PRETREATMENT PROGRAM

ANNUAL REPORT

JANUARY 1, 2012 – DECEMBER 31, 2012

The Narragansett Bay Commission

FIELD'S POINT AND BUCKLIN POINT DISTRICTS

MARCH 15, 2013

The Narragansett Bay Commission
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Vincent J. Mesolella
Chairman

Raymond J. Marshall, P.E.
Executive Director

March 15, 2013

Dear Friends:

I am pleased to present the 2012 Narragansett Bay Commission (NBC) Pretreatment Program Annual Report for the period from January 1, 2012 through December 31, 2012. 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 931,529 pounds, which equates to 97.6%. In addition, the cyanide loadings were reduced by 79,306 pounds, a 98.6% reduction from 1981 levels.

The NBC takes its responsibility to protect the receiving waters of Narragansett Bay very seriously. During 2012, the NBC issued 1,919 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

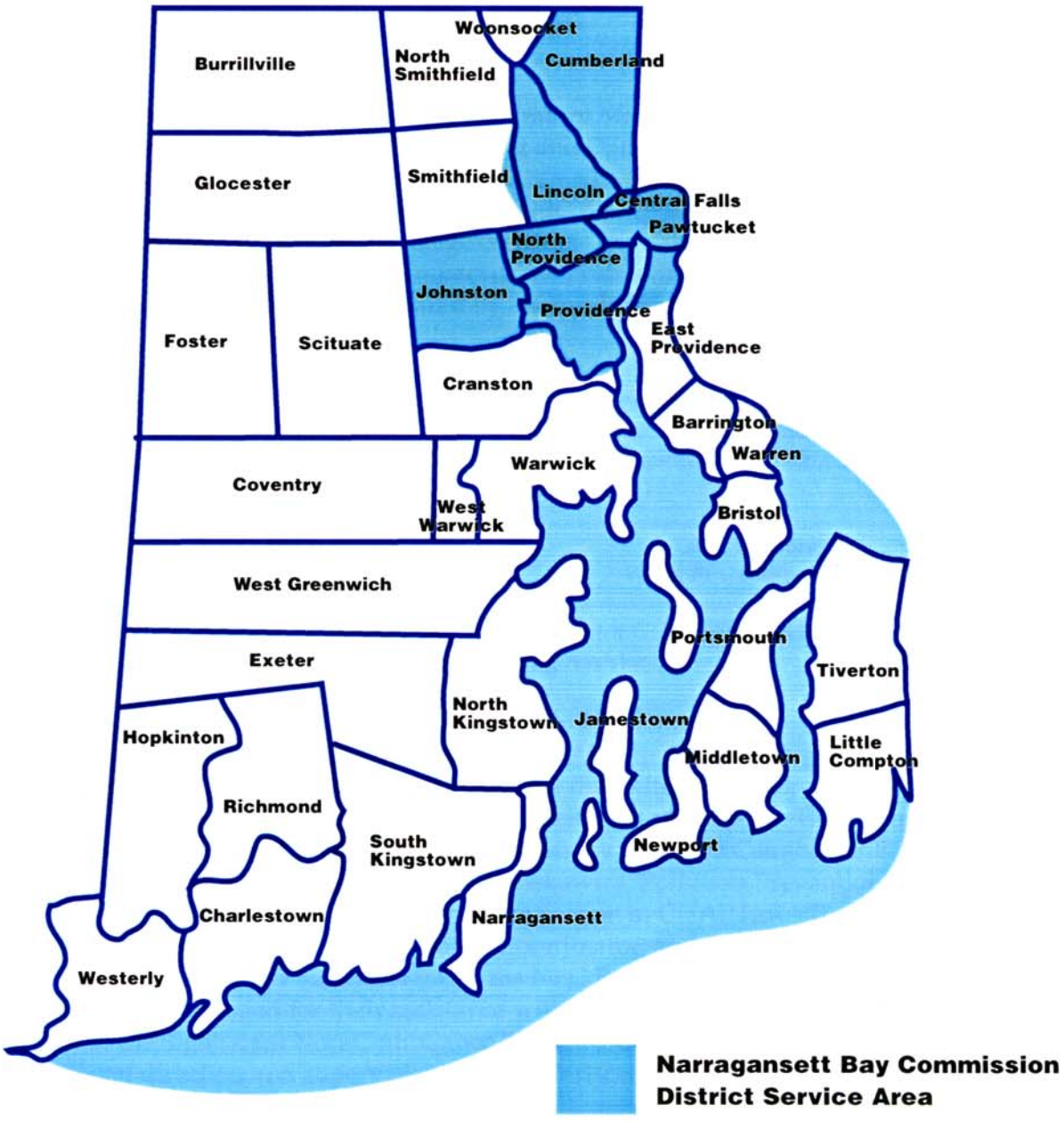
Narragansett Bay Commission
Mission Statement:

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

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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 district 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:

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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, The Water Audit & Technical Assistance Program and Sewer Connection Program 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 general 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 7,500 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. 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 2012 had an average daily flow to the facility of 40.1 MGD.

Throughout 2012, numerous construction projects were on-going at the Field's Point treatment plant. 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 is projecting a 40% savings in energy costs per year.

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 nitrogen load to the Providence River decreased by 44.6% from 2011 loading levels. Presently, an additional carbon source has not been introduced to the process to assist with lowering the concentration further. The NBC will add carbon in the future if necessary. 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's 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 17.8 MGD in 2012. 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 2012 nitrogen loading from this facility to Narragansett Bay was reduced by 67% from 2003 loading levels, before 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. 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, the Bucklin Point upgraded two other processes in 2012. 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 2012, including a list of new significant industrial users and a section regarding firms that experienced major changes in water usage in 2012. 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 2012, Pretreatment staff issued 394 permits to users located in the Field's Point and Bucklin Point Districts, conducted 2,110 facility inspections, held 62 regulatory compliance meetings with users and responded to 50 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 2012, the NBC conducted 214 sampling inspections, performed 350 manhole sampling events, and reviewed 2,826 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 decreased during 2012 by 14.0% when compared to 2011. The total metals loading to Bucklin Point decreased by 15.5% when compared to 2011. The cyanide loading to Field’s Point decreased by 286.7 pounds, or 20.2% in 2012, and the cyanide loading to Bucklin Point increased by 31.1 pounds or 10.8%. 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 2012, the NBC issued 1,919 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 2012 and describes the ambitious goals established by these sections for 2013.

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

2012 Accomplishments

~ ***Permitting:***

- 412 Permits issued in 2012
- 144 New permits issued to previously unpermitted firms
- 268 Revised permits issued

~ ***Inspections and Sampling:***

- 2,110 Non-sampling inspections conducted
- 379 Non-sampling inspections of SIUs
- 261 Non-sampling inspections of categorical users
- 118 Non-sampling inspections of significant non-categorical users
- 1,731 Non-sampling inspections of non-significant users
- 62 Regulatory Compliance meetings held with users
- Pretreatment staff reviewed 2,826 User Monitoring Reports
- 46 Emergency/Special Investigations Conducted
- 231 User Monitoring Reports generated by NBC in 2012
- 214 NBC Sampling Inspections of Industry
- 101 Different Facilities Sampled by NBC
- 214 Monitoring Reports of SIUs generated
- 148 Monitoring Reports of Categorical Users generated
- 66 Monitoring Reports of significant non-categorical users generated
- 17 Monitoring Reports of non-significant users generated
- 364 Manhole Sampling Events conducted
- 294 Industrial Surveillance Manhole Sampling Events conducted
- 48 Sanitary Manhole Sampling Events conducted

~ ***Enforcement:***

- 1,919 NOV Letters Issued
- 11 Firms listed in the February 27, 2013 Public Notice in the Providence Journal as being in Significant Non-Compliance (SNC)
- All but one of the 11 firms listed in SNC achieved compliance with cited violations prior to publication of the Public Notice

~ ***User Compliance:***

- 2.0% Rate of SIU Significant Non-Compliance (SNC) in Field's Point District for 2012, a reduction from 39% in 1992
- Rate of SIU SNC reduced in Bucklin Point from 44.8% in 1994 to 14.0% for 2012
- Overall rate of SIU SNC is 7.5% in 2012
- 94.9% Overall Rate of Compliance for All Significant Users
- 93.8% Overall Rate of Compliance for All Categorical Users
- 96.8% Overall Rate of Compliance for All Non-Significant Users
- 95.8% Overall Rate of Compliance for All Users
- 58.1% of EPA categorically regulated users had perfect effluent compliance records with all effluent parameters excluding pH
- 65.2% of Significant Users AND 90.2% 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 2012, ten users were reclassified from significant to non-significant. Nine of the ten users that were reclassified were categorical users. The remaining user was non-categorical. Five of the ten users were reclassified to non-significant because they went out of business. Three of the ten users relocated out of the NBC districts. One user decreased its discharge to the sewer system to below 5,000 gallons per day. The final user reclassified to non-significant moved to a new location in the Bucklin Point district. Five of the ten users were located in the Field's Point district and eliminated 35,527 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 12,026 gallons per day of industrial flow to the Bucklin Point facility.

In 2012, there were seven new SIUs. Four of the seven are located in the Field's Point district and contribute 110,124 gallons per day of industrial flow to the plant. One of the four new Field's Point SIUs is classified as a categorically regulated metal finishing facility. The remaining three of the seven new SIUs are located in the Bucklin Point district and contribute 984,889 gallons per day of industrial flow to the Bucklin Point plant. The large increase is mostly attributed to one new SIU, J.H. Lynch & Sons, Inc.

This firm conducted 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 early 2013. One of the new Bucklin Point SIUs conducts categorically regulated pharmaceutical operations.

In 2012, two firms changed their names. No process or pretreatment changes were associated with the name changes. 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 2012 and the reason for each reclassification are detailed in TABLE 1.

TABLE 1

2012 Significant Industrial Users Classification Changes

Firms Reclassified to Non-Significant

Field's Point Firms	*Reason for Reclassification*
C&C Rhode Island, LLC	Firm moved out of the district.
Callico Metals, Inc. d/b/a Oster Pewter	Firm moved out of the district.
Clayton Company & Claverick Realty	Firm is out of business.
Crisloid, Inc.	Firm discharges less than 5,000 gallons per day.
Surface Coatings Division of Westwell Industries	Firm is out of business.

Bucklin Point Firms	*Reason for Reclassification*
Denison Pharmaceuticals, Inc. (Dunnell Lane)	Firm moved to another location within the Bucklin Point District.
George H. Fuller & Son	Firm is out of business.
Nulco Manufacturing Corp.	Firm is out of business.
Ronald Pratt Company, Inc.	Firm moved out of district.
W. T. Wilson, Inc.	Firm is out of business.

Newly Classified Significant Users

Field's Point Firms	*Reason for Reclassification*
Barletta Heavy Division, Inc.	This newly permitted firm discharges greater than 5,000 gallons per day of process wastewater.
DiGregorio, Inc.	This firm began discharging greater than 5,000 gallons of process wastewater.
Shank/Balfour Beatty	This newly permitted firm discharges greater than 5,000 gallons per day of process wastewater.

TABLE 1
(continued)

2012 Significant Industrial Users Classification Changes

Newly Classified Significant Users

Field's Point Firms	*Reason for Reclassification*
Surface Coatings Division, MFB LLC	This newly permitted firm conducts categorically regulated metal finishing operations.

Bucklin Point Firms	*Reason for Reclassification*
Denison Pharmaceuticals, Inc. (Lincoln)	This newly permitted facility conducts categorically regulated pharmaceutical operations.
Ecological Fibers, Inc.	This firm began discharging greater than 5,000 gallons per day of process wastewater.
J.H. Lynch & Sons, Inc.	This newly permitted firm discharges greater than 5,000 gallons per day of process wastewater.

Significant Users with Name Changes

District	*2011 Name*	*2012 Name*
Bucklin Point	Collegium Pharmaceuticals, Inc.	Precision Dermatology
Bucklin Point	Technical Materials, Inc.	Materion Technical Materials, Inc.

During 2012, 26 Field's Point SIUs experienced notable changes in water usage. Eighteen of the 26 firms increased their water usage by a combined total of 77,782 gallons per day. Eight of the 26 firms decreased their water usage by a combined total of 8,720 gallons per day. The net change to the Field's Point facility is an increase of 69,062 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-seven Bucklin Point SIUs experienced notable changes in water usage during 2012. Seventeen of the 27 SIUs increased their water usage by a combined total of 48,919 gallons per day. Ten of the 27 SIUs decreased their water usage by a combined total of 47,831 gallons per day. The net change in flow to Bucklin Point is an increase of 1,088 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 2012 are detailed in TABLE 2.

TABLE 2

2012 Significant Industrial User Changes in Water Usage
Firms with Increased Flow

Field's Point

Company	*Change in Flow (gpd)*	*% Change*
Armbrust International, Ltd.	3,119	24.0%
Contract Specialties, Inc.	804	18.2%
Crisloid, LLC	52	16.4%
DiFruscia Industries, Inc.	1,852	27.2%
Dominion Energy Manchester Street, Inc.	13,928	42.3%
E & M Enterprises, Ltd	1,042	12.3%
Eagle Laundry, Inc.	5,269	57.6%
Eastern Color & Chemical Company	564	28.6%
G. Tanury Plating Company	10,127	21.5%
General Plating Company	59	11.8%
Induplate, LLC	7,101	39.0%
International Etching, Inc.	565	15.0%
JRB Associates, Inc.	4,599	54.9%
Lee's Manufacturing	3,981	42.8%
Metallurgical Solutions, Inc.	92	27.5%
Providence Specialty Products	2,669	11.6%
Tri-Jay Company	1,887	14.9%
Univar USA, Inc.	20,072	146.3%

Bucklin Point

Company	*Change in Flow (gpd)*	*% Change*
Accent Plating Company	831	30.0%
Aspen Aerogels Rhode Island, LLC	8,104	28.5%
Bunge North America (East) LLC	9,000	28.1%
Darlene Group	94	16.0%
Ecological Fibers	990	20.8%
Hord Crystal Corporation	33	25.2%
Interplex Engineered Products, Inc.	18,076	31.5%
Liquid Blue	7,065	63.0%
Osram Sylvania, Inc.	97	44.5%
Precision Dermatolgy	247	71.6%

TABLE 2
(continued)

2012 Significant Industrial User Changes in Water Usage

Firms with Increased Flow

Bucklin Point

Company	*Change in Flow (gpd)*	*% Change*
Providence Metallizing Company, Inc.	1,742	9.5%
Richline Group, Inc.	334	29.6%
Stackbin Corporation	124	31.8%
Summit Manufacturing Corporation	1,014	7.6%
Tedor Pharma, Inc.	365	62.9%
Tiffany & Company	210	25.4%
Truex, Inc.	593	29.2%

Firms with Decreased Flow

Field's Point

Company	*Change in Flow (gpd)*	*% Change*
AG&G Incorporated	-439	-34.2%
Herff Jones, Inc.	-1,048	-17.7%
International Chromiun Plating Co., Inc.	-235	-16.4%
Mahr Federal, Inc.	-210	-10.5%
Pilgrim Screw Corporation	-40	-15.7%
Technodic, Inc.	-880	-11.1%
Umicore USA, Inc.	-4,394	-11.5%
Uncas Manufacturing Company	-1,474	-15.0%

Bucklin Point

Company	*Change in Flow (gpd)*	*% Change*
Angelica Textile Services	-13,230	-13.7%
Bliss Manufacturing	-262	-26.3%
Cintas, Inc.	-17,618	-20.5%
Fujifilm Electronic Materials USA, Inc.	-2,481	-24.5%
General Cable Industries, LLC	-633	-16.0%
Impco, Inc.	-952	-31.9%
John H. Collins & Sons Company	-1,371	-44.9%
Pawtucket Power Associates, LP	-3,956	-69.7%
Tanury Industries	-6,147	-12.0%
Vital Diagnostics, Inc.	-1,181	-70.4%

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

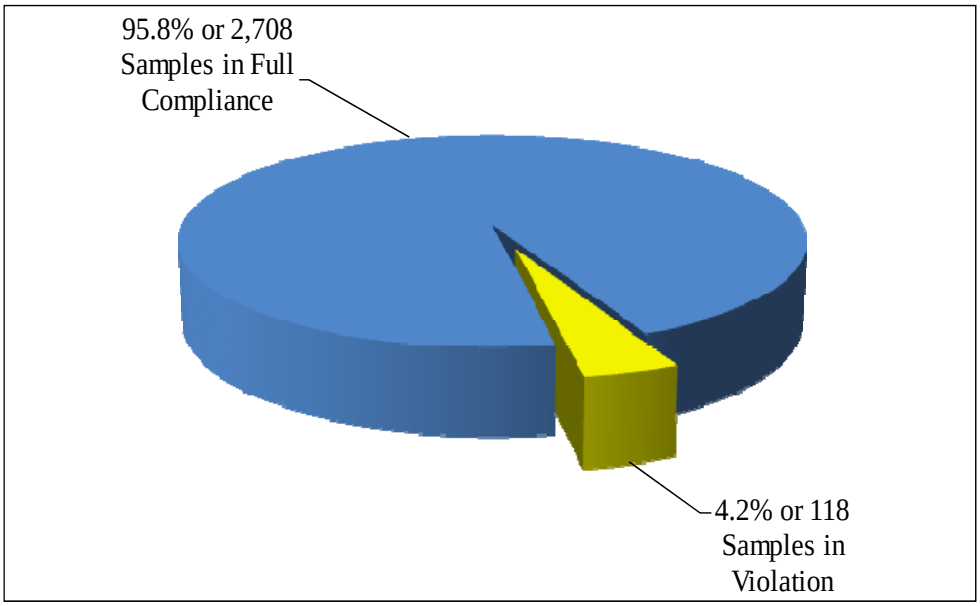
Through extensive user education efforts, quick enforcement response to user violations and regular monthly reminder telephone calls to users, the Pretreatment Section has over the years reduced its SIU rate of significant non-compliance substantially in both sewage districts. The combined rate of SNC for significant industrial users located in the two NBC sewage districts for 2012 was 7.5%, a slight increase from 4.5% observed in 2011.

The SIU rate of SNC was dramatically reduced in the Field's Point District from a high of 39.0% in 1992 to 2.0% for 2012, while the SIU rate of SNC for Bucklin Point was reduced from a high of 44.8% in 1994 to 14.0% in 2012. These impressive reductions in the rate of SIU SNC are directly attributed to increased user education efforts made by the NBC 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, 95.8% of the 2,826 analytical reports reviewed by the Pretreatment staff during 2012 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



2,826 Total Analyses Reviewed

In addition, as shown in CHAPTER IV of this report, the 2012 rate of compliance of categorical users in the two districts was 93.8%, while the compliance rate for significant users was 94.9%. 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.

Eleven firms located in the Field's Point and Bucklin Point Districts were listed in a Public Notice in the Providence Journal on February 27, 2013 as being in SNC for the period from October 1, 2011 through December 31, 2012. Of the eleven firms published for being in SNC, four users are located in Field's Point and seven users are located in Bucklin Point.

The names of seven categorical users were published for SNC, one from Field's Point and six from Bucklin Point. Four non-significant industrial users were listed in the Public Notice, three from Field's Point and one from Bucklin Point. Five of the eleven firms, or 45.5%, were listed as being in SNC solely for administrative violations such as submitting a report late. Five 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 2012, the NBC issued 1,919 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 2012.

~ 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 2012 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, 2012 - December 31, 2012
Total Categorical Industrial Users as of the date of this report (throughout the reporting period)	34 (38) (See Note 1)
Total Significant Non-Categorical IUs as of the date of this report (throughout the reporting period)	11 (12)
Total # Significant Industrial Users (SIUs)	45 (50) (See Note 1)

2. Significant Industrial User (SIU) Compliance

	Significant Industrial Users	
	Categorical	**Non-Categorical**
1. # Of SIUs Submitting BMRs/# Required	10/10	8/8
2. # Of SIUs Submitting 90-Day Compliance Reports/# Required	1/1	3/3
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 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	1/1	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	149	50
5. # Of Sampling Visits Conducted	77	27
6. # Of Facilities Inspected (Nonsampling)	38	12
7. # Of Facilities Sampled	38	12
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
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	193	23	922	1,208
3. Admin. Orders Issued	0	0	0	0
4. Combined Total Of Administrative Orders and Notices of Violation	193	23	922	1,208
5. Civil Suits Filed	0	1	0	1
6. Criminal Suits Filed	0	0	0	0
7. Combined Total of Civil and Criminal Suits	0	1	0	1
8a. Published IUs in SNC (See Newspaper Notice in Enforcement Chapter)	1	0	3	4
8b. Rate of IUs in SNC	1/38 = 2.6%	0/12	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	29	7	279	315
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.

/s/ Kerry M. Britt

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, 2012 through December 31, 2012

POTW Name:	Narragansett Bay Commission (NBC)
NPDES Permit #:	RI0100315
Pretreatment Report Period Start Date:	January 1, 2012
Pretreatment Report Period End Date:	December 31, 2012
# of Significant Industrial Users (SIUs):	45 (50) (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:	1
# of SIUs in SNC with Reporting Requirements:	0
# of SIUs in SNC with Pretreatment Compliance Schedule:	0
# of SIUs in SNC Published in Newspaper:	1
# of SIUs with Compliance Schedules:	0
# of Violation Notices Issued to SIUs:	216
# of Administrative Orders Issued to SIUs:	0
# of Civil Suits Filed Against SIUs:	1
# of Criminal Suits Filed Against SIUs:	0
# of Categorical Industrial Users (CIUs):	34 (38) (See Note 1)
# of CIUs in SNC:	1
Penalties Total Dollar Amount of Penalties Collected:	$0.00
# 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, 2012 through December 31, 2012

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, 2012 - December 31, 2012
Total Categorical Industrial Users as of the date of this report (throughout the reporting period)	20 (24) (See Note 1)
Total Significant Non-Categorical IUs as of the date of this report (throughout the reporting period)	19 (19)
Total # Significant Industrial Users (**SIUs**)	39 (43) (See Note 1)

2. Significant Industrial User (SIU) Compliance

	Significant Industrial Users	
	Categorical	**Non-Categorical**
1. # Of SIUs Submitting BMRs/# Required	7/7	4/4
2. # Of SIUs Submitting 90-Day Compliance Reports/# Required	0/0	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	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	114	76
5. # Of Sampling Visits Conducted	59	34
6. # Of Facilities Inspected (Nonsampling)	24	19
7. # Of Facilities Sampled	24	19
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	125	86	500	711
3. Admin. Orders Issued	0	0	0	0
4. Combined Total Of Administrative Orders and Notices of Violation	125	86	500	711
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)	4	2	1	7
8b. Rate of IUs in SNC	4/24 = 16.7%	2/19 = 10.5%	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	18	14	166	198
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.

/s/ Kerry M. Britt

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, 2012 through December 31, 2012

POTW Name:	Narragansett Bay Commission (NBC)
NPDES Permit #:	RI0100072
Pretreatment Report Period Start Date:	January 1, 2012
Pretreatment Report Period End Date:	December 31, 2012
# of Significant Industrial Users (SIUs):	39 (43) (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:	5
# of SIUs in SNC with Reporting Requirements:	2
# of SIUs in SNC with Pretreatment Compliance Schedule:	0
# of SIUs in SNC Published in Newspaper:	6
# of SIUs with Compliance Schedules:	0
# of Violation Notices Issued to SIUs:	211
# 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):	20 (24) (See Note 1)
# of CIUs in SNC:	4
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, 2012 through December 31, 2012

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 its Field's Point Wastewater Treatment Facility. This permit became effective on October 30, 1992 and superseded the permit issued on April 4, 1979. The Narragansett Bay Commission (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

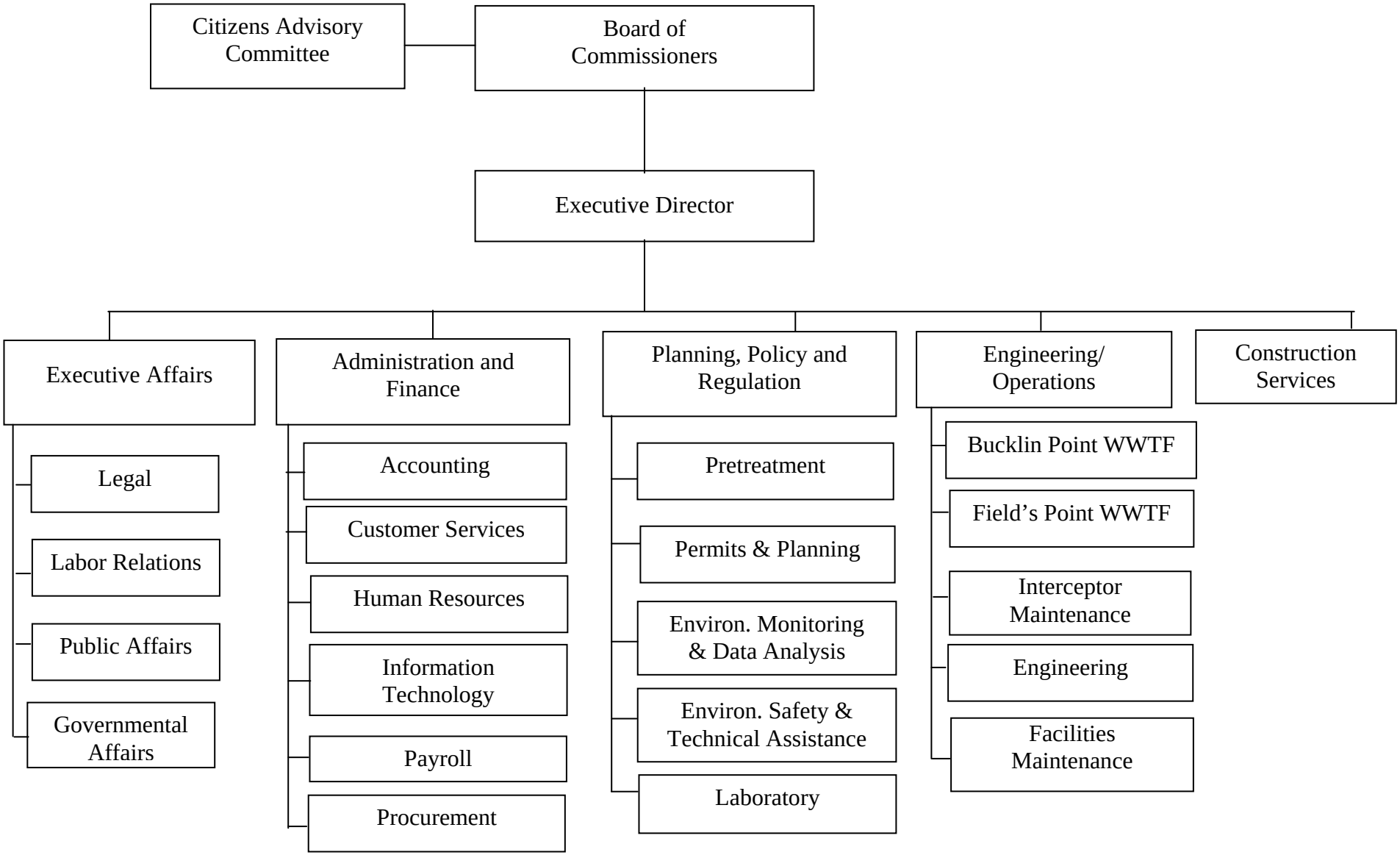
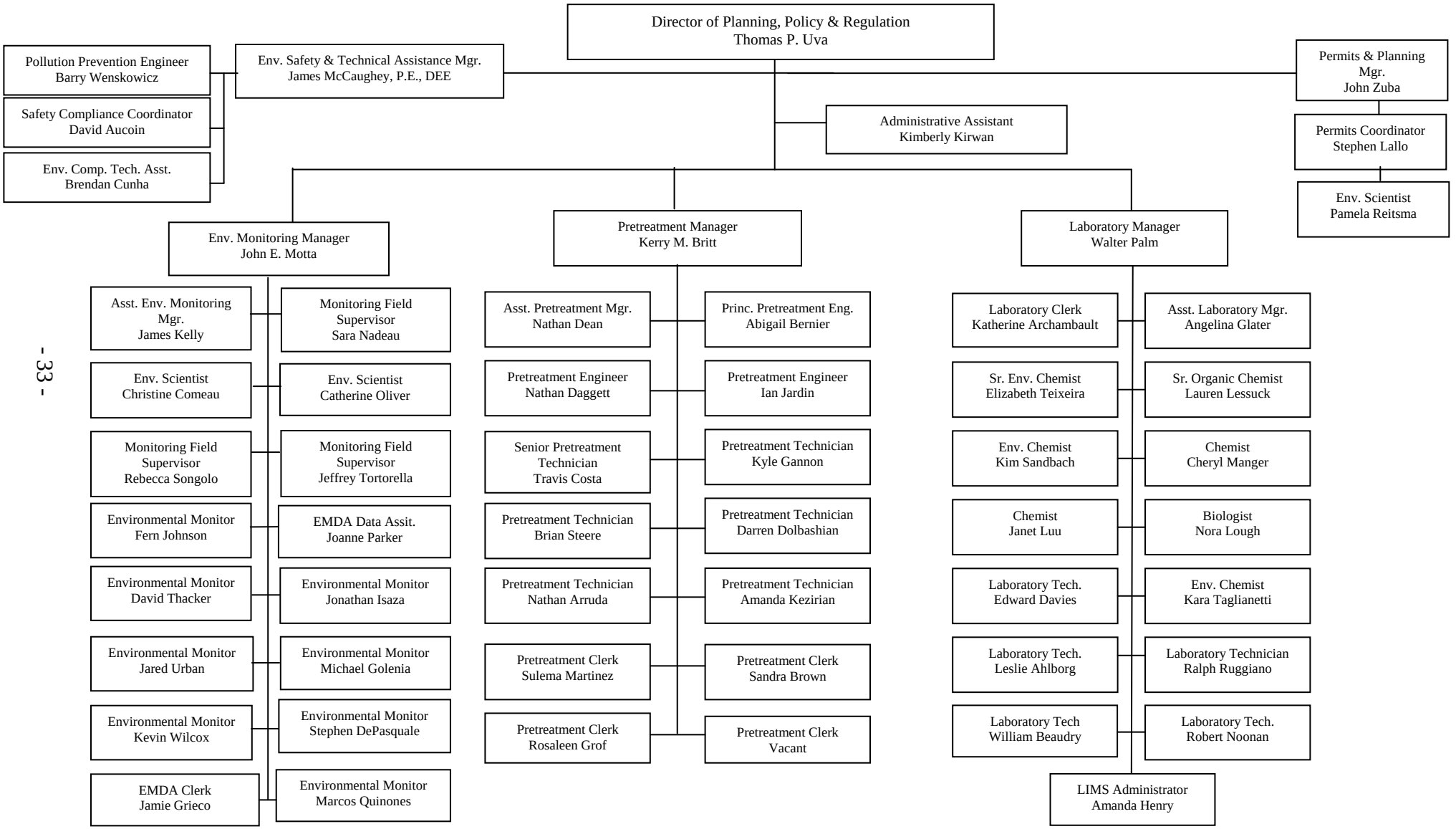


FIGURE 3
Narragansett Bay Commission
Division of Planning, Policy & Regulation
March 15, 2013



During 2012 there was one personnel change in the Pretreatment Section. In September 2012 Eric Feroldi vacated his Pretreatment Technician position. This vacant Pretreatment Technician position was filled in November 2012 by Amanda Kezirian.

During 2012, there were no personnel changes in the EMDA, Laboratory and Permits and Planning Sections.

During 2012, there was one personnel change in the ESTA Section. In September 2012, Brendan Cunha filled the vacated the Environmental Compliance Technical Assistant position.

Staff Training

The NBC provides extensive training to its employees and has a tuition reimbursement program to assist employees in furthering their education. During 2012, 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. The following lists the safety trainings provided in 2012:

- Air Monitoring Equipment
- CPR/AED
- Defensive Driving
- Emergency Action Plans
- 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
- Infectious Materials Exposure Control Training
- Work Zone Safety

To ensure that staff can adequately perform their job functions 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 2012:

- Significant Non-Compliance Determination
- Interdepartmental Training
- Resampling Training
- 40 Hour HAZWOPER Training
- NBC Hazardous Waste Training
- Sample Collection & Preservation Training
- Importance of Facility Flow Data
- Annual Report Training
- 8-Hour HAZWOPER Refresher Training
- Investigation & Meeting Write-Up Training
- Pretreatment Requirements Training
- Boating Safety Education
- Disaster Management for Water & Wastewater Senior Officials
- Vacation Shut Down Inspections
- Perkin Elmer LIMS Training
- HachWims Training
- EPA Pretreatment Permitting
- Development & Implementing Local Limits for Local Governments

Boom Deployment Training at Bucklin Point

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 2012 are as follows:

- 2012 EPA - New England Regional Pretreatment Coordinators Conference
- 2012 National Association of Clean Water Agencies (NACWA) Pretreatment and Pollution Prevention Conference
- Massachusetts Pretreatment Forum
- New England Estuarine Research Society Conference
- Restore American Estuaries National Conference
- 2012 NEWEA Annual Conference
- Coastal Hypoxia Research Project Workshop
- Ocean State Clean Cities Coalition Alternative Fuel Meeting
- Best Practices Approach to HazCom Compliance Webinar
- 2012 NFPA Conference and Expo
- Narragansett Bay Hypoxia Workshop
- Reciprocating Internal Combustion Engines Webinar
- High Performance Labs: Energy Efficient, Safe & Sustainable
- Laboratory Safety and Chemical Spills
- Coastal State Lecture Series on Nitrification

- HazCom Labels: Bringing GHS Labels into Focus
- Occupational Health and Safety (OSHA) 511 Outreach Training
- Innovative Techniques for Safety in Confined Spaces Webinar
- Solar Power for Water & Wastewater Utilities Webinar

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. Since 2003, the NBC has conducted multiple in-house trainings to satisfy the eight hour HAZWOPER Recertification training requirements. The recertification program consists of many sessions, such as confined space entry, spill tracking, boom deployment, personal protective equipment, basic chemistry, use of air monitoring equipment, CPR/AED and first aid. The training sessions are held throughout the year. This in-house method of training is a more comprehensive program that is better suited to NBC needs.

In order to ensure productivity remains efficient and of high quality, staff participate in many administrative trainings. The trainings that staff participated in during 2012 are as follows:

- Excel
- Word
- Sharepoint Training
- Windows 7
- Keyboarding II
- Introduction to Computers/Windows
- Communication Skills for Women

The NBC provides a tuition reimbursement program to encourage its employees to further their education. The college courses that staff attended during 2012 are as follows:

- Discrete Management

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 2012:

- 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 March and April respectively to Field's Point and Bucklin Point treatment plant personnel.

- On July 11, 2012 representatives of the Springfield Water and Sewer Commission met with Pretreatment staff to learn about the NBC Grease Control Program. In addition, Pretreatment staff brought them on inspections of restaurants to educate them on the types of grease removal equipment and what to look for during inspections.

- On August 29, 2012, Kerry Britt gave a presentation to NBC Interceptor Maintenance staff on the Pretreatment Program, the Grease Control Program and the interaction between the two sections.

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 2013 (FY13) was $5,323,956. The FY13 PP&R Division budget allocated $4,439,212 or 83.4% to personnel costs.

The approved FY13 Pretreatment budget was $1,069,111, an increase from the prior year's budget of $1,015,382. The FY13 Pretreatment budget allocated 94.5%, or $1,011,191, to personnel costs.

The budget for the EMDA Section in FY13 was $1,526,509, of which 79.8% or $1,251,657 was attributed to personnel expenses. The FY13 EMDA budget decreased by 2.7%, or $42,858 from the previous year.

The ESTA budget for FY13 was $355,165, an increase of $5,164 from the FY12 budget of $350,001. The approved FY13 Laboratory budget was $1,876,257, an increase of 0.70% or $13,060 from the previous year. The approved FY13 Permits & Planning budget was $496,914. Personnel costs associated with the ESTA, Laboratory and Permits & Planning Sections budgets were 93.5%, 69.8% and 97.8% 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 NBC 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. Notice of Violation letters 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.

The Pretreatment and IT Sections continue to develop subroutines to provide more comprehensive reports.

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 Commission 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 the NBC Newsletter;
- Development and distribution of educational fact sheets and technical bulletins;
- Public Meetings, Workshops, and Hearings;
- Displays at Public Events;
- The NBC's Citizens Advisory Committee.

During the past twelve months, the Commission 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 2012, the NBC sent ten informational letters to various categories of regulated users located in the two districts. TABLE 7 below describes each of these informational letters.

TABLE 7
2012 Informational Letters

Issue Date	Description
March 1, 2012	This letter was issued to all SIUs congratulating the 19 companies that achieved perfect compliance for the 2012 review period.
March 7, 2012	This letter was issued to all SIUs notifiying them they were classified as SIUs during 2012. This letter reminded these companies of the reporting requirements outlined in 40CFR§403.12.
March 7, 2012	This letter was issued to all users who were published in the Providence Journal on February 24, 2012 for being in Significant Non-Compliance (SNC) for the reporting period of October 1, 2012 through December 31, 2012. An invoice for their portion of the cost to publish the notice was included with the letter.
March 21, 2012	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.
March 28, 2012	This letter was issued to all permitted users and announced the eightheenth annual Environmental Merit Awardss program. Users were invited to nominate their company for an award.
June 4, 2012	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.
June 25, 2012	This letter was sent to facilities with the potential to impact the sewer system with grease laden wastewater such as restaurants, schools, hospitals and extended care facilities. This letter announced the NBC Environmental Results Program for this type of facility.
September 20, 2012	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, 2012	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 31, 2012	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 2012 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 2012, over 2,000 visitors took a complimentary tour 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 2012.

- *Advocacy for Clean Water* - In 2012, the NBC worked with over 1600 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.

- *Teaching Children About Water Conservation and Wastewater Treatment* - During 2012, 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 eighteenth 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 year 2013 calendar poster. In addition, the winning posters were exhibited at the Blackstone Valley Visitors Center.

- *Recognizing Students for Environmental Awareness* - For the twentieth 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.

- *Honoring Industrial and Commercial Users for Environmental Performance* - This year, the NBC recognized twenty companies in the service district with Environmental Merit Awards for Pollution Prevention and Perfect Compliance Awards with regulatory requirements. In 2012, 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.

- *Supporting the Local Shellfishing Industry* - In 2012, the NBC again co-sponsored three shellfish relocation efforts, in partnership with the Rhode Island Department of Environmental Management, Rhode Island Department of Health, the Rhode Island Shellfishermen's Association, and the Nature Conservancy. In May, shellfishermen gathered in three different locations to scoop more than 90,000 pounds of shellfish from lush beds which lie in restricted fishing areas. The quahogs were transplanted to management waters throughout the bay and allowed time to cleanse themselves and to reproduce. In December, local shellfishermen were permitted to harvest the transplanted shellfish from the management area. The annual transplant harvest contributes a significant boost to the state's economy, and an abundance of shellfish for consumers during a time of year when demand is traditionally high.

- *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 2012, the NBC commissioned three 1.5 megawatt wind turbines in a public event at 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 2012, 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 2012 State Employees Charitable Appeal (SECA) and raised over $16,000 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 2012, 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

Providence Place Mall

On January 24, 2012 Pretreatment staff met with representatives of the restaurants located in the food court of the Providence Place Mall. During the meeting Kerry Britt, Pretreatment Manager, presented an overview of the NBC Grease Control Program and the impacts of grease on the sewer system.

Massachusetts Pretreatment Forum

On April 23, 2012, Kerry Britt, Pretreatment Manager, gave a presentation on the NBC Facility Shut Down Procedures at a meeting of the Massachusett Pretreatment Forum.

EPA New England Region Pretreatment Conference

On October 17, 2012, Kerry Britt, Pretreatment Manager, gave a presentation on NBC procedures on Permitting Groundwater Discharges at the 14th Annual EPA New England Region Pretreatment Conference.

Women in Science and Engineering (WISE) Workshop

On November 17, 2012, 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.

University of Rhode Island (URI) Chemical Engineering Pollution Prevention Course

On March 2, 2012, James McCaughey, ESTA Manager, gave a presentation on NBC Pollution Prevention and Energy Projects to the URI Chemical Engineering Pollution Prevention class.

~Water Quality Presentations

New England Water Environment Association (NEWEA) Annual Confernece

On January 23, 2012, James Kelly, Assistant Environmental Monitoring Manager, gave a presentation titled " Enterococcus Sampling in Anticipation of New Permit Limits" at the 2012 Annual NEWEA Conference.

Coastal Hypoxia Research Project (CHRP) Workshop

On May 3, 2012, Thomas Uva, Director of PP&R, gave a presentation on NBC construction projects, monitoring initiatives and data findings at a CHRP meeting.

New England Estuarine Research Society (NEERS)

NBC Environmental Scientists prepared an abstract titled "Achieving Water Quality Standards by Implementing Sustainable Estuarine Habitat Restoration and Aquaculture Projects". The abstract was accepted as a presentation. Thomas Uva, Director of PP&R, presented the abstract during the NEERS fall meeting held on October 13, 2012.

Restore American Estuaries National Conference

On October 21 through 24, 2012, Thomas Uva, Director of PP&R, presented a poster titled "Achieving Water Quality Standards by Implementing Sustainable Solutions" at the Restore American Estuaries 6th Annual National Conference.

~NBC Energy Projects Presentations

Environmental Business Council Update on Wind Energy in Rhode Island

On April 24, 2012, James McCaughey, ESTA Manager, and Barry Wenskowicz, Pollution Prevention Engineer, gave a presentation on Wastewater Treatment Facility Energy Projects and the NBC Wind Turbine Project Planning at the Council Update on Wind Energy in Rhode Island.

Construction Specifications Institute

On May 16, 2012, Barry Wenskowicz, Pollution Prevention Engineer, gave a presentation on the wind turbine project to the Construction Specifications Institute.

NEWEA Spring Meeting

On June 5, 2012, Barry Wenskowicz, Pollution Prevention Engineer, gave a presentation titled "NBC Renewable Energy and Sustainability Projects" at the NEWEA Spring Meeting.

Water Environment Federation (WEF) Annual Conference

In October 2012, Barry Wenskowicz, Pollution Prevention Engineer, participated in a panel discussion titled "Roadmap to Sustainable Energy Management for Wastewater Utilities" during the 2012 WEF Annual Conference.

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

Walter Palm, Laboratory Manager, is an adjunct professor at CCRI. Courses he taught during 2011 included Chemistry of Hazardous Materials and Survey of Biomedical Chemistry.

James McCaughey, ESTA Manager, is an adjunct professor at CCRI. Courses he taught during 2012 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 2012. 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 2012.

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 4, 2012 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 7,463 different industrial and commercial users located within the two NBC sewer districts. During 2012 the Pretreatment staff identified and entered information on 192 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 7,463 industrial and commercial users have been identified through user surveys, 4,410 are still conducting business in the NBC service areas and 93 were classified as SIU sometime during 2012. Of the 93 SIUs reported for 2012, there were 62 classified as categorical industries which are subject to both NBC and EPA regulations, and 31 significant non-categorical industrial users of the NBC sewer system. During this reporting period, eight 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 seven firms were newly classified as significant during 2012. 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 1,643 Wastewater Discharge Permits in effect, which were issued to facilities located in the Field's Point and Bucklin Point drainage districts. Presently, 1,088 permits are in effect for users in the Field's Point District, while 555 permits are in effect in the Bucklin Point service area. 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 43 of the 77 categories listed in TABLE 8. During this reporting period, Pretreatment staff issued 412 permits to users located in the two NBC districts. Of the 412 permits issued during 2012, there were 144 new permits issued to new commercial and industrial users and 268 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	35	20	55
12	Metal Molding And Casting	1	0	1
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	6	3	9
23	Textile Firms	1	9	10
24	Printers	7	8	15
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	11	3	14
40	Groundwater Remediation/Excavation Projects	12	4	16
41	Regulated Electroplating Or Chemical Processes Disconnected Or Recycled	15	2	17
42	Other Regulated Processes That Are Disconnected Or Recycled	18	23	41
43	Recycle Electroplating Or Chemical Processes With Cooling Water Or Boiler Discharges	11	1	12
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	1	2
51	Cooling Water	3	0	3
52	Boiler Blowdown/Condensate Discharges	9	5	14
53	Cooling Tower Discharges	5	7	12
59	Other Nontoxic Discharges	1	5	6
80	Septage Haulers/Dischargers	0	12	12
81	Food/Meat/Fish Produce Processing (Wholesale)	35	26	61
82	Supermarkets (Retail Food Processing)	18	12	30
83	Parking Garages/Lots	1	0	1

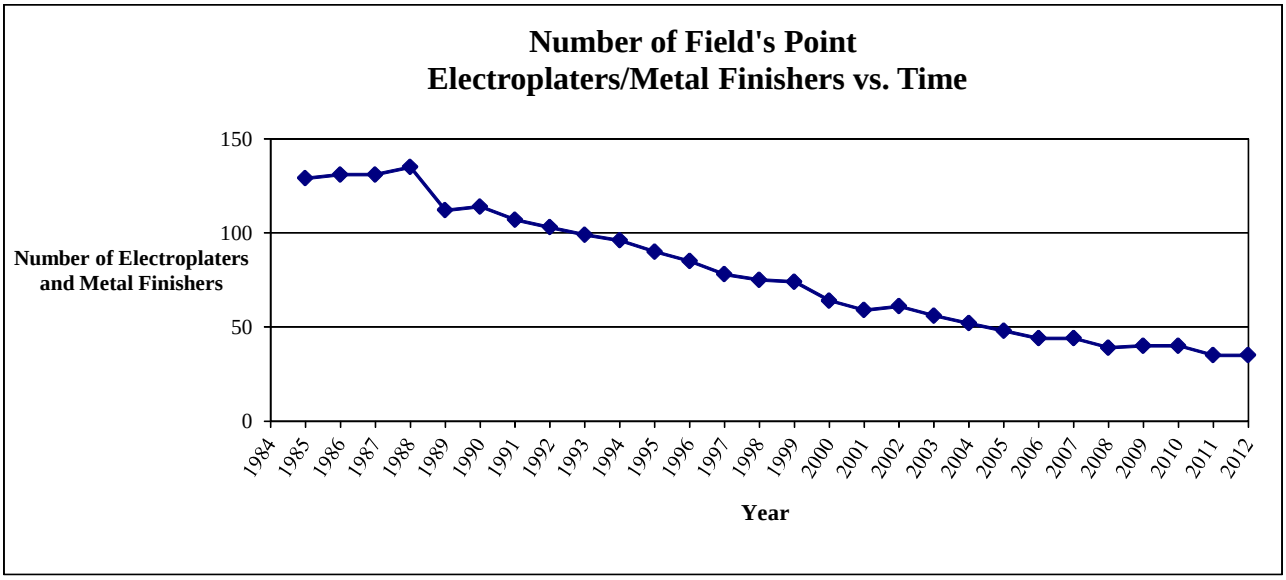
TABLE 9
(Continued)
Narragansett Bay Commission
Summary of Wastewater Discharge Permits in Effect

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	482	220	702
86	Comm. Buildings With Cafeteria/Laundry	144	40	184
89	Other Commercial Users With Potential to Discharge - Conventional Pollutants	18	6	24
90	Hospitals	11	1	12
91	Cooling Water/Ground Water/Boiler Discharges	0	0	0
92	Laundromats/Dry Cleaners	48	24	72
93	Photo Processing	7	1	8
94	X-Ray Processing	58	39	97
95	Clinical, Medical, And Analytical Laboratories	20	4	24
96	Funeral Homes/Embalming	14	10	24
97	Motor Vehicle Service/Washing	35	15	50
99	Other Commercial Users With Potential To Discharge Toxic Or Conventional Pollutants	22	16	38
	Total Permits in Effect	**1,088**	**555**	**1,643**

There were 26 permits revised and reissued to SIUs in the two drainage districts during 2012, while five new permits were issued to this class of users. Seventeen of the 26 revised permits were issued to categorical users during 2012, while the nine 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 over the past decade 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 2012 the number of electroplaters and metal finishers in both districts decreased by 1.8%, a reduction of one firm from 2011.

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 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.

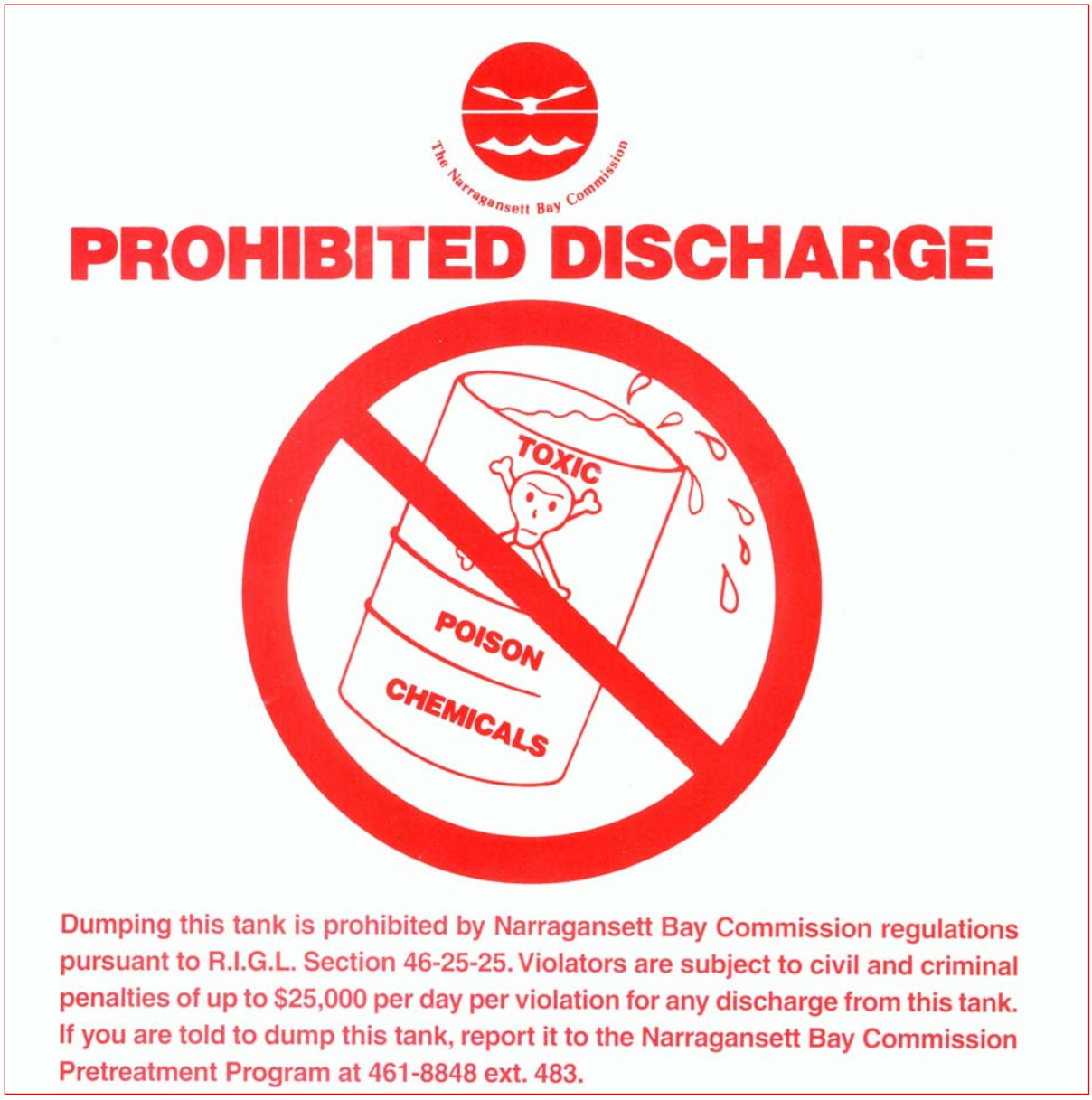
- A prohibition against batch discharges without prior written approval from the NBC to prevent the discharge of concentrated solutions to the sewer system. The NBC developed the prohibited discharge sticker shown in FIGURE 5. This sticker is affixed to all tanks which the industrial user is prohibited 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 most 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 2012, 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 the 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 the NBC. 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-eight 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 19 of these users which are classified in categories 43 and 44. Of the 80 users classified in categories 41 through 44, 47 facilities are permitted to operate zero process discharge wastewater recycle systems in the Field's Point District, while 30 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 Control Plan.

- Seal all floor drains and cap off all 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 the Pretreatment inspectors 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.

- *Telephone Book Reviews* - Pretreatment staff reviews telephone books when they are published to identify new non-domestic users that may require regulation. Particular attention is given to reviewing categorically regulated user categories such as electroplaters, metal finishers, metal formers, etc.

- *Directory Reviews* - The State of Rhode Island, Department of Economic Development publishes a Rhode Island Directory of Manufacturers annually which the Pretreatment staff subscribes to and reviews. This directory lists all manufacturing facilities located within the state by type of manufacturing operation and by Standard Industrial Classification (SIC) code. An annual review of this directory allows the NBC to identify potential non-domestic users that may require a Wastewater Discharge Permit. The Pretreatment office also subscribes to the Polk Directory. This directory lists the names and locations of all businesses and homes located in the metropolitan area. Polk Directory listings are arranged utilizing various methods, including by type of business, premise location, and even by telephone exchange. For example, if a firm is advertising in the help wanted section of the newspaper for an electroplating position and does not list the company name, Pretreatment staff can determine the premise location and company name from the phone number and will then inspect the firm if previously unpermitted.

- *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 routinely 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 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 POTWs 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.

~ *Specialized and Innovative Inspector Training Programs* – The NBC provides extensive training to new employees and continued training to existing personnel. 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 members' 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.

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 Section developed a Pretreatment Inspector Feedback Form 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.

Pretreatment staff participate in the annual Spill Response and Tracking Drill

The "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 Notice of Violation letters also advise the user 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 NBC 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 the 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 2.0% in 2012, while the SIU Rate of SNC for Bucklin Point was reduced from a high of 44.8% in 1994 to 14.0% in 2012. The overall rate of SNC for all NBC SIUs for 2012 was 7.5%, an increase from 4.5% observed in 2011. This is well within the EPA level of 10%

recommended for EPA Pretreatment Program Excellence recognition. These impressive reductions in the Rate of Significant Industrial User 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, 2012 through December 31, 2012, Pretreatment staff conducted 2,110 inspections of users, not including sampling visits. Of the 2,110 non-sampling inspections conducted by the Pretreatment staff, 378 were inspections of SIUs and 1,732 were inspections of non-significant users. Pretreatment staff conducted 261 facility inspections of categorical users and 117 inspections of significant non-categorical industrial users in both districts, excluding sampling visits. Pretreatment staff conducted 62 regulatory compliance meetings with users during 2012.

All facilities classified as SIUs were inspected at least twice during the 12 month report period. The Pretreatment Section satisfied and exceeded EPA requirements to inspect every significant industrial user at least once every 12-month period.

During 2012, EMDA staff conducted 214 industrial user sampling inspections of 96 industrial user facilities resulting in the collection of 1,706 composite and grab samples. These 1,706 samples translated to 231 user monitoring reports. Of the 231 monitoring reports, 214 were issued to significant users and 17 were issued to non-significant users. There were 149 sampling inspections of 62 categorical industries and 65 sampling inspections of 31 significant non-categorical users.

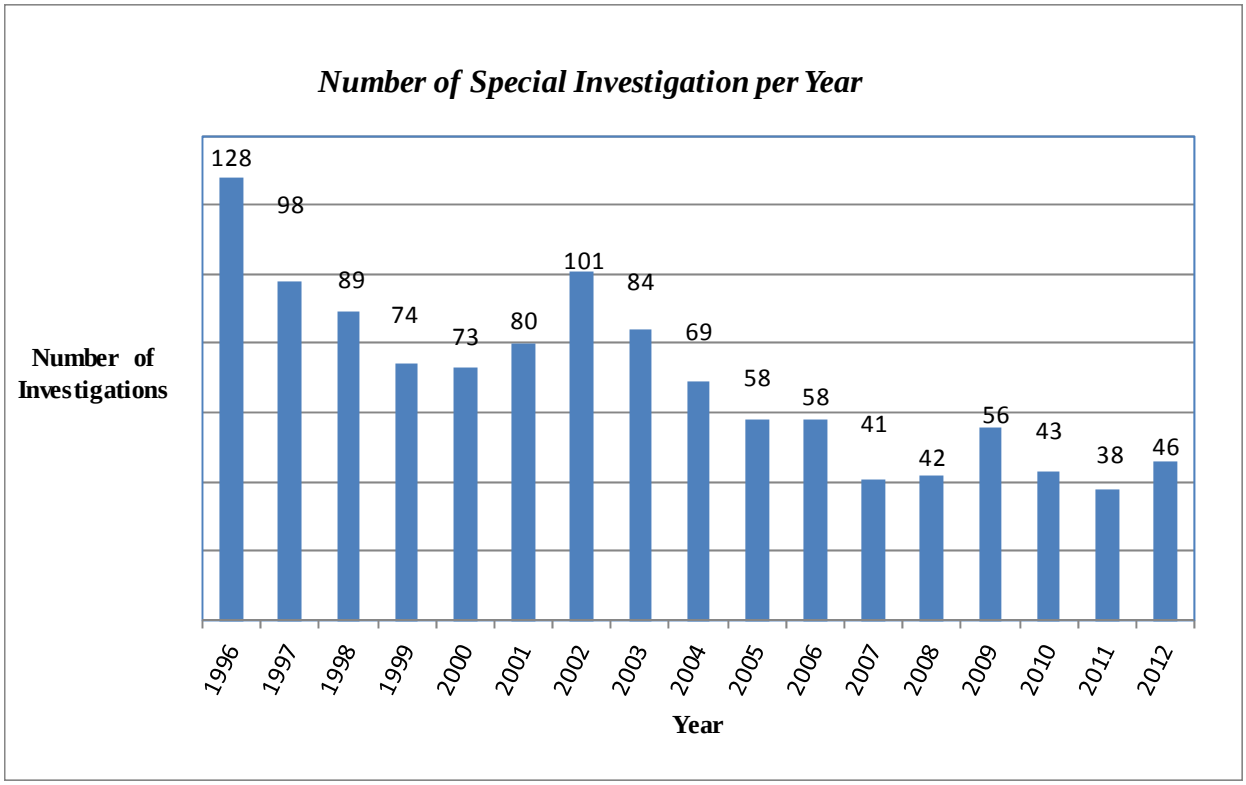
During 2012, the EMDA Section sampled every SIU at least once within the 12-month period. Many SIUs were sampled more than twice due to effluent violations observed at the firms.

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 2012, Pretreatment staff investigated 46 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 2012 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



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. This is attributed to better education of users regarding spill prevention practices and overall environmental awareness by industry.

FIGURE 7
Breakdown of 2012 Investigations

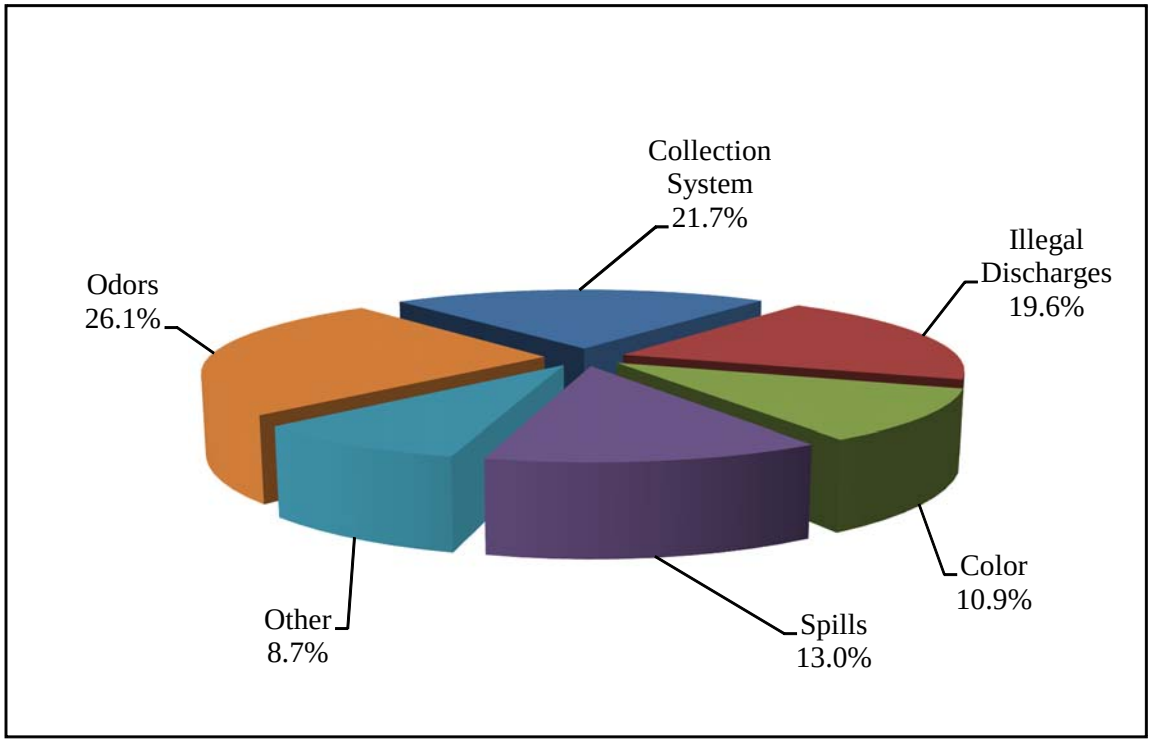
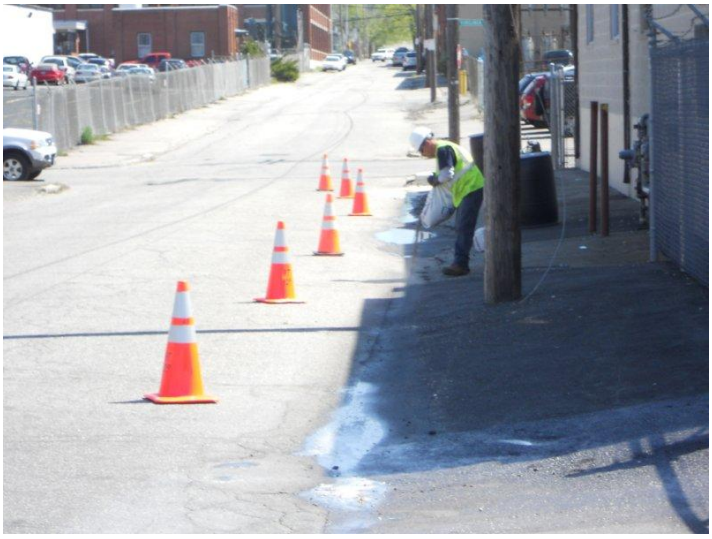


FIGURE 7 graphically depicts the breakdown of the types of investigations that occurred in 2012. As can be seen from the chart, the majority of the investigations resulted from five types of investigations, odors accounted for thirteen, problems in the collection system accounted for ten, illegal discharges accounted for nine, spills accounted for six and color accounted for five.

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 46 investigations. Those NBC investigations of major concern and interest to the NBC over the past year are described in the following paragraphs.

Spills



During 2012, Pretreatment staff conducted six investigations in response to reports of spills. Three of the six investigations were in response to chemical spills, two of which occurred in Field's Point and one in Bucklin Point. The first report of a chemical spill in the Field's Point district was from Monarch Metal Finishing, Inc. It was stated that approximately 300 gallons of hypochlorite spilled in the parking lot during a delivery. The chemical supplier stated that a pump malfunctioned causing the release. The material flowed from the parking lot on to the street and subsequently into a catch basin at the corner of Toronto Street and Virginia Avenue. The chemical supplier and company used absorbent material on the hypochlorite. The chemical supplier contracted a company to pump out the catch basin and dispose of the absorbent material and hypochlorite. The second report of a chemical spill in the Field's Point district was from Rhode Island Hospital. It was stated that a seal on a recirculation pipe broke causing approximately 28 gallons of propylene glycol to leak from the system and into a floor drain. The hospital cleaned up the area, pumped out the drain and disposed of the material offsite. The third chemical spill occurred in the Bucklin Point district. The report was from Teknor Apex Company and stated 50 to 100 gallons of plasticizer was released on its roof when a valve failed connecting a new day tank to existing piping. The plasticizer entered a roof drain and subsequently to the sewer system. The Field's Point and Bucklin Point plants were not impacted by these chemical spills.

There were two reports of gasoline spills in 2012, one in Field's Point and one in Bucklin Point. The report of a gasoline spill in Field's Point came from Rhode Island Hospital. It was stated approximately eight gallons of gas was released from a vehicle in the parking lot. Hospital personnel used absorbent material to clean up the fuel. The gasoline did not reach the sewer system. The report from the Bucklin Point district stated approximately 15 gallons of gasoline was discharged from a car due to an accident in East Providence. East Providence Fire Department personnel applied absorbent material to the spill and the sewer system was not impacted.

The final spill occurred at the Field's Point plant. The spill occurred when material removed from scum wells at the plant was being emptied on the grit pad. The drains which discharge to the headworks became clogged causing material to enter the storm system. The storm line was inspected and it was determined the material did not leave NBC property. Interceptor Maintenance (IM) staff plugged the line, flushed it, collected the material and discharged it back to the headworks. The treatment processes and the storm line were not adversely impacted.

Odor Investigations

In 2012 Pretreatment staff responded to twelve reports of odor, ten in Bucklin Point and two in Field's Point. Of the ten odor investigations in Bucklin Point, five resulted from reports of solvent odors at the George Washington Highway Pump Station. There were also high LEL levels associated with these odors. After each report, Pretreatment staff responded to the pump station. The atmosphere in the pump station and manholes on lines leading to the pump station was monitored using a four gas meter. The solvent odor could be detected however the gas meter did not detect any high LEL levels. A sample of the wet well collected during one of the investigations revealed a high concentration of xylene. There is one company which conducts spray painting of metal pieces. The company was inspected on several occasions and it was determined there is xylene onsite. During the inspections there was no evidence of solvent being discharged. A sample collected from a sink trap at the facility did not show elevated concentrations of xylene. All companies regardless of their process operations were inspected. There was no evidence of any discharge of solvents. However, there were three facilities with xylene onsite. These companies were educated on the impact solvent discharges could have on the sewer system. Four of the ten odor investigations were associated with the Highland Corporate Park in Cumberland. Three of these investigations resulted from residents of Biltmore Avenue and Sugar Pine Drive which are located downstream of the park. During each investigation Pretreatment staff monitored the atmosphere at the pump station in the park, and manholes on Biltmore Avenue and Sugar Pine Drive. During each investigation unusual odors were not detected and the hydrogen sulfide readings at each location were 0.0 ppm. The fourth report of odors at the Highland Corporate Park was from an office building located on Scenic View Drive. It was stated that sewage odors were detected in the building. The odors were not detected upon arrival. It was determined that a trap on a floor drain had gone dry allowing sewer odor to enter the building. The building was aired out and water was put in the trap. The final investigation of odor in Bucklin Point was from a restaurant which stated there were odors coming from its outdoor, in-ground passive grease interceptor which was stagnant. The company was advised to clean the interceptor on a more regular basis.

There were two odor investigations in Field's Point. The first investigation was of gasoline odors in a sewer line on George Waterman Road in Johnston which was also reported to be surcharging. Upon arrival at the scene it was noted the manhole in questions was in front of a gas station. The manhole was opened and the line was flowing properly. There were no unusual odors and the LEL reading was 0.0 ppm. The second investigation

was of gasoline odors in the sewer line on Branch Avenue in Providence. Upon arrival at the manhole in questions the atmosphere was monitored using a four gas meter. The carbon dioxide concentration and LEL levels were high. The area upstream was investigated and nothing unusual was noted. The manhole was monitored again and all readings were in normal range.

Illegal Dumping & Unpermitted Discharge Investigations

The Pretreatment staff investigates all reports of illegal dumping and unpermitted discharges into the sewer system, storm drains and/or NBC receiving waters. In 2012, Pretreatment staff investigated nine reports of illegal dumping or unpermitted discharges. Five of the nine investigations took place in the Field's Point district. The first report was that food waste form the McCauley House, a soup kitchen in Providence, was being dumped to a catch basin and the neighboring property. Upon arrival the catch basin and property were inspected and there was no evidence of food waste being dumped. Representatives of McCauley House were made aware of the report. The second report was from the Town of Johnston Department of Public Works (JDPW) stating there was a dark viscous liquid discharging from an outfall on Mill Street. Upon arrival Pretreatment met with NBC Interceptor Maintenance (IM) staff and representatives from DEM and JDPW. The sewer line on Mill Street was inspected and it appeared normal. The material appeared to be similar to septage. DEM instructed IM to add hypochlorite to the discharge and JDPW to plug the outfall. The third investigation was of Blount Clam Shack in Providence. Pretreatment staff noted a discharge to a catch basin on Richmond Street from the side of Blount. An investigation of the facility revealed the restaurants two grease removal units had just been cleaned out using a wet-vac which was dumped on the ground outside of the facility. The restaurant was instructed to cease this practice. A Notice of Violation (NOV) was issued to the restaurant. The fourth report was of paint containers being washed in the street outside of Elmwood Auto Sales located in Providence. The company was instructed to immediately cease this practice. The fifth report was of grease being dumped in a yard drain in a parking lot at 286 Atwells Avenue in Providence. Upon arrival, Pretreatment staff inspected the yard drain and it appeared to be filled with yellow grease. There are three restaurants in the area. These facilities were inspected and appeared to be operating properly. The owner of the property was contacted. The owner contracted a company to pump out the yard drain. An inspection of the yard drain revealed there were no connections to the sewer system.

The remaining four investigations of illegal dumping and unpermitted discharges occurred in Bucklin Point. The first report was from Microfibres Inc., a textile facility in Pawtucket, stating there was a release of 180 gallons of concentrated light brown dye to the sewer occurred when a valve was not properly closed. The firm immediately stopped the release

upon discovery and contacted the NBC. The second report was from IM staff stating grease laden wastewater was discharging into the parking lot of Burger King located on Lonsdale Avenue in Central Falls. Upon arrival at the restaurant, Pretreatment staff determined the company had cleaned it exhaust hoods in the parking lot. The restaurant was instructed to discharge all grease laden wastewater to its grease interceptor. A NOV issued to the restaurant. The third report was from IM stating there were excessive quantities of rags in the George Washington Highway Pump Station that were interfering with the pumps. All companies upstream of the pump station were inspected. One company, a nursing home, was experiencing similar problems with rags. The company was instructed to improve prescreening its wastewater. The other companies using rags were instructed to review their procedures dealing with rags. The fourth and final report was of kitchen wastewater being dumped in a catch basin outside of a restaurant on Taunton Avenue in East Providence. Upon arrival the catch basin was inspected and kitchen waste including steel wool pads were observed. The restaurant was inspected and the owner stated employees would be retrained. A NOV was issued to the restaurant.

Food Preparation Related Grease Investigations

During 2012, Pretreatment staff responded to a total of ten grease related investigations. There were eight in Field's Point and two in Bucklin Point. All ten of the investigations were associated with food preparation operations. Four of the grease investigations that occurred in Field's Point were downstream of food preparation facilities. The first investigation was downstream of DePasquale Square in Providence. The City of Providence reported there had been a blockage downstream of the square. There are a total of nine food preparation facilities upstream of the blockage, six permitted and three previously unpermitted. Three of the permitted facilities were in full compliance while the grease removal units in the three remaining permitted facilities were not being maintained properly. These facilities were issued NOVs and required to maintain their grease removal units. The three unpermitted facilities were required to apply for permits. Two of the grease investigations were regarding the same restaurant located in Providence. The first report was from the City of Providence stating there was a grease build up in the line at the intersection of Public Street and Elmwood Avenue. There is only one restaurant which is permitted upstream of the intersection. The restaurant was inspected. It was stated the firm had recently replaced its grease removal unit with a NBC approved unit which was operated properly. The second report regarding this facility was from a resident who stated there was a buildup of grease in the sewer. The line was inspected and there appeared to be residual grease from the previous investigation. However, the restaurant was inspected. The grease removal unit was being maintained but a pump was being use to pump solids directly to the sewer. The restaurant was issued a NOV which required the pump to be removed. The fourth grease investigation downstream of food preparation facilities occurred in Johnston at the intersection of Cherry Hill Road and Greenville Avenue. There are seven food preparation facilities all of which are permitted. Four of the facilities were maintaining their grease removal units. The remaining facilities were not maintaining their grease removal equipment. These facilities were issued Notices of Violations. The four remaining Field's Point grease investigations occurred in strictly residential areas.

There were two grease investigations in Bucklin Point. One investigation occurred in East Providence. The City of East Providence reported there was a backup of raw sewage into a residence on Fern Street. A large quantity of grease was observed in the sewer when the blockage was removed. The residence is located downstream of two restaurants. One restaurant is operating and has two grease removal units, one was being maintained and the other was not. The facility was issued a NOV requiring both units to be maintained, ensure all grease laden wastewater is discharged to the grease removal units and provide proper spill control for grease containers. The other restaurant had been abandoned. There was an outside in ground grease interceptor which was full of grease. The owner of the property was contacted. The owner had the interceptor pumped out and the lateral from the street to the interceptor cleaned out. The wastewater generated from this operation was collected and disposed of offsite. The second grease investigation was a result of a dry weather overflow at Outfall 218 in Pawtucket. There are 38 restaurants upstream of the outfall, 33 permitted and five unpermitted. Thirty-one of the permitted facilities were maintaining their grease removal units. The remaining two permitted restaurants were not maintaining their grease removal equipment. They were issued NOVs. The five unpermitted restaurants were required to apply for permits.

Color Investigations

During 2012, Pretreatment staff responded to five reports of colored wastewater. All five reported occurred in Bucklin Point and stated the influent at the plant was red or pink. After each report all companies with potential to impact the plant with color were contacted and required to submit their color logs. After reviewing the logs one of the reports was attributed to Liquid Blue, a textile company in Lincoln. Pretreatment staff attempted to track all incidents of colored influent. During one incident staff was able to track the colored wastewater to Ecological Fibers, Inc. which conducts printing operations. The company was required to conduct a detailed investigation of its facility to determine if untreated wastewater was able to be discharged to the sewer system and submit a report which is required to be submitted in early 2013. The Bucklin Point treatment operations and the receiving water were not adversely impacted by any of these incidents of colored wastewater.

Pass-through and Interference

During 2012 the NBC Pretreatment Section conducted 46 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 2012 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 2012 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 monitoring 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. 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, the 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 11. This table indicates the discharge standards that must be maintained by users located in the Field's Point and Bucklin Point drainage 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 11

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.

Laboratory staff entering data into LIMS

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.

NBC Laboratory Building

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.

Lab Staff Member Performing Microscopic Analysis

The majority of samples collected in 2012 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 new 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 ultratrace multi-elemental analysis. The method used is EPA Method 200.8 for trace metals at EPA Water Quality Criteria levels.

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, 2012 through December 31, 2012, NBC personnel conducted 214 sampling inspections of industries located within the NBC Field's Point and Bucklin Point Districts, resulting in the collection of 1,706 composite and grab sample results. These 1,706 samples translated to 234 monitoring reports. Of these 231 monitoring reports, 201 were in full compliance with the NBC standards and 30 were not in compliance, resulting in a user compliance rate of 87.0% based upon NBC analyses, a slight decrease from the 85.5% rate of compliance reported for 2011 NBC monitoring results.

The NBC satisfied all EPA requirements regarding sampling SIUs at least once every twelve months, as all significant industrial users, both categorical and non-categorical with discharges were sampled in 2012.

The NBC conducted sampling of 93 SIUs and eight non-significant user facilities in the two NBC districts during 2012. Of the 101 facilities sampled by the NBC, 62 facilities were classified as categorical industries at the time of the sampling event. There were 31 firms classified as significant non-categorical facilities when sampled by the NBC during 2012.

Computer printouts of the past year's 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 2,194 wastewater monitoring reports for the period from January 1, 2012 through December 31, 2012. For this period, the industrial and commercial users actually submitted 2,588 sample results, 2,500 of which were in full compliance with NBC and EPA standards. This is a user self monitoring report rate of compliance of 96.6%. The users submitted 18.0% more analyses than required by permits due to the NBC requirement to conduct weekly sampling once non-compliance has occurred.

TABLE 12 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, 2012 through December 31, 2012. TABLE 13 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 12 and 13 is shown graphically in FIGURES 8 and 9. TABLE 14 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 96.5%, NBC results indicate a compliance rate of 86.0% for this class of users.

TABLE 12

Narragansett Bay Commission
Field's Point and Bucklin Point Districts

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

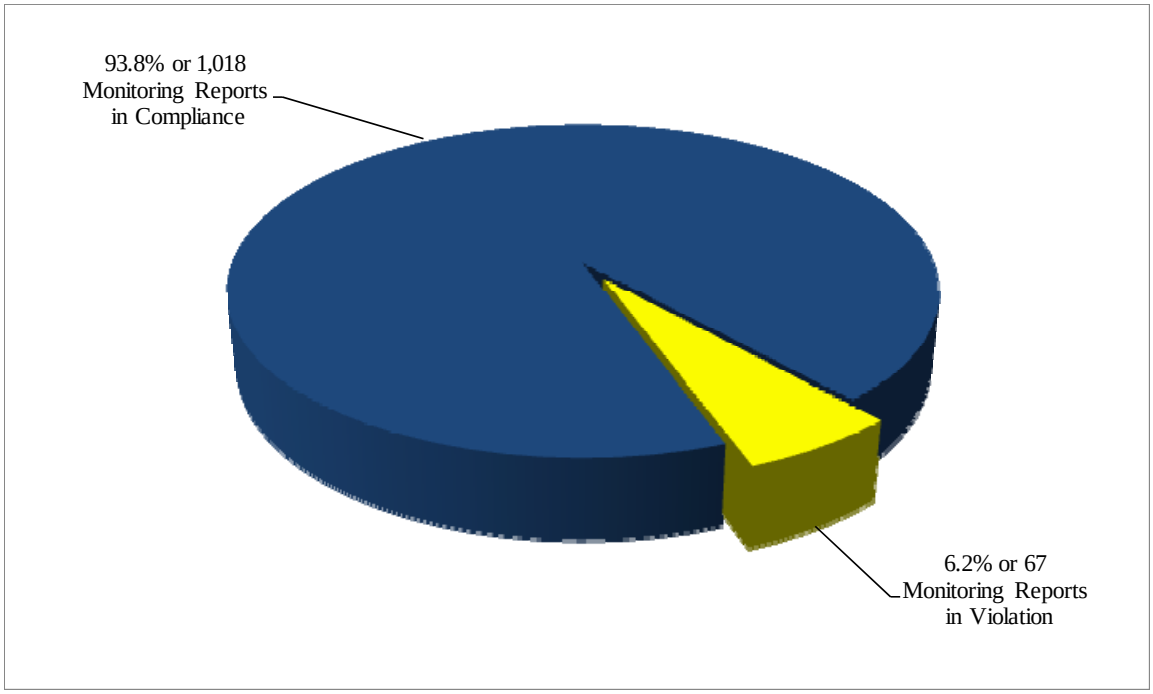
January 1, 2012 - December 31, 2012

User Self-Monitoring Results	**Categorical**	**Non-Categorical**	**Totals**
Total Monitoring Reports Required	**753**	**1,441**	**2,194**
Total Monitoring Reports Submitted	**937**	**1,655**	**2,592**
Total Monitoring Reports In Compliance	**896**	**1,608**	**2,504**
Total Monitoring Reports Not In Compliance	**41**	**47**	**88**
NBC Monitoring Results			
Total Monitoring Reports Collected	**148**	**83**	**231**
Total Monitoring Reports In Compliance	**122**	**79**	**201**
Total Monitoring Reports Not In Compliance	**26**	**4**	**30**
All Results			
Total Monitoring Reports Reviewed	**1,085**	**1,738**	**2,823**
Total Monitoring Reports With Violations	**67**	**51**	**118**
Total Monitoring Reports In Compliance	**1,018**	**1,687**	**2,705**
Total Users Sampled	**62**	**499**	**561**
Total Users With Violations	**26**	**29**	**55**
Total Users Without Violations	**36**	**470**	**506**

FIGURE 8

2012 Rates of Compliance for Categorical and Non-Categorical Users Field's Point & Bucklin Point Districts

Categorical User Analyses
Total Number of Monitoring Reports = 1,085



Non-Categorical User Analyses
Total Number of Monitoring Reports = 1,738

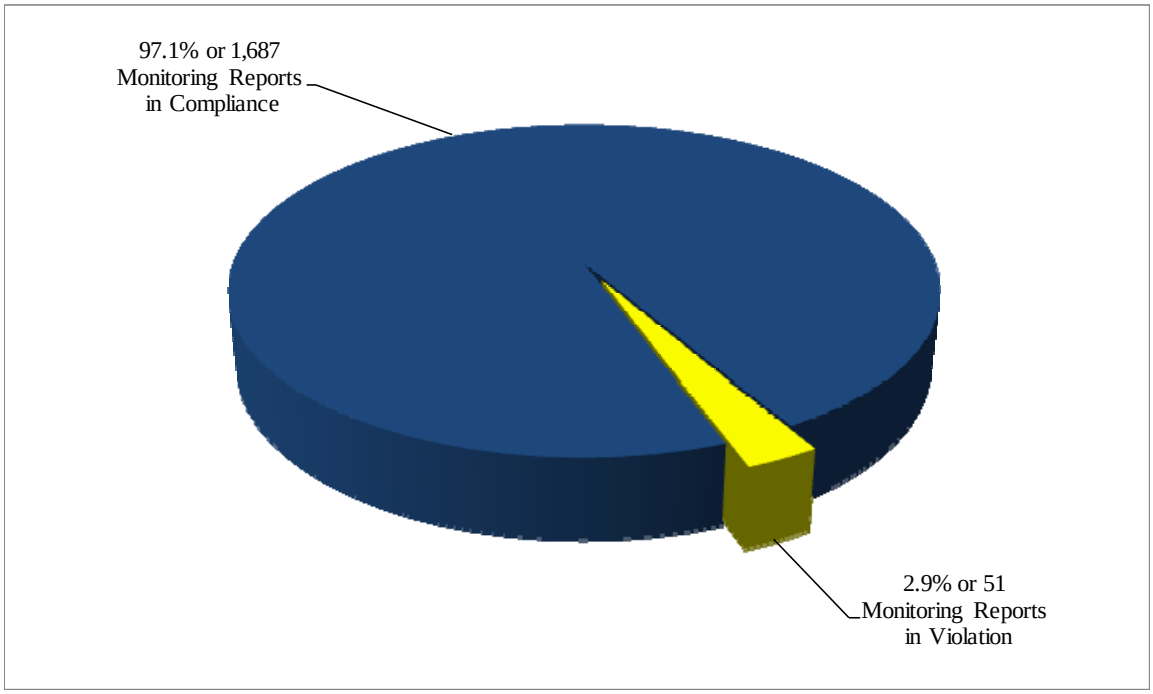


TABLE 13

Narragansett Bay Commission
Field's Point and Bucklin Point Districts

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

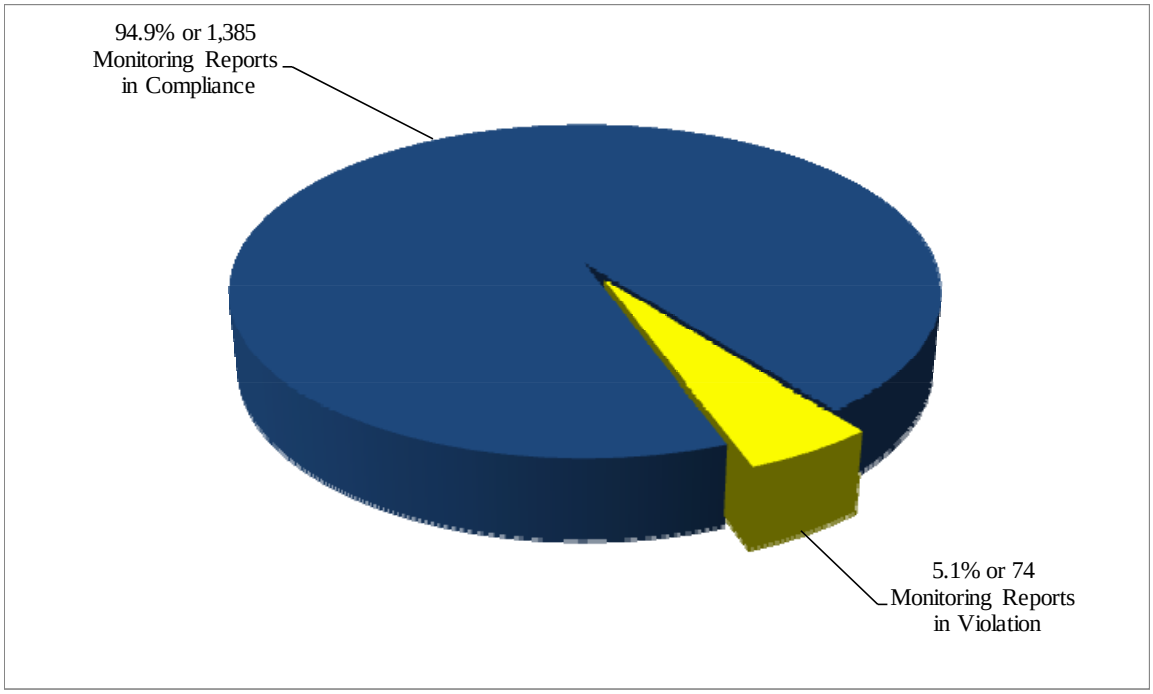
January 1, 2012 - December 31, 2012

User Self-Monitoring Results	Significant Users	Non-Significant Users	Totals
Total Monitoring Reports Required	**1,003**	**1,191**	**2,194**
Total Monitoring Reports Submitted	**1,245**	**1,347**	**2,592**
Total Monitoring Reports In Compliance	**1,201**	**1,303**	**2,504**
Total Monitoring Reports Not In Compliance	**44**	**44**	**88**
NBC Monitoring Results			
Total Monitoring Reports Collected	**214**	**17**	**231**
Total Monitoring Reports In Compliance	**184**	**17**	**201**
Total Monitoring Reports Not In Compliance	**30**	**0**	**30**
All Results			
Total Monitoring Reports Reviewed	**1,459**	**1,364**	**2,823**
Total Monitoring Reports With Violations	**74**	**44**	**118**
Total Monitoring Reports In Compliance	**1,385**	**1,320**	**2,705**
Total Users Sampled	**92**	**469**	**561**
Total Users With Violations	**32**	**23**	**55**
Total Users Without Violations	**60**	**446**	**506**

FIGURE 9

2012 Rates of Compliance for Significant and Non-Significant Users
Field's Point & Bucklin Point Districts

Significant User Analyses
Total Number of Monitoring Reports = 1,459



Non-Significant User Analyses
Total Number of Monitoring Reports = 1,364

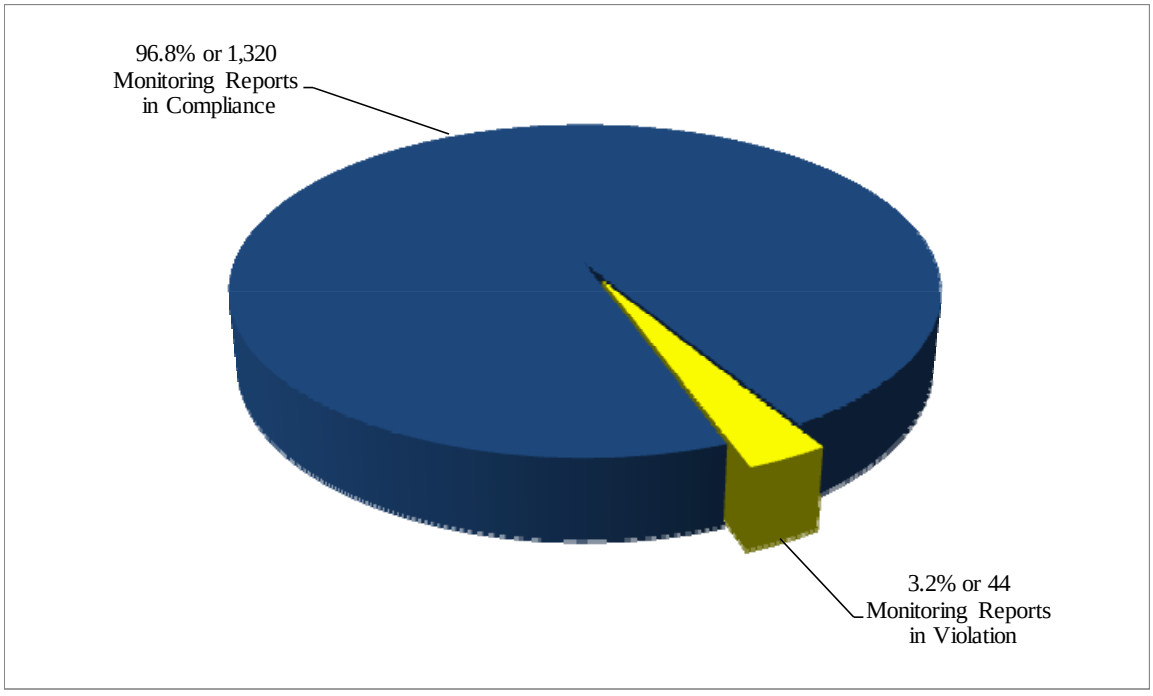


TABLE 14

Narragansett Bay Commission
Field's Point and Bucklin Point Districts

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

January 1, 2012 - December 31, 2012

	User Self-Monitoring	NBC Monitoring	All Results
Significant Users			
Compliance Rate	**96.5%**	**86.0%**	**94.9%**
Non-Compliance Rate	**3.5%**	**14.0%**	**5.1%**
Non-Significant Users			
Compliance Rate	**96.7%**	**100.0%**	**96.8%**
Non-Compliance Rate	**3.3%**	**0%**	**3.2%**
Categorical Users			
Compliance Rate	**95.6%**	**82.4%**	**93.8%**
Non-Compliance Rate	**4.4%**	**17.6%**	**6.2%**
Non-Categorical Users			
Compliance Rate	**97.2%**	**95.2%**	**97.1%**
Non-Compliance Rate	**2.8%**	**4.8%**	**2.9%**
All Users			
Compliance Rate	**96.6%**	**87.0%**	**95.8%**
Non-Compliance Rate	**3.4%**	**13.0%**	**4.2%**

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 95.1% in 2011 and 94.9% in 2012. There was a 10.5% 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 13.2%.

User self monitoring reports submitted by categorical users indicated full compliance 95.6% of the time, while NBC monitoring found categorical users to be in compliance for only 82.4% 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
Comparison of Compliance Rates for
Self-Monitoring and NBC Monitoring Reports

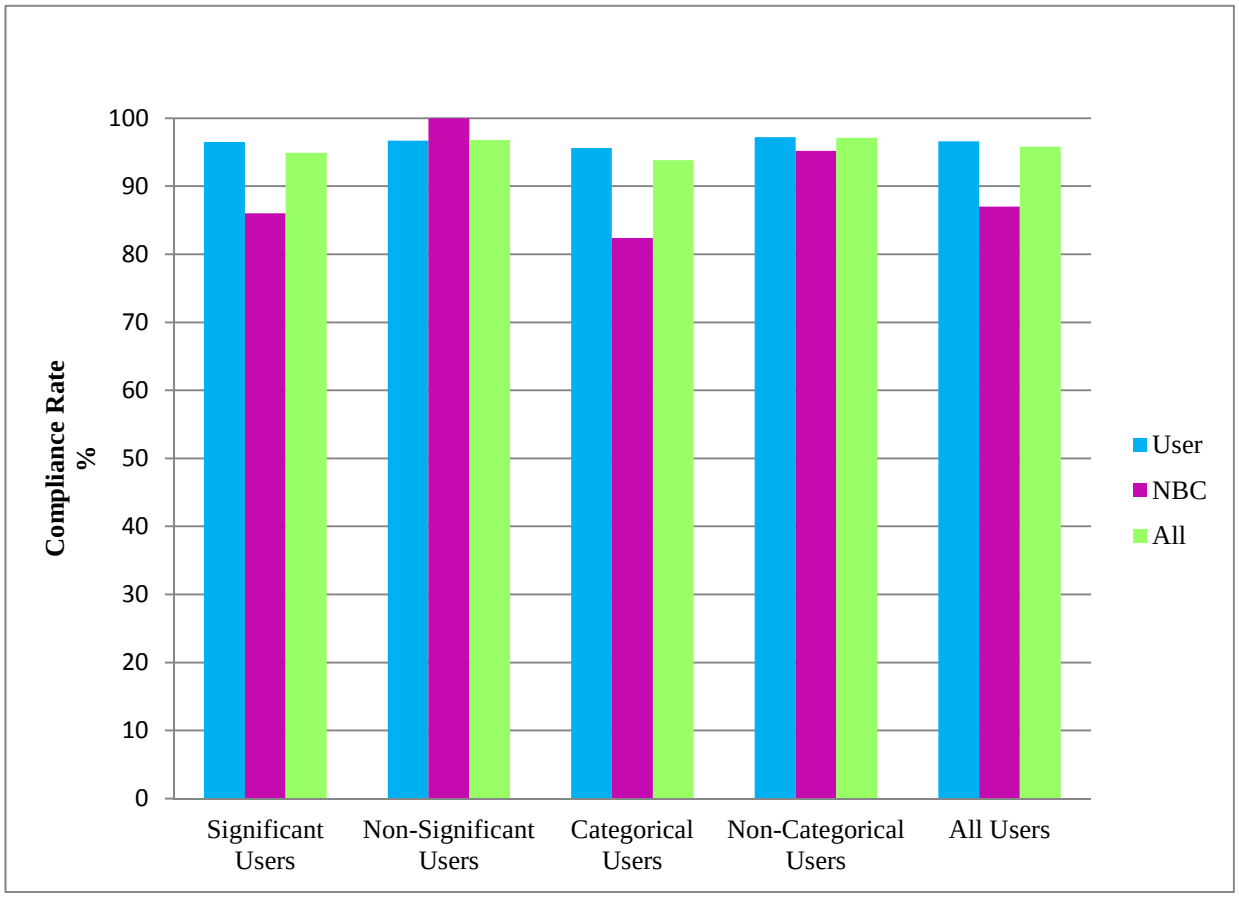


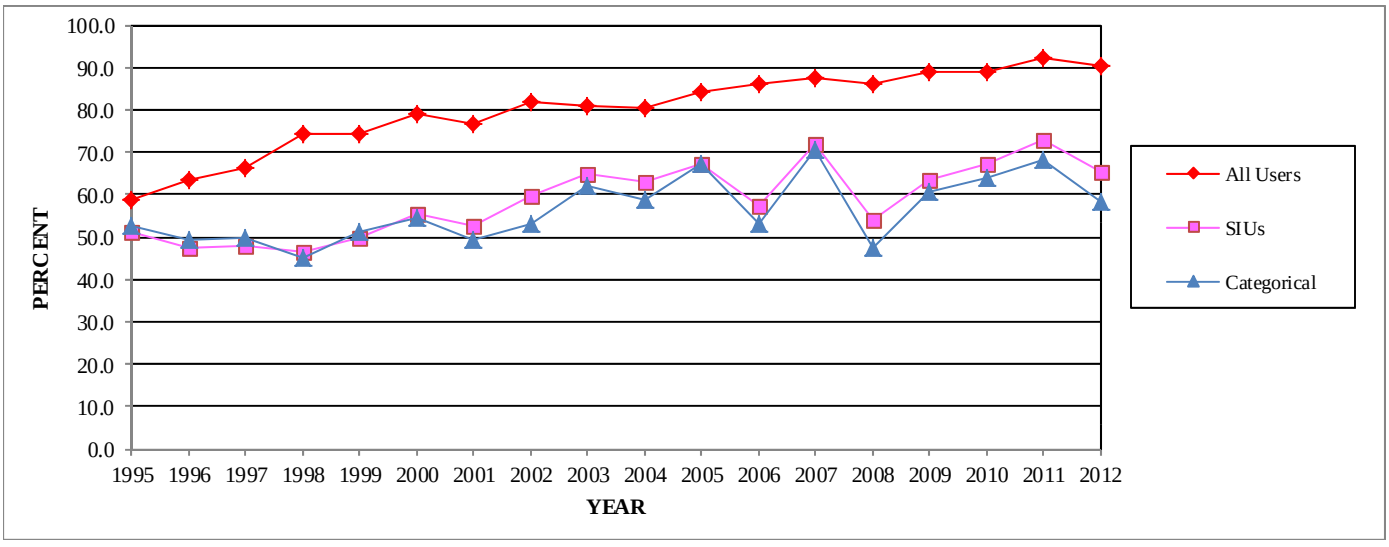
TABLE 15 provides a comparison of the compliance rates for different classes of users located in the Field's Point and Bucklin Point Districts. The compliance rates for each class of users in both districts were similar. The overall rate of compliance for Field's Point users was 96.5%, while it was 94.2% in the Bucklin Point District.

The Field's Point categorical users were in full compliance for 96.2% of the sampling events at their facilities in 2012. This compliance rate increased from 95.0% in 2011. SIUs in the Field's Point district had a rate of compliance of 96.8%, higher than the 92.8% SIU compliance rate observed in the Bucklin Point district.

As can be seen from TABLE 15, non-categorical users in Field's Point had the highest rate of compliance, 97.4%, while the catergorical user located in the Bucklin Point district had the highest rates of non-compliance, 9.2%. The rate of user compliance for all users in both districts slightly decreased to 95.8% in 2012 when compared to 2012, at 96.2%.

TABLE 16 provides an analysis of the percentage of firms in each user class with perfect compliance records for effluent monitoring occurring during 2012. This analysis indicates that 58.1% of categorical users and 65.2% of significant users had perfect compliance records for all effluent parameters and sampling events. Non-significant users had the highest percentage of firms with perfect compliance records, 95.1%. During 2012, of the 561 firms that sampled their wastestream, 506 firms or 90.2% 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 90.2% in 2012.

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 15
Narragansett Bay Commission

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

January 1, 2012 - December 31, 2012

	Field's Point District	Bucklin Point District	Both Districts
Significant Users			
Compliance Rate	**96.8%**	**92.8%**	**94.9%**
Non-Compliance Rate	**3.2%**	**7.2%**	**5.1%**
Non-Significant Users			
Compliance Rate	**97.1%**	**96.2%**	**96.8%**
Non-Compliance Rate	**2.9%**	**3.8%**	**3.2%**
Categorical Users			
Compliance Rate	**96.2%**	**90.8%**	**93.8%**
Non-Compliance Rate	**3.8%**	**9.2%**	**6.2%**
Non-Categorical Users			
Compliance Rate	**97.4%**	**96.6%**	**97.1%**
Non-Compliance Rate	**2.6%**	**3.4%**	**2.9%**
All Users			
Compliance Rate	**96.9%**	**94.2%**	**95.8%**
Non-Compliance Rate	**3.1%**	**5.8%**	**4.2%**

TABLE 16

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, 2012 - December 31, 2012

	% Firms Without Effluent Violations*	% Firms With Effluent Violations
Categorical Users	**58.1%**	**41.9%**
Non-Categorical Users	**94.2%**	**5.8%**
Significant Users	**65.3%**	**34.7%**
Non-Significant Users	**95.1%**	**4.9%**
All Users	**90.2%**	**9.8%**

***Excludes pH Parameter Violations.**

Of the 2,826 analytical reports reviewed during 2012, there were 118 reports that indicated non-compliance with one or more of the NBC or EPA effluent parameters (excluding pH). Of these 118 non-compliant sample reports, 74 analyses were of samples collected from 32 significant industrial user facilities and 44 non-compliant samples were collected from 23 non-significant facilities.

Eight of the 32 SIUs that had effluent violations during 2012 had five or more effluent parameter violations during the report period. In fact, of the 6,492 various pollutant parameters tested for by SIUs, these eight firms were responsible for 70 parameter violations out of a total of 95 parameter violations reported by all significant users during 2012. These five firms accounted for 73.7% 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 eight firms and the current status of each of these users is provided in TABLE 17.

TABLE 17

Narragansett Bay Commission

Status of Significant Users With 5 or More Parameter Violations

January 1, 2012 - December 31, 2012

Company Name	Number of Parameter Violations	User Status
Bliss Manufacturing Co., Inc.	6	This Bucklin Point metal finishing firm experienced two copper, two cyanide and two silver violations. One copper, one cyanide and one silver violations were from a NBC sampling event. The firm attributed the violations to a cyanide chemical cleaning solution that was becoming to concentrated. The firm altered the concentration and discharges the spent solution more frequently. The firm has completed resampling and is currently in compliance with effluent discharge limitations.
C&C Rhode Island, LLC	6	This Field's Point metal finishing firm experienced three copper violations and three nickel violations. Four of the six violations occurred during NBC sampling events. All of the violations are attributed to inadequate treatment as the firm was in the process of permanently closing the facility. The firm has completed resampling and was in compliance with effluent discharge limitations prior to ceasing all process wastewater discharges in January 2012.

Denison Pharmaceuticals, Inc.	13	This Bucklin Point pharmaceutical firm experienced six zinc, five Total Toxic Organics (TTO) and two acetone violations. Two zinc, two TTO and two acetone violations were from NBC sampling events. The firm relocated to this facility in late March 2012. These violations occurred during the start up of the relocated facility. The firm attributed the violations to improper treatment procedures due to start up. The firm has completed resampling and is now in compliance with effluent discharge limitations.
Evans Plating Corporation	6	This Field's Point metal finishing firm experienced two cadmium, two cyanide, one nickel and one silver violation. All violations were from NBC sampling events. The firm conducted an investigation and determined the violations were due to poor treatment. The firm has completed resampling and is currently in compliance with effluent discharge limitations.
General Plating Company	11	This Field's Point metal finishing firm experienced five copper and six cyanide violations. Five copper and five cyanide violations were from NBC sampling events. The firm attributed this violation to a leaking copper cyanide tank. The firm repaired the tank. The firm has completed resampling and is currently in compliance with effluent discharge limitations.
Ideal Plating & Polishing Co. Inc.	6	This Field's Point metal finishing firm experienced four cyanide and two copper violations. One cyanide and two copper violations were from NBC sampling events. The firm attributed the violations to poor rinsing techniques and installed additional spray rinses. The remaining three cyanide violations were from user resampling events. The firm has completed re-sampling and is currently in compliance with effluent discharge limitations.

Monarch Metal Finishing, Inc.	16	This Field's Point metal finishing firm experienced one copper violation, seven nickel violations, and eight cyanide violations. One of the sixteen violations occurred during a NBC sampling event. The firm attributed the seven nickel violations to poor rinsing techniques. The firm retrained employees on proper rinsing techniques. The firm attributed the copper violation and six cyanide violations to inadequate treatment. The firm has completed resampling and is currently in compliance with effluent discharge limitations.
Precision Dermatology	6	This Bucklin Point pharmaceutical manufacturing firm experienced one TTO violation, one acetone violation, and four total oil and grease violations. Three of the six violations occurred during NBC sampling events. The firm attributed the total oil and grease violations to the cleaning of equipment used to manufacture products with high oil content. The firm attributed the TTO and acetone violations to inadequate cleaning of equipment and waste removal. The firm has retrained employees on proper cleaning techniques and waste removal procedures. The firm has completed re-sampling and is currently in compliance with effluent discharge limitations.

2012 Industrial User Compliance Status Summary

During 2012, 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 1,919 Notice of Violation letters were issued in 2012. A table detailing each type of Notice of Violation letter 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 2012, 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 for toxic or nuisance pollutants. 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 and EMDA schedule additional surveillance manhole monitoring events. Manhole monitoring results continue to indicate declines in the quantities of toxics discharged into the sewer system.

During 2012, the NBC conducted a total of 308 industrial manhole sampling events at manholes located throughout the two districts. In addition to collecting industrial manhole samples, 48 sampling events were conducted at residential manholes, four sampling events conducted at a pump station for an investigation, and four sampling events were conducted related to sewer line cleaning operation. A total of 364 samples were collected from manholes in 2012. This is a slight decrease from the 380 manhole samples collected in 2011. In addition to the 364 monitoring events, 14 additional manholes were attempted to be monitored in both Field's Point and Bucklin Point Districs.. However, due to flow conditions or mechanical problems, effluent could not be collected by the automatic samplers at these sites.

The SIU and manhole compliance rates for each district have been compared for the time period from 2002 through 2012. As can been in FIGURES 12 and 13 Although the compliance rates track well, the manhole compliance rate in both district is lower than the SIU compliance rate. This comparison demonstrates the importance of surveillance manhole monitoring. Since companies are unaware of the sampling being conducted up and down stream of their facilities, they are unable to adjust process operations to achieve results in compliance.

FIGURE 12
Field's Point SIU vs Manhole Compliance Rates 2002 - 2012

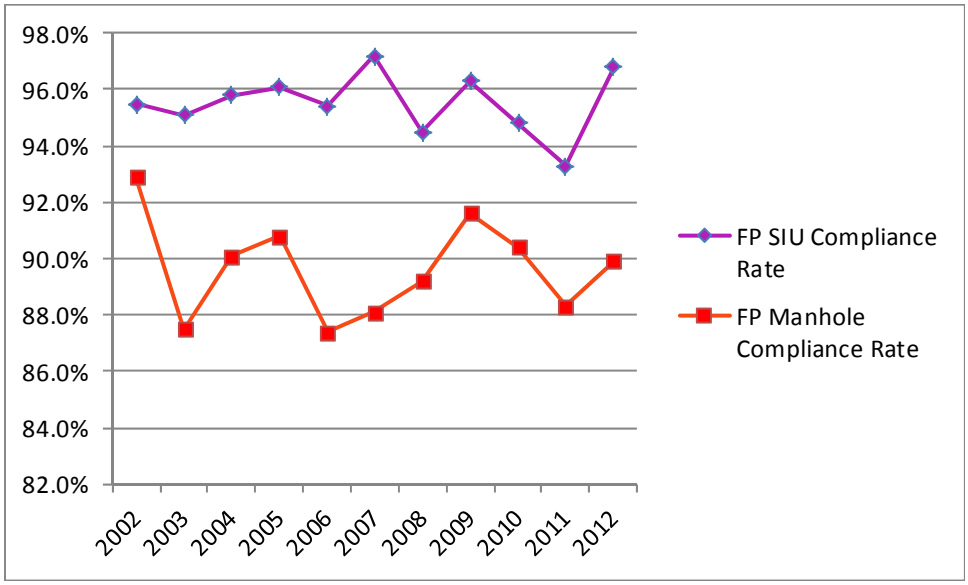
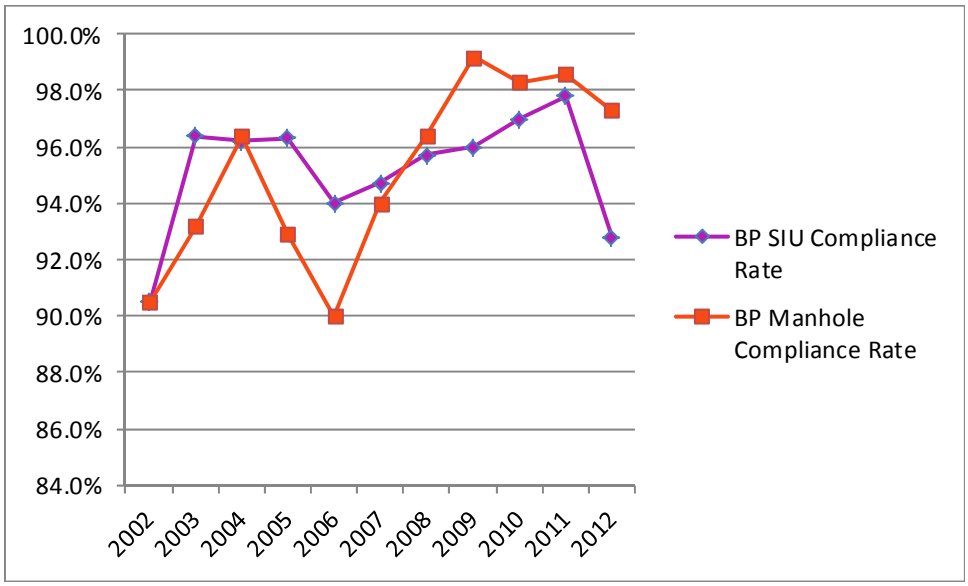


FIGURE 13
Bucklin Point SIU vs Manhole Compliance Rates 2002 - 2012



EMDA staff conducted 151 monitoring events at industrial surveillance manholes located in the Bucklin Point district. The compliance rate for industrial manhole samples for the Bucklin Point district was 97.4%. EMDA staff conducted 157 monitoring events from industrial surveillance manholes located in the Field's Point district. The rate of compliance for industrial samples in the Field's Point district was 90.4%. 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 2012 are provided in ATTACHMENT VOLUME II, SECTION 7.

INDUSTRIAL SURVEILLANCE MANHOLE VIOLATIONS

FIELD'S POINT DISTRICT

Industrial Surveillance Manhole 09B

Industrial Surveillance Manhole 09B is located on Georgia Avenue in Providence, upstream of Technodic, Inc. On January 26, 2012 and March 1, 2012 the concentrations of copper and zinc in Industrial Surveillance Manhole 09B were in excess of the NBC discharge limitation 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. The manhole was inspected and little to no flow was observed. In addition, there was a large amount of grit observed in the line. Based upon these observations, the high concentration of copper and zinc were determined to be from grit in the line contaminating the samples. Subsequent sampling of this manhole on April 12, 2012 and December 13, 2012 showed compliance with all NBC discharge limitations. Continued industrial manhole monitoring will be conducted by NBC personnel in 2013 to monitor the compliance status of this manhole.

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 April 12, 2012 the concentration of zinc in this manhole was in excess of the NBC discharge limitation of 2.61 ppm. The company was inspected and the process operations and pretreatment system appeared to be functioning properly. On December 13, 2012 the concentration of cyanide was in excess of the NBC discharge limitation of 0.58 ppm. The company was issued a Notice of Violation in early 2013 requiring it to review its operations and submit a report with its findings. Throughout 2012, Monarch Metal Finishing was experiencing compliance problems with meeting zinc, copper and cyanide discharge limitations. The company attributed these violations to poor rinsing techniques and inadequate treatment. Continued industrial manhole monitoring will be conducted by NBC personnel in 2013 to monitor the compliance status of this company.

Industrial Surveillance Manhole 20A

Industrial Surveillance Manhole 20A is located on Seymour Street in Providence downstream of R.E. Sturdy Company, Inc., which conducts metal finishing operations. On August 23, 2012 the concentration of copper in this manhole was in excess of the NBC discharge limitation of 1.2 ppm. In addition, the analytical results from a NBC monitoring event conducted of the company's effluent on September 5, 2012 were out of compliance for copper. The firm was issued a Notice of Violation which required the submittal of a report detailing the cause of high concentration of copper. The firm attributed the high concentration of copper to improper rinsing after the copper plating operation. The firm installed additional dragouts to limit the concentration in the final rinse. The company was inspected twice more in 2012 after the non-compliant manhole result. It was verified the additional tanks had been installed. The company performed the required resampling for copper and has come back into compliance. Continued industrial manhole monitoring will be conducted by NBC personnel in 2013 to monitor the compliance status of this company.

Industrial Surveillance Manhole 43A

Industrial Surveillance Manhole 43A is located on Dupont Drive in Providence downstream of Bella's Jewelry which conducts zero discharge mass finishing and cleaning operations. On May 10, 2012 the concentrations of copper, silver, and zinc in Industrial Surveillance Manhole 43A was in excess of the NBC discharge limitations of 1.20 ppm, 0.43 ppm, and 2.61 ppm respectively. Companies in the area, including Bella's Jewelry, were inspected to determine the potential source. At the time of the inspections the companies were operating properly and nothing unusual was noted. Continued industrial manhole monitoring will be conducted by NBC personnel in 2013 to monitor the compliance status of this area.

Industrial Surveillance Manholes 94A & 94B

Industrial Surveillance Manholes 94A and 94B are located on Silver Spring Street in Providence downstream and upstream respectively of JRB Associates, Inc., which conducts metal finishing operations. On October 18, 2012 the concentrations of copper and cyanide in Industrial Surveillance Manhole 94A were in excess of the NBC discharge limitation of 1.20 ppm and 0.58 respectively. The firm was issued a Notice of Violation which required a report detailing the cause of the high copper and cyanide concentrations to be submitted. The firm attributed the violations to poor rinsing and dragout techniques in the plating operations, and indicated that employees would be retrained. The company was inspected after the non-compliant manhole result to ensure the company was operating properly. Subsequent self monitoring and NBC sampling demonstrated compliance with all NBC discharge limitations. Continued industrial manhole monitoring will be conducted by NBC personnel in 2013 to monitor the compliance status of this company.

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 February 9, 2012, March 29, 2012, and September 6, 2012 the concentration of nickel in manhole 111A was in excess of the NBC discharge limitation of 1.62 ppm. In addition on September 6, 2012 the concentration of copper in Industrial Surveillance Manhole 111A was in excess of the NBC discharge limitation of 1.20 ppm. The firm was issued Notices of Violation for each incident which required reports detailing the cause of the high copper and nickel concentrations to be submitted. The firm attributed the violations to not regenerating its ion exchange columns frequently enough and the columns becoming packed down causing solution to channel through the resin. Poor rinsing techniques were also cited as a source of the high concentration of copper. The firm increased the frequency of regenerating the ion exchange columns and retrained its employees. Continued industrial manhole monitoring will be conducted by NBC personnel in 2013 to monitor the compliance status of this company.

Industrial Surveillance Manholes 181A & 181B

Industrial Surveillance Manholes 181A and 181B are located on Carolina Avenue in Providence downstream and upstream of International Insignia Corporation, which conducts metal finishing operations. On April 26, 2012 and November 1, 2012 the concentration of copper in Industrial Surveillance Manhole 181A was in excess of the NBC discharge limitation of 1.20 ppm. The firm was issued Notices of Violation which required reports detailing the cause of the high copper concentration to be submitted. The firm attributed the April 26, 2012 violation to its copper dragouts and was investigating the installation of additional treatment. The firm attributed the November 1, 2012 violation to its bright dipping operation and retrained employees in proper bright dipping procedures. Continued industrial manhole monitoring will be conducted by NBC personnel in 2013 to monitor the compliance status of this company.

Manhole L130107

Manhole L130107 near Eagle Square in Providence. Historically, this was a heavy industrial area. Strong solvent odors were observed when the sewer lines in the area were being cleaned as part of maintenance activities. Samples were obtained from the grit in these manholes and the concentration of total toxic organics was in excess of the NBC discharge limitation of 2.13 ppm in both the solid and liquid phases. These pollutants had accumulated in the grit over many years prior to the implementation of the pretreatment regulations. The solvent odors were released into the wastewater and air when the grit was disturbed during the cleaning operation. The grit was removed from the sewer line and properly disposed.

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, which conducts metal finishing operations. On May 24, 2012 the concentrations of silver and cyanide in Industrial Surveillance Manhole 41B were in excess of the NBC discharge limitations of 0.40 ppm and 0.50 respectively. The firm was issued a Notice of Violation which required the submittal of report detailing the cause of the high silver and cyanide concentrations. The firm indicated it would lower the concentration of its cyanide solutions. The company was inspected several times after the non-compliant manhole result to ensure the company maintained compliance with all NBC requirements. Continued industrial manhole monitoring will be conducted by NBC personnel in 2013 to monitor the compliance status of this company.

Industrial Surveillance Manhole 97B

Industrial Surveillance Manhole 97B is located on George Washington Highway in Lincoln downstream of A.T. Cross Company which conducts silk screening and mass finishing operations. On March 8, 2012 the concentration of cyanide in Industrial Surveillance Manhole 97B was in excess of the NBC discharge limitations of 0.50 ppm. A.T. Cross does not conduct operations that use cyanide. An inspection of this company verified this. Therefore, companies which included metal finishing and textile firms, upstream of the manhole were inspected to determine the potential source. At the time of the inspections nothing unusual was noted. This manhole was resampled on April 19, 2012. The analytical results showed all parameters were in compliance will all NBC discharge limitations. Continued industrial manhole monitoring will be conducted by NBC personnel in 2013 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 2012, Pretreatment staff investigated all incidents of non-compliant manhole results. Notice of Violation letters were issued to companies discharging to the manhole and the companies were inspected. This aggressive manhole monitoring program is 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 manhole monitoring program will continue in 2013.

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 2012 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 staff, low-level trace analysis by the Laboratory Section, effective regulation of industry by Pretreatment, technical assistance provided to industry by ESTA, and effective treatment performed by Operations staff 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 of 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 wastewater streams 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 2012, 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 both interceptors, 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 Section conducted a study during 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 limit 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 cannot achieve a seasonal total nitrogen limit of 5.0 ppm and would require an additional upgrade. Major facility upgrades and renovations are necessary to implement BNR technology. Construction at both facilities is underway to upgrade the plants to meet a 5.0 ppm total nitrogen discharge limit and is expected to be completed in 2014 at Bucklin Point and in 2013 at Field’s Point.

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 2012:

- 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 2012, 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 a study to monitor the effluent for enterococcus bacteria. This study began in May 2010 and continued throughout 2012. 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.

Bucklin Point Special Sampling Activities

The following activities summarize special sampling activities conducted at Bucklin Point during 2012:

- 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 Lincoln 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 checks of the influent for pH. The influent grab sample was collected at the Grit and Screening Building, in the channel just 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 staff. 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 2012, 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 a study to monitor the effluent for enterococcus bacteria. This study began in June 2010 and continued throughout 2012. 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

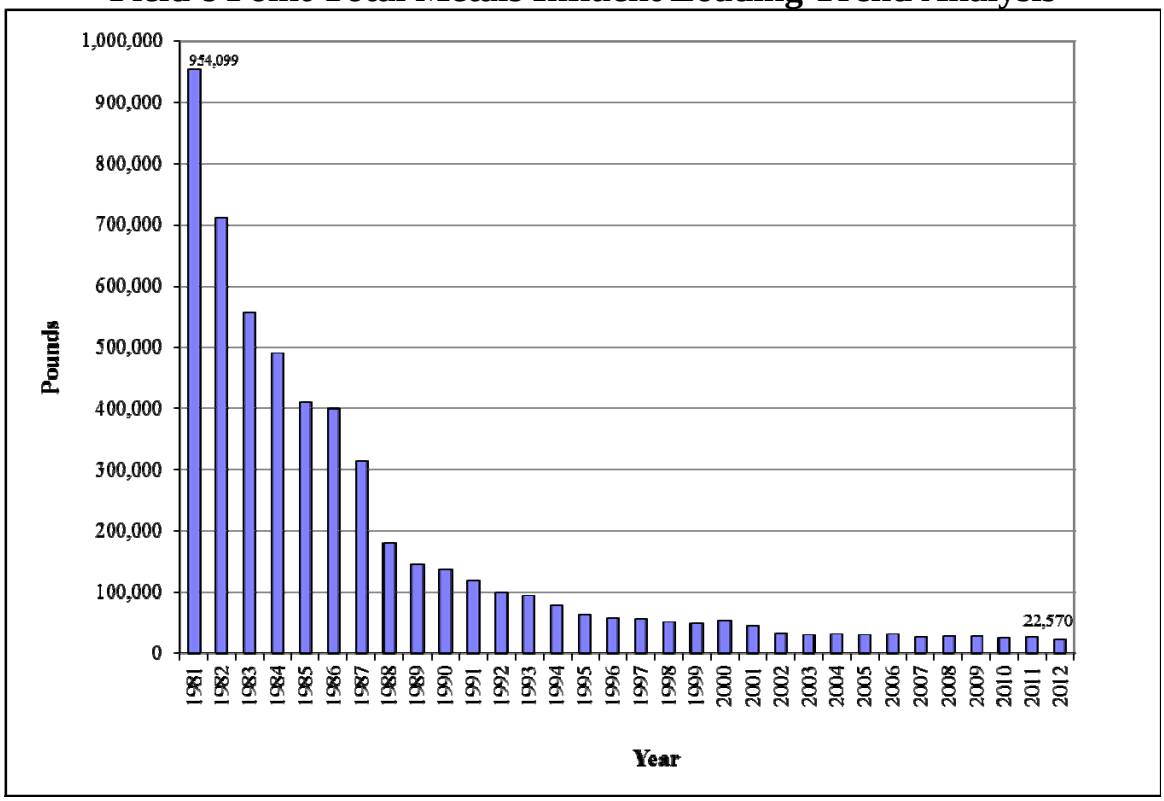
Comparing recent and historical influent loading data is a useful for evaluating the success of the Pretreatment Program in controlling the quality of industrial wastewater discharged to the collection system. Analysis of toxic pollutant loadings to the two NBC wastewater treatment facilities has indicated 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 2012 decreased by 3,673.8 pounds from 2011.

Cyanide loading data for the same time period indicates a similar overall downward trend, as can be seen in FIGURE 15, with a dramatic 98.6% decrease in loadings between 1981 and 2012. Between 2011 and 2012 there was a 286.7 pound, or 20.2% decrease in cyanide influent loading into Field's Point. The influent cyanide loading in 2012 is actually the lowest loading documented since 1981. The success in reducing the metal and cyanide inputs to the treatment facilities is largely due to the efforts and success of the NBC Pretreatment and ESTA programs.

FIGURE 15
Field's Point Cyanide Influent Loading Trend Analysis

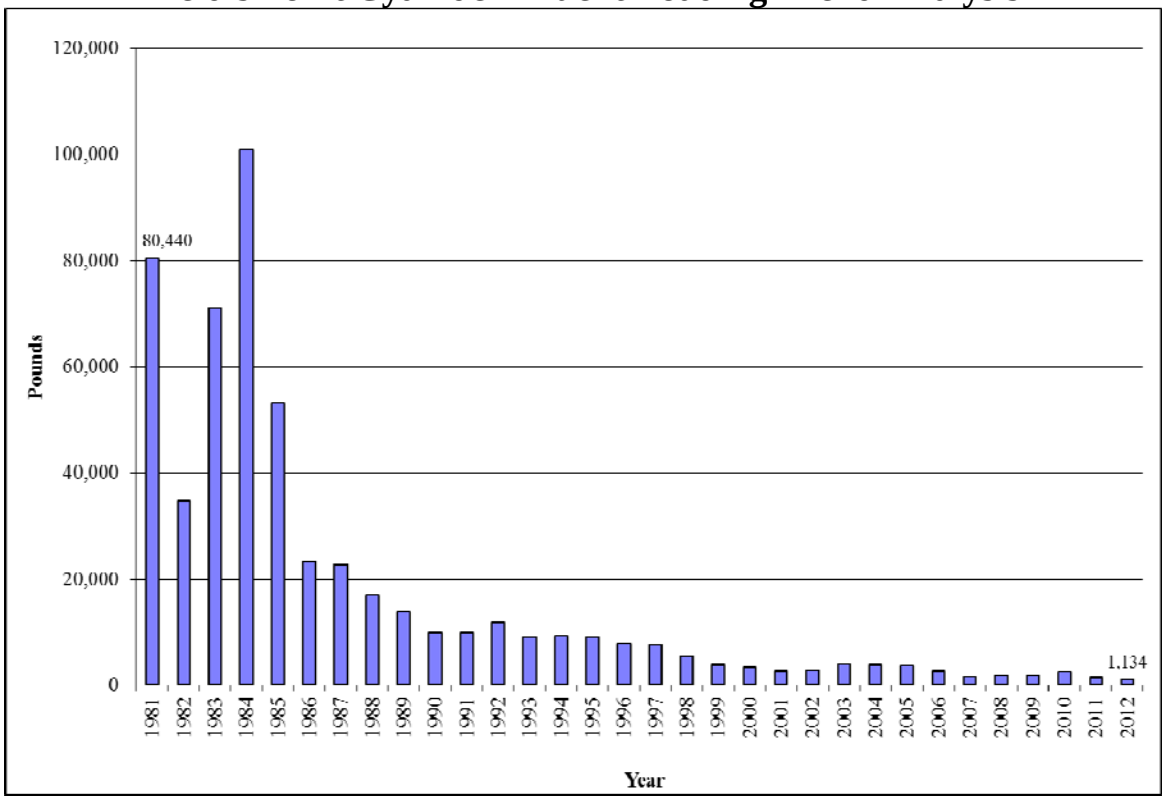


TABLE 18 provides a comparison of the 2011 and 2012 metals and cyanide loadings to Field's Point. Loading figures were calculated based on monthly averages of concentration and flow. As illustrated in TABLE 18, the annual influent loading for all metals showed decreases in 2012 compared to 2011. Overall there was a 14.0% decrease in total metals in 2012 over 2011. The most substantial decrease in 2012 was in nickel by 26.9%, or 1,033.3 pounds. Mercury had the smallest decrease and was very similar to loading in 2011, with a 0.07 pound decrease or 1.2%. Cyanide had a decrease of 20.2% from 2011, or 286.7 pounds. Overall, loading of metals remains low due to strict regulation by the Pretreatment Section and the educational efforts by the Pretreatment and ESTA Sections and the NBC proactive approach to pollution prevention. The decreases since 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**.** Total flow to Field's Point decreased by 17.6% in 2012 compared to 2011, with an average daily influent flow of 40.1 MGD in 2012. Even though there was a decrease in flow to the plant, there was a 143,645 gallon per day increase in industrial flow from SIUs.

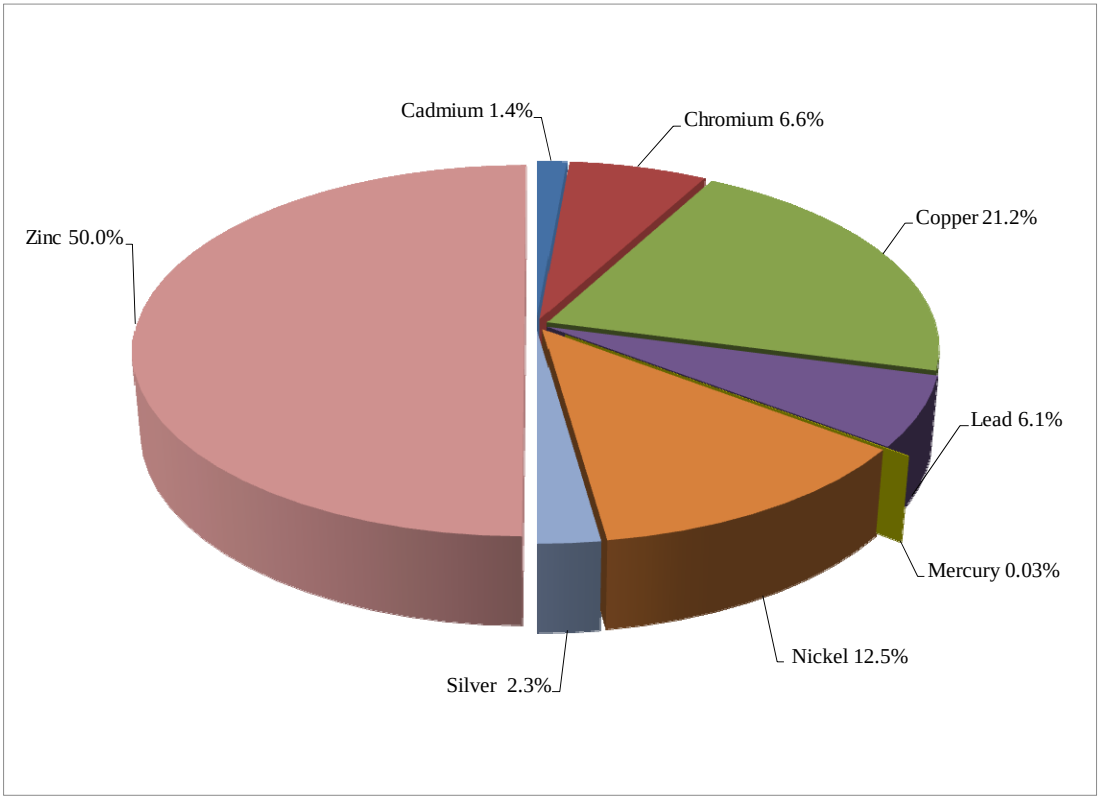
TABLE 18
Comparison of 2011-2012 Annual Loadings to Field's Point

Pollutant	2011 (Pounds)	2012 (Pounds)	Total Pound change	% Change
Total Cadmium	384.7	314.3	-70.4	-18.3%
Total Chromium	1,780.7	1,482.0	-298.7	-16.8%
Total Copper	5,544.5	4,780.0	-764.5	-13.8%
Total Lead	1,748.1	1,383.0	-365.1	-20.9%
Total Mercury	5.7	5.68	-0.07	-1.2%
Total Nickel	3,848.1	2,814.8	-1,033.3	-26.9%
Total Silver	595.1	508.6	-86.5	-14.5%
Total Zinc	12,337.2	11,281.9	-1,055.3	-8.6%
Total Metals	26,244.1	22,570.3	-3,673.8	-14.0%
Total Cyanide	1,420.6	1,133.9	-286.7	-20.2%

In 2012, the Field's Point facility provided secondary treatment to an additional 792 million gallons of flow that was captured in the CSO Tunnel, approximately 419 million gallons less than in 2011. 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 83.6% of the total metal loadings to Field's Point, roughly equivalent to the relative contribution observed during 2011. The loading of total zinc in 2012 was 11,281.9 pounds, or 50%, 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 4,780pounds or 21.2%, followed by nickel at 2,814.8 pounds or 12.5% The loadings levels of toxic pollutants to Field's Point in 2012 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 2012 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 9.27 ppm to 26.97 ppm during 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 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 2012 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 2012. These samples were collected as composite and grab samples. The analysis of 31 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 397 analytical results for influent samples obtained during 2012, 92.2% of all samples had non-detectable concentration levels of volatile organic compounds. This is a good improvement compared to the 2011 influent results, where 87.7% had non-detectable VOC concentration levels. For 2012 effluent VOC samples, only 3.5% of samples had detectable concentration levels. The low levels of VOCs observed demonstrates the effectiveness of Pretreatment and ESTA 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.

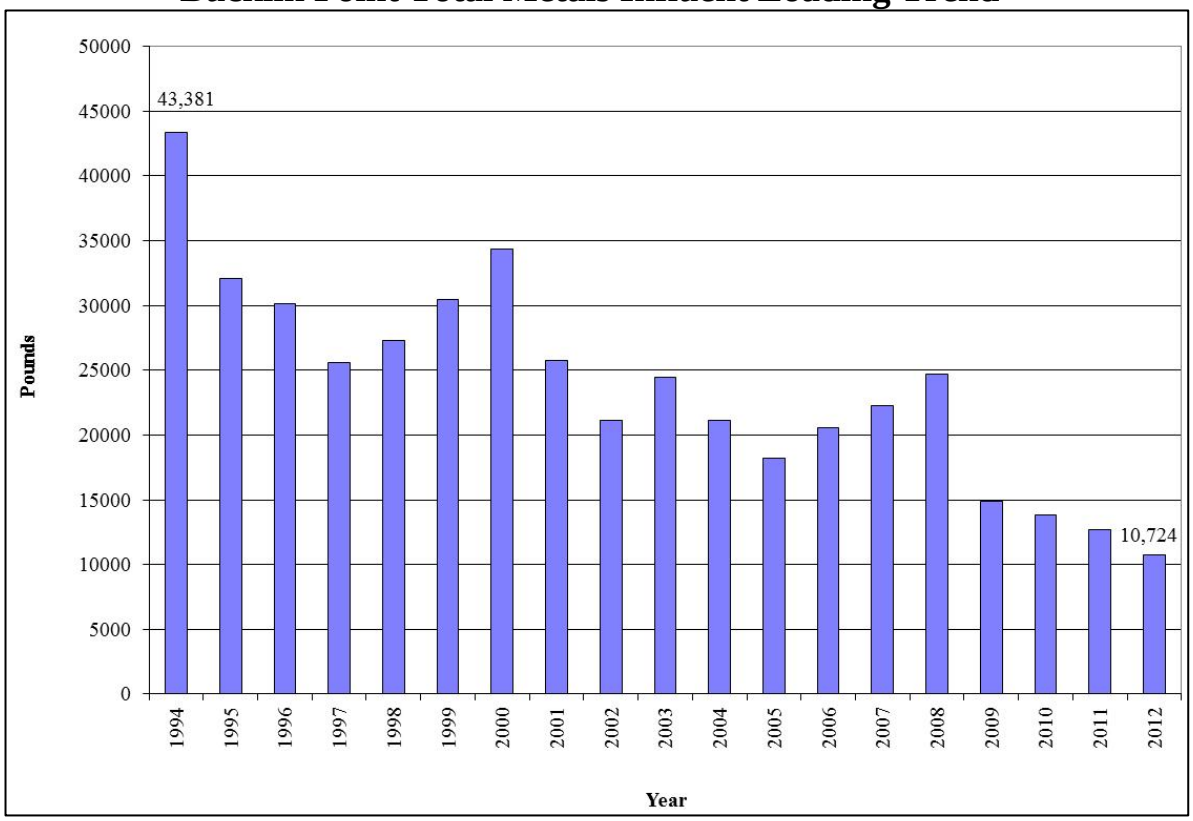
~pH Variability at Field's Point: Influent and Effluent

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 staff and immediately transferred to the lab for analysis. EMDA staff collected 732 influent pH samples during 2012. The pH range of the influent sample measurements was between 6.33 and 7.65 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 2012 and no negative effect on normal plant operation process controls was noted. Effluent grab samples are also collected twice daily, resulting in 793 samples collected. Over the year, the effluent pH ranged from 6.00 to 7.45 s.u. There were no effluent pH permit violations during 2012.

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. This increase was once again primarily due to an increase in chromium loading. Influent metals loading has since decreased, with a 15.5% decrease in 2012 as compared to 2011. 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. In 2012 there was a 31.1 pound or 10.8% increase from the 2011 level of 289 pounds and since 2008 the annual cyanide loading to Bucklin Point has slightly fluctuated around the 300 pound loading level. 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

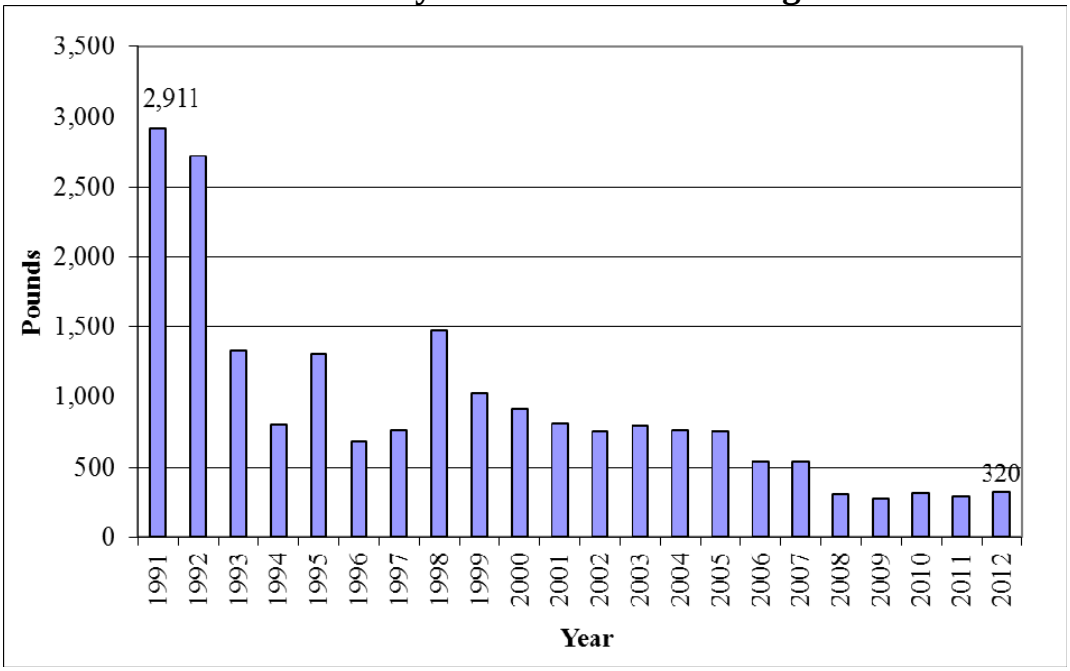


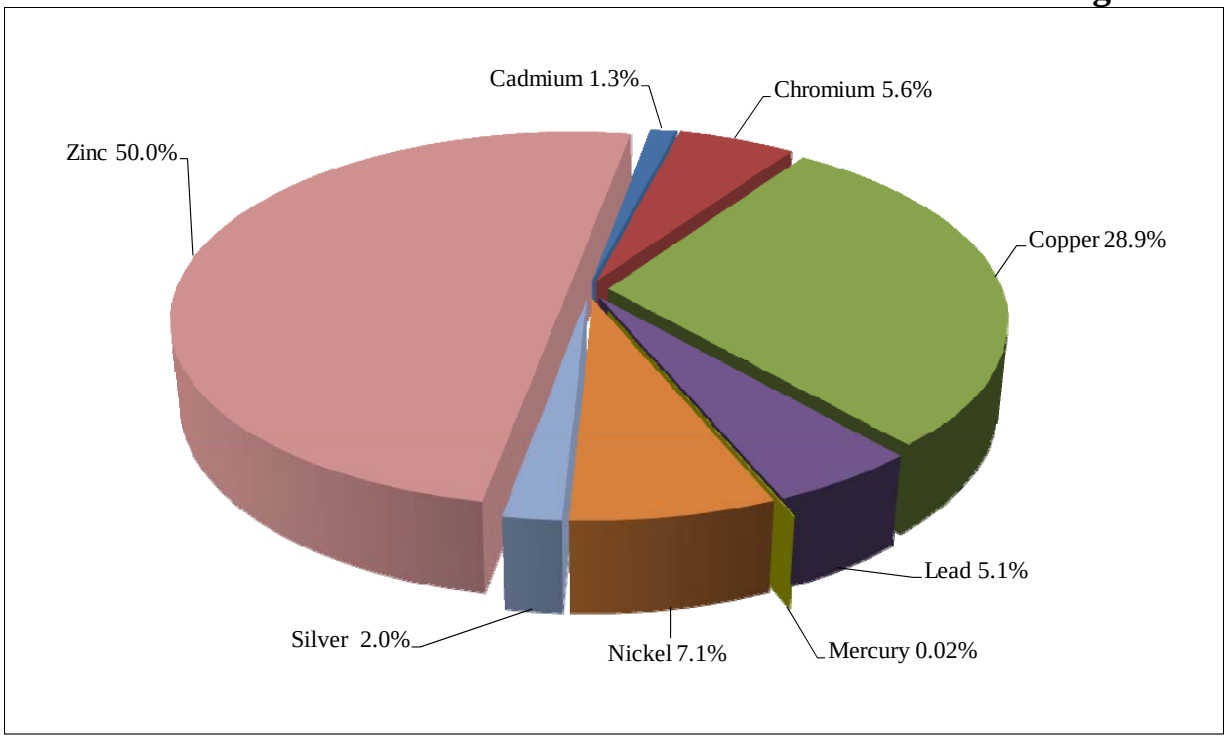
TABLE 19 shows the comparison of Bucklin Point metals and cyanide loadings for 2011 and 2012. In 2012, all influent metals showed a decrease as compared to 2011, though cyanide increased slightly, by 31.1 pounds or 10.8%. The single largest reduction on a pound basis was for zinc, reduced by 1,039.0 pounds, or 16.2%, in 2012. The metal that had the highest percent reduction was mercury with a 32.7% reduction in loading in 2012. The overall decrease in total loading in pounds to the Bucklin Point facility between 1994 and 2012 is 75.3% for total metals and 89.0% for cyanide between 1991 and 2012. Between 2011 and 2012 there was a 15.5% decrease in total metals into Bucklin Point.

TABLE 19
Comparison of 2011-2012 Annual Loadings to Bucklin Point

Pollutant	2011 Pounds	2012 Pounds	Total Pound Change	% Change
Total Cadmium	168.5	135.6	-32.9	-19.5%
Total Chromium	819.1	602.2	-216.9	-26.5%
Total Copper	3,408.5	3,096.0	-312.5	-9.17%
Total Lead	742.1	551.9	-190.2	-25.6%
Total Mercury	3.9	2.6	-1.28	-32.7%
Total Nickel	887.9	760.1	-127.8	-14.4%
Total Silver	269.9	218.0	-51.9	-19.2%
Total Zinc	6,396.4	5,357.4	-1,039.0	-16.2%
Total Metals	12,696.3	10,723.8	-1,972.5	-15.5%
Total Cyanide	288.5	319.6	31.1	10.8%

FIGURE 19 provides a breakdown of the relative contribution of various metals discharged to Bucklin Point while TABLE 19 provides a comparison of 2011-2012 annual loadings to the facility. Zinc and copper are the largest contributors to total metals loading to Bucklin Point accounting for 78.8% of the total percentage of metal inputs. The total number of pounds of zinc decreased by 1,039.0 pounds in 2012 and was 50.0% of the total metals loading to the facility. The contribution of copper also decreased by 312.5 pounds in 2012, accounting for 28.9% of the total metals loading to the facility. Chromium, nickel and lead account for another 17.9% of the total percentage of metal inputs.

FIGURE 19
Breakdown of Total Metals – Bucklin Point 2012 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 14.05 ppm to 43.37 ppm during 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 2012 oil and grease data is listed in ATTACHMENT VOLUME II SECTION 10.

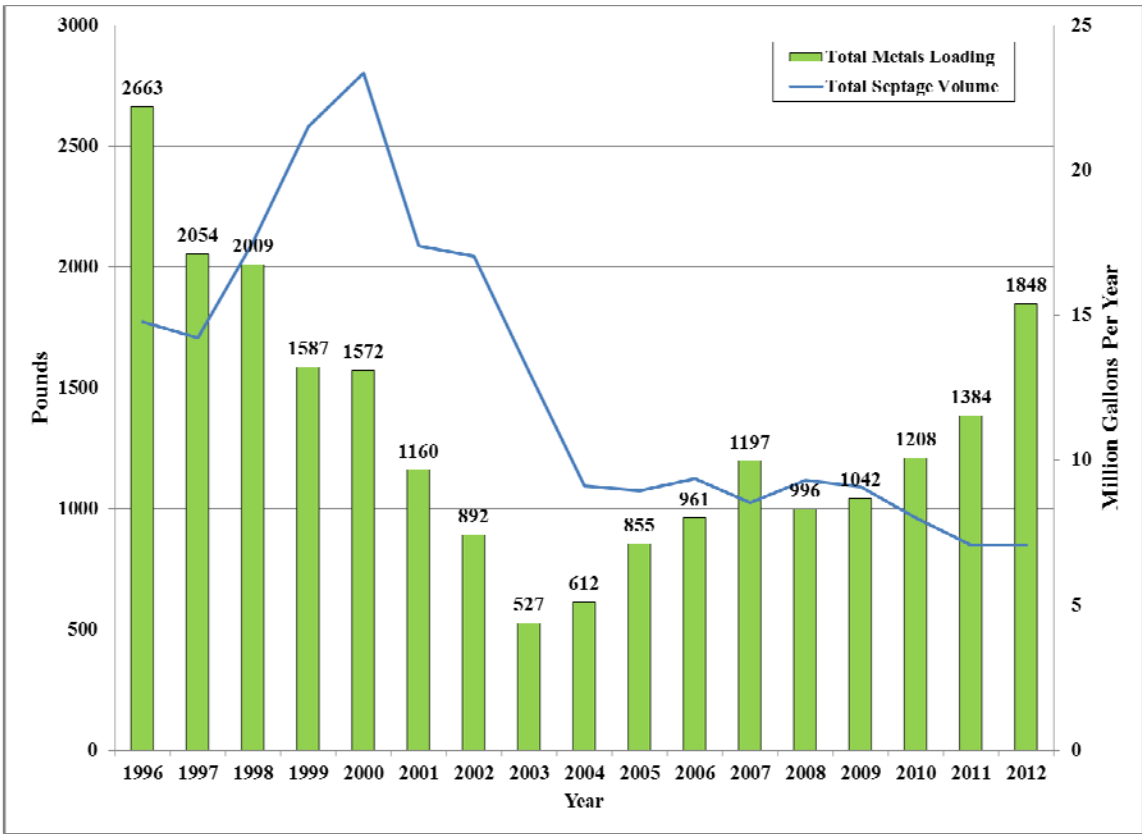
~Bucklin Point Influent and Effluent Organics

Volatile organic compounds (VOC) were monitored twelve times in the influent and twelve times in the effluent at the Bucklin Point facility in 2012. 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 396 analytical results for influent samples obtained during 2012, 94% of these were at non-detectable concentration levels. Of the 396 analytical results for effluent samples obtained in 2012, 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

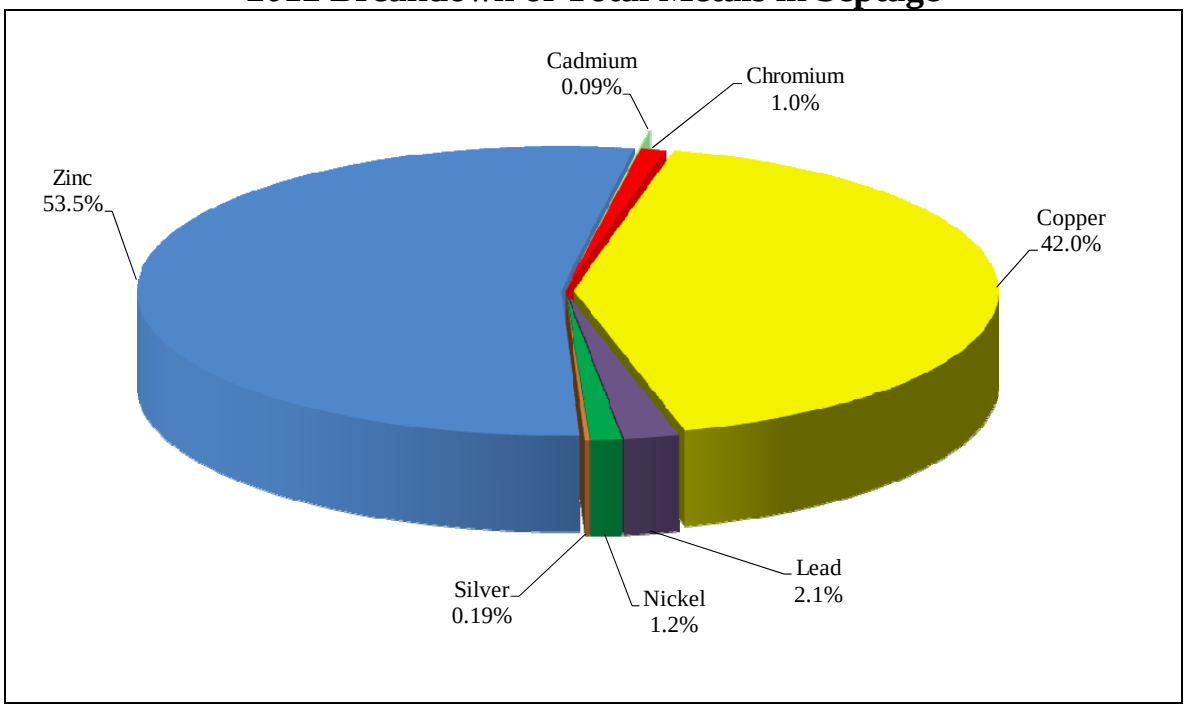
The NBC accepts residential quality septage only in the Bucklin Point district. Septage haulers discharge their loads at the Lincoln Septage Receiving Station, where solids are removed prior to the wastestream entering the collection system for final transport to the Bucklin Point plant for processing. 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 day's delivery 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 very slight increase for 2012 of 0.1% from the volume reported in 2011. Septage haulers discharged 7.07 million gallons in 2011, while the NBC received 7.08 million gallons in 2012. Overall, the volume reported in 2012 is approximately 52% lower than the volume discharged in 1996. From 2011 to 2012 there was a 34% increase in total metals from septage, or 464 pounds. FIGURE 20 provides a graphic detailing the change in septage flow and metals loadings from 1996 to 2012. 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 31%. Overall, 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 increased slightly in 2012, with 12.8% of total influent metals originating with septage versus 10.9% in 2011.

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 776 pounds and 989 pounds, respectively, in 2012. These two metals make up 95.4% of the total metals observed in the septage. Zinc loading from septage represented 18.5% of the total influent zinc loading to Bucklin Point during 2012. Copper from septage amounted to 25.1% of the total copper loading to Bucklin Point for 2012. FIGURE 21 illustrates the average relative composition of metals in the septage received at the NBC facility in 2012. The septage monitoring data generated during 2012 are provided in ATTACHMENT VOLUME II, SECTION 10.

FIGURE 21
2012 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 2012, EMDA staff collected 48 samples in residential sanitary and combined sewers. Samples were collected as 24-hour composites in wet and dry weather conditions.

TABLE 20 summarizes the results for the background, non-industrial sewer collections for 2012 and compares them to influent concentrations at the facilities. Industrial and commercial sources account for only 2.6% of total flow into Bucklin Point and 11.5% 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 20
Results from 2012 Background Metals and Cyanide Contribution Study (ppb)

	Cd	Cr	Cu	Pb	Hg	Ni	Ag	Zn	CN	As	Se	Sn	Mo
Background	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
FP Influent	2.57	12.04	39.28	11.34	0.05	23.03	4.15	92.80	9.15	1.34	3.59	-	4.57
% of Influent at FP	*	*	65.8%	*	74.7%	11.5%	*	108.4%	49.7%	40.8%	16.8%	-	17.7%
BP Influent	2.50	11.15	57.56	10.17	0.05	13.93	4.02	99.38	5.87	1.27	0.69	6.23	2.96
% of Influent at BP	*	*	44.9%	*	71.6%	19.0%	*	101.2%	*	43.2%	*	*	27.3%

*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, selenium and tin at Bucklin Point. These percentages are therefore not included in TABLE 20. From TABLE 20 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, and arsenic 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 21 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 21
Historical Background Metals and Cyanide Results 2002 -2012 (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

*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 22 provides a comparison of the calculated MAHL goals with the total metal influent loadings for 2012. 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 22
Comparison of 2012 Influent Loadings to
Maximum Allowable Headworks Loadings (MAHL)

	Field's Point			Bucklin Point		
Parameter	**Preliminarily Calculated Loading Goal lbs/yr**	**2012 Loading lbs/yr**	**Goal Met?**	**Preliminarily Calculated Loading Goal lbs/yr**	**2012 Loading lbs/yr**	**Goal Met?**
Cadmium	2,227	314.3	Yes	511	135.6	Yes
Chromium	37,303	1,482.0	Yes	10,439	602.2	Yes
Copper	16,900	4,780.0	Yes	4,015	3,096.0	Yes
Lead	8,541	1,383.0	Yes	2,738	551.9	Yes
Mercury	183	5.68	Yes	11	2.64	Yes
Nickel	21,134	2,814.8	Yes	1,314	760.1	Yes
Silver	3,942	508.6	Yes	402	218.0	Yes
Zinc	50,005	11,281.9	Yes	16,498	5,357.4	Yes
Total Metals	140,235	22,570.3	Yes	35,928	10,723.8	Yes
Cyanide	4,453	1,133.9	Yes	2,446	319.6	Yes

The annual loading goals presented in TABLE 22 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 a facility's function over longer time periods, meeting annual mean goals does not always translate to compliance with daily or monthly limits.

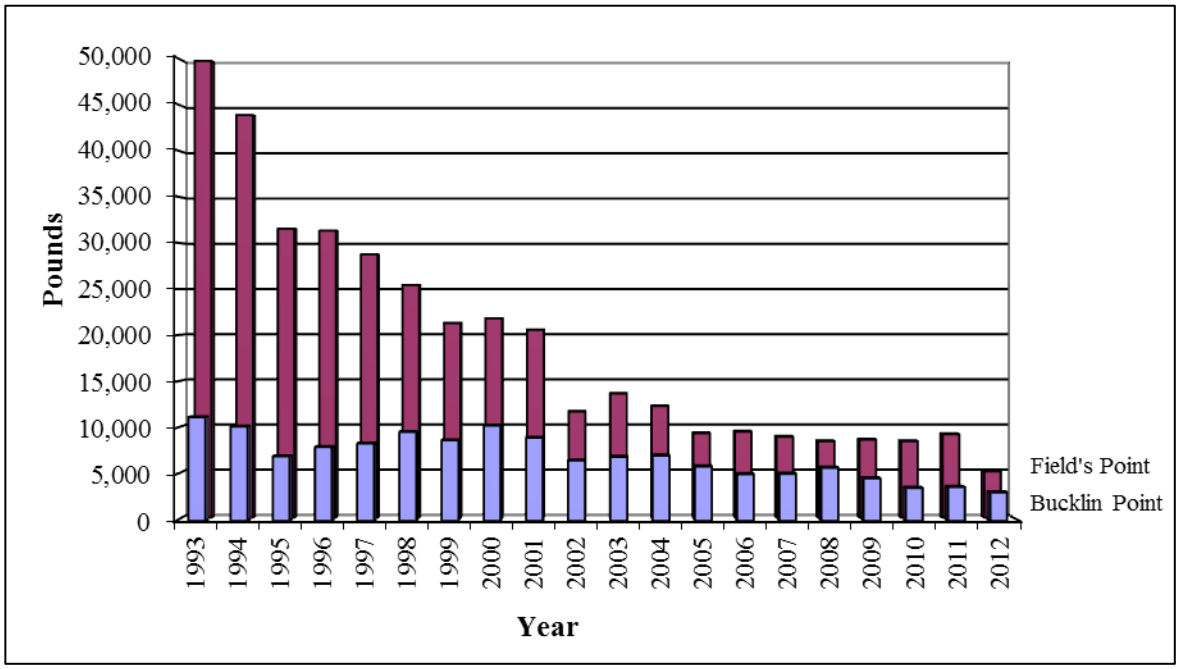
Analysis of Effluent Loading Data

This chapter attempts to quantitatively measure the efforts and results of the work of the Pretreatment and ESTA Programs 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 2012 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.

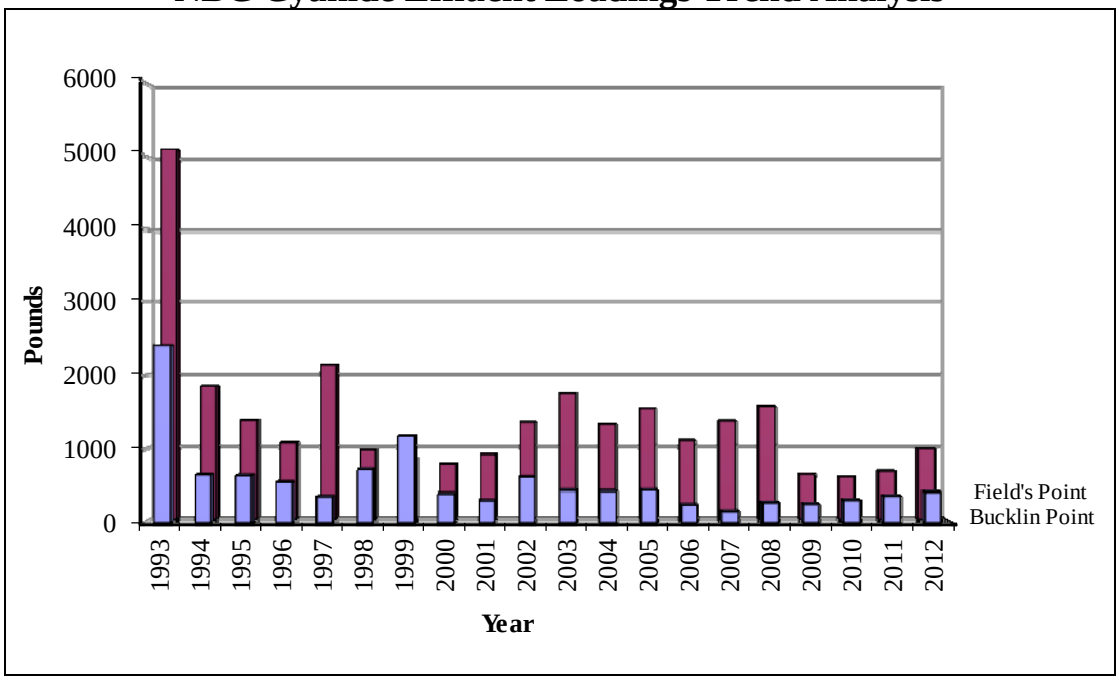
Historical total metals discharges from both NBC facilities are shown in FIGURE 22. The Field's Point facility handles approximately twice the flow volume of Bucklin Point. Total metals effluent loadings have been steadily decreasing at Field's Point from 1993 through 2012. In 2012, total metals in the Field's Point effluent decreased considerably by 44.5%, or 4,054.2 pounds compared to 2011 values, while Bucklin Point effluent showed a decrease of 15.8% or 575.3 pounds from 2011 effluent metals loading. The 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 70.2%. 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 into both plants increased by 14% at Bucklin Point and by 45.7% at Field's Point during 2012. 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; however this year as in past years, total cyanide has been reported in this chapter. Taking this into consideration, there would not have been an increase in cyanide loading at Field's Point as total cyanide at Field's Point amounted to 974.3 pounds in 2012 and the available cyanide amounted to nearly half this at 501.2 pounds. In July of 2012, the NBC also began reporting available cyanide at Bucklin Point instead of total cyanide in the Discharge Monitoring Report (DMR) submitted to DEM. Taking this into consideration the yearly effluent loading of cyanide at Bucklin Point would have been 386.2 pounds available cyanide versus the 421.2 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. 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 95.26% of the total metals effluent loading from Field's Point in 2012. 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 93.48% of total metals effluent loading for Bucklin Point in 2012. Nickel comprises a higher percentage of the effluent total metals at 37.6% versus only 12.5% of the influent at Field's Point. At Bucklin Point, nickel comprises 7.1% in the influent and 19.8% in the effluent. The reason for the increase in relative contribution of nickel in the effluent is due to its strong association with the effluent in the dissolved phase. 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 2012 Effluent Loading

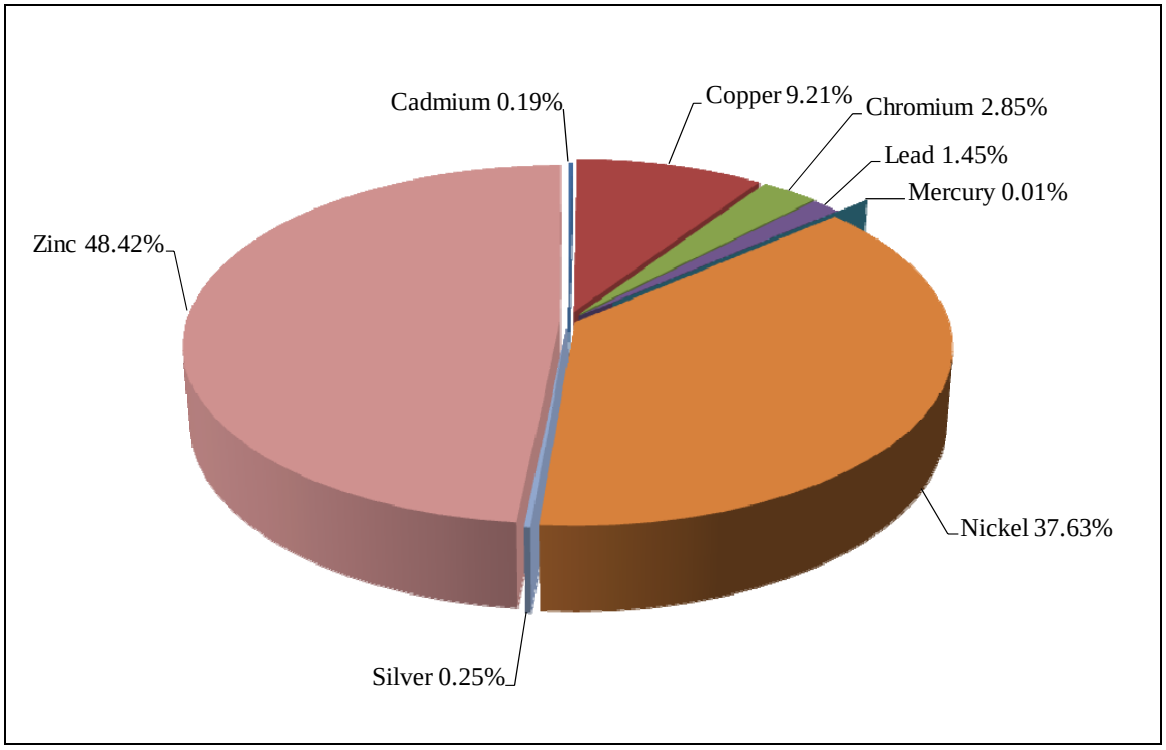
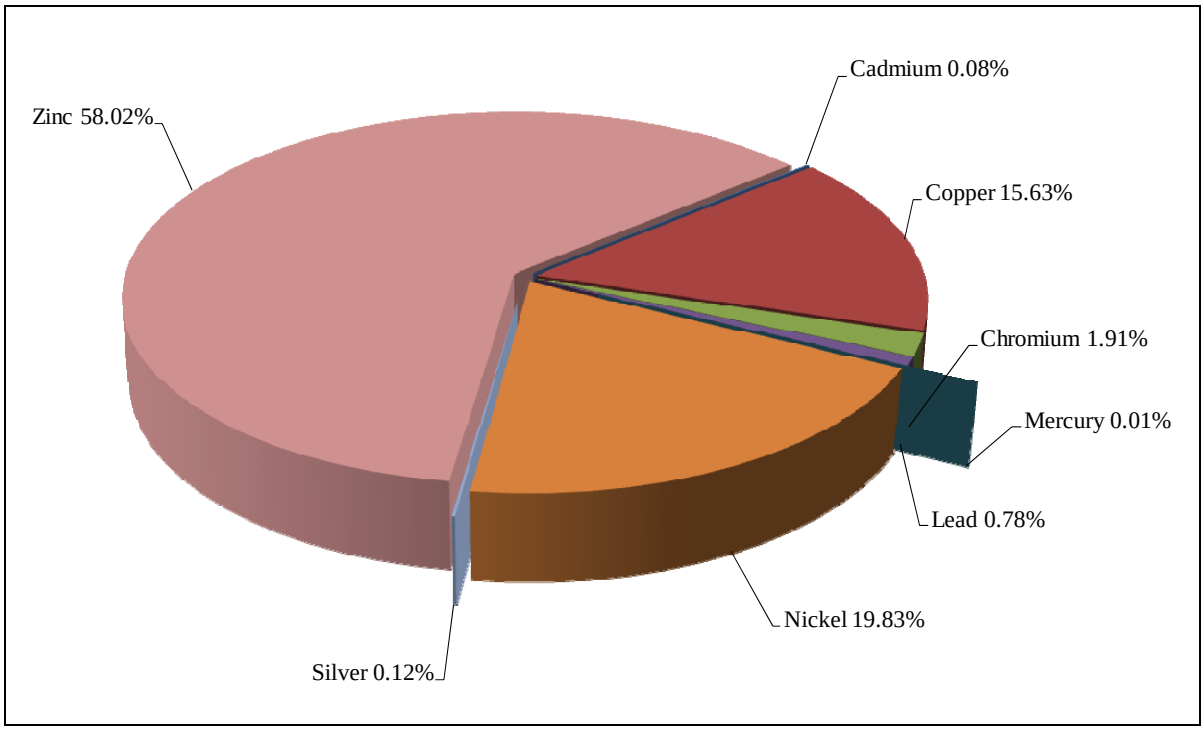


FIGURE 25
Breakdown of Total Metals – Bucklin Point 2012 Effluent Loading



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 2012 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 all quarters. This means that undiluted effluent showed no observable effect on the survival of *A. bahia* or *A. punctulata* in all four 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 2012 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 Discharge Monitoring Reports (DMR). 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.

The newly mandated calculation method can dramatically affect averages and loading especially when a large percentage of the results are below the detection limit. With these new guidelines, NBC evaluated the influent and effluent loading of toxic pollutants described in this report. For 2012, data was compared to the prior methods of using the value of the detection limit and it was shown that influent total metals loading from Bucklin Point decreased by 1,642.6 pounds, or by 15.3%. At Field's Point influent total metals decreased by 2,552.4 pounds, or 11.3%. The change in effluent metals loading using zeroes for at detection limit values was minimal at both plants.

~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. As mentioned previously, 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 23 lists the current permit's limits for metals and cyanide and the Consent Agreement values for the contested parameters. TABLE 23 also presents the measured maximum daily values and maximum monthly averages for the Field's Point facility for parameters of interest.

TABLE 23
Comparison of Field's Point RIPDES & Consent Agreement Limits With 2012Wastewater Treatment Facility Results

	RIPDES Permit Limits		**Consent Agreement Limits**		**2012 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	30.7	6.17
Mercury	8.5	0.4	-	-	0.0158	0.0038
Nickel	332	127	-	-	37.1	26.9
Silver	10	-	-	-	0.89	30.1
Zinc	380	380	-	-	33.6	30.1
Cyanide	4	4	49.6	20.0	13.04	1.3
BOD Percent Removal	-	$\geq$85%	-	-	-	>85% in all months
TSS Percent Removal	-	$\geq$85%	-	-	-	>85% in all months
Fecal Coliform	400 MPN/100	200 MPN/100	-	-	11 MPN/100 ml	3 MPN/100 ml
Americamysis bahia (LC_{50})	100% or greater	-	-	-	>100%	-
Arbacia punctulata (C-NOEC)	---%	-	-	-	92.9%	-

*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 24 details the compliance status of the Field's Point Facility with the limits established by the RIPDES permit and Consent Agreement in effect during 2012.

TABLE 24
2012 Compliance Status with RIPDES & Consent Agreement Limits For Field's Point Facility

Parameter	2012 Compliance with RIPDES Permit Limits?		2012 Compliance with Consent Agreement Limits?	
	Maximum Daily	Average Monthly	Maximum Daily	Average Monthly
Copper	No	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 24 shows that in 2012, 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 23. However, additional work will be necessary to ensure NBC compliance with toxic pollutant discharge limits specified in the RIPDES permit for cyanide. All 2012 cyanide results were reported as "available cyanide" and no results exceeded the consent agreement limits. In 2012, 98% 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 2012, as well as fecal coliform daily maximums and monthly averages. As for bioassays, Field's Point was in compliance for the acute LC_{50} throughout 2012.

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 25 outlines the current permit limits and monitoring requirements for Bucklin Point and the 2012 effluent results.

TABLE 25
Comparison of Bucklin Point RIPDES & Interim Effluent Limits with 2012 Wastewater Treatment Facility Results

	RIPDES Permit Limits		Consent Agreement Limits		2012 Results	
Parameter	Maximum Daily (ppb)	Average Monthly (ppb)	Maximum Daily (ppb)	Average Monthly (ppb)	Maximum Daily* (ppb)	Average Monthly** (ppb)
Hexavalent Chromium	997	60	-	-	22.32	11.33
Copper	5.2	5.2	86.1	29.8	22.99	16.12
Lead	199	10.3	-	-	1.48	0.575
Mercury	1.7	0.04	1.7	0.2	0.0525	0.0089
Nickel	67	13.7	67	53.3	238.7	52.23
Silver	-	2	4.5	-	0.883	0.10
Zinc	76	76	88	76	49.1	40.2
Cyanide	0.8	0.8	69.3	20	22.32	11.33
BOD Percent Removal	-	$\geq$85%	-	-	-	>85% in all months
TSS Percent Removal	-	$\geq$85%	-	-	-	>85% in all months
Fecal Coliform	400 MPN/100	200 MPN/100	-	-	2201.8 MPN/100 ml	10.8 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 26 indicates that the facility was unable to meet the originally issued Maximum Daily and Average Monthly permit limits for copper, nickel and cyanide. However, the facility was able to meet the limits detailed in the Consent Agreement for both copper and cyanide, but not nickel. Nickel exceeded the daily maximum permit limit once in June and twice in September. In June, the elevated effluent nickel concentrations were very unusual, given that influent concentrations were not elevated during the same time period. The NBC investigated the cause of the elevated effluent nickel concentrations, which included analyzing multiple additional samples for metals, evaluating all sampling protocols, evaluating Laboratory and sampling QA/QC and meeting with Operations staff to evaluate a potential in-plant nickel source. Operations staff were not aware of any process related changes that could have contributed nickel to the effluent. None of NBC's findings to date have conclusively identified the cause of the June exceedance. Similarly in September, the cause of the nickel exceedances was thoroughly investigated by the NBC. In response to the nickel exceedances the NBC Pretreatment section conducted comprehensive inspections of all industrial users with the potential to discharge nickel concentrations that could impact the plant. As another component of the investigation manhole samplers were installed at key drainage areas in the collection system on five separate occasions in an effort to identify the source of the nickel. None of the samples showed any significant nickel elevation. Toxic influent events did not cause any known upsets to process control at the Bucklin Point facility in 2012.

In July of 2012 the NBC began reporting cyanide results as "available cyanide" and no results exceeded the consent agreement limits. After July 2012, 98% of effluent cyanide samples were reported below the detection limit of 4 ppb.

There were two daily maximum fecal coliform exceedances in August 2012. The daily maximum for August 3, 2012 was 988.2 MPN/100 mL and for August 4, 2012 was 2,201.8 MPN/100 mL. These violations occurred while the UV disinfection system at Bucklin Point was producing an effective dose of well over twice the design value. The cause of these exceedances is unknown. In response to these exceedances the applied UV dosage was increased further and preventative maintenance was also increased. Bucklin Point met the RIPDES Average Monthly permit limits for fecal coliform throughout 2012. Bioassay results met limits for both Acute (LC_{50}) met maximum daily permit requirements and for chronic results (C-NOEC) RIPDES permit requirements. Removal efficiencies for BOD and TSS were greater than 85% during each month of 2012.

TABLE 26
2012 Compliance Status with RIPDES & Consent Agreement Limits for Bucklin Point Facility

	2012 Compliance with RIPDES Permit Limits?		2012 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**	Yes	Yes
Lead	Yes	Yes	N/A	N/A
Mercury	Yes	Yes	Yes	Yes
Nickel	**No**	**No**	**No**	Yes
Silver	-	Yes	Yes	-
Zinc	Yes	Yes	Yes	Yes
Cyanide	**No**	**No**	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)	Yes	N/A	N/A	N/A

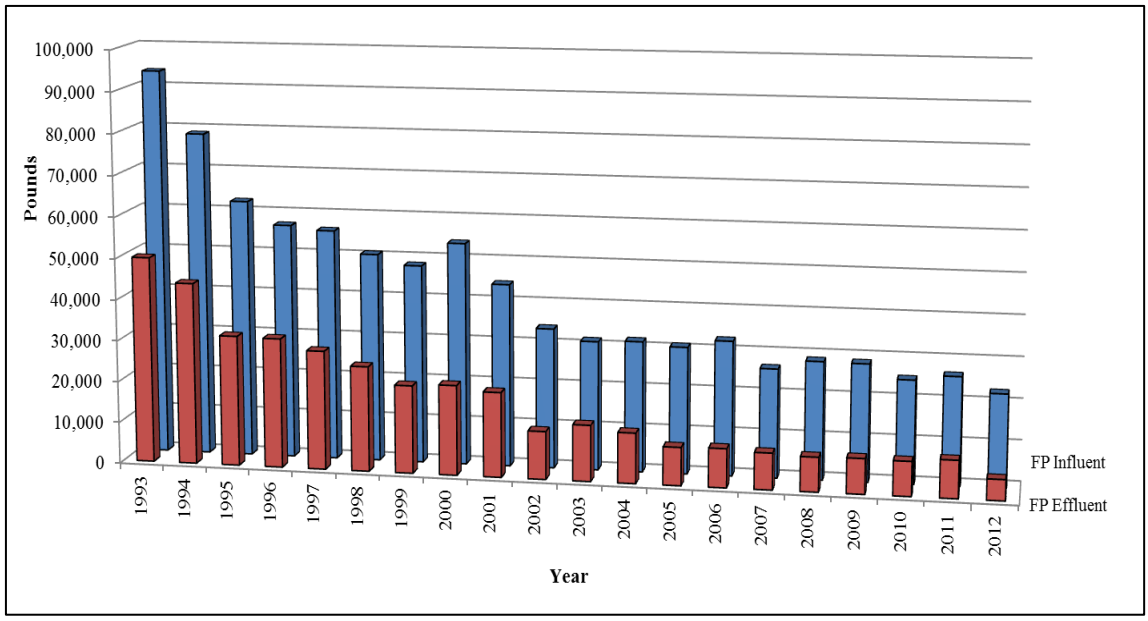
~Bucklin Point Final Effluent pH Variability and Permit Compliance

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 2012 was between 6.12 and 7.18 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 26 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.

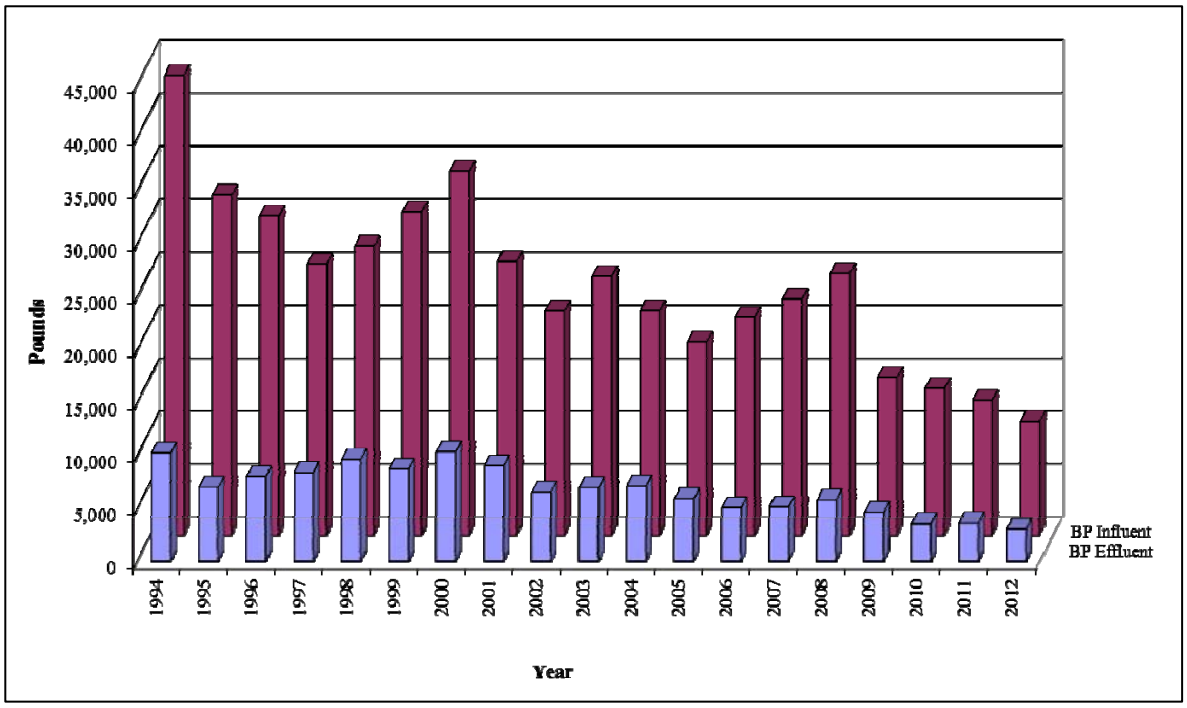
FIGURE 26
Field's Point Influent and Effluent Total Metals Loadings Trend Analysis



The removal rate of metals entering the Field's Point facility varied from 32.75% to 97.63% at Field's Point in 2012 depending upon the pollutant in question. Influent loadings had a decrease of 14.0%, or 3,673.8 pounds in 2012 from 2011 and effluent loadings decreased by 4,054 pounds, or 44.5% from the prior year.

FIGURE 27 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 2012 there was a decrease in both influent and effluent. There was a 1,972.4 pound, or 15.5%, decrease in influent metals and a 575.3 pound, or 15.8% decrease in effluent metals. Percent removal of the various metals at Bucklin Point ranged between 18.3% to 98.3%.

FIGURE 27
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 27 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 NBC 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 27 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 84% or more of the cadmium, chromium, copper, lead, mercury, and silver loadings were removed at Bucklin Point. Cyanide loadings for Bucklin Point in 2012 show a negative percent removal; however, the majority of effluent cyanide is reported below the detection limit. There were several instances in 2012 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 32.8% and 18.3% for the Field's Point and Bucklin Point facilities respectively.

TABLE 27
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*	2.57*	0.08	96.93%	2.50*	0.04	98.26%
Chromium	12.04	1.17	90.32%	11.15	1.10	90.14%
Hex.Chromium*	NM	NM	NM	34.54	11.13*	67.76%
Copper	39.28	3.79	90.35%	57.56	9.05	84.28%
Lead*	11.34*	0.60	94.74%	10.17*	0.45	95.62%
Mercury	0.047	0.003	93.26%	0.049	0.004	92.45%
Nickel	23.03	15.49	32.75%	13.93	11.38	18.33%
Silver*	4.15*	0.10	97.63%	4.02*	0.07	98.31%
Zinc	92.80	19.96	78.49%	99.38	35.57	64.21%
Cyanide	9.15	7.97	12.92%	5.87	7.83	-33.42%
Total Metals	185.26	41.18	77.77%	233.30	68.78	70.52%

*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 2012, 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 28 summarizes the data from 2012. 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. Due to implementation of more sensitive methods for analysis of dissolved metals, cadmium and chromium have been added to the summary table below. Previously, these metals were predominantly found at levels below the method detection limit. However, at both Field's Point and Bucklin Point, several dissolved lead samples were reported at less than the detection limit. 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 28 below.

TABLE 28
2012 Final Effluent Phase Partitioning Study Results

Dissolved/Total Shown as a Fraction		
	Field's Point Mean	**Bucklin Point Mean**
Cadmium	0.96	0.86
Chromium	1.11	1.05
Copper	0.83	0.86
Lead	0.57	0.72
Nickel	0.97	0.97
Silver	0.42	0.46
Zinc	1.00	1.04
Aluminum	0.36	0.50
Iron	0.50	0.62

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, chromium and zinc were shown to be the elements with the highest fraction in the dissolved phase, followed by nickel and cadmium. Silver, aluminum and iron are more strongly associated with particles, and thus the fraction of the metal in the dissolved phase is lower, less than 0.50 at both plants.

For chromium 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 58% of the samples and dissolved zinc exceeded the total zinc in 66% of the samples. At Field's Point about 58% of the dissolved chromium samples and 50% 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.

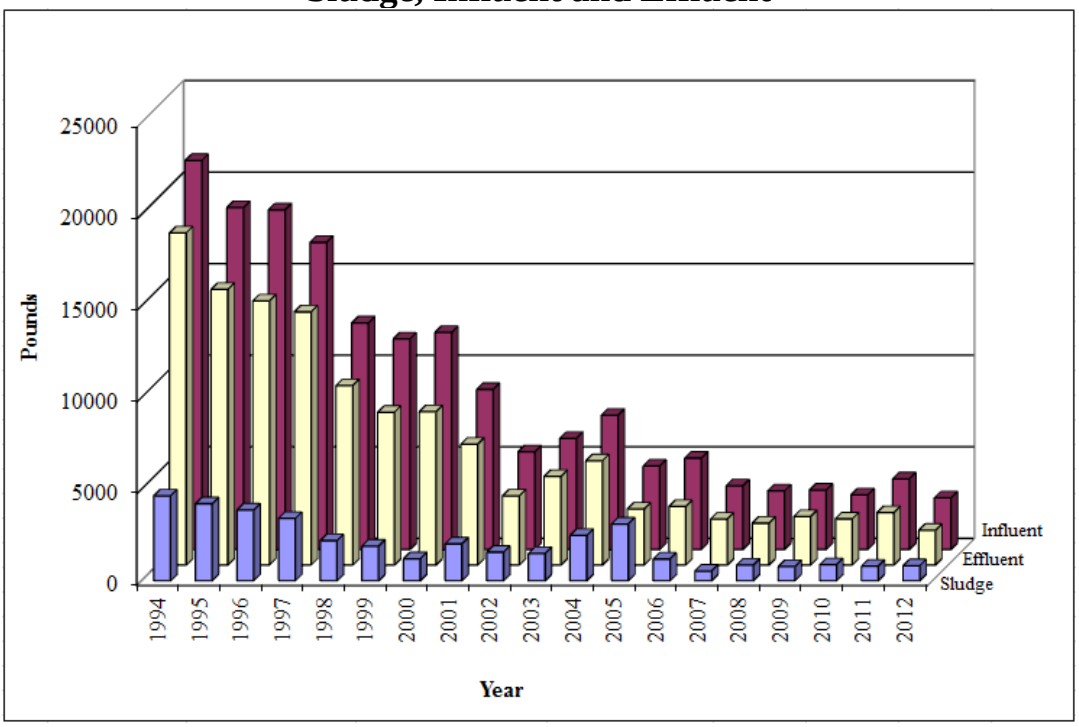
Data for 2012 total and dissolved metals analysis results are included in ATTACHMENT VOLUME II, SECTION 10.

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 2012, 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 2012 sludge data are included in ATTACHMENT VOLUME II, SECTION 11.

As can be seen in FIGURE 28, 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 4% during 2012. This 4% discrepancy is attributed to loading in grit.

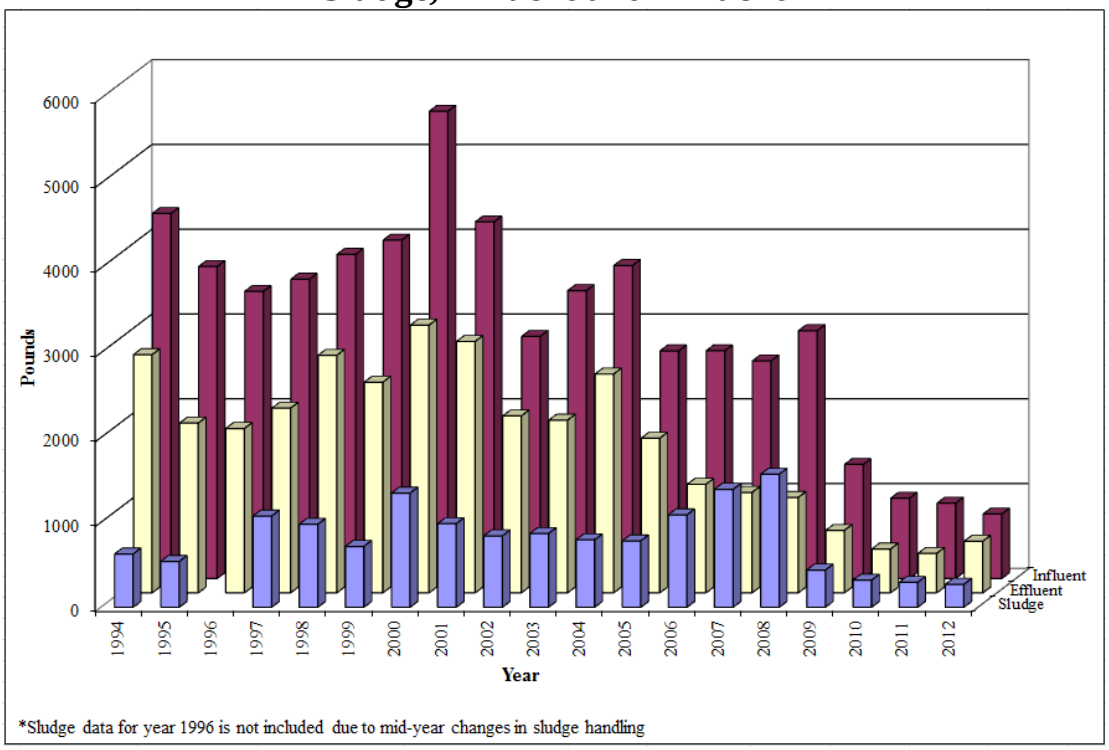
FIGURE 28
Nickel Loading Trend Analysis in Field's Point Sludge, Influent and Effluent



At Field's Point, nickel loading has decreased slightly in the influent and effluent and increased in the sludge during 2012 as compared to 2011. 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 recorded history and has remained relatively stable.

At Bucklin Point, nickel loading has decreased in the sludge as well as in the influent and increased in the effluent during 2012 as compared to 2011 as can be seen in FIGURE 29. Nickel loading in the influent and the sludge is the lowest it has been since 1994. In 2012, there was a 13% discrepancy between measured influent loading and loading in the effluent and sludge. This 13% discrepancy is attributed to loading in the grit.

FIGURE 29
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 30 and 31 show 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 influent, effluent and in the sludge since 2011. The discrepancy between influent zinc loading and the combined sludge and effluent zinc is 0.7% for 2012. At Bucklin Point, zinc loading also decreased in the influent, effluent and sludge since 2011. The discrepancy at Bucklin Point was 1% for 2012.

FIGURE 30
Zinc Loading Trend Analysis in Field's Point Sludge, Influent and Effluent

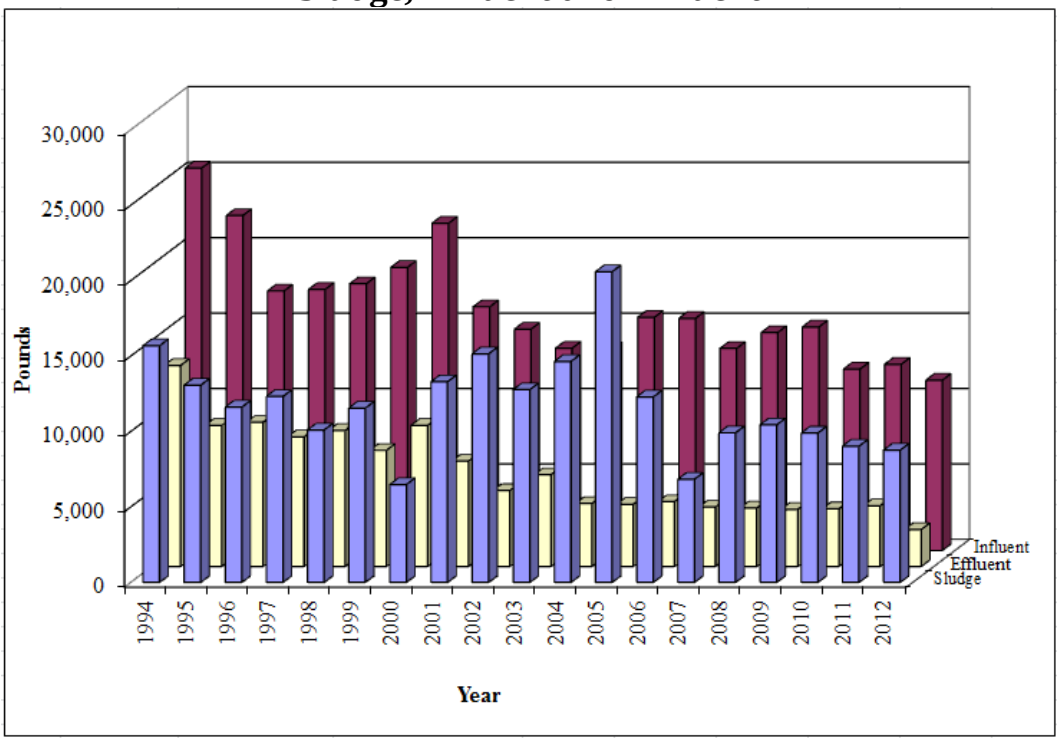
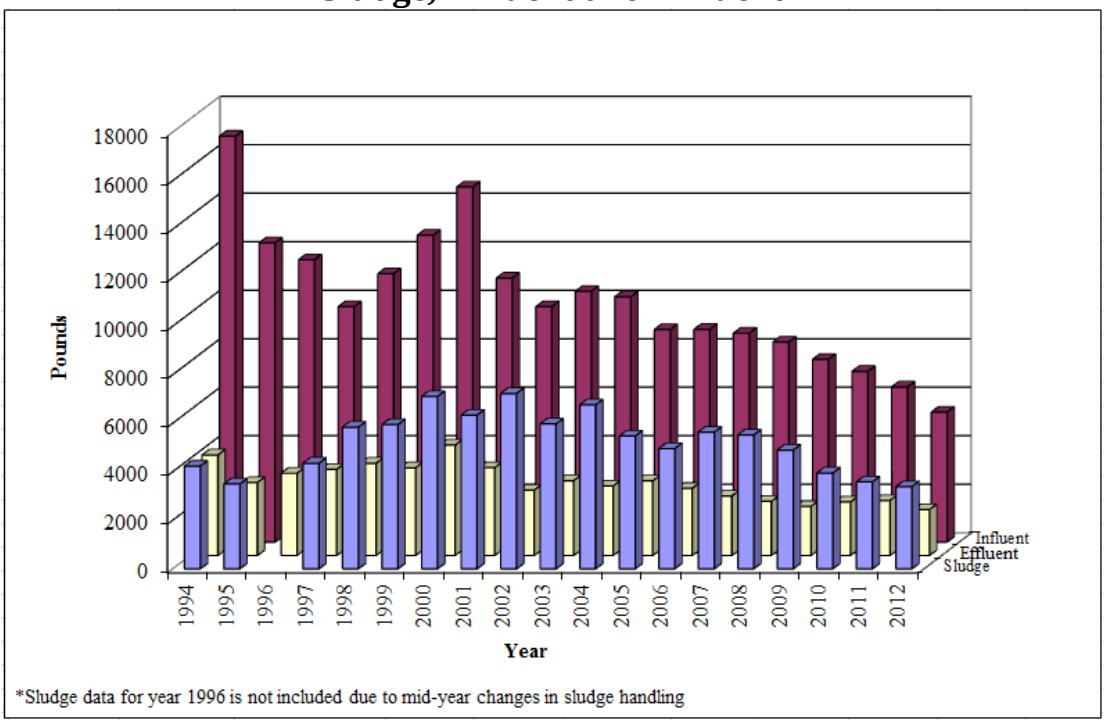


FIGURE 31
Zinc Loading Trend Analysis in Bucklin Point
Sludge, Influent and Effluent



FIGURES 32 and 33 present the copper loading trend analyses. NBC data show that approximately 86% of the copper in the final effluent at Bucklin Point and 83% at Field's Point is in the dissolved phase. At Field's Point, copper loading decreased in the influent, decreased in the effluent, and increased in the sludge in 2012 when compared to 2011. The discrepancy between the influent and the combined effluent and sludge loading was 10%. At Bucklin Point, copper loadings also decreased in the influent and effluent and increased in the sludge, with a 4% discrepancy. These discrepancies can be attributed to loading in the grit.

FIGURE 32
Copper Loading Trend Analysis in Field's Point Sludge, Influent and Effluent

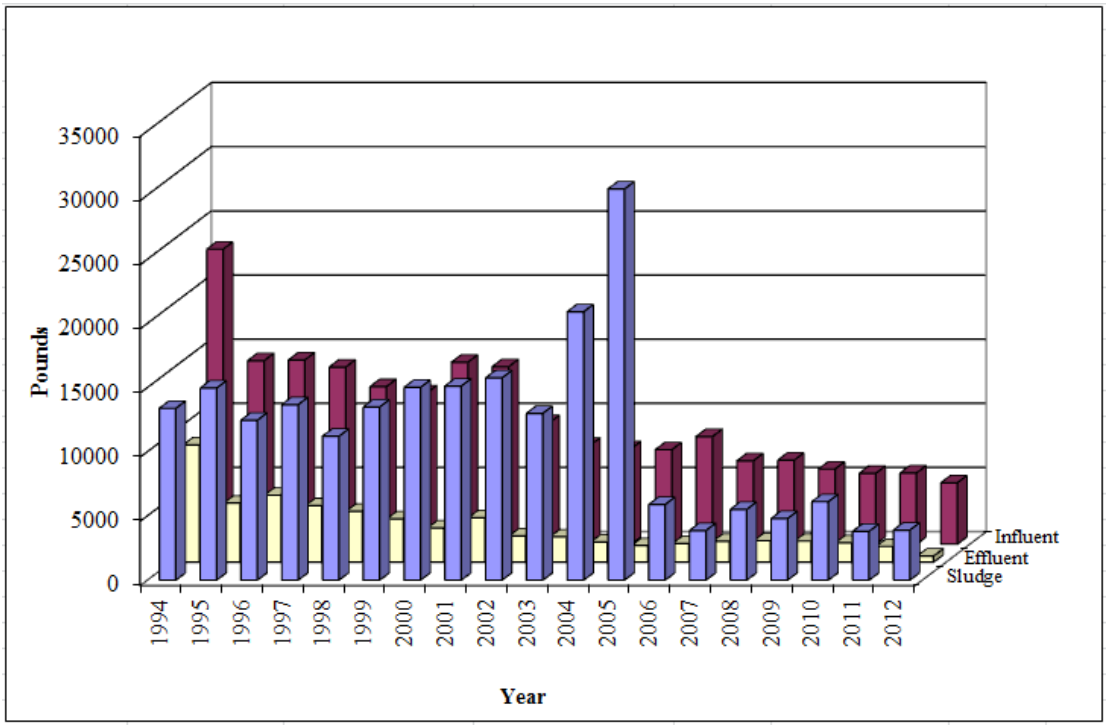
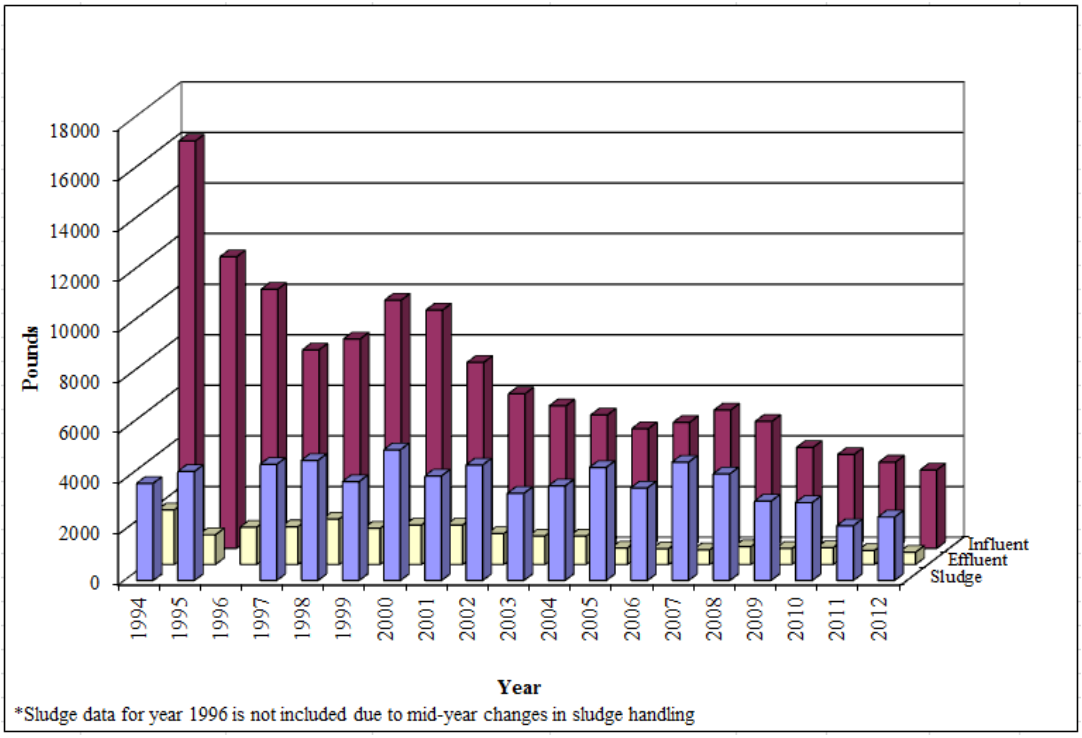


FIGURE 33
Copper Loading Trend Analysis in Bucklin Point Sludge, Influent and Effluent



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 34 and 35 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 2012 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 34
TSS Loading Trend Analysis for Bucklin Point Influent and Effluent

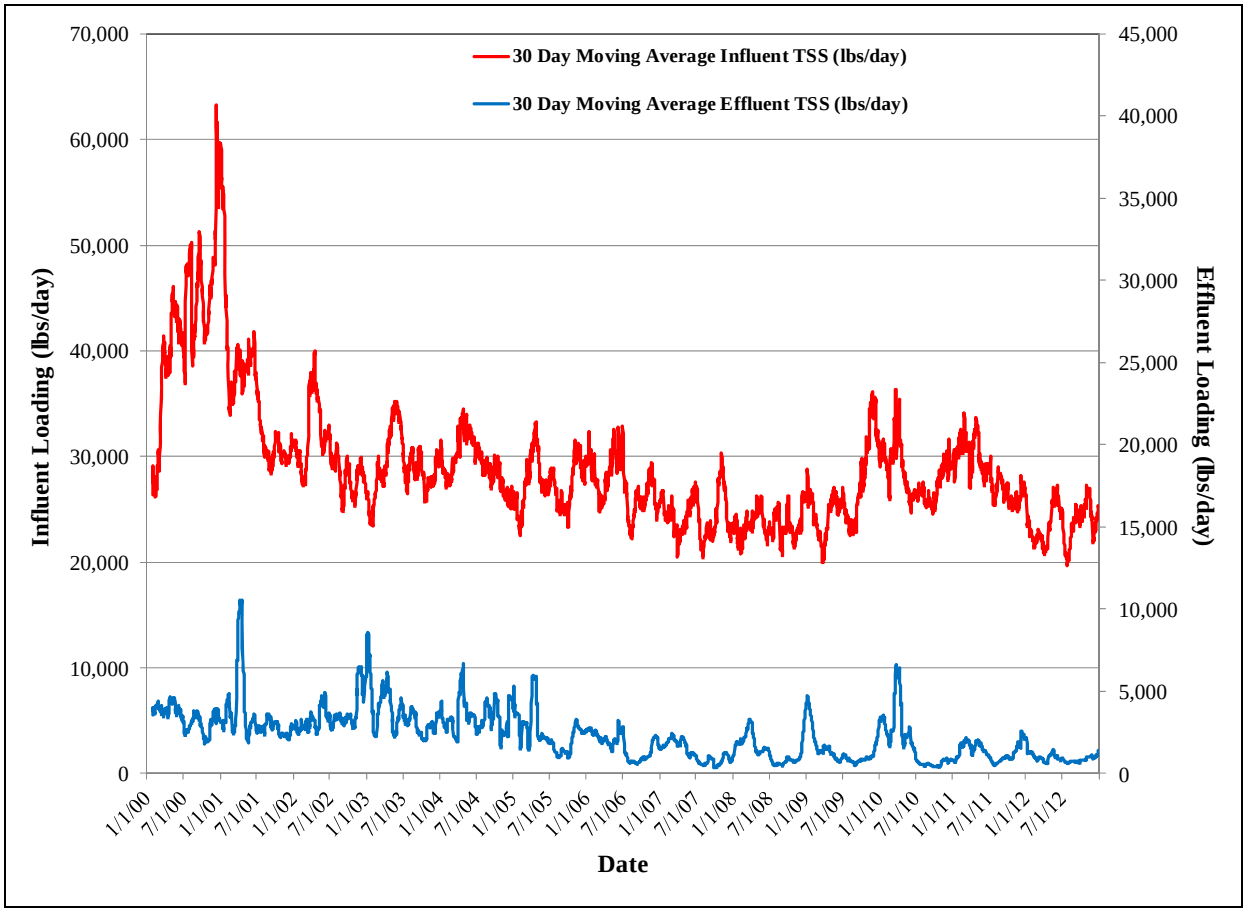
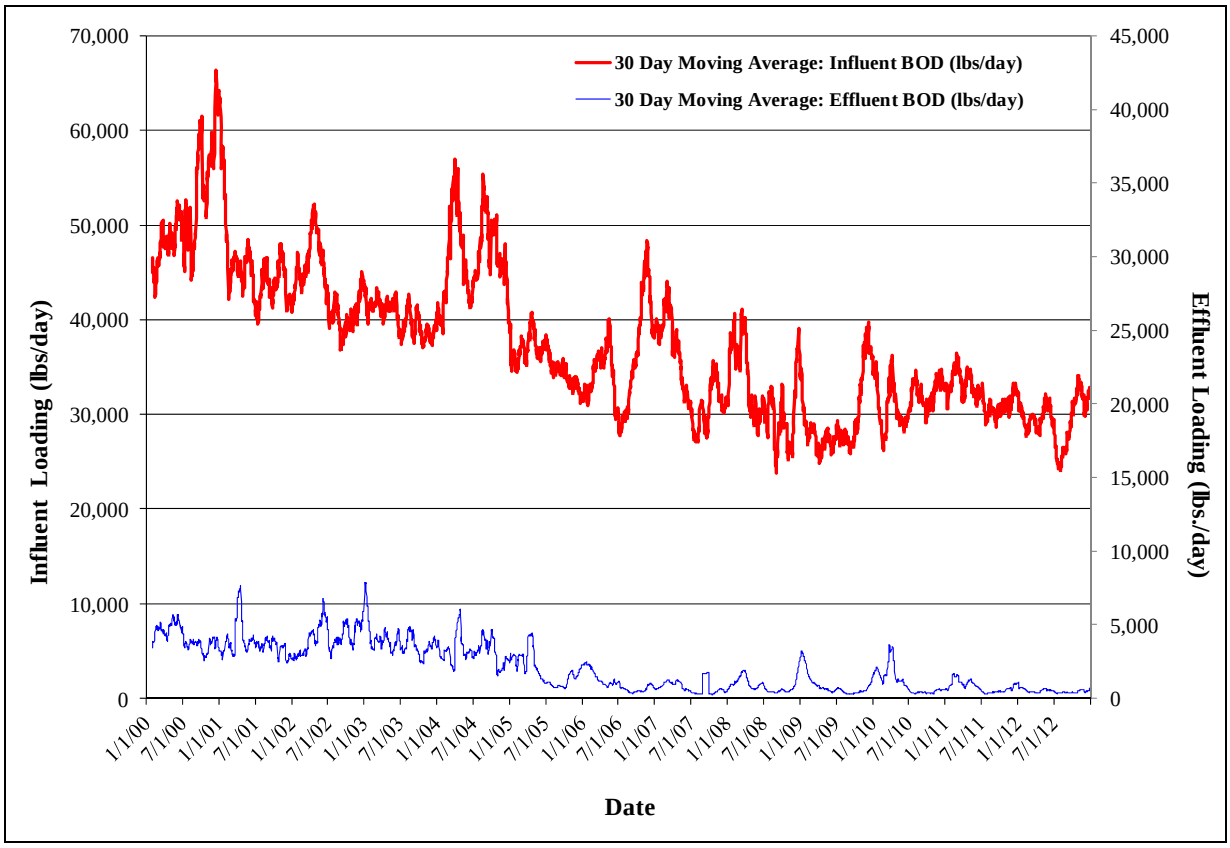


FIGURE 35
BOD Loading Trend Analysis in Bucklin Point Influent and Effluent



FIGURES 36 and 37 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 36 and 37 below show a decline in effluent BOD and TSS 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. This new system is scheduled to be fully online in 2013.

FIGURE 36
TSS Loading Trend Analysis in Field's Point Influent and Effluent

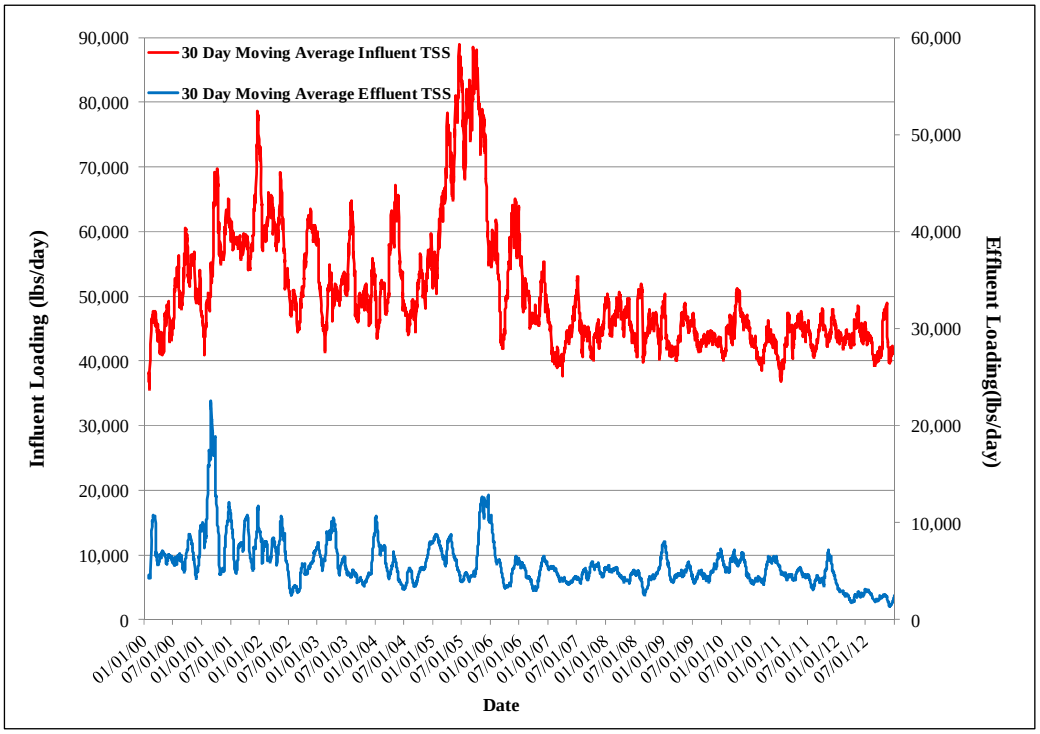
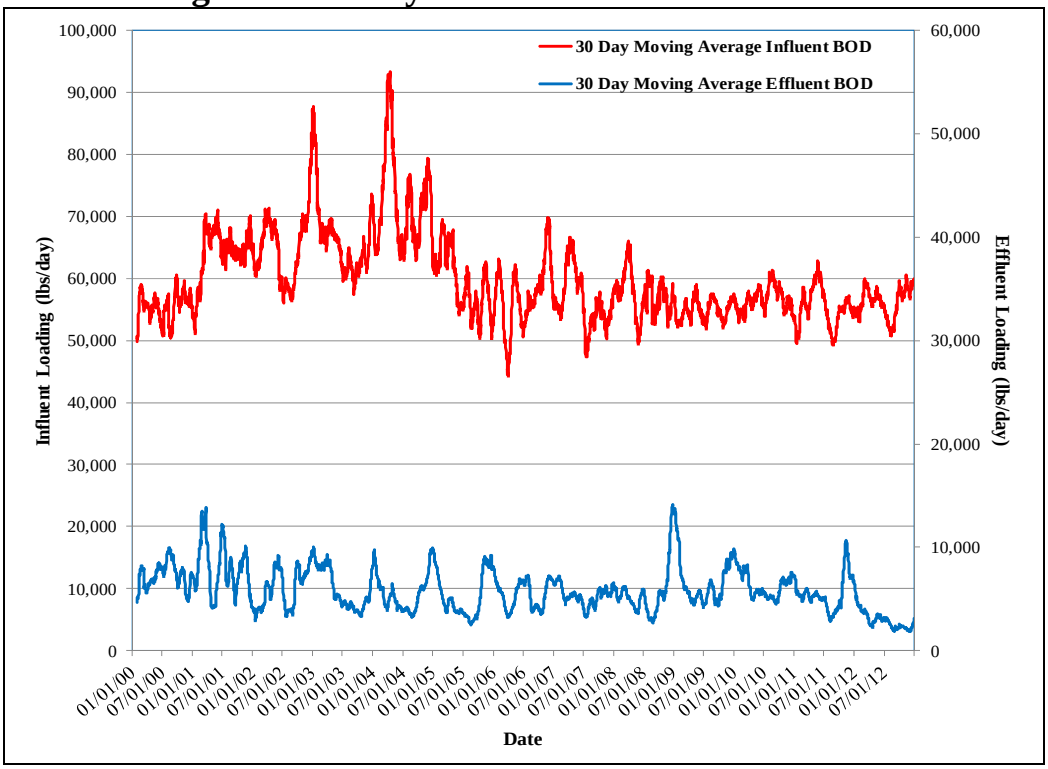


FIGURE 37
BOD Loading Trend Analysis in Field's Point Influent and Effluent



Comparison of Final Effluent Concentrations in 2012 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 29 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 NBC 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 29
Comparison of 2012 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	8.39	2.88	3.1	
	Dissolved phase effluent annual maximum	14.77	3.87		4.8
	Total effluent annual average	9.05	3.79		
	Total effluent annual maximum	22.99	30.70		
Lead	Dissolved phase effluent annual average	0.31	0.32	8.1	
	Dissolved phase effluent annual maximum	0.36	0.43		210
	Total effluent annual average	0.45	0.60		
	Total effluent annual maximum	1.48	1.03		
Nickel	Dissolved phase effluent annual average	8.83	15.30	8.2	
	Dissolved phase effluent annual maximum	37.93	21.85		74
	Total effluent annual average	11.38	15.49		
	Total effluent annual maximum	238.70	37.10		
Silver	Dissolved phase effluent annual average	0.03	0.04	N/A	
	Dissolved phase effluent annual maximum	0.06	0.16		1.9
	Total effluent annual average	0.07	0.10		
	Total effluent annual maximum	0.25	0.89		
Zinc	Dissolved phase effluent annual average	37.69	20.26	81	
	Dissolved phase effluent annual maximum	44.00	28.20		90
	Total effluent annual average	35.57	19.96		
	Total effluent annual maximum	49.10	33.60		
Mercury	Dissolved effluent annual average	NM*	NM*	0.94	
	Dissolved effluent annual maximum	NM*	NM*		1.8
	Total effluent annual average	0.0037	0.0031		
	Total effluent annual maximum	0.0525	0.0158		
Cyanide	Total effluent annual average	4.51	0.19	1.0	
	Total effluent annual maximum	22.32	13.04		1.0
pH	Total effluent annual minimum (s.u.)	6.12	6.00	> 6.5 < 8.5	
	Total effluent annual maximum (s.u.)	7.18	7.45		> 6.5 < 8.5
Fecal Coliform Bacteria	Total effluent annual geomean (MPN/100 ml.)	4.4	2.4	50	
	% > 400 MPN/100 ml.	1.2%	0%		< 10%

*NM – not measured

Dissolved metals are measured monthly at the two plants and total metals are measured twice weekly. TABLE 29 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 29, the following conclusions can be made regarding the various pollutant parameters:

- Dissolved copper concentrations at Field's Point met the chronic water quality criteria for the annual average and the acute water quality criteria for annual maximum, as well as total effluent copper annual average was below the acute criteria. Dissolved copper concentrations in the effluent at Bucklin Point exceed both chronic and acute saltwater quality criteria. 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 either facility. Though the facilities did not meet the chronic criteria, effluent concentrations are rapidly diluted as the effluent enters 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 at Field's Point was less than the chronic water quality criteria, though the annual maximum was above the 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 receiving waters. Cyanide loadings at both facilities have generally decreased over time.

- Hydronium ion concentration, or pH, shows the annual effluent minimums are 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.
- 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 1.2% of all fecal samples were above 400 MPN, and there were no samples above 400 MPN at Field's Point in 2012, 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 and Pollution Prevention Programs. 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 at Bucklin Point are making very clear improvements in effluent quality for conventional pollutants, as well as metals, cyanide, and nutrients. The Field's Point treatment plant is currently undergoing upgrades that are expected to not only reduce nutrients but improve 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. Influent metals loading decreased at Bucklin Point in 2012 as compared to 2011 by 15.5%, and Field's Point had decreased influent loadings by 14.0%. The level of toxics in the effluent discharged from the NBC plants also continues a general downward trend. In 2012 effluent loadings decreased at both plants; 15.8% at Bucklin Point and 44.5% at Field's Point.

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 Narragansett Bay Commission (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 2012 and 1,919 Notices of Violation 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 discussion sheet documenting the conversation is prepared and placed in the user's 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. A Notice of Violation specifically states that its issuance does not prohibit other enforcement action. It also informs the violator that the non-compliance may result in publication of the firm's name in the state's largest daily newspaper and explains that inclusion on that list will subject the violator to liability for payment of the publication. In addition, the Notice of Violation letters refer the user to free technical and compliance assistance from the ESTA Section. The most typical Notices of Violation are described below. Examples may be viewed in ATTACHMENT VOLUME I, SECTION 4.

    ~ *Letters of Deficiency* are Notices of Violation issued to notify the user of deficiencies observed during a facility inspection. The Letter of Deficiency is prepared and issued by the engineer or technician that conducted the inspection or observed the violation, is sent to the user via certified mail, and requires the user to correct the noted deficiency within a specific time period. The NBC issued 101 Letters of Deficiency to users during 2012. An example of a Letter of Deficiency is provided in ATTACHMENT VOLUME I, SECTION 4.

    ~ *Notices for Failure to Meet Standards* are issued by the Pretreatment staff each time NBC or user self-monitoring results indicate a violation of NBC or EPA discharge limitations, including violations of the monthly average limits. The NBC issued 130 notices of this type to industrial and commercial users during the past year.

~ *Notices of pH Violations* are issued by the Pretreatment staff each time a user submits a monthly pH self-monitoring report that reveals violations of NBC pH discharge limitations. The NBC issued 127 notices of this type during 2012.

~ *Notices of Failure to Submit Monitoring Reports* are Notice of Violation letters issued to users for failure to submit a Self-Monitoring Compliance Report, pH Monitoring Report, Zero Discharge Certification or Best Management Practices (BMP) Certification on time. A similar letter is issued for failure to properly complete or sign a Self-Monitoring Compliance Report or pH Monitoring Report. The NBC issued 718 Notices of Violation to industrial and commercial users during 2012 detailing these various types of violations. A similar Notice of Violation is issued for failure to sample and/or analyze for all required parameters. During 2012, ten such letters were issued to users that either failed to sample or analyze for all required parameters.

~ *Notices of Failure to Immediately Report Violations* are issued to users that fail to notify the NBC within twenty-four (24) hours of becoming aware of a violation of NBC effluent limitations in accordance with EPA 40 CFR§403.12(g)(2). During 2012, there were 18 notices of this type issued to violators of this regulation.

~ *Notices of Failure to Satisfy NBC Requirements* are issued by the Pretreatment staff when a user exceeds a specified deadline for submission of any of a number of various types of documents or for exceeding the completion date specified for tasks required by the NBC. Examples of such tasks may include installation of spill control facilities, pretreatment equipment, sample ports, etc. During 2012, the NBC issued a total of 377 notices of this type.

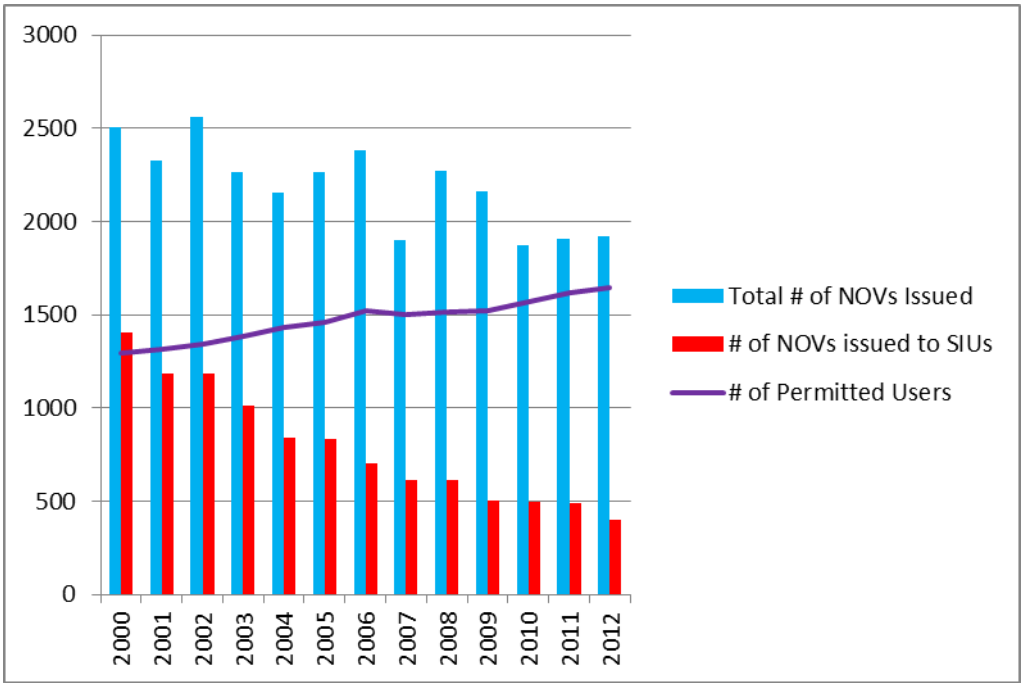
~ *Failure to Pay Permit Fees* is a Notice of Violation issued by the Customer Service Section to firms greater than 90 days late in paying permit fees. During 2012, the NBC issued 438 letters of this type to users in the NBC district.

~ *Letters requiring an increase in frequency of self-monitoring* are issued to users who violate NBC discharge limitations and require the user to sample their wastewater weekly, or even daily, to demonstrate progress toward meeting effluent limitations. Once the user violates NBC discharge limitations, the Failure to Meet Standards Notice of Violation letter is automatically issued. During 2012, the Pretreatment Section issued 130 Notice of Violation letters that required resampling to be conducted immediately by violating users. This Notice of Violation requires weekly sampling to be conducted and continued until the user demonstrates at least four (4) consecutive monitoring reports indicating full compliance with

effluent standards. This enforcement protocol is effective at bringing the user into compliance with effluent standards because the added expense and burden of weekly sampling encourages the quick correction of existing problems.

FIGURE 38 graphically shows the number of NOVs issued to all users, the number of NOVs issued to SIUs and the number of permitted users for the period of 2002 through 2012. As can be seen, the total number of NOVs issued is relatively consistent from year to year. However, the number of NOVs issued to SIUs has steadily declined from 2000 to 2012. In fact the number of SIU NOVs decreased by 71.7% since 2000The number of permitted users increased steadily since 2000. For the period of 2000 to 2012 there has been an overall increase of 26.7% 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.

FIGURE 38
NOVs ISSUED TO ALL USERS AND SIUs 2000 - 2012



- *Letters of Wastewater Discharge Permit Suspension* are typically issued to Significant Industrial Users 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 2012, 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's 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 the user's name in the state's largest daily paper will result if a violator meets the criteria for Significant Non-Compliance as defined in 40 CFR 403.8(f)(2)(vii). All Notice of Violation 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 eleven firms found to be in Significant Non-Compliance with NBC regulations were listed in an advertisement in the PROVIDENCE JOURNAL on February 27, 2013 for violations occurring between October 1, 2011 and December 31, 2012**.** A copy of this public notice is provided later in this chapter in FIGURE 10.

- *Meetings with a user* 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. AO 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. AO 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 2012, no civil suits were filed.

2012 Administrative Orders

During 2012, the NBC did not issue any Administrative Order (AO) 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, 2012 is

found at the end of this chapter in TABLE 31. 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. As of December 31, 2012 Mazey's had not installed a grease removal unit at either location or submitted the required monitoring reports. Numerous Notices of Violation were issued to Mazey's for not complying with the terms of the Wastewater Discharge Permits. 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 complies with the court order.

Bucklin Point District

- AO #BV-01-10 was issued against James Martins and Coastal Collision & Towing, Inc. (Coastal) on June 15, 2010. The AO cited Coastal with discharging wastewater in violation of its Wastewater Discharge Permit, failure to submit a self-monitoring

compliance report for February 2010, failure to allow NBC employees access to the Coastal property to conduct an inspection. An administrative penalty of $5,000 was assessed. The AO further ordered Coastal to immediately submit the self-monitoring compliance report for February 2010, immediately cease and desist from washing vehicles in any area where the wastewater does not discharge to the oil and
solids/grit separation tank approved in the permit or submit written certification that vehicle washing operation has ceased, immediately pay all outstanding NBC fees and assessments, and immediately comply with all terms and conditions of its permit, including allowing authorized NBC personnel onto its property to conduct inspections. Coastal has ceased washing vehicles in areas where the wastewater does not discharge to its pretreatment system and submitted the required monitoring report. A Consent Order (CO) was executed on September 17, 2011. The CO required Coastal to pay an administrative penalty of $1,000 and stipulated penalties of $1,000 anytime NBC personnel is denied access to the property for a 24 month period. Coastal has complied with the terms of the CO.

2012 Civil Suits

During 2012 the NBC filed one civil suit against a permitted company for violations of the Rules and Regulations and the terms of its Wastewater Discharge Permit. Below is a summary of the civil action (CA).

- CA #12-2600 was issued against Providence Specialty Products, Inc. (Providence Specialty), a Significant Industrial User 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 the 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 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. Legal staff will draft and issue a Consent Order in early 2013.

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 (SEPs) 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. 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's 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 participate in RI Governor's Bay Day

In 2012, seven proposals were submitted to the NBC Board of Commissioners for review and were approved awarding $19,900 collected from environmental violations to projects that enhance the Rhode Island environment and environmental education. These proposals are listed below in TABLE 30.

TABLE 30
2012 Approved Environmental Enforcement Fund Proposals

EEF#	Company	Project	Amount Awarded
12-001	Woonasquatucket River Watershed Council	Woonasquatucket River Watershed Council "Clean Day on the Greenway" 2012 Earth Day River clean up project.	$2,000.00
12-002	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
12-003	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.	$3,500.00
12-004	Johnston Historical Society	Project to educate school children as to how it was like to attend school in the one-room Belknap School in the early 1900s.	$2,500.00
12-005	RI Governor's Bay Day	2012 event designed to raise awareness and show the importance of Narragansett Bay to Rhode Island citizens	$2,000.00
12-006	Providence Children's Museum	Funds to provide support and maintenance for upgrades to the Water Ways Educational Exhibit.	$5,000.00
12-007	NBC – Public Affairs Section	Funding for a public information and education program to address clean water and sanitation in celebration of World Toilet Day.	$2,500.00
Total Approved in 2012			**$19,900**

Enforcement Response Plan

In accordance with 40 CFR§403.8(f)(5), the Narragansett Bay Commission developed and submitted an Environmental Response Plan 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 its Pretreatment Program. The proposed plan suggests timetables for the initiation of enforcement actions that would be followed as soon as practicable after the 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 Enforcement Response Plan 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 Enforcement Response Plan 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 40 CFR§403.8(f)(2)(vii) requires the Commission 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 Significant Non-Compliance with pretreatment standards and/or administrative requirements for the period of October 1, 2011 through December 31, 2012 was published in an advertisement in the PROVIDENCE JOURNAL on February 27, 2013. A copy of this advertisement is provided in FIGURE 39, while the Confirmation of Publication is provided in FIGURE 40.

During 2006 the NBC Rules and Regulations were modified to incorporate the revised EPA definition of Significant Non-Compliance (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 eleven firms were listed in the February 27, 2013, public notice in the Providence Journal. Of the eleven firms listed in Significant Non-Compliance, four users are located in the Field's Point district and seven are Bucklin Point users. There were five firms in SNC subject to EPA categorical standards. Three of these firms are classified as either electroplaters or metal finishers. One is located in the Field's Point district and the other two are located in Bucklin Point. The two remaining categorically regulated users are classified as pharmaceutical manufacturers which are both located in the Bucklin Point district. Two firms are classified as non-categorical significant industrial users. One of the firms manufactures insulation material and the other conducts industrial laundry operations. Four of the users published are classified as non-significant industrial users. Two of these users perform zero discharge jewelry manufacturing operations, one conducts zero discharge stone cutting operations and one conducts zero discharge engine oil recycling operations. Three of these firms are located in the Field's Point district and the other is located in Bucklin Point.

There were eleven firms listed in SNC in 2012. This was an increase from the five firms listed in SNC in 2011. All but one of the eleven users listed in the February 27, 2013, 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 remaining firm, a non-significant industrial facility, was listed in SNC for failure to submit a report on time which is an administrative violation. As of February 27, 2013 the report had still not been received. 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 2012, the NBC recognized nineteen SIUs for achieving perfect compliance with the terms of their permits and the NBC Rules and Regulations. These nineteen SIUs will be recognized at awards ceremony in mid-2013. The 2012 Perfect Compliance advertisement can be seen in FIGURE 40. Additional information regarding the Environmental Merit Awards program can be found in CHAPTER VII.

FIGURE 39
PUBLIC NOTICE OF USERS IN SNC

The Narragansett Bay Commission

PUBLIC NOTICE

Firms in Significant Non-Compliance

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGULATION 40 CFR 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, 2011 through December 31, 2012. 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,

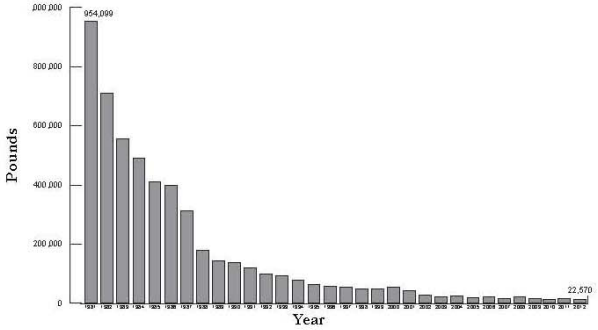
(5) Failure to meet, within 90 days after the scheduled date, a compliance milestone contained in a Commission notification, permit or enforcement order, for starting construction, completing construction or attaining final compliance,

(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, 1981-2012



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

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 98.6% 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.

Cumberland

Teknicote, Inc.	Zinc (2)	Firm is now in compliance.
	Failure to submit reports on time (6)	Reports have been received.
Precision Dermatology	Total Oil & Grease (1,2)	Firm is now in compliance.
Nuzzo Campoin Stone Enterprises, Inc.	Failure to sumbit report on time (6)	Report has been received.

Lincoln

Denison Pharmaceuticals, Inc.	Total Toxic Organics (2)	Firm is now in compliance.
	Zinc (2)	
Chemart Company	Silver (2)	Firm is now in compliance.

Pawtucket

New England Linen Supply Company, Inc.	Total Oil & Grease (2)	Firm is now in compliance.

Field's Point Service Area

Johnston

Company Name	Violations Cited	Present Status
Unique Plating, Inc.	Nickel (2)	Firm is now in compliance.

Providence

Aluminum & Copper Recycling, Inc.	Failure to sumbit reports on time (6)	Reports have been received.
Bella's Jewelry	Failure to sumbit report on time (6)	Report has not been received.
Mark Precision, Inc.	Failure to sumbit report on time (6)	Report has been received.

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
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FIGURE 40
CONFIRMATION OF PUBLICATION OF SNC PUBLIC NOTICE

Journal | providencejournal.com RHODE ISLAND Wednesday, February 27, 2013 A5

COMMERCE / CONSUMER DIGEST

NETWORKING

Mobile consultant, designer to host Clambake

Jonathan Stark, a mobile consultant, and Libby Slader, a designer, will co-host this month's Clambake, an informal networking event for the art and design community.

The gathering will be Thursday from 5:30 to 9 p.m. at Anchor, 42 Rice St., Providence.

Stark is the author of three books on mobile and Web development, including "O'Reilly's Building iPhone Apps with HTML, CSS, and JavaScript."

Slader has worked at Morris Nathanson Design and participated in projects such as Royal Caribbean's largest cruise ship, Allure of the Seas, Royal Mills in West Warwick, the U.S. Embassy in Bolivia and the U.S. Consulate Office Building in Hong Kong.

JOURNAL STAFF

SHELLFISHING

Wastewater discharge forces Bay closure

One of the state's shellfishing areas is being closed due to discharge from a wastewater-treatment facility in East Providence.

The Rhode Island Department of Environmental Management says the Conimicut Triangle and Area A of Upper Narragansett Bay will be closed to shellfishing until March 5.

The department says "inadequate disinfection" at the Narragansett Bay Commission's Bucklin Point Wastewater Treatment Facility allowed the discharge of effluent to the Seekonk River that contained elevated fecal coliform levels.

ASSOCIATED PRESS

GOVERNMENT

Properties panel approves Fort Adams event

The State Properties Committee on Tuesday approved a license for a youth-oriented fitness event planned for September at Fort Adams State Park and easement contracts for two state building projects — one in Cranston, the other in Middletown.

"Storm the Fort," planned for Sept. 14-15, will be a public obstacle course competition for children ages 9 to 14 to benefit Fort Adams Trust. The committee gave the Department of Environmental Management permission to license the trust to host the event.

The committee also OK'd a DEM request for a deed agreement needed to rebuild the Curran Dam on Seven Mile Road in Cranston and a Department of Transportation request to grant Narragansett Electric an easement the utility company needs to provide power to a new hangar the Airport Corporation will build at Newport State Airport.

PAUL GRIMALDI

ENVIRONMENT

State to get $714,000 in air-pollution settlement

Rhode Island is getting $714,000 for air pollution control projects as part of a revised multistate settlement with an Ohio-based electric company over sulfur emissions.

The $714,000 is the state's share of the $8.5-million settlement between American Electric Power and eight states, the U.S. Environmental Protection Agency and a variety of citizens groups, according to Attorney General Peter Kilmartin.

The company also has agreed to further reduce sulfur dioxide emissions from its coal-fired power plants in addition to providing millions in new funds for pollution-mitigation projects.

Previous projects carried out in Rhode Island with settlement funds include installing wind turbines at Fisherman's Memorial State Campground and East Matunuck State Beach, retrofitting state vehicles with pollution-control devices and building solar panels at RIPTA facilities.

JOURNAL STAFF

Commodities

Dollar: In trading against major currencies Tuesday in New York, the dollar ended at 91.96 Japanese yen, down from Monday's close of 92.58 yen. The euro closed at 3:30 p.m. at $1.3055, down from $1.3121.

Metals: Gold for current delivery closed at $1,615.20 a troy ounce on the New York Mercantile Exchange, up from Monday's close of $1,586.20. Silver closed at $29.256, up from $28.983 an ounce.

Find up-to-date local and national business news at providencejournal.com/business

PENSION Continued from A1

City sues Buck Consultants

lost savings, some of which had persisted for up to two decades."

Buck senior marketing consultant Steven Laird would not comment Tuesday, saying that the company has yet to be served with the lawsuit. The global organization, headquartered in New York and a subsidiary of Xerox Corp., also does actuarial work for the state, Cranston, Newport and Smithfield.

In 2012, Providence paid Buck $350,615.

As evidence in the lawsuit, Providence provides e-mails, testimony from meetings, and reports from Buck consultants Philip Bonanno and Andy Zmich that the city contends prove the errors and company's liability. The lawsuit says Providence has put "its financial trust and confidence" in Buck for more than 90 years, and regularly since 2011.

In one January 2013 meeting with Michael D'Amico, Taveras' chief of staff, the lawsuit says Bonanno, "faced with the gravity of Buck's admitted and inexcusable mistake," could barely speak, asked for a glass of water and asked those present to turn down the heat in the room.

"For the past two years, the city has relied on Buck's calculations to guide our pension reform efforts," the Taveras administration said Tuesday. "We did not discover Buck's error until late December, after we had already reached a settlement with our unions and retirees. We will not alter the settlement or seek future concessions from Providence's employees and retirees to achieve the lost $10 million."

"Buck's mistake is inexcusable," Taveras says, "and I will not allow Providence residents to pay for their mistake. Buck needs to make the city whole and we believe that after trial a jury will agree with the city."

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HEALTH CARE

United to work with providers

Information that the insurer gathers will be shared with doctors

By FELICE J. FREYER
JOURNAL MEDICAL WRITER

UnitedHealthcare of New England and the Lifespan hospital group have entered into a new agreement intended to improve communication between primary-care providers and specialists, with the goal of better quality and lower costs.

Under the plan, which starts July 1, the information that United gathers on patients — such as which specialists they see, whether they fill their prescriptions, when they go to the emergency room, where else they have received care — will be made available to their primary-care doctors, in the hope of preventing the duplication and missed connections that bedevil modern-day health care.

The agreement will involve about 21,000 United members who use services at Lifespan, which encompasses four hospitals, including the state's biggest, Rhode Island. Lifespan and participating doctors will share in any savings that result from the changes. Lifespan will also benefit financially if it meets certain quality targets.

United has entered into similar agreements with seven other organizations around the country, but this is the insurer's first such effort in New England. United's so-called Accountable Coordinated Care Organizations are part of a nationwide trend, spurred by concern over costs and the federal health-care overhaul, to build bridges among the many pieces of the health-care system and to change the way health care is paid for. Hospitals want to get involved because demand for their traditional line of business — inpatient care — is in decline.

Last August, the Care New England hospital group announced an agreement with Blue Cross & Blue Shield of Rhode Island with similar goals.

Dr. Timothy J. Babineau, Lifespan's president and CEO, said the biggest benefit will be the ability to craft Lifespan's own solution at a time when the pressure is on to change the way health care functions. "We'd much rather help lead the innovation rather than have someone else tell us what to do," Babineau said.

The agreement marks a move away from the traditionally adversarial relationships between providers and insurers. "We're working together; we're on the same page," said Stephen J. Farrell, United's president and CEO. "It's a new day in care delivery in R.I. and that's the exciting thing about it."

"We're working together; we're on the same page. It's a new day in care delivery in R.I. and that's the exciting thing about it."
Stephen J. Farrell, UnitedHealthcare's president and CEO

Specifics were scarce, however, on what doctors would do differently or how quality would be measured and rewarded. Lifespan intends to recruit primary-care physicians to participate in the program, and wants to hear from them first, Babineau said.

Dr. Lewis R. Weiner, president of the Rhode Island Hospital IPA, a group that helps physicians with their practices, predicted that primary-care doctors would welcome the effort. Many patients today have multiple, complex illnesses, Weiner explained. They often go from one specialist to another, and one hospital to another, without any communication among these providers, and often without their doctor even knowing. Tests get lost or repeated needlessly; important clinical findings get missed.

Under the new contract with Lifespan, Weiner said, United will provide a system to give doctors access to all the information about their patients' care, and thus the ability to manage it better. "I can't think of a negative," he said. "In principle it's very compelling."

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NARRAGANSETT BAY COMMISSION
Perfect Compliance
in recognition of Significant Industrial User Perfect Compliance in 2012

The Narragansett Bay Commission recognizes these Significant Industrial User companies for perfect regulatory compliance with Pretreatment Program regulations during 2012:

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

Has your company demonstrated extraordinary environmental efforts this year?
If so, apply for an NBC Environmental Merit Award! Download an application form at www.narrabay.com.

Vincent J. Mesolella, Chairman • **Raymond J. Marshall, P.E.,** *Executive Director*
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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 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, 2011 through December 31, 2012. The parameter for which a company was out 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 to 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 enforcement contained in a Commission enforcement order, permit or enforcement order, for meeting 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 affected the operation or implementation of the Industrial Pretreatment Program.

Total Metals Influent to Field's Point WWTF, 1981-2012

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

THE NARRAGANSETT BAY COMMISSION IS COMMITTED TO PROTECTING THE STATE'S TWO LARGEST WASTEWATER TREATMENT FACILITIES AND NARRAGANSETT BAY FROM TOXIC INCURSIONS. 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 to a facility's wastewater, 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 80,446 pounds of cyanide to the Field's Point Wastewater Treatment Facility. Since 1981, the total metals cyanide loadings to the Field's Point facility have been reduced by 97.6% and 98.6% 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.

Cumberland

Teknicote, Inc.	Zinc (2) Failure to submit reports on time (6)	Firm is now in compliance. Reports have been received.
Precision Dermatology	Total Oil & Grease (1,2)	Firm is now in compliance.
Nuco-Carpets Store Enterprises, Inc.	Failure to sumbit report on time (6)	Report has been received.

Lincoln

Dennison Pharmaceuticals, Inc.	Total Toxic Organics (2)	Firm is now in compliance.
Chemrex Company	Zinc (2) Silver (2)	Firm is now in compliance.

Pawtucket

New England Laces Supply Company, Inc.	Total Oil & Grease (2)	Firm is now in compliance.

Field's Point Service Area

Johnston

Company Name	Violations Cited	Present Status
Unique Plating, Inc.	Nickel (2)	Firm is now in compliance.

Providence

Aburizzano & Copper Recycling, Inc.	Failure to sumbit reports on time (6)	Reports have been received.
Bella's Jewelry	Failure to sumbit report on time (6)	Report has not been received.
Mark Precision, Inc.	Failure to sumbit report on time (6)	Report has been received.

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.

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TABLE 31
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/12
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

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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
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

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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
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

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NOV #32 ALLENS MANUFACTURING 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
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

TABLE 31
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/12
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 #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
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

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

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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
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

TABLE 31
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/12
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-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
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

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

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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
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

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FIELD'S POINT DISTRICT

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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
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

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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
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

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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
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

TABLE 31
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/12
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-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
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

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FIELD'S POINT DISTRICT

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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
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

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FIELD'S POINT DISTRICT

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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
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	CONSENT ORDER 9/16/10 COMPLAINT TO ENFORCE CONSENT ORDER FILED IN SUPERIOR COURT 1/5/12	$18,500	$5,000.00	$140.00	$4,860.00	$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 TO BE ISSUED IN EARLY 2013	$127,018.60	IN NEGOIATION			$0.00	$0.00	$0.00			

TABLE 31
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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 31
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/12
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

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

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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

TABLE 31
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BUCKLIN POINT DISTRICT

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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

TABLE 31
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/12
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 2012.

Status of Projects, Programs and Studies

Environmental, Safety and Technical Assistance (ESTA) Program

Throughout 2012 the ESTA section 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 14 individual site visits during 2012 on a variety of pollution prevention, energy efficiency, and environmental regulatory compliance improvement projects.

ESTA Pollution Prevention Activities

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 32 summarizes the project periods and funding amounts for each of these grant awards.

TABLE 32

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
Total Grants Awards To NBC			**$1,414,750**

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. Detailed descriptions of both grant funded and NBC funded programs and projects are as follows:

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 and were commissioned in December 2012. The NBC Biogas CHP is in the final design phase.

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 the food service establishments (FSE) 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.

In 2012 NBC completed all final tasks associated with this grant funded project. 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.

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.

Pretreatment staff collected 200 baseline assessments during inspections of permitted restaurants. In 2012, a Self-Certification program was established where participating facilities, utilizing checklist in the FOG ERP Workbook, can assess their efforts with meeting the BMPs. In 2012, Pretreatment staff began collecting information regarding BMP compliance during inspections of restaurants. ESTA staff will use this data to determine if FSEs have improved their fats, oils and grease management.

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 2012, the NBC recognized numerous firms for their exemplary environmental activities performed in 2011. 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.
A. T. Cross Company
AG&G Incorporated
Callico Metals Inc. d/b/a Oster Pewter
Darlene Group, Inc.
Electrolizing, Inc.
Fujifilm Electronic Materials USA, Inc.
Hord Crystal Corporation
Impco, Inc.
Materion Technical Materials USA, Inc.
Metallurgical Solutions, Inc.
Osram Sylvania, Inc.
Providence Journal Company – Production Facility
Providence Metallizing Company, Inc.
Stackbin Corporation
Tanury Industries PVD, Inc.
Technodic Inc.
Umicore USA Inc.
Vital Diagnostics, Inc.

One Storm Water Management Excellence Award was presented to the Providence Community Health Center for reducing storm flow from entering NBC facilities. A Pollution Prevention Award was presented to University of Rhode Island Center for it pollution prevention technical assistance efforts.

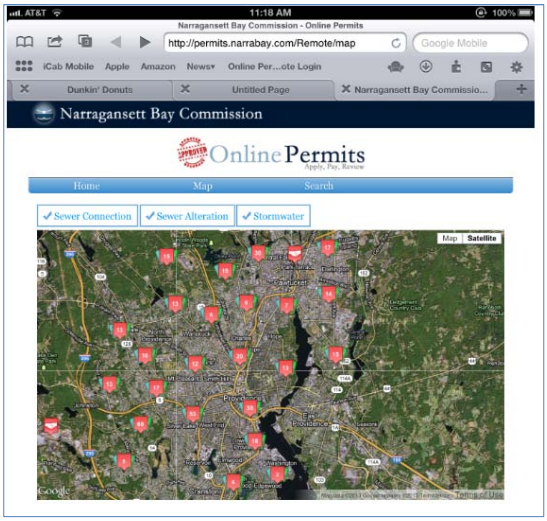
Each award recipient received a plaque and had their company name and environmental accomplishments published in the Providence Journal. Applications for the 2012 NBC Environmental Merit Awards will be sent out in March 2013 and the presentation of these awards will take place in mid 2013.

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 1994, the Permit & Planning Section developed a database to efficiently analyze data such as changing wastewater flow per district or by City/Town, generate reports such as customer listings for the Customer Service Section, and to expedite the Sewer Connection Permitting process. In 2012, new Permit Section

software was developed and put on-line. This software allows additional information to be entered and tracked and it 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 them electronically. A workstation was installed in the PP&R office area for applicants to use to complete applications.



This software incorporates Google Maps. Staff identify the projects on the maps. By clicking on the project the viewer will be able to access the information relevant to the project such as the location, type of connection and the applicant.

In 2012, 220 Sewer Connection Permits Applications were processed, the majority of which were for residential connections. The Pretreatment Section reviewed 26 of these sewer connection permit applications in 2012 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 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, 669,971 gallons, based upon a three month storm, were eliminated from the Field's Point sewer system in 2012. These are stormwater flows that would have impacted the NBC sewer system and CSO tunnel. Since this program was established in 2003 over four billion gallons of stormflow have been mitigated 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 level. 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 amalgams. 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. During 2004, Pretreatment staff initiated the Dental BMP Program and began issuing permits to dental facilities that implemented the BMP standards. 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 2004.
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 57.3% at Field's Point and 52.9% 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 2012, 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 Best Management Practices (BMP) 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 2012, the Pretreatment Section was contacted by representatives from the Springfield Water & Sewer Commission to assist them to develop a grease control program. Staff from Springfield Water & Sewer Commission spent a day with Pretreatment staff conducting inspections of restaurants and learning about the program.

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. PP&R staff will continue to monitor the facilities and revise the plans as necessary.

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 2012. The training at both facilities was conducted in March and April of 2012.

Nine Minimum Controls Compliance Program for CSOs

Throughout 2012 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 2012, 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 2012 were compared to the NBC local discharge limitations for the district. All but one parameter for one sample met the local limits, indicating the NBC Pretreatment and pollution prevention elements of the NBC Nine Minimum Controls Program are effective. The one parameter that exceeded, zinc, is a common contaminant in road run-off, which is an uncontrollable source for the NBC. However, plant zinc influent and effluent loading to the Bucklin Point treatment facility was down from the prior year,

demonstrating effective Pretreatment and Pollution Prevention Programs control of this pollutant.

The NBC also works with the community to minimize the impacts of CSOs and prevent pollutants from entering storm lines and CSOs. A program to stencil and label catch basins in the districts has been ongoing. The stencils say "Don't Dump Drains to the Bay". In addition, the NBC works with the City of Providence during river clean up events to ensure the streets in the surrounding area are swept after the event to minimize the impact on the river. As an element of the NBC Nine Minimum CSO Control Program, Save the Bay received a $3,500 grant from the NBC to install these labels throughout the NBC district.

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 2012 NBC explored expanding the River Restoration Initiative 2012 to include cleanups at additional urban rivers located within the NBC service area. An Earth Day Grant program was initiated in support of this expansion. A total of $2,000 was awarded in 2012. The grants program will be expanded in 2013.

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. On October 31, 2012 EMDA implemented its Extreme Weather Monitoring Initiative in the upper Bay in response to Hurricane Sandy to evaluate the effect of this extreme event on receiving water quality. Bacterial monitoring was conducted for four days into November 5, 2012. EMDA staff collected 105 river and bay bacteria samples to gauge the effect the storm had on the NBC receiving waters.

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 2012 included varying the effluent nitrogen concentrations being discharged from the NBC facilities. Results showed the difference in nitrogen effluent discharge were only distinguisheable just downstream from the facility, while further down the Bay the difference was less noticeable. Other similuations 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. More specific model simulations will be completed in 2013.

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 the year, the Laboratory began transitioning 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 application will be used by EMDA and Laboratory staff. EMDA has developed sample submission templates which include chain of custody documentation for the iPads. Staff will input information such as sample location, parameters to be analyzed, sample preservation, 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. A barcode scanning system will 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 addition, analytical data from user self-monitoring that has been entered in the Pretreatment system will be electronically transmitted to this database. Reports, such as the monthly Daily Monitoring Reports (DMR) will generated from the database for electronic submission to the DEM.

In 2012 progress was made with the development of this 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 the monthly 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 2012, NBC collected 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 2012, 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. During the 2012 monitoring season, 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.

On Going Projects

Over the years the Pretreatment, ESTA and EMDA Sections initiative 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 2013.

VIII. NBC PRETREATMENT PROGRAM GOALS

Status of 2012 Goals

This chapter outlines the progress made during 2012 toward meeting the goals established in the 2011 Pretreatment Annual Report and defines goals for 2013.

- **2012 Goal:** Publish Pretreatment Program Annual Report

  Accomplishment: The 2011 Pretreatment Program Annual Report was completed and submitted to the DEM on March 2, 2012 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 2011 Pretreatment Annual Report was uploaded to the internet on March 15, 2012. 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 4, 2012.

- **2012 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 SIUs were inspected two or more times during 2012. The EMDA Section performed well toward satisfying the NBC goal to sample each SIU at least twice in 2012 as all SIUs were sampled at least twice. 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.

- **2012 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 2012, the Pretreatment staff conducted 2,110 inspections of commercial and industrial users. Pretreatment staff performed thorough inspections of 99.4% of permitted non-significant industrial users, performing 438 inspections of this classification of user. During 2012, Pretreatment staff inspected 62.7% of the permitted restaurants and commercial buildings with cafeterias, conducting 647 inspections of facilities in these categories and 51.1% of all other commercial users, 346 inspections of commercials were conducted meeting the self-imposed goal. Additional information regarding the NBC inspection program is provided in CHAPTER III.

- **2012 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 staff 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 2012, as 412 Wastewater Discharge Permits were issued in various industrial and commercial categories. During the year, permits were issued to metalfinishers, chemical manufacturer, 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 2012, as 144 of the 412 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 2012 the Pretreatment Section performed expeditious reviews of 242 process and pretreatment system plan submittals. Of these 242 plan submittals 198 were promptly approved, 14 were approved with conditions to be met, 13 were rejected since NBC requirements were not satisfied and no action was taken initially on 17 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 2012, 220 Sewer Connection Permits were issued. This represents a 1.9% increase from 2011. Additional information regarding this program is provided in CHAPTER VII.

  The NBC participates in the RI Economic Development Corporation (EDC) 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 2012 Pretreatment issued new permit within 18 business days on average and the Permits Section issued new permits within two business days.

- **2012 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 2012, as 33 of the 63 or 52.4% industrial areas and mill complexes were inspected at least once in 2012. 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, telephone books and manufacturers directories to locate new and previously unknown sewer users. All of these methods were utilized during 2012.

- **2012 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 2012, Pretreatment staff conducted 46 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.

- **2012 Goal:** Continue regulatory inspections of Septage Haulers as part of the NBC Septage Discharge Control Program.

  Accomplishment: During 2012, Pretreatment staff verified the authenticity of 36 septic system pump-outs reported on manifest forms. This exceeded the goal for 2012. In addition, Pretreatment staff conducted 57 inspections at the Septage Receiving Station during 2012 meeting. Additional information regarding the NBC Septage Discharge Control Program is provided in CHAPTER VII.

- **2012 Goal:** Improve Data Management.

  Accomplishment: During 2012, Permits & Planning staff created and began using a new 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) whether the connection is direct or indirect. In 2012, Permits & Planning staff worked with Information Technology (IT) staff and developed a new on line application process which allows sewer connection permits to be completed, submitted and paid for on-line. 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 2012, EMDA continued to update monitoring locations on the GIS maps. All bay and river nutrients and bacteria monitoring sites have been entered and remain accurate. In addition, in 2011 a new water quality website was launched. This website "Snapshot of Upper Narragansett Bay", gives NBC staff and other interested parties immediate on-line 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.

  Throughout 2012, Pretreatment staff continued to work with NBC IT staff to enhance the Pretreatment Software.

  Throughout 2012, PP&R staff began investigating the use of iPads to improve the efficiency of day-to-day tasks. Pretreatment created forms for the tablets to be used on inspections and started using them during investigations. Permits & Planning began using them to upload approved permit information and pictures to the new database. Laboratory and EMDA staff worked with IT staff to integrate them with the new PerkinElmer LIMS system.

- **2012 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-hr HAZWOPER training and all NBC staff certified in 40-hr HAZWOPER training are given annual 8 hr. refresher training. In addition to in-house training to satisfy the 8 hr. refresher requirement.

  NBC staff was provided with HAZWOPER refresher training by the RI Fire Academy. This training covered emergency response software.

  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 with 15 employees receiving certification, and Hearing Conservation. Audiograms are given annually to NBC employees that have the potential to work in environments where hearing protection is needed.

- **2012 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 2012, Pretreatment staff continued to review SOPs and update them accordingly.

  During 2012, 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 addition, EMDA updated its EMDA Emergency Preparedness Plan to incorporate plans involving plant sampling, R/V Monitor, EMDA vehicles, fixed site monitoring equipment, and personnel involving adverse weather predictions.

  During 2012, 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.

- **2012 Goal**: – Provide free technical assistance.

  Accomplishment: Throughout 2012 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 2012, 14 pollution prevention technical assistance site visits were conducted.

- **2012 Goal**: – Water Conservation and Reuse.

  Accomplishment: During 2012, ESTA staff continued to investigate opportunities for the reuse of treated wastewater from the two treatment plants. In early 2012 NBC participated in discussions with Johnson & Wales University regarding the potential of using treated effluent from Field's Point to water newly constructed athletic fields at the Harborside campus which is adjacent to the plant.

- **2012 Goal:** Environmental Merit Awards Program - Solicit nominations from companies and staff, evaluate all Significant Industrial User performance data, and hold Awards Ceremony.

  Accomplishment: In 2012, the NBC recognized one company for environmental achievements with respect to storm water management one company for its pollution prevention and technical assistance efforts 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 May 24, 2012. Additional information regarding this program is provided in CHAPTER VII.

- **2012 Goal**: Workshops – Participate in workshops and conferences to educate the public on NBC programs and initiatives.

  Accomplishment: During 2012, PP&R staff made numerous presentations at workshops, meetings and/or conferences. These conferences include the 2012 EPA New England Region Pretreatment Conference, Women in Science & Engineering Workshop, 2012 NEWEA Conference, and URI Pollution Prevention on class, 2012 WEF Conference.

  Further discussions on the workshops and other NBC educational efforts can be found in CHAPTER II.

- **2012 Goal:** Energy Conservation – Continue to investigate energy conservation and alternative energy opportunities and seek grant funding for energy projects

  Accomplishment: In 2012 ESTA staff tracked annual energy use measurements from 22 NBC metered accounts and analyzed performance data for 13 locations using EPA Portfolio Manager and conducted three detailed energy assessments of NBC facilities. A solar energy feasibility study was initiated. A grant application

was submitted to the EDC for $25,000 to complete the feasibility study. During the spring months interior lighting in the Corporate Office, Interceptor Maintenance, the Field' Point and Bucklin Point Operations buildings was replaced with high efficiency fluorescent lighting fixtures. It is estimated that this overall energy efficiency project will reduce the lighting energy demand of these buildings by more than 50%. In October 2012 NBC began operating three 1.5 MW wind turbines at the Field's Point wastewater treatment facility.

- **2012 Goal:** Assess NBC Greenhouse Gas (GHG) Emissions

  Accomplishment: Throughout 2012, NBC collected and analyzed electrical, natural gas, biogas and vehicle fuel use to help quantify GHG emissions for Field's Point and Bucklin Point and support operations. As a result of this analysis it has been determined that NBC site specific and overall GHG emissions are below current reporting requirements for both the State of Rhode Island and EPA regulations. NBC will continue to collect and refine necessary data elements to better assess and minimize our GHG footprint.

- **2012 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 308 industrial surveillance manholes during 2012, 151 in the Bucklin Point district and 157 in the Field's Point district. This is a 7.8% decrease in the number of manholes sampled over the number of manholes sampled in 2011. In addition to the 308 industrial manholes, EMDA collected samples from 42 sanitary manholes and from four manholes associated with line cleaning activities. The EMDA Section also attempted to collected samples from 14 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 six manholes per week, meeting the goal of 6 to 10 manholes per week. During 2012 surveillance manhole monitoring was conducted up and down stream of 77.4% of the SIUs and 15.9% of the zero discharge companies.

- **2012 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. In 2005 Pretreatment and EMDA staff began planning to improve the assessment of toxic loadings from drainage areas. 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 48 sampling events of residential manholes were conducted during 2012, up from 42 events or 14.3% from 2011.

- **2012 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, the use of acid washed and 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 2012. Throughout 2012, EMDA staff continued to use QA/QC sample collection practices to ensure the highest quality samples were being collected. During 2012, the NBC complied with the RIPDES permit requirements to sample at the two treatment plants every day of the year and complied with 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 2012, the Field's Point primary effluent sampler was relocated to the fine screen building to better obtain representative samples resulting from the plant redesign.

  In addition to sampling both facilities to satisfy the RIPDES permits, EMDA staff collects process control samples throughout the plants. The results of these samples are transmitted to Operations staff so that process operations can be optimized. Throughout 2012 EMDA collected samples at both plants for multiple studies to assist Operation in optimizing processes.

- **2012 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 2012, EMDA worked 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 2012, EMDA published the data collected from the 2011 monitoring season. During 2012, 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 current 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 2012, 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 2012, Pretreatment staff worked with IT staff on the PT-LIMS interface to download data directly from the new PerkinElmer LIMS to the PT system.

- **2012 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 2012. The database is accessible through www.narrabay.com allows immediate access to selected data for use by NBC staff and stakeholders. In addition, EMDA and Laboratory staff continued to work to create an inventory of all data files existing in hard copy form. These files are being scanned into a digital format and input into the database. Discharge Monitoring Reports (DMR) from 1989 through 2012 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. EMDA continues entering this data into the electronic format for inclusion into the centralized database. In addition, during 2012, IT has recovered data thought to be lost from the Laboratory Information

  Management System (LIMS) database dating back to 1998. Furthermore, new LIMS software was acquired and implemented during 2012. 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 its central database.

- **2012 Goal**: Monitor the receiving waters of both the Field's Point and Bucklin Point treatment facilities to continue the fixed site monitoring program previously funded through an EPA grant.

Accomplishment: In 2012, 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 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 new NBC "Snapshot of Upper Narragansett Bay" website.

- **2012 Goal:** Conduct tributary river sampling for fecal coliform analysis.

  Accomplishment: In 2012 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 assisted IM in identifying and quickly stopping dry weather overflows on two separate occasions during 2012. This data has provided a baseline to measure the success of the CSO remediation project, and new data to be collected in 2013 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.

- **2012 Goal:** Continue to evaluate the effect of the NBC effluent on water quality of the receiving waters.

  Accomplishment: During 2012 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 2012. Also in 2012, a nutrient monitoring site was added outside Pawtuxet cove, as NBC is observing high concentrations of nutrients emanating from the Pawtuxet River and further evaluation in the Bay in this area is necessary. In 2011, NBC began collecting samples bimonthly for Dissolved Organic Carbon (DOC) as well as initiated plankton sampling while out on the Bay conducting other monitoring activities, to better understand the complex dynamics of the Bay ecosystem and how it is impacted by NBC and other discharges. This monitoring continued during 2012. In addition, during 2012, EMDA utilized an underwater video camera to determine the state of the benthos in NBC receiving waters. Long-term monitoring of the benthos will document how BNR impacts the local benthos.

- **2012 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.

  On December 18, 2012 samples were collected from outfall #218 in the Bucklin Point district. On December 21, 2012samples were collected from outfall #09 in the Field's Point district. Both of these outfalls were sampled in accordance with the sampling plan. Also on December 21, 2012 the North Diversion Structure at Bucklin Point was sampled, however, this discharge did not last long enough to collect samples of flow during mid and end stage.

- **2012 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 2012. 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 2012, the Lee River monitoring site was eliminated, as data indicated low nutrients concentrations from this river. Resources were applied elsewhere in the Ten Mile River, as another monitoring site was added. 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.

- **2012 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 2012. Data collected from these locations is used to evaluate the tunnel's success in reducing adverse impacts to area tributary rivers.

- **2012 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 new samplers hold up to four carboys, eliminating the need for off-hour jug change-outs. During 2012, at Bucklin Point two wet weather samplers, one at BVI and the other at EPI, were replaced with model 6712 ISCO samplers with automatic bottle switch and custom programming to fill specific bottles only during wet weather events. At Field's Point the primary effluent sampling location was moved to the fine screen building as a result of the BNR system construction, to better represent primary effluent flow. Also at Field's Point, the influent and final effluent back-up samplers were replaced with the new 6712 models with automatic bottle switch capabilities.

  The Laboratory ensured all analyses were performed in conformance with EPA and Department of Health standards. In 2012 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 2012.

  During 2012 Laboratory staff developed analytical procedures for sulfate and sulfite testing. The Laboratory can now perform chlorophyll-a analyses and has the capability to perform total organic carbon analysis.

- **2012 Goal:** Participate in community based environmental and educational projects.

  Accomplishment In 2012, the NBC initiated an Earth Day Grant program that expanded the NBC River Restoration program. A total of $2,000 was awarded to groups which extended clean-ups into other areas of the NBC districts.

  In 2012, the NBC cosponsored shellfish relocation events with the DEM, RI Department of Health, RI Shellfisherman's Association and the Nature Conservancy. Three transplant events took place in May. More than 90,000 pounds of shellfish were collected from restricted waters and relocated to management areas where the shellfish were allowed to cleanse themselves and reproduce.

  During 2012, Pretreatment, EMDA and Laboratory staff participated in the Woonasquatucket River Environmental Educational Program.

- **2012 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. In October 2012, Rhode Island was adversely impacted by extreme weather conditions from Hurricane Sandy. EMDA staff collected 105 bay bacteria samples over a 4-day period, to gauge the effect the storm had on the NBC receiving waters. This, and all extreme event monitoring collected over the years has provided invaluable data necessary to better understand the dynamics of the bay and rivers discharging to it.

- **2012 Goal:** Improve process operations at the two treatment plants

  Accomplishment: During 2012 EMDA evaluated Field's Point plant process and analytical data to determine optimal process control parameters to ensure disinfection of enterococcus bacteria. During 2012, sampling of the Field's Point east and west aeration system continued to optimize the activated sludge process. The resulting data provided useful information to Operations and has now become part of routine plant monitoring to evaluate Biological Nutrient Removal (BNR) performance of the existing treatment plant. In addition, alkalinity testing of the mixed liquor began at Field's Point in late 2012 in an effort to provide data needed to optimize BNR.

  During 2012 NBC investigated the feasibility of utilizing a glycerin by-product from the production of biodiesel as a carbon source for the Bucklin Point BNR process. In January and August 2012 pilot studies were performed using a bench-top reactor set-up. The results of these pilot tests indicate that the biological kinetics of the biodiesel glycerin compare well with other potential carbon sources.

- **2012 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, 2012. 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.

  In 2012, the annual monitoring plan outlining monitoring initiatives proposed for the next fiscal year was provided to the PP&R Director for review by November 15, 2012. This plan provides the basis for both budgetary and resource planning for the next fiscal year.

Major Program Goals for 2013

Goal Category	Goal Outline	Goal Description
Inspections	Inspect industries to ensure compliance with regulations.	▪ Inspections of SIUs twice (EPA/RIDEM requires one inspection) ▪ One inspection of each non-significant industrial user ▪ 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 spot inspections of 50% of the mill complexes/industrial areas
	Continue regulatory inspections of septage haulers.	▪ Each technician will spend one half day monthly inspecting septage vehicles at the receiving station ▪ 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 sewer system to ensure compliance with regulations.	▪ Sample 6-10 manholes per week (including surveillance and routine monitoring) ▪ Sample up and down stream of every SIU and Zero Discharge Company at least once.

Goal Category	Goal Outline	Goal Description
Monitoring and Analytical Initiatives (continued)	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
	Maintain the two NBC fixed site monitoring systems to continue EMPACT Program.	▪ 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 and 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 and fecal coliform 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 ▪ Evaluate Emerging Pollutants removal rates at NBC facilities ▪ Utilize an underwater video camera when doing routine Bay work such as when conducting Seabird profiles to determine the state of the benthos in NBC receiving waters. Long-term monitoring of the benthos will be initiated to determine how BNR impacts the 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.

Goal Category	Goal Outline	Goal Description
Monitoring and Analytical Initiatives (continued)	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 and bacteria upstream of the Hurricane Barrier.
	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 ▪ Attain 100% accuracy on all annual Proficiency Testing. ▪ Ensure all laboratory equipment is calibrated annually. ▪ Maintain all Laboratory licensing certifications.
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 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 access to all NBC monitoring data	▪ Upload annual data report to the internet by April 1st ▪ Prepare and post project tasks summary reports detailing activities and historical trends to the internet promptly upon completion of each task ▪ Prepare draft press releases on findings
	Log, review, evaluate and report all data to provide short and long term trends and alerts.	▪ Routine data logging and evaluation ▪ Monthly reporting of projected short and long term trends and alert levels regarding data ▪ Timely response on data excursions and alerts to Laboratory, Operations and Pretreatment staff, allowing opportunity for prompt corrective action (regulatory, administrative or operational) ▪ Analyze data and report trends to NBC staff at monthly meetings ▪ Provide trend analysis to NBC and Stakeholders publish technical papers, abstracts, present posters, etc.

Goal Category	Goal Outline	Goal Description
Special Studies and Projects	Improve functionality of NBC computer systems	▪ 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 ▪ Improve the information on the NBC internet site ▪ Update safety training tracking software
	Energy Management	▪ Continue to investigate energy conservation and alternative energy opportunities ▪ Seek grant funding for energy projects
	Water Conservation Projects	▪ Continue to investigate WWTF reuse of wastewater and biosolids ▪ Seek grant funds to support water conservation programs.
	Evaluate the success of NBC toxic reduction programs by performing a trace metals study of shellfish	▪ Analyze the data collected from the shellfish studies ▪ Compare the data to data from previous studies ▪ Publish the findings
	Conduct studies during extreme weather or emergency events	▪ Identify degradation to NBC receiving waters associated with emergency situations or extreme weather events. ▪ As NBC lowers its pollutant inputs to the bay, reverine inputs need continued monitoring to assess and ensure that our reductions are not offset by increases from other sources.
	Improve process operations at the two treatment plants	▪ Continue the study at Bucklin Point to determine if glycerin is a good carbon source for the nutrient removal process. ▪ Coordinate research to increase bio-gas production at Bucklin Point ▪ Conduct a study to determine chlorine speciation to improve disinfection at Field's Point ▪ Collect samples from both the east and west aeration systems at Field's Point to optimize the activated sludge process ▪ Provide high quality nutrient data to evaluate and optimize BNR processes at both facilities. ▪ Conduct monitoring as defined in the Field's Point performance evaluation contract ▪ Provide high quality nutrients data to evaluate and optimize the BNR processes at both facilities ▪ Conduct UV study at Bucklin Point to optimize disinfection
	Participate in community based environmental and educational projects	▪ Continue Earth Day Grant Program ▪ Participate in the Woonsaquatucket River Environmental Educational Program. ▪ Participate in the DEM/RI Shellfishermen's Association Shellfish transplant program.

Goal Category	Goal Outline	Goal Description
Special Studies and Projects (continued)	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 ▪ Refine inventory of NBC GHG sources ▪ Assess theoretical 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 on NBC requirements for 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's 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 the NBC water quality website.