. Taking this into consideration the yearly effluent loading of cyanide at Bucklin Point would have been 344.0 pounds available cyanide versus the 408.2 pounds of total cyanide. Also, at Bucklin Point, cyanide appears to have experienced an increase in loading in the effluent, 421.2 pounds as compared to the influent 319.6 pounds in 2012. However, this increase was only due to an analysis and detection limit issue seen in Bucklin Point effluent samples. Some cyanide effluent samples analyzed at the Laboratory must be analyzed at a detection limit of 8 ppb instead of the typical 4 ppb due to foaming/dilution issues with the samples. This twofold increase in detection limits creates a false increase in effluent cyanide loadings as compared to influent cyanide since many of the samples are reported at less than the detection limit. Therefore, during statistical analysis these samples are used at a concentration of 8 ppb instead of 4 ppb. In addition some effluent cyanide samples in September of 2013 had to be sent out to a contract lab which had a higher detection limit of 10 ppb versus the NBC detection limit of 4 ppb. If zeros were used in place of the detection limits concentrations, then cyanide loading in the effluent would be significantly less than what is measured in the influent.

FIGURE 23
NBC Cyanide Effluent Loadings Trend Analysis



Breakdown Analysis of POTW Effluents

The portioning of total metals loading in the effluent from both plants can be seen in FIGURES 24 and 25. The relative proportions of Field's Point effluent show zinc, nickel and copper to be the largest contributors in the effluent as can be seen in FIGURE 24. These metals accounted for 95.6% of the total metals effluent loading from Field's Point in 2013. The relative proportions for Bucklin Point shows zinc, copper, and nickel to be the largest contributors in the effluent as can be seen in FIGURE 25. These metals accounted for 96.4% of total metals effluent loading for Bucklin Point in 2013. At both plants, nickel comprises a higher percentage of the effluent total metals than in the influent. At Field's Point nickel comprises 32.6% of the effluent versus only 11.4% of the influent. At Bucklin Point, nickel comprises 7.8% in the influent and 14.3% in the effluent. The reason for the increase in relative contribution of nickel in the effluent is due to its reduced removal efficiency compared to the other metals. Since the nickel in the effluent is in the dissolved phase, the nickel does not readily settle out in the solids of the wastewater treatment process as other metals do. Therefore, nickel comprises a higher percentage of the metals measured in the effluent.

FIGURE 24
Breakdown of Total Metals – Field's Point 2013 Effluent Loading

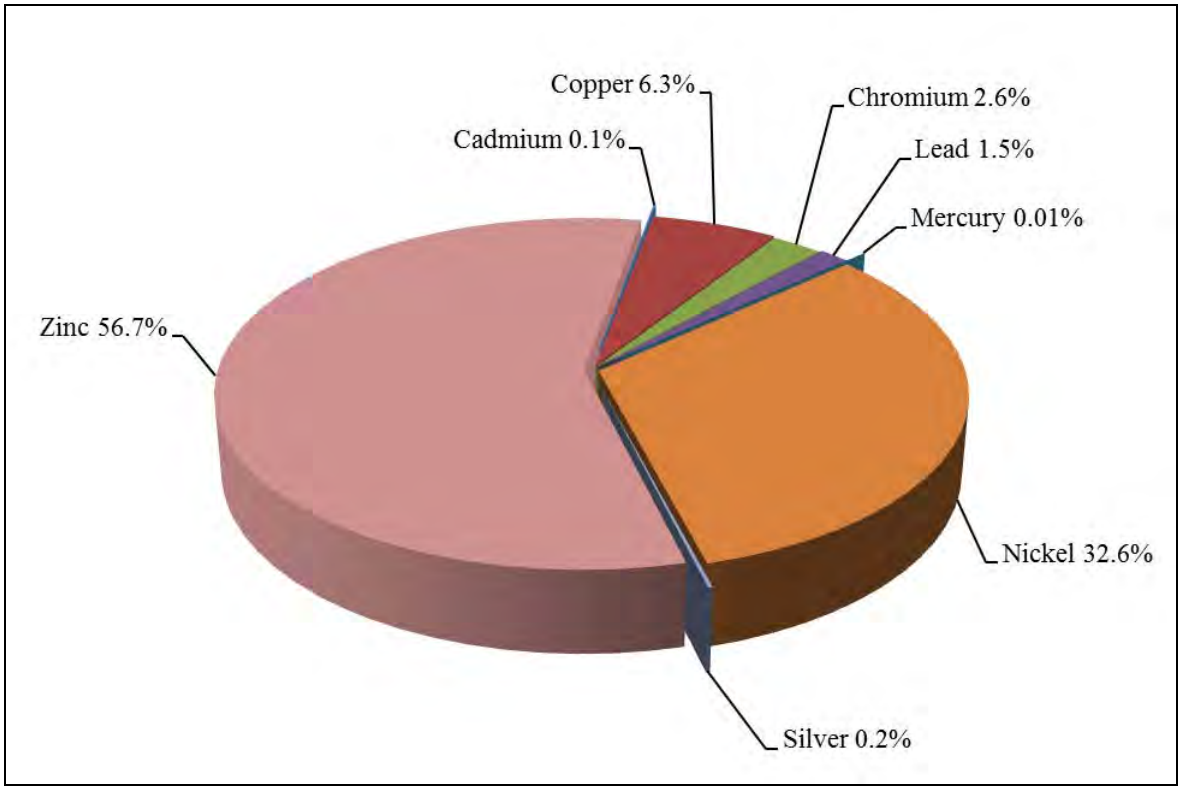
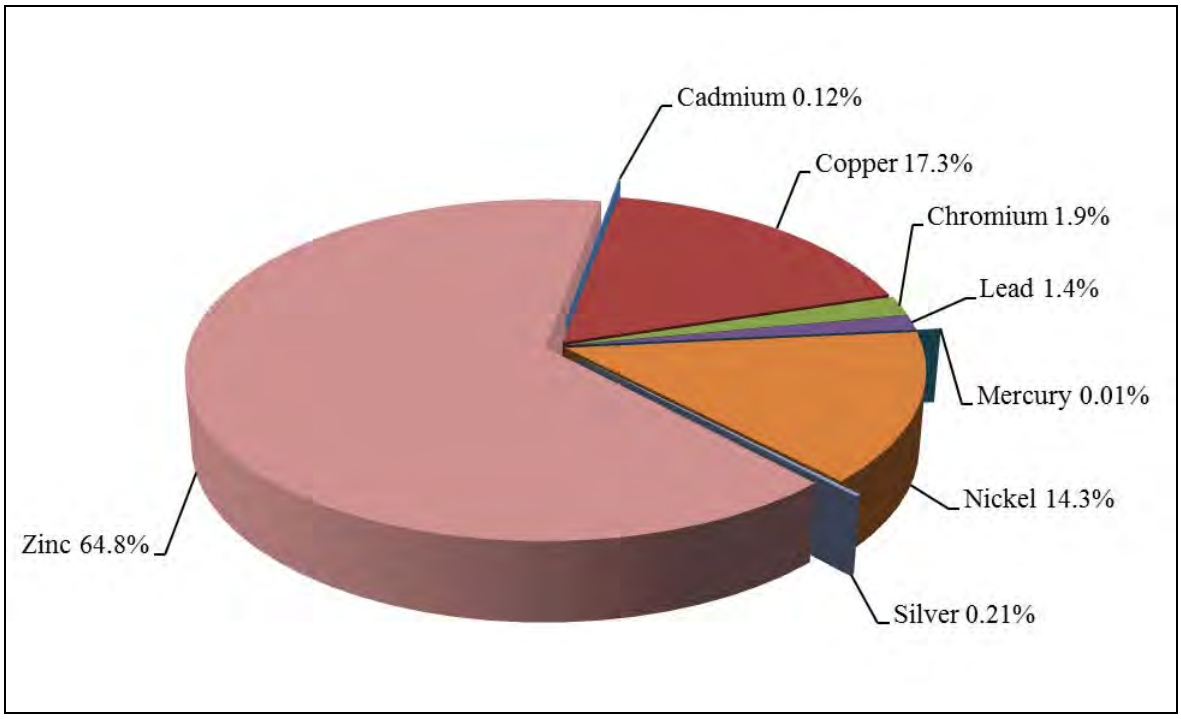


FIGURE 25
Breakdown of Total Metals – Bucklin Point 2013 Effluent Loading



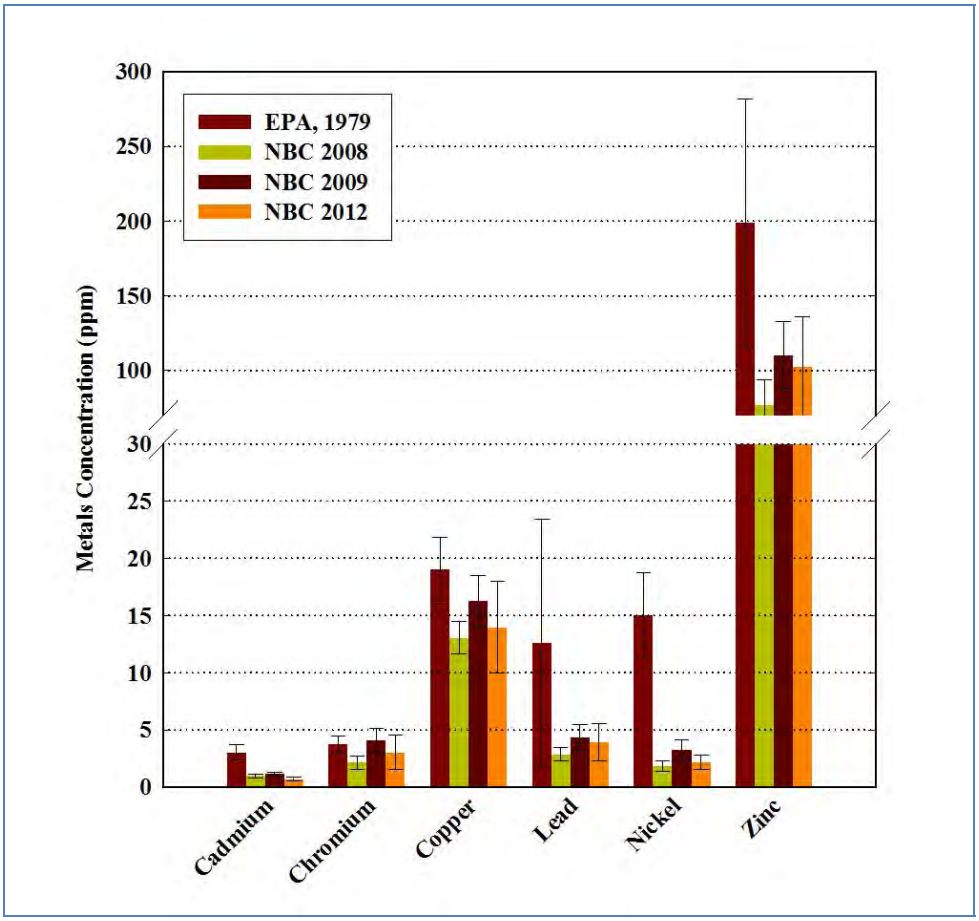
Metals Reductions in Bivalves

As shown in this chapter, there has been, a 97.6% decrease in influent metals into Field's Point since 1981, and a 70.4% decrease in influent metals at Bucklin Point since 1994. Reflective of this decrease in influent metals, effluent metals have also shown a substantial decrease over the years. Since wastewater treatment plants are not designed to remove heavy metals, those metals which do not settle out in the sludge or wastewater are discharged into the receiving waters via the effluent. The decrease in metals into the receiving waters from the NBC facilities has been so great that in 2004, after extensive monitoring supported by the NBC, the Seekonk and Providence Rivers were removed from the EPA 303(d) list of impaired waters for metals contamination. This is a clear testament to the effectiveness of the NBC toxic reduction and control programs.

To further evaluate the reductions in metals contamination in the Providence River, the NBC sought to replicate historic heavy metal monitoring efforts. In the late 1970s and early 1980s, many studies examined metals contamination in marine organisms, including bivalves such as clams and blue mussels. The EPA completed a study in the late 1970s in which they suspended Blue Mussels (*Mytilus edulis*) in baskets in the Providence River as a proxy for heavy metals contamination from the water column. The NBC replicated this study in three different years, including the fall seasons of 2008, 2009, and 2012. Mussels were analyzed at the Laboratory for cadmium, chromium, copper, lead, nickel, and zinc. At the conclusion of this study, the NBC was able to show that though there were differences amongst the three years, the metals concentration each year was significantly

less than the metals concentrations reported in 1979. Depending on the parameter analyzed, average metal concentrations decreased anywhere from 14% - 88% compared to 1979 EPA analysis. Of the specific metals tested, five of them, cadmium, copper, lead, nickel, and zinc, were significantly lower. The only metal not to show a significant decrease was chromium in 2009 and 2012. In all three experimental years, copper showed the least percent reduction from 1979 concentrations and nickel showed the greatest percent reduction. The significant decrease in heavy metal contamination found in this study as compared to thirty-plus years ago demonstrates the success the Pretreatment Program has had in preventing pollutants from entering the NBC receiving waters.
In FIGURE 26 below, all three years of NBC data is shown compared to the 1979 EPA study.

FIGURE 26
EPA vs NBC Study
Metals Concentrations in Blue Mussels



Bioassay Data

The two NBC POTWs are required to conduct quarterly bioassay studies to determine effluent toxicity to various test organisms. NBC conducts chemical analysis and aquatic toxicity testing, using the response of organisms to detect and measure the effect of substances, wastes, or environmental factors, alone or in combination, have on these organisms. NBC met the quarterly bioassay sampling frequency requirements during 2013 for both facilities. At both facilities *Americamysis bahia* and *Arbacia punctulata* are tested. Effluent samples are collected only in dry weather, defined as 48 hours prior to or during sampling.

Analysis of the acute toxicity data provided determination of the LC_{50} and the A-NOEC. The LC_{50} result is defined as the concentration of wastewater that causes mortality to 50% of the test organisms. A-NOEC or Acute-No Observable Effect Concentration is defined as the highest concentration of the effluent in which 90% or more of the test animals survive. The permit requirement limit of 100% or greater is defined as a sample which is composed of 100% effluent. In addition to the acute toxicity test, a chronic test is also performed on *A. punctulata*, which examines for the sublethal effects of effluent concentration on the fertilization of eggs. The C-NOEC or Chronic-No Observed Effect Concentration and the C-LOEC or Chronic-Lowest Observed Effect Concentration are reported. The permit limit for Bucklin Point is 50% or greater for this parameter while at Field's Point the permit requires monitoring only.

At Field's Point all four acute toxicity tests for *A. bahia* gave LC_{50} and A-NOEC results of 100%. For the chronic toxicity test, the C-NOEC for *A. punctulata* was 100% in the first and third quarters and 50% in the second and fourth quarters.

At Bucklin Point all four acute toxicity tests for *A. bahia* also gave LC_{50} and A-NOEC results of 100%. For the chronic test, the C-NOEC for *A. punctulata* was 100% in all quarters as well. Undiluted effluent showed no observable effect on the survival of *A.bahia* and there was no significant biological or environmental impact on this species. The C-NOEC test for *A. punctulata* also had no adverse affect of undiluted effluent on this species for all quarters. Results of the quarterly bioassay data for 2013 are included in ATTACHMENT VOLUME II, SECTION 10.

RIPDES Compliance

~Analysis of Toxic Pollutant Loadings for Discharge Monitoring Reports

The Laboratory strives to use analytical methods that are sufficiently sensitive in order to measure the concentrations of pollutants that are in the influent and effluent of each facility as accurately as possible. Often times some pollutants are present in such minute quantities that they cannot be detected by the analytical method that is appropriate for the sample matrix. There are various means of dealing with those results that are below the detection limit. In this report all calculations have dealt with non-detectable results by

replacing them with one that is equal to the detection limit. This is the method that had been specified in RIPDES permits. Calculations have also been performed in this manner and reported in all previous Pretreatment Annual Reports. This method results in an over estimation of loading whenever there are results that are below the detection limit and will no longer necessarily correlate with the data that is reported to the DEM in our DMRs. This is a result of DEM changing the below detection limit reporting requirements beginning in September 2010. NBC has been required to replace non-detected results with a zero for the purposes of DMR calculations. For the remainder of this chapter, compliance with RIPDES Permit limitations is evaluated with values calculated using the new method. So as not to interrupt the historical data trend, the prior method of using the value of the detection limit was used when analyzing the data.

~Field's Point Facility

In September 1992, the DEM issued a RIPDES Permit for the Field's Point Wastewater Treatment Facility. The permit contained effluent limitations for priority pollutants for the first time in the history of the facility. In recognition that the Field's Point facility might not be able to immediately comply with all limitations, the DEM issued a Consent Agreement (RIA-029) in December 1992 that included adjusted effluent discharge limits. On December 31, 2001, Field's Point was issued a new permit. DEM and NBC resolved differences over the contested items in January 2004 and agreed to a new Consent Agreement, RIA-330, which went into effect on January 1, 2004. TABLE 24 lists the current permit limits for metals and cyanide and the Consent Agreement values for the contested parameters. TABLE 24 also presents the measured maximum daily values and maximum monthly averages for the Field's Point facility for parameters of interest.

TABLE 24
Comparison of Field's Point RIPDES & Consent Agreement Limits With 2013 Wastewater Treatment Facility Results

	RIPDES Permit Limits		Consent Agreement Limits		2013 Results	
Parameter	Maximum Daily (ppb)	Average Monthly (ppb)	Maximum Daily (ppb)	Average Monthly (ppb)	Maximum Daily* (ppb)	Average Monthly** (ppb)
Copper	23	23	86.2	35.9	13.3	4.27
Mercury	8.5	0.4	-	-	0.0094	0.0039
Nickel	332	127	-	-	23.5	15
Silver	10	-	-	-	0.171	0.12
Zinc	380	380	-	-	30.2	25.98
Cyanide	4	4	49.6	20.0	8.39	2.75
BOD Percent Removal	-	$\geq$85%	-	-	-	>85% in all months
TSS Percent Removal	-	$\geq$85%	-	-	-	>85% in all months
Fecal Coliform	400 MPN/100 ml	200 MPN/100 ml	-	-	43 MPN/100 ml	4 MPN/100 ml
Americamysis bahia (LC_{50})	100% or greater	-	-	-	>100%	-
Arbacia punctulata (C-NOEC)	---%	-	-	-	50.0%	-

*In order to compare results to the permit limits, the maximum daily value reported for the year is listed in this table as the maximum daily. Note that the limit for compliance /noncompliance determinations is based on the quantitation limit, which is defined as 0.2 micrograms per liter for mercury and 20.0 micrograms per liter for cyanide.

**The highest average monthly value reported for 2012 is listed in the table for comparison against the RIPDES permit. Note that the limits for compliance/noncompliance determinations are based on the quantitation limit, which is defined as 0.2 micrograms per liter for mercury and 20.0 micrograms per liter for cyanide.

TABLE 25 details the compliance status of the Field's Point facility with the limits established by the RIPDES permit and Consent Agreement in effect during 2013.

TABLE 25
2013 Compliance Status with RIPDES & Consent Agreement Limits For Field's Point Facility

Parameter	2013 Compliance with RIPDES Permit Limits?		2013 Compliance with Consent Agreement Limits?	
	Maximum Daily	Average Monthly	Maximum Daily	Average Monthly
Copper	Yes	Yes	Yes	Yes
Mercury	Yes	Yes	N/A	N/A
Nickel	Yes	Yes	N/A	N/A
Silver	Yes	Yes	N/A	N/A
Zinc	Yes	Yes	N/A	N/A
Cyanide	**No**	Yes	Yes	Yes
BOD Percent Removal	N/A	Yes	N/A	N/A
TSS Percent Removal	N/A	Yes	N/A	N/A
Fecal Coliform	Yes	Yes	N/A	N/A
Americamysis bahia (LC_{50})	Yes	N/A	N/A	N/A
Arbacia punctulata (C-NOEC)	N/A	N/A	N/A	N/A

TABLE 25 shows that in 2013, Field's Point was in compliance with the daily and monthly discharge limitations specified in the Consent Agreement for all toxic pollutant parameters listed in TABLE 24. However, additional work will be necessary to ensure NBC compliance with toxic pollutant discharge limits specified in the RIPDES permit for cyanide. All 2013 cyanide results were reported as "available cyanide" and no results exceeded the consent agreement limits. In 2013, 88% of effluent cyanide samples were reported below the detection limit of 4 ppb.

The NBC met BOD and TSS percent removals in all months of 2013, as well as fecal coliform daily maximums and monthly averages. Field's Point was also in compliance for the acute (LC_{50}) RIPDES permit requirements throughout 2013.

The NBC is actively working to ensure full compliance with all the toxic and conventional pollutants specified in its RIPDES permit. In 2004, at the request of DEM, the NBC recalculated toxic pollutant permit limits based on the metal translator study conducted by NBC in years 2001 and 2002. The results of the metal translator studies performed by NBC found the Providence and Seekonk Rivers met water quality criteria for the trace metals analyzed: cadmium, copper, lead, nickel, and silver. This data resulted in both rivers being removed from the EPA 303(d) list of impaired waterbodies for metals.

~Bucklin Point Facility

When the NBC acquired the Bucklin Point facility, the RIPDES permit in effect had been issued to the Blackstone Valley District Commission in December 1990, and was then transferred to the NBC in 1991. This permit listed several discharge limitations for metals, organic compounds and nutrients, but was modified to reflect alternative effluent limitations when the NBC stressed that permitted discharge levels for some pollutants were not attainable. A new permit was issued to the facility on December 31, 2001.

NBC contested the new permit limits for copper, mercury, nickel, silver, zinc, cyanide, nutrients and TSS and BOD requirements during rain events when primary effluent had to be diverted to the chlorine contact tank. NBC contested the above parameters due to the inability to meet limits that were set as low as saltwater quality criteria in certain cases. Consent Agreement RI-330 was issued and imposed interim limits in January 2004, which are being used to measure compliance. As mentioned in the previous section, NBC has presented to DEM new information from water quality monitoring on the Seekonk River, the receiving waters for the Bucklin Point facility, and is awaiting approval of the new permit limits. The study data shows that the Seekonk River meets water quality criteria for metals, outside of the mixing zones assigned to the outfall. TABLE 26 outlines the current permit limits and monitoring requirements for Bucklin Point and the 2013 effluent results.

TABLE 26
Comparison of Bucklin Point RIPDES & Interim Effluent Limits with 2013 Wastewater Treatment Facility Results

	RIPDES Permit Limits		Consent Agreement Limits		2013 Results	
Parameter	Maximum Daily (ppb)	Average Monthly (ppb)	Maximum Daily (ppb)	Average Monthly (ppb)	Maximum Daily* (ppb)	Average Monthly** (ppb)
Hexavalent Chromium	997	60	-	-	55	48.5
Copper	5.2	5.2	86.1	29.8	99.3	20.23
Lead	199	10.3	-	-	7	1.56
Mercury	1.7	0.04	1.7	0.2	0.112	0.0303
Nickel	67	13.7	67	53.3	35	19.21
Silver	-	2	4.5	-	1.16	0.25
Zinc	76	76	88	76	142	53.8
Cyanide	0.8	0.8	69.3	20	0	0
BOD Percent Removal	-	$\geq$85%	-	-	-	>85% in all months
TSS Percent Removal	-	$\geq$85%	-	-	-	78.10%
Parameter	Maximum Daily (ppb)	Average Monthly (ppb)	Maximum Daily (ppb)	Average Monthly (ppb)	Maximum Daily* (ppb)	Average Monthly** (ppb)
Fecal Coliform	400 MPN/100 ml	200 MPN/100 ml	-	-	14,957.8 MPN/100 ml	13.3 MPN/100 ml
Americamysis bahia (LC_{50})	100% or greater	-	-	-	>100%	-
Arbacia punctulata (C-NOEC)	50%	-	-	-	>100%	-

*In order to compare results to the permit limits, the maximum daily value reported for the year is listed in this table as the maximum daily. Note that the limit for compliance /noncompliance determinations is based on the quantitation limit, which is defined as 0.2 micrograms per liter for mercury and 20.0 micrograms per liter for cyanide.

**The highest average monthly value reported for the year is listed in this table for comparison against the RIPDES permit.

TABLE 27 indicates that the facility was unable to meet the originally issued Maximum Daily and Average Monthly permit limits for copper; was unable to meet the originally issued Maximum Daily permit limits for zinc and fecal coliform; was unable to meet the originally issued Average Monthly permit limits for nickel and TSS percent removal. However, the facility was able to meet the limits detailed in the Consent Agreement for nickel, but not copper and zinc.

The TSS monthly percent removal did not meet the permit limit in February and March 2013. In each of these months the percent removal was 83.7% and 78.1%, respectively. In February and March the plant experienced numerous permit exceedances, including fecal coliform and TSS percent removal, which was primarily attributed to high or wet weather flow conditions. The fecal coliform exceedance occurred on February 24th, 2013 with a result of 518.8 MPN/100 ml compared to the permit limit of 400 MPN/100 ml. This exceedance occurred despite the fact that both UV banks were at 100% power level when all four samples were collected on that day. The Bucklin Point facility was undergoing a major construction upgrade to reduce total nitrogen discharges to Narragansett Bay. The facility was constrained operationally when flows increased in wet weather, as ongoing construction required at least one unit of the various process systems to be off line. Steps were taken to ensure future compliance.

Bucklin Point experienced several exceedances of its RIPDES permit again in November 2013, including copper, zinc, and fecal coliform. This was related to a significant rain event of greater than 3 inches that began on November 26th and ended November 27th. This rain event resulted in sustained flows in excess of 116 MGD for several hours.

During this time period which included portions of two sampling days the facility experienced a solids carryover which impacted composite sampling on November 26th and November 27th and also impacted grab samples from November 27th.

Bioassay results met limits for both acute (LC_{50}) and chronic (C-NOEC) RIPDES permit requirements throughout 2013.

TABLE 27
2013 Compliance Status with RIPDES & Consent Agreement Limits for Bucklin Point Facility

	2013 Compliance with RIPDES Permit Limits?		2013 Compliance with Consent Agreement Limits?	
Parameter	Maximum Daily	Average Monthly	Maximum Daily	Average Monthly
Hexavalent Chromium	Yes	Yes	N/A	N/A
Copper	**No**	**No**	**No**	Yes
Lead	Yes	Yes	N/A	N/A
Mercury	Yes	Yes	Yes	Yes
Nickel	Yes	**No**	Yes	Yes
Silver	-	Yes	Yes	-
Zinc	**No**	Yes	**No**	Yes
Cyanide	Yes	Yes	Yes	Yes
BOD Percent Removal	N/A	Yes	N/A	N/A
TSS Percent Removal	N/A	**No**	N/A	N/A
Fecal Coliform	**No**	Yes	N/A	N/A
Americamysis bahia (LC_{50})	Yes	N/A	N/A	N/A
Arbacia punctulata (C-NOEC)	Yes	N/A	N/A	N/A

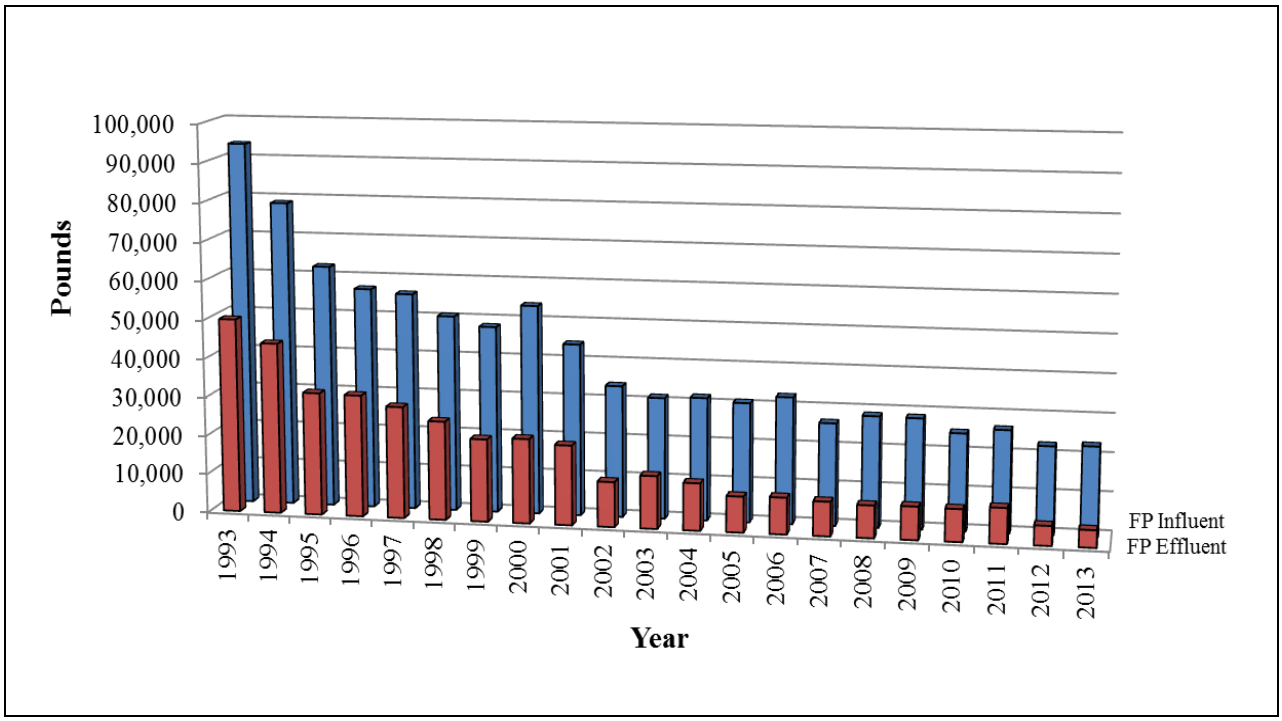
~Bucklin Point Final Effluent pH Variability and Permit Compliance

The pH of the Bucklin Point facility is measured daily by EMDA staff with the use of a high precision Orion pH meter. This analytical program is under the supervision of the NBC Laboratory. The range of values measured for 2013 was between 6.11 and 7.38 s.u. The addition of soda ash (sodium bicarbonate) to the process at Bucklin Point enables more effective biological nutrient reduction and maintains the effluent pH within the desired permit range. All measured values were within the permit range of 6.0 to 9.0 s.u., which is a testament to the fine job done by the NBC Bucklin Point Operations staff.

~Comparison of Influent and Effluent Loadings

FIGURE 27 provides a comparison of historic Field's Point influent and effluent loadings for total metals. At the Field's Point facility, a major portion of each pollutant observed in the plant influent is removed in grit and sludge during the treatment process.

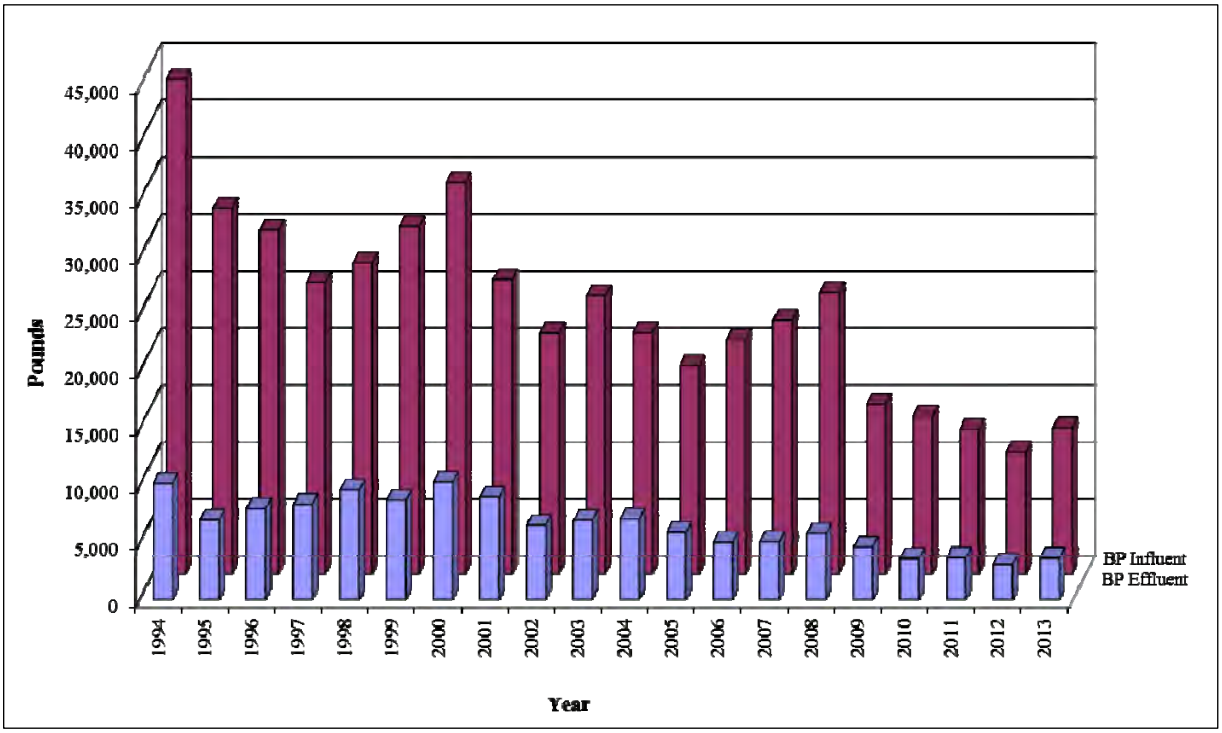
FIGURE 27
Field's Point Influent and Effluent Total Metals Loadings Trend Analysis



The removal rate of metals entering the Field's Point facility varied from 44.64% to 98.64% in 2013 depending upon the pollutant in question. Influent loadings had a slight increase of 1.6%, or 353.8 pounds in 2013 as compared to 2012 but effluent loadings decreased by 600.1 pounds, or 11.9% from the prior year. Since the nitrogen removal process went into operation at Field's Point, removal efficiencies for metals have increased significantly.

FIGURE 28 provides a comparison between the historic influent and effluent total metal loadings for Bucklin Point. As noted for the Field's Point facility, a major portion of each pollutant observed in the plant influent is removed in grit and sludge during the treatment process. It is also clear that as influent concentrations increase, the effluent concentrations increase. In 2013 there was an increase in both influent and effluent. There was a 2,097 pound, or 19.6% increase in influent metals and a 530 pound, or 17.3%, increase in effluent metals. Percent removal of the various metals at Bucklin Point ranged between 47.1% to 97.4%

FIGURE 28
Bucklin Point Influent and Effluent Total Metals Loadings Trend Analysis



The term removal means the reduction of pollutants in the wastewater through their incorporation into settleable solids, which are then concentrated into sludge material. Municipal wastewater treatment plants are not designed to treat and remove industrial waste such as heavy metals. Those metals that are strongly associated with the dissolved phase (e.g. nickel) will be discharged to the receiving waters with less removal than those with higher particulate phase partitioning (e.g. copper or lead) which are particle reactive and settle, with particles, into the sludge. TABLE 28 details removal rates for each of the heavy metals and cyanide at both NBC Wastewater Treatment Facilities. Several influent and effluent metals measured at the plants are found to be non-detectable in accordance with the Laboratory detection limits. The metals shown with asterisks in the table below are generally analyzed to be non-detectable and therefore are statistically analyzed at their detection limits resulting in higher values than actually measured in the samples. From TABLE 28 it is easy to see that a major portion of all toxic pollutants, with the exception of nickel and cyanide, are removed from the wastestream at the NBC plants prior to effluent discharge to the receiving waters of Narragansett Bay. The Field's Point facility was able to remove 90% or more of the cadmium, chromium, copper, lead, mercury, and silver discharged in the Field's Point district, while 83% or more of the cadmium, chromium, copper, lead, mercury, and silver loadings were removed at Bucklin Point. Cyanide loadings for Bucklin Point in 2013 show a negative percent removal. However, the majority of effluent cyanide is reported below the detection limit. There were several instances in 2013 where the effluent cyanide samples required more dilution

making the detection limit <8.0 ppb rather than the typical <4.0 ppb. These samples resulted in what appears to be a higher effluent concentration than influent concentration at Bucklin Point, though this was not reflective of what was actually happening in the plant. Nickel had the lowest percent removal rates of the heavy metals with removal rates of 44.6% and 47.1% for the Field's Point and Bucklin Point facilities respectively.

TABLE 28
Percent Removal of Metals and Cyanide for NBC Facilities

	Field's Point Concentrations			Bucklin Point Concentrations		
	Influent (ppb)	Effluent (ppb)	% Removal	Influent (ppb)	Effluent (ppb)	% Removal
Cadmium	2.50*	0.04	98.40%	2.50*	0.07	97.20%
Chromium	12.12	0.89	92.66%	10.21*	1.08	89.42%
Hex.Chromium	NM	NM		36.11	10.00*	72.31%
Copper	39.42	2.12	94.62%	61.60	10.01	83.75%
Lead	11.68	0.51	95.63%	10.09	0.80	92.07%
Mercury	0.045	0.003	93.33%	0.050	0.007	86.00%
Nickel	20.23	11.20	44.64%	16.23	8.58	47.13%
Silver	4.02*	0.05	98.76%	4.02*	0.12	97.01%
Zinc	89.57	19.68	78.03%	105.35	38.65	63.31%
Cyanide	11.31	9.76	16.58%	6.53	6.77*	-3.68%
Total Metals	179.59	34.51	80.78%	246.15	69.31	71.84%

*These parameters are generally not detectable and are statistically analyzed at the detection limit

POTW Effluent Dissolved Metals Study

In 2000, the NBC began a study to monitor the dissolved metals fraction of the effluent discharged to the receiving waters of the Providence and Seekonk Rivers. Dissolved metals were typically analyzed once per week at each POTW. Total metals were measured twice weekly. In 2013, Field's Point and Bucklin Point effluent samples were analyzed monthly. The NBC and DEM use this data to better understand the fate, effect, and physical partitioning of metals discharged from the POTWs. Understanding the dissolved and total fractions for each metal, a measure of its phase partitioning, between dissolved and particulate, is important for the calculations of permit discharge limitations. POTWs are permitted in total metals. Therefore, the DEM must use a "metal translator conversion factor" to estimate the POTWs total metal fraction in the receiving waters that will be in the dissolved phase when writing a permit for a wastewater treatment plant.

Metals in the dissolved form are more readily absorbed by marine life than metals associated with particles. As a result, the EPA and DEM have established fresh and saltwater water quality criteria in dissolved metals concentrations. By sampling for total and dissolved metals, the NBC will be able to better assess the ratio of dissolved to total metals in POTW effluent and in the receiving waters.

TABLE 29 summarizes the data from 2013. The values are calculated by dividing the dissolved concentration by the total concentration. Dissolved phase is operationally defined as that portion which passes through a 0.45 micron filter. At Field's Point, some of the dissolved aluminum, lead, and silver samples were reported at less than the detection limit (between 25-42% of all samples). At Bucklin Point some dissolved lead samples were reported at less than the detection limit (33% of all samples). Averages were still calculated for these metals, however keep in mind that the dissolved fraction may be lower for these metals than these averages represent. For the calculated dissolved to total ratios listed below, ratios were calculated for each date there was a dissolved metals result, using the dissolved metals concentration and the total metals concentration for that day. Annual averages were then calculated from this data and are presented in TABLE 29 below.

TABLE 29
2013 Final Effluent Phase Partitioning Study Results

Dissolved/Total Shown as a Fraction		
	Field's Point Mean	**Bucklin Point Mean**
Cadmium	1.91	0.86
Chromium	1.25	1.11
Copper	1.66	0.92
Lead	0.72	0.59
Nickel	0.98	0.97
Silver	0.78	0.44
Zinc	1.05	1.02
Aluminum	0.37	0.47
Iron	0.62	0.51

At Bucklin Point the results of this study show chromium and zinc to be the elements with the highest fraction in the dissolved phase, followed by nickel, copper, and cadmium in the final effluent. At Field's Point, cadmium and copper were shown to be the elements with the highest fraction in the dissolved phase, followed by chromium, zinc, and nickel. Silver, aluminum, and iron are more strongly associated with particles, and thus the fraction of the metal in the dissolved phase is lower.

For cadmium, chromium, copper, and zinc at both facilities, there were several instances where the dissolved metal exceeded the total metal. At Bucklin Point, dissolved chromium exceeded total chromium in 75% of the samples and dissolved zinc exceeded the total zinc in 67% of the samples. At Field's Point 100% of the dissolved chromium samples, 33% of the cadmium, 50% of the copper, and 75% of the dissolved zinc samples exceeded their respective total metals concentrations. As a result, chromium and zinc exceeded the ratio of 1.0 at both faculties and cadmium and copper also exceeded the ratio at Field's Point.

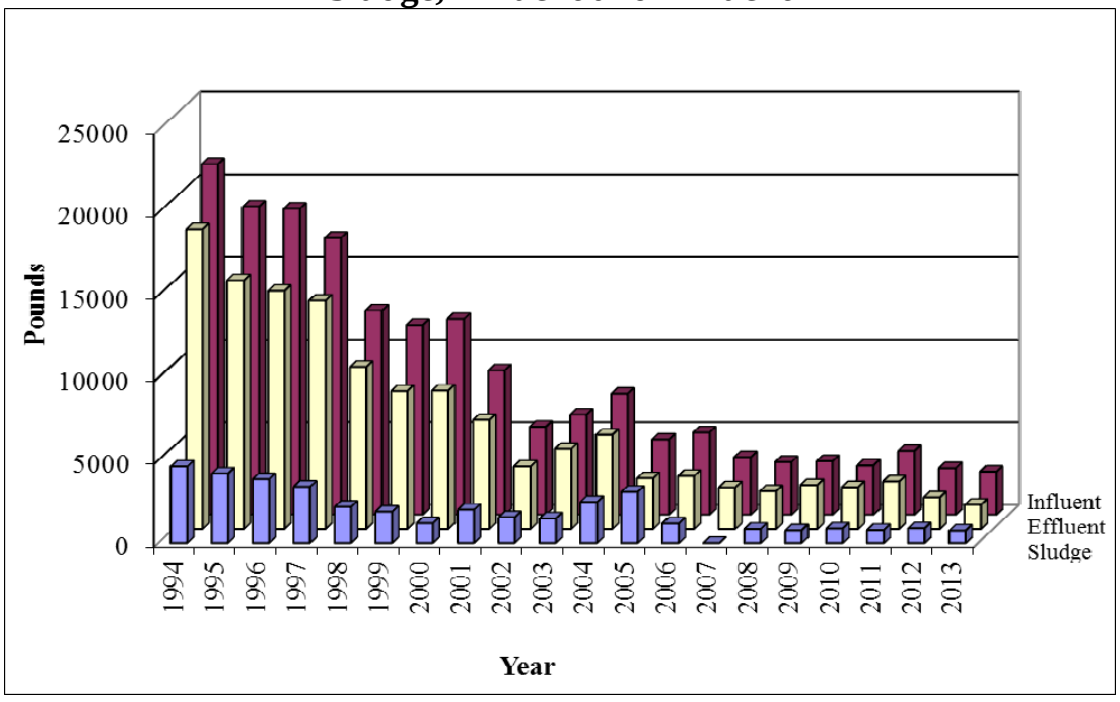
Data for 2013 total and dissolved metals analysis results are included in ATTACHMENT VOLUME II, SECTION 10.

Sludge Analysis

To provide further insight into influent trends and POTW removal efficiency for metals, sludge-loading trends have been compared to influent and effluent loads since 1994 for three metals at both facilities. Nickel was included in this comparison due to its high incidence in the dissolved phase, since approximately 100% of nickel in the final POTW effluent is in the dissolved form. Nickel is also a metal commonly associated with industrial sources. Copper was also chosen due to its relatively high abundance and similar dissolved partitioning. Zinc was selected because of its relative abundance and significant influent loadings. In the following figures, please note that the final sludge loading is an approximation since there is insufficient data for loading attributed to grit. During 2013, sludge metals measurements were conducted bimonthly as opposed to weekly for the years prior to 2006. The mass balance agreement of these metals is calculated by subtracting the effluent and sludge loadings from the influent loading. Historical and 2013 sludge data are included in ATTACHMENT VOLUME II, SECTION 11.

As can be seen in FIGURE 29, the Field's Point sludge loading results for nickel show general agreement with declining nickel inputs to Field's Point influent. Note that the center row of columns on the figure represents final effluent loading. The discrepancy between influent nickel loading compared to sludge and effluent nickel loadings was 18% during 2013. This 18% discrepancy is attributed to loading in grit.

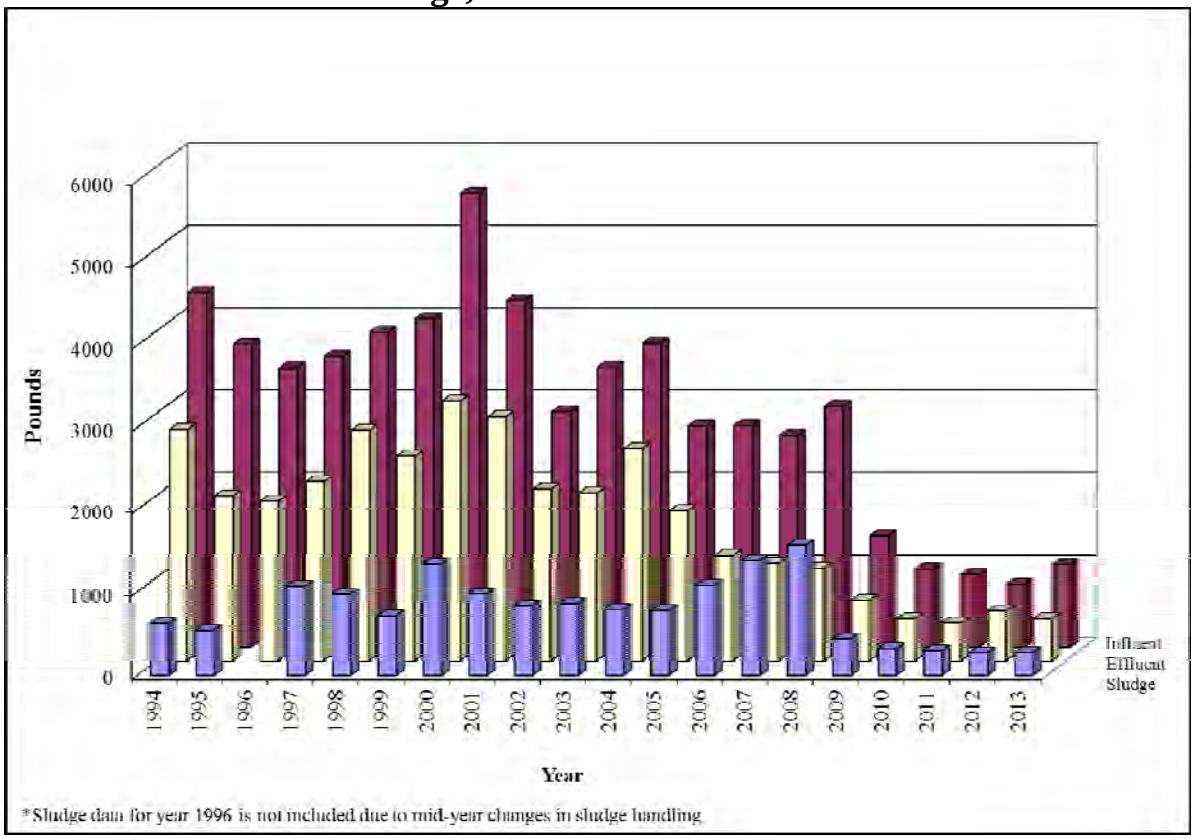
FIGURE 29
Nickel Loading Trend Analysis in Field's Point Sludge, Influent and Effluent



At Field's Point, nickel loading has decreased slightly in the influent and effluent as well as in the sludge during 2013 as compared to 2012. Nickel in the sludge has remained below 1,000 pounds since 2007. In the last five years, the influent, effluent, and sludge nickel loading at Field's Point has been the lowest in plant history and has remained relatively stable.

At Bucklin Point, nickel loading has increased in the sludge and the influent but decreased in the effluent during 2013 as compared to 2012 as can be seen in FIGURE 30. Influent Nickel increased by 240.2 pounds in 2013 and increased by a mere 3 pounds in the sludge, while effluent nickel decreased by 93 pounds. In 2013, there was a 27% discrepancy between measured influent loading and loading in the effluent and sludge. This discrepancy is attributed to loading in the grit.

FIGURE 30
Nickel Loading Trend Analysis in Bucklin Point
Sludge, Influent and Effluent



Nickel is highly partitioned in the dissolved phase and shows the least removal in influent to effluent at the treatment facilities. Of the three metals represented here, nickel had the second highest concentration found in the dissolved phase of the final effluent at both Field's Point and Bucklin Point. This agreement seems to indicate the following:

- Measurements of influent and effluent nickel concentrations are accurate;
- Sludge moisture measurements are valid;

- Little nickel contamination is present in sludge sampling at both Field's Point and Bucklin Point.

FIGURES 31 and 32 shows the loading trends for zinc for the Field's Point and Bucklin Point facilities respectively. Zinc loading at Field's Point has decreased in the sludge, but increased in the effluent and influent in 2013. The discrepancy between influent zinc loading and the combined sludge and effluent zinc is 0.8% for 2013. At Bucklin Point, zinc loading also decreased in the sludge, but increased in the effluent and influent in 2013. The discrepancy at Bucklin Point was 14% for 2013.

FIGURE 31
Zinc Loading Trend Analysis in Field's Point
Sludge, Influent and Effluent

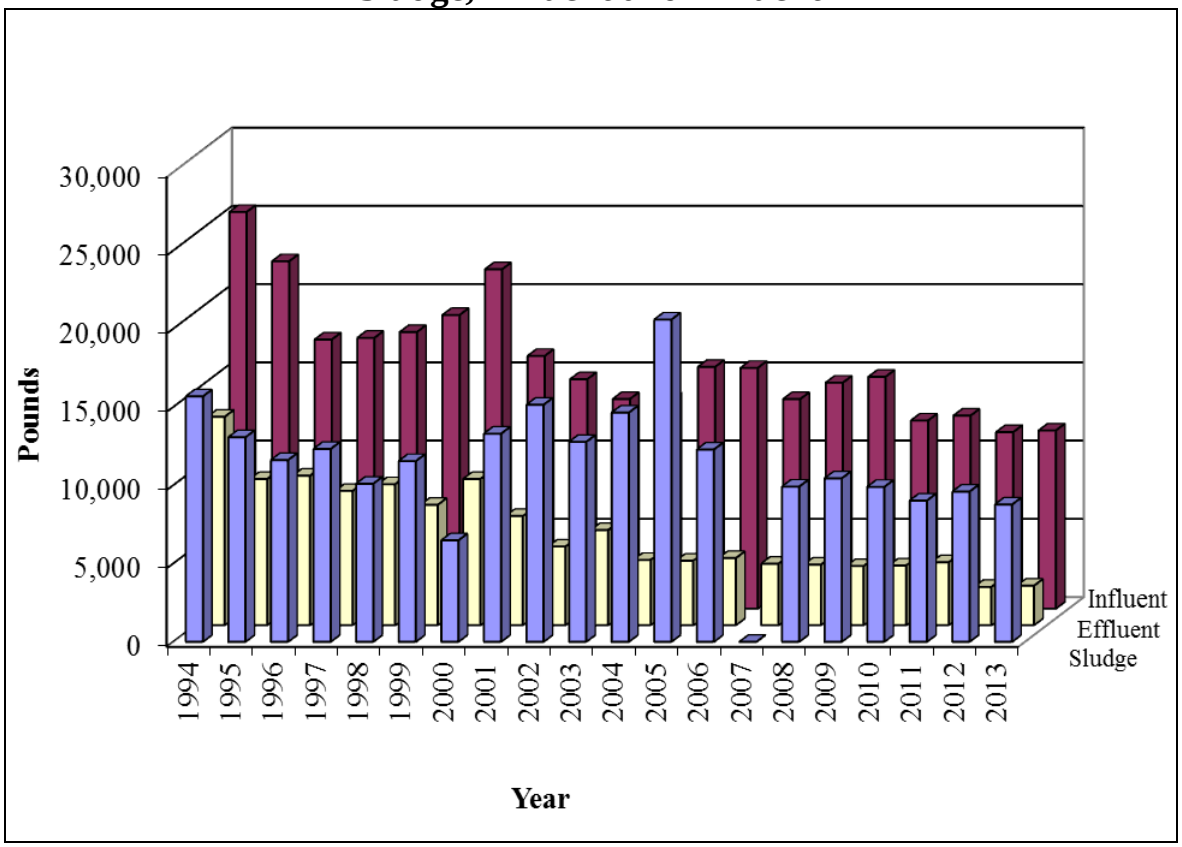
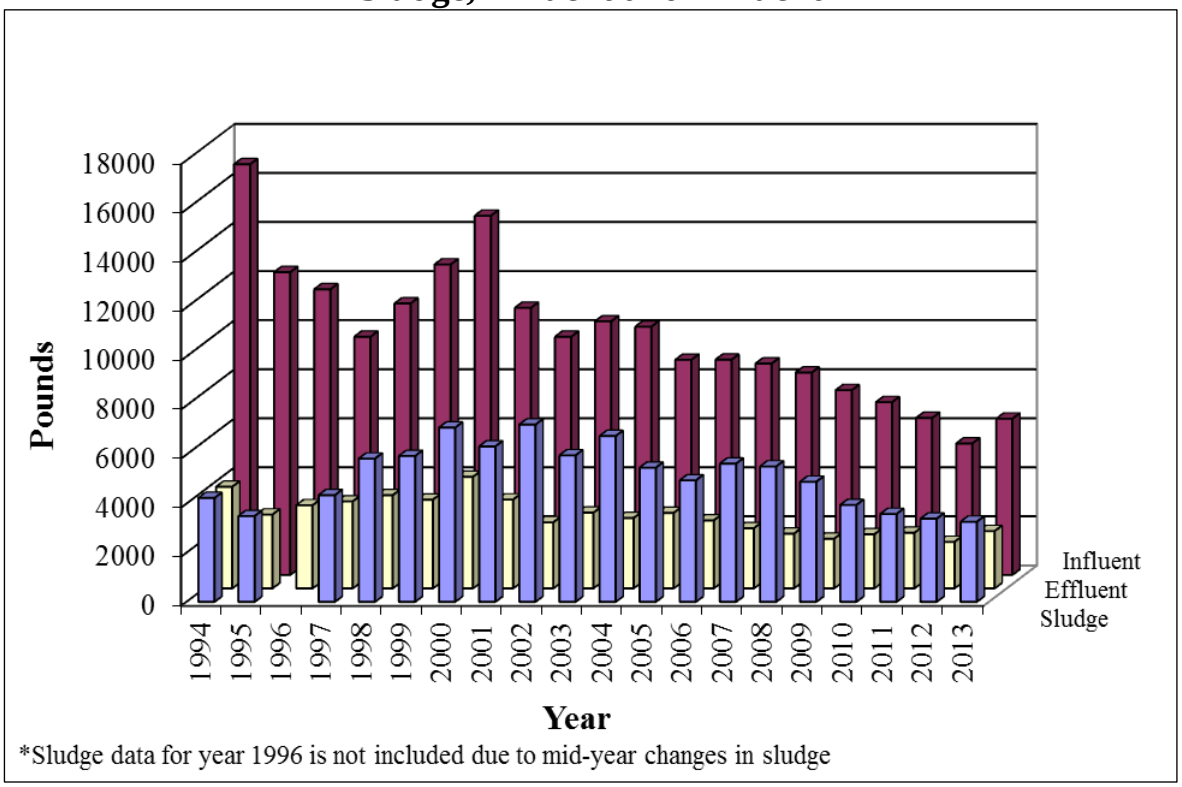


FIGURE 32
Zinc Loading Trend Analysis in Bucklin Point Sludge, Influent and Effluent



FIGURES 33 and 34 present the copper loading trend analyses. NBC data show that approximately higher amounts of copper in the final effluent at Bucklin Point and Field's Point are in the dissolved phase. At Field's Point, copper loading increased in the influent, but decreased in the effluent and sludge in 2013 when compared to 2012. The discrepancy between the influent and the combined effluent and sludge loading was 12%. At Bucklin Point, copper loadings decreased in the sludge, but increased in the influent and effluent with a 21% discrepancy. These discrepancies can be attributed to loading in the grit.

FIGURE 33
Copper Loading Trend Analysis in Field's Point
Sludge, Influent and Effluent

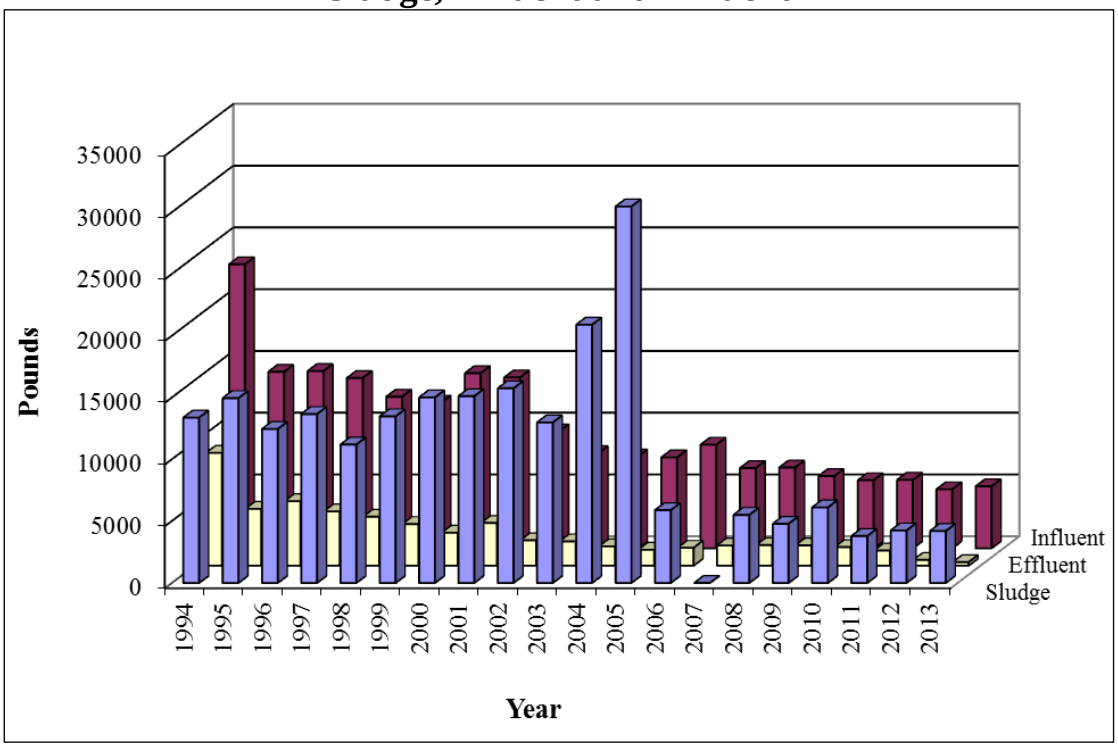
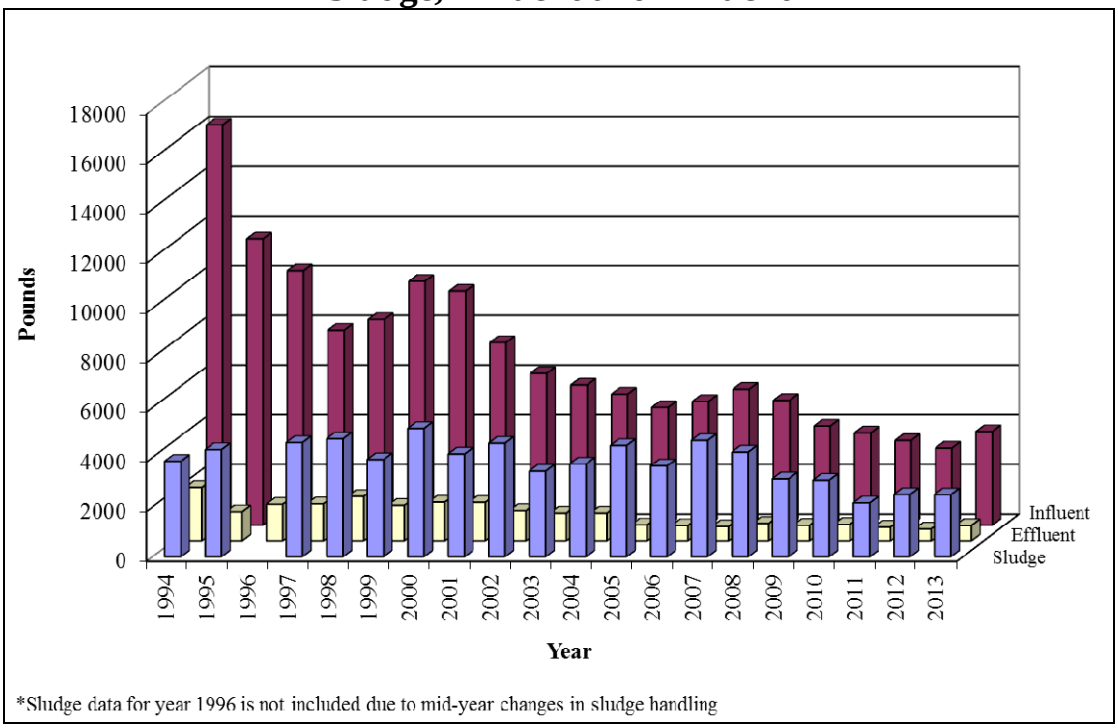


FIGURE 34
Copper Loading Trend Analysis in Bucklin Point
Sludge, Influent and Effluent



*Sludge data for year 1996 is not included due to mid-year changes in sludge handling

BOD and TSS Loadings

BOD and TSS loading historical trend analysis provide an interesting means of determining the ability of the individual facility to handle variability in influent loadings without disruption of plant operations. For Bucklin Point, FIGURES 35 and 36 show the 30-day averaged trend for TSS and BOD influent and effluent, respectively. Effluent BOD and TSS show a decline beginning in 2005 through 2013 at Bucklin Point which is largely attributable to initiation of improved treatment processes as a result of a comprehensive facility upgrade which began to go on-line in 2005 and was completed in 2006.

FIGURE 35
TSS Loading Trend Analysis for Bucklin Point Influent and Effluent

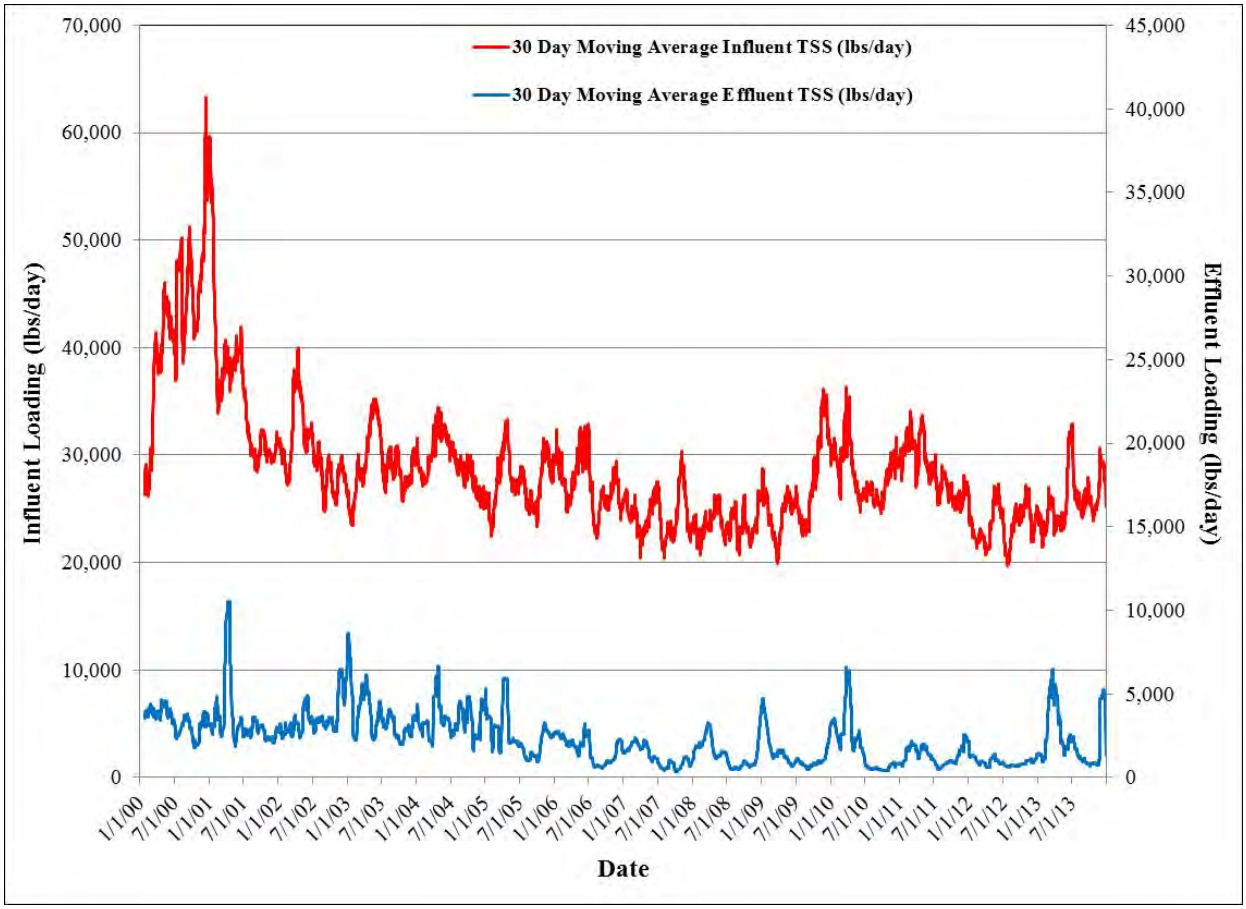
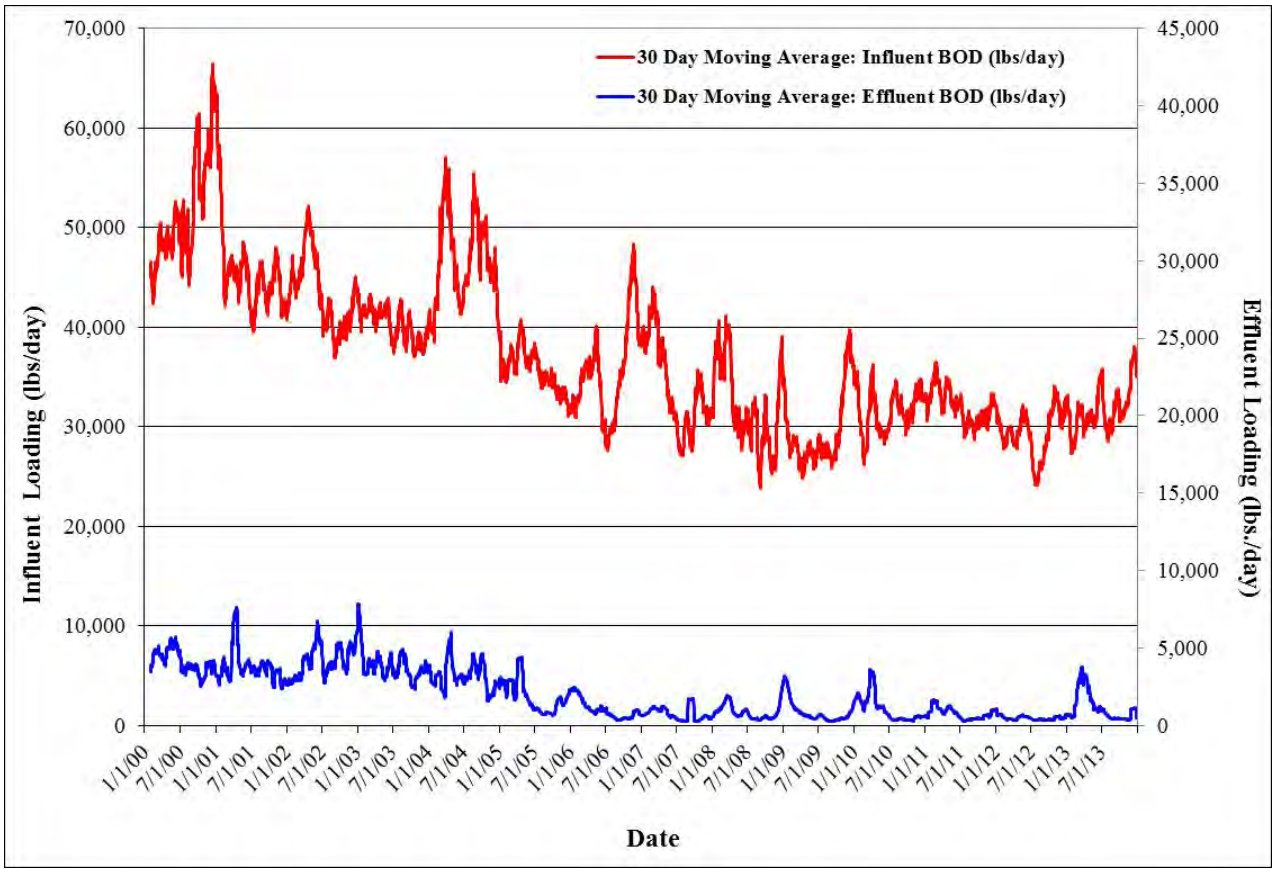


FIGURE 36
BOD Loading Trend Analysis in Bucklin Point Influent and Effluent



FIGURES 37 and 38 show the 30-day averaged TSS and BOD data for Field's Point. Periods of high influent loading are possibly attributable to maintenance within the collection system, or wet weather events. It is estimated that at Field's Point flow coming from the CSO tunnel accounts for about 10% of the influent TSS and only about 2% of the influent BOD. It is interesting to note that, despite these transient increases in the influent loading rates, effluent loadings show very little variability. This demonstrates the buffering capacity of both facilities, the ability of Operations to effectively adjust conditions to treat incoming pollutants, and an overall improvement in the removal of these conventional pollutants. FIGURES 37 and 38 below show a decline in effluent BOD and TSS beginning in 2012 at Field's Point, which is most likely attributable to plant upgrades associated with the new BNR treatment process, parts of which became operational in 2012.

FIGURE 37
TSS Loading Trend Analysis in Field's Point Influent and Effluent

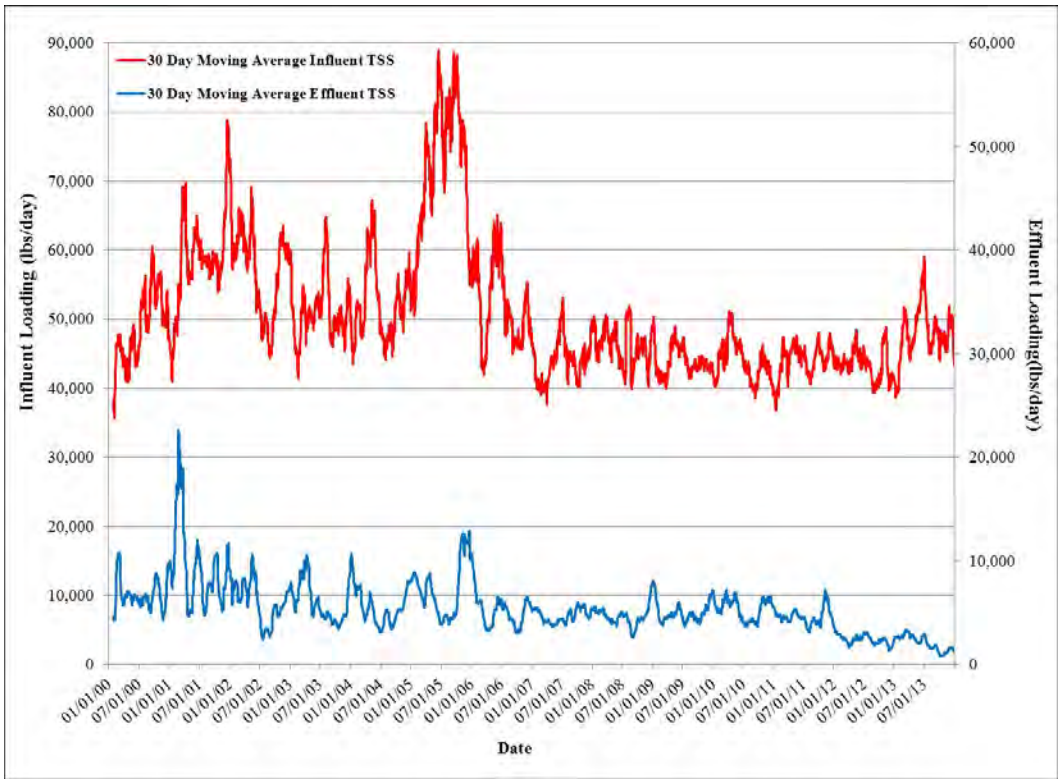
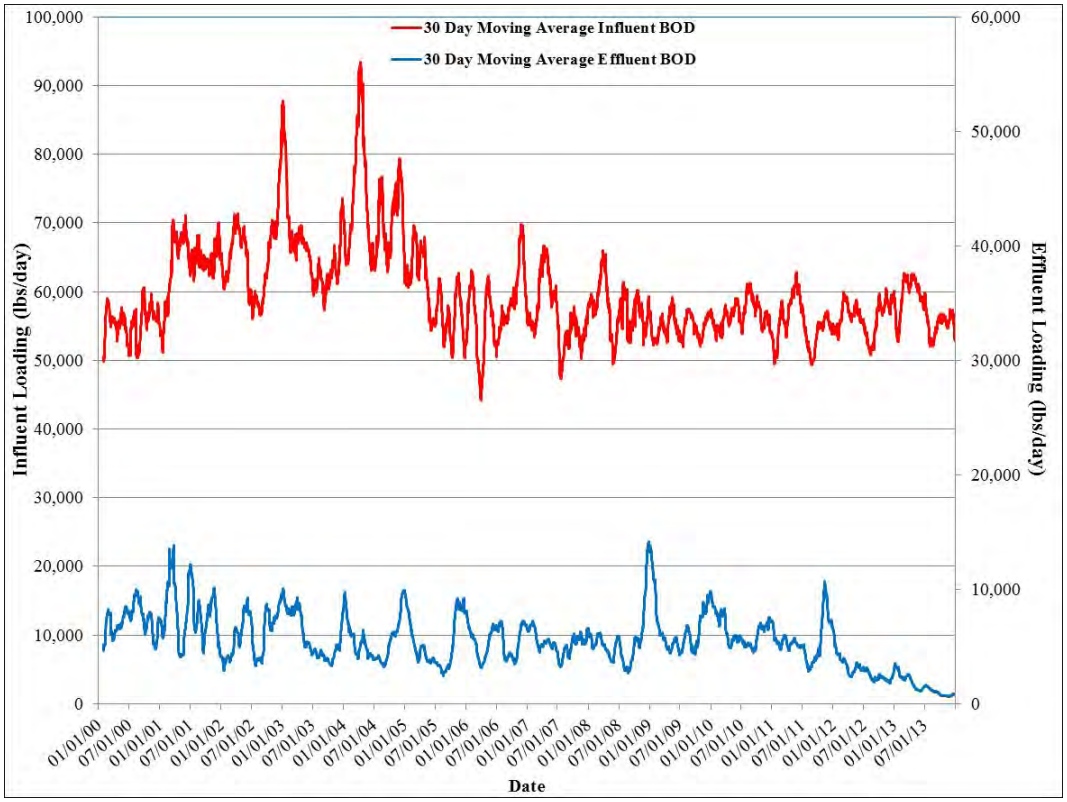


FIGURE 38
BOD Loading Trend Analysis in Field's Point Influent and Effluent



Comparison of Final Effluent Concentrations in 2013 and Saltwater Quality Criteria of Receiving Waters

A comparison of final effluent concentrations of permitted parameters and water quality criteria is useful to evaluate potential impact of the treatment plants on the receiving waters. TABLE 30 lists measured dissolved and total metal concentrations in the effluent, as well as cyanide, pH, and fecal coliform bacteria compared to saltwater quality criteria determined by DEM. Comparisons are made between annual averages and chronic criteria that protect long-term exposure and annual maximums to acute criteria that are established to protect marine life and waters from short-term exposures to pollutants. The results listed are the result of analyses by the Laboratory. The Laboratory has implemented many improved clean sampling and clean analysis procedures in order to routinely achieve these low detection levels.

The trace metal study conducted by NBC and URI in 2001 and 2002 found both the Seekonk and Providence River reaches of Narragansett Bay meeting EPA water quality criteria for metals. These findings were presented to DEM, and as a result of this work, the Seekonk and Providence Rivers have been removed from the state's EPA 303(d) list of impaired water bodies for metals.

TABLE 30
Comparison of 2013 Final Effluent Concentrations and Water Quality Criteria of Receiving Waters

Pollutant	Phase and statistical category	Bucklin Point Effluent results in ppb	Field's Point Effluent results in ppb	Chronic WQC in ppb	Acute WQC in ppb
Copper	Dissolved phase effluent annual average	7.68	3.25	3.1	
	Dissolved phase effluent annual maximum	15.94	7.81		4.8
	Total effluent annual average	10.01	2.12		
	Total effluent annual maximum	99.30	13.30		
Lead	Dissolved phase effluent annual average	0.33	0.33	8.1	
	Dissolved phase effluent annual maximum	0.42	0.46		210
	Total effluent annual average	0.80	0.51		
	Total effluent annual maximum	7.00	1.30		
Nickel	Dissolved phase effluent annual average	7.10	11.03	8.2	
	Dissolved phase effluent annual maximum	13.32	17.18		74
	Total effluent annual average	8.58	11.20		
	Total effluent annual maximum	35.00	23.50		
Silver	Dissolved phase effluent annual average	0.03	0.03		
	Dissolved phase effluent annual maximum	0.04	0.07		1.9
	Total effluent annual average	0.12	0.05		
	Total effluent annual maximum	1.16	0.17		
Zinc	Dissolved phase effluent annual average	38.03	20.46	81	
	Dissolved phase effluent annual maximum	52.79	28.68		90
	Total effluent annual average	38.65	19.68		
	Total effluent annual maximum	142.00	30.20		
Mercury	Dissolved effluent annual average	NM	NM	0.94	
	Dissolved effluent annual maximum	NM	NM		1.8
	Total effluent annual average	0.007	0.003		
	Total effluent annual maximum	0.112	0.009		
Cyanide	Total effluent annual average	6.77	9.76	1.0	
	Total effluent annual maximum	25.30	18.60		1.0
pH	Total effluent annual minimum (s.u.)	6.11	5.87	> 6.5 < 8.5	
	Total effluent annual maximum (s.u.)	7.38	7.66		> 6.5 < 8.5
Fecal Coliform Bacteria	Total effluent annual geomean (MPN/100 ml.)	5.3	2.5	50	
	% > 400 MPN/100 ml.	0.85%	0%		< 10%

*NM – not measured

Dissolved metals are measured monthly at the two plants and total metals are measured twice weekly. TABLE 30 details the annual averages and annual maximums for dissolved and total metals. Saltwater quality criteria are written as dissolved values, based on a metal translator conversion factor, converting from total to dissolved phase. Default EPA conversion factors range from 0.83 to 1.0, a ratio without units. Dissolved

concentrations in the effluent can be compared to the saltwater quality criteria with the understanding that dilution occurring in the established mixing zones at the outfalls quickly lowers the concentrations in the Bay waters. This was demonstrated in the 2001 and 2002 trace metal study of the Bay waters by NBC, URI, and Microinorganics, Inc.

From TABLE 30, the following conclusions can be made regarding the various pollutant parameters:

- Dissolved copper concentrations at Field's Point and Bucklin Point did not meet the chronic water quality criteria or the acute water quality criteria for annual average nor annual maximum. However, effluent concentrations are rapidly diluted as the effluent enters the receiving waters. It is often difficult for wastewater effluent to meet the receiving water quality criteria for copper since the limit in drinking water is over 400 times higher than the limit in the receiving waters.
- Lead continues to show annual average and maximum dissolved concentrations significantly lower than the chronic and acute water quality criteria at both facilities. The annual maximum for total lead at both Field's Point and Bucklin Point are nearly two orders of magnitude lower than the acute dissolved lead criteria.
- The nickel dissolved annual maximum concentrations at both facilities were below the acute saltwater quality criteria. However, the dissolved annual average effluent nickel concentrations did not meet chronic water quality criteria at Field's Point, but did the meet the criteria at Bucklin Point. Though Field's Point did not meet the chronic criteria, effluent concentrations are rapidly diluted as the effluent enters the mixing zone of the receiving waters.
- Silver shows dissolved annual maximum and annual average concentrations as well as total effluent annual average and total effluent annual maximum are all below the acute water quality criteria. There is no chronic saltwater quality criterion established for silver.
- Maximum and average values for both total and dissolved zinc at both facilities are less than the corresponding chronic and acute criteria**.**
- Mercury analyses of the total sample, particulate and dissolved combined, at both facilities, have annual averages roughly ten times lower than the chronic saltwater quality criteria and acute saltwater quality criteria. The mercury chronic saltwater quality criterion was increased from 0.025 ppb to 0.94 ppb as a result of changes in EPA mercury toxicity methodology.
- The average annual effluent cyanide concentration and annual maximum at Field's Point was above the chronic and acute water quality criteria. The annual average and maximum at Bucklin Point were above the chronic and acute saltwater quality criteria. Though the facilities did not meet some of the receiving water quality criteria, effluent concentrations are rapidly diluted as it enters the mixing zone of the receiving waters. Cyanide loadings at both facilities have generally decreased over time.

- Hydronium ion concentration, or pH, shows the annual effluent minimums are on occasion slightly below the 6.5 minimum water quality criteria and maximums are within saltwater quality criteria at both plants. Though effluent flows are sometimes below the minimum saltwater quality criterion, effluent is rapidly mixed with the receiving waters as it enters, and low pH results are often associated with heavy rainfall events.
- Fecal coliform bacteria daily geometric mean values were used to determine whether the facilities met chronic water quality criteria for fecal coliform, and a count of the number of samples that exceeded 400 was used to establish whether acute water quality criteria were met. Both facilities were well below the 50 MPN chronic water quality criteria. At Bucklin Point only 0.85% of all fecal samples were above 400 MPN, and there were no samples above 400 MPN at Field's Point in 2013, the criteria for acute concentrations. Field's Point and Bucklin Point effluents both meet saltwater quality criteria for both chronic and acute comparisons based on these calculations.

Summary

In general, the two POTWs continue to show significant improvements in operations and effluent quality since NBC took over operations and with the implementation of the NBC Pretreatment Program and Pollution Prevention initiatives of the ESTA Section. The Pretreatment and ESTA Sections have implemented educational programs to assist firms in achieving and maintaining compliance. The NBC has also significantly improved sampling methods over the past several years and improved sampling of septage and sludge have shown clear results. The aim of the EMDA sampling program is to collect representative samples at every stage, reduce contamination, and provide valuable information to POTW and regulatory staff in order to protect the environment and serve the public interest. The Laboratory Section continues to improve analytical procedures and research new technologies to improve the accuracy of all analytical results of this sampling. Facility upgrades underway at Bucklin Point are expected to make very clear improvements in effluent quality for conventional pollutants, as well as metals, cyanide, and nutrients. The Field's Point treatment plant upgrades have clearly demonstrated not only reduced nutrients but improved effluent quality for other parameters as well.

Despite NBC studies showing that significant portions of toxic metal pollutants originate from residential sources, overall the toxic pollutant loadings to the two NBC Wastewater Treatment plants have decreased over time. This is a clear reflection of the fine work done by the NBC toxic reduction and control programs. While the influent metals loading increased at Bucklin Point in 2013 as compared to 2012 by 19.6%, and Field's Point had increased influent loadings by 1.6%, the pounds increased was insignificant and had no impact on the Total Maximum Daily Load at either facility. The levels of toxics in the effluent discharged from the NBC plants also increased this year, but still remain quite lower than previous years. In 2013 effluent loadings increased at Bucklin Point by 17.3%, but decreased at Field's Point by 11.9%.

Furthermore, the NBC Rivers Study performed in 2002 showed excellent results. Four seasonal surveys were conducted during 2001 and 2002 that monitored the receiving waters of Bucklin Point and Field's Point. Based upon the results of these seasonal surveys, DEM has removed these NBC receiving waters from the EPA 303(d) List of Impaired Waters and toxic pollutant discharges from NBC facilities have dropped significantly since this study was conducted. This is a clear testament to the effectiveness of the NBC toxic reduction and control programs.

VI. ENFORCEMENT

NBC Enforcement Actions

The NBC will initiate some type of enforcement action against 100% of those persons and companies who violate the NBC Rules and Regulations. A wide range of enforcement actions are used to bring industrial and commercial users into compliance with NBC requirements and effluent limitations. The action can be as routine as a telephone call or as serious as an administrative order and assessment of penalty. Hundreds of phone calls were made during 2013 and 1,766 Notices of Violation (NOV) were issued for various violations of NBC Rules and Regulations. The following is a description of the most common types of enforcement actions utilized by the NBC and a brief summary of the number of each type initiated by the NBC over the past year:

- *Telephone calls* to users are made daily to discuss violations and problems. These calls are often sufficient to bring the user into compliance. A telephone log sheet documenting the conversation is prepared and placed in the user file or in some cases a letter may be sent to the user summarizing the discussion.

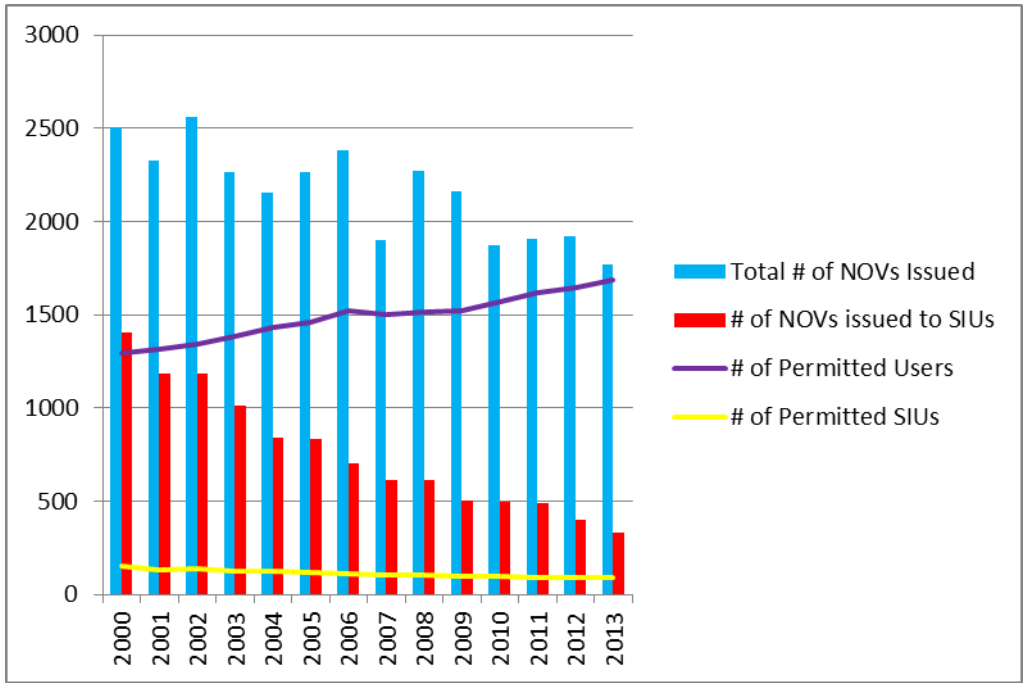
- *Notices of Violation* are issued by the NBC to inform a user of its noncompliance with NBC Rules and Regulations and warn the user that escalated enforcement action may result for continued noncompliance. These letters can be computer generated or may be tailored by the Pretreatment staff. An NOV specifically states that its issuance does not prohibit additional enforcement action. It also informs the violator that the non-compliance may result in publication of the firm's name in The Providence Journal and explains that inclusion on that list will subject the violator to liability for payment of the publication. In addition, NOVs refer the user to free technical and compliance assistance from the ESTA Section. The most typical NOVs are described below. TABLE 31 describes each type of NOV that is issued and the number of each issued in 2013. Examples may be viewed in ATTACHMENT VOLUME I, SECTION 4.

TABLE 31
2013 Notices of Violation

NOTICE OF VIOLATION	DESCRIPTION	NUMBER ISSUED IN 2013
Letter of Deficiency	• Issued by certified mail • Notifies users of deficiencies identified during inspections • Requires corrective actions with specific due dates	123
Failure to Meet Standards	• Issued when NBC or user self-monitoring results indicate a violation of NBC or EPA discharge limitations including monthly average limits • Requires an increase in sampling frequency	117
Notice of pH Violations	• Issued each time a user violates the high or low pH limit as indicated on the user monthly pH report	120
Failure to Submit Monitoring Reports	• Issued monthly to users that fail to submit a Self-Monitoring Compliance (SMCR), pH Monitoring, Zero Discharge Certification or Best Managing Practices (BMP) reports on time	681
Failure to Complete or Sign Required Reports	• Issued to users that do not complete or sign SMCRs or pH Monitoring Reports	4
Failure to Sample and/or Analyze for All Parameters	• Issued to users that did not sample for and/or analyze all required parameters required by their permits	5
Failure to Immediately Report Violations	• Issued to users that fail to notify the NBC within 24 hours of becoming aware of violations of NBC discharge limits in accordance with 40CFR403.12(g)(2)	15
Failure to Satisfy NBC Requirements	• Issued to users that fail to submit required documents or exceeding required completion dates	426
Failure to Pay Permit Fees	• Issued to users greater than 90 days late in paying permit fees	275

FIGURE 39 graphically shows the number of NOVs issued to all users, the number of NOVs issued to SIUs as well as the number of SIUs and permitted users for the period of 2000 through 2013. As can be seen, the total number of NOVs issued has declined during this time period but has remained relatively consistent since 2010. Although there has been variabitliy in the number of NOVs issued to all permitted users, the number of NOVs issued to SIUs has steadily declined from 2000 to 2013. In fact the number of SIU NOVs decreased by 76.2% since 2000. The number of permitted users increased steadily since 2000. For the period of 2000 to 2013 there has been an overall increase of 30.1% in the number of permitted users. This drastic decrease in the number of NOVs issued to SIUs and the consistent level issued to all users, considering the increase in the number of permitted users, can be attributed to the educational efforts of the Pretreatment and ESTA sections and users becoming more familiar with regulatory requirements.

FIGURE 39
NOVs ISSUED TO ALL USERS AND SIUs 2000 - 2013



- *Letters of Wastewater Discharge Permit Suspension* are typically issued to SIUs who have not discharged process wastewater to the NBC sewer system for at least 30 days. These letters are issued by the Executive Director. During 2013, the NBC did not issue any letters of suspension. These letters require the user to permanently disconnect the final process discharge line from the NBC sewer line due to their potential to adversely impact the NBC should illegal or unpermitted discharges occur. The suspension of a user permit relieves the user from having to submit monthly monitoring reports. Inspections of these users by Pretreatment staff are still conducted since they still have the potential to impact the NBC sewer system.

- *Annual publication* of user names in the state's largest daily paper will result if a violator meets the criteria for Significant Non-Compliance as defined in 40CFR 403.8(f)(2)(vii). All NOV letters issued during the preceding year contained language warning the industrial user that the name of their firm would be published if their outstanding violation was not quickly corrected. Despite these warnings, the names of fourteen firms found to be in SNC with NBC regulations were listed in an advertisement in the PROVIDENCE JOURNAL on February 20, 2014 for violations occurring between October 1, 2012 and December 31, 2013**.** A copy of this public notice is provided later in this chapter in FIGURE 10.

- *Meetings with users* are held to discuss problems or violations the firm may be experiencing and often produce good results. Before initiating an administrative action and/or assessing an administrative penalty, the parties may reach a resolution of the issues without further enforcement action. At these meetings, the user is informed of its potential financial liability should its non-compliance status continue, often resulting in compliance.

- *Administrative Orders* (AO) are Orders issued by the NBC to address repeated or serious instances of noncompliance. AOs are classified into one of four general types; Compliance Orders, Cease and Desist Orders, Consent Orders/Settlement Agreements and Termination/Suspension of Permit/Service Orders. The AO may or may not assess an administrative penalty. Depending on the type of AO issued, the user may be required to immediately cease discharging or achieve compliance with NBC Rules and Regulations within a specified time frame. AOs are considered the harshest control vehicle for ensuring compliance with NBC regulations. All AOs entitle the alleged violator the right to request a hearing before an independent hearing officer with regard to both the issue of compliance and penalties. AOs are issued by the NBC Chief Legal Counsel.

- *Civil Suits* are filed against users for nonpayment of pretreatment fees or to enforce the terms of an Administrative Order, Consent Order or Final Decision and Order. Depending on the amount outstanding, the suits are filed either in District or Superior Court. These suits are filed only after all other collection avenues have been attempted and were unsuccessful. Firms may pay in full, establish a payment schedule or negotiate a settlement as a result of these suits. During 2013, no civil suits were filed.

2013 Administrative Orders

During 2013, the NBC did not issue any Administrative Orders for violations of NBC Rules and Regulations and/or permit requirements. A sample AO is provided in ATTACHMENT VOLUME I, SECTION 4. Furthermore, a history of all enforcement actions taken by the NBC as of December 31, 2013 is found at the end of this chapter in TABLE 33. The table provides a history of the penalties assessed, the penalties paid and the present status of each enforcement action. A brief summary to update the status of pending Administrative Orders is provided later in this chapter.

Update of Past Enforcement Actions

Field's Point District

- AO #FP-01-09 was issued against Mazey Alarachi d/b/a Mazey's Restaurant – Charles Street Facility (Charles Street) and AP #FP-02-09 was issued against Mazey Alarachi d/b/a Mazey's Restaurant – Smith Street Facility (Smith Street). Collectively these companies will be referred to as Mazey's. Both of these AOs were issued on October 8, 2009. The AOs cited Mazey's for failure to submit five day sampling for total oil & grease, failure to submit permit required monitoring reports for October 2007, April 2008, October 2008 and April 2009. Smith Street was further cited for failure to install a sample port. Charles Street was assessed an administrative penalty of $9,000 and Smith Street was assessed an administrative penalty of $9,500. The AOs ordered Mazey's to install the sample port, conduct all required sampling, submit all past due monitoring reports required by the permits, comply with all the terms of the permits, and install a grease removal unit at each facility. For the purpose of negotiating with Mazey's, the decision was made to combine the two AOs. A status conference was conducted on November 19, 2009. Mr. Alarachi appeared and responded to the AO. Mr. Alarachi submitted a brief proposal offering to conduct five day sampling. Negotiations resulted in a Consent Order (CO) executed on September 16, 2010. Mr. Alarachi agreed to submit all past due samples and pay a $5,000 penalty. Mr. Alarachi, by the terms of the CO would be required to install a grease removal unit at each location by June 2011. A meeting was held with Mr. Alarachi on June 30, 2011, to discuss the progress with complying with the requirements of the CO. Based on the issues Mr. Alarachi outlined during the meeting, a revised schedule to complete the required work was sent to Mazey's. Mazey did not comply with the revised schedule or the CO. NBC filed a complaint in Rhode Island Superior Court on January 5, 2012. Mr. Alarachi was served with process on January 24, 2012. A Judgment by Default was entered by the court in favor of the NBC on September 27, 2012. Numerous Notices of Violation were issued to Mazey's for not complying with the terms of the Wastewater Discharge Permits throughout 2012 and early 2013. In addition, the permit for each location expired on July 31, 2012. Mr. Alarachi was notified the permits would be held in abeyance until he complied with the court order. The NBC returned to court to enforce the order in May 2013. Mr. Alarachi was notified his sewer connection from the kitchen at each location would be permanently cut and capped unless he complied with the order. A grease removal unit was installed at the Smith Street location in May, and in the Charles Street location in August. The Wastewater Discharge for each location was reissued once the grease removal unit was installed. Due to the high financial costs associated with the purchase and installation of the grease removal units, as well as the serious financial issues demonstrated by Mr. Alarchi, NBC reached a settlement of $640 for the administrative penalty. The penalty was paid. The matter is closed.

2013 Civil Suits

During 2013 the NBC did not issue any civil suits against a permitted company for violations of the Rules and Regulations and the terms of its Wastewater Discharge Permit. Below is an update of the civil action (CA) that was issued in 2012.

- CA #12-2600 was issued against Providence Specialty Products, Inc. (Providence Specialty), a SIU conducting cheese manufacturing operations. Providence Specialty accrued an outstanding balance due to non-payment of permit fees and BOD/TSS surcharges. Letters from the Legal Section were issued to the company on February 15, 2012 and March 20, 2012. The company did not respond to these letters and a complaint was filed with the Superior Court on April 17, 2012 for the recovery of $87,873.73. The complaint was amended for the balance of $99,735.66. The company was served with the complaint on July 5, 2012. The parties met on September 13, 2012 to discuss the issues. During the discussion, Providence Specialty stated the BOD/TSS surcharge calculations that were performed by the NBC were not accurate due to the volume of flow used for the calculations was too high. The company provided documentation to demonstrate more water is used in the process and not discharged to the sewer. The documentation showed the flow credit that should be used in determining the surcharge should be 50% rather than the 25% used by NBC. At the end of the meeting the parties agreed that Providence Specialty had until January 25, 2013 to respond to the complaint. A site visit of the facility was also agreed on. The site visit was conducted on October 2, 2012. The purpose of the visit was to verify the increased flow credit was warranted and determine the most accurate way of monitoring the wastewater discharged from the facility. The company was provided options to accurately measure wastewater flow from the facility. Both parties met again on December 13, 2012. At this meeting Providence Specialty outlined a proposal for payment of the outstanding balance which included BOD/TSS surcharges, permit and consumption fees. A CO was issued and signed by Providence Specialty and NBC on January 31, 2013. Providence Specialty agreed to pay $90,527.11 in monthly installments of $1,000.00 for the first twelve months increasing to $2,000.00 per month after the first year. Providence Specialty has paid every month up to the present, totaling $11,000.00.

Permit Suspensions

As stated in Article 8.14 of the NBC Rules and Regulations, the Executive Director may suspend the Wastewater Discharge Permit of any user who ceases operations for any period exceeding one month. The suspension does not act as a revocation of the permit, but rather as a temporary suspension of the users' rights under the permit while operations have ceased. During 2013, no Letters of Wastewater Discharge Permit Suspension were issued.

Supplemental Environmental Projects

Supplemental Environmental Projects (SEP) are additional requirements and/or extra activities that may be undertaken by a violator of environmental laws or regulations against whom enforcement action has been taken. In settlement negotiations, the violator or the regulating authority may propose that an environmental project be undertaken in consideration of a reduced penalty.

In no case should the cost of the project to the violator be less than the offset amount of the penalty. A SEP may only be considered for inclusion in a settlement if the total settlement agreement ensures future compliance through corrective measures, a substantial monetary payment is made in addition to the SEP and if an appropriate nexus is demonstrated between the violation and the environmental benefits to be derived from the SEP.

The EPA recognizes five categories of acceptable supplemental environmental projects. The first four categories: pollution prevention projects, pollution reduction projects, environmental restoration projects and environmental auditing projects require that the project demonstrate an appropriate nexus between the nature of the violation and the environmental benefits to be derived. For example, if the violator was cited for repeated pH reporting violations, the purchase and installation of digital or computerized pH monitoring and recording equipment would provide sufficient nexus between the violation and the anticipated benefit to be derived from use of the equipment. The last category, public awareness projects, is not subject to this strict nexus requirement, but must still be related to the type of violation which is the subject of the underlying violations. Pursuant to EPA regulation, general educational and environmental awareness projects are not acceptable as SEPs. In addition, SEPs are less appropriate for repeat offenders.

Environmental Enforcement Fund

During the 1989 Legislative Session, 89-S-786 was passed into law which established the Narragansett Bay Commission Environmental Enforcement Fund (EEF). This fund consists of sums recovered by administrative or civil enforcement actions brought under the authority of Rhode Island General Laws, Chapter 46-25 (the NBC enabling legislation) and may be used for the following:

- Emergency response activities such as site inspections, investigatory reports, collection, monitoring, and analysis of samples of wastewater, spill response, etc.
- Enforcement activities such as legal activities, to enforce the provisions of this chapter, etc.
- Additional activities such as professional and emergency response training, environmental research, public information and education, etc.
- Bay bond debt retirement (discretionary in the event that funds have not been committed for projects within a three year period following their deposit into the fund).

NBC staff and volunteers participate in a marsh grass planting as part of an Earth Day Clean-Up project funded with an EEF grant

In 2013, four proposals were submitted to the NBC Board of Commissioners for review and were approved, awarding $22,150 collected from environmental violations to projects that enhance the Rhode Island environment and environmental education.

For the past 10 years the NBC has successfully sponsored a large Earth Day river cleanup event that focused on beautifying the Woonasquatucket River. In 2013, the NBC initiated a new grant program, provided through the EEF, intended to diversify the positive impact on multiple rivers in the NBC service area rather than focusing solely on the Woonasquatucket River. The NBC grant program was able to assist numerous local organizations, cities and towns by providing 18 small grants that allowed the organizations to purchase the supplies necessary to organize cleanups and river restoration activities with the NBC service area.

A summary of the grants that were awarded Environmental Enforcement Funds in 2013 are listed below in TABLE 32.

TABLE 32
2013 Approved Environmental Enforcement Fund Proposals

EEF#	Company	Project	Amount Awarded
13-001	NBC Earth Day Clean-Up Grant Program	Grant program designed to offer financial assistance in the form of small grants to qualifying organizations conducting Earth Day Clean-Up events within the NBC service district.	$12,250.00
13-002	Blackstone Valley Tourism Council	Blackstone Valley Tourism Council River Classroom Program to allow for underprivileged children to partake in water quality testing and the council's education program.	$2,400.00
13-003	The MET School - Leonard Walker Scholarship Fund	Contribution to the Leonard Walker Scholarship Fund to help school children in RI receive a better education at the MET School.	$2,500.00
13-004	Providence Children's Museum	Funds to provide support and maintenance for upgrades to the Water Ways Educational Exhibit.	$500.00
Total Approved in 2013			**$22,150.00**

Enforcement Response Plan

In accordance with 40CFR§403.8(f)(5), the NBC developed and submitted an Environmental Response Plan (ERP) to the DEM on February 1, 1993. The plan was officially approved by the DEM on January 12, 1995. The purpose of the plan is to clearly establish anticipated reactions of the agency to specific violations of the relevant environmental laws and regulations. The plan explains the enforcement tools and mechanisms available and employed by the NBC and the Pretreatment Program. The plan suggests timetables for the initiation of enforcement actions that would be followed as soon as practicable after NBC staff becomes aware of any non-complying event. These timetables serve two goals. The timetables avoid continued user non-compliance for extended periods of time by requiring quick enforcement response by the NBC. Secondly, the quick enforcement response guarantees that evidence and memories will not become stale by the time delay that can occur when initiating an enforcement action. The NBC has revised the ERP to comply with DEM requirements imposed during the year 2000 DEM Pretreatment Compliance Inspection and the RIPDES permits issued by the DEM on December 31, 2001. The revised ERP was submitted to the DEM on August 28, 2002 in accordance with DEM requirements. The plan was approved by the DEM on September 26, 2003.

Publication of Firms in Significant Non-Compliance (SNC)

Federal regulation 40CFR§403.8(f)(2)(vii) requires the NBC to publish at least annually the names of all industrial users in Significant Non-Compliance (SNC) with pretreatment standards or other pretreatment requirements during the preceding 15 months. A list of industrial users found to be in SNC with pretreatment standards and/or administrative requirements for the period of October 1, 2012 through December 31, 2013 was published in an advertisement in the PROVIDENCE JOURNAL on February 20, 2014. A copy of this advertisement is provided in FIGURE 40, while the Confirmation of Publication is provided in FIGURE 41.

During 2006 the NBC Rules and Regulations were modified to incorporate the revised EPA definition of SNC, detailed in the EPA Pretreatment Streamlining Regulations. The NBC complied with Federal regulations to cite any industrial user as being in SNC for violating any of the following criteria:

(a) Chronic violations of wastewater discharge limitations, defined here as those in which 66% or more of all measurements taken in a six (6) month period exceed (by any magnitude) a numerical Pretreatment Standard of Requirement for the same pollutant parameter;

(b) Technical Review Criteria (TRC) violation, defined here as those in which 33% or more of all the measurements for each pollutant parameter taken during a six (6) month period equal or exceed the product of the numerical Pretreatment Standard or Requirement multiplied by the applicable TRC value. (TRC = 1.4 for BOD, TSS, fats, oil, and grease and 1.2 for all other pollutants except pH);

(c) Any other violation of a pretreatment effluent limit (daily maximum or long-term average) that the Commission determines has caused, either alone or in combination with other discharges, pass through or interference (including endangering the health of Commission personnel or the general public);

(d) Any discharge of a pollutant that has caused imminent endangerment to human health, welfare, or the environment, or causes the POTW to exercise its emergency authority to halt or prevent such discharge;

(e) Failure to meet, within 90 days after the scheduled date, a compliance milestone contained in a permit or enforcement order, for starting construction, completing construction, or attaining final compliance;

(f) Failure to provide within 30 days after the due date, required reports such as Baseline Monitoring Reports, 90-day reports, periodic reports, and compliance schedule milestone reports;

(g) Failure to accurately report non-compliance;

(h) Any violation or group of violations that the NBC determines will adversely affect the operation or implementation of the Pretreatment Program.

Based upon extensive user file reviews, the names of fourteen firms were listed in the February 20, 2014, public notice in the Providence Journal. Of the fourteen firms listed in SNC, ten users are located in Field's Point and four are Bucklin Point users. There were four firms in SNC subject to EPA categorical standards. Three of these firms are classified as either electroplaters or metal finishers. Two are located in Field's Point district and the other one is located in Bucklin Point. The one remaining categorically regulated user is classified as a pharmaceutical manufacturer which is located in Bucklin Point. Three firms listed in SNC are classified as non-categorical significant industrial users. One of the firms manufactures insulation material, one conducts metal forming operations, and the final one conducts chemical manufacturing operations. Seven of the users published are classified as non-significant industrial users. Four of these users perform zero discharge jewelry manufacturing operations, two perform automotive operations and one performs injection molding and printing operations. All seven of these firms are located in Field's Point.

The listing of fourteen firms in SNC for 2013 was an increase from the eleven firms listed in SNC in 2012. All but one of the fourteen users listed in the February 20, 2014 SNC Public Notice had achieved full compliance with the EPA and NBC Rules and Regulations for which they were published prior to the date of publication. The one firm that had not returned to full compliance, a metal finishing facility, was listed in SNC for exceeding NBC discharge limitations and failure to submit a report on time. The firm returned to compliance with the NBC discharge limitations but was still in non-compliance for the outstanding report submittal which is an administrative violation. Additional information regarding the firms listed in SNC is provided in CHAPTERS I and IV. The cost to publish the public notice was billed to the firms listed as being in Significant Non-Compliance.

Publication of Firms in Perfect Compliance

In addition to publishing the annual SNC public notice, the NBC annually publishes the names of firms that achieved perfect compliance during the review period. In 2013, the NBC recognized twenty SIUs for achieving perfect compliance with the terms of their permits and the NBC Rules and Regulations. These twenty SIUs will be recognized at awards ceremony in April 2014. The 2013 Perfect Compliance advertisement can be seen in FIGURE 40. Additional information regarding the Environmental Merit Awards program can be found in CHAPTER VII.

FIGURE 40
THE PROVIDENCE JOURNAL

The Narragansett Bay Commission

PUBLIC NOTICE

Firms in Significant Non-Compliance

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGULATION 40 C.F.R. 403.8(f) (2) (vii) and Article 10 of the Narragansett Bay Commission, Rules and Regulations require the NBC to publish annually the names of all industrial users in Significant Non-Compliance (SNC) with pretreatment standards and other pretreatment requirements during the preceding year. Companies deemed to be in Significant Non-Compliance are those industrial users who have violated any of the Significant Non-Compliance criteria listed, as defined by Article 2 of the NBC Rules and Regulations during the time period from October 1, 2012 through December 31, 2013. The parameter for which a company was not in compliance and/or the specific administrative deficiency are listed after the company name. The number(s) in parentheses correspond to the type of SNC criteria specified below. Some of the firms listed below may have been issued an Administrative Order in which administrative and/or civil penalties may have been assessed. Many of the companies listed have made significant progress toward correcting the violation and may now be in compliance.

Significant Non-Compliance Criteria:

(1) Chronic violations of wastewater discharge limits, defined here as those in which 66% or more of all of the measurements taken during a six-month period exceed (by any magnitude) a numerical Pretreatment Standard or Requirement for the same pollutant parameter;

(2) Technical Review Criteria (TRC) violations, defined here as those in which 33% or more of all the measurements for each pollutant parameter taken during a six-month period equal or exceed the product of a numerical Pretreatment Standard or Requirement multiplied by the applicable TRC value (TRC = 1.4 for BOD, TSS, fats, oil, and grease and 1.2 for all other pollutants except pH);

(3) Any other violation of a pretreatment effluent limit (daily maximum or long-term average) that the Commission determines has caused, alone or in combination with other discharges, interference or pass through (including endangering the health of Commission personnel or the general public);

(4) Any discharges of a pollutant that has caused imminent endangerment to human health, welfare or the environment or has resulted in the Commission's exercise of its emergency authority to halt or prevent such a discharge;

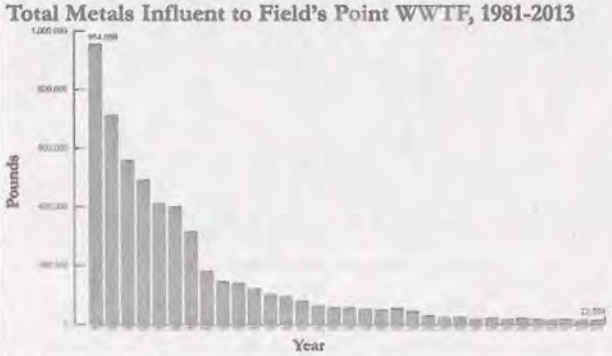
(5) Failure to meet, within 90 days after the scheduled date, a compliance milestone contained in a Commission notification, permit or enforcement order, for starting construction, completing construction or attaining final compliance;

(6) Failure to provide, within 30 days after the due date, required reports such as baseline monitoring reports, 90-day compliance reports, self-monitoring compliance reports and reports on compliance with compliance schedules;

(7) Failure to accurately report noncompliance;

(8) Any other violation or group of violations which the Commission determines has adversely effected the operation or implementation of the Industrial Pretreatment Program. ▪

Total Metals Influent to Field's Point WWTF, 1981-2013



The Narragansett Bay Commission will continue to lead in wastewater treatment, environmental protection, and environmental education to ensure a cleaner Narragansett Bay for all to enjoy.

Vincent J. Mesolella, *Chairman* • Raymond J. Marshall, P.E., *Executive Director*
Narragansett Bay Commission • One Service Road • Providence, RI 02905
401-461-8848 • TDD 401-461-6549 • FAX 401-461-6540 • http://www.narrabay.com
Twitter: @narrabay • Facebook: www.facebook.com/narrabay

THE NARRAGANSETT BAY COMMISSION IS COMMITTED TO PROTECTING THE STATE'S TWO LARGEST WASTEWATER TREATMENT FACILITIES AND NARRAGANSETT BAY FROM TOXIC DISCHARGES. This is accomplished by the issuance of discharge permits to commercial and industrial sewer users. These discharge permits specify the level of pollutants that can be discharged in a facility's wastestream and may require a firm to conduct wastewater monitoring to verify compliance with discharge limits, to implement a Spill Control Plan and/or Toxic Organic/Solvent Management Plan, and to install pretreatment equipment. Various reporting and record keeping requirements may also be written into discharge permits. The firms listed in this public notice violated one or more of the significant non-compliance criteria specified above. The Commission is required by the RI DEM and the US EPA to annually publish the names of all firms violating any of these criteria. Therefore, firms must be sure to comply with all the terms specified in their discharge permit to ensure that the name of their firm is not listed in this annual public notice. The NBC offers FREE technical assistance to firms located in the NBC service area through its non-regulatory Office of Environmental, Safety & Technical Assistance. For information on how the NBC Environmental, Safety & Technical Assistance Program can help your firm achieve and maintain compliance, contact the Environmental, Safety & Technical Assistance Program Staff at 461-8848/TDD 461-6549.

Most businesses located in the NBC district are to be commended for the fine job they have done treating their process discharges to remove toxic pollutants. In 1981, local industries discharged 954,099 pounds of heavy metals such as copper, nickel and zinc and 80,440 pounds of cyanide to the Field's Point Wastewater Treatment Facility. Since 1981, the total metals can cyanide loadings to the Field's Point facility have been reduced by 97.6% and 98.1% respectively. Similar toxic loading reductions have been observed at the NBC Bucklin Point facility.

Bucklin Point Service Area

East Providence

Company Name	Violations Cited	Present Status
Aspen Aerogels Rhode Island, LLC	Failure to submit reports on time (6)	Reports have been received.

Lincoln

Denison Acquisition Company, LLC d/b/a Denison Pharmaceuticals, LLC	TTO (2)	Firm is now in compliance.
Lincoln Manufacturing, Inc d/b/a Lincoln Fine Ingredients	O&G (2)	Firm is now in compliance.

Pawtucket

Bliss Manufacturing Company, Inc.	CN (2)	Firm is now in compliance.

Field's Point Service Area

Johnston

Company Name	Violations Cited	Present Status
AFCO, Inc. d/b/a A&H Manufacturing Company	Cu (2)	Firm is now in compliance.

Providence

Bella's Jewelry	Failure to submit report on time (6)	Report has been received.
JC Gorham Co.	Failure to submit report on time (6)	Report has been received.
Lee's Manufacturing	Failure to submit report on time (6)	Report has been received. Firm is out of business.
Monarch Metal Finishing Company, Inc.	Cu (1,2), CN (1), Ni (1,2), Zn (1,2)	Firm is now in compliance.
Precision Industries, Inc.	Failure to submit reports on time (6)	Reports have been received.
Rhode Island Public Transit Authority - Chaffee Building	Pb (2)	Firm is now in compliance.
Rhode Island Public Transit Authority	O&G (2)	Firm is now in compliance.
Universal Plating Company, Inc.	Cd (2)	Firm is now in compliance.
	Failure to submit report on time (6)	Report is still past due.

North Providence

H & M Industries, LLC	Failure to submit report on time (6)	Report has been received.

The cost of this public notice will be billed to the firms listed above that were in significant non-compliance.

FIGURE 41
CONFIRMATION OF PUBLICATION OF SNC PUBLIC NOTICE

A8 Thursday, February 20, 2014 RHODE ISLAND Journal | providencejournal.com

LAJOIE
Continued from A1

Final sentencing

tenced Jose Santiago, 36, Lajoie's boyfriend at the time of the shooting, to serve 40 years.

Smith first heard emotional testimony from Main's family, who observed the proceedings, as they had every step of the case's way.

"She sat there for three hours stalking David," Main's sister Deborah Smith told the court. "All she had to say was 'Don't go to the bank today.' "

Lajoie joined Pleau and Santiago in casing out the gas station, buying doughnuts and soda from Main hours before his death Sept. 20, 2010. Lajoie then served as lookout for three hours, calling Pleau when Main headed to the bank. She used the station's bathroom during the wait.

"She above all could have saved him," Main's mother, Bonnie Main, said. She lamented that Lajoie didn't shut her phone off, drive away, or make some other choice so Main could have lived to see his teenage son play in a jazz band or attend his parents' 50th anniversary party.

David Main

Main's other sister, Heather Hitchen, wished Lajoie had looked Main in the eye that morning and seen what kind of man he was.

Smith also heard from Lajoie, who occasionally wept and wiped tears away.

"I was involved. I am involved and nothing I can say can change that," she said. She wished, she said, that she could turn time back for the Mains and her own son and daughter. She hoped that her sentence would comfort Main's family.

"All I can say is I am truly sorry," Lajoie, 35, said, her long dark hair pulled back in a ponytail.

William C. Dimitri, Lajoie's lawyer, asked the court to take into account his client's clean record. Before her relationship with Santiago, whom she grew up with in Woonsocket, she led a different life as a hardworking mother raising two children alone. Santiago was controlling and abusive, pistol-whipping her and shoving a loaded gun in her mouth.

Dimitri noted that she had accepted responsibility and pleaded guilty early for her crimes without looking back.

Assistant U.S. Attorney Adi Goldstein said that although Lajoie had not been previously criminally charged, she served as the getaway driver for Pleau and Santiago after they robbed Chan's restaurant in Woonsocket at gunpoint in 2010. "She had so many chances to leave," Goldstein said. "She literally signed David Main's death warrant."

Pleau

Santiago

U.S. Attorney Peter F. Neronha said he was glad the case was at an end. He imagined how difficult it must have been for Main's sisters, parents and wife to revisit their pain and loss at each of the three sentencings.

"Of course, for the Main family it doesn't end here," he said.

kmulvane@providencejournal.com
(401) 277-742

POLICE DIGEST

PROVIDENCE

Store clerk fired at 4 times, but gun fails

A clerk at Plainfield Food Mart is lucky to be alive, the police say, after a would-be robber tried but failed to fire a gun at him four times.

The clerk, identified as Victor Herrera, 32, managed to scare off the robber by pretending to be in the middle of a cellphone call during the incident, according to police Lt. Alyssa D'Andrade.

The incident occurred at the convenience store, at 574 Plainfield St., shortly before 10 p.m. Sunday but was not made public by the police until Wednesday.

Herrera told the police that the robber, whose face was covered by a ski mask, entered the store, pointed a small chrome revolver at him, and said, "Give me what you got." The clerk backed up and put the phone to his ear as if he was on a call, D'Andrade related Wednesday.

The robber then pulled the trigger four times, and the gun made a clicking sound but did not fire. Either it was unloaded or it misfired, D'Andrade said. The robber looked at his weapon and ran out.

The police said another store employee witnessed the incident and that it might have been recorded on a store surveillance camera.

GREGORY SMITH

NEWPORT

N.Y. man charged in Walmart fire

A New York City man is facing an arson charge for allegedly setting a fire in a Newport Walmart.

Newport police say 58-year-old George Reddick turned himself in on Wednesday.

Fire officials responded Monday night to the Walmart on Connell Highway for a report of fires in two locations in the aisles.

Authorities say Reddick was identified through video footage and interviews. They say he had been in the store for an extended period, even changing clothes while there. They also say he had approached Walmart personnel about employment in the store.

The police drew up an arrest warrant but say he had left Rhode Island. Reddick then turned himself in in Newport around 4 a.m. Wednesday.

ASSOCIATED PRESS

RICHMOND

Boy, 15, charged with child molestation

A 15-year-old Richmond boy has been charged with three counts of first-degree child molestation, according to the Richmond police.

According to a police news release Wednesday, an investigation started on Jan. 3 after the Charlestown police told the Richmond police they had received a complaint alleging that the teenager had sexually abused a minor child.

When Richmond Cpl. Justin Vachon and Patrolman John Randall went to the suspect's home shortly after midnight on Jan. 3, he jumped out a second-story window and ran into a nearby swamp, according to the police. Richmond and Charlestown police officers tracked his footprints into the dark swamp, and Charlestown police Officer Christopher Bruso found the boy, who was wet and shivering from frigid temperatures, according to the police.

The boy was placed in the custody of the state Department of Children, Youth and Families pending further investigation. Subsequent investigation led the Richmond Police Department's Detective Drew Bishop to file charges on Feb. 11 and the boy awaits trial in Family Court, according to the police.

His name was not released because he is a juvenile.

MICHAEL P. MCKINNEY

PAWTUCKET

Neighborhood complaints lead to drug charges

Neighborhood complaints led Pawtucket police to arrest a local man and seize crack cocaine and a revolver from his Weeden Street apartment on Friday.

Eric S. DaSilva, 23, was arrested after the narcotics squad searched his apartment at 590 Weeden St., and found seven bags of crack cocaine and a .32-caliber revolver, according to the police.

The police said DaSilva assaulted one of the officers while he was being questioned at the police station.

DaSilva has previously pleaded no contest to drug charges and placed on probation. He is now charged with gun and drug charges, as well as assaulting an officer. He was arraigned by a bail commissioner Saturday and held without bail.

AMANDA MILKOVITS

NEWS DIGEST

PROVIDENCE

Woonsocket man gets child-porn sentence

Chief Judge William E. Smith of U.S. District Court Wednesday sentenced Christopher Marion, 26, of Woonsocket, to two years in prison for possession of child pornography.

Smith ordered Marion to serve 10 years of probation upon completion of his prison term. Marion pleaded guilty on Aug. 23.

According to U.S. Attorney Peter F. Neronha, an agent of the U.S. Naval Criminal Investigative Service observed numerous files of child pornography being shared from an IP address in Woonsocket. The agent downloaded two movie files containing child pornography. The IP address was later identified as belonging to the defendant's residence.

A search of Marion's residence by agents from Homeland Security Investigations resulted in the seizure of a laptop computer. A forensic analysis of the computer revealed that it contained 552 images and 52 videos of prepubescent females engaged in sexual acts with adult males.

Marion was ordered to surrender by March 10 to begin serving his term.

JOURNAL STAFF

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The Narragansett Bay Commission

PUBLIC NOTICE

Firms in Significant Non-Compliance

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGULATION 40 C.F.R. 403.8(f) (2) (viii) and Article IV of the Narragansett Bay Commission, Rules and Regulations require the NBC to publish annually the names of all industrial users in Significant Non-Compliance (SNC) with pretreatment standards and other pretreatment requirements during the preceding year. Companies deemed to be in Significant Non-Compliance are those industrial users who have violated any of the Significant Non-Compliance criteria listed, as defined by Article 2 of the NBC Rules and Regulations during the time period from October 1, 2012 through December 31, 2013. The parameter for which a company was not in compliance and/or the specific administrative deficiency are listed after the company name. The number(s) in parentheses correspond to the type of SNC criteria specified below. None of the firms listed below may have been issued an Administrative Order in which administrative and/or civil penalties may have been assessed. Many of the companies listed have made significant progress toward correcting the violation and may now be in compliance.

Significant Non-Compliance Criteria:

(1) Chronic violations of wastewater discharge limits, defined here as those in which 66% or more of all of the measurements taken during a six-month period exceed (by any magnitude) a numerical Pretreatment Standard or Requirement for the same pollutant parameter;

(2) Technical Review Criteria (TRC) violations, defined here as those in which 33% or more of all the measurements for each pollutant parameter taken during a six-month period equal or exceed the product of a numerical Pretreatment Standard or Requirement multiplied by the applicable TRC value (TRC = 1.4 for BOD, TSS, fats, oil, and grease and 1.2 for all other pollutants except pH);

(3) Any other violation of a pretreatment effluent limit (daily maximum or long-term average) that the Commission determines has caused, alone or in combination with other discharges, interference or pass through (including endangering the health of Commission personnel or the general public);

(4) Any discharges of a pollutant that has caused imminent endangerment to human health, welfare or the environment or has resulted in the Commission's exercise of its emergency authority to halt or prevent such a discharge;

(5) Failure to meet, within 90 days after the scheduled date, a compliance milestone contained in a Commission mandated, consent or enforcement order, for starting construction, completing construction or attaining final compliance;

(6) Failure to provide, within 30 days after the due date, required reports such as baseline monitoring reports, 90-day compliance reports, self-monitoring compliance reports and reports on compliance with compliance schedules;

(7) Failure to accurately report noncompliance;

(8) Any other violation or group of violations which the Commission determines has adversely effected the operation or implementation of the Industrial Pretreatment Program. •

Total Metals Influent to Field's Point WWTF, 1981-2013

The Narragansett Bay Commission will continue to lead in wastewater treatment, environmental protection, and environmental education to ensure a cleaner Narragansett Bay for all to enjoy.

Vincent J. Mesolella, *Chairman* • Raymond J. Marshall, P.E., *Executive Director*
Narragansett Bay Commission • One Service Road • Providence, RI 02905
401-461-8848 • TDD 401-461-6540 • FAX 401-461-6540 • http://www.narrabay.com
Twitter: @narrabay • Facebook: www.facebook.com/narrabay

The Narragansett Bay Commission is committed to protecting the state's two largest wastewater treatment facilities and Narragansett Bay from toxic discharges. This is accomplished by the issuance of discharge permits to commercial and industrial sewer users. These discharge permits specify the level of pollutants that can be discharged in a facility's wastestream and may require a firm to conduct wastewater monitoring to verify compliance with discharge limits, to implement a Spill Control Plan and/or Toxic Organic/Solvent Management Plan, and to install pretreatment equipment. Various reporting and record keeping requirements may also be written into discharge permits. The firms listed in this public notice violated one or more of the significant non-compliance criteria specified above. The Commission is required by the RI DEM and the US EPA to annually publish the names of all firms violating any of these criteria. Therefore, firms must be sure to comply with all the terms specified in their discharge permit to ensure that the name of their firm is not listed in this annual public notice. The NBC offers FREE technical assistance to firms located in the NBC service area through its non-regulatory Office of Environmental, Safety & Technical Assistance. For information on how the NBC Environmental, Safety & Technical Assistance Program can help your firm achieve and maintain compliance, contact the Environmental, Safety & Technical Assistance Program Staff at 461-8848/TDD 461-6540.

Most businesses located in the NBC district are to be commended for the fine job they have done treating their process discharges to remove toxic pollutants. In 1981, local industries discharged 954,099 pounds of heavy metals such as copper, nickel and zinc and 80,440 pounds of cyanide to the Field's Point Wastewater Treatment Facility. Since 1981, the total metals and cyanide loadings to the Field's Point facility have been reduced by 97.6% and 98.1% respectively. Similar toxic loading reductions have been observed at the NBC Bucklin Point facility.

Bucklin Point Service Area

Company Name	Violations Cited	Present Status
East Providence		
Aspen Aerogels Rhode Island, LLC	Failure to submit reports on time (6)	Reports have been received.
Lincoln		
Dominion Acquisition Company, LLC d/b/a Dominion Pharmaceuticals, LLC	TTO (2)	Plans is now in compliance.
Lincoln Manufacturing, Inc d/b/a Lincoln Fine Ingredients	O&G (2)	Plans is now in compliance.
Pawtucket		
Rico Manufacturing Company, Inc.	CN (2)	Plans is now in compliance.

Field's Point Service Area

Company Name	Violations Cited	Present Status
Johnston		
AFCO, Inc. d/b/a Advft Manufacturing Company	Cu (2)	Plans is now in compliance.
Providence		
Bella's Jewelry	Failure to submit report on time (6)	Report has been received.
JC Graham Co.	Failure to submit report on time (6)	Report has been received.
Lee's Manufacturing	Failure to submit report on time (6)	Report has been received. Plans is out of business.
Monarch Metal Finishing Company, Inc.	Cu (1,2), CN (1), Ni (1,2), Zn (1,2)	Plans is now in compliance.
Precision Industries, Inc.	Failure to submit reports on time (6)	Reports have been received.
Rhode Island Public Transit Authority – Charles Building	Pb (2)	Plans is now in compliance.
Rhode Island Public Transit Authority	O&G (2)	Plans is now in compliance.
Universal Plating Company, Inc.	Cd (2)	Plans is now in compliance.
	Failure to submit report on time (6)	Report is still past due.
North Providence		
FI & M Industries, LLC	Failure to submit report on time (6)	Report has been received.

The use of this public notice will be billed to the firms listed above that were in significant non-compliance.

TABLE 33
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/13
FIELD'S POINT DISTRICT

NFORCEMENT ACTION# COMPANY NAME	AO ISSUE DATE	RESOLUTION	ORIGINAL ADMIN. PENALTIES ASSESSED	ADMIN. PENALTIES AWARDED OR AGREED TO	ADMIN. PENALTIES PAID	ADMIN. PENALTIES BALANCE	ENF.COSTS ASSESSED/ AWARDED/ AGREED TO	ENF. COSTS PAID	ENF. COSTS BALANCE	STIPULATED PENALTIES ASSESSED	STIPULATED PENALTIES PAID	STIPULATED PENALTIES BALANCE
NOV #1 F. RONCI CO.	01/31/1986	HEARING AWARDED $219,950.00 COURT REVERSED AWARD	N/A	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #2 ABATE & URSILLO COMPANY	03/20/1987	CONSENT ORDER 05/01/87 BANKRUPT	N/A	$23,000.00	$2,683.31	$20,316.69	$1,500.00	$1,500.00	$0.00	$750.00	$750.00	$0.00
NOV #3 ASTRO PLATING WORKS	05/13/1987	CONSENT ORDER 08/20/87	N/A	$70,000.00	$70,000.00	$0.00	$4,000.00	$4,000.00	$0.00	$19,500.00	$19,500.00	$0.00
NOV #4 A & J JEWELRY CO.	10/07/1987	CONSENT ORDER 11/13/87	N/A	$7,500.00	$7,500.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
NOV #5 RAU FASTENERS, INC.	10/12/1987	CONSENT ORDER 07/23/90	N/A	$50,000.00	$50,000.00	$0.00	$2,000.00	$2,000.00	$0.00	$117,500.00	$117,500.00	$0.00
NOV #6 H.M. PLATING CO.	12/10/1987	NOV RESCINDED	N/A	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #7 ANTONELLI PLATING CO.	12/07/1987	NOV RESCINDED	N/A	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #8 H.M. PLATING CO.	09/14/1988	CONSENT ORDER 01/13/89 BANKRUPT	N/A	$15,000.00	$3,000.00	$12,000.00	$2,000.00	$2,000.00	$0.00	$1,750.00	$1,750.00	$0.00
NOV #9 BIANCO PLATING CO.	10/04/1988	CONSENT ORDER 03/10/89 BANKRUPT	N/A	$23,000.00	$7,800.00	$15,200.00	$8,400.00	$8,400.00	$0.00	$500.00	$500.00	$0.00
NOV #10 PROCRAFT, INC.	02/16/1989	CONSENT ORDER 04/27/90	N/A	$1,500.00	$1,500.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
NOV #11 CONCORDE BUCKLE CO.	08/04/1989	CONSENT ORDER 03/20/90	N/A	$7,500.00	$7,500.00	$0.00	$1,000.00	$1,000.00	$0.00	$0.00	$0.00	$0.00

TABLE 33
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/13
FIELD'S POINT DISTRICT

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NOV #12 GALAXY GOLD, INC.	11/01/1989	CONSENT ORDER 04/27/90 PERMIT REVOKED 10/26/89	N/A	$6,300.00	$6,300.00	$0.00	$2,193.00	$2,193.00	$0.00	$0.00	$0.00	$0.00
NOV #13 SCIENTIFIC METAL FINISHING	11/01/1989	NOV RESCINDED	N/A	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #14 EASTLAND/ NU-WAY FOOD PRODUCTS	11/01/1989	CONSENT ORDER 03/29/90	N/A	$3,000.00	$3,000.00	$0.00	$12,254.00	$12,254.00	$0.00	$0.00	$0.00	$0.00
NOV #15 GOLD CROWN, INC.	02/15/1990	CONSENT ORDER 09/11/90	N/A	$10,000.00	$10,000.00	$0.00	$2,270.00	$2,270.00	$0.00	$0.00	$0.00	$0.00
NOV #16 SCIENTIFIC METAL FINISHING/S. MARCOS	12/22/1989	CONSENT ORDER 07/25/90 BANKRUPT	N/A	$12,500.00	$5,200.00	$7,300.00	$7,700.00	$2,500.00	$5,200.00	$1,500.00	$500.00	$1,000.00
NOV #17 SCIENTIFIC METAL FINISHING/ J. ROACH	12/22/1989	TERMS INCORPORATED INTO THE ABOVE CONSENT ORDER		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #18 ELECTRONIC PRECISION	02/15/1990	NOV RESCINDED MERGED W/ NOV #27	N/A	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #19 AMICARELLI & EASTMAN	05/15/1990	NOV RESCINDED	N/A	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #20 ARC ENTERPRISE	05/15/1990	HEARING ORDER 08/29/90 DEBTOR INSOLVENT	N/A	$6,000.00	$0.00	$6,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #21 ELECTROLIZING	06/07/1990	CONSENT ORDER 01/16/91	$68,000.00	$8,000.00	$8,000.00	$0.00	$4,000.00	$4,000.00	$0.00	$0.00	$0.00	$0.00
NOV #22 RHODE ISLAND CLEANERS	06/11/1990	HEARING ORDER 10/02/90 CONSENT ORDER 07/14/92	$15,000.00	$15,000.00 w/ $4,000.00 SUSPENDED	$11,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

TABLE 33
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FIELD'S POINT DISTRICT

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NOV #23 QUALITEX, INC.	07/05/1990	CONSENT ORDER 10/19/90	N/A	$25,000.00	$25,000.00	$0.00	$5,193.92	$5,193.92	$0.00	$5,000.00	$5,000.00	$0.00
NOV #24 PROVIDENCE HOUSING AUTHORITY	08/23/1990	CONSENT ORDER 11/01/90	$4,000.00	$0.00	$0.00	$0.00	$7,614.88	$7,614.88	$0.00	$0.00	$0.00	$0.00
NOV #25 JOHNSTON DRESSED BEEF & VEAL CO.	08/29/1990	HEARING ORDER 11/14/90	N/A	$23,000.00	$23,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #26 J.V. PLATING CO.	09/04/1990	CONSENT ORDER 04/09/91 BANKRUPT	$22,000.00	$3,000.00	$1,750.00	$1,250.00	$2,260.00	$1,130.00	$1,130.00	$750.00	$0.00	$750.00
NOV #27 ELECTRONIC PRECISION CIRCUITRY	09/24/1990	CONSENT ORDER 01/07/91	N/A	$12,300.00	$12,300.00	$0.00	$7,700.00	$7,700.00	$0.00	$0.00	$0.00	$0.00
NOV #28 WALLACE COMPANY	10/26/1990	BANKRUPT	N/A	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #29 APAC TOOL, INC.	10/26/1990	CONSENT ORDER 04/23/91	$8,000.00	$2,498.00	$2,498.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
NOV #30 D'AMBRA CONSTRUCTION	12/19/1990	CONSENT ORDER 06/11/92	N/A	$2,000.00	$2,000.00	$0.00	$7,000.00	$7,000.00	$0.00	$0.00	$0.00	$0.00
NOV #31 NEW ENGLAND TELEPHONE & TELEGRAPH CO.	01/10/1991	CONSENT ORDER 06/13/91	$9,910.00	$8,000.00	$8,000.00	$0.00	$1,910.00	$1,910.00	$0.00	$0.00	$0.00	$0.00
NOV #32 ALLENS MANUFACTURIN G CO.	01/10/1991	CONSENT ORDER 09/06/91	$54,000.00	$2,870.00	$2,870.00	$0.00	$2,810.00	$2,810.00	$0.00	$0.00	$0.00	$0.00
NOV #33 PROVIDENCE COLLEGE	02/07/1991	MERGED WITH NOV #34 CONSENT ORDER 07/15/91	$7,200.00	$12,000.00	$12,000.00	$0.00	$2,320.00	$2,320.00	$0.00	$0.00	$0.00	$0.00

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FIELD'S POINT DISTRICT

NFORCEMENT ACTION# COMPANY NAME	AO ISSUE DATE	RESOLUTION	ORIGINAL ADMIN. PENALTIES ASSESSED	ADMIN. PENALTIES AWARDED OR AGREED TO	ADMIN. PENALTIES PAID	ADMIN. PENALTIES BALANCE	ENF.COSTS ASSESSED/ AWARDED/ AGREED TO	ENF. COSTS PAID	ENF. COSTS BALANCE	STIPULATED PENALTIES ASSESSED	STIPULATED PENALTIES PAID	STIPULATED PENALTIES BALANCE
NOV #34 PROVIDENCE COLLEGE	02/15/1991	MERGED WITH NOV #33 SEE ABOVE	N/A	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NOV #35 VANITY JEWELRY	03/13/1991	CONSENT ORDER 05/10/91	$1,250.00	$1,250.00	$1,250.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #1 QUALITY STAMPING	06/25/1991	CONSENT JUDGMENT 04/26/96	$25,000.00	$5,000.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #2 JOHN OLSON & SONS	07/03/1991	CONSENT ORDER 06/09/92	$22,000.00	$4,500.00	$4,500.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO #3 D & D PLATING	08/26/1991	CONSENT ORDER 02/11/92	$9,250.00	$3,000.00	$3,000.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #4 DON-LIN JEWELRY CO.	08/26/1991	CONSENT ORDER 01/13/92	$4,218.00	$2,500.00	$2,500.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #5 FEDERAL PRODUCTS	08/26/1991	CONSENT ORDER 12/26/91	$4,250.00	$2,500.00	$2,500.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #6 SMITH JEWELRY SERVICE CO.	08/26/1991	IMMEDIATE COMPLIANCE ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #7 F. RONCI (SMITH ST.)	10/10/1991	BANKRUPT	$171,850.00	$170,850.00	$0.00	$170,850.00	$1,000.00	$0.00	$1,000.00	$0.00	$0.00	$0.00
AO #8 F. RONCI (ATLANTIC BLVD.)	10/10/1991	BANKRUPT	$52,200.00	$51,700.00	$0.00	$51,700.00	$500.00	$0.00	$500.00	$0.00	$0.00	$0.00
AO #9 CH SPRAGUE	10/10/1991	CONSENT ORDER 05/06/92	$15,000.00	$4,000.00	$4,000.00	$0.00	$2,000.00	$2,000.00	$0.00	$0.00	$0.00	$0.00

TABLE 33
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/13
FIELD'S POINT DISTRICT

NFORCEMENT ACTION# COMPANY NAME	AO ISSUE DATE	RESOLUTION	ORIGINAL ADMIN. PENALTIES ASSESSED	ADMIN. PENALTIES AWARDED OR AGREED TO	ADMIN. PENALTIES PAID	ADMIN. PENALTIES BALANCE	ENF.COSTS ASSESSED/ AWARDED/ AGREED TO	ENF. COSTS PAID	ENF. COSTS BALANCE	STIPULATED PENALTIES ASSESSED	STIPULATED PENALTIES PAID	STIPULATED PENALTIES BALANCE
AO #10 QUALITY PLATING	12/04/1991	DEBTOR INSOLVENT	$40,135.00	$39,650.00	$0.00	$39,650.00	$485.00	$0.00	$485.00	$0.00	$0.00	$0.00
AO #11 GENERAL ELECTRIC	10/28/1991	COMPLIED WITH ORDER	$6,885.00	$6,885.00	$6,885.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #12 ALLENS MFG. CO.	12/04/1991	PERMIT FEES PAID FINE WAIVED	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #13 ELECTROBRITE COATING CO.	12/14/1991	PERMIT FEES PAID FINE WAIVED	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #14 MERCURY POLISHING & PLATING	12/14/1991	PERMIT FEES PAID FINE WAIVED	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #15 GABRIELE'S, IND.	12/14/1991	COMPLIED WITH ORDER	$250.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #16 DUNC'S PLATING	12/14/1991	COMPLIED WITH ORDER	$250.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #17 SAMSON MFG., LTD.	12/14/1991	AO RESCINDED	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #18 STARBRITE PLATING	12/14/1991	COMPLIED WITH ORDER	$250.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #19 ASTRO PLATING WORKS	12/14/1991	COMPLIED WITH ORDER	$250.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #20 QUALITY PLATING CO.	12/14/1991	AO RESCINDED	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

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FIELD'S POINT DISTRICT

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AO #21 CLAYTON CO.	01/22/1992	CONSENT ORDER 12/07/92	$9,882.00	$6,000.00	$6,000.00	$0.00	$382.00	$382.00	$0.00	$0.00	$0.00	$0.00
AO #22 JEWELS BY PATRICIA	01/22/1992	CONSENT ORDER 05/18/92	$10,500.00	$2,500.00	$2,500.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO #23 J.V. PLATING	01/22/1992	BANKRUPT	$250.00	$250.00	$0.00	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #24 QUAKER PLATING	01/23/1992	CONSENT ORDER 06/19/92	$14,600.00	$5,900.00	$5,900.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #25 GOLD CROWN	01/23/1992	CONSENT ORDER 07/08/93	$19,000.00	$9,000.00	$9,000.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #27 QUEBECOR PRINTING	01/07/1992	CONSENT ORDER 06/29/93	$22,250.00	$10,000.00	$10,000.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO # FP-01-92 ANTONELLI PLATING	04/03/1992	MERGED WITH #FP-02-92 CONSENT ORDER 07/23/92	$250.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-02-92 ANTONELLI CASTING	04/03/1992	MERGED WITH #FP-01-92 SEE ABOVE	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-03-92 GOLD CROWN	05/26/1992	IMMEDIATE COMPLIANCE ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-04-92 ALLENS MFG.	06/04/1992	BANKRUPT	$11,250.00	$11,250.00	$0.00	$11,250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-05-92 GENERAL ELECTRIC	09/01/1992	CONSENT ORDER 08/10/93	$9,500.00	$7,500.00	$7,500.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00

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SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/13
FIELD'S POINT DISTRICT

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AO # FP-06-92 DUNC'S PLATING	11/12/1992	PERMIT FEES PAID FINE WAIVED	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-07-92 BROAD STREET CAR WASH	11/12/1992	CONSENT ORDER 01/06/93	$250.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-08-92 CAFFE PAZZO	12/16/1992	CONSENT ORDER 07/07/93 BUSINESS CHANGED OWNERSHIP	$2,500.00	$500.00	$100.00	$400.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-09-92 AIR CLEANING CONCEPTS	12/23/1992	COMPLIANCE ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-93 FEDERATED METALS	03/29/1993	CONSENT ORDER 06/17/93	$12,250.00	$1,500.00	$1,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-02-93 EASTERN COLOR & CHEMICAL	03/29/1993	CONSENT ORDER 07/08/93	$23,000.00	$10,000.00	$10,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-03-93 B B GREENBERG	03/29/1993	BANKRUPT	$7,500.00	$7,500.00	$0.00	$7,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-04-93 ROCCHIO & SONS	05/05/1993	CONSENT ORDER 05/19/97	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-05-93 RI DEPT OF TRANS.	05/05/1993	SAME CASE AS ABOVE	SAME CASE AS ABOVE	SAME CASE AS ABOVE	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-06-93 GFB/ADMIRAL NORGETOWN	05/18/1993	OUT OF BUSINESS	$1,000.00	$1,000.00	$0.00	$1,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-07-93 NEW RIVERS RESTAURANT	07/14/1993	CONSENT ORDER 12/03/93	$1,500.00	$200.00	$200	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

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AO #FP-08-93 MERCURY POLISHING & PLATING CO.	07/22/1993	BANKRUPT/ TERMINATION OF PERMIT	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-09-93 RAU FASTENER	07/23/1993	CONSENT ORDER 05/06/94	$25,000.00	$7,500.00	$7,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-10-93 ALLENS MFG. CO.	07/26/1993	BANKRUPT	$11,000.00	$11,000.00	$0.00	$11,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # FP-11-93 MERIT PLATING	08/06/1993	CONSENT ORDER 04/28/94 BUSINESS CLOSED	$25,000.00	$5,000.00	$0.00	$5,000.00	$500.00	$0.00	$500.00	$0.00	$0.00	$0.00
AO #FP-12-93 R.E.STURDY COMPANY	12/08/1993	COMPLIED WITH ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-13-93 PROVIDENCE ELECTRO-PLATING	12/30/1993	CONSENT ORDER 10/17/95	$20,000.00	$1,000.00 $5,000.00 (SEP)	$1,000.00 $5,000.00 (SEP)	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #FP-14-93 FBF, INCORPORATED	12/30/93 AMENDED 09/13/95	CONSENT ORDER 10/31/95 BUSINESS CLOSED	$31,000.00	$5,000.00	$0.00	$5,000.00	$250.00	$0.00	$250.00	$0.00	$0.00	$0.00
AO #FP-15-93 GEMCRAFT	12/30/1993	CONSENT ORDER 07/21/94	$16,000.00	SEP ($11,000)	SEP($11,000)	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-94 JOHNSTON DRESSED BEEF	04/08/1994	COMPLIED WITH ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-02-94 QUAKER PLATING	04/19/1994	CONSENT ORDER 06/06/94	$13,000.00	$3,000.00	$3,000.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #FP-03-94 YEA, YEA INC./SGUMBATO & SONS	4/19/94 AMENDED 11/20/95	CONSENT ORDER 09/23/96	$10,000.00	$5,000.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

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AO #FP-04-94 SHOOTER'S AT INDIA POINT	04/22/1994	CONSENT ORDER 10/12/94	$2,500.00	$2,500.00	$2,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-05-94 EVANS PLATING	06/24/1994	CONSENT ORDER 08/03/95	$29,000.00	$2,500 $6,000.00 (SEP)	$2,500.00 $6,000.00 (SEP)	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO #FP-06-94 RHODE ISLAND PUBLIC TRANSIT AUTHORITY	07/13/1994	COMPLIED WITH ORDER	$11,000.00 CONDITION ON NON-COMPLIANCE	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-07-94 T & J CONTAINER	07/20/1994	CONSENT ORDER 09/27/94	$4,000.00	$1,000.00	$1,000.00	$0.00	$152.94	$152.94	$0.00	$0.00	$0.00	$0.00
AO #FP-08-94 COLORLAB, LTD.	08/25/1994	CONSENT ORDER 11/09/94	$5,000.00	$500.00	$500.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #FP-09-94 PDQ PHOTO	08/25/1994	CONSENT ORDER 11/09/94	$5,000.00	$500.00	$500.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #FP-11-94 IDEAL PLATING	11/02/1994	CONSENT ORDER 08/07/95	$15,000.00	$2,500.00 $2,500.00 (SEP)	$2,500.00 $2,500.00 (SEP)	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #FP-12-94 BLUE GROTTO RESTAURANT	10/07/1994	CONSENT ORDER 05/30/95 BANKRUPT	$5,000.00	$2,000.00	$700.01	$1,299.99	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-13-94 GOLDEN DRAGON RESTAURANT	10/07/1994	CONSENT ORDER 02/02/95	$5,000.00	$1,000.00	$1,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-14-94 T. SARDELLI & SONS	10/07/1994	CONSENT ORDER 01/03/95	$15,000.00	$5,000.00	$5,000.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #FP-15-94 LINCOLN PARK	10/27/1994	SETTLEMENT	$5,000.00	$5,000.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

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AO #FP-16-94 PASTA ETC	11/07/1994	BUSINESS CLOSED	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-17-94 A.A. WRECKING	11/18/1994	SETTLEMENT	$10,000.00	$500.00	$500.00	$0.00	$5,997.44	$5,997.44	$0.00	$0.00	$0.00	$0.00
AO #FP-01-95 EAGLE PLATING CO, INC	05/30/1995	CONSENT ORDER 09/03/96	$50,000.00	$7,500.00	$7,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-02-95 RUMSTICK DINNER	06/08/1995	AO RESCINDED 10/18/95 BUSINESS CLOSED	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-03-95 D'AGOSTINO'S AUTO SALVAGE, INC	07/10/1995	CONSENT ORDER 11/27/95	$11,000.00	$2,750.00	$2,750.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #FP-04-95 CENTURY PLATING INTERNATIONAL INC	07/10/1995	CONSENT ORDER 08/30/95	$33,000.00	$7,500.00	$7,500.00	$0.00	$500.00	$500.00	$0.00	$200.00	$200.00	$0.00
AO #FP-05-95 CARABELLA'S RESTAURANT	09/14/1995	AO RESCINDED	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-06-95 KELLY'S CAR WASH	10/04/1995	CONSENT ORDER 02/29/96	$5,000.00	$2,500.00	$2,500.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #FP-07-95 FINISHING CONCEPTS, INC	10/05/1995	CONSENT ORDER 11/27/95	$20,000.00	$5,000.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-08-95 CRC, CORP	11/21/1995	CONSENT ORDER 04/01/96	$1,000.00	PUBLIC AWARENESS AD $519.70	$519.70	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-09-95 THAILAND RESTAURANT	10/10/1995	CONSENT ORDER 11/20/96	$5,000.00	$200.00	$200.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

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AO #FP-10-95 RAU FASTENERS, LLC	12/28/1995	CONSENT ORDER 02/20/96	$13,000.00	$9,900.00	$9,900.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-96 OPTI FINISHING TECHNOLOGIES	04/09/1996 AMENDED 06/13/1996	PERMIT REVOKED	$18,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-02-96 RIBCO MFG. INC	04/09/1996	CONSENT ORDER 05/31/96	$10,000.00	$10,000.00	$10,000.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO #FP-03-96 DUNC'S PLATING CO.	04/25/1996	CONSENT ORDER 06/24/96	$5,000.00	$1,200.00	$1,200.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-04-96 NORTH PROVIDENCE MEDICAL SERVICES, INC.	07/02/1996	CONSENT ORDER 09/18/96	$0.00 COMPLIANCE ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-05-96 PRECISION INDUSTRIES	09/04/1996	CONSENT ORDER 11/20/96	$7,000.00	$1,500.00	$1,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-06-96 A&F PLATING CO., INC.	09/25/1996	MERGED WITH # FP-08-96	$25,000.00	MERGED WITH FP-08-96	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-07-96 REGENCY PLAZA ASSOCIATES	09/25/1996	CONSENT ORDER 01/13/97	$10,000.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-08-96 A&F PLATING CO., INC.	12/19/1996	PROSECTUED CRIMINALLY	$160,000.00	$15,000.00	$15,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-97 FOTO FINISH	06/12/1997	PERMIT FEES PAID CONSENT JUDGMENT 10/15/97 BUSINESS CLOSED	$5,000.00	$1,000.00	$751.06	$248.94	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-02-97 BEAUCRAFT, INC.	11/20/1997	CONSENT ORDER 01/15/98	$14,000.00	$5,750.00	$5,750.00	$0.00	$250.00	$250.00	$0.00	$400.00	$400.00	$0.00

TABLE 33
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/13
FIELD'S POINT DISTRICT

NFORCEMENT ACTION# COMPANY NAME	AO ISSUE DATE	RESOLUTION	ORIGINAL ADMIN. PENALTIES ASSESSED	ADMIN. PENALTIES AWARDED OR AGREED TO	ADMIN. PENALTIES PAID	ADMIN. PENALTIES BALANCE	ENF.COSTS ASSESSED/ AWARDED/ AGREED TO	ENF. COSTS PAID	ENF. COSTS BALANCE	STIPULATED PENALTIES ASSESSED	STIPULATED PENALTIES PAID	STIPULATED PENALTIES BALANCE
AO #FP-03-97 QUAKER PLATING COMPANY, INC.	12/30/1997	CONSENT ORDER 10/14/99	$52,000.00	$26,500.00	$26,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-98 HAB TOOL, INC.	02/24/1998	CONSENT ORDER 05/21/98	$10,000.00	$2,500.00	$2,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-02-98 AD-TECH, INC.	03/17/1998	HEARING HELD APPEAL PENDING	$40,500.00	$75,000.00 AWARDED AT HEARING	$0.00	$75,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-03-98 ALLENS MFG. CO., INC.	03/25/1998	RESOLUTION THRU BANKRUPTCY	$23,000.00	23,000.00	$23,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-04-98 DIMEO CONTRUCTION	06/18/1998	CONSENT ORDER 12/16/98	$1,500.00	$500.00 PUBLIC NOTICE ($459.60)	$959.60	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-05-98 RAWCLIFF CORPORATION	12/10/1998	CONSENT ORDER 03/30/99	$2,500.00	PUBLIC NOTICE ($597.75)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-06-98 RENCLIF, INC.	12/29/1998	CONSENT ORDER 03/18/99	$5,000.00	$1,000.00	$1,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-99 HAMILTON TOOL, INC.	03/02/1999	CONSENT ORDER 04/06/00 PERMIT FEES PAID	$5,000.00	$2,500.00	$2,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-00 CROWN PLATING, INC.	06/20/2000	SUPERIOR COURT STIPULATION FOR PAYMENT OF $12,000 FOR PERMIT FEES FINE WAIVED	$6,250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-02-00 ULTRA METAL FINISHING, INC.	12/28/2000	INCOPORATED INTO AO#FP-02-01 BANKRUPT	$22,000.00	$22,0000	$0.00	$22,000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-03-00 EASTERN WIRE PRODUCTS CORP.	12/28/2000	CONSENT ORDER 10/30/01	$105,000.00	$10,000.00	$9,150.00 (per accelerated payment plan)	$0.00	$2,000.00	$1,925.00 (per accelerated payment plan)	$0.00	$0.00	$0.00	$0.00

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AO#FP-01-01 MICHAEL MARSOCCI	10/31/2001	CONSENT ORDER 05/02/02	$5,000.00	$750.00	$750.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO#FP-02-01 ULTRA METAL FINISHING CO., INC.	12/27/2001	PERMIT REVOKED BUSINESS CLOSED BANKRUPT	$5,000.00	$5,000	$0.00	$5,000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO#FP-01-02 RICHARD FULLER	02/05/2002	CONSENT ORDER 05/16/02	$5,000.00	$750.00	$750.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO#FP-02-02 D&L SALES	04/11/2002	CONSENT ORDER 02/25/03	$10,000.00	$2,500.00	$2,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO#FP-03-02 RI CESSPOOL CLEANERS, INC.	05/14/2002	CONSENT ORDER 06/17/02	$5,000.00	$1,250.00	$1,250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO#FP-04-02 C&J JEWELRY COMPANY, INC.	10/17/2002	CONSENT ORDER 12/11/02	$10,000.00	$5,000.00	$5,000.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO#FP-05-02 TOWN OF JOHNSTON	10/24/2002	AO SUSPENDED FOR COMPLIANCE	$25,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-03 TOWN OF JOHNSTON	09/10/2003	AO SUSPENDED FOR COMPLIANCE	$10,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-02-03 VICTORY FINISHING TECHNOLOGIES	09/10/2003	CONSENT ORDER 6/8/05	$55,000.00	$5000.00	$5000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-03-03 NEW ENGLAND INDUSTRIES	09/10/2003	CONSENT ORDER 3/9/04	$35,000.00	$1,500.00	$1,500.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-04 ELMHURST EXTENDED CARE	3/5/2004	CONSE4NT ORDER 10/27/04	$20,000.00	$7,500.00	$7,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

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AO #FP-02-04 ROGER WILLIAMS MEDICAL CENTER	03/05/2004	CONSENT ORDER 10/27/04	$30,000.00	$12,500.00	$12,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-05 WAL-MART STORES, INC.	10/17/2005	SETTLEMENT AGREEMENT 09/18/06 $40,000 CONTRIBUTION MADE FOR MAINTENANCE AND RIVER CLEANUPS	$61,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-07 PHILIP McKENDALL D/B/A LA PRIMA CAFFE	09/05/2007	CONSENT ORDER 11/19/07	$7,500	$2,500	$2,500	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-08 JRB ASSOCIATES INC.	08/25/08	CONSENT ORDER 4/15/09	$67,000	$24,000.00	$24,000	$0.00	$0.00	$0.00	$0.00	$575.00	$575.00	$0.00
AO #FP-01-09 AO #FP-02-09 MAZEY'S RESTAURANTS	10/8/2009	SETTLEMENT VIA SUPERIOR COURT STIPULATION FOR PAYMENT OF $640 10/24/13	$18,500	$640.00	$640.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
CIVIL ACTION #12-2600 PROVIDENCE SPECIALTY PRODUCTS, INC.	4/17/2012	CONSENT ORDER 1/31/13	$127,018.60	$90,527.11	$11,000.00	$86,527.11	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

TABLE 33
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/13
BUCKLIN POINT DISTRICT

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BVDC NOV/ORDER LYNCH PAINT	JAN-87	BANKRUPT	$5,000.00	$1,000.00	$0.00	$1,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
BVDC NOV/ORDER LIBERTY PLATING	12/04/1987	CONSENT AGREEMENT 01/29/88	$85,500.00	$18,000.00 ($85,500.00 W/ $67,500.00 SUSPENDED)	$18,000.00	$0.00	$266.35	$266.35	$0.00	$0.00	$0.00	$0.00
BVDC NOV/ORDER #1 COLFAX, INC.	06/10/1988	SETTLEMENT AGREEMENT 09/08/88	$324,000.00	$60,000.00	$60,000.00	$0.00	$57,793.10	$57,793.10	$0.00	$0.00	$0.00	$0.00
BVDC NOV/ORDER TANYA CREATIONS	02/03/1989	CONSENT AGREEMENT 03/07/89	$54,000.00	$24,000.00 ($54,000 W/ $30,000 SUSPENDED)	$24,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
BVDC CHEMART COMPANY	04/17/1989	CONSENT AGREEMENT 09/29/89	$20,000.00	$5,000.00 ($10,000.00 w/ $5,000.00 SUSPENDED)	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
BVDC NOV/ORDER NULCO MFG CORP	08/21/1989	CONSENT ORDER 05/01/90	$126,000.00	$21,000.00 ($42,000.00 W/ $21,000.00 SUSPENDED)	$21,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
BVDC NOV/ORDER #2 COLFAX, INC.	03/16/1990	SETTLEMENT AGREEMENT 07/11/90	$125,000.00	$12,500.00 ($20,000.00 W/ $7,500 SUSPENDED)	$12,500.00	$0.00	$10,117.98	$10,117.98	$0.00	2,000.00	$2,000.00	$0.00
BVDC NOV/ORDER NEWMAN CROSBY	04/10/1990	CONSENT ORDER 08/20/90	$10,500.00	$6,000.00 ($10,500.00 W/ $4,500.00 DEFERRED)	$6,000.00	$0.00	$4,403.26	$4,403.26	$0.00	$0.00	$0.00	$0.00
BVDC NOV/ORDER #3 COLFAX, INC.	07/06/1990	SETTLEMENT AGREEMENT 09/25/90	$25,000.00	$5,000.00	$5,000.00	$0.00	$6,562.15	$6,562.15	$0.00	$0.00	$0.00	$0.00
BVDC NOV/ORDER #4 COLFAX, INC.	08/08/1990	SETTLEMENT AGREEMENT 10/16/90	$380,000.00	$13,000.00	$13,000.00	$0.00	$42,056.29	$42,056.29	$0.00	$0.00	$0.00	$0.00
BVDC NOV/ORDER #5 COLFAX, INC.	12/13/1990	SETTLEMENT AGREEMENT 02/26/91	$20,000.00	$0.00	$0.00	$0.00	$2,867.65	$2,867.65	$0.00	$0.00	$0.00	$0.00

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BVDC NOV/ORDER MICROFIBRES	07/31/1991	COMPLIED WITH CONDITIONAL ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
BVDC NOV VITRUS, INC.	09/17/1991	SETTLEMENT AGREEMENT 10/2/91	$0.00	$0.00	$0.00	$0.00	$1,025.54	$1,025.54	$0.00	$0.00	$0.00	$0.00
A0 #BP-01-92 DORETTE, INC.	04/22/1992	PERMIT FEES PAID FINE WAIVED	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-02-92 CELTIC PUB	04/22/1992	PERMIT FEES PAID FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-03-92 PIZZA PALACE	04/22/1992	BUSINESS CLOSED FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # BP-04-92 BILL'S RESTAURANT	04/22/1992	PERMIT FEES PAID FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-05-92 CHRISTINE'S OF CUMBERLAND	04/22/1992	PERMIT FEES PAID FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-06-92 VISTAWALL, INC.	04/22/1992	COMPLIED WITH ORDER	$250.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # BP-07-92 JACY'S SALAD BAR	04/22/1992	BUSINESS CLOSED FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # BP-08-92 KING'S LAUNDRY	04/22/1992	PERMIT FEES PAID FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-09-92 WASHING WELL LAUNDROMAT	04/22/1992	PERMIT FEES PAID FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

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AO #BP-10-92 BRAXTON'S, INC.	04/22/1992	BUSINESS CLOSED FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-11-92 WOODLAWN FISH & CHIPS	04/22/1992	PERMIT FEES PAID FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-12-92 LITTLE ANTHONY'S RESTAURANT	04/22/1992	CHANGED OWNERSHIP FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO # BP-13-92 SMITHFIELD AVENUE LAUNDROMAT	04/22/1992	CHANGED OWNERSHIP FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-14-92 JEHA'S TEXACO	04/22/1992	PERMIT FEES PAID FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-15-92 ESTRELA DO MAR RESTAURANT	04/22/1992	PERMIT FEES PAID FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-16-92 RICOTTI'S SANDWICH SHOP	04/22/1992	COMPLIED WITH ORDER	$100.00	$100.00	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-17-92 UNCLE TONY'S PIZZA	04/22/1992	PERMIT FEES PAID FINE WAIVED	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-18-92 SERRA DE ESTRELA RESTAURANT	04/22/1992	COMPLIED WITH ORDER	$100.00	$100.00	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-19-92 REGINA MFG.	04/22/1992	COMPLIED WITH ORDER	$100.00	$100.00	$100.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-20-92 WOODLAWN CLEANERS & LAUNDRY	04/30/1992	COMPLIED WITH CEASE AND DESIST ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

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AO #BP-21-92 STANDARD UNIFORM SERVICES	06/17/1992	COMPLIED WITH CEASE AND DESIST ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-22-92 METROPOLITAN PLATING	04/22/1992	OUTSTDG FEES RESCINDED SUBJ. TO SHUTDOWN	$5,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BP-23-92 CHN ANODIZING	06/18/1992	CONSENT ORDER 03/30/93	$17,500.00	$7,000.00	$7,000.00	$0.00	$262.50	$262.50	$0.00	$0.00	$0.00	$0.00
AO #BP-24-92 PARAMOUNT CARDS	06/18/1992	CONSENT ORDER 02/09/93	$17,500.00	$2,000.00	$2,000.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #BP-26-92 SLATER SCREEN PRINT	03/10/1992	CONSENT ORDER 01/01/94	$18,000.00	$9,000.00	$9,000.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO # BP-28-92 A.T.CROSS CO.	02/06/1992	CONSENT ORDER 03/31/93	$3,250.00	$1,000.00	$1,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-02-93 SLATER SCREEN PRINT	03/18/1993	CONSENT ORDER 01/01/94	$25,000.00	$5,000.00	$5,000.00	$0.00	$500.00	$500.00	$0.00	$6,500.00	$6,500.00	$0.00
AO #BV-03-93 ELIZABETH WEBBING MILLS	05/04/1993	CONSENT ORDER 10/12/93	$25,000.00	$3,000.00	$3,000.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #BV-04-93 CHN ANODIZING	07/19/1993	CONSENT ORDER 03/08/94	$25,000.00	$5,000.00	$5,000.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO #BV-05-93 STANDARD UNIFORM	10/29/1993	CONSENT ORDER 05/03/94	$18,000.00	$11,000.00	$11,000.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO #BV-06-93 BILL'S RESTAURANT	10/29/1993	COMPLIED WITH ORDER FINE RESCINDED	$3,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

TABLE 33
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/13
BUCKLIN POINT DISTRICT

ENFORCEMENT ACTION# COMPANY NAME	AO ISSUE DATE	RESOLUTION	ORIGINAL ADMIN. PENALTIES ASSESSED	ADMIN. PENALTIES AWARDED OR AGREED TO	ADMIN. PENALTIES PAID	ADMIN. PENALTIES BALANCE	ENF.COSTS ASSESSED/ AWARDED/ AGREED TO	ENF. COSTS PAID	ENF. COSTS BALANCE	STIPULATED PENALTIES ASSESSED	STIPULATED PENALTIES PAID	STIPULATED PENALTIES BALANCE
AO # BV-01-94 AAFCO, INC.	03/17/1994	CONSENT ORDER 09/26/96	$11,000.00	$6000 (SEP)	$6000 (SEP)	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #BV-02-94 UNCLE TONY'S PIZZA & PASTA	07/12/1994	CONSENT ORDER 11/21/94	$12,000.00	PUBLIC AWARENESS PROJECT	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-03-94 MCDONALD'S RESTAURANT	07/19/1994	CONSENT ORDER 11/01/94	$10,000.00	$5,000.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-04-94 MCCONNELL & CARPENTER	07/28/1994	COMPLIED WITH ORDER	$0.00 COMPLIANCE ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-05-94 COLFAX	10/13/1994	CONSENT ORDER 01/09/95	$5,000.00	$5,000.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-07-94 UNCLE BEAN'S DINER	10/07/1994	CONSENT ORDER 12/06/94 BUSINESS CLOSED	$10,000.00	$1,000.00	$183.34	$816.66	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-01-95 LIBERTY PLATING	01/04/1995	CONSENT ORDER 08/03/95	$75,000.00	$6,000.00	$6,000.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #BV-02-95 JOSEPH'S FAMILY RESTAURANT	02/08/1995	COMPLIED WITH ORDER	$0.00 COMPLIANCE ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-03-95 SCOLA ENTERPRISES, INC.	05/30/1995	CONSENT ORDER 10/04/95	$20,000.00	$4,000.00	$4,000.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #BV-04-95 ELIZABETH WEBBING	10/02/1995	CONSENT ORDER 02/26/97	$50,000.00	$35,000.00 (SEP)	$35,000.00 (SEP)	$0.00	$750.00	$750.00	$0.00	$0.00	$0.00	$0.00
AO #BV-05-95 SLATER SCREEN PRINT	10/31/1995	CONSENT ORDER 11/20/97	$150,000.00	$35,000.00 $5,000. (SEP)	$35,000.00 $5,000. (SEP)	$0.00	$0.00	$0.00	$0.00	$5,500.00	$5,500.00	$0.00

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AO #BV-06-95 TEKNOR APEX COMPANY	11/02/1995	CONSENT ORDER 06/19/96	$6,000.00	$3000.00 $3,000.00 (SEP)	$3,000.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #BV-01-96 STI, INC.	05/15/1996	CONSENT ORDER 07/31/96	$7,000.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-02-96 MOBIL OIL CORPORATION	05/15/1996	AO RESCINDED	$10,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-03-96 MICROFIBRES, INC.	06/12/1996	CONSENT ORDER 04/10/97	$0.00 COMPLIANCE ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-01-97 EL PANAL RESTAURANT	06/12/1997	AO RESCINDED	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-02-97 REGEN CORPORATION	11/20/1997	PERMIT FEES PAID CONSENT ORDER	$5,000.00	$500.00	$500.00	$0.00	$250.00	$250.00	$0.00	$0.00	$0.00	$0.00
AO #BV-01-98 BOWCAM CONTAINERS	05/19/1998	COMPLIED WITH ORDER	$2,000.00	$2,000.00	$2,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-02-98 NATIONAL RING TRAVELER	05/27/1998	CONSENT ORDER 07/28/99	$33,000.00	$16,000.00	$16,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-03-98 MICROFIBRES, INC.	12/08/1998	CONSENT ORDER 05/17/01	$112,000.00	$25,000.00	$25,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-04-98 ELIZABETH WEBBING MILLS, INC.	12/10/1998	COMPANY BANKRUPT	$134,000.00	$134,000.00	$0.00	$134,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-05-98 CHN ANODIZING	12/10/1998	CONSENT ORDER 03/18/99	$30,000.00	$12,000.00	$12,000.00	$0.00	$0.00	$0.00	$0.00	$175.00	$175.00	$0.00

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AO #BV-01-99 TANURY INDUSTRIES	06/08/1999	CONSENT ORDER 08/03/99	$22,000.00	$9,800.00	$9,800.00	$0.00	$0.00	$0.00	$0.00	$900.00 AGREED UPON $600	$600.00	$0.00
AO #BV-02-99 BRISTOL COUNTY SEPTIC, INC.	12/22/1999	CONSENT ORDER 08/09/00	$30,000.00	$1,000.00	$1,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-01-00 ELIZABETH WEBBING MILLS, CO., INC.	06/29/2000	COMPANY IN BANKRUPTCY	$0.00 COMPLIANCE ORDER	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-02-00 WOODLAWN LAUNDRY & CLEANERS	12/28/2000	CONSENT ORDER NOT SIGNED COMPANY CLOSED	$2,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO#BV-01-02 CENTRAL SOYA COMPANY, INC.	02/21/2002	AO RESCINDED	$100,000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO#BV-02-02 D.C.L. d/b/a SEWERMAN	04/22/2002	CONSENT ORDER 06/11/02	$30,000.00	$5,000.00	$5,000..00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO#BV-03-02 C.H.N. ANODIZING	6/28/2002	CONSENT ORDER 8/20/02	$1,500.00	$500.00	$500.00	$0.00	$250.00	$250.00	$0.00	$50.00	$100.00	$0.00
AO#BV-04-02 INSTANT SEPTIC ENVIRONMENTAL SERVICES	08/08/2002	HEARING HELD DECISION 8/13/04 COMPLAINT FILED COMPANY OUT OF BUSINESS	$20,000.00	$20,000.00 (AWARDED AT HEARING)	$0.00	$20,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO#BV-05-02 ESTRELA DO MAR	09/23/2002	CONSENT JUDGMENT 3/24/03	$5,000.00	$5,000.00	$5,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-01-03 C.H.N. ANODIZING	03/27/2003	CONSENT ORDER 8/6/04	$50,000	$12,000.00	$12,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-01-05 TANURY INDUSTIRES	9/14/2005	CONSENT ORDER 12/31/05	$108,500.00	$24,000.00 ($94,000.00 W/$70,000.00 SUSPENDED)	$24,000.00	$0.00	$0.00	$0.00	$0.00	$200.00	$200.00	$0.00

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BUCKLIN POINT DISTRICT

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AO #BV-01-07 KIK CUSTOM PRODUCTS, INC.	9/10/2007	CONSENT ORDER 07/10/08	$109,500	$73,000	$73,000	$0.00	$0.00	$0.00	$0.00	$500.00	$500.00	$0.00
AO #BP-01-09 COASTAL COLLISION & TOWING, INC.	07/22/09	IMMEDIATE COMPLIANCE ORDER	$0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #BV-01-10 COASTAL COLLISION & TOWING, INC.	06/15/10	CONSENT ORDER 09/17/11	$1,000	$1,000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

VII. SPECIAL PROJECTS AND PROGRAMS

Introduction

The NBC implements many projects, programs and studies to reduce and control the discharge of toxic and other non-conventional pollutants from industrial, commercial, and residential sewer users. These projects and programs are a collaboration of staff from many sections of the NBC, including the Pretreatment, ESTA, Permits & Planning, Laboratory and EMDA sections.

The Pretreatment Section implements many projects and programs and educates users to reduce and control the release of toxics to the sewerage system. The Pretreatment Program controls, reduces and prevents pollutant discharges by issuing discharge permits to industrial and commercial users. These discharge permits may require installation of pretreatment systems and implementation of Spill and Slug Prevention Control Plans.

In addition to the Pretreatment Section reducing toxic discharges through its permitting and educational programs, the ESTA Section further reduces toxic loadings by providing free technical assistance and educational programs to local industries. Through this program, the NBC educates firms about pollution prevention techniques, such as product substitutions, so that hazardous materials can be eliminated from process operations and toxic byproducts are not generated or discharged.

The EMDA Section routinely samples permitted NBC users, providing monitoring data necessary for the Pretreatment Section to evaluate user compliance with discharge limitations. EMDA conducts water quality studies in the receiving waters of the NBC treatment facilities, contributing to the statewide effort of many agencies, institutions and organizations to understand water quality issues and determine the solutions needed to restore Narragansett Bay. EMDA also performs wastewater sampling at the two treatment facilities every day in accordance with RIPDES permit requirements. The Laboratory Section operates daily to analyze and process the thousands of samples delivered annually by EMDA. This Chapter details the projects, studies, and programs that the Pretreatment, ESTA, Permits & Planning, EMDA and Laboratory Sections have worked on in 2013.

Status of Projects, Programs and Studies

Environmental, Safety and Technical Assistance (ESTA) Program

ESTA Pollution Prevention Activities

Throughout 2013 ESTA continued to assist the industrial community with implementing pollution prevention techniques and technologies that result in less waste generation, smoother running and less costly operations, and improved environmental regulatory compliance. Pollution prevention services are free of charge, non-regulatory and confidential.

The goals and objectives of the ESTA Section pollution prevention efforts are to:

- Promote pollution prevention philosophies and methodologies among the industrial users of the NBC system;

- Identify and address regulatory and non-regulatory barriers and incentives to implementing source reduction and pollution prevention activities;

- Develop a readily available, easily accessible and efficient source of pollution prevention information for use by the industrial community.

ESTA staff performs technical assistance site visits of NBC industrial users, organizes and conducts workshops and seminars, and produces educational fact-sheets. The ESTA staff conducted 27 individual site visits during 2013 on a variety of pollution prevention, energy efficiency, and environmental regulatory compliance improvement projects including:

- Auto Salvage Facilities
- Autobody Repair Facilities
- Restaurants and Food Service Establishments
- Metal Finishing Facilities
- Printing Facilities

ESTA Grant Funds

Since the creation of the Pollution Prevention Program in 1991, NBC has been awarded many additional PPIS grants and several grants from other sources to initiate a variety of industrial user environmental educational and technical assistance programs. TABLE 34 summarizes the project periods and funding amounts for each of these grant awards. To date, the NBC has secured grant funding totaling $1,474,750 for pollution prevention and technical assistance activities.

TABLE 34
Summary of Grant Awards

Program	Grant ID#	Project Period	Original Grant Award
Initial Pollution Prevention	NP818873-01-0	10/01/91 - 09/30/97	$300,000
Training Grant – CCRI Pollution Prevention Course	NP991705-01-1	10/01/95 - 09/30/98	$60,000
Clean P2 – Regulatory Relief Program	NP991756-01-0	10/01/96 - 09/30/00	$85,000
NBC Metal Finishing 2000 Program	NP991195-01-0	10/01/97 - 09/30/00	$35,000
NBC Metal Finishing Seminars	NP991402-01-0	07/01/98 - 09/30/00	$25,000
Environmental Management Systems	NP991679-01-0	10/01/99 - 09/30/01	$32,000
Environmental Best Management Practices	NP98121801-0	10/01/00 - 03/31/03	$35,000
MP&M Pollution Prévention Audits	NP98142601	10/01/01 - 09/30/03	$50,000
Pollution Prevention in RI Hospitals	NP98154501-0	10/01/02 - 09/30/04	$25,000
Auto Salve Yard Pollution Prevention	NP98182201-0	10/01/03 - 09/30/05	$25,000
Stormwater Pollution Prevention	NP97107901-0	10/01/04 - 12/31/07	$35,000
Energy Conservation	NP97126001-0	10/01/05 - 09/30/08	$35,000
Renewable Energy - Wind	RI State Energy Grant	07/01/06 - 09/30/08	$25,000
Renewable Energy - Biogas	RI State Energy Grant	07/01/06 - 09/30/08	$25,000
Energy-EMS Project	EI-97187901	10/01/08-09/30/11	$275,000
Energy Technical Assistance Assessments	3232910	05/16/11-03/31/12	$86,000
Energy Efficiency Projects	3233807	05/16/11-03/31/12	$311,750
Water Utility Energy Efficiency	N/A	01/01/13 – 12/31/14	$10,000
Total Grants Awards To NBC			**$1,474,750**

In addition to grant funded projects, the ESTA Section is involved with many environmental programs and projects that promote the use of pollution prevention and sound environmental management practices among NBC users and the industrial community throughout the State of Rhode Island.

Energy Conservation Program

In October 2005 NBC was awarded a $35,000 Pollution Prevention Grant from EPA to initiate a program to investigate energy conservation and renewable energy opportunities at the NBC. Municipal wastewater treatment operations utilize tremendous amounts of energy. With current rising energy costs, safety and environmental impact concerns over the storage and use of conventional fuels such as liquefied natural gas, petroleum derived fuels and nuclear energy, it is imperative that wastewater treatment facilities have an in-depth understanding of available energy conservation techniques and alternative energy sources.

As part of this project NBC conducted detailed energy audits of its various facilities and operations in order to identify energy conservation opportunities and conducted the feasibility of utilizing renewable energy on a large scale to reduce its dependency on more conventional non-renewable energy sources.

Renewable energy sources investigated included:

- Low impact hydroelectric energy captured from wastewater flow
- Wind derived energy
- Combined heat and power utilizing biogas
- Fuel Cells utilizing
  - Bio-gas
  - Hydrogen derived from solar electro-dialyses of treated wastewater effluent
  - Energy derived from nitrification/de-nitrification chemical reactions
- Geothermal energy
- Solar energy

Information collected as part of these energy audits and studies has been used to develop written energy use and conservation best management practices and fact sheets to help other wastewater treatment plants make informed decisions regarding their energy use and conservation practices. Overall project results will be presented to other Rhode Island and regional wastewater treatment facilities as part of an energy use workshop.

In March 2006 NBC received $50,000 in grant funds from the Rhode Island Office of Energy to conduct feasibility studies into the use of Wind Energy at Field's Point and bio-gas in a Combined Heat and Power Process (CHP) at Bucklin Point. In February 2012, three 1.5 MW turbines were erected at Field's Point and were commissioned in December 2012.

Throughout 2013 the Field's Point wind turbines supplied 42% of the electrical power demand of the plant. The NBC Biogas CHP project continued through the final design phase and NBC initiated studies into developing a 2 MW solar array system at Bucklin Point. Also during 2013 NBC received a NEWEA Energy Management Achievement Award.

Sustainable Energy Management of Wastewater Treatment Facilities

In October 2008, NBC was awarded a $275,000 grant from the EPA to initiate a program for developing sustainable energy management plans for the nineteen wastewater treatment facilities in Rhode Island. The NBC State Innovation Grant Project has two components. First, NBC and its partners developed a program for Rhode Island treatment plants on Energy Focused Environmental Management Systems (EF-EMS) using the *plan-do-check-act* (PCDA) approach to continuous process improvement, to reduce energy use and improve energy efficiency for WWTFs. Second, NBC developed a Fats Oils & Grease Management Environmental Results Program (ERP) for FSEs through the Pretreatment Section working with the DEM and URI. The ERP will help these businesses improve compliance with the NBC's Grease Control Program and create incentives to encourage the use of collected grease as a renewable energy source.

The project goal for the Sustainable Energy Management component of the project will be to develop and implement EF-EMS for treatment facilities including:

- Use of the plan-do-check-act approach;
- Use of the EPA Energy Guidebook to train participating facilities on how to establish and implement a successful EF-EMS;
- Develop energy-use baselines for each participating treatment facilities;
- Conduct energy use assessments for participating facilities;
- Identify potential Energy Conservation and Efficiency Measures (ECEMs);
- Assess renewable energy resource opportunities;
- Assess the implementation of the Plan-Do-Check-Act aspect of each EF-EMS.

Additionally, the project established a roundtable to assist each participating treatment facilities with implementation of their EF-EMS.

All tasks associated with this grant funded project have been completed. Through a series of workshops, treatment plants were trained on the PDCA approach and the use of EPA Portfolio Manager. Site visits, conducted by NBC and the primary state energy provider, National Grid, produced nineteen energy assessments (including renewable energy opportunity assessments) and eleven follow up technical assessments identifying more than 100 energy efficiency measures. As part of these efforts an additional $3,000,000 in ARRA grant funding was made available through from the Rhode Island Office of Energy Resources to help implement identified energy efficiency measures.

As a result of these efforts an estimated 4,400 kWh/year of energy savings have been identified and two renewable energy projects with the potential of creating more than 11,000 kWh/year of clean renewable energy are currently being implemented. While some identified energy opportunities were not found to be immediately cost effective the aforementioned energy assessment reports will allow the treatment facilities to act on these energy projects in a timely manner should funding become available and/or should rising future energy costs make these projects more cost effective.

Throughout 2013 ESTA staff continued to track energy use at Field's Point and Bucklin Point, continued to coordinate energy measurement efforts with other treatment plants through various meetings and presentations, and received a $10,000 grant award to assist Rhode Island Water Supply Utilities identify renewable energy opportunities.

The goal of the ERP for FSEs is to improve management of fats, oils & grease resulting in reduction in total oil & grease discharges to the sewer system through:

- Enrollment of FSEs in the program;
- Development of a checklist and a set of Best Management Practices (BMP) for business operators;
- Development of a baseline compliance estimate for participating facilities through facility assessments.

BMPs were developed for FSEs handling fats, oils and grease. A FOG Self-Certification workbook was developed by NBC, URI and RIDEM. The finalized workbook has been posted on www.narrabay.com for access and use by local restaurants and food-service establishments.

Throughout 2013 ESTA worked with the local food service establishments to implement the ERP. This resulted in the issuance of five FOG BMP Certificates.

NBC Environmental Merit Awards Program

In 1995, the NBC developed the Environmental Merit Awards Program to recognize companies that have demonstrated environmental efforts and commitments that go beyond mandated compliance requirements. As part of this awards program, the NBC also recognizes all SIUs that have achieved full compliance with all NBC requirements during the previous calendar year.

In 2013, the NBC recognized numerous firms for their exemplary environmental activities performed in 2012. NBC recognized nineteen companies with Perfect Compliance Awards for achieving 100% compliance with all NBC regulatory requirements, one company was recognized for its pollution prevention efforts and one company was recognized for its efforts with managing stormwater. The award recipients are as follows:

Perfect Compliance Award Winners:

A. Harrison & Company, Inc.
AG&G Incorporated
Austin Metal Finishing, Inc.
Darlene Group, Inc.
Eastern Color & Chemical Company
Electrolizing, Inc.
General Cable Industries, LLC
Impco, Inc.
Induplate, LLC
Mahr Federal, Inc.
Pilgrim Screw Corporation
Metallurgical Solutions, Inc.
Providence Journal Company – Production Facility
Providence Metallizing Company, Inc.
Stackbin Corporation
Tanury Industries PVD, Inc.
Technodic Inc.
Truex, Inc.
Univar USA, Inc.

One Storm Water Management Excellence Award was presented to The Rhode Island School for the Deaf for reducing storm flow from entering NBC facilities.

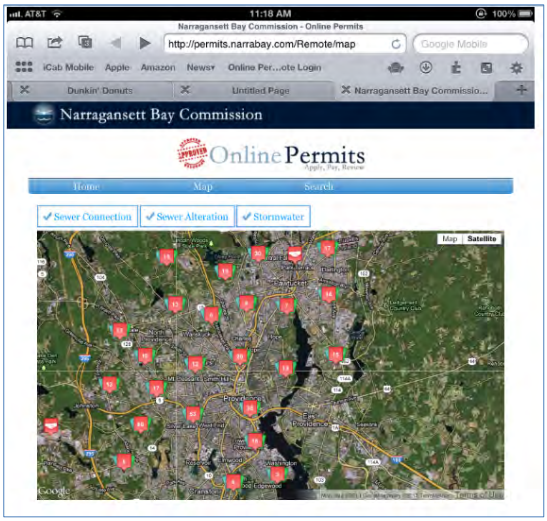
Each award recipient received a plaque and had their company name and environmental accomplishments published in the Providence Journal. Applications for the 2013 NBC Environmental Merit Awards will be available on-line in late February 2014 and the presentation of these awards will take place in early April 2014.

Sewer Connection Permit Program

Since 1982, the NBC has been reviewing all applicants' requests to connect to its sewer system either directly to NBC owned and maintained sewers, or indirectly to City/Town maintained sewer lines. The sewer connection permit process is necessary to ensure that the structural integrity of the sewer line is preserved, to control and monitor wastewater flow capacity, to minimize storm water discharges, to control toxic pollutant discharges, to maintain quality customer service and to ensure accurate billing of new users.

As the Permit & Planning Section receives comments from the various sections, they are compiled and addressed. After all comments have been satisfactorily addressed, a permit is prepared and issued. In 2012, Permit Section software was developed and put on-line. The software allows additional information to be entered and tracked in the Permit Section database and the software automated the processing of permits. In addition to the automation of permit processing, the software upgrade automated the application process. Applicants can now complete applications online and submit the application and payment electronically. A workstation was installed in the PP&R office area for applicants to use to complete applications.

The software incorporates Google Maps and each sewer connection is displayed on the map once entered by staff. By clicking on the project the viewer will be able to access relevant information such as the location, and type of connection.



In 2013, 213 Sewer Connection Permit applications were processed, the majority of which were for residential connections. Pretreatment reviewed 37 of these sewer connection permit applications to determine if a Wastewater Discharge Permit would be necessary. All of the applications reviewed by Pretreatment were responded to accordingly.

Stormwater Mitigation Program

Permits & Planning staff regularly work with building officials and developers to implement Stormwater Management techniques for new construction projects. As part of the Sewer Connection Permit Application process, a Stormwater Management Plan must be developed. This plan must evaluate storm water mitigation for the site, including the use of Low Impact Development (LID) or Best Management Practices to eliminate or reduce stormwater flows to the treatment facilities as well as the investigation of alternative options to direct discharges into natural waterways. By requiring these plans and LID, 152,623 gallons, based upon a three month storm, were eliminated from the Field's Point sewer system in 2013. These are stormwater flows that would have impacted the NBC sewer system and CSO tunnel. This program, which was established in 2003, mitigated 5.8 million gallons of storm flow from the Field's Point system based on a three month storm event, the design basis for the CSO tunnel. This provides additional capacity in the CSO tunnel for raw sewage requiring capture and treatment. Annually the NBC issues a Stormwater Management Excellence Award to the firm that implements the best stormwater reductions by utilizing LID technologies. The success of this program has been recognized on both the local and national levels. In 2008, the National Association of Clean Water Agencies (NACWA) presented the NBC with an Environmental Merit Award and the Environmental Business Council, presented the NBC with the Leadership Award for a Non-Profit Organization for this program.

Mercury Loading Reduction Program

The NBC has long been a participant in the Rhode Island Mercury Education and Reduction Group. The objective of this group is to identify sources of mercury discharge and pollution in Rhode Island, educate the public regarding mercury issues and eliminate mercury pollution for future generations. Studies indicate that the majority of mercury loadings observed in the sewer system are the result of mercury/silver dental amalgam. As a result, dental operations were evaluated so that the mercury amalgam issue could be addressed and incorporated into wastewater discharge permits issued to dental facilities.

In January 2004, the NBC completed a Best Management Practice (BMP) document for dental facilities to ensure that dental mercury is properly handled, treated and disposed. The NBC worked closely with the Rhode Island Dental Association during the BMP development process to ensure that the BMP addressed both environmental concerns and those of the dentists.

As part of the BMP, dental facilities are given two options to discharge wastewater that may be contaminated with waste dental amalgam. The first option requires the installation of an amalgam separator. The second option does not require the installation of pretreatment equipment but requires the dental facility to sample the waste streams potentially contaminated with mercury and be in compliance with stringent mercury discharge limits. All dental facilities are required to implement other programs regarding training of staff and storage and disposal of amalgam waste. To date all dental facilities in the NBC districts have been permitted and installed amalgam separators.


State of Rhode Island and Providence Plantations
OFFICE of the GOVERNOR
The Governor
of the
State of Rhode Island
Extends His
Greetings and Best Wishes to the
Narragansett Bay Commission
In Recognition of
implementing Environmental Best Management Practices in its Management of Waste Dental Amalgam program, which addresses a significant source of mercury emissions in Rhode Island. NBC's achievements in this area demonstrate a commitment to the environment and the health and public safety of all Rhode Island residents.
In recognition whereof, I have hereby set my hand and caused the Executive Seal of the State of Rhode Island and Providence Plantations to be hereunto affixed this 24th day of September 2009.
Donald L. Carcieri
Governor

The NBC was awarded a Citation by the Governor of Rhode Island for the development and implementation of the BMP. The NBC Dental Amalgam BMP Program has been recognized on a national level by NACWA, and was awarded on Environmental Achievement Award for developing the BMP.

The NBC participated in a NACWA sponsored three year international mercury loading study of treatment plants that have implemented mercury amalgam discharge control programs. From 2003 through July 2006 EMDA has collected influent, effluent, sludge and grit samples monthly at Field's Point using "Clean Sampling" techniques and the samples were analyzed by both the Hampton Roads Sanitation District in Virginia and NBC laboratories. The comparison of these results helped the laboratory achieve low level mercury "clean analysis" of <1.0 ppt. To date the laboratory detection limit for mercury is 2.0 ppt the lowest levels achievable in the state of Rhode Island. The NBC mercury reduction project has been

very successful at reducing mercury loading. Since the inception of the BMP program mercury influent loadings to the NBC wastewater treatment facilities were reduced by 56.3% at Field's Point and 46.4% at Bucklin Point.

In 2011, the EPA began to develop categorical standards for dental facilities. The NBC participated in conference calls with representatives from the EPA, multiple states and other pretreatment programs that have implemented programs to control the discharge of dental amalgam. The EPA used the information obtained during these calls to develop categorical standards which are presently onhold.

Throughout 2013, the dental facilities permitted by the NBC continued to comply with their permits and follow the BMPs. Annual certification of adhering to the BMPs continue to be submitted in compliance with permit requirements.

Grease Control Program

In 1990, the NBC instituted a Grease Control Program to control the discharge of grease and animal fats from restaurants and food preparation facilities into the sewer system. At that time, the NBC was experiencing major operational problems within the sewer system and at the wastewater treatment facility, problems directly attributable to grease accumulation. These problems ranged from grease fouling equipment and controls at the wastewater treatment facility to grease completely blocking the flow in sewer lines, resulting in sewage backups into the basements of homes and businesses. The NBC Grease Control Program has essentially resolved these problems.

The NBC Grease Control Program is a permitting program which requires users with the potential to discharge grease laden wastewater from food preparation operations to install one of two acceptable types of grease removal equipment, the automatic electrical mechanical grease removal unit (GRU) or the in-ground passive grease interceptor (GI). The permit requires the user to implement a series of BMPs which are incorporated into the permit to ensure the proper operation of the grease removal unit. Over the years, the NBC has held many workshops regarding grease removal technologies and is presently conducting studies regarding the effectiveness of the various types of grease removal units.

The Grease Control Program is a well established, successful program. Pretreatment Programs from other municipalities often request assistance from the NBC in establishing their programs and resolving grease related issues. In 2013 the Pretreatment Section was contacted by a grease removal equipment manufacturer to host a training on its equipment. In addition to providing the training the company was educated on what NBC staff look for during inspections. Pretreatment staff from East Providence, Narragansett, South Kingstown and Warwick attended this training.

Spill Prevention Control and Countermeasures and Stormwater Pollution Prevention Plans

During 2010, the Field's Point facility was required to develop a Spill Prevention Control and Countermeasures Plan (SPCC) in accordance with 40CFR112. The task to develop the SPCC was assigned to the PP&R Section. Pretreatment, ESTA and Permits & Planning staff reviewed the regulations to determine the best approach. This review revealed that many of the requirements for the SPCC were also the same as the requirements for the Storm Water Pollution Prevention Plan (SWPPP) required by the NBC General Storm Water Permit issued by the DEM. These requirements include facility site plans, topographical maps, spill control measures, secondary containment, emergency response procedures, a list of emergency response team members and inspection protocols. Based upon the commonality of the plans it was decided to create an operations manual for Field's Point which incorporated both the SPCC and SWPPP. The manual also included standard operating procedures for deliveries of chemicals, waste handling, spill response for oil products and other materials, a list of emergency response contractors, spill/release response forms and checklists to aid in performing required inspections. The SPCC/SWPPP Operations Manual for the Field's Point facility was submitted to the EPA on October 26, 2010. PP&R staff evaluated the other NBC properties to determine where SPCCs and SWPPPs were required. It was determined that these plans needed to be developed for the Bucklin Point facility and the Ernest Street/CSO Tunnel Pump Station site due to the volume of oil stored at these locations. The operations manuals for the locations were developed during the latter part of 2010 and early 2011. The manual for the Ernest Street/Tunnel Pump Station site was submitted to EPA on January 7, 2011 and the Bucklin Point manual was submitted on January 31, 2011. In 2013 the upgrades to the Field's Point plant were completed. In late 2013, PP&R began revising the SPCC/SWPPP Operations Manual for Field's Point. The revision incorporates the SPCC/SWPP plans for both the plant and the Ernest St./Tunnel Pump Station site. In addition, a section was added for spill control procedures to be used by the Interceptor Maintenance Section.

Both the SPCC and SWPPP require annual inspections of the facilities and training on the plans. PP&R staff conducted the inspections at Field's Point, Ernest Street/Tunnel Pump Station Site and Bucklin Point throughout 2013. The training at both facilities was conducted in April and November of 2013.

Nine Minimum Controls Compliance Program for CSOs

Throughout 2013 the Pretreatment, ESTA and EMDA sections continued to ensure compliance with the pretreatment, pollution prevention and monitoring elements of the Nine Minimum Controls Program for CSOs detailed in the NBC RIPDES permits. The Pretreatment and ESTA sections continued to work with industry to ensure compliance with these requirements. Companies are required to install and implement adequate spill control measures to ensure prohibited materials are not incidentally or accidentally discharged to the sewer system or storm drains. Firms are also required to conduct routine self-monitoring to demonstrate compliance with NBC discharge limitations. Firms experiencing compliance problems are encouraged to contact ESTA staff for help to come back into compliance. These programs ensure that industrial wastewater is

properly treated to levels acceptable for discharge and ensure that materials cannot be spilled into the sewer system or through a CSO.

The effectiveness of the NBC Nine Minimum CSO Controls Program is routinely evaluated by sampling conducted by EMDA. EMDA staff collect numerous samples to ensure compliance with the Nine Minimum Controls Program. In addition to the industrial and manhole sampling discussed in CHAPTER IV, EMDA collects twice weekly samples for fecal coliform from the Woonasquatucket, Providence, West, Blackstone, Seekonk, and Moshassuck rivers. Sampling of these rivers is conducted during both wet and dry weather events. The results from these sampling events for fecal coliform are promptly reviewed to identify dry weather discharges and CSOs are immediately inspected by Interceptor Maintenance staff to ensure they are properly functioning. EMDA also re-samples sites that show high fecal coliform bacteria concentrations during dry weather periods. Samples greater than 1000 MPN/100 ml are re-sampled under dry weather conditions. EMDA works with the IM Section to analyze the data in order to identify dry weather overflows or other sources of bacteria to the rivers where combined sewer overflows are located. Other extensive monitoring of the Providence and Seekonk Rivers has indicated the rivers are meeting the EPA aquatic life criteria standards for toxics, including dissolved metals and ammonia. This demonstrates the effectiveness of the Pretreatment and ESTA Programs and the effectiveness of the NBC Nine Minimum Controls Program. This data also has been used to remove the Providence and Seekonk Rivers from the EPA 303(d) list of impaired water bodies for dissolved metals impairment.

In 2013, EMDA staff collected samples at CSOs located in the Field's Point and Bucklin Point districts to measure contaminant levels discharged during wet weather overflow events. Samples are collected at various times throughout the storm event, at the first flush, the height of the storm and near the termination of the event. CSO sites located downstream of industrial areas were selected for this sampling.

Grab samples were collected for toxics, including total metals, TSS, BOD, VOCs, Oil & Grease, TPH and cyanide. The results were compared to the NBC local discharge limitations for the district. All analytical results from samples collected during 2013 were compared to the NBC local discharge limitations for the district. All samples met the local limits, indicating the NBC Pretreatment and pollution prevention elements of the NBC Nine Minimum Controls Program are effective.

River Restoration Initiative

In response to the chronic pollution visible on the Woonasquatucket River in downtown Providence, Narragansett Bay Commission Chairman Vincent Mesolella established the Woonasquatucket River Restoration Initiative in 2002. With an aggressive goal to involve NBC employees, local business owners and members of the community in

reclaiming the Woonasquatucket as a valuable community resource, and guided by the expertise of the Woonasquatucket River Greenway Association.

In 2013 the NBC initiated a new grant program intended to diversify the positive impact on multiple rivers in the NBC service area rather than focus solely on the Woonasquatucket River. The grant program assisted numerous local organization, cities and towns by providing 18 small grants totaling $12,250 that allowed the organizations to purchase supplies to organize clean up events and river restorations activities in the NBC service district.

Emergency Situation/Extreme Conditions Sampling

The NBC has established a program to immediately provide monitoring in the event of an extreme weather condition or an emergency that may adversely affect water quality in our receiving waters. The NBC is prepared to immediately undertake any monitoring necessary to evaluate the impacts from this type of event. There were no events during 2013 that triggered the initiation of this type of monitoring.

Regional Ocean Modeling System – ROMS

In October of 2004, the NBC entered into a two-year contract to fund joint work with the coastal physical oceanography lab led by Dr. Chris Kincaid of the URI - Graduate School of Oceanography to further circulation and hydrodynamic modeling efforts for the Providence and Seekonk Rivers and upper Narragansett Bay. The goal of this work is to develop highly accurate models of circulation and transport within the Providence and Seekonk Rivers and Upper Narragansett Bay that will support NBC management decisions. The development of hydrodynamic modeling will allow the NBC to predict and track the fate of a pollutant through Narragansett Bay once it was discharged from one of the two NBC treatment plants. It is hoped that this model provides an important tool to evaluate and predicts water quality in Narragansett Bay as nutrient loadings are dramatically reduced. This modeling project may ultimately be useful in the development of a nutrient Total Maximum Daily Load (TMDL) for Narragansett Bay.

During the first year of the project, the most comprehensive set of field data to date on Upper Narragansett Bay circulation was acquired using Acoustic Doppler Current Profilers (ADCP) in the Providence River. Three separate bottom mounted ADCPs were deployed in the Providence River from July through October 2005 by the Kincaid group with assistance from the NBC Environmental Monitoring Section. ADCP data over complete tidal cycles was also acquired at three transect locations in the upper Bay. The data acquisition was performed using an ADCP mounted on the side of the NBC's R/V Monitor, and a Seabird SB19 CTD was towed behind the R/V Monitor at a depth of approximately 1 meter. In 2006, the Seekonk River was added to the hydrodynamic modeling project using data from additional bottom mounted ADCPs. In accordance with model development criteria noted by the DEM, the calibration of salinity in the model was checked and found to have proper conservation within the system. A modeling expert was hired by the NBC to review the work of URI-GSO to date, and recommendations were provided to ensure the model will ultimately satisfy DEM criteria.

The model will be used to predict equilibrium nutrients concentrations at various levels of input from area wastewater treatment facilities and other nutrient loading sources. During 2008, the Kincaid group continued multiple model simulation runs utilizing model boundary data at various locations within and just outside Narragansett Bay. They also ran model simulations with varying grid sizes. The goal of these model changes and runs was to produce the most accurate model attainable. By the end of 2008, the Kincaid group was obtaining very good simulations which closely matched observed data. A project report was provided to the NBC in late 2008 but the team continued work on the model through the end of 2008 and new information was included in a report submitted in 2009.

In 2010, the NBC continued its work with URI-GSO to deploy multiple instruments in strategic areas of Narragansett Bay. This data was incorporated into the ROMS model of the Upper Bay to further refine the hydrodynamics of the shoal areas. Once this was complete, the Kincaid group began the work of incorporating advection and dispersion dye fields into the ROMS model. With this complex step complete, the Kincaid group could then complete model simulations, in which inputs from nutrient sources are tracked and their flushing or accumulation in the Upper Bay can be accounted for.

Simulations done in 2013 included varying the effluent nitrogen concentrations being discharged from the NBC facilities. Results showed the difference in nitrogen effluent discharge were only distinguishable just downstream from the facility, while further down the Bay the difference was less noticeable. Other simulations varied the weather patterns, including winds and river runoff, which showed that winds and river runoff contribute to where nutrients accumulate in the Bay and how well they are carried down the Bay. One shortcoming of this analysis was that the nitrogen was treated as a conservative pollutant and so its concentration changes were modeled only on physical processes. In order to improve the accuracy of the model, the Kincaid group was asked to incorporate the biological component of the ROMS model to more accurately model the real world behavior of the nitrogen cycle in the receiving water. This work will be performed on 2014.

Laboratory Information Management System

The NBC purchased a new PerkinElmer Laboratory Information Management System (LIMS) in early 2012. All of the analytical instruments were equipped with drivers to electronically transfer data to the LIMS. Throughout 2013, the Laboratory transitioned to the new LIMS. Data from the old LIM systems was migrated to the PerkinElmer system. In addition to the data migration, IT staff wrote a program to electronically transfer analytical results from NBC industrial user monitoring events from the new system to the Pretreatment Information Management System.

The new LIMS will allow the NBC to use the latest technology to increase the efficiency of day-to-day tasks. The new system will incorporate an Electronic Notebook (ELN) application on iPads. The ELN will be used by EMDA and Laboratory staff. EMDA has developed sample submission templates which include chain of custody documentation for the iPads. The ELN will load information about the samples to be collected directly from the LIMS system, this information will include the general

information about the company that will be sampled such as company name, address, information about the specific sample location, and the sample bottles to be collected. Staff will input sample preservation information, date and time of sample collection, and the staff member collecting the sample directly on the form in the field. Once the sample is transferred to the laboratory, the electronic sample submission sheet will be transferred to LIMS. This electronic information will follow the sample throughout the analytical process to the verification of the sample results. Once the sample has been verified the sample submission sheet will be electronically signed by Laboratory management staff and forwarded to Pretreatment. During 2013, EMDA staff field tested the ELNs during certain types of sample collections. A barcode scanning system will next be implemented to enter, track and receipt samples in the lab which will increase efficiencies. These systems will eliminate time consuming paperwork. In addition to the ELN and barcode applications, the new LIMS will incorporate a global positioning (GPS) component. EMDA and Pretreatment staff will use this technology to locate industrial facilities and surveillance manholes and use naming mechanism that is consistent with current NBC procedures.

Monitoring Data Management

The NBC has been in the process of developing a centralized database for all analytical data generated by the NBC including from industrial, manhole, plant, river and bay sampling events in a electronic format. Staff have been busy locating historical monitoring data in paper format and is working to transfer this data into electronic format.

In 2013 progress was made with the development of this electronic database. As a part of the upgrades to the LIMS a software package, Hachwims, was put online. All data generated by the Perkin Elmer LIMS is electronically transferred to Hachwims. In addition, plant data generated by the plant information system (PI) is electronically transferred to Hachwims. EMDA staff run reports each month to complete the Discharge Monitoring Report (DMR) from this system.

In 2011, EMDA and IT staff developed and launched a website, “Snapshot of Upper Narragansett Bay” which can be accessed through www.narrabay.com. The website is maintained on a regular basis with information regarding water quality and analytical data from plant effluent samples. Real time data from NBC fixed monitoring sites located Bullocks Reach and Philipsdale Landing is displayed on the site. All of this information is readily available to the public. Ultimately the data in the centralized database will be able to be accessed by the public through Snapshot.

Phytoplankton Monitoring

During 2013, NBC continued to collect samples on a bimonthly basis for phytoplankton analysis on the Bay, to better understand the complex dynamics of the Bay ecosystem and how it is impacted by nitrogen reductions by NBC and other inputs. The initial focus of the plankton monitoring initiative is to collect data on the phytoplankton community in the upper Bay. The NBC collected samples from the surface at the Bullock's Reach water quality station. The Bullock's Reach station was selected as the plankton monitoring location because it is the site of one of the NBC fixed site near real-time water quality monitoring stations. With chlorophyll concentrations constantly monitored at the site, the NBC can collect routine planned samples, but also collect additional samples when chlorophyll concentrations escalate, indicating a phytoplankton bloom is present.

Two phytoplankton samples are collected on each sample day. One of the samples is collected using a plankton net, which is deployed at the surface for 30 minutes, while other water quality samples are being collected. The plankton net captures the plankton floating at the surface and concentrates them in a sample bottle. The other sample is a whole water sample, also collected from the surface. Laboratory staff examines a sub-sample of the plankton net sample under the microscope to identify all of the types of phytoplankton present in the sample. From the whole water sample, a specific volume of water (1 mL) is examined under the microscope to determine the genus and number of each type phytoplankton present in the sample. Through this complete analysis, the NBC will be able to track changes in the phytoplankton population and community structure as nutrient reductions occur in the upper Bay. Also, NBC has collaborated with the University of Rhode Island – Graduate School of Oceanography (URI-GSO). Through aligning the NBC methods with those of URI-GSO, who collects data in the lower Bay, comparisons can be made between the phytoplankton variation in the Providence River and upper Bay with that present in the lower Bay.

Benthos Monitoring

During 2013, EMDA utilized an underwater video camera to determine the state of the benthos in the NBC receiving waters. Long-term monitoring of the benthos will document how the NBC effluent impacts the local benthos. Transects were done at Conimicut Point as staff and boat time allowed. Long-term, the videos will allow the NBC to track changes in the local benthos population as nutrient reductions occur in the upper Bay. During 2013, a new underwater camera sled was designed and built to take advantage of lessons learned with the original camera sled, improving upon video quality and functionality of the original camera sled.

On Going Projects

Over the years the Pretreatment, ESTA and EMDA Sections initiate many projects that have become integral parts of the routine activities of each department. Work continues to be performed on these long established NBC projects. The following is a listing of some of these projects:

Commercial Pesticide Control Program
Copper Sulfate Root Killer Prohibition
Fuel Oil Discharge Control Program
Medical Waste Control Program
Environmental Management Systems Program
Pollution Prevention for Hospitals and Health Care Facilities
Pollution Prevention for Auto Salvage Yards
Septage Permitting Program
Treatment Plant Influent Computer Monitoring Program
Floatables Control Program
Mussel Study
Emerging Pollutants Study
Woonasquatucket River Education Project
Water Audit and Technical Assistance Program
Storm Water Pollution Prevention Program
CSO Tunnel Evaluation
Fixed-Site On-Line Water Quality Monitoring
Computerization of Sewer Maps.

The NBC will continue to be a leader, locally and nationally, developing programs, projects and initiatives that will control and reduce the discharge of pollutants to our treatment facilities, and ultimately Narragansett Bay. This work will continue in 2014.

VIII. NBC PRETREATMENT PROGRAM GOALS

Status of 2013 Goals

This chapter outlines the progress made during 2013 toward meeting the goals established in the 2012 Pretreatment Annual Report and defines goals for 2014.

- **2013 Goal:** Publish Pretreatment Program Annual Report

  Accomplishment: The 2012 Pretreatment Program Annual Report was completed and submitted to the DEM on March 14, 2013 in compliance with the NBC RIPDES permits. In order to make the report accessible to the public, it is uploaded to the NBC website, www.narrabay.com annually. The 2012 Pretreatment Annual Report was uploaded to the internet on March 31, 2013. The content of the 2012 Annual Report is also presented to the NBC Citizens Advisory Committee (CAC). The 2012 report was presented to the CAC during their April meeting held on April 10, 2013.

- **2013 Goal:** Satisfy all EPA and DEM Pretreatment Program mandates such as sampling and inspecting each Significant Industrial User (SIU) at least once every twelve (12) months. As an additional goal, the Pretreatment and Environmental Monitoring personnel will attempt to inspect and sample all SIUs at least twice each twelve month period.

  Accomplishment: The Pretreatment and EMDA Sections satisfied the EPA and DEM mandates for conducting sampling and non-sampling inspections of each SIU at least once every twelve (12) month period. Each SIU was inspected at least once during this report period, and within twelve months of their previous inspection date. The Pretreatment Section performed well toward satisfying its goal to inspect each SIU twice, as all but one SIU were inspected two or more times during 2013. This new SIU, Alloy Holdings, LLC was permitted in mid-December and was inspected once prior to the company closing for the holidays. This new company is comprised of two previously permitted companies, Lee's Manufacturing, a SIU, and Morvillo & Sons, Inc., a non-significant industrial user. These two companies are located in the same building and are owned by the same people. Both Lee's Manufacturing and Morvillo & Sons, Inc. were inspected several times throughout 2013. The EMDA Section performed well toward satisfying the NBC goal to sample each SIU at least twice in 2013 as all but one SIU were sampled at least twice The SIU that was only sampled once, Bunge North America (East) LLC, discharged on an infrequent batch basis. They ceased operations at this location in early 2013. Many SIUs were sampled more than twice due to the implementation of monitoring procedure to resample any user once a violation is observes as a result of a NBC sampling event. Additional information regarding the NBC sampling and inspection programs is provided in CHAPTER III.

- **2013 Goal:** The Pretreatment staff will attempt to conduct an annual inspection of each non-significant industrial user, annual inspections of 75% of restaurants and food processing facilities to ensure compliance with grease removal regulations, and 50% of all other permitted commercial users.

  Accomplishment: In 2013, the Pretreatment staff conducted 1,957 inspections of commercial and industrial users. Pretreatment staff performed thorough inspections of 97.0% of permitted non-significant industrial users, performing 440 inspections of this classification of user. During 2013, Pretreatment staff inspected 52.0% of the permitted restaurants and commercial buildings with cafeterias, conducting 586 inspections of facilities in these two categories. Pretreatment staff inspected 49.5% of all other commercial users, meeting the self-imposed goal. There were 295 inspections conducted of commercial users during 2013. Additional information regarding the NBC inspection program is provided in CHAPTER III.

- **2013 Goal:** Perform prompt reviews of user permit applications and plan submittals to ensure that permits are issued in an expeditious manner.

  Accomplishment: All new users located in either district are expeditiously permitted prior to discharging into the NBC sewer system. Formal plan review meetings are conducted weekly by Pretreatment staff to ensure prompt response to user plan submittals and to expedite the permitting process. Permitting of various classes of non-significant users located in both districts was ongoing in 2013, as 449 Wastewater Discharge Permits were issued in various industrial and commercial categories. During the year, permits were issued to metalfinishers, chemical manufacturers, restaurants, supermarkets, automotive repair shops, printers, photo processors, dental offices, doctor offices, and other medical facilities using x-ray equipment. Permitting of new users also continued during 2013, as 154 of the 449 permits were issued to new users. The majority of the new permits were issued to non-significant industrial and commercial users.

  The Pretreatment and Permits & Planning Sections routinely perform expeditious reviews of discharge and sewer connection permit applications and work closely to ensure that contractors' and users' needs are promptly addressed. During 2013 the Pretreatment Section performed expeditious reviews of 252 process and pretreatment system plan submittals. Of these 252 plan submittals 176 were promptly approved, 47 were approved with conditions to be met, 9 were rejected since NBC requirements were not satisfied and no action was taken initially on 20 plans since additional information was required for approval.

  The Permits & Planning Section continued to meet its goal of responding to incomplete Sewer Connection Permit Applications within two business days and issuing permits within ten business days. During 2013, 213 Sewer Connection Permits were issued. This represents a 3.2% decrease from 2012. Additional information regarding this program is provided in CHAPTER VII.

The NBC participates in the RI Office of Management & Budget-Regulatory Reform Program to expedite the issuance of permits to new users connecting to the sewer system. The Pretreatment and Permits & Planning sections track the number of business days from the time the application package is complete to issuance of the permit. In 2013 the average time for a Wastewater Discharge Permit to be issued by the Pretreatment Section was 20 business days and the Permits Section issued new Sewer Connection Permits within two business days.

- **2013 Goal:** Identify new and previously unknown sewer users to ensure compliance with regulations. To achieve this goal, conduct spot inspections of industrial users located in 50% of the mill complexes/industrial areas situated within the two sewer districts to identify new and previously unknown sewer users.

  Accomplishment: The NBC instituted a program of performing unannounced inspections of mill complexes and industrial areas to identify facilities discharging without a permit. This program has been quite successful. This self imposed goal to inspect 50% of mill complexes was exceeded in 2013, as 38 of the 63 or 60.3% industrial areas and mill complexes were inspected at least once in 2013. This program of conducting unannounced inspections of industrial areas and mill complexes to locate new and previously operating unpermitted users has been quite successful at locating unpermitted users. In addition to performing mill complex inspections, Pretreatment staff routinely reviews newspapers, social media and directories to locate new and previously unknown sewer users. All of these methods were utilized during 2013.

- **2013 Goal:** Ensure the protection of the two NBC POTWs and Narragansett Bay to minimize incidents of pass through and interference.

  Accomplishment: Pretreatment staff promptly responds to all reports of unusual influent at each treatment plant, illegal dumping, spills, odors, and blockages. The reports can come from other NBC Sections, NBC computer monitoring systems, environmental agencies, fire departments and/or the general public. The purpose of these investigations is to find the source and protect the plants and infrastructure from upset. In 2013, Pretreatment staff conducted 34 investigations. To assist NBC staff in conducting these investigations, Spill Response and Tracking training is provided annually.

  Pretreatment and EMDA staff also respond to notifications from the NBC Laboratory Information Management System (LIMS) of incidents of non-compliance from NBC monitoring events. When notified by LIMS that a sample collected at an industry is out of compliance with NBC discharge limitations, EMDA staff immediately conducts resampling at the facility and Pretreatment staff contacts the facility to immediately begin resampling its effluent. When alerted by LIMS that the concentrations of pollutants in the influent or effluent of the treatment plants have exceeded preset concentrations, EMDA and Pretreatment staff work together to find the source. The activities that staff

conducts include installing manhole samplers in key locations and inspecting all facilities in the district with the potential to impact the plant with the pollutant in question.

- **2013 Goal:** Continue regulatory inspections of Septage Haulers as part of the NBC Septage Discharge Control Program.

  Accomplishment: During 2013, Pretreatment staff verified the authenticity of 30 septic system pump-outs reported on manifest forms. This exceeded the goal for 2013. In addition, Pretreatment staff conducted 57 inspections at the Septage Receiving Station during 2013. Additional information regarding the NBC Septage Discharge Control Program is provided in CHAPTER VII.

- **2013 Goal:** Improve Data Management.

  Accomplishment: During 2013, Permits & Planning staff continued to use a database which incorporates Google Maps. This database better tracks sewer connection permits. The database contains information including the name, address and type of connection (residential or commercial) and whether the connection is direct or indirect. In 2013, Permits & Planning staff began using a new online application process which allows sewer connection permit applications to be completed, submitted and paid for online. A workstation was installed in the office where applicants can complete and submit applications electronically.

  All receiving water monitoring stations are now located in the NBC GIS system. The data from a monitoring period can be displayed in a map format with the results graphically displayed as colored dots that increase in size and color intensity as the fecal coliform concentrations increase. During 2013, EMDA continued to update monitoring locations on the GIS maps as necessary. All bay and river nutrients and bacteria monitoring sites have been entered and remain accurate. Throughout 2013 EMDA staff continued to maintain the "Snapshot of Upper Narragansett Bay" website which gives NBC staff and other interested parties immediate online access to NBC data.

  The NBC purchased a new PerkinElmer Laboratory Information Management System (LIMS) in early 2012. All analytical instruments were equipped with drivers to electronically transfer data to the new LIMS for verification. This greatly minimizes potential errors with the data. In addition to improved data management, the new system has many specialized features including Electronic Notebook, barcode scanning and global positioning applications. These applications will improve sample tracking, and efficiency in completing day-to-day tasks and virtually eliminate paperwork associated with sampling.

  In 2013, IT staff began upgrading the Pretreatment software. Pretreatment staff met with IT to discuss enhancements to the system. As upgrades are being completed, IT staff forwards them to Pretreatment for comment.

  Throughout 2013, PP&R staff continued to investigate the use of iPads. In mid-

2013 iPads were purchased for all Pretreatment technical staff. Apps were downloaded on these iPads that allow staff to use Microsoft Office software and upload documents to the NBC SharePoint system. Inspection checklists were created that can be utilized in the field. Permits & Planning staff continued to use iPads to upload permit information and pictures to the data base. Throughout 2013, Laboratory and EMDA staff worked with IT staff to integrate iPads with the new PerkinElmer LIMS system. Electronic Sample Submission Sheets (SSS) were developed for all EMDA sampling activities. Field testing of the iPads was conducted throughout 2013 and refinements to the SSSs and their operation were made based upon feedback received from field monitoring staff, in conjunction with other general troubleshooting activities.

- **2013 Goal:** Provide training for OSHA and Safety Awareness. Provide all new applicable employees with 40-hr HAZWOPER training, conduct continuous in-house hazardous awareness training, and provide Infectious Materials Exposure Control training to pertinent NBC personnel.

  Accomplishment: All new employees hired in the Pretreatment, ESTA and EMDA Sections are given initial 40 hour HAZWOPER training. All NBC staff certified in 40 hour HAZWOPER training are given annual 8 hour refresher training in addition to in-house training to satisfy the 8 hour refresher requirement.

  NBC staff was provided Incident Command Systems/National Incident Management Systems (ICS/Nims 100/700) training through the US Department of Homeland Security.

  Additional OSHA related training is given on Confined Space Entry, Hazard Communication, and Hazardous Waste Management. NBC continued to train employees on CPR/AED and First Aid and Hearing Conservation. Audiograms are given annually to NBC employees that have the potential to work in environments where hearing protection is needed.

- **2013 Goal:** Continue to document Pretreatment, EMDA and Laboratory Standard Operating Procedures and NBC Policies and Protocols manuals and update QA/QC programs. The purpose of these manuals is to clearly detail all standard operating procedures in the three sections. These manuals make invaluable reference tools for Pretreatment, EMDA and Laboratory staff and will provide a great resource for NBC employees working outside of these sections.

  Accomplishment: The Pretreatment Section has a Standard Operating Procedures (SOP) manual which consists of all existing SOPs. As existing procedures are reviewed and revised or new procedures are developed, they are documented in this manual. During 2013, Pretreatment staff continued to review SOPs and update them accordingly.

  During 2013, EMDA staff continued to detail all standard operating procedures and procedural changes for its section. Staff reviewed current literature to ensure any mandated changes in sampling protocols and/or methods were promptly

adopted in NBC protocols and methods. All such changes are incorporated into the EMDA Standard Operating Procedures manual. In addition, work aides are generated and training is provided to all EMDA sampling staff as well as all Operations staff that may be responsible to sample during off-shift or weekend hours.

In 2013, the PP&R Emergency Preparedness Plan was updated to incorporate plans involving plant sampling, R/V Monitor, fixed site monitoring equipment, vehicles, and personnel involving adverse weather predictions.

During 2013, agency policies continued to be updated. All new policies are distributed to management and supervisory staff to be included in NBC Policy Manuals located throughout the agency. New policies are communicated to all NBC staff.

- **2013 Goal**: Provide free technical assistance.

  Accomplishment: Throughout 2013 ESTA staff continued to work with the industrial community to help reduce pollution at the source of generation. Activities include on-site pollution prevention and regulatory compliance technical assistance, measuring and monitoring water usage, providing assistance with water conservation projects, and collection and reporting of water use data elements. During 2013, 27 pollution prevention technical assistance site visits were conducted.

- **2013 Goal**: Water Conservation and Reuse.

  Accomplishment: ESTA staff continued to investigate opportunities for the reuse of treated wastewater from the two treatment plants. Throughout 2013 ESTA staff researched U.S. water reuse regulations and requirements including water reuse guidelines and regulation within the six New England states.

- **2013 Goal:** Environmental Merit Awards Program - Solicit nominations from companies and staff, evaluate all Significant Industrial User performance data, and hold Awards Ceremony.

  Accomplishment: In 2013, the NBC recognized one company for environmental achievements with respect to storm water management and 19 SIUs for achieving 100% compliance with all NBC regulatory requirements. The awards were presented to the organizations at a breakfast meeting held on April 11, 2013. Additional information regarding this program is provided in CHAPTER VII.

- **2013 Goal**: Workshops – Participate in workshops and conferences to educate the public on NBC programs and initiatives.

  Accomplishment: During 2013, PP&R staff made numerous presentations at workshops, meetings and/or conferences. These conferences include the 2013 EPA New England Region Pretreatment Conference, Women in Science & Engineering Workshop, 2013 NEWEA Conference, 2013 WEF Conference, 2013 Baird Sea Grant Science Symposium, Science Worth Noticing Symposium, and NEWEA Integrated Wet Weather Seminar. Further discussions on the workshops and other NBC educational efforts can be found in CHAPTER II.

- **2013 Goal:** Energy Conservation – Continue to investigate energy conservation and alternative energy opportunities and seek grant funding for energy projects.

  Accomplishment: Throughout 2013 ESTA staff tracked annual energy use measurements from various NBC metered accounts and analyzed performance data using EPA Portfolio Manager. NBC also continued with efforts to develop a 2 MW solar energy array at the Bucklin Point WWTF.

- **2013 Goal:** Assess NBC Greenhouse Gas (GHG) Emissions.

  Accomplishment: Throughout 2013, NBC continued to collect and analyze electrical, natural gas, biogas and vehicle fuel use to support operations and to help quantify GHG emissions for Field's Point and Bucklin Point. NBC site specific and overall GHG emissions remain below current reporting requirements for both State of Rhode Island and EPA. During 2013, NBC initiated a study, in cooperation with the University of Rhode Island to quantify nitrous oxide, carbon dioxide and methane emissions from Field's Point.

- **2013 Goal:** Continue to study the use of glycerin as a carbon source for the biological nutrient removal process.

  Accomplishment: Throughout 2013, ESTA staff reviewed and analyzed data collected from past glycerin pilot studies. Additional pilot studies are planned for the summer of 2014.

- **2013 Goal:** Conduct weekly manhole monitoring in both districts to ensure user compliance with NBC discharge limitations and to determine the location of previously unknown and unpermitted users. Attempt to sample 6 to 10 manholes per week.

  Accomplishment: EMDA staff conducted weekly manhole monitoring throughout both NBC drainage districts. This monitoring program consists of installing ISCO automatic samplers in surveillance manholes located upstream and downstream of users on a weekly basis to verify users' compliance status. EMDA staff successfully sampled 310 industrial surveillance manholes during 2013, 196 in the Bucklin Point district and 114 in the Field's Point district. The number of

manholes sampled remained virtually the same as 2012. In addition to the 310 industrial manholes, EMDA collected samples from 34 sanitary manholes. The EMDA Section also attempted to collected samples from 15 additional manholes. However, samples could not be collected due to no flow in the sewer line at the time manhole sampling was conducted or due to sampling equipment malfunction. This is an average of approximately seven manholes per week, meeting the goal of 6 to 10 manholes per week. During 2013 surveillance manhole monitoring was conducted up and down stream of 73.0% of the SIUs.

- **2013 Goal:** Define the sewer system sampling program to assess loadings from key drainage areas to locate potential areas of concern and drainage area loadings.

  Accomplishment: The NBC performed well towards satisfying this goal, as it defined strategic manholes throughout both sampling districts, formulated a sampling schedule and conducted routine monitoring of these manholes to evaluate loadings. Flow proportioned sampling of drainage basins as well as analysis of stormwater inputs, water supply inputs and sanitary sewers are used to budget inputs and improve the NBC manhole sampling program. A layer on the GIS maps was created to graphically depict results of drainage district sampling results in order to make interpretation of the data easier. EMDA continued background monitoring of residential areas to better define loadings to the treatment plants. An additional goal to monitor residential sources of pollutants to determine background loading was also satisfied, as 34 sampling events of residential manholes were conducted during 2013.

- **2013 Goal:** Sample at the two NBC POTWs daily for all RIPDES permitted parameters. Research and test new sampling equipment and procedures to continually improve monitoring activities.

  Accomplishment: In July 1999, the responsibility of sampling the Field's Point and Bucklin Point treatment facilities was transferred to the EMDA Section from the Operations Division. On January 1, 2000 clean sampling techniques were implemented for all permit samples. This required the purchase of new all-weather refrigerated automatic samplers, the changing of sample collection hose from PVC to Teflon, as well as the use of acid washed, double bagged sample jugs and pre-cleaned certified sample bottles. EMDA staff used clean sampling techniques for all industrial monitoring and treatment plant sampling for metals and nutrients conducted in 2013. Throughout 2013, EMDA staff continued to use QA/QC sample collection practices to ensure the highest quality samples were being collected. During 2013, the NBC complied with the RIPDES permit requirements to sample at the two treatment plants every day of the year and all mandated reporting requirements. EMDA staff continued to sample all process operations at both plants to acquire the data needed to optimize plant performance. During 2013, back-up samplers were installed at the Blackstone Valley and East Providence interceptors at Bucklin Point. At Field's Point an upgraded sampler, ISCO 5800, was installed at the influent to collect samples for cyanide analysis.

- **2013 Goal:** To review, evaluate and log all analytical data obtained from EMDA monitoring efforts, to provide interpretation of this information to appropriate NBC staff in a timely manner and to ensure that quality assurance and quality control procedures are maintained.

  Accomplishment: During 2013, EMDA continued to evaluate all monitoring data. Both in monthly interdepartmental data meetings and in comprehensive monthly reports, short and long term trends and alerts to high levels were provided. In April 2013, EMDA published the data collected from the 2012 monitoring season. During 2013, EMDA continued to work closely with the Laboratory staff regarding LIMS issues, as well as with IT personnel to review existing databases to identify areas of improvement. EMDA maintained a log in which any information impacting analytical results was entered. This allows successors to determine what occurred when analytical trends or data differ from historical values.

  EMDA staff analyzes the data on a regular basis to establish trends and notify Operations, Interceptor Maintenance and/or Pretreatment staff of any anomalies. EMDA staff conducts monthly meetings to report the data trends. Pretreatment, Laboratory, ESTA and Operations staff from both facilities routinely attend these meetings.

  During 2011 EMDA, with the assistance of IT, developed a NBC data webpage. This webpage features a newly redesigned Fixed Site Monitoring data display, blogs presenting recent monitoring data and trends, and tidal and weather information on Narragansett Bay. Current and historical bay data is available for review and download at www.narrabay.com. During 2013, the webpage was maintained in an up-to-date fashion with the latest bay monitoring data so it can be quickly available on-line to NBC staff and the general public.

  Throughout 2013, Pretreatment staff worked with IT staff on the PT-LIMS interface to download data directly from the new PerkinElmer LIMS to the PT system.

- **2013 Goal**: Design and implement an on-line centralized database.

  Accomplishment: Progress on Data Central, a centralized database website in which all data can be uploaded, was made during 2013. The database is accessible through www.narrabay.com and allows immediate access to selected data for use by NBC staff and stakeholders. A LIMS specialist was hired to migrate data from the former LabVantage system into the new Labworks system. Progress has been made on this complex project which will continue and be completed in 2014. All Discharge Monitoring Reports (DMR) from 2013 have been scanned and are ready to be uploaded into the Data Central database. During 2010, paper copies of DMRs dating back to the early 1980s were discovered in the NBC archives. New LIMS software was acquired and implemented during 2012, and continued to

improve throughout 2013. This software, in conjunction with Water Information Management Solution (WIMS), also acquired for data management and report generation purposes, will greatly aid NBC in implementing the central database.

- **2013 Goal**: Monitor the receiving waters of both the Field's Point and Bucklin Point treatment facilities with the fixed site monitoring program previously funded through an EPA grant.

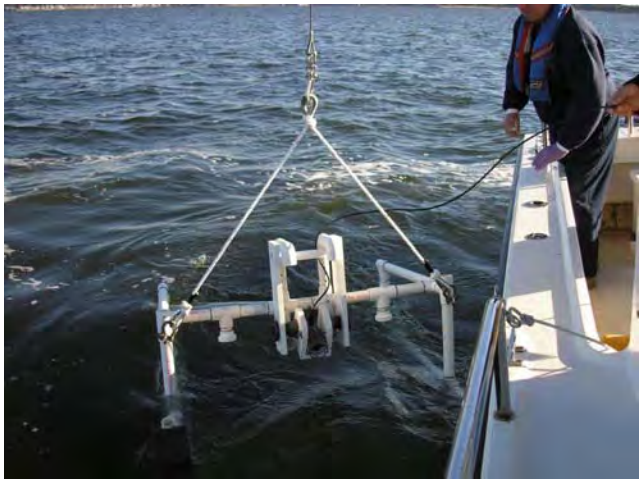
  Accomplishment: In 2013, the NBC continued to monitor the receiving waters of both the Field's Point and Bucklin Point treatment facilities at two fixed sites within the Providence and Seekonk Rivers. Continuous online monitoring is conducted for dissolved oxygen, conductivity, temperature, salinity, pH, chlorophyll, pressure (depth) and tidal amplitude. In addition, bi-weekly samples at these and other upper bay stations were collected for fecal coliform, nutrient analyses, chlorophyll-a, and turbidity. EMDA staff maintained the sites at Bullocks Reach, a buoy site, and Phillipsdale Landing, a dock site. Quality assurance practices continued to be coordinated with the Narragansett Bay Fixed Site Water Quality Monitoring Network that has adopted common methods for this baseline assessment. This data is made available to the scientific and general community on a real time basis on the NBC "Snapshot of Upper Narragansett Bay" website.

- **2013 Goal:** Conduct tributary river sampling for fecal coliform analysis.

  Accomplishment: In 2013 EMDA continued to sample twenty locations along five rivers in the Providence metropolitan area: the Woonasquatucket, Providence, West, Blackstone and Moshassuck Rivers. Weekly sampling of these sites has allowed EMDA to promptly notify Interceptor Maintenance (IM) of both dry and wet weather discharges based on the analytical results, and has been a key technique for pinpointing overflow and interceptor malfunctions. Many fewer wet weather discharges are expected now that Phase I of the CSO Abatement Project has been completed. Dry weather overflows occur periodically and are the result of blockages in sewer regulators. EMDA scientists analyze the data to determine trends in fecal coliform bacteria inputs to these waterways. The results of the tributary river monitoring for fecal coliform bacteria is provided to IM staff twice-weekly and is used to locate possible maintenance problems. Trends analyses are conducted and reported to NBC staff on a monthly basis through monthly reports and periodic meetings. River sampling data routinely assist IM in identifying and quickly stopping dry weather overflows. This data has provided a baseline to measure the success of the CSO remediation project, and new data to be collected in 2014 and beyond will be used to evaluate Phase II of the NBC CSO projects success in reducing adverse impacts to area tributary rivers and Narragansett Bay.

- **2013 Goal:** Continue to evaluate the effect of the NBC effluent on water quality of the receiving waters.

  Accomplishment: During 2013 EMDA continued water quality evaluations of the receiving waters of the Bucklin Point and Field's Point wastewater treatment facilities. The purpose of this monitoring initiative is to determine the distribution and concentration of contaminants of concern to the health of the environment in both the Seekonk and Providence Rivers. EMDA continued its fecal coliform and nutrients monitoring by boat at multiple stations in the Providence and Seekonk Rivers, as well as continuing bacteria monitoring weekly at multiple stations in four freshwater rivers that are affected by combined sewer overflows. In 2005 EMDA began initial tests for Enterococci bacteria. This testing was expanded in 2006 in river, bay and treatment plant effluent samples in order to assess water quality with the new primary contact standard for fresh and saltwater. This testing continued during 2013. In addition, during 2013, EMDA utilized an underwater video camera to determine the state of the benthos in NBC receiving waters. Technical issues with the camera sled led to the development of an improved version. Long-term monitoring of the benthos will document how BNR impacts the local benthos.



- **2013 Goal:** Conduct Toxics Compliance Monitoring of two CSO wet weather event discharges as a part of the NBC Nine Minimum Controls Program.

  Accomplishment: To evaluate the effectiveness of the Pretreatment and Pollution Prevention programs at reducing toxic pollutant discharges through CSOs, EMDA monitors several CSOs annually as an element of the NBC Nine Minimum Controls Program. The aim of wet weather sampling events is to characterize the impact of CSO discharges and the efficacy of NBC's current controls when wastewater overflows the collection system during wet weather events. The sampling plan was designed so that three samples are to be collected at the outfall throughout the overflow event. The first sample is to be collected during the initial overflow, or first flush, stage and typically contains wastewater with the least degree of rain water dilution and the highest concentrations of pollutants washed from street and land surfaces into the combined sewer system. A second sample is to be collected during the stage of highest overflow rate and a third sample collected near the conclusion of the event. During 2013, CSO sampling was conducted at several CSO locations.

2013 Goal: Conduct border river sampling for nutrient analysis to determine loadings to Upper Narragansett Bay that originate from outside of Rhode Island.

Accomplishment: This monitoring initiative was begun in 2007 and continued in 2013. This monitoring consists of monthly sampling from the mouths of the Ten Mile, Runnins, Palmer, Warren Reservoir, Cole, and Taunton rivers, as well as from multiple sites on the Blackstone River. In addition, a sample is collected monthly from the mouth of the Pawtuxet River to provide more accurate data on all sources of nutrient loadings to Upper Narragansett Bay. The data shows NBC contributions are not as large a percent loading as first thought. This monitoring has revealed that nutrients loadings to the Bay dramatically increase during rain events. In 2012, a second sample location on the Ten Mile River was selected to further evaluate the loading from this river.

- **2013 Goal:** Evaluate water quality inside the Providence River Hurricane Barrier to generate a long term data set necessary to measure the success of the CSO abatement project.

  Accomplishment: In 2007, as part of its monitoring plan EMDA began an initiative to sample tributary rivers and/or the upper bay in response to extreme situations or weather conditions that have the potential to adversely affect plant operations and/or receiving water quality. During the latter portion of 2007, EMDA began monitoring within the hurricane barrier for Total Dissolved Oxygen (DO) on a monthly basis. Since this is a low flush area due to being partially blocked by the hurricane barrier it is expected CSO discharges will have a magnified impact on DO levels compared to higher flush areas. Conversely, it is expected that the CSO tunnel will result in fewer oxygen depleting CSOs and have a positive impact on DO levels. EMDA continued to sample multiple locations in the urban rivers and Bay for bacteria and dissolved oxygen before and after rain events. This data has provided a baseline to measure the success of the CSO remediation project. This monitoring continued in 2013. Data collected from these locations is used to evaluate the tunnel's success in reducing adverse impacts to area tributary rivers.

- **2013 Goal:** Continually improve NBC monitoring and analytical capabilities.

  Accomplishment: In 2007, EMDA began replacing antiquated plant refrigerated automatic samplers with sophisticated state-of-the-art samplers requiring much less human intervention. The samplers hold up to four carboys, eliminating the need for off-hour jug change-outs. During 2013, back-up samplers were installed at Bucklin Point on EPI and BVI with model 4700 ISCO samplers as well as automatic bottle switch to ensure uninterrupted RIPDES mandated sample collections. At Field's Point, a new ISCO model 5800 replaced an ISCO 3700 sampler at the influent cyanide sampling location. The new sampler is equipped with back-up battery power which will allow the sampler to operate in the event of a power interruption. A back-up sampler, ISCO model 6712 with automatic bottle switch capabilities, was installed at the wet weather final effluent sampling location to ensure uninterrupted RIPDES sample collections.The Laboratory ensured all analyses were performed in conformance with EPA and Department

of Health standards. In 2013 the Laboratory attained 100% accuracy on all annual EPA Proficiency Testing and all its licensing certifications are up-to-date. To ensure analytical results are accurate, all laboratory equipment was calibrated in February 2013.

- **2013 Goal:** Participate in community based environmental and educational projects.

  Accomplishment In 2013, the NBC initiated a new Earth Day environmental grant program intended to diversify NBC's positive impact on multiple rivers in the NBC service area rather than focusing solely on the Woonasquatucket River. The grant program assisted numerous local organizations, cities and towns by providing 18 small grants totaling $12,250 that allowed these organizations to purchase supplies to organize clean up events and river restoration activities in their communities.

  The NBC works closely each year with the DEM and RI Shellfishermen's Association to conduct a shellfish transplant program. This program transplants shellfish from polluted waters to management areas for later harvesting. Unfortunately in 2013, this program was not funded by DEM.

  During 2013, PP&R staff participated in the Woonasquatucket River Environmental Educational Program.

- **2013 Goal:** Conduct studies during extreme weather or emergency events.

  Accomplishment: In 2007, as part of its monitoring plan EMDA began an initiative to sample tributary rivers and/or the upper bay in response to extreme situations or weather conditions that have the potential to adversely affect plant operations and/or receiving water quality. The NBC is prepared to immediately undertake any monitoring necessary to evaluate the impacts from this type of event. There were no situations during 2013 that triggered the initiation of this type of monitoring.

- **2013 Goal:** Improve process operations at the two treatment plants.

  Accomplishment: During 2013 EMDA collected numerous samples at Field's Point associated with KRÜGER Process Performance Testing of the BNR process to ensure that the recently upgraded treatment facility would be able to achieve the required level of performance. EMDA also expanded upon the activated sludge sampling program to better understand the distribution in the treatment facility. This monitoring consisted of grab sample collections from each of the aeration tanks twice per week in order to ensure an even distribution of biosolids in the reactors.

During 2013 EMDA also helped optimize the treatment process at Bucklin Point by beginning a program to evaluate the instantaneous performance of one of the treatment trains. By collecting a grab sample from the end of one of the aeration tanks. This sampling is performed once per week. The data is compared to other process control sampling and is used to optimize the treatment process.

- **2013 Goal:** Provide access to all NBC monitoring data.

  Accomplishment: EMDA staff analyzes the data on a regular basis to establish trends and notify Operations, Interceptor Maintenance and/or Pretreatment staff of any anomalies. EMDA staff conducts monthly meetings to report the data trends. Pretreatment, Laboratory, ESTA and Operations staff from both facilities routinely attend these meetings. EMDA completed and posted its annual data report to www.narrabay.com on April 1, 2013. This data is invaluable to all stakeholders involved with Narragansett Bay. Data summary reports were also posted to NBC's webpage Snapshot of Upper Narragansett Bay on a weekly or biweekly basis, presenting current data trends and water quality conditions on the Bay.

- **2013 Goal:** Implement flow monitoring of rivers not presently on the USGS Streams Gauge Network.

  Accomplishment: During 2013 EMDA staff received training on the operation, use and maintenance of flow monitoring equipment. This training was conducted in preparation for future flow monitoring rivers.

Major Program Goals for 2014

Goal Category	Goal Outline	Goal Description
Inspections	Inspect industries to ensure compliance with regulations.	▪ Inspect each SIU twice (EPA/RIDEM requires one inspection) ▪ Inspect each non-significant industrial user once ▪ Inspect 75% of permitted restaurant and food processing facilities ▪ Biannual inspections of all other permitted commercial users
	Identify new and previously unknown sewer users to ensure compliance with regulations.	▪ Conduct unannounced inspections of 75% of the mill complexes/industrial areas
	Continue regulatory inspections of septage haulers.	▪ Inspect septage vehicles at the receiving station one day per month ▪ Staff will verify at least 25 septage manifest forms per year
Emergency Response Actions	Ensure protection of the two POTWs and Narragansett Bay to minimize incidents of pass through and interference.	▪ Respond to 100% of unusual influent reports ▪ Respond to 100% of reports of illegal dumping, spills and blockages ▪ Investigate all automatic notifications from LIMS of incidents of non-compliance ▪ Investigate all reports of unusual influent as indicated through the PI computer monitoring systems ▪ Conduct annual Spill Response and Tracking training
Pollution Prevention and Technical Assistance Initiatives	Provide free technical assistance.	▪ Conduct 15 pollution prevention technical assistance site visits ▪ Seek grant funds to support technical assistance programs
Monitoring and Analytical Initiatives	Sample industrial discharges to sewer system to ensure compliance with regulations.	▪ Conduct sampling of each SIU twice (EPA/DEM requires one sampling) ▪ Resample any SIU found out of compliance
	Conduct sewer system sampling to assess loadings from key drainage areas to locate potential areas of concern and drainage area loadings.	▪ Define schedule for manhole monitoring ▪ Continue monitoring of residential sources of pollutants to better define background loading
	Conduct surveillance monitoring in the sewer system to ensure compliance with regulations.	▪ Sample 6-10 manholes per week (including surveillance and routine monitoring) ▪ Sample up and down stream of 70% SIU and Zero Discharge Company at least once
	Monitor Field's Point and Bucklin Point facilities as necessary to ensure and improve compliance with all RIPDES permit requirements.	▪ Sample both facilities daily ▪ Collect process control samples to provide critical plant operational data to allow Operations staff to optimize plant performance ▪ Research and test new sampling, data scanning and recording equipment and procedures to continually improve monitoring activities ▪ Collect samples to test functionality and optimize BNR facilities
	Tributary river sampling for fecal coliform analysis.	▪ Conduct weekly sampling at multiple sites on the West, Woonasquatucket, Moshassuck and Blackstone Rivers and one site on the Providence River ▪ Provide data to IM staff to allow for timely maintenance activities of the CSOs

Goal Category	Goal Outline	Goal Description
Monitoring and Analytical Initiatives (continued)	Maintain the two NBC fixed site monitoring systems to evaluate NBC receiving water quality	▪ Maintain the two fixed site stations to continue monitoring downstream of each plant ▪ Monitor continuously for temperature, salinity, dissolved oxygen, conductivity, pH, chlorophyll and pressure (depth) ▪ Collect bi-weekly samples at these monitoring stations for fecal coliform, nutrients, chlorophyll-a, and turbidty analysis ▪ Provide data and data interpretation to the scientific and general community on a real time basis. ▪ Continue participation in the Bay Wide Fixed Site Network monitoring collaborative using approved QA/QC protocols
	Continue to evaluate the effect of the NBC effluent on water quality of the receiving waters	▪ Continue routine monitoring program of the Providence and Seekonk Rivers for nutrients, bacteria and other parameters ▪ Perform additional monitoring in response to extreme situations or weather conditions that could adversely affect plant operations and receiving water quality ▪ Participate in a study to evaluate emerging pollutants in the NBC receiving waters ▪ Evaluate the effectiveness of Phase II of the CSO project to reduce bacteria levels in the waters of Narragansett Bay ▪ Perform benthos monitoring to determine how nitrogen loading reductions impact local benthos
	Satisfy Nine Minimum Controls Program Sampling Requirements	▪ Conduct monitoring of CSO events by collecting samples of the first flush, maximum flow and late flow to characterize the CSO discharge impact and efficiency of CSO controls in place ▪ Conduct toxics compliance monitoring at three locations, two CSOs and the North Diversion Structure at Bucklin Point, during wet weather event discharges
	Border river sampling for nutrient analysis to determine loadings to Upper Narragansett Bay that originate from outside of Rhode Island	▪ Conduct monthly sampling from the mouths of the Ten Mile, Runnins, Palmer, Warren Reservoir, Cole, Lee and Taunton rivers as well as from the Blackstone River where they cross the State line ▪ Determine out-of-state nutrient loadings to Narragansett Bay
	Conduct sampling to measure the success of the NBC CSO program	▪ Conduct sampling at multiple locations in the rivers and bay for bacteria and dissolved oxygen before and after rain events to evaluate the success of the CSO abatement tunnel project. ▪ During times of high recreational use conduct monitoring two times a month for dissolved oxygen
	Continually improve NBC monitoring and analytical capabilities	▪ Upgrade existing plant samplers as needed to improve monitoring capabilities ▪ Implement flow monitoring of rivers not presently on the USGS Streams Gauge Network ▪ Atttain 100% accuracy on all annual Proficiency Testing ▪ Ensure all laboratory equipment is calibrated annually ▪ Maintain all Laboratory licensing certifications

Goal Category	Goal Outline	Goal Description
Permitting	Expeditious review and issuance of permits	▪ Respond to all discharge permit applications and renewals within fourteen business days ▪ Review submitted Pretreatment facility plans on a weekly basis ▪ Respond to all incomplete Sewer Connection Permit applications within two business days. ▪ Issue Sewer Connection Permit permits within 10 business days
Data Logging Analysis and Reporting	Design and implement Data Central, an on-line centralized database	▪ Review existing databases for completeness and accuracy ▪ Create meta-data files ▪ Create LIMS reports to migrate data automatically into spreadsheets ▪ Upload river and bay data weekly to Snapshot, the NBC water quality website, for immediate staff and stakeholder access ▪ Continue to computerize past analytical data ▪ Continue to scan DMRs into electronic format
	Provide internal and external access to appropiate NBC monitoring data	▪ Upload annual data report to the internet by April 1st ▪ Promptly prepare updates detailing activities and historical trends to Snapshot ▪ Prepare draft press releases on findings ▪ Provide external access to appropriate data via Snapshot ▪ Provide access to NBC staff to all data via LIMS ▪ Provide NBC data in response to specific requests
	Log, review, evaluate and report all data to provide short and long term trends and alerts.	▪ Routine data logging and evaluation ▪ Analyze data and report projected short and long term trends via monthly reports and meetings ▪ Timely response on data excursions and alerts to Laboratory, Operations and Pretreatment staff, allowing opportunity for prompt corrective action ▪ Provide trend analysis to NBC and Stakeholders publish technical papers, abstracts and present posters
Special Studies and Projecs	Improve functionality of NBC computer systems	▪ Continue to locate sewer connections, LID projects, industrial and commercial users, and private pump stations in the NBC Permits softwear system ▪ Continue to locate and update users and surveillance manholes on the computerized maps ▪ Continue to locate and update all monitoring locations on the NBC GIS system ▪ Begin to use GIS/LIMS tools to incorporate sample locations into LIMS ▪ Improve the information on the NBC internet sites ▪ Update safety training tracking software
	Energy Management	▪ Continue to investigate energy conservation and alternative energy opportunities ▪ Seek grant funding for energy projects
	Water Conservation and Reuse Projects	▪ Continue to investigate WWTF reuse of wastewater and biosolids ▪ Seek grant funds to support water conservation and reuse programs
	Conduct studies during extreme weather or emergency events	▪ Identify degradation to NBC receiving waters associated with emergency situations or extreme weather events.

Goal Category	Goal Outline	Goal Description
Special Studies and Projecs (continued)	Improve process operations at the two treatment plants	▪ Continue to assess the use of biodiesel glycerin as a BNR carbon source ▪ Coordinate research to increase bio-gas production at Bucklin Point ▪ Provide high quality nutrient data to evaluate and optimize BNR processes at both facilities. ▪ Evaluate in-line process control equipment at both treatment facilities to ensure accurate data and to optimize process control
	Participate in community based environmental and educational projects	▪ Continue Earth Day Grant Program ▪ Participate in the Woonsaquatucket River Environmental Educational Program ▪ Participate in statewide environmental stakeholder groups, such as Watershed Counts, Bays, Rivers & Watersheds Coordination Team, RI Monitoring Collaborative, etc.
	Assess NBC Greenhouse Gas Emissions (GHG)	▪ Continue to review and document applicable state and federal GHG regulations ▪ Continue to review and document applicable GHG guidance documents ▪ Continue to refine inventory of NBC GHG sources ▪ Assess actual NBC GHG process emissions
Internal Procedures	Document all Standard Operating Procedures and Protocols	▪ Continue to detail all Pretreatment, EMDA, and Laboratory standard operating procedures and procedural changes for the three sections. ▪ Document all NBC policies in the Agency's Policy Manual ▪ Review and update all Section NBC Policy Manuals for completeness and accuracy
Education, Training and Public Awareness	Publish Annual Pretreatment Report	▪ Prepare and submit the Annual Pretreatment Report to DEM by March 15th ▪ Upload the Annual Report to the internet by April 15th ▪ Present the findings of the report to the Citizen's Advisory Committee
	Environmental Merit Awards Program	▪ Solicit nominations from companies and staff ▪ Evaluate all nominations and issue Pollution Prevention Awards ▪ Evaluate all SIU performance data for perfect compliance ▪ Evaluate sewer connection projects using LID storm water mitigation technologies and issue an award for Excellence in Storm Water Management
	Workshops	▪ Participate in at least two public workshops ▪ Present NBC monitoring data at workshop. ▪ Conduct one workshop explaining NBC permitting requirements to public officials
	Provide training programs necessary to ensure employee Health and Safety.	▪ Provide all new applicable Pretreatment and EMDA employees with 40-hr HAZWOPER training ▪ Provide 8 hr HAZWOPER Refresher training annually for all applicable employees ▪ Conduct continuous in-house hazardous awareness training ▪ Provide safety training to all new employees ▪ Provide OSHA required training programs necessary to protect employees such as hearing conservation, confined space entry, safety awareness, etc.
	Improve information on www.narrabay.com, the NBC internet site	▪ Ensure all documents from the older version of narrabay.com have been uploaded to the upgraded site. ▪ Update all information on the site to ensure its accuracy. ▪ Create informational fact sheets to be uploaded to the website. ▪ Continue to promptly update Snapshot, the NBC water quality website.