PRETREATMENT PROGRAM

ANNUAL REPORT

JANUARY 1, 2009 – DECEMBER 31, 2009

The Narragansett Bay Commission

FIELD'S POINT AND BUCKLIN POINT DISTRICTS

MARCH 15, 2010

The Narragansett Bay Commission
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Vincent J. Mesolella
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Raymond J. Marshall, P.E.
Executive Director

March 15, 2010

Dear Friends:

I am pleased to present the 2009 Narragansett Bay Commission (NBC) Pretreatment Program Annual Report for the period from January 1, 2009 through December 31, 2009. 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 925,685 pounds, which equates to 97.0%. In addition, the cyanide loadings were reduced by 78,526 pounds, a 97.6% reduction from 1981 levels.

The NBC accepts its responsibility to protect the receiving waters of Narragansett Bay very seriously. During 2009, the NBC issued 2,158 Notice of Violation letters, assessed $18,500 in Administrative Penalties and collected $9,000 in Administrative Penalties from violators. Funds collected are deposited into the NBC Environmental Enforcement Fund and used to further protect the environment.

The NBC will continue to be a leader in the field of wastewater treatment and environmental protection. The hard work done by the NBC staff members at enforcing local and federal environmental regulations, educating local industries about compliance methods and performing monitoring of our industrial users, the sewer system, and the State's waterways will ensure a cleaner Narragansett Bay for all to enjoy. I trust you will find this report to be thoroughly detailed and informative.

Sincerely,

Raymond J. Marshall, P.E.
Executive Director

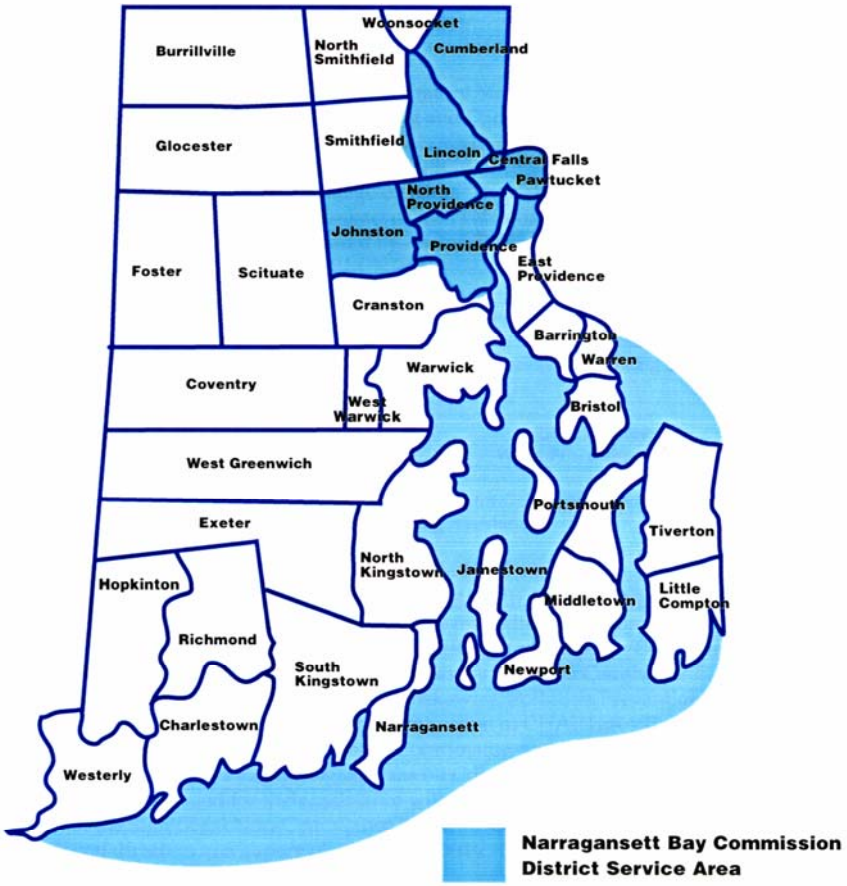
Narragansett Bay Commission
Mission Statement:

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

Narragansett Bay Commission

Service Area

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



ACKNOWLEDGMENTS

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

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A special acknowledgment to Cynthia Walters, 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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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's waterways everyday, resulting in temporary and permanent closures of shellfishing beds in Upper Narragansett Bay, violations of federal laws, and most importantly, threatening public health and the region's environmental and economic well-being.

Aerial View - Field's Point Wastewater Treatment Facility

The NBC acquired the Field's Point facility from the City of Providence in 1982 and has transformed the once failing, antiquated facility into a highly sophisticated, award winning facility. As the largest secondary wastewater treatment facility in 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 2009 had an average dry weather flow to the facility of 48.5 MGD. The average dry weather flow has increased in 2009 due to the inputs to the plant from the CSO tunnel that went on-line in November 2008.

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, with an average dry weather flow to the facility of 22 MGD. In 2009, the average daily flow was 21.1 MGD. During 1999, supervisory management of this plant was privatized to Professional Services Group (PSG), which became Veolia Water North America. In July of 2005 the management of the Bucklin Point facility was transferred to Aquarian Operating Services. 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 2009 nitrogen loading from this facility to Narragansett Bay was reduced by 39.0% from 2005 loading levels before the upgrades went online.

Bucklin Point Wastewater Treatment Facility

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 7,700 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.

In the fall of 2001, the NBC consolidated its operations into a centralized location, One Service Road, across the street from the Field's Point Wastewater Treatment Facility. The Corporate Office Building brought together NBC administrative, maintenance, construction, engineering, laboratory, pretreatment, and environmental monitoring and data analysis staff to one central location.

Previously NBC staff was divided among four separate locations. With the move into the new buildings at the Field's Point campus, 87% of NBC staff are situated at one central location. A portion of the NBC Operations personnel, the remaining 13% of NBC staff, remain at the Bucklin Point Wastewater Treatment Facility in East Providence.

Pretreatment Program Annual Report Overview

CHAPTER I of this report provides a brief 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 2009, including a list of new significant industrial users of the sewage system and a section regarding firms that experienced major changes in water usage. 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 2009, Pretreatment staff issued 425 permits to users located in the Field's and Bucklin Point Districts, conducted 2,249 facility inspections, held 30 regulatory compliance meetings with users and responded to 56 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 2009, the NBC conducted 253 sampling inspections, performed 448 manhole sampling events, and reviewed 3,034 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 the Field's Point Wastewater Treatment Facility remained virtually the same as 2008 with a very slight decrease of 0.5% during 2009**.** The total metals loading to the Bucklin Point Facility decreased significantly by 44.2%. The cyanide loading to the Field's Point Wastewater Treatment Facility decreased by 67 pounds, or 3.4% in 2009, and the cyanide loading to Bucklin Point increased slightly by 1.8 pounds or 0.66%. 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 2009, the NBC issued 2,158 Notice of Violation letters and three Administrative Orders. 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 2009 and describes the ambitious goals established by these sections for 2010.

Unique Program Elements, Activities, Awards And Accomplishments

The Narragansett Bay Commission utilizes many innovative and unique activities, projects and programmatic elements 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 regarding Pollution Prevention, Pretreatment, Storm Water Management, Sewer Connection, 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 website (**http://www.narrabay.com**)
- Citizens Advisory Committee

Special Projects and Studies

- Environmental Merit Award Programs, include:
  - ~ Pollution Prevention Award
  - ~ Perfect Compliance Award
  - ~ Stormwater Management Award
- Grease removal program, which has greatly reduced sewage backups and overflows due 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
- Customer Survey Program to evaluate program performance and services provided
- EMPACT Project to monitor Narragansett Bay and provide on-line monitoring data to the public
- Computerization of Sewage System Mapping
- Woonasquatucket River Environmental Education
- 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, as well as those having the potential to discharge
- Unique and equitable rate structure with varying rates dependent upon hydraulic/pollutant loadings, which covers the cost to operate the Pretreatment Program
- Zero discharge facilities are permitted 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 river, septage, collection system, 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
- Annual 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 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 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
- Formal agreement with the University of Rhode Island (URI) Chemical Engineering Department and its Rhode Island Pollution Prevention Center to augment staff resources through consulting services and to develop new technologies or find new applications for existing technologies
- Free water audits conducted of businesses, large residential buildings and manufacturing industries

Staff Training

- NBC provides extensive training to its employees
- NBC 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

Enforcement

- Some type of enforcement action issued against 100% of violators
- Cost of SNC Public Notice billed to firms in violation
- 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

2009 Accomplishments

~ ***Permitting:***

- 425 Permits issued in 2009
- 132 New permits issued to previously unpermitted firms
- 293 Revised permits issued

~ ***Inspections and Sampling:***

- 2,249 Non-sampling inspections conducted
- 413 Non-sampling inspections of SIUs
- 307 Non-sampling inspections of categorical users
- 106 Non-sampling inspections of significant non-categorical users
- 1,836 Non-sampling inspections of non-significant users
- 30 Regulatory Compliance meetings held with users
- Pretreatment staff reviewed 3,034 User Monitoring Reports
- 56 Emergency/Special Investigations Conducted
- 258 User Monitoring Reports generated by NBC in 2009
- 248 NBC Sampling Inspections of Industry
- 107 Different Facilities Sampled by NBC
- 225 Monitoring Reports of SIUs generated
- 166 Monitoring Reports of Categorical Users generated
- 59 Monitoring Reports of significant non-categorical users generated
- 28 Monitoring Reports of non-significant users generated
- 475 Manhole Sampling Events conducted
- 446 Industrial Surveillance Manhole Sampling Events conducted
- 29 Sanitary Manhole Sampling Events conducted

~ ***Enforcement:***

- 2,158 NOV Letters Issued
- $18,500 in Administrative Penalties Assessed in 2009
- $9,000 in Administrative Penalties Collected
- 22 Firms listed in the February 25, 2010 Public Notice in the Providence Journal as being in Significant Non-Compliance (SNC)
- 20 of the 22 Firms listed in SNC achieved compliance with cited violations prior to publication of the Public Notice

~ ***User Compliance:***

- 7.5% Rate of SIU SNC in Field's Point District for 2009, a reduction from 39% in 1992
- Rate of SIU SNC reduced in Bucklin Point from 44.8% in 1994 to 11.6% for 2009
- Overall rate of SIU SNC is 9.4% in 2009
- 96.2% Overall Rate of Compliance for All Significant Users
- 96.1% Overall Rate of Compliance for All Categorical Users

- 96.3% Overall Rate of Compliance for All Non-Significant Users
- 96.2% Overall Rate of Compliance for All Users
- 60.6% of EPA categorically regulated users had perfect effluent compliance records with all effluent parameters excluding pH
- 63.5% of Significant Users AND 88.9% 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 2009, six users were reclassified from significant to non-significant. Four of the six users that were reclassified were categorical users. Two of the six users were reclassified to non-significant because they went out of business. Three of the six users were located in the Field's Point district and eliminated 117,577 gallons per day of industrial flow to the Field's Point facility. The remaining three users that were reclassified were located in the Bucklin Point district and eliminated 8,641 gallons per day of industrial flow to the Bucklin Point facility.

There were three users that were newly classified as Significant Industrial Users (SIU) in 2009. Two of the new SIUs are located in the Field's Point district and contribute 16,030 gallons per day of industrial flow to the plant. The remaining new SIU is located in the Bucklin Point district and contributes 761 gallons per day of industrial flow to Bucklin Point. Two of the three new SIUs are classified as categorical.

A review of the baseline monitoring reports submitted by the three newly classified significant users of the NBC sewer system indicates that the combined discharge from these facilities should have no adverse effect on the quantity or quality of effluent discharged from the Field's Point or Bucklin Point Wastewater Treatment Facilities. The SIUs which were reclassified during 2009 and the reason for each reclassification are detailed in TABLE 1.

TABLE 1

2009 Significant Industrial Users Classification Changes
Firms Reclassified to Non-Significant

Field's Point Firms	*Reason for Reclassification*
Narragansett Electric Company - Gas Holders	Firm ceased process discharges.
Rhode Island Public Transit Authority - Groundwater Site #2	Firm ceased process discharges.
The Colibri Group	Firm is out of business.

TABLE 1
(continued)

2009 Significant Industrial Users Classification Changes
Firms Reclassified to Non-Significant

Bucklin Point Firms	*Reason for Reclassification*
Cadence, Inc.	Firm moved out of the district.
Honeywell Sensing and Controls	Firm moved out of the district.
Ronald Pratt Company	Firm is out of business.

Newly Classified Significant Users

Field's Point Firms	*Reason for Reclassification*
Metallurgical Solutions, Inc.	This firm began conducting categorically regulated metal finishing operations.
Providence Specialty Products	This firm began discharging wastewater greater than 5,000 gallons per day.

Bucklin Point Firms	*Reason for Reclassification*
Ronald Pratt Company, Inc.	This newly permitted firm conducts categorically regulated metal finishing operations.

During 2009, 35 Field's Point SIUs experienced notable changes in water usage. Twelve of the 35 firms increased their water usage by a combined total of 39,408 gallons per day. Twenty-three of the 35 firms decreased their water usage by a combined total of 60,666 gallons per day. The net change to the Field's Point facility is a decrease of 21,258 gallons per day of industrial flow. This decrease in industrial flow did not have an adverse effect on the quality of wastewater discharged from the Field's Point treatment facility.

Twenty-eight Bucklin Point SIUs experienced notable changes in water usage during 2009. Thirteen of the 28 SIUs increased their water usage by a combined total of 53,267 gallons per day. Fifteen of the 28 SIUs decreased their water usage by a combined total of 77,252 gallons per day. The net change in flow to Bucklin Point is a decrease of 23,985 gallons per day of industrial flow. This decrease 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 2009 are detailed in TABLE 2.

TABLE 2

2009 Significant Industrial User Changes in Water Usage
Firms with Increased Flow

Field's Point

Company	*Change in Flow (gpd)*	*% Change*
AG&G, Incorporated	114	10.0%
A. Harrison & Company	153	71.5%
Austin Metal Finishing, Inc.	260	162.5%
C&J Jewelry Company, Inc.	357	13.1%
Dominion Energy Manchester Street, Inc.	16,867	87.7%
Evans Plating Corporation	795	17.6%
General Plating Company	69	15.3%
International Insignia Corporation	5,156	181.5%
Monarch Metal Finishing Company, Inc.	1,090	11.1%
Providence Journal Company - Production Facility	13,022	78.9%
Surface Coatings Division of Westwell Industries, Inc.	785	21.7%
Technodic, Inc.	740	11.5%

Bucklin Point

Company	*Change in Flow (gpd)*	*% Change*
A.T. Cross Company	1,216	35.0%
Angelica Textile Service	10,068	11.8%
Bliss Manufacturing	627	72.7%
Chemart Company	1,220	8.9%
Cintas, Inc.	8,722	11.8%
Collegium Pharmaceutical, Inc.	255	45.9%
Microfibres, Inc.	14,661	37.5%
Nulco Manufacturing Corporation	2,357	23.2%
Osram Sylvania Products, Inc.	59	48.4%
Pawtucket Power Associates, LP	7,342	62.4%
Stackbin Corporation	127	222.8%
Summit Manufacturing Corporation	3,832	105.5%
Tru-Kay Manufacturing Company	2,781	77.0%

TABLE 2
(continued)

2009 Significant Industrial User Changes in Water Usage
Firms with Decreased Flow

Field's Point

Company	*Change in Flow (gpd)*	*% Change*
Armbrust International, Ltd.	-1,668	-11.0%
C&C Rhode Island, LLC	-2,138	-9.2%
Callico Metals, Inc. d/b/a Oster Pewter	-420	-30.0%
Clayton Company & Claverick Realty	-97	-18.8%
Contract Specialties, Inc.	-701	-13.4%
DiFruscia Industries, Inc.	-2,134	-28.4%
Eastern Color & Chemical Company	-876	-41.7%
Electrolizing, Inc.	-898	-10.3%
G. Tanury Plating Company	-11,598	-21.8%
Induplate, Inc.	-3,122	-9.8%
International Chromium Plating Company, Inc.	-402	-22.6%
International Etching, Inc.	-1,657	-30.6%
Ira Green, Inc.	-1,231	-4.2%
Kirks Folly	-161	-35.5%
Mahr Federal, Inc.	-525	-20.6%
Northland Environmental, LLC	-9,455	-45.0%
Providence Chain Company	-1,106	-28.7%
Regal Plating Company	-1,450	-8.2%
Umicore USA, Inc.	-10,985	-25.1%
Uncas Manufacturing Company	-2,311	-19.7%
Unique Plating Company	-3,199	-43.4%
Universal Plating Company, Inc.	-178	-20.1%
Victory Finishing Technologies, Inc.	-4,354	-10.1%

Bucklin Point

Company	*Change in Flow (gpd)*	*% Change*
Accent Plating Company	-1,097	-39.6%
Aspen Aerogels Rhode Island, LLC	-1,809	-9.8%
Bunge North America (East), LLC	-10,519	-60.2%
Charisma Manufacturing Company, Inc.	-388	-12.3%
Fujifilm Electronic Materials USA, Inc.	-17,466	-58.3%

TABLE 2
(continued)

2009 Significant Industrial User Changes in Water Usage

Firms with Decreased Flow

Bucklin Point

Company	*Change in Flow (gpd)*	*% Change*
General Cable Industries, LLC	-476	-14.5%
Impco, Inc.	-247	-10.1%
John H. Collins & Sons Company	-655	-21.0%
Murdock Webbing Company, Inc.	-2,128	-16.6%
Providence Metallizing Co., Inc.	-5,227	-26.0%
Technical Materials, Inc.	-33,834	-54.8%
Teknicote, Inc.	-1,680	-27.0%
Tiffany and Company	-276	-21.1%
Truex, Inc.	-1,331	-43.8%
W. T. Wilson, Inc.	-119	-29.5%

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. The NBC is one of only a few Pretreatment Programs in the nation to receive these prestigious designations three times.

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).

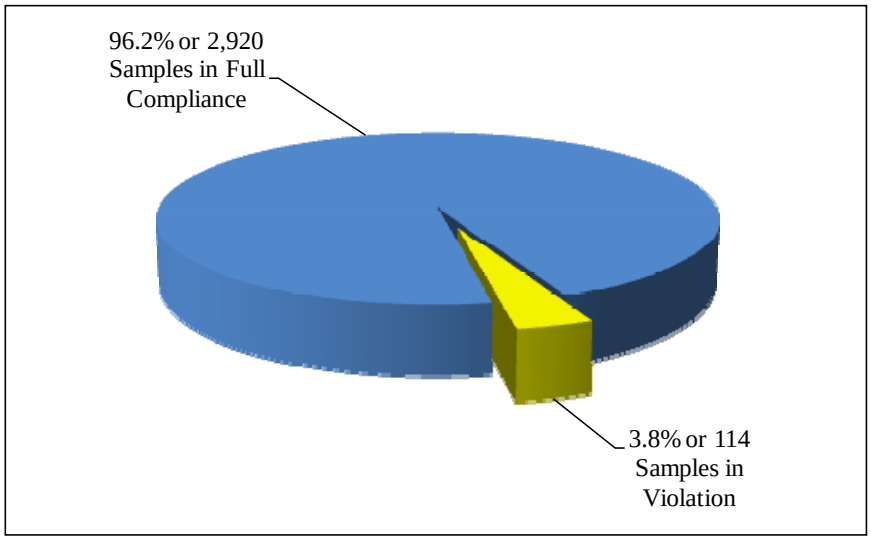
~ Evaluation of Significant Non-Compliance

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 2009 was 9.4%, a slight increase from 8.6% in 2008.

The SIU rate of SNC was dramatically reduced in the Field's Point District from a high of 39.0% in 1992 to 7.5% for 2009, while the SIU rate of SNC for Bucklin Point was reduced from a high of 44.8% in 1994 to 11.6% in 2009. 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.

As a result of these efforts, the NBC has been able to maintain overall SIU rates of SNC to 10% or below. As can be seen from FIGURE 1, 96.2% of the 3,034 analytical reports reviewed by the Pretreatment staff during 2009 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



3,034 Total Analyses Reviewed

In addition, as shown in CHAPTER IV of this report, the 2009 rate of compliance of categorical users in the two districts was 96.1%, while the compliance rate for significant users was 96.2%. 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.

Twenty-two firms located in the Field's Point and Bucklin Point Districts were listed in a Public Notice in the Providence Journal on February 25, 2010 as being in SNC for the period from October 1, 2008 through December 31, 2009. Of the 22 firms published for being in SNC, 13 users are located in Field's Point and nine users are located in Bucklin Point.

The names of eight categorical users were published for SNC, four from Field's Point and four from Bucklin Point. One significant non-categorical user, located in Bucklin Point, was published. Thirteen non-significant industrial users were listed in the Public Notice, nine from Field’s Point and four from Bucklin Point. Sixteen of the 22 firms, or 72.7%, 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, 20 of the 22 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's approved Enforcement Response Plan (ERP). The Pretreatment staff works very closely with the NBC 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 2009, the NBC issued 2,158 Notice of Violation letters, assessed $18,500 in Administrative penalties, and collected $9,000 in administrative penalties. This is clear evidence of the effectiveness of the NBC Enforcement Program. 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. A review of recommendations from this report is provided in CHAPTER VII.

~ Sufficiency of Statutory Authority and Rules and Regulations

The Narragansett Bay Commission 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 DEM reviewed the submittal and deemed the revisions to be a non-substantial Pretreatment Program modification and approved them. A public hearing on the revisions was held on October 30, 2006. The revised Rules and Regulations 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 since the adoption of the ERP in 1994. This 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 2009.

~ 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, commonly referred to as "the bean counts", 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 2009 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, 2009 - December 31, 2009
Total Categorical Industrial Users as of the date of this report (throughout the reporting period)	41 (42) (See Note 1)
Total Significant Non-Categorical IUs as of the date of this report (throughout the reporting period)	9 (11) (See Note 1)
Total # Significant Industrial Users (SIUs)	50 (53) (See Note 1)

2. Significant Industrial User (SIU) Compliance

	Significant Industrial Users	
	Categorical	**Non-Categorical**
1. # Of SIUs Submitting BMRs/# Required	7/7	2/2
2. # Of SIUs Submitting 90-Day Compliance Reports/# Required	1/1	0/0
3. # Of SIUs in SNC with Pretreatment Compliance Schedule/ # Required To Meet Schedule	0/0	0/0
4. # Of SIUs In Significant Noncompliance With Self Monitoring Reporting Requirements and have not returned to compliance	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	11/11	2/2
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	183	45
5. # Of Sampling Visits Conducted	97	27
6. # Of Facilities Inspected (Nonsampling)	42	11
7. # Of Facilities Sampled	42	11
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 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	300	24	1,072	1,396
3. Admin. Orders Issued	0	0	2	2
4. Combined Total Of Administrative Orders and Notices of Violation	300	24	1,074	1,398
5. Civil Suits Filed	0	0	1	1
6. Criminal Suits Filed	0	0	0	0
7. Combined Total of Civil and Criminal Suits	0	0	1	1
8a. Published IUs in SNC (See Newspaper Notice in Enforcement Chapter)	4	0	9	13
8b. Rate of IUs in SNC	4/42 = 9.1%	0/11 = 0%	N/A	N/A
9a. Amount Of Penalties Collected (Total Dollars/IUs Assessed)	$0/0	$9,000/1	$0/0	$9,000/1
9b. Amount Of Penalties Assessed (Total Dollars/IUs Assessed)	$0/0	$0/0	$18,500/2	$18,500/2
10. # of IUs Subject to Any Enforcement Action	34	5	467	506
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 — March 15, 2010
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, 2009 through December 31, 2009

POTW Name:	Narragansett Bay Commission (NBC)
NPDES Permit #:	RI0100315
Pretreatment Report Period Start Date:	January 1, 2009
Pretreatment Report Period End Date:	December 31, 2009
# of Significant Industrial Users (SIUs):	50 (53) (See Note 1)
# of SIUs Without Control Mechanisms:	0
# of SIUs not Inspected:	0
# of SIUs not Sampled:	0
# of SIUs in Significant Noncompliance (SNC) with Pretreatment Standards:	2
# of SIUs in SNC with Reporting Requirements:	2
# of SIUs in SNC with Pretreatment Compliance Schedule:	0
# of SIUs in SNC Published in Newspaper:	4
# of SIUs with Compliance Schedules:	0
# of Violation Notices Issued to SIUs:	324
# 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):	41 (42) (See Note 1)
# of CIUs in SNC:	4
Penalties Total Dollar Amount of Penalties Collected:	$9,000.00
# of IUs from which Penalties have been collected:	1

TABLE 4
(continued)
NARRAGANSETT BAY COMMISSION

FIELD'S POINT DISTRICT

REVISED PRETREATMENT REPORT SUMMARY SHEET

January 1, 2009 through December 31, 2009

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, 2009 - December 31, 2009
Total Categorical Industrial Users as of the date of this report (throughout the reporting period)	26 (29) (See Note 1)
Total Significant Non-Categorical IUs as of the date of this report (throughout the reporting period)	14 (14)
Total # Significant Industrial Users (**SIUs**)	40 (43) (See Note 1)

2. Significant Industrial User (SIU) Compliance

	Significant Industrial Users	
	Categorical	**Non-Categorical**
1. # Of SIUs Submitting BMRs/# Required	4/4	3/3
2. # Of SIUs Submitting 90-Day Compliance Reports/# Required	1/1	0/0
3. # Of SIUs in SNC with Pretreatment Compliance Schedule/ # Required To Meet Schedule	0/0	0/0
4. # Of SIUs In Significant Noncompliance With Self Monitoring Reporting Requirements and have not returned to compliance	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	6/6	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	124	61
5. # Of Sampling Visits Conducted	69	32
6. # Of Facilities Inspected (Nonsampling)	29	14
7. # Of Facilities Sampled	29	14
8. # Of SIUs (Both) Not Inspected And Not Sampled By POTW In Past 12 Months	0	0
9. # Of SIUs Not Sampled/Not Inspected By POTW In Past 12 Months	0/0	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	129	49	584	762
3. Admin. Orders Issued	0	0	1	1
4. Combined Total Of Administrative Orders and Notices of Violation	129	49	585	763
5. Civil Suits Filed	1	0	1	2
6. Criminal Suits Filed	0	0	0	0
7. Combined Total of Civil and Criminal Suits	1	0	1	2
8a. Published IUs in SNC (See Newspaper Notice in Enforcement Chapter)	4	1	4	9
8b. Rate of IUs in SNC	4/29 = 13.8%	1/14 = 7.1%	N/A	N/A
9a. Amount Of Penalties Collected (Total Dollars/IUs Assessed)	$0/0	$0/0	$0/0	$0/0
9b. Amount of Penalties Assessed (Total Dollars/IUs Assessed)	$0/0	$0/0	$0/0	$0/0
10. # of IUs Subject to Any Enforcement Action	23	12	248	283
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 — March 15, 2010

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, 2009 through December 31, 2009

POTW Name:	Narragansett Bay Commission (NBC)
NPDES Permit #:	RI0100072
Pretreatment Report Period Start Date:	January 1, 2009
Pretreatment Report Period End Date:	December 31, 2009
# of Significant Industrial Users (SIUs):	40 (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:	3
# of SIUs in SNC with Reporting Requirements:	3
# of SIUs in SNC with Pretreatment Compliance Schedule:	0
# of SIUs in SNC Published in Newspaper:	5
# of SIUs with Compliance Schedules:	0
# of Violation Notices Issued to SIUs:	178
# 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):	26 (29) (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, 2009 through December 31, 2009

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 nutrient limitations for Field's Point and more stringent nutrients discharge limitations for the Bucklin Point. Both CAs detail requirements which the NBC must satisfy in order to achieve compliance with the limitations, and impose interim limitations until such requirements are implemented.

Personnel

At the NBC, the control and reduction of toxic and nuisance discharges to the sewer system is a team effort consisting of staff from all sections of the Division of Planning, Policy & Regulation (PP&R) of the NBC. The PP&R Division 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.

The PP&R Division consists of the Pretreatment, Environmental, Safety & Technical Assistance (ESTA), Permits & Planning, Environmental Monitoring & Data Analysis (EMDA), and the Laboratory Sections. The PP&R Division 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 heavily 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

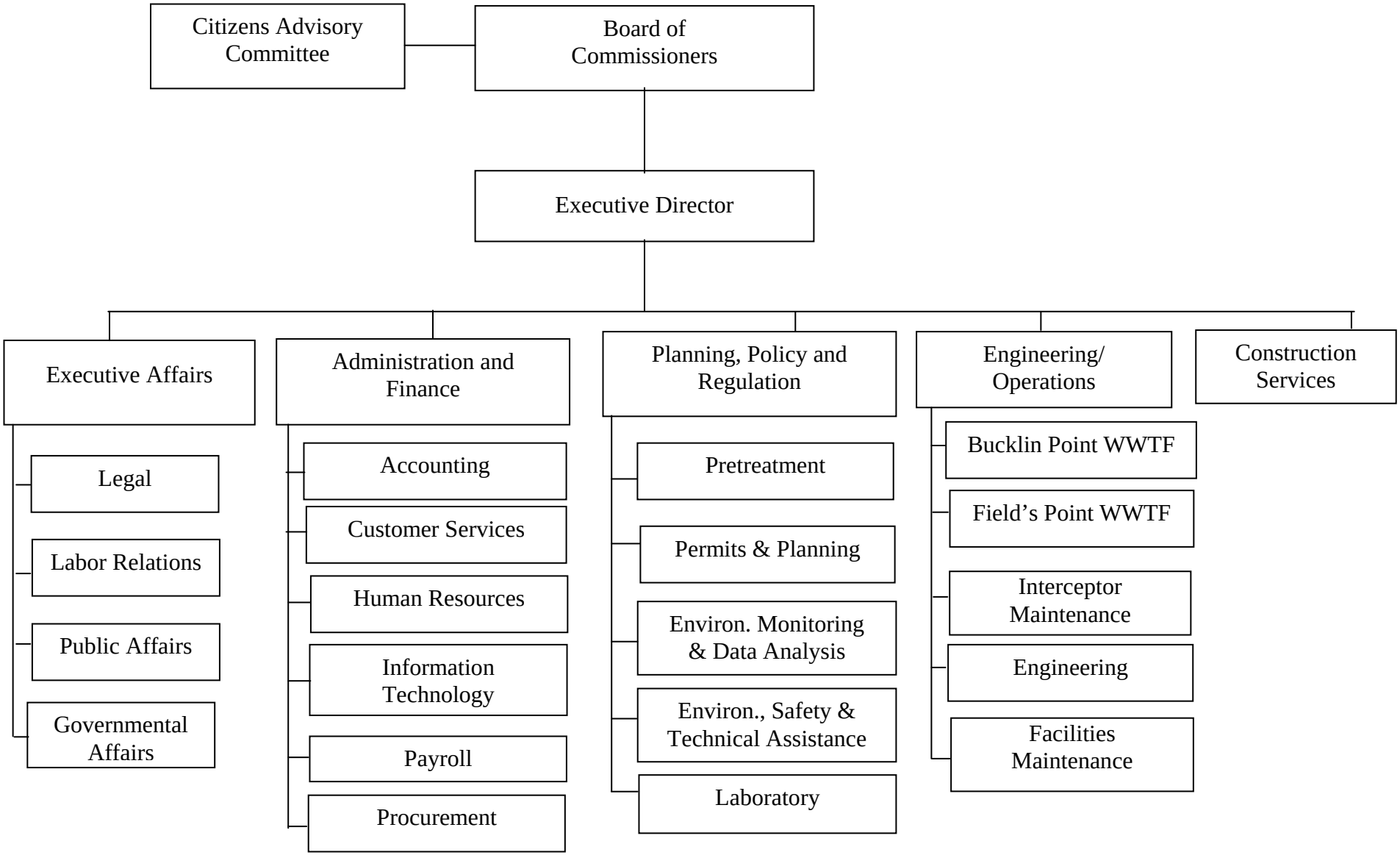
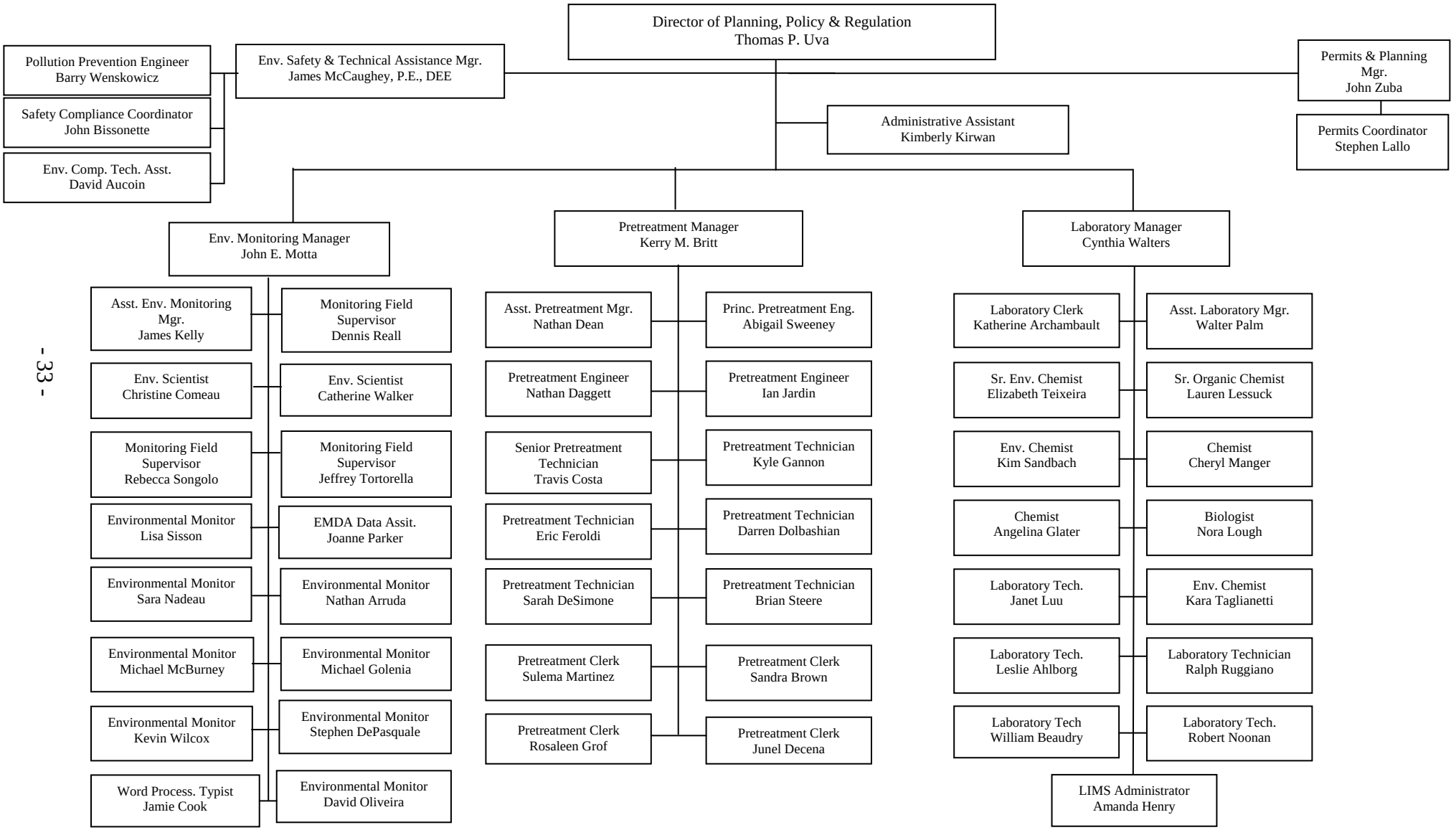


FIGURE 3
Narragansett Bay Commission
Division of Planning, Policy & Regulation
March 15, 2010



During 2009, there were two personnel changes in the Pretreatment Section. In September 2009, Andrew Hall vacated his position as a Pretreatment Technician for a position with the State of Rhode Island. This vacant Pretreatment Technician position was filled by Darren Dolbashian in the beginning of November 2009.

During 2009, the needs of the Laboratory Section were reevaluated. As a result of the reevaluation it was determined the number of analyses performed in the laboratory had significantly increased. A Laboratory Technician position was created in 2009 to assist with the processing of samples. This new Laboratory Technician position was filled by William Beaudry in December 2009.

There were no personnel changes in the EMDA, ESTA and Permits & Planning Sections during 2009.

Staff Training

The NBC provides extensive training to its employees and has a tuition reimbursement program to assist employees in furthering their education. During 2009, various personnel received training by attending seminars 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 2009:

- Air Monitoring Equipment
- CPR/AED Training
- Defensive Driving
- Emergency Action Plans
- Environmental Health & Safety Awareness
- Facility Action Plans
- Fire Safety
- Work Zone Safety/Flagger Training
- Port of Providence Evacuation Drill
- New Employee Safety Training
- First Aid
- Healthy Back/Slip Trip and Fall
- Occupational Hearing Safety
- Permit Required Confined Space
- Violence Risk Reduction
- Man Overboard Training
- Infectious Materials Exposure Control Training
- Emergency Planning Procedures

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 2009:

- Significant Non-Compliance Determination
- Interdepartmental Training
- Spill Response and Tracking
- Proper Disposal of Pharmaceutical Drugs
- Map Reading
- Hurricane Preparedness
- 40 Hour HAZWOPER Training
- BOD/TSS Surcharge Calculations
- Best Management Practices
- Introduction to ArcGIS
- Wastewater Discharge Permit Writing
- NBC Hazardous Waste Training
- Incident Command Systems for Single Resources and Initial Action Incidents (ICS-200)
- YSI Sonde Training
- Do More Analytical Chemistry With Less Paperwork
- Gas Cylinder Training
- Lachat/Hach Technical Seminar
- Productivity Enhancements for GC, HPLC, LC-MS
- Polyethylene Passive Samplers: Monitoring Emerging Contaminants of Concerns
- Automating Metals with the Autoblock

Pretreatment and EMDA staff participate in a spill tracking drill

- Easy Chem "Green" Nutrient Analyzer
- How to Save Time and Reduce Errors with an ELN
- Intermediate Incident Command Systems for Expanding Incidents (ICS-300)
- Developing and Implementing Local Limits
- Chain of Custody
- Telephone Log Documentation
- NBC Requirements Training
- Emergency Response to Contamination of Wastewater
- 8-Hour HAZWOPER Refresher Training
- NBC Sewer Connection, Sewer Alterations and Storm Water Programs
- Trace Organic Compounds & Implications for Wastewater Treatment
- Interactive Oceanographics – Streamline-GEO User Training
- XRF and Electron Microscopy
- EPA Method 1664A Modifications

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 2009 are as follows:

- 2009 EPA - New England Regional Pretreatment Coordinators Conference
- 2009 National Association of Clean Water Agencies (NACWA) Pretreatment and Pollution Prevention Conference
- 2009 NEWEA Annual Conference
- New England Water Environment Association Meeting & Exhibit
- Green Hospitality Workshop
- Northeast Waste Management Officials Association (NEWMOA) Energy and Materials Tracking Software Seminar
- NESEA Building Energy Exposition
- NESEA Energy Conference
- South Country Wind Forum
- Massachusetts Wind Working Group
- National Grid Rebates Seminar
- NEWMOA Energy Webinar
- RI Water/Wastewater Agency Response Network Workshop
- H1N1 Fall Planning Conference
- Prepare Your Employees and Your Business for Pandemic Flu with Help from the American Red Cross and OSHA
- Energy Focused – Environmental Management System (EF-EMS) Roundtable
- Narragansett Bay Estuary Program Workshop
- Energy Guidebook for Wastewater and Water Utilities
- EPA Energy Star Portfolio Manager Software Workshop
- Massachusetts WWTF Sustainable Energy Management Roundtable
- EPA/NEWMOA Green House Gas Webinar
- Business Continuity Strategies in the Face of a Global Pandemic
- National Heating and Energy Exposition
- Cutting Compliance Costs in Tough Times - Can You Afford Not To?
- 2009 Atlantic States Water and Wastewater Association (ASRWWA) Conference
- Environmental Partnership Conference
- Red Cross Safety Training
- Rapid Action Pandemic Planning for the Occupational Health and Safety Professional
- Combined Cooling Heating and Power Webinar
- Energy Action Plans for POTWs
- Environmental Regulation Workshop
- North East Bio-Solids Residual Association (NEBRA) Workshop
- National Electrical Contractors Association (NECA) Workshop

In order to ensure productivity remains efficient and of high quality, staff participate in many administrative trainings. The trainings that staff participated in during 2009 are as follows:

- Excel Level I
- Baynet & Helpdesk
- Web & Internet Email
- Grammar and Proof Reading
- Oracle Financial Training
- Sharepoint Training
- Microsoft Word Level I
- Narrabay.com
- Intro to Excel Macros
- Creating PDFs
- Document Imaging Scanning
- Microsoft Office 2007
- Civil Rights & Sexual Harassment Orientation
- Project Management
- Dealing with Difficult People
- Managing Multiple Projects & Priorities
- Microsoft Access 2007
- How to Become a Better Communicator
- The Ultimate Supervisor
- Microsoft Word Level II

The NBC provides a tuition reimbursement program to encourage its employees to further their education. The college courses that staff attended during 2009 are as follows:

- Scripting Languages
- Programming in C#
- XML Programming
- Introduction to Marine Pollution
- Chemical Technology II
- Basic Wastewater Treatment Operation (Operator I)
- Seminar in Public Policy Programs

Pretreatment staff participating in 40 Hour HAZWOPER Training

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 the eight hour HAZWOPER Recertification Training in house. 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 the NBC's needs. In 2009 NBC staff was provided with eight hour HAZWOPER refresher training by the Rhode Island Fire Academy. This training included using CAMEO software which is used by emergency response personnel when dealing with hazardous materials incidents.

EMDA staff participate in a boom deployment drill at the Bucklin

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 the NBC's 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 2010 (FY10) was $4,947,029. The FY10 PP&R Division budget allocated $4,167,236 or 84.2% to personnel costs.

The approved FY10 Pretreatment budget was $1,056,394, a slight decrease from the prior year's budget of $1,059,032. This decrease was attributable to the differential in the cost of capitalized items. The FY10 Pretreatment budget allocated 95%, or $1,003,414, to personnel costs.

The budget for the EMDA Section in FY10 was $1,384,647, of which 87.2% or $1,206,837 was attributed to personnel expenses. The FY10 EMDA budget increased by 2.5%, or $34,321, from the previous year.

The ESTA budget for FY10 was $359,092, an increase of $4,528 from the FY09 budget of $354,564. The approved FY10 Laboratory budget was $1,728,620, an increase of 13.8% or $209,252 from the previous year. The approved FY10 Permits & Planning budget was $418,277. Personnel costs associated with the ESTA, Laboratory and Permits & Planning Sections budgets were 93.2%, 71.6% and 92.0% 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). In accordance with an order from the PUC, 100% of the Pretreatment Program budget is recovered from permit fees. On July 1, 1995, a new permit fee rate structure approved by the PUC became effective to ensure recovery of these 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

Since 1987, the NBC has entered into numerous contracts with Digital Equipment Corporation (DEC) to develop software for the Industrial Pretreatment Program. The NBC has spent approximately $115,000 on pretreatment software development through this private consultant. The Pretreatment Information Management Computer System was a networked computer system with inquiry access available to all Sections of the NBC via desktop computer terminals.

In late 1999, the NBC began to investigate the conversion of the pretreatment software package to a Graphical User Interface (GUI) system and to enhance the software to perform additional functions. The conversion of the pretreatment software package from a Character Based Legacy system to a GUI system allowed for improved functionality within the PC office environment utilized throughout the NBC. The GUI pretreatment software 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 software was used in parallel to the older software throughout 2004 to ensure it was performing in the same manner as the older system. In May 2005 the old pretreatment software was taken off line. The NBC pretreatment software will eventually be able to interface with a Geographic Information System (GIS). It also currently interfaces with the Customer Service software which was also developed by NBC IT Staff.

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 visa 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 2009, the NBC sent eight informational letters to various categories of regulated users located in the two NBC districts. The first informational letter was issued on March 4, 2009. This letter was issued to all users who were published in the Providence Journal on February 27, 2009 for being in Significant Non-Compliance (SNC) for the reporting period of October 1, 2007 through December 31, 2008 as mandated by EPA regulations. The letter included an invoice to be paid by the user for its share of the cost to publish the notice.

The second informational letter was sent to all Significant Industrial Users (SIU) on March 9, 2009 and notified the users they were classified by the NBC as SIUs. This form letter is issued annually to remind SIUs of their reporting requirements outlined in 40 CFR §403.12.

The third informational letter was sent to all industrial users on April 1, 2009 and notified the users of the EPA SNC criteria which is used by the NBC. The letter explained the NBC's permit and reporting requirements.

The fourth informational letter was issued to all permitted users on April 24, 2009. This letter announced the fifteenth annual NBC Environmental Merit Awards and invited the users to nominate their company for an award.

The fifth form letter was issued to all industrial users on May 15, 2009 notifying them that prohibited substances should not be discharged to the NBC sewer system during the summer shut down and clean-up period. The letter warned users that civil and criminal penalties would be strictly enforced against violators caught illegally dumping.

The sixth informational letter was sent on November 24, 2009 to all permitted users. This letter informed users the NBC website, www.narrabay.com had been upgraded. In particular the information on the Pretreatment pages had be updated and the online forms had been revised so that information could be entered directly onto the forms and saved to the user's computer.

The seventh informational letter was sent on December 3, 2009 to all industrial users. The letter reminded the industrial users to manage and dispose of wastes properly during the holiday shut down and wished them a happy holiday season.

The eighth and final form letter was issued to all permitted septage haulers on December 22, 2009 to transmit vehicle identification stickers and to notify the haulers that discharges would not be permitted without a valid sticker.

Copies of these eight informational letters are provided in ATTACHMENT VOLUME 1, SECTION 1.

Newspaper and Magazine Articles, 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 NBC 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;
- 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 2009 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 2009, over 2,500 visitors took a complimentary tour of the NBC's 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.

- *Reclaiming an Urban Resource:* The Woonasquatcket River Restoration Initiative – On April 22, 2009, Earth Day, the NBC sponsored a large river clean-up on the Woonasquatucket River, an American Heritage River that runs through several Rhode Island communities on the way to Narragansett Bay. Over 60 members of the NBC staff in addition to volunteers from other state and municipal agencies, local businesses and students from local colleges and universities lent their sweat equity to pull countless tires, shopping carts, and other debris from the river.

- *Maintaining a Presence on the World Wide Web (**www.narrabay.com**)* - To further improve communications with our customers, the NBC continued to enhance its web site. Traffic and construction information relating to the NBC's Combined Sewer Overflow (CSO) project are regularly updated on the site. In 2009 the website was upgraded. Pretreatment forms were revised so that data could be entered directly on to the forms and saved on the user's computer. In addition, fact sheets, monitoring and data reports regarding water quality have been uploaded to the site.

- *Advocacy for Clean Water*– In 2009, the NBC worked with over 1600 WWTFs nationwide to advocate for federal funding for clean water infrastructure. NBC's 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 2009, 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 eleven schools and 700 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). In 2009, the NBC also piloted a water quality education program with high school students from The Met School in Providence with great success. The program will continue in 2010.

- *Celebrating the Importance of Narragansett Bay* - For the fifteenth year, the NBC sponsored its annual poster contest for elementary school students in kindergarten through sixth grade. Over 600 students enthusiastically illustrated the theme, "Clean Water Dreams" with colorful, original depictions of the importance of clean water. Winners received a U.S. savings bond and had their artwork showcased in a year 2010 calendar poster. In addition, the winning posters were exhibited at the Blackstone Valley Visitors Center.

- *Recognizing Students for Environmental Awareness* - For the seventeenth consecutive year, the NBC has participated in the Rhode Island State Science and Technology Fair and presented savings bonds 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, public affairs, and environmental monitoring and data analysis.

- *Career Opportunities Outreach* - Through the efforts of the NBC's Affirmative Action Committee, the NBC delivered career day presentations to students in Lincoln, 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 high students, funding for the Woonosquatucket River Rangers Program and the environmental education programs at the Providence Children's Museum.

- *Honoring Industrial and Commercial Users for Environmental Performance* - This year, the NBC recognized fourteen companies in the service district with Environmental Merit Awards for Pollution Prevention and Perfect Compliance Awards with regulatory requirements. In 2009, 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 2009, the NBC again co-sponsored five 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 April and May, shellfishermen gathered in five different locations to scoop more than 660,000 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 harvested the transplanted shellfish. The harvest contributed 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 enhanced its communications with the issuance of an e-newsletter. The e-newsletter offers information on infrastructure improvements, NBC programs and activities. In addition, the NBC continued to make available its 22-minute DVD about the CSO Project, entitled *The Biggest Project You'll Never See*. The DVD is available free to the public.

- *Bi-lingual Information* – During 2009, 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 2009 State Employees Charitable Appeal (SECA) and raised over $19,000 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 2009, NBC personnel were active educating the public and professional organizations about the NBC and its many programs and accomplishments. The following paragraphs detail a few of these activities:

~2009 National Association of clean Water Agencies (NACWA) Pretreatment and Pollution Prevention

On March 26, 2009, Thomas Uva, Director of Planning Policy & Regulation gave a presentation on Developing Effective Pretreatment Working Relationships at the 2009 NACWA Pretreatment and Pollution Prevention Conference held in Charlotte, NC.

~2009 Annual EPA New England Regional Pretreatment Coordinator's Conference

On September 10, 2009, Kerry Britt, Pretreatment Manager, gave a presentation at the 2009 Annual EPA-New England Regional Pretreatment Coordinators Conference held in Chelmsford, MA. The presentation was on the NBC's Facility Shut Down Procedures.

~St Mary Academy-Bay View Seventh Grade Honors Science Classes

On December 2, 2009, Kerry Britt, Pretreatment Manager, and Abigail Sweeney, Principal Pretreatment Engineer gave a presentation on the NBC and the NBC Pretreatment Program.

~Classes at the Community College of Rhode Island

Walter Palm, Assistant Laboratory Manager, is an adjunct professor at the Community College of Rhode Island. Courses he taught during 2009 included Survey of Biomedical Chemistry and Chemistry of Hazardous Materials.

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.

ESTA Program Educational Efforts

The NBC ESTA Section routinely holds workshops and develops educational handouts to inform users of technologies that can be cost effectively implemented to reduce the generation of waste and to conserve water. During 2009, the following pollution prevention educational workshops and public outreach activities were held:

~New England Water Environment Association (NEWEA) Annual Conference

On January 27, 2009, James McCaughey, ESTA Manager, gave a presentation on Renewable Energy Opportunities for WWTFs – Feasibility and Financing at NEWEA's annual conference.

~Green Hospitality Workshop

On February 5, 2009, James McCaughey, ESTA Manager, gave a presentation on Water Management for Hotels and Restaurants at a Rhode Island Department of Environmental Management (DEM) Sponsored Green Hospitality Workshop.

~University of Rhode Island (URI) Pollution Prevention Course

On February 26, 2009, James McCaughey, ESTA Manager, gave a presentation on Wastewater Treatment Pollution Prevention and Energy Management to students enrolled in a URI Pollution Prevention class.

~Sustainable Energy for Wastewater Treatment Facilities EPA Energy Guidebook Workshop

On April 1, 2009, Barry Wenskowicz, Pollution Prevention Engineer, gave a demonstration of the EPA Energy Star Portfolio Manager System.

~Environmental Partnership Summit

On May 6, 2009, James McCaughey, ESTA Manager, gave a presentation on WWTF Energy Use at the Environmental Partnership Summit held in San Francisco, CA.

~Massachusetts Wastewater Treatment Facility (WWTF) Sustainable Energy Management

On June 23, 2009, Barry Wenskowicz, Pollution Prevention Engineer, gave a presentation on using Portfolio Manager to the Massachusetts WWTF Sustainable Energy Management Roundtable.

~Public Meeting on the NBC Wind Turbine Project

On July 15, 2009, ESTA staff presented the results of the Wind Energy Feasibility Study at an informational meeting for residents in the surrounding area of the Field's Point treatment plant and businesses located in the Port of Providence. The plan to erect two or three wind turbines at the plant and the planned avian study were also discussed.

~National Grid WWTF Energy Workshop

On December 1, 2009, Barry Wenskowicz, Pollution Prevention Engineer, gave a presentation on renewable energy resources at WWTFs at a National Grid educational seminar.

~Rhode Island WWTF Superintendent Meeting

On December 4, 2009, Barry Wenskowicz, Pollution Prevention Engineer, gave a presentation on renewable energy and energy efficiency at a meeting of the RI WWTF Superintendents.

~Rhode Island WWTF Operator Boot Camp

On December 17, 2009, Barry Wenskowicz, Pollution Prevention Engineer, gave a presentation on energy efficiency at a RIWWTF operator Boot Camp workshop.

~Woonasquatucket River Education Pilot Project

In 2002, the Narragansett Bay Commission (NBC) received a grant from the Partnership for Narragansett Bay for an environmental education program entitled, What's In Your River: A Woonasquatucket River Education Pilot Project. The program targeted six schools in six communities along the Woonasquatucket River. The EMDA staff along with assistance from Pretreatment and Public Affairs Sections coordinated and implemented the program. NBC staff worked with students to collect water quality data in the fall, winter and spring. Students learned about water quality parameters such as pH, turbidity and dissolved oxygen and in a culminating event in May of 2003 where each school presented their data findings.

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 2009. This program includes several new components including classroom visits once a month, student achievement badges and journal writing. Over fifteen schools and 1500 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. Eleven schools and over 700 students participated in the program in 2009. Additional information regarding this program is provided in CHAPTER VII.

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 NBC 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 15, 2009 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 6,755 different industrial and commercial users located within the two NBC sewer districts. During 2009 the Pretreatment staff identified and entered information on 132 previously unknown users into the NBC Pretreatment database. Pretreatment users are categorized according to the classification system shown in TABLE 7. 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 the NBC's 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 sewage drainage districts by modifying the NBC Rules and Regulations. This definition was essentially an adoption of the Field's Point SIU definition, and classifies a Significant Industrial User 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 7
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 7
(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 7
(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 6,755 industrial and commercial users have been identified through user surveys, 4,269 are still conducting business in the NBC service areas and 96 were classified as SIU's sometime during 2009. Of the 96 SIUs reported for 2009, there were 71 classified as categorical industries which are subject to both NBC and EPA regulations, and 25 significant non-categorical industrial users of the NBC sewer system. During this reporting period, six 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 three firms were newly classified as significant during 2009. 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 1,521 Wastewater Discharge Permits in effect, which were issued to facilities located in the Field's Point and Bucklin Point drainage districts. Presently, 1,013 permits are in effect for users in the Field's Point District, while 508 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 7. During this reporting period, the Pretreatment staff issued 425 permits to users located in the two NBC districts. Of the 425 permits issued during 2009, there were 132 new permits issued to new commercial and industrial users and 293 permits were reissued to existing users because the old permit expired or the firm changed process operations.

TABLE 8
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	40	23	63
12	Metal Molding And Casting	1	0	1
13	Organic Chemical Manufacturer	0	0	0
14	Pharmaceuticals	0	3	3
15	Metal Formers	0	2	2
16	Steam Electric Power Generating	0	1	1
18	Centralized Waste Treatment Facilities	1	0	1
19	Transportation Equipment Cleaning	0	0	0
21	Tubbing/Vibratory/Mass Finishing	6	5	11
22	Chemical Transporters, Refiners, Recyclers, Manufacturers	4	2	6
23	Textile Firms	1	11	12
24	Printers	6	9	15
25	Industrial Laundries	0	3	3
26	Machine Shops/Machinery Rebuilding	2	1	3
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	1	1	2
37	Automotive Maintenance/Service Facilities	11	2	13
40	Groundwater Remediation/Excavation Projects	2	2	4
41	Regulated Electroplating Or Chemical Processes Disconnected Or Recycled	15	4	19
42	Other Regulated Processes That Are Disconnected Or Recycled	21	19	40
43	Recycle Electroplating Or Chemical Processes With Cooling Water Or Boiler Discharges	11	2	13
44	Other Recycle Processes With Non-contact Cooling Water Or Boiler Discharges	3	2	5
46	Cooling Water With Solvents/Toxics On Site	8	2	10
49	Firms With Solvents, Toxics, Etc. On Site	0	1	1
51	Cooling Water	5	0	5
52	Boiler Blowdown/Condensate Discharges	10	6	16
53	Cooling Tower Discharges	6	5	11
59	Other Nontoxic Discharges	2	6	8
80	Septage Haulers/Dischargers	1	13	14
81	Food/Meat/Fish Produce Processing (Wholesale)	27	12	39
82	Supermarkets (Retail Food Processing)	16	13	29
83	Parking Garages/Lots	2	0	2

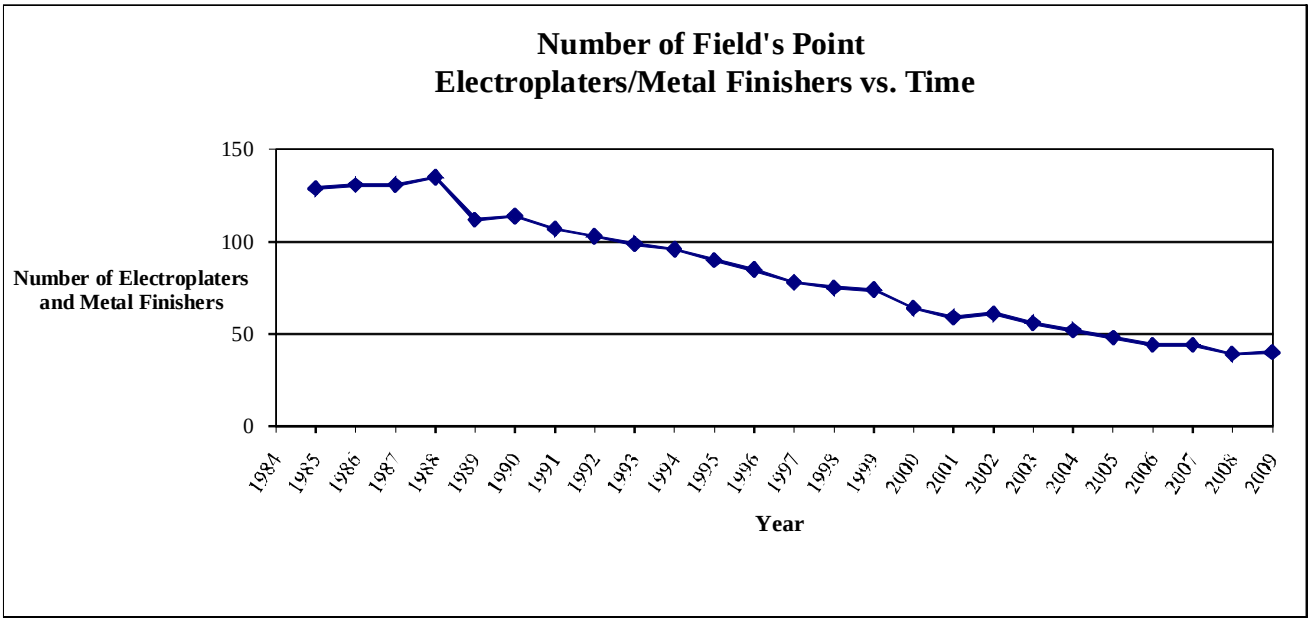
TABLE 8
(Continued)
Narragansett Bay Commission
Summary of Wastewater Discharge Permits in Effect

Category	Company	Field's Point District	Bucklin Point District	Total Permits In Effect
84	Cooling Water/Groundwater/Boiler Discharges	9	0	9
85	Restaurants/Food Preparation Facilities	414	202	616
86	Comm. Buildings With Cafeteria/Laundry	139	32	171
89	Other Commercial Users With Potential to Discharge - Conventional Pollutants	17	5	22
90	Hospitals	11	1	12
91	Cooling Water/Ground Water/Boiler Discharges	0	0	0
92	Laundromats/Dry Cleaners	49	23	72
93	Photo Processing	12	2	14
94	X-Ray Processing	64	41	105
95	Clinical, Medical, And Analytical Laboratories	18	4	22
96	Funeral Homes/Embalming	15	10	25
97	Motor Vehicle Service/Washing	35	11	46
99	Other Commercial Users With Potential To Discharge Toxic Or Conventional Pollutants	19	12	31
	Total Permits in Effect	**1,013**	**508**	**1,521**

There were 21 permits revised and reissued to SIUs in the two drainage districts during 2009, while one new permit was issued to this class of users. Sixteen of the 21 revised permits were issued to categorical users during 2009, while the five remaining revised permits were issued to significant non-categorical users.

As can be seen from TABLE 8, 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, 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 district is clearly detailed in FIGURE 4. During 2009 the number of electroplaters and metal finishers in both districts increased by 3.3%, or two, from 2008.

FIGURE 4



As of this date, 59 firms are operating under Zero Discharge Permits since they have eliminated process discharges and are recycling their process wastewater streams. The NBC has encouraged users to consider recycling their wastewater to eliminate discharges to the sewer containing toxic materials, to implement pollution prevention measures and to encourage conservation of water and raw materials. The 59 facilities that are recycling and are no longer discharging process wastewater to the NBC sewer system are classified in Categories 41 and 42 and can be identified from the list of users provided in ATTACHMENT VOLUME II, SECTION 1. An additional 18 firms recycle the majority of their process wastewater. However, they continue to discharge cooling water, condensate or boiler blowdown to the sewer. These firms are issued discharge permits and are classified in Categories 43 and 44. A further discussion of firms recycling their process wastewater is provided later in this chapter.

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.

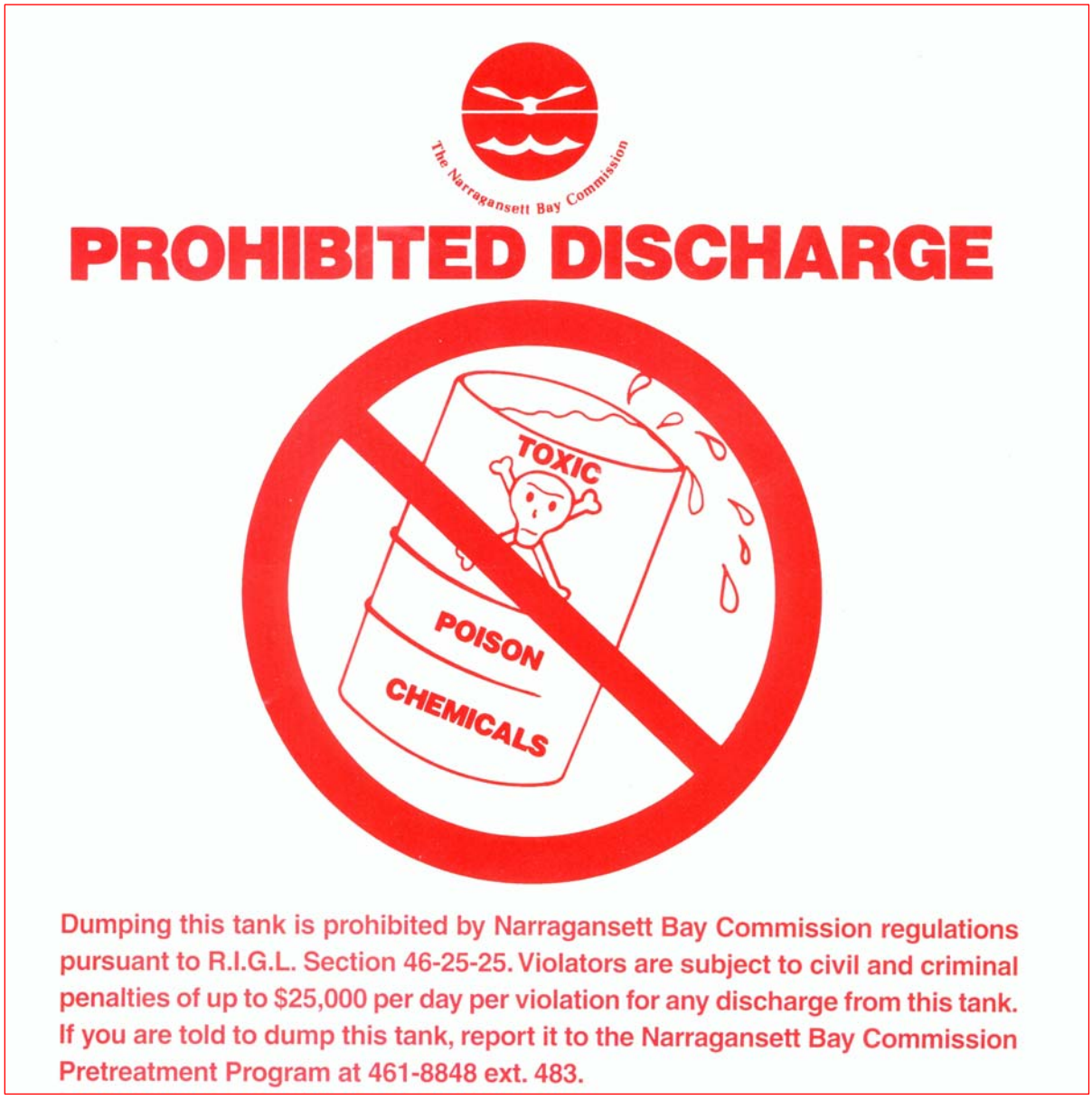
- A prohibition against batch discharges without prior written approval from the NBC to prevent the discharge of concentrated solutions to the sewer system. The NBC developed the prohibited discharge sticker shown in FIGURE 5. This sticker is affixed to all tanks which the industrial user is prohibited 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 new 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 drainage 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 9.

TABLE 9
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 9
(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 9
(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 9
(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 2009, 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. As previously noted, 59 facilities are presently classified in Categories 41 and 42 and do not discharge process wastewater to the sewer system. Users with recycle process operations and diminuous discharges from condensate, boiler or cooling water wastestreams are issued discharge permits. There are 18 of these users which are classified in categories 43 and 44. Of the 77 users classified in categories 41 through 44, 50 facilities are permitted to operate zero process discharge wastewater recycle systems in the Field's Point District, while 27 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 NBC 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 NBC Pretreatment Program user 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* - The 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 neighborhoods 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 include 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. The ESTA staff educates users of the many pollution prevention alternatives available instead of discharging toxics into the sewer system, while the Pretreatment staff incorporates user education into every regulatory inspection.

- **Innovative and Effective Inspection Techniques** - The 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 or a "Job Well Done" letter. The Notice of Violation 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

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 users' 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 by the Pretreatment Section is the annual Spill Response and Tracking Drill. Pretreatment and EMDA 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 inspectors routinely refer the user to the NBC 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 7.5% in 2009, while the SIU Rate of SNC for Bucklin Point was reduced from a high of 44.8% in 1994 to 11.6% in 2009. The overall rate of SNC for all NBC SIUs for 2009 was 9.4%, a slight

increase from 8.4% observed in 2008. This is 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 and prompt resampling requirements for any effluent violation.

- **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.

  ~ *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.

~ *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.

From January 1, 2009 through December 31, 2009, Pretreatment staff conducted 2,249 inspections of users, not including sampling visits. This represents an increase of 491 inspections, or 27.9%, over the number of facility inspections conducted by Pretreatment staff during 2008. Of the 2,249 non-sampling inspections conducted by the Pretreatment staff, 413 were inspections of SIUs and 1,836 were inspections of non-significant users. The Pretreatment staff conducted 307 facility inspections of categorical users and 106 inspections of significant non-categorical industrial users in both districts, excluding sampling visits. Pretreatment staff conducted 30 regulatory compliance meetings with users during 2009.

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 2009, EMDA staff conducted 248 industrial user sampling inspections of 107 industrial user facilities resulting in the collection of 1,847 composite and grab samples. These 1,847 samples translated to 258 user monitoring reports. Of the 258 monitoring reports, 231 were issued to significant users and 27 were issued to non-significant users. There were 166 sampling inspections of 71 categorical industries and 59 sampling inspections of 25 significant non-categorical users.

During 2009, the EMDA Section sampled every SIU at least once within the 12-month period with the exception of two companies. One company discharged only on an infrequent batch basis in the first half of 2009 and the other company abruptly went out of business in early 2009. Many SIUs were sampled more than twice due to effluent violations observed at the firms. TABLE 10 summarizes the status of each firm that was not sampled or inspected by the NBC at least twice in 2009.

TABLE 10
Summary of SIUs Sampled or Inspected Less than Twice in 2009

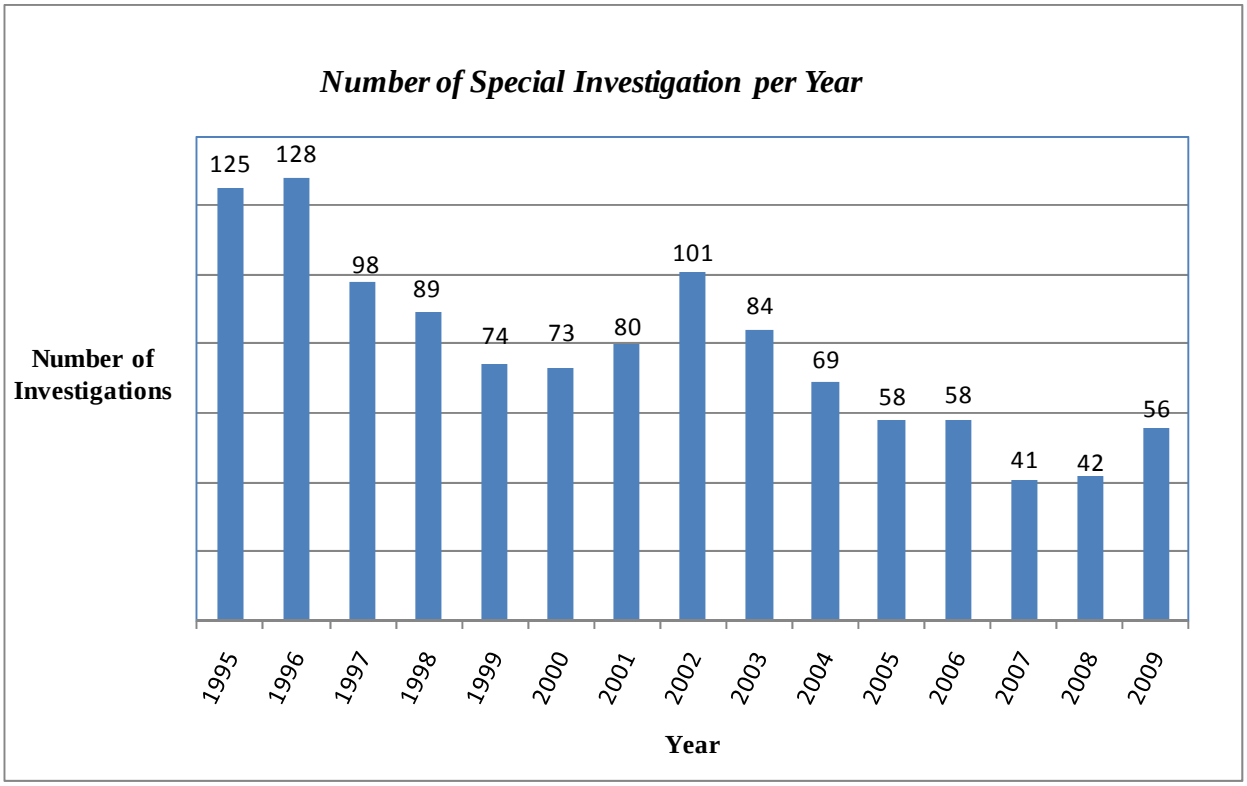
COMPANY NAME	2009 SAMPLE & INSPECTION SUMMARY	EXPLANATION
Field's Point District		
Northland Environmental LLC	1 sample only	Firm discharged only on an infrequent batch basis in the first half of 2009.
The Colibri Group	1 sample only	Firm abruptly ceased discharges in early 2009.

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 2009, Pretreatment staff investigated 56 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 2009 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

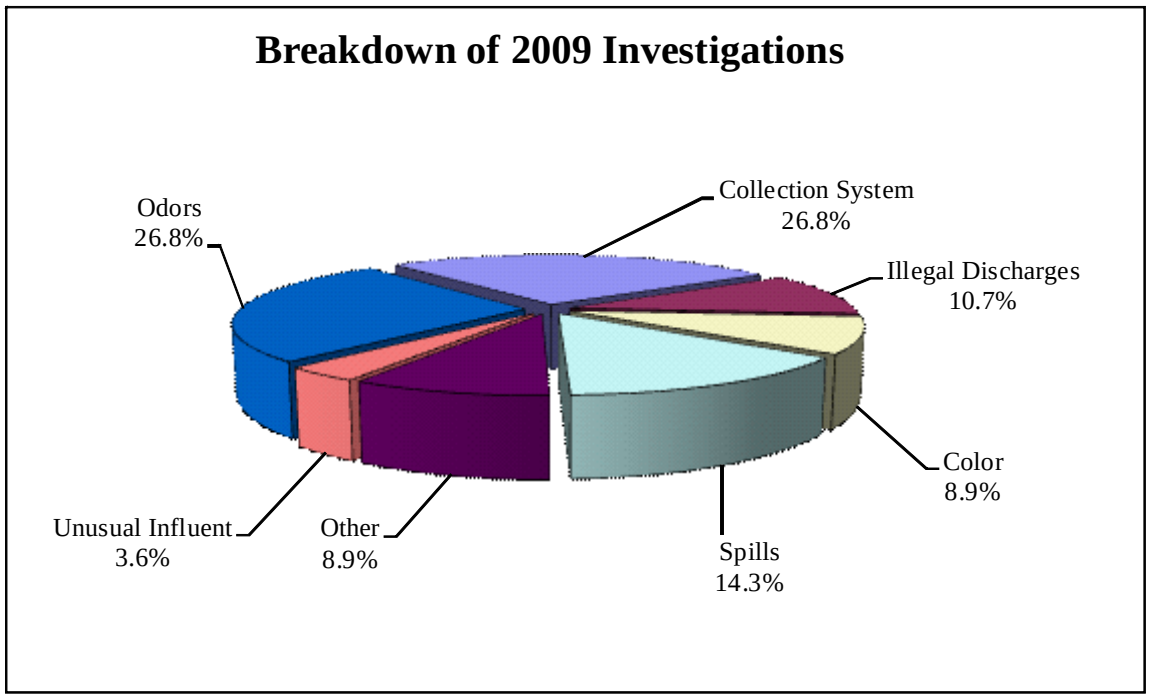


FIGURE 7 graphically depicts the breakdown of the types of investigations that occurred in 2009. As can be seen from the chart, the majority of the investigations resulted from two types of investigations, problems in the collection system, with 15 investigations or 26.8%, and reports of odors with 15 investigations or 26.8%. Reports of spills accounted for eight or 14.3% of the investigations and reports of illegal discharges accounted for six or 10.7% of the investigations.

There were five investigations of colored wastewater and six investigations of fuel spills. 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 56 investigations. Those NBC investigations of major concern and interest to the NBC over the past year are described in the following paragraphs:

Spills

During 2009, Pretreatment staff conducted eight investigations in response to reports of spills. Six of the eight investigations were in response to fuel spills. All of these investigations occurred in the Field's Point district. Three of the spills resulted from malfunctioning fuel delivery equipment. One of the fuel spills was the result of a rollover of an oil delivery truck. The tank on the truck ruptured as a result and approximately 200-300 gallons of #2 home heating fuel was discharged to the sewer system via a catch basin. Contractors were called in to conduct clean-up activities in all four of these spills. One of the remaining fuel spills occurred as a result of kerosene that was contained in the back of the truck moved. Only a small amount of kerosene was released and did not reach any drains. It was cleaned up using absorbent materials. The remaining report of a fuel spill was of oil being spilled in the street. The area was inspected and although there was a stain on the roadway the spilled oil did not impact the sewer system. The NBC sewer system was not adversely impacted by any of these fuel spills.

There were two other investigations resulting from reports of spills. The first spill occurred at a Field's Point company and involved a small spill of acid. The spilled acid was cleaned up and did not impact the sewer system. The final spill occurred at a company located in the Bucklin Point district. The spill occurred when a water line ruptured at the facility. The spilled water was contained on-site until it was pumped out and disposed of off-site. None of the spilled material discharged to the sewer system.

Odor Investigations

Since 2001, a residential neighborhood downstream of the Highland Corporate Park in Cumberland had been experiencing sewer odors in and around their homes. Over the years, Pretreatment staff responded to numerous reports of offensive odors in the neighborhood. Each investigation entailed measuring the hydrogen sulfide concentration in the atmosphere and manholes and conducting inspections of the companies in the industrial park. Each investigation determined the odors were not generated from an industrial source. Based upon these investigations, it is believed the configuration of the sewer system and pumping frequency contributed to offensive odors. Pretreatment staff has assisted the Town of Cumberland's Sewer Department by providing information on materials that could be added to the wet well at the pump station and Pretreatment staff assisted with monitoring the atmosphere in residences. During 2009, the NBC continued to assist the Town of Cumberland to resolve the odor issues. Pretreatment staff responded to eleven reports from residents of the neighborhoods downstream of the corporate park of offensive odors. The atmosphere was montitored using a four-gas meter at the pump station and in manholes in the neighborhoods during each investigation. Unusual odors were not detected during any of the investigations. Pretreatment staff will continue to provide

assistance until the odor issue is resolved. In addition to the Pretreatment Section's efforts the NBC also provided engineering assistance to mitigate the odor issues. Data from hydrogen sulfide meters installed in two manholes and a pH meter installed in the pump station wet well has been analyzed by NBC Engineering staff to optimize the pumping frequency as well as to make recommendations for physical improvements to the system. The NBC will continue to provide assistance to the Town of Cumberland to help them restore the odor issues.

Illegal Dumping & Unpermitted Discharge Investigations

The Pretreatment Section investigates all reports of illegal dumping and unpermitted discharges into the sewer system, storm drains and/or NBC receiving waters. In 2009, Pretreatment staff investigated six reports of illegal dumping or unpermitted discharges. All six of the investigations occurred in the Field's Point district. One of the investigations occurred at a company permitted by the NBC, Surface Coatings Division of Westwell Industries, which conducts metal finishing operations in Providence. The pH of the wastewater in a manhole directly downstream of the company was very low when sampled by EMDA staff. The company was inspected and it was determined the company had been experiencing electrical problems with its pH adjustment system. The company corrected the problem. The Field's Point plant was not adversely impacted. The other reports of illegal discharge all occurred at non-permitted locations. One report was of food preparation equipment being cleaned in the backyard of a residence. A visible grease stain was observed in the roadway starting at the residence in Providence. The catch basins in the area were not impacted. The owner of the residence was required to cease this operation or apply for a permit. The Providence Fire Department reported oil had been dumped directly into a catch basin. The catch basin contained oil and antifreeze. A contractor cleaned out the catch basin. The sewer system was not impacted. An investigation was initated in response to elevated concentrations of copper and nickel in a sample collected downstream of an industrial area in Providence. The companies upstream of the manhole were inspected. The companies appeared to be operating properly at the time of the sampling and had not experienced any treatment issues. Subsequent sampling of the manhole indicated compliance with NBC discharge limitations. The other two reports of illegal discharge were unfounded.

Food Preparation Related Grease Investigations

During 2009, Pretreatment staff responded to a total of fourteen grease related investigations. There were nine investigations in the Field's Point district and five in the Bucklin Point district. All fourteen grease investigations conducted by the Pretreatment Section were associated with food preparation. All facilities with the potential to discharge grease laden wastewater upstream of the impacted areas where grease was observed were investigated. These investigations resulted in fourteen previously unpermitted facilities obtaining Wastewater Discharge Permits. Two of the fourteen reports of excessive amounts of grease were determined to be from solely residential sources.

Color Investigations

During 2009, Pretreatment staff responded to five reports of colored wastewater. All five of the reports were that the Bucklin Point influent was pink in color. Four of the reports were from EMDA staff stating the influent samples collected in the overnight hours were discolored. The fifth was from Bucklin Point Operations staff. Pretreatment staff inspected the Bucklin Point plant after each report. The colored influent had ceased coming into plant by the time Pretreatment staff arrived at the plant. Color logs were requested from all companies with the potential to discharge colored wastewater after each incident. Only one potential source was found for one of the incidents. In all five incidents the Bucklin Point treatment plant was not adversely impacted.

Pass-through and Interference

During 2009 the NBC Pretreatment Section conducted 56 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 2009 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 investigated during 2009 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 team to control the discharge of toxic and nuisance pollutants.

IV. COMPLIANCE MONITORING

Compliance Monitoring

The Narragansett Bay Commission utilizes two types of monitoring to determine user 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 standards as demonstrated by self-monitoring required under the terms of a permit 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 documentation. The SMCR form 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 form. The SMCR form 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 form 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 form 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 treated 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 sample results are evaluated for compliance with the NBC's 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 file 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

NBC EMDA staff conduct compliance monitoring of industrial and commercial facilities to assess the 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.**

The EMDA Section utilizes many controls to insure the legal integrity of the samples collected for compliance and enforcement monitoring. Quality Assurance and Quality Control 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. These bottles are replaced annually. 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 Standard Operating Procedures Manual is kept in each NBC 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, de-ionized water, types and strengths of acids, and solvents. EMDA sampling equipment and protocols were modified several years ago 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, which is performed twice a year. 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 Nanopure© Deionized Water System used by EMDA is checked each week at the ppb level to ensure the integrity of the final de-ionized 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's results. The user is notified of the NBC's 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 sample users without them being aware that sampling is being conducted.

NBC Lab Staff Member Performing Microscopic Analysis

The majority of samples collected in 2009 by the EMDA staff were analyzed at the NBC Laboratory located at Field's Point. The NBC Bucklin Point and Field's Point Laboratories were consolidated as of November 2001. A state of the art, full service wastewater laboratory was constructed at that time to combine the two NBC labs and to accommodate new EPA regulations that call for more 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 being a Class 1000 Clean Room. 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 clean room 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). The detection limit is expected improve as protocols for this new equipment are further refined. The laboratory's 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 NBC 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 concerns. To accommodate the many research projects conducted by NBC and to satisfy new EPA regulations, it is vital to properly maintain and continuously improve the NBC state of the art laboratory.

Between the period of January 1, 2009 through December 31, 2009, NBC personnel conducted 248 sampling inspections of industries located within the NBC Field's Point and Bucklin Point Districts, resulting in the collection of 1,847 composite and grab sample results. These 1,847 samples translated to 258 monitoring reports. Of these 258 monitoring reports, 231 were in full compliance with the NBC standards and 27 were not in compliance, resulting in a user compliance rate of 89.5% based upon NBC analyses, an increase from the 85.2% rate of compliance reported for 2008 NBC monitoring results.

The NBC satisfied all EPA requirements regarding sampling SIUs at least once every twelve months, as all NBC significant users with discharges were sampled in 2009. NBC personnel collected samples from all significant categorical and non-categorical users that discharged into the NBC sewer system during 2009.

The NBC conducted sampling of 96 SIUs and 11 non-significant user facilities in the two NBC districts during 2009. Of the 107 facilities sampled by the NBC, 71 facilities were classified as categorical industries at the time of the sampling event. There were 25 firms classified as significant non-categorical facilities when sampled by the NBC during 2009.

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 2,264 wastewater monitoring reports for the period from January 1, 2009 through December 31, 2009. For this period, the industrial and commercial users actually submitted 2,776 sample results, 2,689 of which were in full compliance with the NBC and EPA standards. This is a user self monitoring report rate of compliance of 96.9%. The users submitted 22.6% more analyses than required by permits due to the NBC's 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, 2009 through December 31, 2009. 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 97.5%, NBC results indicate a compliance rate of 88.5% 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

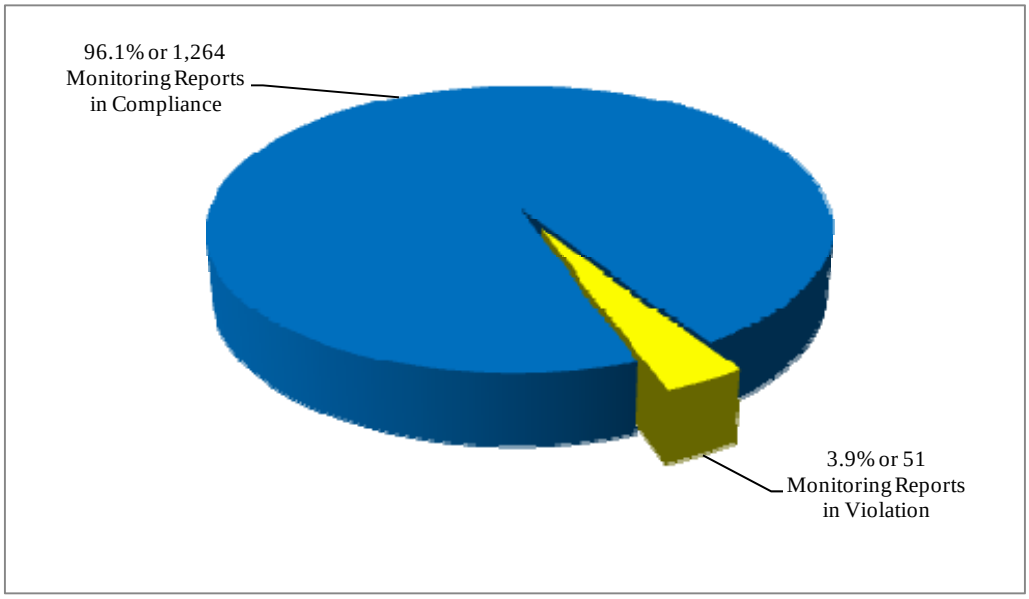
January 1, 2009 - December 31, 2009

User Self-Monitoring Results	**Categorical**	**Non-Categorical**	**Totals**
Total Monitoring Reports Required	**938**	**1,326**	**2,264**
Total Monitoring Reports Submitted	**1,146**	**1,630**	**2,776**
Total Monitoring Reports In Compliance	**1,118**	**1,571**	**2,689**
Total Samples Monitoring Reports Not In Compliance	**28**	**59**	**87**
NBC Monitoring Results			
Total Monitoring Reports Collected	**169**	**89**	**258**
Total Monitoring Reports In Compliance	**146**	**85**	**231**
Total Monitoring Reports Not In Compliance	**23**	**4**	**27**
All Results			
Total Monitoring Reports Reviewed	**1,315**	**1,719**	**3,034**
Total Monitoring Reports With Violations	**51**	**63**	**114**
Total Monitoring Reports In Compliance	**1,264**	**1,656**	**2,920**
Total Users Sampled	**71**	**469**	**540**
Total Users With Violations	**28**	**32**	**60**
Total Users Without Violations	**43**	**437**	**480**

FIGURE 8

2009 Rates of Compliance for Categorical and Non-Categorical Users
Field's Point & Bucklin Point Districts

Categorical User Analyses
Total Number of Monitoring Reports = 1,315



Non-Categorical User Analyses
Total Number of Monitoring Reports = 1,719

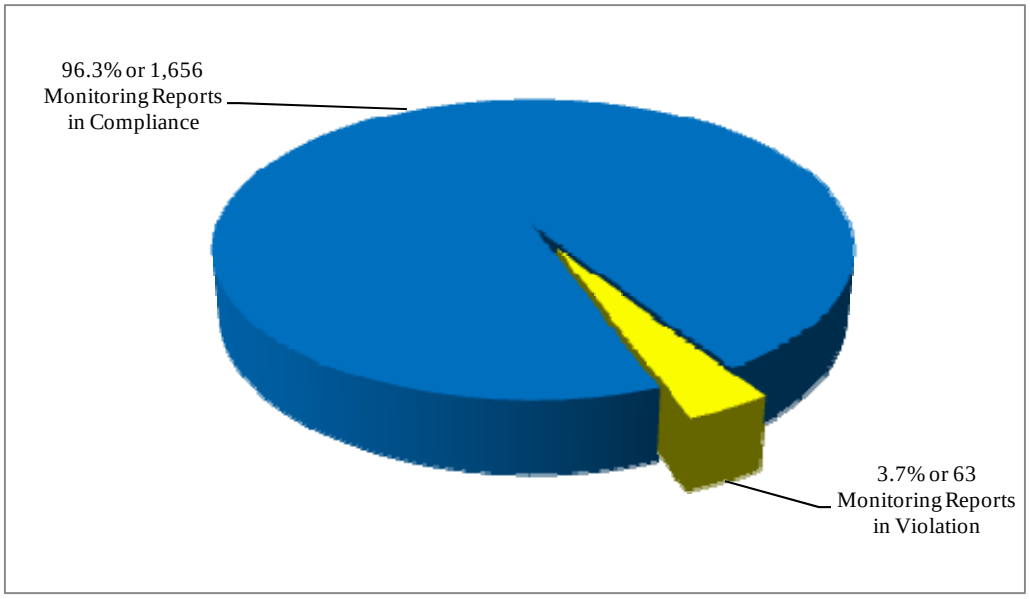


TABLE 13

Narragansett Bay Commission
Field's Point and Bucklin Point Districts

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

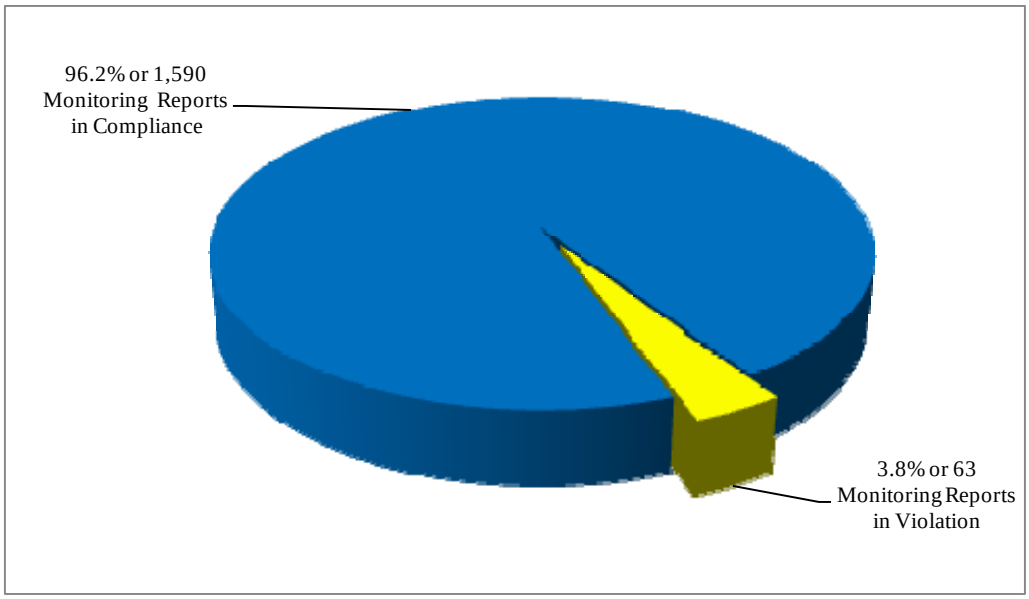
January 1, 2009 - December 31, 2009

User Self-Monitoring Results	Significant Users	Non-Significant Users	Totals
Total Monitoring Reports Required	**1,140**	**1,124**	**2,264**
Total Monitoring Reports Submitted	**1,418**	**1,358**	**2,776**
Total Monitoring Reports In Compliance	**1,382**	**1,307**	**2,689**
Total Monitoring Reports Not In Compliance	**36**	**51**	**87**
NBC Monitoring Results			
Total Monitoring Reports Collected	**235**	**23**	**258**
Total Monitoring Reports In Compliance	**208**	**23**	**231**
Total Monitoring Reports Not In Compliance	**27**	**0**	**27**
All Results			
Total Monitoring Reports Reviewed	**1,653**	**1,381**	**3,034**
Total Monitoring Reports With Violations	**63**	**51**	**114**
Total Monitoring Reports In Compliance	**1,590**	**1,330**	**2,920**
Total Users Sampled	**96**	**444**	**540**
Total Users With Violations	**35**	**25**	**60**
Total Users Without Violations	**61**	**419**	**480**

FIGURE 9

2009 Rates of Compliance for Significant and Non-Significant Users
Field's Point & Bucklin Point Districts

Significant User Analyses
Total Number of Monitoring Reports = 1,653



Non-Significant User Analyses
Total Number of Monitoring Reports = 1,381

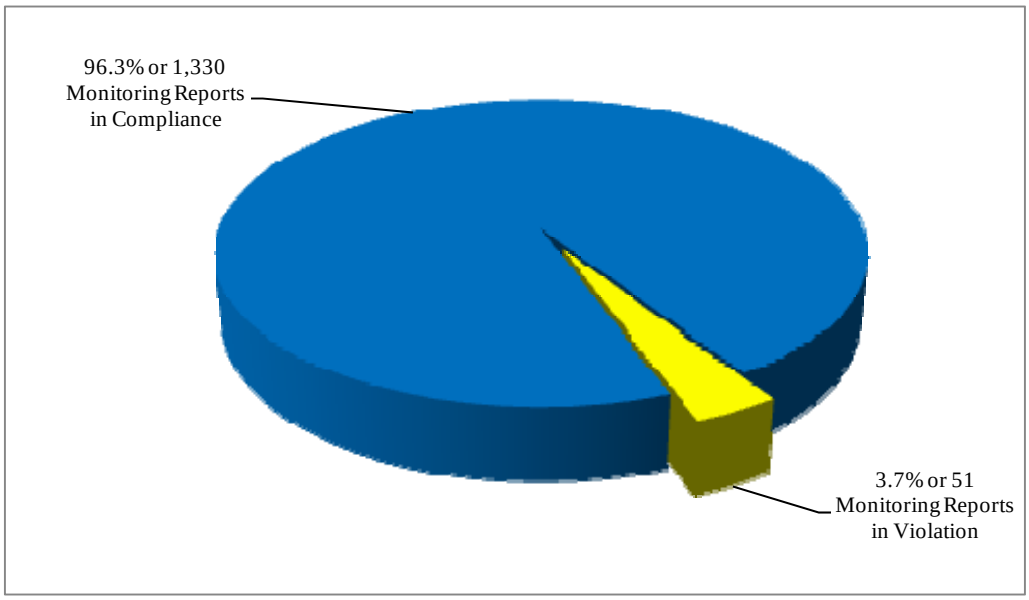


TABLE 14

Narragansett Bay Commission
Field's Point and Bucklin Point Districts

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

January 1, 2009 - December 31, 2009

	User Self-Monitoring	NBC Monitoring	All Results
Significant Users			
Compliance Rate	**97.5%**	**88.5%**	**96.2%**
Non-Compliance Rate	**2.5%**	**11.5%**	**3.8%**
Non-Significant Users			
Compliance Rate	**96.2%**	**100.0%**	**96.3%**
Non-Compliance Rate	**3.8%**	**0%**	**3.7%**
Categorical Users			
Compliance Rate	**97.6%**	**86.4%**	**96.1%**
Non-Compliance Rate	**2.4%**	**13.6%**	**3.9%**
Non-Categorical Users			
Compliance Rate	**96.4%**	**95.5%**	**96.3%**
Non-Compliance Rate	**3.6%**	**4.5%**	**3.7%**
All Users			
Compliance Rate	**96.9%**	**89.5%**	**96.2%**
Non-Compliance Rate	**3.1%**	**10.5%**	**3.8%**

This data review indicates an increase in the overall SIU compliance rate based upon user monitoring and NBC results when compared to the previous reporting year, as the overall SIU rate of compliance increased from 96.6% in 2008 to 97.5% in 2009. There was a 9.0% 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 11.2%.

User self monitoring reports submitted by categorical users indicated full compliance 97.6% of the time, while NBC monitoring found categorical users to be in compliance for only 86.4% 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.

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 very similar. The overall rate of compliance for Field's Point users was 95.9%, while it was 96.8% in the Bucklin Point District.

The Field's Point categorical users were in full compliance for 96.4% of the sampling events at their facilities in 2009. This compliance rate increased from 94.2% in 2008. SIUs in the Field's Point district had a rate of compliance of 96.3%, equivalent to the 96.0% SIU compliance rate observed in the Bucklin Point district.

The overall 2009 rate of SIU compliance in both districts was 96.2%, a slight increase from the compliance rate observed in 2008 of 95.0% for this class of user. As can be seen from TABLE 15, non-significant users in Bucklin Point had the highest rate of compliance, 97.9%, while the non-significant users and non-categorical users located in the Field's Point district had the highest rates of non-compliance, 4.5%. The rate of user compliance for all users in both districts increased slightly to 96.2% in 2009 when compared to 2008, at 95.7%.

TABLE 16 provides an analysis of the percentage of firms in each user class with perfect compliance records for effluent monitoring occurring during 2009. This analysis indicates that 60.6% of categorical users and 63.5% 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, 94.4%. During 2009, of the 540 firms that sampled their wastestream, 480 firms or 88.9% 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 10. 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 88.9% in 2009.

The increase in user compliance rates can be attributed to educational efforts by the Pretreatment and ESTA staff regarding EPA and NBC requirements. In addition to educating users, the 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.

FIGURE 10
Rate of Perfect Compliance with Effluent Parameters for All Users, Significant, and Categorical Users

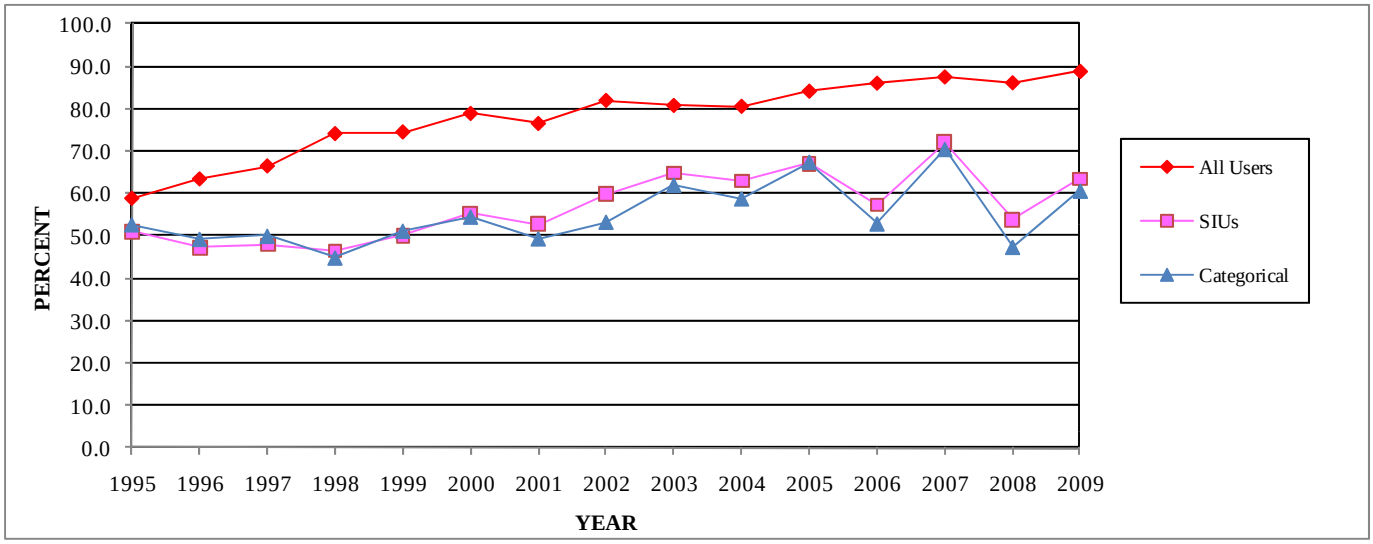


TABLE 15

Narragansett Bay Commission

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

January 1, 2009 - December 31, 2009

	Field's Point District	Bucklin Point District	Both Districts
Significant Users			
Compliance Rate	**96.3%**	**96.0%**	**96.2%**
Non-Compliance Rate	**3.7%**	**4.0%**	**3.8%**
Non-Significant Users			
Compliance Rate	**95.5%**	**97.9%**	**96.3%**
Non-Compliance Rate	**4.5%**	**2.1%**	**3.7%**
Categorical Users			
Compliance Rate	**96.4%**	**95.6%**	**96.1%**
Non-Compliance Rate	**3.6%**	**4.4%**	**3.9%**
Non-Categorical Users			
Compliance Rate	**95.5%**	**97.7%**	**96.3%**
Non-Compliance Rate	**4.5%**	**2.3%**	**3.7%**
All Users			
Compliance Rate	**95.9%**	**96.8%**	**96.2%**
Non-Compliance Rate	**4.1%**	**3.2%**	**3.8%**

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, 2009 - December 31, 2009

	% Firms Without Effluent Violations*	% Firms With Effluent Violations
Categorical Users	**60.6%**	**39.4%**
Non-Categorical Users	**93.2%**	**6.8%**
Significant Users	**63.5%**	**36.5%**
Non-Significant Users	**94.4%**	**5.6%**
All Users	**88.9%**	**11.1%**

***Excludes pH Parameter Violations.**

Of the 3,034 analytical reports reviewed during 2009, there were 114 reports that indicated non-compliance with one or more of the NBC or EPA effluent parameters (excluding pH). Of these 114 non-compliant sample reports, 63 analyses were of samples collected from 35 significant industrial user facilities and 51 non-compliant samples were collected from 25 non-significant facilities.

Three of the 35 SIUs that had effluent violations during 2009 had five or more effluent parameter violations during the report period. In fact, of the 7,224 various pollutant parameters tested for by SIUs, these three firms were responsible for 19 parameter violations out of a total of 76 parameter violations reported by all significant users during 2009. These three firms accounted for 25.0% 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 three firms. A listing of these three 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, 2009 - December 31, 2009

Company Name	Number of Parameter Violations	User Status
Providence Specialty Products	5	This Field's Point cheese manufacturer experienced five total oil and grease violations. One of the total oil and grease violations occurred during a NBC sampling event. The firm attributes the oil and grease violations to increased production levels and improper pump-outs of their oil/water separator. The firm has completed re-sampling and is currently in compliance with effluent discharge limitations.
Tedor Pharma, Inc.	7	This Bucklin Point pharmaceutical manufacturing firm experienced one cadmium violation, two copper violations, one total oil and grease violation, one total toxic organics violation, and two zinc violations. All violations were from NBC sampling events. The firm attributes the violations to sediment in the bottom of the waste treatment tank being circulated through the tank during the two sampling events. The firm has cleaned the pretreatment tank and disposed of the sediment off-site. The firm has completed re-sampling and is in compliance with effluent discharge limitations.
Teknicote, Inc.	7	This Bucklin Point metal finishing firm experienced seven zinc violations. Six of the violations occurred during self-monitoring events and one of the zinc violations occurred during an NBC sampling event. The firm attributed the zinc violations to chelators in the caustic cleaners holding the zinc in solution and not allowing it to settle during treatment. The firm adjusted its treatment procedures. The firm has completed re-sampling and is currently in compliance with effluent discharge limitations.

2009 Industrial User Compliance Status Summary

During 2009, 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 2,158 Notice of Violation letters were issued in 2009. 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.

2009 Industrial User Compliance Status Summary

During 2009, EMDA staff conducted sampling of an average of nine 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. At the lab, EMDA staff analyze each of the 24 sample bottles for pH and any unusual wastewater characteristics. Should any unusual conditions be observed, one or possibly all of the 24 samples would be analyzed separately. If no unusual characteristics are observed, an equal volume aliquot of each of the 24 samples is composited into two separate samples for laboratory analyses for metals and cyanide. After obtaining results indicating noncompliance, the NBC Pretreatment staff attempts to determine the potential source of these noncompliant discharges. Manhole monitoring results continue to indicate declines in the quantities of toxics discharged into the sewer system.

During 2009, the NBC conducted a total of 446 industrial manhole sampling events at manholes located throughout the two NBC sewer districts. In addition to collecting industrial manhole samples, the NBC conducted 29 sampling events at residential manholes. A total of 475 samples were collected from manholes in 2009. This is an increase from the 422 manholes samples collected in 2008. In addition to the 475 monitoring events, eight additional manholes were attempted to be monitored in both Field's Point and Bucklin Point. However due to flow conditions or mechanical problems, effluent could not be collected by the automatic samplers.

NBC staff conducted 256 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 99.2%. NBC staff conducted 190 samples 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 91.6%. These results show that at various times and in several locations, NBC discharge standards may have been violated. 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 2009 are provided in ATTACHMENT VOLUME II, SECTION 7.

INDUSTRIAL SURVEILLANCE MANHOLE VIOLATIONS

FIELD'S POINT DISTRICT

Industrial Surveillance Manhole 07

Industrial Surveillance Manhole 07 is located on Ellenfield Street in Providence. The manhole is located downstream of the Ellenfield industrial area which includes many electroplating and metal finishing firms. On March 12, 2009 the concentration of nickel was in excess of the NBC discharge limitation of 1.62 ppm. In addition, on March 17, 2009 the concentration of copper was in excess of the NBC discharge limitation of 1.2 ppm. Companies in the area were inspected to determine the potential source. At the time of the inspections the companies were operating properly and reviews of logbooks did not reveal anything unusual. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 to monitor the compliance status of this area.

Industrial Surveillance Manhole 12A

Industrial Surveillance Manhole 12A is located on Virginia Avenue in Providence downstream of C&C Rhode Island, LLC which conducts metal finishing operations. On May 16, 2009 the concentration of copper was in excess of the NBC discharge limitation of 1.20 ppm. On May 16, 2009 and December 12, 2009 the concentration of nickel was in excess of the NBC discharge limitation of 1.62 ppm. The firm was issued Notices of Violation which required reports detailing the cause of the high metals concentrations to be submitted. The firm reviewed in house procedures and checked the pretreatment system. In addition, the firm contacted a consultant to review the pretreatment system. The consultant made several recommendations to improve treatment. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 to monitor the compliance status of this company.

Industrial Surveillance Manhole 31A

Industrial Surveillance Manhole 31A is located on Eddy Street in Providence downstream of Victory Fisnishing Technologies which conducts metal finishing operations. On March 17, 2009 the concentration of copper was in excess of the NBC discharge limitation of 1.20 ppm. The firm was inspected and informed of the manhole results. The firm's logbooks were reviewed and nothing unusual was found during the inspection that could be attributed to the copper concentration. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 to monitor the compliance status of this company.

Industrial Surveillance Manholes 39A & 39B

Industrial Surveillance Manholes 39A and 39B are located on Chestnut Street in Providence downstream and upstream of Regal Plating Company, which conducts metal finishing operations. On December 12, 2009 the concentration of nickel in Industrial Surveillance Manhole 39A was in excess of the NBC discharge limitation of 1.62 ppm. The upstream manhole, Industrial Surveillance Manhole 39B, was in full compliance with NBC discharge limitations. The firm was issued a Notice of Violation which required a report detailing the

cause of the high metals concentration to be submitted. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 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 a building housing Esposito Jewelry, Inc., which conducts zero discharge metal fisnishing operations, Bella Jewelry, which conducts mass finishing operations, Ismael Polishing, which conducts hand polishing operations, Ocean State Book Binding, which conducts book binding operations, and Symposium Books, Inc., which is a warehouse. Ismael Polishing, Ocean State Book Binding, and Symposium Books, Inc. do not perfom process operations which generate wastewater. On August 29, 2009 the concentrations of copper, lead, silver and zinc were in excess of the NBC discharge limitations of 1.20 ppm, 0.60 ppm, 0.43 ppm and 2.61 ppm respectively. In addition, on November 4, 2009 the concentrations of copper and zinc were in excess of the NBC discharge limitations of 1.20 ppm and 2.61 ppm respectively. The building was inspected after each incident. Bella Jewelry was discovered operating after the first incident and was required to obtain a permit. The other companies appeared to be operating normally. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 to monitor the compliance status of these companies.

Industrial Surveillance Manholes 53A & 53B

Industrial Surveillance Manholes 53A and 53B are located on Plymouth Street in Providence downstream and upstream of Surface Coatings Division of Westwell Industries Inc., which conducts metal fisnishing operations. On July 25, 2009 the concentrations of copper, nickel, and cyanide in Industrial Surveillance Manhole 53A were in excess of the NBC discharge limitations of 1.20 ppm, 1.62 ppm, and 0.58 ppm respectively. The upstream manhole, Industrial Surveillance Manhole 53B, was in full compliance with NBC discharge limitations. The firm was issued a Notice of Violation which required a report detailing the cause of the high metals and cyanide concentrations to be submitted. The firm determined employess were not performing rinsing operations properly which may have resulted in the high concentrations of metals and cyanide in the sewer system as the source of the violation. The firm retrained employees in proper rinsing techniques. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 to monitor the compliance status of this company.

Industrial Surveillance Manhole 111A

Industrial Surveillance Manhole 111A is located on Railroad Avenue in Johnston downstream of G. Tanury Company, which conducts metal finishing operations. On March 19, 2009, March 24, 2009, and June 2, 2009, the concentrations of nickel were in excess of the NBC discharge limitation 1.62 ppm. The firm was inspected and informed of the manhole results. The company stated they were experiencing channeling in the ion exchange columns. As a result, the frequency of regenerating the ion exchange columns was increased from quarterly to bimonthly to prevent future occurrences. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 to monitor the compliance status of this company.

Industrial Surveillance Manholes 153A & 153B

Industrial Surveillance Manholes 153A and 153B are located on Waterman Avenue in North Providence downstream and upstream of Evans Plating Corporation, which conducts metal finishing operations. On November 7, 2009, the concentration of zinc in Industrial Manhole 153A was in excess of the NBC discharge limitation of 2.61 ppm. The upstream manhole, Industrial Surveillance Manhole 153B, was in full compliance with NBC discharge limitations. The firm was issued a Notice of Violation which required a report detailing the cause of high metals concentrations to be submitted. The firm indicated that a faulty pH probe in the batch treatment tank prior to the microfilter gave false readings interfering with the treatment causing zinc to redissolve and pass through the microfilter. The firm replaced the probe. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 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 Corp. On February 28, 2009, the concentration of copper in Industrial Surveillance Manhole 181A was in excess of the NBC discharge limitation of 1.20 ppm. The upstream manhole, Industrial Surveillance Manhole 181B, was in full compliance with NBC discharge limitations. The firm was issued a Notice of Violation which required a report detailing the source of high concentration of copper to be submitted. The firm stated that it had an increase in volume in its polishing department which would have increased the amount of cleaning and the concentration of metals in its ultrasonic batch discharges. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 to monitor the compliance status of this company.

Industrial Surveillance Manholes 193A & 193B

Industrial Surveillance Manholes 193A and 193B are located on DeSoto Street in Providence downstream and upstream of JC Gorham Company which conducts closed-loop electroplating operations. On August 15, 2009, the concentrations of copper, silver, and cyanide in Industrial Surveillance Manhole 193A were in excess of the NBC discharge limitation of 1.20 ppm, 0.43 ppm, and 0.58 ppm respectively. The upstream manhole, Industrial Surveillance Manhole 193B, was in full compliance with NBC discharge limitations. The firm was issued a Notice of Violation which required a report detailing the source of high concentrations of metals and cyanide to be submitted. The firm stated that sample bottles containing concentrated plating solutions were accidentally emptied into a sink which discharges to the sewer instead of returned to the corresponding plating tank. The firm stated that steps have been taken to ensure incidents like this do not occur in the future. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 to monitor the compliance status of this company.

BUCKLIN POINT DISTRICT

Industrial Surveillance Manhole 30B

Industrial Surveillance Manhole 30B is located on Esten Avenue in Pawtucket upstream of Accent Plating Company. On November 28, 2009, the concentration of zinc was in excess of the NBC discharge limitation of 1.67 ppm. The area upstream of the manhole was investigated to determine potential sources of the high concentration of metals. Nothing unusual was found. Continued industrial manhole monitoring will be conducted by NBC personnel in 2010 to monitor the compliance status of this area.

Industrial Surveillance Manhole BP190005

Industrial Surveillance Manhole BP190005 is located on Pleasant Street in Pawtucket. The manhole was established as a surveillance manhole as part of an investigation into high concentrations of chromium that occurred at the Bucklin Point plant during 2008. The sampling for the investigation continued through February 2009. On January 13, 2009 the concentration of zinc exceeded the NBC discharge limitation of 1.67 ppm. An investigation of the area upstream of the manhole did not reveal the source. Subsequent monitoring of the manhole showed compliance with all NBC discharge limitations. Continued industrial monitoring will be conducted by NBC personnel in 2010 to monitor the compliance status of companies upstream of this manhole.

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

NBC Impact on the Control of Toxics and Incompatible Wastes

NBC's continuing goal is to improve receiving water quality by ensuring compliance with RIPDES discharge standards thereby limiting the impact of 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's 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 2009 monitoring initiatives performed by the EMDA section, including monitoring of the NBC treatment facilities, the collection system, Significant Industrial Users (SIUs) 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. To that end, 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 permit 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's 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 Environmental, Safety & Technical Assistance (ESTA), Pretreatment, Laboratory, Operations, and Environmental Monitoring and Data Analysis (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 the Operations Section 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 as part of new nutrient permit limits issued to reduce the amount of nitrogen discharged to Narragansett Bay. The updated permit requirements mandate monitoring of nitrate, nitrite, and Total Kjeldahl Nitrogen (TKN) three times per week. TKN analyses determine both ammonia nitrogen and organic nitrogen in a sample. 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's appeal of certain conditions within RIPDES permit 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 BOD and 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's 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 2009, 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 Interceptor (BVI) and the East Providence Interceptor (EPI), 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.

The 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's 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 at the two interceptor locations and are composites of nine separate grab samples at each location. These samples are mixed flow proportionally in the same way as the metals and conventional pollutant composite collections. This sampling change took effect on September 26, 2005.

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. In 2004 the NBC purchased a state-of-the-art nutrient auto-analyzer to process treatment plant samples. A second instrument was acquired in September 2005 to process salt water samples. These instruments show improved analysis efficiency for nutrient measurements, and analytical results from the new equipment continue to produce better precision and accuracy than previous analyses**.**

Other required sample collections for plant monitoring include daily fecal coliform bacteria, biochemical oxygen demand (BOD), total suspended solids (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. The NBC has completed a facilities plan for Bucklin Point that includes upgrades that will allow the facility to meet the permit limit of 5.0 ppm. An interim permit limit of 8.5 ppm total nitrogen is now in effect.

At Field's Point, construction is underway to upgrade the treatment plant to meet a 5.0 ppm total nitrogen discharge limit. Major facility upgrades and renovations are necessary to implement BNR technology. Construction is expected to be completed by 2014.

Clean Sampling Implementation

In 1998, a comparative study was conducted of various sample collection methods at the Field’s Point and Bucklin Point effluents. The EPA determined that one of the greatest difficulties in measuring pollutants, particularly trace metals, is avoiding sample contamination during collection, transport, and analysis. In response, the EPA developed the 1600-Series Methods Guidance for “Ultra-Clean” sampling and analysis of trace metals. The NBC comparative study was conducted to determine the level of “cleanliness” necessary for routine effluent sampling and the level of background contamination which may be present with existing sampling methods. The study concluded that improved sampling techniques reduce background sampling contamination and certain trace metal levels in the effluent.

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 begun in 2003. 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 its three times weekly 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 and pump tubing used in the drawing of 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. Tubing 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 2009:

- 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 are 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 2009, all tests for these constituents yielded non-detectable results at Field's Point. If either of these constituents is detected, the cyanide sampling, if in progress, will be suspended and re-started the following day to ensure that these chemicals do not interfere with the cyanide analysis.

- In February 2009, EMDA staff implemented a new sampling location at Field's Point in order to characterize the wastewater being pumped out of the CSO tunnel. A composite sample was collected daily from the influent of the CSO screening facility. Samples were analyzed for BOD, TSS, Nutrients, Chlorides, and sulfates.

- EMDA staff periodically collected fecal coliform samples from each chlorine contact tank in order to better understand the performance of the two treatment tanks.

- In order to ensure that process control samples are representative of actual plant conditions EMDA evaluated the mixed liquor sampling location to ensure that samples collected from this sampling machine were truly representative. Based upon this study a guide tube was installed at this location.

Bucklin Point Special Sampling Activities

The following activities summarize special sampling activities conducted at Bucklin Point during 2009:

- 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 trucked to the Lincoln station were analyzed by the Laboratory for trace metals and cyanide each week. Interceptor Maintenance staff sampled and screened each septage truck's waste 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. This grab sample was collected in the Vortex 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 2009, all tests for these constituents were non-detected at Bucklin Point. If either of these constituents was detected, the cyanide sampling, if in progress, will be suspended and re-started the following day to ensure that these chemicals do not interfere with the cyanide analysis.

- Wet weather effluent quality monitoring for fecal coliform, pH, TSS, BOD, and TRC were performed throughout 2009 by EMDA staff during the first shift and by Bucklin Point Operations staff on the second and third shifts. TRC was routinely measured in the chlorine contact tank as a measure of disinfection at the time of fecal coliform grab sample collections. TRC was also monitored downstream of the dechlorination process as specified in the RIPDES permit. Dechlorination is performed by the addition of sodium bisulfite.

- EMDA staff began a monitoring program to better characterize the performance of the wet weather facilities. Treatment of wet weather flows can be very challenging because of the highly variable nature of this wastestream. The rate of flow can change drastically from minute to minute as well as the concentration of pollutants which can also vary. The first flush from a storm event tends to be more concentrated with pollutants washed off of roadways, while the later storm stages may be highly diluted by the relatively clean rainwater. The monitoring program consists of collected duplicate samples at various stages of the treatment process throughout the event.

- In December 2009 EMDA began a new monitoring program to verify the proper operation of two new continuous analyzers that have been installed in one of the aeration tank trains. These analyzers provide real time ammonium and nitrate concentrations. The monitoring consisted of collecting daily grab samples, on three days per week, which are analyzed in the NBC Laboratory and compared to the instantaneous reading obtained by the in line analyzers. This ensured that the analyzers are generating reliable data from which BNR optimization decisions can be made.

Analysis of Influent Loading Data

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

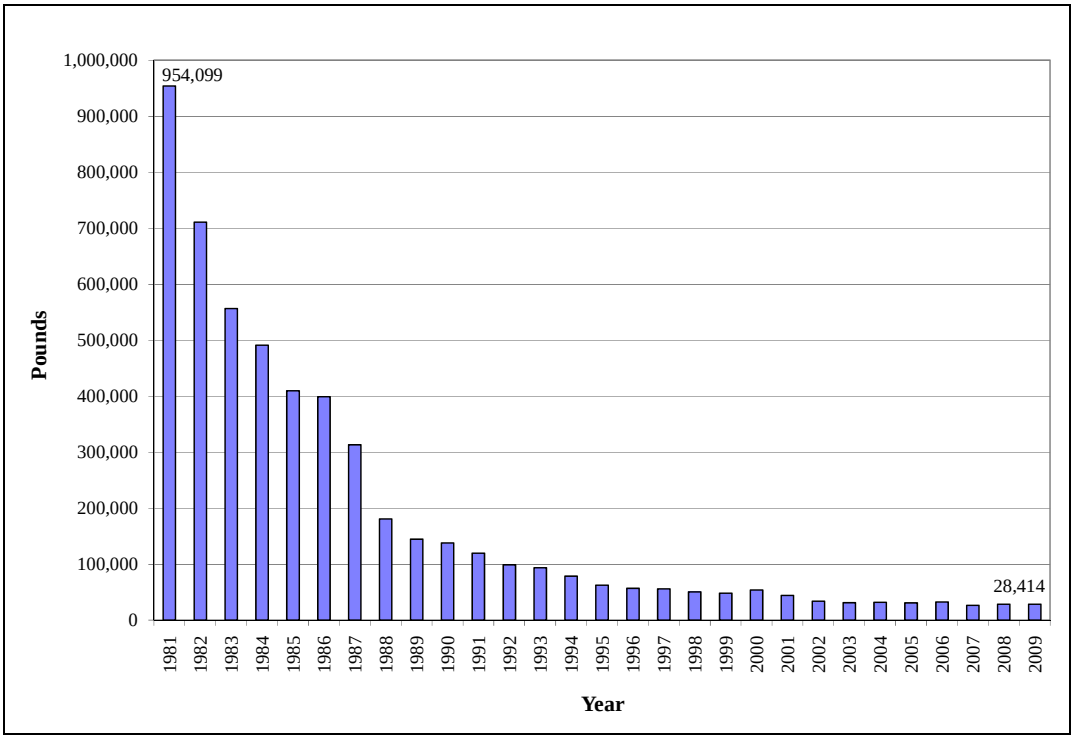
Records of data for metals and cyanide in the Field's Point collection system have been collected and analyzed since 1980. Significantly less historical loading data is available for Bucklin Point, which was acquired by the NBC in 1992. The historical Bucklin Point data presented here covers the period from 1994 to present for metals, and 1991 to present for cyanide.

Field's Point District - Influent Loading Analysis

FIGURES 11 and 12 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, to the present.

Over the past 28 years, there has been a significant downward trend in the total loadings of metals as can be seen in FIGURE 11. Total metals loadings is defined as the sum of cadmium, copper, chromium, lead, mercury, nickel, silver, and zinc loadings for a given year. These loadings showed a decrease of 97% 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 2009 had a decrease of 131 pounds from 2008.

FIGURE 11
Field's Point Total Metals Influent Loading Trend Analysis



Cyanide loading data for the same time period indicates a similar overall downward trend, as can be seen in FIGURE 12, with a dramatic 97.6% decrease in loadings between 1981 and 2009. The success in reducing the metal and cyanide inputs to the treatment facilities is largely due to the efforts and success of the NBC's Pretreatment and ESTA programs.

FIGURE 12
Field's Point Cyanide Influent Loading Trend Analysis

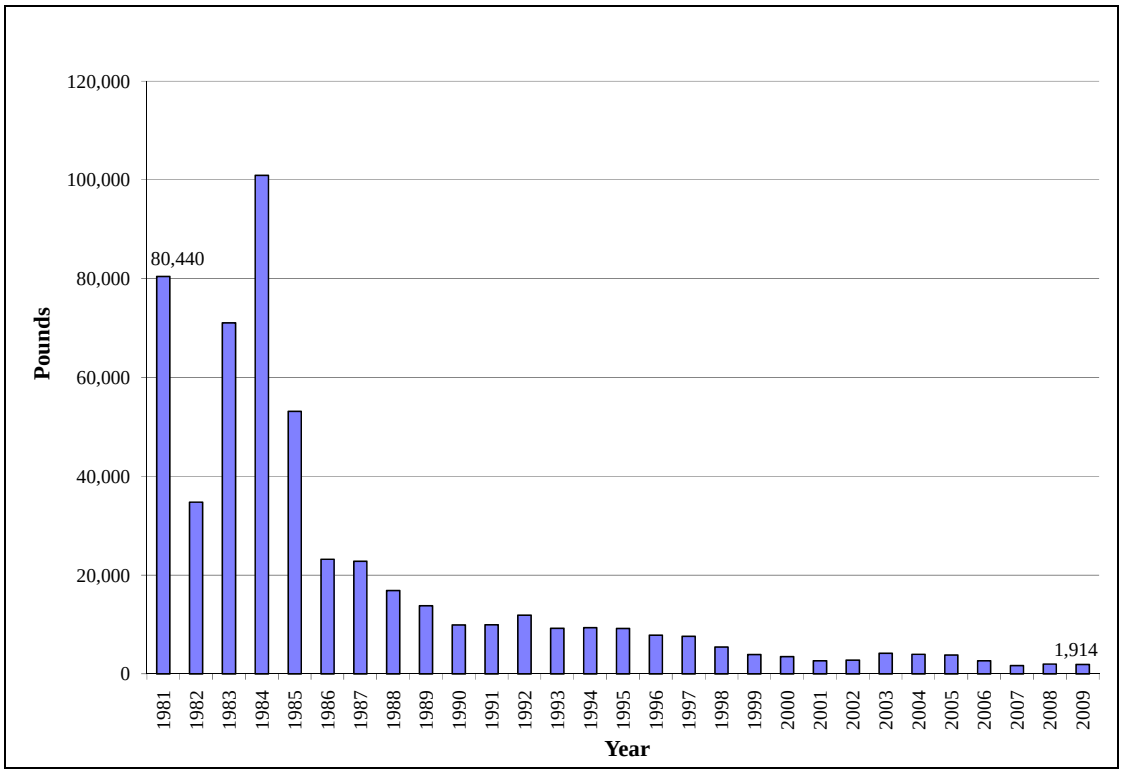


TABLE 18 provides a comparison of the 2008 and 2009 metals and cyanide loadings to Field's Point. Loading figures were calculated based on monthly averages of concentration and flow. As illustrated in TABLE 18, the annual influent loading of copper and lead showed decreases in 2009 compared to 2008. Copper decreased 10.5 % and lead decreased 1.4% from 2008 to 2009. Cyanide also decreased by 3.4%. All remaining metals increased in 2009 compared to 2008. However, the increase in any individual metal was small. Overall there was a 0.5% decrease in total metals. Although most metals increased between 2008 and 2009, there still remains a 97.0% decrease in metals since 1981. Loading of metals remains low due to strict regulation by the Pretreatment Section and due to the educational efforts by the Pretreatment and ESTA Sections and the NBC's proactive approach to pollution prevention. The decreases since NBC has taken over the operation of Field's Point demonstrate NBC's continued commitment to vigilant enforcement and continued encouragement to users to implement pollution prevention measures**.** Total flow to Field's Point increased by 2.9% in 2009 compared to 2008, with an average daily influent flow of 48.66 MGD in 2009. In addition, there was a 21,258 gallons per day decrease in industrial flow from Significant Industrial Users.

TABLE 18
Comparison of 2008-2009 Annual Loadings to Field's Point

Pollutant	2008 (Pounds)	2009 (Pounds)	Total Pound change	% Change
Total Cadmium	336.1	381.5	45.4	13.5%
Total Chromium	1,586.1	1,664.4	78.3	4.9%
Total Copper	6,542.9	5,854.1	-688.8	-10.5%
Total Lead	1,875.0	1,849.1	-25.9	-1.4%
Total Mercury	6.77	7.43	0.66	9.7%
Total Nickel	3,188.9	3,240.4	51.5	1.6%
Total Silver	565.5	603.8	38.3	6.8%
Total Zinc	14,444.2	14,813.6	369.4	2.6%
Total Metals	28,545.5	28,414.4	-131.1	-0.5%
Total Cyanide	1,980.1	1,913.5	-66.6	-3.4%

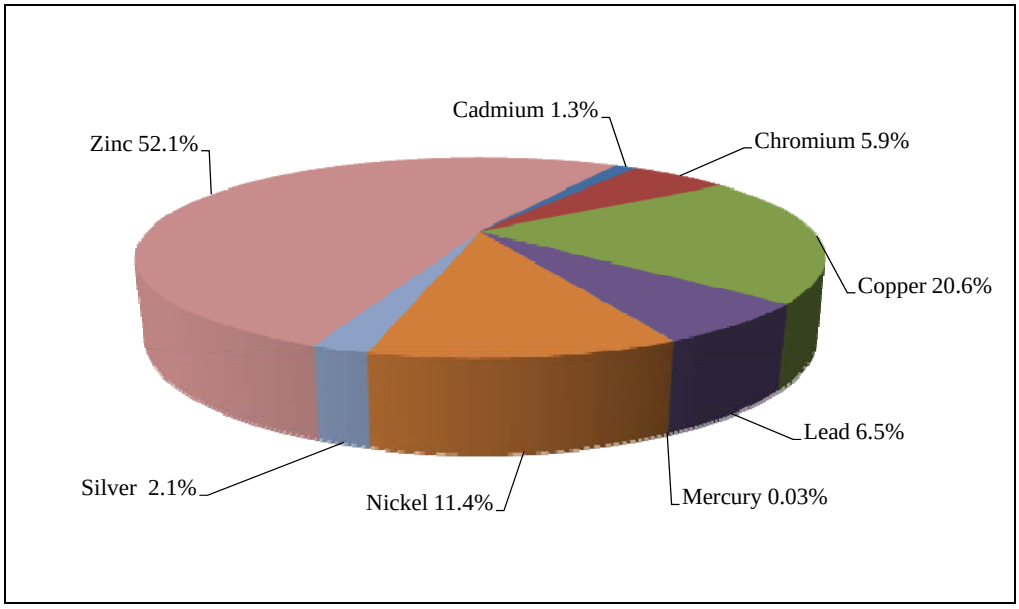
Mercury increased by 0.66 pounds or 9.8% in 2009 compared to 2008. Copper loadings showed the largest decrease in 2009, decreasing by 688.8 pounds. Cadmium loadings exhibited the largest overall percent increase in 2009 by about 45.4 pounds. The 2009 total metals loadings to the plant decreased by 0.5% from 2008, with a decrease in total metals of 131.1 pounds. Overall 2009 was very similar to 2008 in total metals loadings. Though individual metals loadings may have increased there was no net increase in metals. This is quite impressive considering that flows to the Field's Point facility increased by 1.6 billion gallons due to the completion of Phase I of the CSO tunnel project.

2009 was the first full year of operation for the NBC CSO tunnel. To determine the amount of influent loading received into Field's Point from tunnel pumpouts which include both stormwater and inflow and infiltration, several samples were taken over the course of the year to estimate metals loading from the tunnel. It was determined that the metals loading received into Field's Point from the tunnel was not a significant portion of the total metals as it was less than 4.1% of the total metals. Furthermore, much of the water captured by the CSO tunnel would have reached the plant in years past with the exception of flows which were released as combined sewer overflows. 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 13. The majority of metal loadings to Field's Point is from zinc, copper, and nickel. These metals account for 84.1% of the total metal loadings to Field's Point, roughly equivalent to the overall relative contribution observed during 2008. The loading of total zinc in 2009 was 14,813.6 pounds, or 52.1%, the highest of any toxic pollutant discharged into the Field's Point system. As will be shown later in this chapter, the

majority of zinc loadings are attributed to residential sources. Copper was the next highest pollutant load to Field's Point at 5,854.1 pounds or 20.6%, followed by nickel at 3,240.4 pounds or 11.4%. The loadings levels of toxic pollutants to Field's Point in 2009 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 13
Breakdown of Total Metals – Field's Point 2009 Influent Loading



~Oil and Grease Inputs to Field's Point

Monthly sampling of oil and grease inputs to Field's Point reveals low and consistent concentrations. Influent concentrations ranged from 12.04 ppm to 74.3 ppm during 2009. Effluent concentrations are significantly lower than influent, ranging from 4.5 ppm, or not detectable, to 5.93 ppm. 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. NBC's 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 2009 oil and grease data is listed in ATTACHMENT VOLUME II SECTION 10.

~Field's Point Influent and Effluent Organics

Volatile organic compounds (VOC) were measured monthly at the influent and effluent at the Field's Point facility during 2009. These samples are 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 272 analytical results for influent samples obtained during 2009, 86.8% of all samples had non-detectable concentration levels of volatile organic compounds. This is a slightly lower percentage than the 2008 influent results. Of the 374 effluent analytical results only 10.7% of the samples had detectable VOC levels. This demonstrates the effectiveness of the Pretreatment and ESTA Sections 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

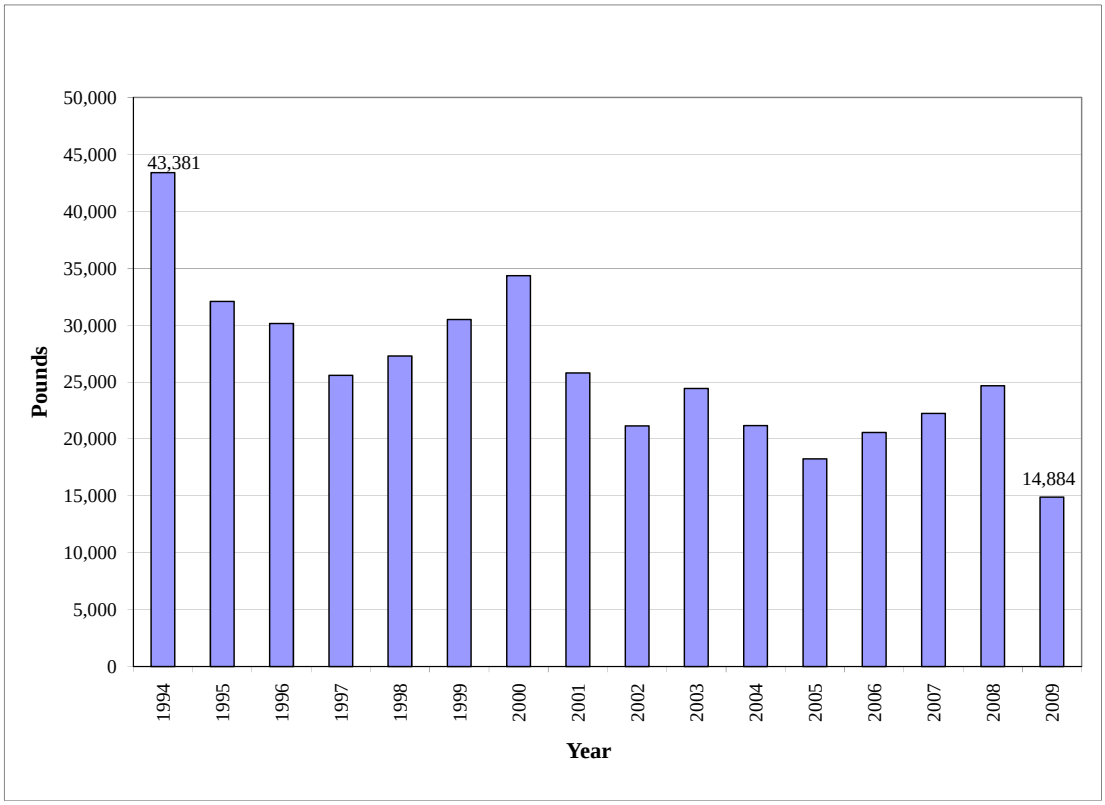
The pH of the Field's Point influent is measured twice daily by Laboratory staff on a high-precision Orion pH meter. Grab samples are collected by EMDA staff and immediately transferred to the lab for analysis. EMDA staff collected 729 influent samples for this parameter during 2009. The pH range of the influent sample measurements was between 6.1 and 7.8 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 standard unit. 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 2009 and no negative effect on normal plant operations process control was noted. Effluent grab samples are also collected twice daily over the year, ranged from 6.2 to 7.3 s.u. There were no excursions from the permitted 6.0 to 9.0 s.u. discharge range at Field's Point.

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 14. 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. Pretreatment staff conducted an investigation to determine the source of the high chromium concentrations. However, the source could not be conclusively verified since the high concentrations had stopped impacting the plant during the investigation. The 2006 through 2008 data indicated another increase in metals loading to Bucklin Point. The influent metals loading during 2008 showed an increase of 10.9% over 2007. This

increase was once again primarily due to an increase in chromium loading. Throughout 2008, Pretreatment and EMDA staff worked closely to find the source of chromium. Extensive manhole sampling was conducted throughout the district and all firms with the potential to discharge chromium were thoroughly inspected. The chromium loading was within the MAHL established for Bucklin Point. Influent metals loading has since decreased, with a 39.7% decrease in 2009 compared to 2008. The total metals loading to Bucklin Point was below the MAHL of 43,304 pounds and has been since 1995. There have been minor fluctuations in total metal loading since 2002, with a significant decrease in 2009.

FIGURE 14
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 15. The results from the past three years show a dramatic drop in cyanide influent loadings. In 2009 there was a 31.2 pound or 10.2% decrease from the 2008 level of 305 pounds. Since 1991, cyanide loading has decreased by 90.6%. 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 15
Bucklin Point Cyanide Influent Loading Trend

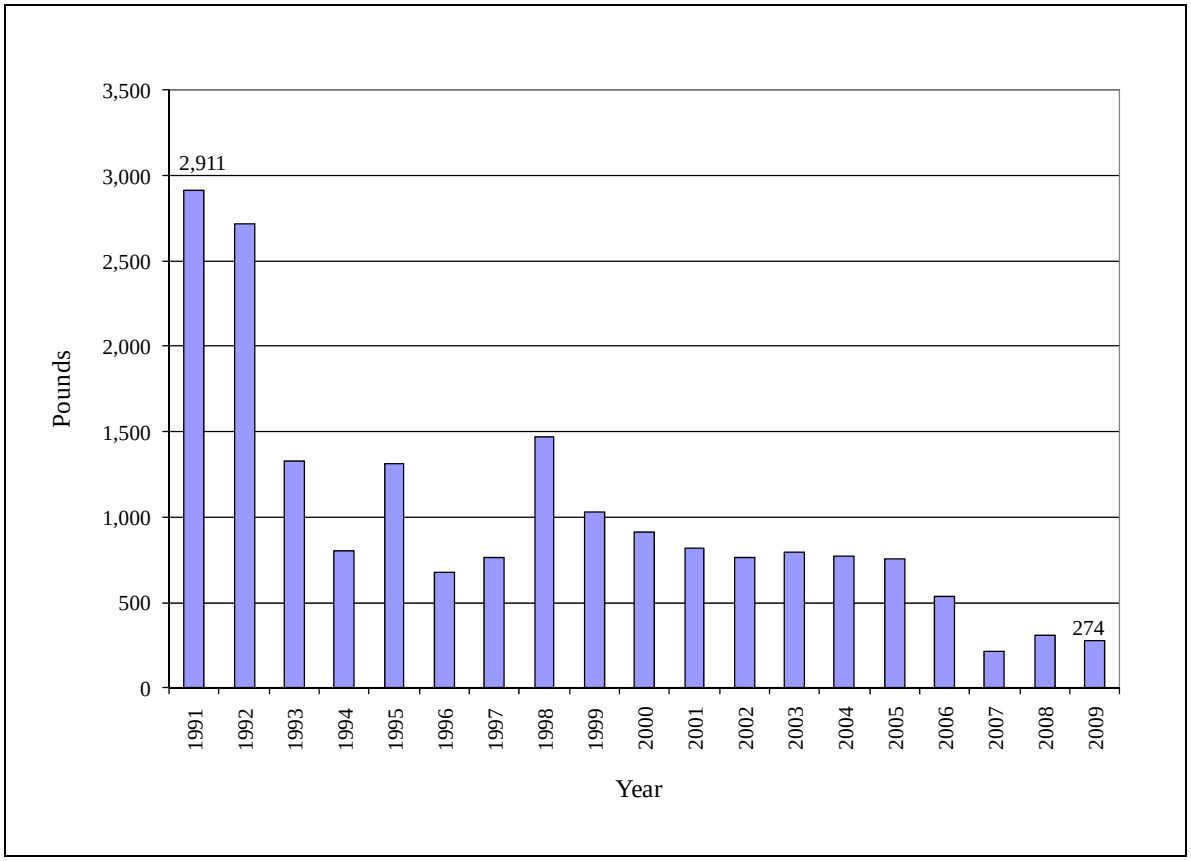


FIGURE 16 provides a breakdown of the relative contribution of various metals discharged to Bucklin Point. Zinc, copper and nickel are the largest contributors to total metals loading to Bucklin Point accounting for 86.5% of the total percentage of metal inputs. The total number of pounds of zinc decreased by 716.4 pounds in 2009 and zinc was 50.6% of the total metals loading to the facility. The contribution of copper also decreased by 1,029.4 pounds in 2009, with 26.8% of the total loading to the facility. The contribution of nickel decreased by 1,577.1 pounds in 2009 and nickel was 9.0% of the total metals loading to Bucklin Point.

FIGURE 16
Breakdown of Total Metals – Bucklin Point 2009 Influent Loadings

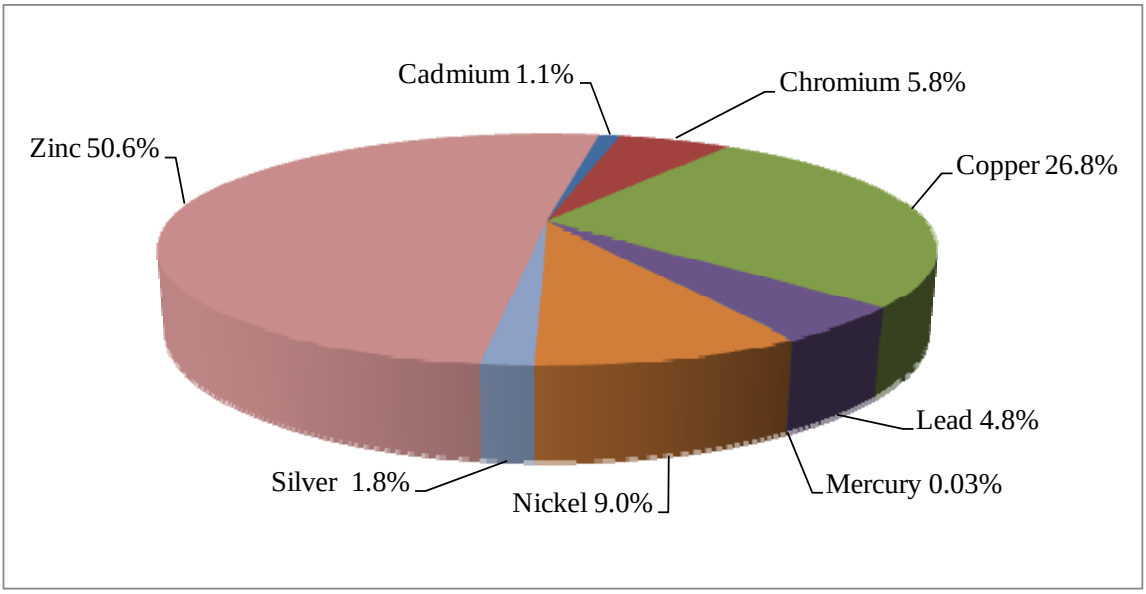


TABLE 19 shows the comparison of Bucklin Point metals and cyanide loadings for 2008 and 2009. Metals that showed an increase in 2009 over 2008 included cadmium, lead and mercury, whereas chromium, copper, nickel, silver, and zinc all decreased from the previous year. The single largest reduction on a pound basis was for chromium, reduced by 6,472.7 pounds, or 88.2%, in 2009. The reduction in chromium can be attributed to the investigation into the high chromium levels that were seen in 2008. The investigation included inspections of all companies with the potential to impact the treatment plant with chromium and installing automatic manhole samplers in strategic locations throughout the district. The results of the manhole sampling enabled the source to be identified. Throughout 2008, Pretreatment staff worked with the source of the high chromium. The company investigated its process operations and pretreatment systems. One wastestream was redirected to the pretreatment system. The overall decrease in total loading in pounds to the Bucklin Point facility between 1994 and 2009 is 65.7% for total metals and 90.6% for cyanide between 1991 and 2009.

TABLE 19
Comparison of 2008-2009 Annual Loadings to Bucklin Point

Pollutant	2008 (Pounds)	2009 (Pounds)	Total Pound Change	% Change
Total Cadmium	155.1	165.4	10.3	6.6%
Total Chromium	7,338.4	865.7	-6,472.7	-88.2%
Total Copper	5,021.2	3,991.8	-1,029.4	-20.5%
Total Lead	713.2	714.1	0.9	0.13%
Total Mercury	3.60	4.06	0.46	12.8%
Total Nickel	2,922.9	1,345.8	-1,577.1	-54.0%
Total Silver	269.6	265.7	-3.9	-1.4%
Total Zinc	8,247.9	7,531.5	-716.4	-8.7%
Total Metals	24,671.9	14,884.1	-9,787.8	-39.7%
Total Cyanide	305.4	274.2	-31.2	-10.2%

~Oil and Grease Inputs to Bucklin Point

Monthly sampling of oil and grease inputs to Bucklin Point reveals mostly low consistent concentrations. Influent oil and grease concentrations in 2009 ranged from 14.4 ppm to 43.1 ppm. All effluent samples were below the detection limit of 4.5 ppm, except for the sample in August which was 4.93 ppm. This data is listed in ATTACHMENT VOLUME II, SECTION 10.

~ Bucklin Point Influent and Effluent Organics

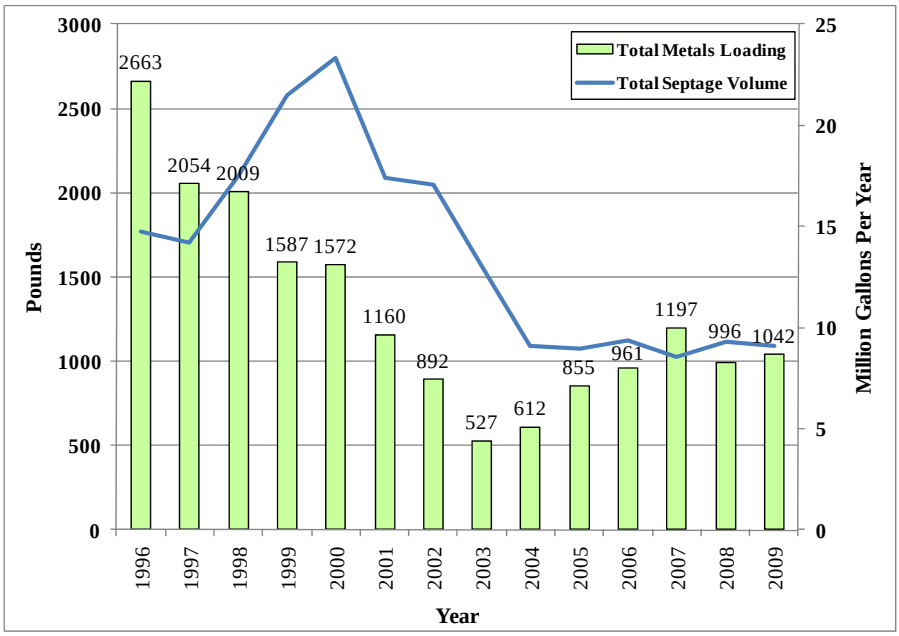
Volatile organic compounds (VOC) were monitored 10 times in the influent and 11 times in the effluent at the Bucklin Point facility in 2009. The analysis of 31 organic compounds using EPA method 624 is routinely performed to ensure that the amount of organics introduced to the facility is being adequately 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 306 analytical results for influent samples obtained during 2009, 97.4% of these were at non-detectable concentration levels. Of the 370 analytical results for effluent samples obtained in 2009, only one VOC compound was detected on one date, with 99.7% of the results 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 vehicles 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. New septage sample collection techniques and equipment were introduced in June 2004. The equipment allows for easier, in-line sampling during septage delivery. A sample from each truck 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.

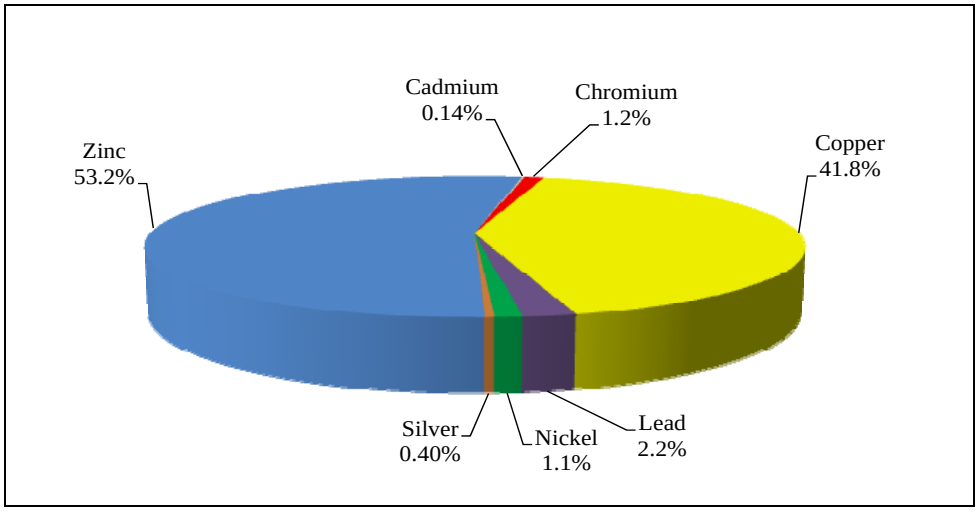
An analysis of recent volume trends indicates a decrease for 2009 of 2.4% from the volume reported in 2008. Septage haulers discharged 9.30 million gallons in 2008, while the NBC received 9.08 million gallons in 2009. Overall, the volume reported in 2009 is approximately 38% lower than the volume discharged in 1996. From 2008 to 2009 there was a 4.6% increase in total metals from septage, or 46 pounds. The overall reduction in total metals from septage since 1996 is 60.9%, illustrating the diminishing impact of septage metals on influent loadings. This can be seen in FIGURE 17. 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 increased slightly in 2009, with 7.6% of total influent metals originating with septage versus 4.0% in 2008. Metals loading in 2009 is lower, however, than that in 2007, even though septage volume was slightly higher in 2009 than 2007.

FIGURE 17
Trend Analysis of Total Metals Loadings in Septage



Copper and zinc continue to be the major metal contributors to the septage load, with 435 pounds and 554 pounds, respectively, in septage in 2009. These two metals make up 94.5% of the total metals observed in the septage. Zinc loading from septage represents 7.4% of the total influent zinc loading to Bucklin Point during 2009. Copper from septage amounted to 16.3% of the total copper loading to Bucklin Point for 2009. FIGURE 18 illustrates the average relative composition of metals in the septage received at the NBC facility in 2009. The septage monitoring data are provided in ATTACHMENT VOLUME II, SECTION 10.

FIGURE 18
2009 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 2009, EMDA staff collected 29 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 2009 and compares them to influent concentrations at the facilities. Industrial and commercial sources account for only 4.1% of total flow into Bucklin Point and 1.7% 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's 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 2009 Background Metals and Cyanide Contribution Study (ppb)

	Cd	Cr	Cu	Pb	Hg	Ni	Ag	Zn	CN	As	Se	Sn	Mo
Background	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
FP Influent	2.58	11.35	40.15	12.37	0.05	21.85	4.08	101.38	13.17	2.19	4.42		3.56
% of Influent at FP	5.4%	21.4%	87.3%		80.0%	28.2%	4.9%	90.7%	31.6%	41.6%	35.7%		21.3%
BP Influent	2.50	13.11	61.37	10.74	0.06	20.22	4.02	115.30	4.17	1.53	1.64	5.06	2.90
% of Influent at BP	5.6%	18.5%	57.1%		66.7%	30.5%	5.0%	79.7%		59.4%		36.6%	26.2%

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 lead at both facilities, cyanide at Bucklin Point and selenium at Bucklin Point and are therefore not included in TABLE 20. From TABLE 20 it is evident that a large percentage of the influent copper, mercury, zinc, 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 cadmium, chromium, nickel, silver, cyanide, selenium and molybdenum at Field's Point and cadmium, chromium, nickel, silver, selenium and molybdenum at Bucklin Point. From this comparison it is apparent that at least 80% 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 -2009

	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	146.03

*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's interceptors. From this analysis, it is obvious that large percentages of the toxic pollutant loads to the Field's Point and Bucklin Point Wastewater Treatment Facilities 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 the POTW's sludge thereby reducing the potential for beneficial reuse or reduce the opportunities for safe disposal or which would be otherwise incompatible with the POTW's 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 the EPA's 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 for POTWs. Local limits need 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 NBC's original pretreatment program and were subsequently revised by the NBC Pretreatment staff in 1987.

In 2004, NBC reevaluated local limits for both facilities. The reassessment 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 maximum allowable headworks loading (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. The NBC is awaiting approval of this document and the revised RIPDES permit limits.

TABLE 22 provides a comparison of the newly calculated Maximum Allowable Headworks Loading (MAHL) goals with the total metal influent loadings for 2009. 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 nickel 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 2009 Influent Loadings to Maximum Allowable Headworks Loadings (MAHL)

	Field's Point			Bucklin Point		
Parameter	**Preliminarily Calculated Loading Goal lbs/yr**	**2009 Loading lbs/yr**	**Goal Met?**	**Preliminarily Calculated Loading Goal lbs/yr**	**2009 Loading lbs/yr**	**Goal Met?**
Cadmium	2,227	381.5	Yes	511	165.4	Yes
Chromium	37,303	1,664.4	Yes	10,439	865.7	Yes
Copper	16,900	5,854.2	Yes	9,746	3,991.8	Yes
Lead	8,541	1,849.1	Yes	2,738	714.1	Yes
Mercury	182.5	7.43	Yes	11	4.06	Yes
Nickel	21,134	3,240.4	Yes	4,709	1,345.8	Yes
Silver	3,942	603.8	Yes	402	265.7	Yes
Zinc	50,005	14,813.6	Yes	16,498	7,531.5	Yes
Total Metals	140,233	28,414.4	Yes	45,052	14,884.1	Yes
Cyanide	4,453	1,913.5	Yes	2,446	274.2	Yes

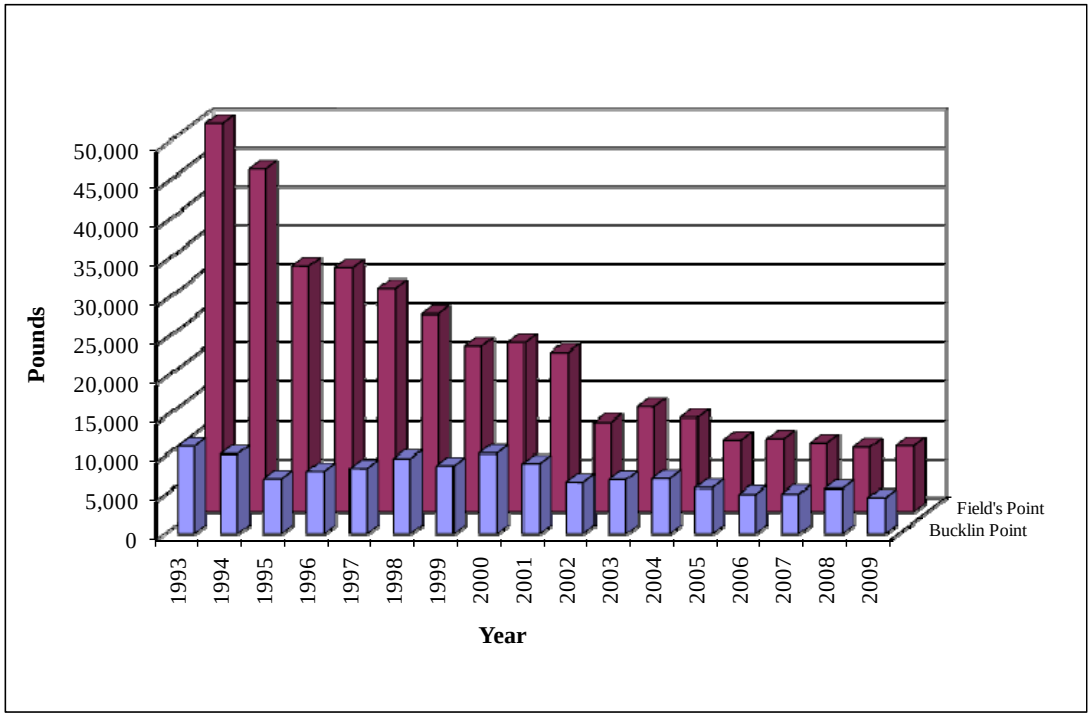
The annual loading goals presented in TABLE 22 should only be used as an initial evaluation of a facility's ability to meet discharge compliance. Discharge permits enforce daily maximum and monthly average limits based on acute and chronic water quality criteria. While the annual means used to calculate 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 of the annual report attempts to quantitatively measure the efforts and results of the work of the Pretreatment and ESTA Programs by observing the loadings of toxics to the influent of the NBC POTWs. 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 2009 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 has shown recent declines.

Historical total metals discharges from both NBC facilities are shown in FIGURE 19. 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 since 1993 through 2009. In 2009 total metals in Field's Point effluent increased slightly by 2% compared to 2008 values, while Bucklin Point effluent showed a decrease of 20% from 2008 effluent metals loading. 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, new enhanced processes were being brought online at the Bucklin Point facility. Since 2000, effluent metals from Bucklin Point have decreased 55%. The decrease in effluent metals loadings demonstrates that Pretreatment and pollution prevention efforts continue to be successful in generally reducing the amount of toxics entering and being discharged from the NBC facilities.

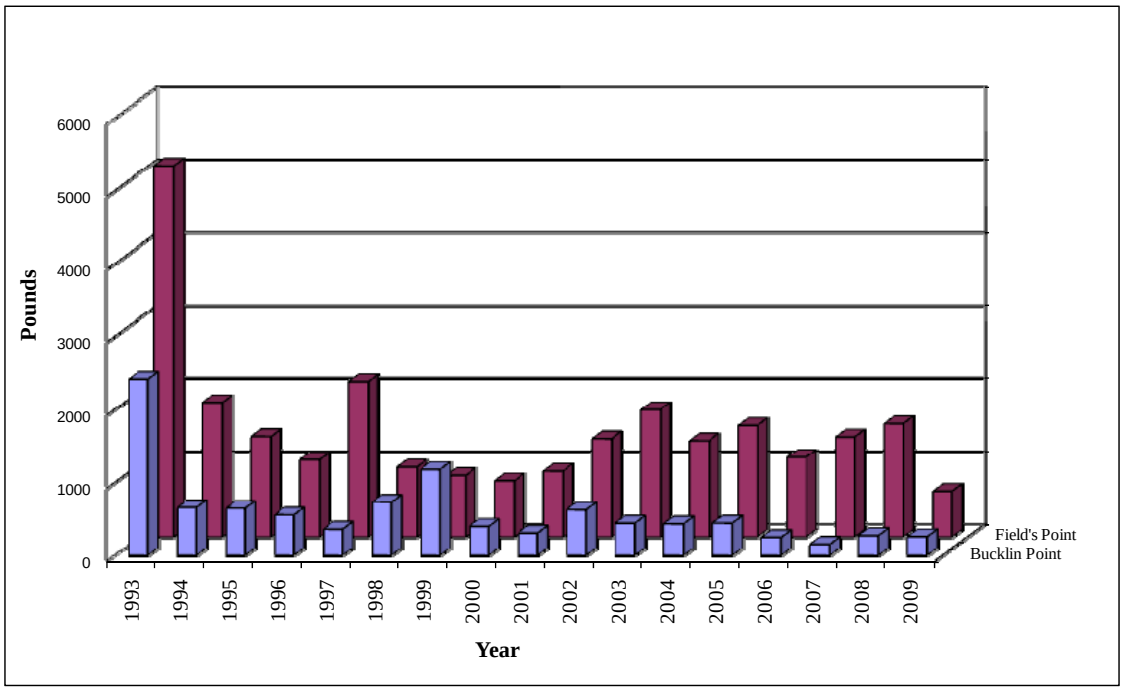
FIGURE 19
NBC Total Metals Effluent Loadings Trend Analysis



As illustrated in FIGURE 20, cyanide effluent loadings exhibit similar reductions over time, but with more fluctuation. Annual effluent cyanide loads in 2009, relative to 2008, showed a decrease of 6% at the Bucklin Point facility; however loading was very similar to 2008 levels with a decrease of 17 pounds of cyanide in 2009. Effluent cyanide loading at Bucklin Point has been below 300 pounds per year for the last four years, which are the lowest effluent loading levels at least as far back as 1993 and most likely the lowest in the history of the facility. Field's Point effluent cyanide loading decreased by 60% in 2009, a

decrease of 926 pounds, as compared to 2008 and has decreased 88% since 1993 levels. Part of this reduction is most likely due to the fact that in March 2008 the NBC started reporting the cyanide amenable to chlorination in the Field's Point effluent, rather than the total cyanide. This change was made following a review of the RIPDES permit requirements for Field's Point, which states that samples should be "analyzed for available cyanide." Therefore, the NBC determined that, after discussion with the DEM, the available cyanide results may be used in calculations of the Monthly Average and Daily Max on the DMR where it requires "total cyanide (as CN)" be reported. EMDA tests for the presence of sulfides and chlorine residual on a daily basis to ensure the integrity and validity of the cyanide collections.

FIGURE 20
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 21 and 22. The relative proportions of Field's Point effluent show copper, nickel and zinc to be the largest contributors as can be seen in FIGURE 21. These metals accounted for 94.7% of the total metals effluent loading from Field's Point in 2009. The relative proportions for Bucklin Point shows zinc, chromium, nickel and copper to be the largest contributors as can be seen in FIGURE 22. These metals accounted for nearly 92.5% of total metals effluent loading for Bucklin Point in 2009.

FIGURE 21
Breakdown of Total Metals – Field's Point 2009 Effluent Loading

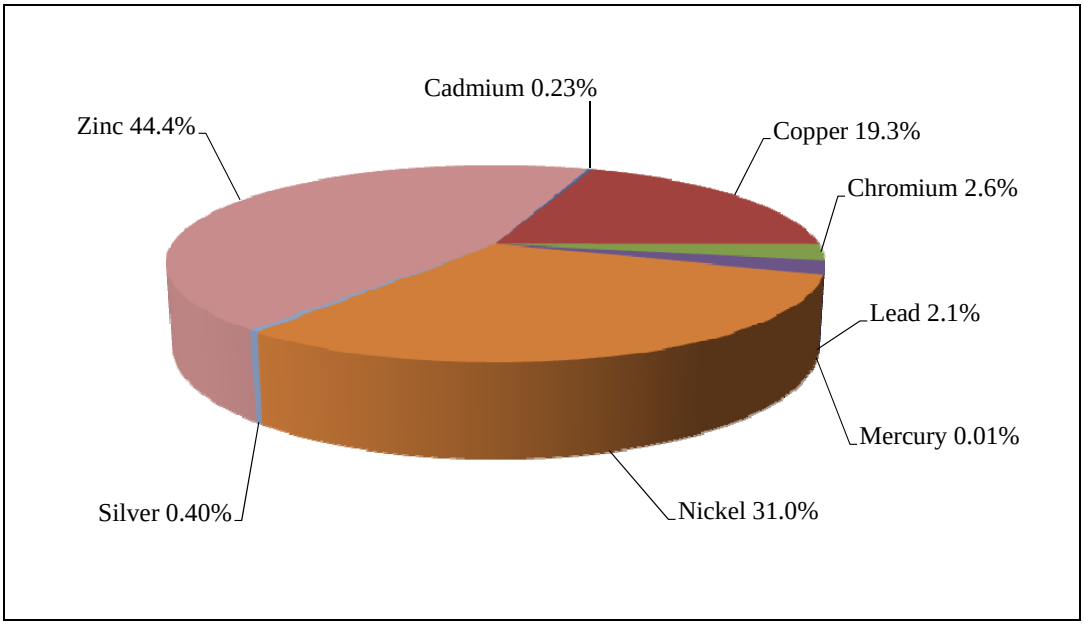
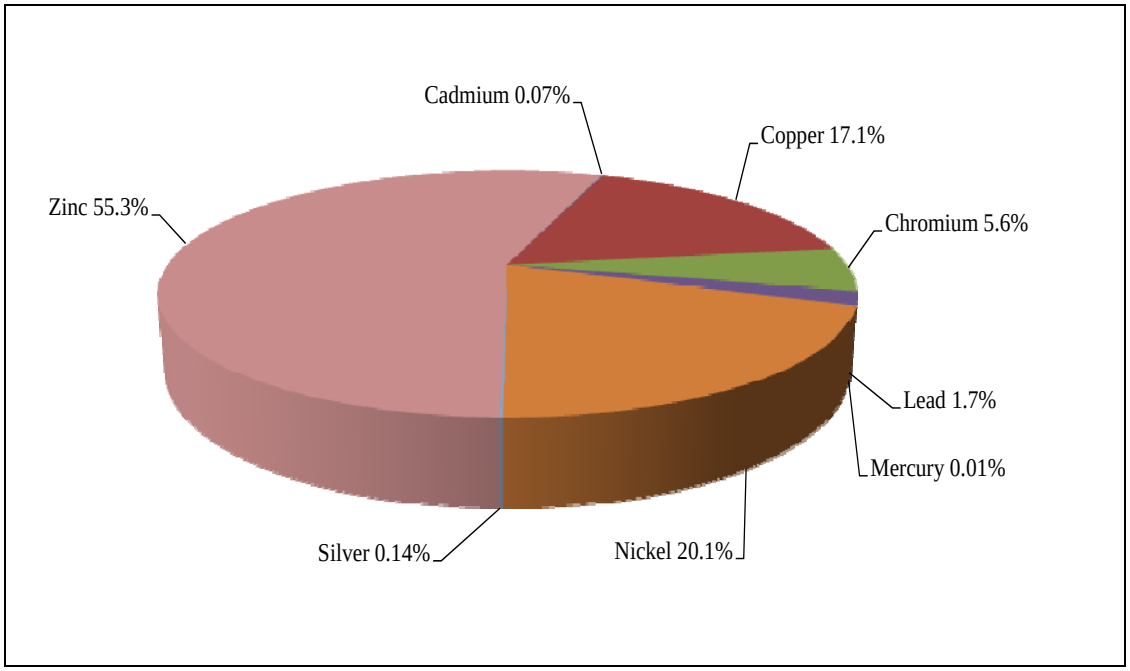


FIGURE 22
Breakdown of Total Metals – Bucklin Point 2009 Effluent Loading



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 2009 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 No Observed Effect Concentration and the C-LOEC or 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 only monitoring.

At Field's Point all four tests for *A. bahia* gave LC_{50} and A-NOEC results of 100%. For the chronic test, the C-NOEC for *A. punctulata* was 13% for the first quarter and 100% in the second, third and fourth quarters. This means that undiluted effluent showed no observable effect on the survival of *A. bahia* in all four quarters and there was no observable effect on the survival of *A. punctulata* in 100% effluent during the second, third and fourth quarters, however there was an observable effect at 13% effluent during the first quarter. This result did not cause a violation as the Field's Point permit is monitoring only for the chronic test C-NOEC.

At Bucklin Point all four tests for *A. bahia* also gave LC_{50} and A-NOEC results of 100%. The first quarter bioassay results for Bucklin Point showed an LC_{50} of >100%, however the C-NOEC did not meet permit limits with a result of 25%. Although the chronic exposure test for C-NOEC did not meet permit limits, the IC-l0 test on the same organisms gave a result of >100%, indicating there was not more than a 10% reduction in fertilization rates in any of the effluent dilutions, including the test using 100% effluent. We also performed an additional chronic bioassay test during this reporting period using a different species than the one required by our permit. The C-NOEC for this species, *Cyprinodon variegates*, was 100%. During the second, third, and fourth quarters C-NOEC tests for *A. punctulata* were all 100%. In conclusion, undiluted effluent showed no observable effect on the survival of *A.bahia* and there was no significant biological or environmental impact on this species. However, the C-NOEC test for *A. punctulata* indicated an adverse affect of undiluted effluent on this species for the first quarter; however the same test done on another species at a different lab showed no adverse affect. Results of the quarterly bioassay data for 2009 are included in ATTACHMENT VOLUME II, SECTION 10.

RIPDES Permit Compliance – 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 2009 Wastewater Treatment Facility Results

	RIPDES Permit Limits		**Consent Agreement Limits**		**2009 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	15.6	14.2
Mercury	8.5	0.4	-	-	0.015	0.010
Nickel	332	127	-	-	116	37.0
Silver	10	-	-	-	2.83	0.7
Zinc	380	380	-	-	42.5	31.9
Cyanide	4	4	49.6	20.0	18.4	5.8
BOD Percent Removal	-	≥85%	-	-	-	Lowest = 80%
TSS Percent Removal	-	≥85%	-	-	-	Lowest = 84%
Fecal Coliform	400 MPN/100	200 MPN/100	-	-	429 MPN/100	66 MPN/100
Mysidopsis Bahai (LC50)	100% or greater	-	-	-	>100%	-
Arbacia punctulata (C-NOEC)	---%	-	-	-	13%	-

*In order to compare results to the permit limits, the maximum daily value reported for the year listed in the table as the maximum daily.

**The highest average monthly value reported for 2009 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 2009.

TABLE 24
2009 Compliance Status with RIPDES & Consent Agreement Limits For Field's Point Facility

Parameter	2009 Compliance with RIPDES Permit Limits?		2009 Compliance with Consent Agreement Limits?	
	Maximum Daily	Average Monthly	Maximum Daily	Average Monthly
Copper	Yes	Yes	Yes	Yes
Mercury	Yes	Yes	N/A	N/A
Nickel	Yes	Yes	N/A	N/A
Silver	Yes	Yes	N/A	N/A
Zinc	Yes	Yes	N/A	N/A
Cyanide	**No**	**No**	Yes	Yes
BOD Percent Removal	N/A	**No**	N/A	N/A
TSS Percent Removal	N/A	**No**	N/A	N/A
Fecal Coliform	**No**	Yes	N/A	N/A
Mysidopsis Bahai (LC50)	Yes	N/A	N/A	N/A
Arbacia punctulata (C-NOEC)	N/A	N/A	N/A	N/A

TABLE 24 shows that in 2009, 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 22. However, additional work will be necessary to ensure NBC compliance with toxic pollutant discharge limits specified in the RIPDES permit for cyanide. All 2009 cyanide results were reported as "available cyanide" and no results exceeded the consent agreement limits.

The NBC met BOD and TSS percent removals in all months except for BOD in January 2009 and both BOD and TSS in December 2009. In December, the area received 6.15 inches of rain. Rain events dilute the influent BOD and TSS concentrations, so while effluent concentrations usually remain the same, the diluted influent concentrations cause lower percent removals. This was exasperated in 2009 as the Field's Point plant treated an additional 1.6 billion gallons of low strength flow from the CSO tunnel through secondary treatment. NBC is still investigating the cause of the BOD percent removal violations, but believes that operating conditions at the plant favor nitrifying bacteria (NBOD). Field's Point also exceeded the fecal coliform daily maximum on one day in 2009. As for bioassays, Field's Point was in compliance for the acute LC50 in 2009.

The NBC is actively working to ensure full compliance with all the toxic pollutants specified in its RIPDES permit. In 2004, at DEM's request, the NBC recalculated 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.

RIPDES Permit Compliance – 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 their 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 2009 effluent results.

TABLE 25
Comparison of Bucklin Point RIPDES & Interim Effluent Limits with 2009 Wastewater Treatment Facility Results

	RIPDES Permit Limits		Consent Agreement Limits		2009 Results	
Parameter	Maximum Daily (ppb)	Average Monthly (ppb)	Maximum Daily (ppb)	Average Monthly (ppb)	Maximum Daily* (ppb)	Average Monthly** (ppb)
Hexavalent Chromium	997	60	-	-	22.0	12.5
Copper	5.2	5.2	86.1	29.8	21.3	15.9
Lead	199	10.3	-	-	1.9	1.2
Mercury	1.7	0.04	1.7	0.2	0.0112	0.0073
Nickel	67	13.7	67	53.3	50.0	22.9
Silver	-	2	4.5	-	0.317	0.180
Zinc	76	76	88	76	45.4	41.1
Cyanide	0.8	0.8	69.3	20	6.38	4.51
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	-	-	711 MPN/100	36 MPN/100
Mysidopsis Bahai (LC50)	100% or greater	-	-	-	>100%	-
Arbacia punctulata (C-NOEC)	50%	-	-	-	25%	-

*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; for BOD and TSS the number of months in violation is entered.

TABLE 26 indicates that the facility was unable to meet the originally issued Maximum Daily and Average Monthly permit limits for copper and cyanide. In addition, the facility was unable to meet the RIPDES Average Monthly permit limit for nickel. However, the facility was able to meet the limits detailed in the Consent Agreement for copper, cyanide and nickel. Toxic influent events did not cause any known upsets to process control at the Bucklin Point facility in 2009.

Bucklin Point did not meet the RIPDES Maximum Daily permit limit for fecal coliform throughout 2009, as the facility experienced one daily maximum fecal violation on June 30, 2009 and one on July 1, 2009. These values were 688 MPN/l00 ml and 711 MPN/l00 ml, respectively. Immediately upon becoming aware of each violation the NBC increased the UV dosage to increase the level of disinfection. The cause of these fecal violations is unknown. Fecal treatment improved significantly after the second bank of UV lights was turned to manual mode. All average daily and average monthly results were within RIPDES permit limits for the remainder of the year. Acute bioassay results met maximum daily permit requirements, but chronic results fell below RIPDES permit requirements once in the first quarter.

TABLE 26
2009 Compliance Status with RIPDES & Consent Agreement Limits for Bucklin Point Facility

	2009 Compliance with RIDPES Permit Limits?		**2009 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	Yes	**No**	Yes	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	**No**	Yes	N/A	N/A
Mysidopsis Bahai (LC50)	Yes	N/A	N/A	N/A
Arbacia punctulata (C-NOEC)	**No**	N/A	N/A	N/A

Removal efficiencies for BOD were always greater than 92% during 2009. TSS percent removals were always greater than 88%. Additionally, there were no maximum daily violations of the RIPDES permit limit of 50 mg/l for final effluent TSS and BOD concentration levels and monthly TSS and BOD average effluent values did not exceed 15 mg/l in 2009.

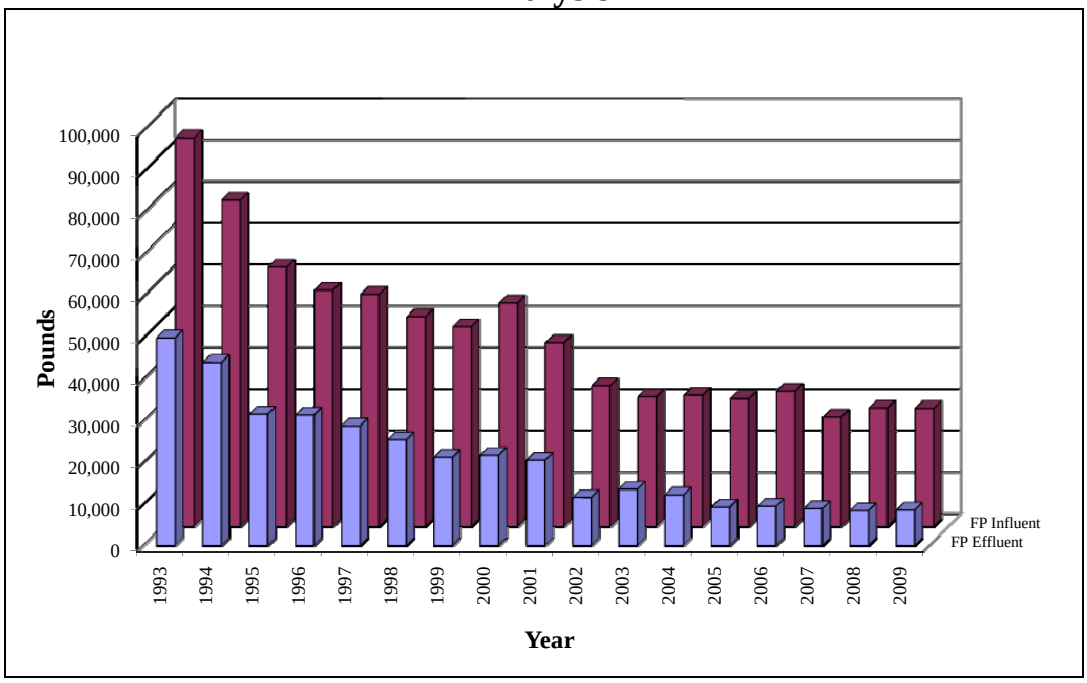
~Bucklin Point Final Effluent pH Variability and Permit Compliance

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 the year 2009 was between 6.1 and 7.1 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. There were no high or low pH events which caused any process upset during the year. All of the 365 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 23 provides a comparison of historic Field's Point influent and effluent loadings for total metals.

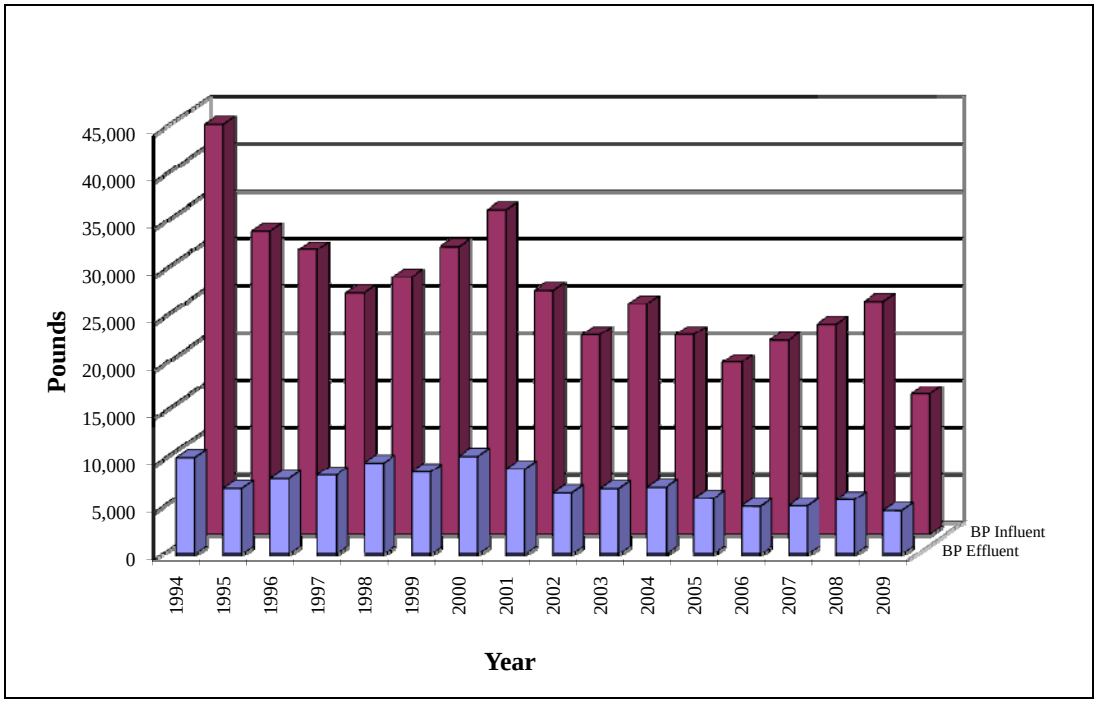
FIGURE 23
Field's Point Influent and Effluent Total Metals Loadings Trend Analysis



The removal rate of metals entering the facility varied from 18 to 95 percent depending upon the pollutant in question in 2009. Influent loadings had a decrease of 0.5% in 2009 from 2008 and effluent loadings increased slightly by about 173 lbs in 2009 from 2008. This increase in effluent loading is attributable to additional effluent flows related to the operation of the CSO tunnel. In prior years, the Wet Weather Treatment Facilities would treat all plant flows received above 77 MGD. These wet weather facility discharges are not included in the effluent loading calculation. Now that the tunnel is on line, more flows receive full secondary treatment. This can be seen by comparing the percentage of flow that receives full secondary treatment, which was 96.0% in 2008 and 99.6% in 2009. So even though the amount of flow that was treated in 2009 increased by 7.3% there was only a 2.1% increase in effluent loading.

FIGURE 24 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 2009 there was a decrease in both effluent and influent loadings at Bucklin Point. There was a 9,788 pound decrease in influent metals and 1,161 pound decrease in effluent metals. Percent removal of metals at Bucklin Point ranged between 44% and 98%.

FIGURE 24
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 provides removal rates for metals and cyanide at both NBC Wastewater Treatment Facilities. 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 waste stream 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 and lead discharged in the Field's Point district, while 90% or more of the cadmium, lead, mercury, and silver loadings were removed at Bucklin Point.

TABLE 27
Percent Removal of Metals and Cyanide for NBC Facilities

	Field's Point Concentrations			Bucklin Point Concentrations		
Parameter	**Influent (ppb)**	**Effluent (ppb)**	**% Removal**	**Influent (ppb)**	**Effluent (ppb)**	**% Removal**
Cadmium	2.58	0.13	94.88	2.50	0.04	98.31
Chromium	11.35	1.53	86.53	13.11	3.12	76.21
Hex.Chromium	NM	NM	NM	41.84	10.31	75.37
Copper	40.15	11.12	72.31	61.37	9.72	84.17
Lead	12.37	1.18	90.48	10.74	0.91	91.51
Mercury	0.0505	0.0059	88.28	0.0629	0.0038	93.99
Nickel	21.85	17.81	18.48	20.22	11.39	43.65
Silver	4.08	0.23	94.42	4.02	0.08	98.04
Zinc	101.38	25.69	74.66	115.30	31.50	72.68
Cyanide	13.17	4.24	67.81	4.17	4.04	2.96
Total Metals	193.81	61.93	68.05	269.17	67.07	75.08

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 2009, 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. Resultantly, 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 2009. 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. 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
2009 Final Effluent Phase Partitioning Study Results

	Dissolved/Total Shown as a Fraction	
	Field's Point Mean	**Buckling Point Mean**
Cadmium	0.72	0.64
Chromium	1.59	1.08
Copper	0.85	0.78
Lead	0.44	0.76
Nickel	0.77	0.85
Silver	0.42	0.37
Zinc	0.87	0.91
Aluminum	0.26	0.27
Iron	0.44	0.54

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 and copper 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 copper, 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 0.54 at both plants.

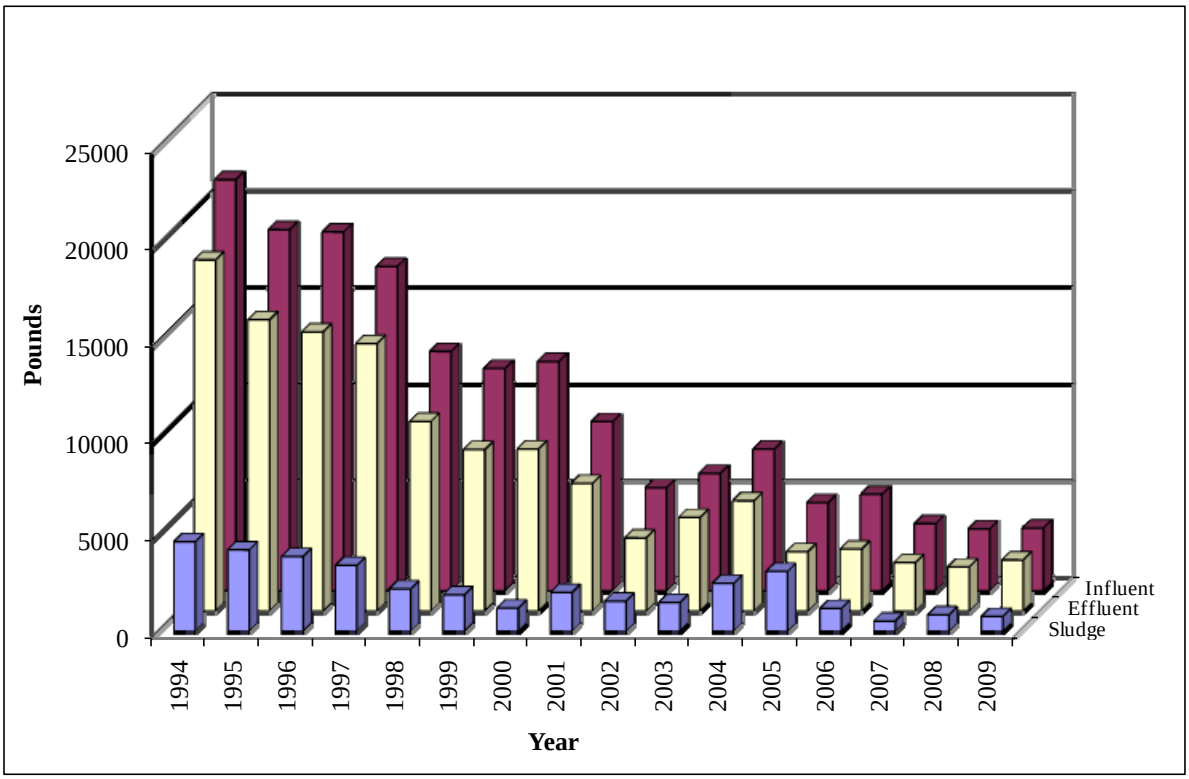
At both Field's Point and Bucklin Point, iron measurements showed the greatest variability, but showed one of the smallest dissolved total fractions. For chromium, there were several instances where the dissolved chromium exceeded the total chromium, about 66% of the results at Field's Point and 75% of the results at Bucklin Point. As a result, chromium exceeded the ratio of 1.0 at both faculties. Data for 2009 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, approximately 81% 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 2009, sludge metals measurements were conducted bimonthly as opposed to weekly for 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 2009 sludge data are included in ATTACHMENT VOLUME II, SECTION 11.

As can be seen in FIGURE 25, 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 loading compared to sludge and effluent loadings was 5% during 2009 which is very close to a complete mass balance.

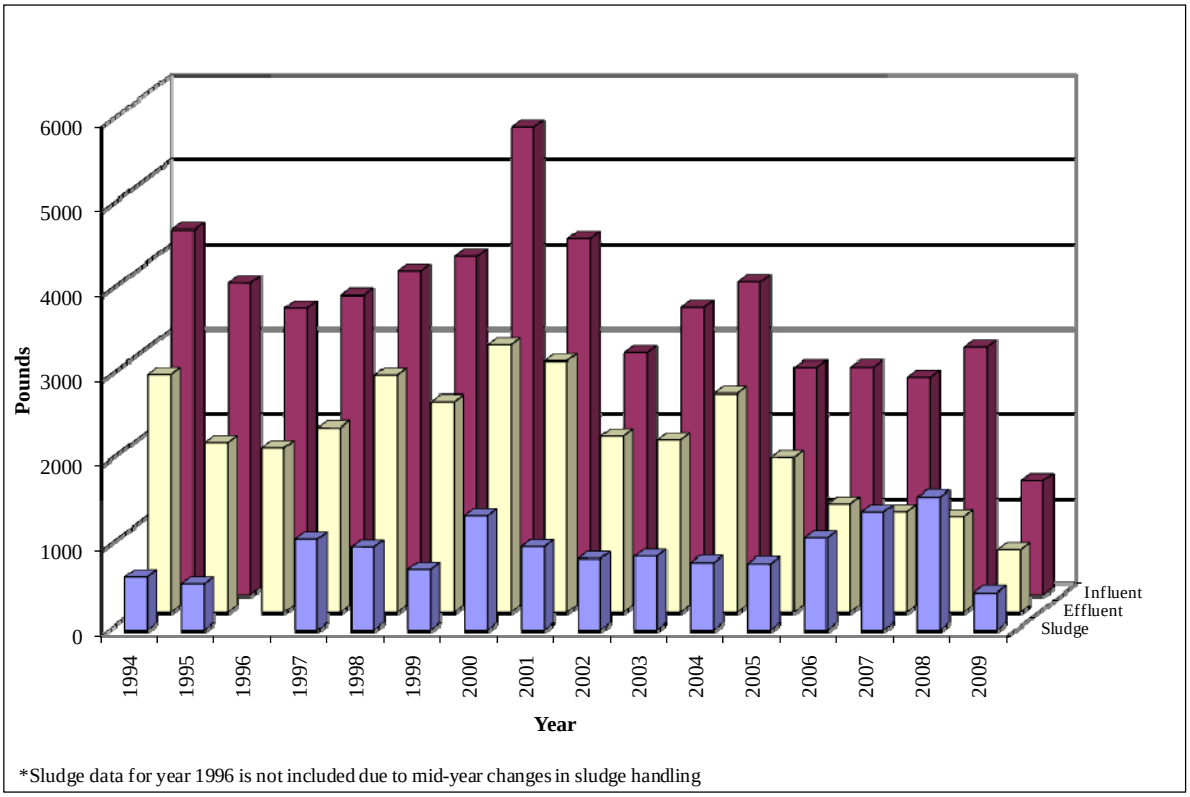
FIGURE 25
Nickel Loading Trend Analysis in Field's Point Sludge, Influent and Effluent



At Field's Point nickel loading has increased slightly in the influent and effluent and decreased slightly in the sludge during 2009 as compared to 2008. Nickel has decreased overall in the last three years in the sludge at Field's Point, although there was a slight increase from 2007 to 2008. Over the last three years, the influent and effluent nickel loading has also decreased at Field's Point.

At Bucklin Point nickel loading has decreased in the sludge as well as in the influent and the effluent and is the lowest since 1994 at each measured location. In 2009, there was a 15% discrepancy between measured influent loading and loading going out in the effluent and sludge. This 15% discrepancy is attributed to loading in the grit. Nickel loading in sludge increased from 2005 through 2008, but then declined dramatically in 2009 at Bucklin Point, most likely associated with the dramatic decline in influent loading as well.

FIGURE 26
Nickel Loading Trend Analysis in Bucklin Point Sludge, Influent and Effluent



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

Nickel is highly partitioned in the dissolved phase and shows the least removal in the treatment facilities, except for cyanide. Of the three metals represented here, nickel had the second highest concentration found in the dissolved phase of the final effluent. 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 27 and 28 show the loading trends for zinc for the Field's Point and Bucklin Point facilities respectively. Zinc loading at Field's Point has increased slightly in the influent, increased in the sludge, and has slightly decreased in the effluent. The discrepancy between influent zinc loading and the combined sludge and effluent zinc is only 4% for 2009. At Bucklin Point, zinc loading decreased slightly in the influent, effluent, and sludge. The discrepancy at Bucklin Point was 9% for 2009. Both of the plants had very good agreement this year, with almost all of the zinc influent load accounted for in the effluent and sludge.

FIGURE 27
Zinc Loading Trend Analysis in Field's Point Sludge, Influent and Effluent

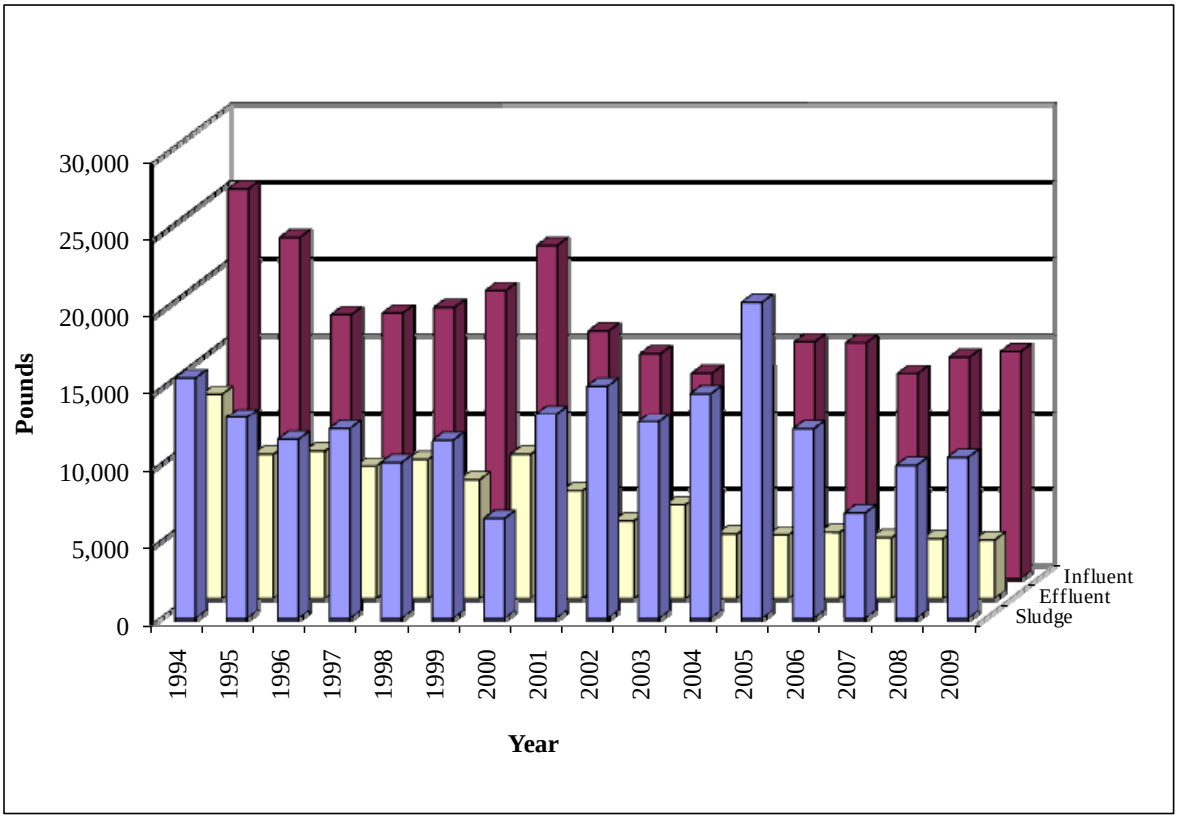
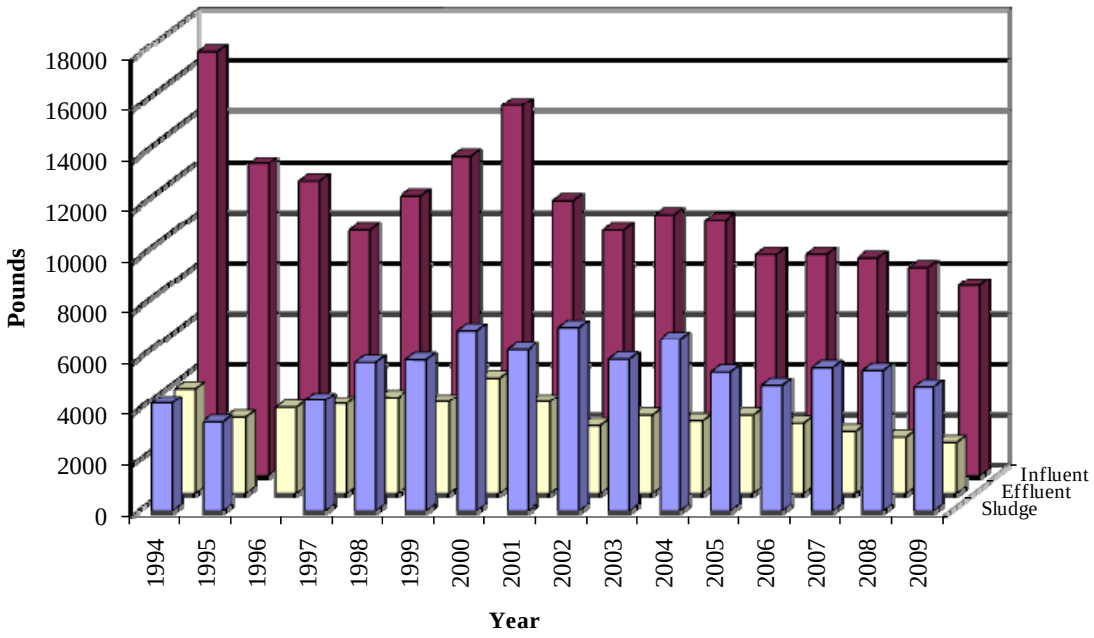


FIGURE 28
Zinc Loading Trend Analysis in Bucklin Point Sludge, Influent and Effluent



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

FIGURES 29 and 30 present the copper loading trend analyses. NBC data show that about 78% of the copper in the final effluent at Bucklin Point and 85% at Field's Point is in the dissolved phase. At Field's Point, copper loading decreased slightly in the influent, effluent, and sludge in 2009 when compared to 2008. The discrepancy between the influent and the combined effluent and sludge loading was 9%, similar to what it was the prior year. At Bucklin Point, copper loadings decreased in the influent, effluent and sludge, with a 6% discrepancy.

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

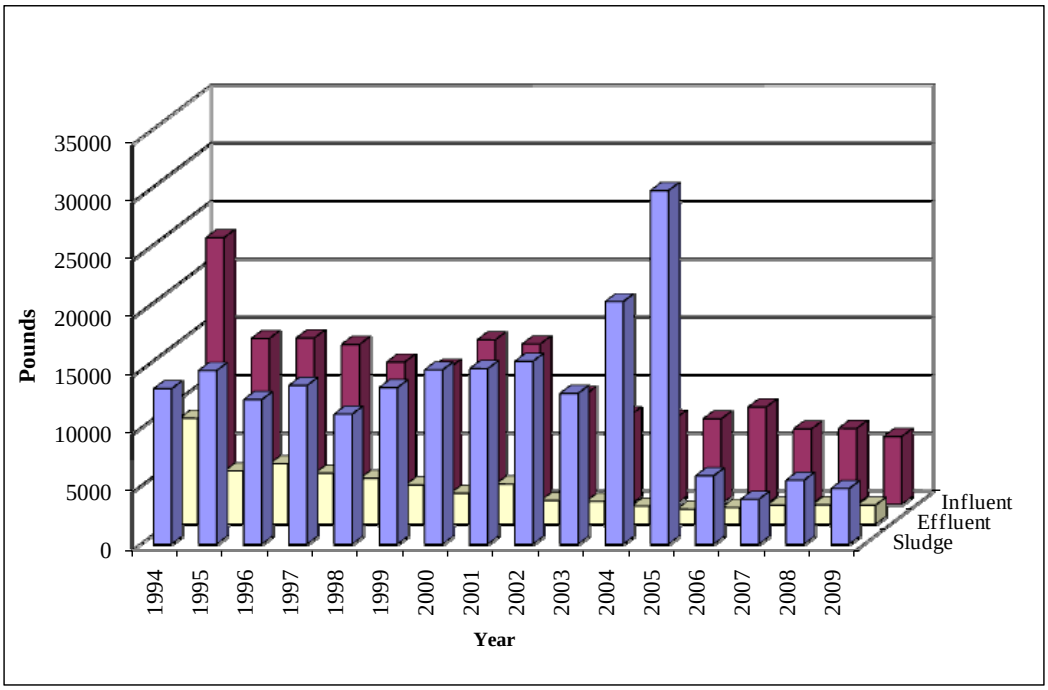
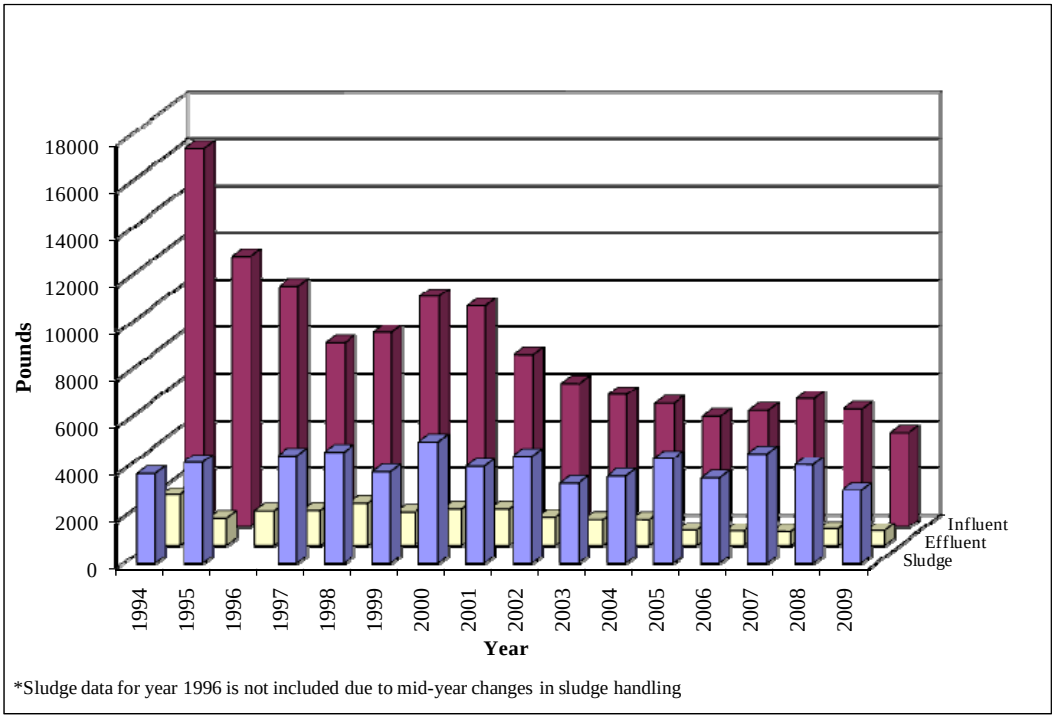


FIGURE 30
Copper Loading Trend Analysis in Bucklin Point Sludge, Influent and Effluent



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

BOD and TSS Loadings

BOD and TSS loading historical trend analysis provide an interesting means of determining the ability of the individual facility to handle variability in influent loadings without disruption of plant operations. For Bucklin Point, FIGURES 31 and 32 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 2009 at Bucklin Point which is largely attributable to initiation of improved treatment processes as a result of completion of facility upgrades in 2006.

FIGURE 31
TSS Loading Trend Analysis for Bucklin Point Influent and Effluent

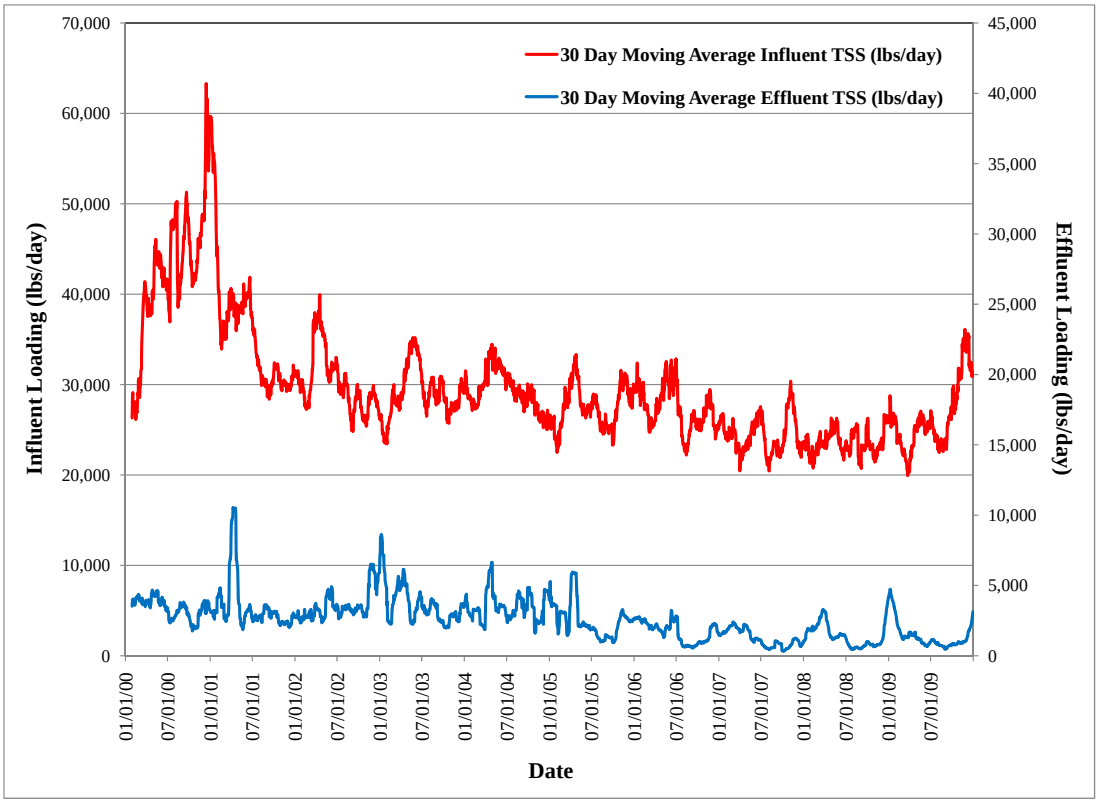
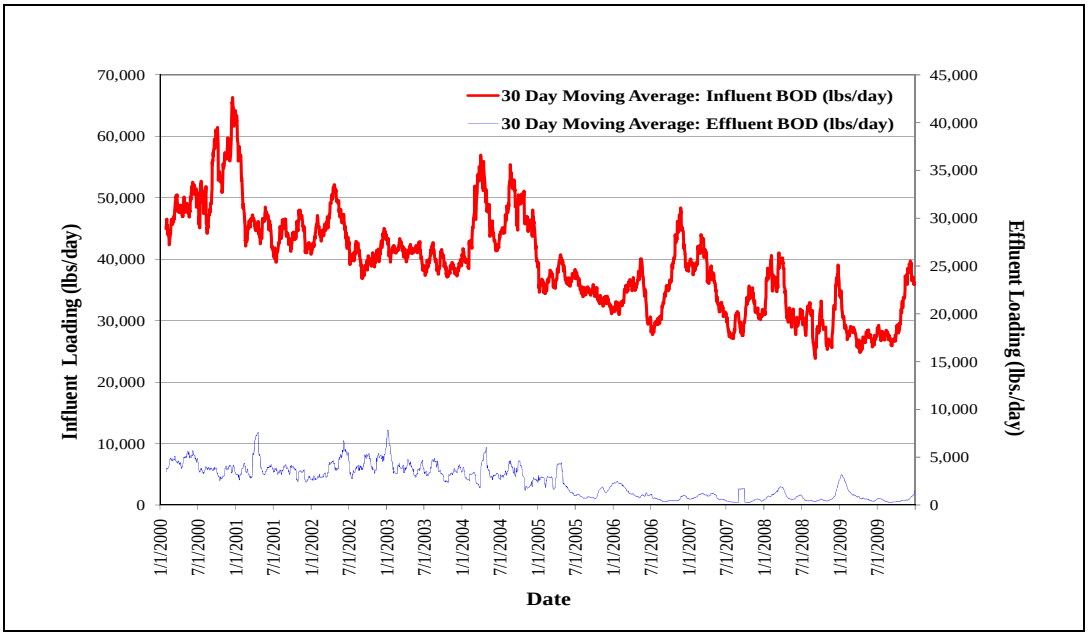
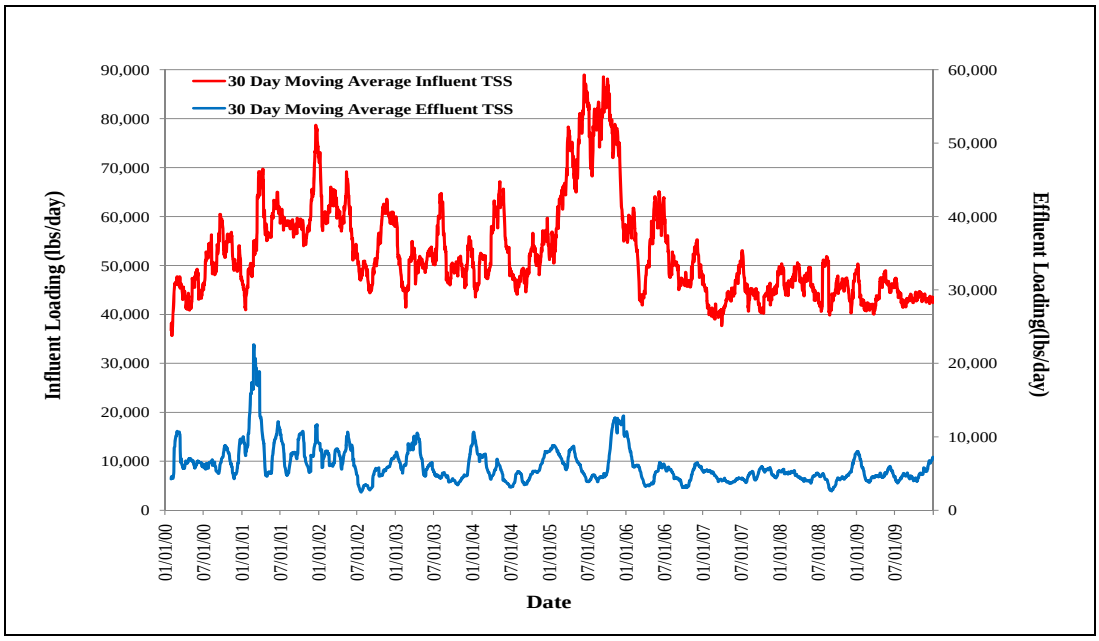


FIGURE 32
BOD Loading Trend Analysis in Bucklin Point Influent and Effluent



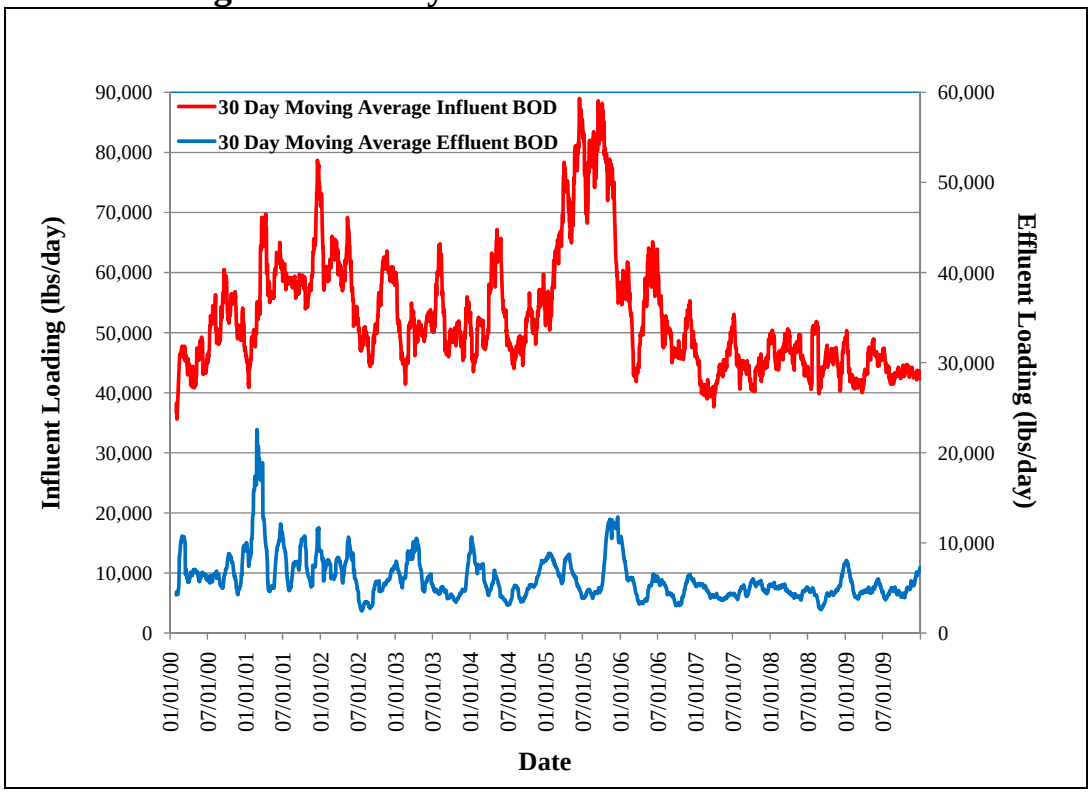
FIGURES 33 and 34 show the 30-day averaged TSS and BOD data for Field's Point. Periods of high influent loading are possibly attributable to maintenance within the collection system, or wet weather events. It is interesting to note that, despite these transient increases in the influent loading rates, 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.

FIGURE 33
TSS Loading Trend Analysis in Field's Point Influent and Effluent



In FIGURE 34 the effluent BOD loading shows an increase in the first few months of 2009 and an increase towards the end of 2009. These increases are attributable to higher than normal flows through the plant in late 2008 and early 2009 and towards the end of 2009 due to rainfall.

FIGURE 34
BOD Loading Trend Analysis in Field's Point Influent and Effluent



Comparison of Final Effluent Concentrations in 2009 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 waterbodies for metals.

TABLE 29
Comparison of 2009 Final Effluent Concentrations and Water Quality Criteria of Receiving Waters

Pollutant	Phase and statistical category	Bucklin Point Effluent results in ppb	Field's Point Effluent results in ppb	Chronic WQC in ppb	Acute WQC in ppb
Copper	Dissolved phase effluent annual average	7.96	9.65	3.1	
	Dissolved phase effluent annual maximum	13.9	14.60		4.8
	Total effluent annual average	9.73	11.14		
	Total effluent annual maximum	21.30	15.6		
Lead	Dissolved phase effluent annual average	0.50	0.54	8.1	
	Dissolved phase effluent annual maximum	0.50	0.78		210
	Total effluent annual average	0.92	1.18		
	Total effluent annual maximum	29.80	2.88		
Nickel	Dissolved phase effluent annual average	11.00	13.56	8.2	
	Dissolved phase effluent annual maximum	41.80	22.20		74
	Total effluent annual average	11.19	17.84		
	Total effluent annual maximum	50.00	116		
Silver	Dissolved phase effluent annual average	0.03	0.07	N/A	
	Dissolved phase effluent annual maximum	0.08	0.13		1.9
	Total effluent annual average	0.08	0.23		
	Total effluent annual maximum	0.32	2.83		
Zinc	Dissolved phase effluent annual average	29.31	22.32	81	
	Dissolved phase effluent annual maximum	35.80	39.10		90
	Total effluent annual average	31.43	25.69		
	Total effluent annual maximum	45.40	42.5		
Mercury	Dissolved effluent annual average			0.94	
	Dissolved effluent annual maximum				1.8
	Total effluent annual average	0.004	0.006		
	Total effluent annual maximum	0.011	0.015		
Cyanide	Total effluent annual average	4.04	4.24	1.0	
	Total effluent annual maximum	6.38	18.4		1.0
pH	Total effluent annual minimum (s.u.)	6.1	6.2	> 6.5 < 8.5	
	Total effluent annual maximum (s.u.)	7.1	7.3		> 6.5 < 8.5
Fecal Coliform Bacteria	Total effluent annual geomean (MPN/100 ml.)	7	27	50	
	% > 400 MPN/100 ml.	0.27	0.27		< 10%

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.

A summary by pollutant parameter follows:

- Copper concentrations in the effluent of both plants exceed saltwater quality criteria.
- 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.
- Both the dissolved annual maximum concentration and total annual maximum nickel concentration at both facilities are below the acute saltwater quality criteria.
- Silver shows annual maximum dissolved concentrations lower than the acute water quality criteria; there is no chronic saltwater quality criterion established for silver.
- Maximum values for total zinc at both facilities are less than the corresponding chronic and acute criteria for the dissolved species**.**
- 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 water quality criterion was increased from 0.025 ppb to 0.94 ppb as a result of changes in EPA mercury toxicity methodology.
- Cyanide shows effluent concentrations greater than the saltwater quality criteria at both plants, even though loadings have generally decreased at both facilities 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.
- 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 and each facility had <0.3% of fecal samples above 400 MPN, 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 NBC's 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. Facilities upgrades at Bucklin Point are making very clear improvements in effluent quality for conventional pollutants, as well as metals, cyanide, and nutrients.

Overall, the toxic pollutant loadings to the two NBC Wastewater Treatment plants have decreased over time, a clear reflection of the fine work done by the NBC toxic reduction and control programs. Influent metals loading showed decreases at both plants from 2008 to 2009, with a 0.5% decrease at Field's Point and a decrease of 40% at Bucklin Point. The level of toxics in the effluent discharged from the NBC plants also continues a downward trend, as shown by the decrease in effluent metals loading by 20% at Bucklin Point. Effluent metal loading appears to have increased slightly at Field's Point over 2008 loading by a minimal 2.1%. This slight increase may be attributable to the increase in flow to the Field's Point plant from the CSO tunnel. The Field's Point plant treated an additional 1.6 billion gallons of stormwater and inflow and infiltration through full secondary treatment. In previous years, this flow would have only primary treatment through the wet weather facilities or discharged to the environment via CSOs.

Recent NBC studies have shown that significant portions of toxic metal pollutants originate from residential sources. 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. 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 2009 and 2,158 Notices of Violation were issued for various violations of NBC Rules and Regulations. During 2009, the NBC issued three administrative orders and assessed a total of $18,500 in penalties. 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 NBC Environmental, Safety & Technical Assistance (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 Notice of Violation letters 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 280 Letters of Deficiency to users during 2009. 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 129 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 172 notices of this type during 2009.

~ *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 701 Notices of Violation to industrial and commercial users during 2009 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 2009, 15 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 2009, there were 13 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 2009, the NBC issued a total of 420 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 2009, the NBC issued 420 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 2009, the Pretreatment Section issued 129 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.

- *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 2009, 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 22 firms found to be in Significant Non-Compliance with NBC regulations were listed in an advertisement in the PROVIDENCE JOURNAL on February 25, 2010 for violations occurring between October 1, 2008 and December 31, 2009**.** 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 NBC's 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 2009, three civil suits were filed.

2009 Administrative Orders

During 2009, the NBC issued three Administrative Orders (AO) for violations of NBC Rules and Regulations and/or permit requirements. One AO was issued to a firm located in the Bucklin Point district and two AOs were issued to firms located in the Field's Point district. A listing of the AOs issued in 2009 is found in TABLE 30.

TABLE 30
Administrative Orders Issued
January 1, 2009 through December 31, 2009

Bucklin Point District

AO #	Company	Issue Date
#BP-01-09	Coastal Collision & Towing, Inc.	July 22, 2009

Field's Point District

AO #	Company	Issue Date
#FP-01-09	Mazey's Restaurant – Charles Street Facility	October 8, 2009
#FP-02-09	Mazey's Restaurant – Smith Street Facility	October 8, 2009

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, 2009 is found at the end of this chapter in TABLE 32. 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.

Bucklin Point District

- AO #BP-01-09 was as a compliance order against James Martins and Coastal Collision & Towing, Inc. (Coastal) on July 22, 2009. The AO cited Coastal with discharging wastewater in violation of the Wastewater Discharge Permit; failure to submit self-monitoring compliance reports for August 2008 and February 2009; failure to submit certification that Coastal would no longer wash vehicles on the premises; failure to cease washing vehicles on Coastal property and/or any public

way adjacent to Coastal; failure to pay permit fees and assessments; failure to perform self-monitoring sampling pursuant to the terms of its Permit; and failure to notify the NBC prior to making changes in its process operations or pretreatment system. The AO further ordered Coastal to immediately submit the self-monitoring compliance reports for August 2008 and February 2009, 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 the vehicle washing operation has ceased; immediately pay all outstanding NBC fees and assessments; and immediatley comply with all terms and conditions of its Permit. Coastal redirected the wastewater generated by vehicle washing to the oil and solids/grit separator and submitted the required monitoring reports. Pretreatment staff confirmed that Coastal had complied with the terms of the AO. The matter is now closed.

Field's Point District

- AO #FP-01-09 was issued against Mazey Alarachi d/b/a Mazey's Restaurant - Charles Street Facility (Mazey's) on October 8, 2009. The AO cited Mazey's with failure to conduct five-day sampling for total oil and grease as required; and failure to submit permit required monitoring reports for October 2007, April 2008, October 2008 and April 2009. An administrative penalty of $9,000 was assessed. The AO further ordered Mazey's to immediately conduct the required five-day sampling for total oil and grease; immediately comply with all monitoring requirements set forth in the Permit; immediately submit all past due monitoring reports required by the Permit; immediately institute all steps necessary to ensure that all required reports and sample results are received on time in accordance with the Permit; and install a grease removal unit. A staus 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. This matter is pending and negotiations are ongoing to resolve the AO.

- AO #FP-02-09 was issued against Mazey Alarachi d/b/a Mazey's Restaurant - Smith Street Facility (Mazey's) on October 8, 2009. The AO cited Mazey's with failure to install a sample port on the discharge line of the three-bay sink; failure to conduct five-day sampling for total oil and grease as required; and failure to submit permit required monitoring reports for October 2007, April 2008, October 2008, and April 2009. An administrative penalty of $9,500 was assessed. The AO further ordered Mazey's to immediatley install a sample port on the discharge line of the three-bay sink located in the kitchen of the facility; immediately conduct the required five-day sampling for total oil and grease; immediately comply with all monitoring requirements set forth in the Permit; immediately submit all past due monitoring reports required by the Permit; immediately institute all steps necessary to ensure that all required reports and sample results are received on time in accordance with the Permit; and install a grease removal unit. 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. This matter is pending and negotiations are ongoing to resolve the AO.

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 2009, no Letters of Wastewater Discharge Permit Suspension were issued.

Update of Past Enforcement Actions

Field's Point District

- AO #FP-01-08 was issued against James Brown and JRB Associates, Inc. (JRB) on August 25, 2008. The AO cited JRB with failure to comply with the NBC's effluent pH limitations; failure to continuously monitor effluent pH; failure to comply with the NBC effluent discharge limitations for copper; failure to comply with the NBC effluent discharge limitations for nickel; failure to comply with the NBC effluent discharge limitations for cyanide; failure to operate and maintain the pretreatment system; failure to submit required reports and results on time; failure to comply with terms of the permit; discharging untreated wastewater; failure to maintain the pretreatment logbook; failure to provide accurate and reliable information in required logs; failure to notify NBC within 24 hours of becoming aware of an effluent violation; failure to properly perform self-monitoring sampling pursuant to the terms of its permit; and failure to notify the NBC prior to making changes in its process operations or pretreatment. An administrative penalty of $67,000 was assessed. The AO further ordered JRB to immediately employ all steps necessary to comply with NBC effluent pH limitations; immediately employ all steps necessary to comply with all NBC effluent discharge limitations; immediately employ all steps necessary to ensure entry of accurate entries in its pretreatment system logbook; immediately employ all steps necessary to ensure the proper operation of its pretreatment system; immediately institute all steps necessary to ensure continuous recording of its effluent pH discharges; immediately institute all steps necessary to ensure that quantities of all chemical solutions necessary for providing proper treatment are maintained; immediately institute all steps necessary to ensure that the NBC is notified prior to changes being made to process operations or pretreatment; immediately comply with all NBC effluent discharge limitations; and immediately institute all steps necessary to ensure that all required reports are received on time. JRB preserved its right to a hearing. Negotiations resulted in the execution of a Consent Order on April 15, 2009 wherein JRB agreed to pay an administrative penalty of $24,000 over a 24 month period. JRB also agreed to pay stipulated penalities for violating effluent discharge limitations set forth in its Wastewater Discharge Permit as follows: beginning on May 1, 2009 and continuing for 24 months, JRB shall pay $50 for each exceedence of effluent pH limitations and $125 for each exceedence of discharge limitations for copper, nickel and cyanide. To date, JRB has complied with all of the terms and conditions of the Consent Order, including prompt monthly payments and payment of all stipulated penalties.

Bucklin Point District

- AO #BV-01-07 was issued against KIK Custom Products. Inc. and Mr. David Cynamon (KIK) on September 10, 2007. The AO cited KIK with failure to maintain spill control measures as detailed in its Spill and Slug Prevention Control Plan; discharging a substance to the NBC's facilities that is incompatible with the wastewater treatment process; to wit: siloxane; discharging a substance to the NBC's facilities that interferes with NBC owned structures and equipment; to wit: siloxane; failure to comply with permitted sampling requirements; failure to submit required reports and plans on time; failure to comply with NBC effluent pH limitations; failure to comply with NBC effluent discharge limitations for Total Oil & Grease; failure to comply with NBC effluent discharge limitations for Total Toxic Organics; failure to comply with NBC effluent discharge limitations for zinc; and failure to comply with NBC effluent discharge limitations for acetone. An administrative penalty of $109,500.00 was assessed. The AO further ordered KIK to immediately maintain all spill control measures as detailed in its Spill and Slug Prevention Control Plan; immediately employ all steps necessary to comply with NBC effluent pH limitations; immediately employ all steps necessary to comply with NBC effluent discharge limitations; submit plans to the NBC that outline steps to cease the discharge of siloxanes to the NBC facilities within 30 days of receipt of the AO; and implement the steps contained in the plans within 45 days from NBC approval. KIK preserved its right to hearing. A status conference was held on October 3, 2007. An amended AO was issued on February 14, 2008 removing Mr. David Cynamon as a named party, due to his disassociation with KIK prior to the issuance of the original AO. Negotiations resulted in the execution of a Consent Order on July 10, 2008 wherein KIK agreed to pay an administrative penalty of $73,000. The Consent Order reflected KIK's planned closure of its Cumberland facility and incorporated various shut-down notifications and requirements. The Consent Order further provided for the payment of stipulated penalties for future exceedences of the Total Oil & Grease effluent limitations. KIK ceased all process operations in October 2008 and has complied with all the terms of the Consent Order. The matter is now closed.

- AO#BV-01-05 was issued against Tanury Industries and Thomas Tanury (Tanury) on September 14, 2005. The AO cited Tanury with failure to comply with the NBC effluent pH limitations; failure to maintain records of its pretreatment system; failure to maintain records of its pretreatment system; failure to properly report effluent pH discharges; failure to operate and maintain its pretreatment system; failure to properly store chemical solutions as required; failure to notify the NBC prior to making changes in its process operations or pretreatment; failure to comply with the NBC's effluent discharge limitations for copper, nickel, silver, cyanide, and total residual chlorine; failure to submit required reports and results on time; failure to timely pay its annual discharge permit fee; failure to comply with terms of the Wastewater Discharge Permit i.e. – illegal/unpermitted dumping of untreated wastewater; and failure to accurately report discharges from the groundwater remediation system. An administrative penalty of $108,500.00 was assessed. The AO further ordered Tanury to immediately comply with all NBC effluent pH

limitations; immediately begin to properly maintain the Pretreatment logbook; immediately begin proper recording of effluent pH discharges; immediately commence proper operations of the entire pretreatment system at Tanury Industries; immediately institute all steps necessary to ensure proper storage of all chemical solutions; immediately institute all steps necessary to ensure that the NBC is notified prior to changes being made to Tanury's process operations or pretreatment; immediately comply with all NBC effluent discharge limitations immediately comply with all NBC effluent discharge limitations; immediately institute all steps necessary to ensure that all required reports and results are received on time; immediately institute all steps necessary to ensure timely payment of its annual Wastewater Discharge permit fee; immediately institute all steps necessary to ensure permit compliance and proper storage of all chemicals solutions; and immediately begin proper recording of discharges from groundwater remediation system. Tanury preserved its right to hearing. Negotiations resulted in the execution of a Consent Order on December 31, 2005 wherein Tanury agreed to pay an administrative penalty of $24,000 over a 12 month period. In addition, Tanury agreed to expend $70,000 to upgrade its existing pretreatment operations. Said pretreatment improvements included both short term and long term modifications/improvements to be completed by November 30, 2007. Stipulated penalties for violating any of the effluent discharge limitations, sampling and/or reporting requirements set forth in its Wastewater Discharge Permit as follows; beginning with the month of November 2007 and for six months thereafter, Tanury shall pay $100.00 per parameter for each violation of pH effluent values of $\geq$ 0.2 or more standard units and $250.00 for each metal exceedance for copper, nickel, and cyanide by any amount based on user or NBC monitoring. An extension until April 30, 2008 for the completion of the pretreatment improvements was granted. Tanury fully complied with the terms of the Consent Order with regard to the upgrade. The stipulated penalty portion of the Consent Order was extended to commence on May 31, 2008. As of November 30, 2008, Tanury's obligations under the Consent Order were fulfilled and the file was closed. Tanury's final stipulated penalty payment was received and processed in January 2009.

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).

Shellfish Transplant

On September 21, 1990, the Commission developed internal policies and procedures for the use of the Environmental Enforcement Fund. NBC's Director of Planning, Policy & Regulation reviews funding requests and makes funding recommendations to the Executive Director and the Board of Commissioners. The Executive Director presents the ideas and recommendations to the Commission's Finance and Long-Range Planning Committees at a joint meeting for their review and approval.

In 2009, five proposals were submitted to the NBC Board of Commissioners for review and were approved. These proposals are listed below in TABLE 31.

TABLE 31
2009 Approved Environmental Enforcement Fund Proposals

EEF#	Company	Project	Amount Awarded
09-001	Providence Children's Museum	Educational Exhibit support and maintenance for the Water Ways Exhibit	$7,500.00
09-002	The MET School - Leonard Walker Scholarship Fund	Donation to the Leonard Walker Scholarship Fund to help school children in RI receive a better education at the MET School.	$2,500.00
09-003	Woonasquatucket River Watershed Council	Funding for the Woonasquatucket River Rangers Program.	$5,000.00
09-004	Greater Providence Board of Realtors	Funding for a public information and education program to address realtors on a variety of NBC-realated topics.	$1,000.00
09-005	NBC – Public Affairs Section	Funding a Waterfire™ event to educate the public on and celebrate the NBC's CSO project.	$10,000.00
Total Approved in 2009			**$26,000.00**

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, 2008 through December 31, 2009 was published in an advertisement in the PROVIDENCE JOURNAL on February 25, 2010. A copy of this advertisement is provided in FIGURE 11, while the Affidavit of Publication is provided in FIGURE 12.

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 22 firms were listed in the February 25, 2010 public notice in the Providence Journal. Of the 22 firms listed in Significant Non-Compliance, thirteen users are located in the Field's Point district and nine are Bucklin Point users. There were eight firms in SNC subject to EPA categorical standards. Six are classified as either electroplaters or metal finishers and two are classified as non-ferrous precious metal formers.

One company listed in the SNC public notice was classified as significant non-categorical user and thirteen firms are classified as non-significant industrial users. These fourteen firms perform various types of wastewater generating operations including vibratory, tubbing, printing, groundwater remediation, textile processing, and other manufacturing operations.

The number of firms listed in SNC for 2009 was 22, this is an increase from the 16 firms listed in SNC in 2008. Twenty of the 22 users listed in the February 25, 2010 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. Additional information regarding the firms listed in SNC is provided in CHAPTERS I and IV. The cost of the public notice was billed to the firms listed as being in Significant Non-Compliance.

FIGURE 35
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 C.F.R. 403.8(f) (2) (vii) and Article 10 of the Narragansett Bay Commission, Rules and Regulations require the NBC to publish annually the names of all industrial users in Significant Non-Compliance (SNC) with pretreatment standards and other pretreatment requirements during the preceding year. Companies deemed to be in Significant Non-Compliance are those industrial users who have violated any of the Significant Non-Compliance criteria listed, as defined by Article 2 of the NBC Rules and Regulations during the time period from October 1, 2008 through December 31, 2009. 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;

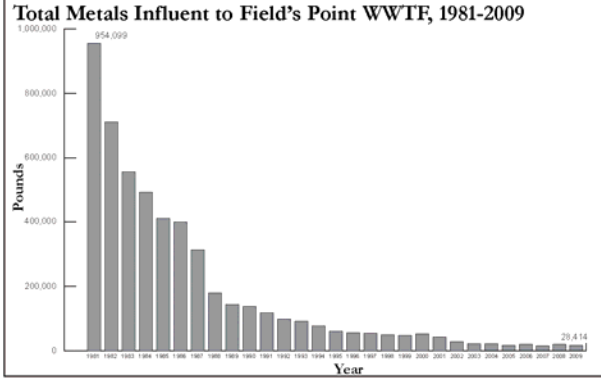
(7) Failure to accurately report noncompliance;

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

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 and cyanide loadings to the Field's Point facility have been reduced by 97.0% and 97.6% respectively. Similar toxic loading reductions have been observed at the NBC's Bucklin Point facility.

Total Metals Influent to Field's Point WWTF, 1981-2009



Bucklin Point Service Area

Pawtucket

Company Name	Violations Cited	Present Status
American Window Enterprises	Failure to submit report on time (6)	Report has not been received.
R.I. Textile Company - Columbus Avenue Facility	Failure to submit reports on time (6)	Reports have been received.

Cumberland

Bill's Auto Parts, Inc.	Failure to submit report on time (6)	Report has been received.
Teknicote, Inc.	Failure to submit report on time (6) Zinc (2)	Report has been received. Firm is now in compliance.
Tiffany and Company	Total Oil & Grease (1,2)	Firm is now in compliance.

Lincoln

Cadence, Inc.	Failure to submit reports on time (6)	Reports have been received. Firm moved out of the NBC service area.
KB Surfaces, LLC	Failure to submit report on time (6)	Report has been received.
Vennerbeck Stern-Leach	Failure to submit reports on time (6)	Reports have been received.

East Providence

Fujifilm Electronic Materials USA, Inc.	Total Toxic Organics (2)	Firm is now in compliance

Field's Point Service Area

Johnston

Company Name	Violations Cited	Present Status
Designs International, Inc.	Failure to submit report on time (6)	Report has been received.
Eastern Screw Company	Failure to submit report on time (6)	Report is still past due.
Prince Enameling Company, Inc.	Failure to submit report on time (6)	Report has been received.

Providence

Contract Specialties, Inc.	Cyanide (2)	Firm is now in compliance.
D.C. Products, Inc.	Failure to submit report on time (6)	Report has been received. Firm is now out of business.
G.A. Plastics Mfg. USA, LLC d/b/a Eastern Industries	Failure to submit reports on time (6)	Reports have been recieved. Firm is out of business.
General Plating Company, Inc.	Cyanide (2)	Firm is now in compliance.
Morvillo & Sons, Inc.	Failure to submit report on time (6)	Report has been received.
Precision Industries, Inc.	Failure to submit reports on time (6)	Reports have been received.
RI Public Transit Authority -Heavy Maintenance Facility	Lead (2)	Firm is now in compliance.
Stonewall Industries, Inc.	Failure to submit report on time (6)	Report has been received.
Universal Plating Company, Inc.	Failure to submit report on time (6)	Report has been received.

North Providence

Alpha Plating & Metallizing	Failure to submit reports on time (6)	Reports have been received.

The Narragansett Bay Commission will continue to be a leader in the field of 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

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

FIGURE 36
CONFIRMATION OF PUBLICATION OF SNC PUBLIC NOTICE

Ad Number: 95206401
Client Name:
Insertion Number: 0000001972198
Advertiser: NARRAGANSETT BAY WATER COMMISSION
Size: 7.94 x 9.0
Section/Page/Zone: projoRhodeIsland/A006/MAIN
Color Type: B&W
Description:

The Providence Journal

Publication Date: 02/25/2010

This E-Sheet(R) is provided as conclusive evidence that the ad appeared in The Providence Journal on the date and page indicated. You may not create derivative works or in any way exploit or repurpose any content.

A6 Thursday, February 25, 2010 — PROJO RHODE ISLAND — The Providence Journal

PROVIDENCE

Detective denies assault charge

Luis Mendonca, of Central Falls, was videotaped in the custody of police

PROVIDENCE (AP) — A police officer caught on video and charged with beating a handcuffed man with a flashlight pleaded not guilty Wednesday to felony assault.

Detective Robert DeCarlo, 45, also pleaded not guilty in Superior Court to simple assault on Luis Mendonca, whose last known address is 88 Sylvian St., Central Falls. DeCarlo was released on the understanding that if he failed to appear in court he would have to pay $10,000.

The video from a security camera, shot in a parking lot about a block from the court building the night of Oct. 20, showed Mendonca running from the police, then struggling with them. The officers were investigating a break-in at the Rhode Island School of Design.

After he is handcuffed and surrounded by officers, one officer is seen apparently kicking and striking him with a flashlight.

Mendonca's family and lawyer say he was in a coma for two days because of his injuries.

DeCarlo made no comment outside the courthouse. But his lawyer, Peter DiBiase, said his client regretted what happened.

"No one feels worse about this than Mr. DeCarlo," DiBiase said.

DiBiase said the video doesn't show the whole story, adding that it was dark and DeCarlo did not see that Mendonca, 21, was handcuffed. DiBiase said that the chase went on for 10 minutes, that Mendonca had previously refused to surrender at gunpoint, and that DeCarlo made a split-second decision based on frantic calls over the police radio.

"This was a dangerous situation," he said. "What he saw was a suspect resisting arrest."

DeCarlo was suspended without pay on Monday, the day he was indicted, pending the outcome of the case.

Mendonca's family attended the court hearing and said they were upset that the Police Department did not act more quickly to discipline DeCarlo. His sister, Rosa Mendonca, broke down outside court when describing her anger that he was still on the force until Monday.

"He was supposed to obey the law," she said.

Another sister, Ana Figueroa, said she wanted to see DeCarlo behind bars.

"We want justice. What he did was wrong," she said. "My brother is going through seizures, going through headaches the rest of his life."

Mendonca was convicted in December of assaulting two Rhode Island School of Design security officers. He is a legal resident but not a U.S. citizen, and is now in the custody of federal immigration authorities.

THE PROVIDENCE JOURNAL / KATHY BORCHERS

Providence police Detective Robert DeCarlo, right, in Superior Court, Providence, with his lawyer, Peter DiBiase.

COURTS

Scituate contractor sentenced to prison

Steven Allard failed to pay millions of dollars in employment taxes and will serve 30 months

By W. ZACHARY MALINOWSKI
JOURNAL STAFF WRITER

PROVIDENCE — A Scituate contractor is headed back to federal prison.

Chief U.S. District Judge Mary M. Lisi ordered Steven Allard, 47, to spend the next 30 months behind bars for failing to pay $2.1 million in employment taxes for two of his companies.

Lisi imposed the sentence for Allard, who had earlier pleaded guilty to felony counts of tax evasion and bankruptcy fraud.

Before sentencing, Allard, a big man who wore a pin-striped dress shirt and jeans, apologized to his family and the government.

"I am truly, truly, truly sorry," he said.

But Lisi wasn't completely buying it. She said that she wanted to send him away for a longer period of time, but federal sentencing guidelines prohibit her from taking into consideration an earlier federal conviction.

In 1994, Allard was sentenced to 10 months in prison following his conviction on six counts of demanding kickbacks from public works employees. The case involved his former business, Welding Jobs Unlimited in Burrillville, which had a contract to perform steel work in the construction of a post office in Bellingham, Mass.

"You, out of all people, should have had an incentive to stay on the straight and narrow," she said.

Lisi also interrupted Allard when he began to blame his hiring of certain bookkeepers and other staff for his financial crimes.

"You are only going to dig a hole...," she said. "That's not why we are here today."

"I take full responsibility," he said.

"It didn't sound like it," she shot back.

At last summer's plea hearing, Assistant U.S. Attorney Andrew J. Reich said that had the case gone to trial, the government would have proven that Allard directed income generated from one of his businesses, Builder Resources Inc.-Massachusetts, to three of his other businesses, Builders Resources Inc.-Delaware, Quad and Edgewood. Reich said that Allard failed to pay the Internal Revenue Service the employment taxes for his companies and instead diverted the funds to himself and his wife. Some of the money was used to buy luxury cars, Reich said.

Lisi also ordered Allard to cooperate with the Internal Revenue Service and help them recover the more than $2 million that he owes. Allard was released on $50,000 unsecured bond and he was ordered to surrender at a yet-to-be determined federal prison no later than 2 p.m. on March 17.

bmalinow@projo.com / 277-7019

"You, out of all people, should have had an incentive to stay on the straight and narrow."
Chief U.S. District Judge Mary M. Lisi

The Narragansett Bay Commission

PUBLIC NOTICE

Firms in Significant Non-Compliance

The Narragansett Bay Commission

Bucklin Point Service Area

Pawtucket

Cumberland

Lincoln

East Providence

Field's Point Service Area

Johnston

Providence

North Providence

Company Name — Violations Cited — Present Status

Total Metals Influent to Field's Point WWTF, 1981-2009

Pounds

Year

POLICE DIGEST

NEW YORK

Driver identified in hit-and-run

The lawyer for a woman who owns a car involved in a hit-and-run that gravely injured a Brown University graduate in New York City told investigators Tuesday that his client's sister was driving and had been admitted to a psychiatric hospital following the incident, the police said.

Investigators met with car owner Cindy Jasmin at her lawyer's office, where they questioned her about the hit-and-run that left Erinn Phelan hospitalized in extremely critical condition, police Commissioner Raymond Kelly said.

He said Phelan, who works promoting volunteerism for a city agency, NYC Service, was in "very, very serious condition."

Phelan, 22, has been credited with pushing her friend, Alma Guerrero, out of the car's path on Sunday before she herself was struck. Guerrero, who is a medical student at Brown University in Providence, was in stable condition following the hit-and-run. The women were roommates at Brown.

Jasmin and her attorney spoke to the police after the 31-year-old woman was arrested on a bench warrant for failure to pay a fine stemming from a February 2009 arrest for driving with a suspended license, according to Police Department spokesman Paul J. Browne. Jasmin paid the fine and is free.

During Tuesday afternoon's interview, Jasmin's attorney, Adam Thompson, said his client's sister, Frances, was so worried about her mental health following the incident that she was admitted to the hospital, the police said.

Reached by phone Tuesday night, Thompson said that he could only confirm that his client was the owner of the car and that "the actual driver of the vehicle has been identified to the police."

"The Jasmin family is fully cooperating," Thompson added. "Our sympathies go out to the families of the two women."

The police subsequently determined there was a Frances Jasmin admitted to the psychiatric department of the New York-Presbyterian's Westchester Division in White Plains. But they were still investigating whether it was the same woman.

Investigators were skeptical because of the difference in appearance between the woman picked out by witnesses and pictures of Frances Jasmin. Witnesses picked out a picture of Cindy Jasmin as a woman who went into a car service not far from the accident shortly after it had occurred and said she needed to use the bathroom and had just been in an accident.

On Monday, Mayor Michael Bloomberg called Phelan a "fighter" with "a big heart."

ASSOCIATED PRESS

PROVIDENCE

Lincoln man charged in Providence stabbing

Providence police charged a Lincoln man on Wednesday with stabbing a patron at Murphy's Deli, downtown at Fountain and Mathewson streets, on Feb. 2, according to Maj. Thomas F. Oates III.

Christopher Vachon, 21, of Kirkbrae Drive, entered no plea when brought before Magistrate Christine Jabour in District Court. Jabour released him under $2,200 bond pending an appearance in Superior Court to answer a charge of assault with a dangerous weapon, a felony.

The victim, Jeremy Fabregas, 26, was with friends at Murphy's just before midnight on Feb. 2 when another patron began making lewd remarks to a woman in Fabregas' company, Oates said.

When the patron — a short man with a shaved head — allegedly groped the woman, Fabregas confronted him. The assailant then pulled out a knife and stabbed Fabregas, Oates said. As a fight broke out, the bartenders pushed people out of the restaurant, and the suspect ran up Fountain Street.

Fabregas was treated at Rhode Island Hospital.

The major praised the work of Detective John Muriel, who he said "did some good legwork" in identifying the suspect and obtaining an arrest warrant. He said Vachon surrendered to the Lincoln police, who turned him over to Providence officers.

JOURNAL STAFF

NEWS DIGEST

PROVIDENCE

Library to be spruced up

Volunteers on Saturday will help clean up the historic Knight Memorial Library in Elmwood in preparation for a fundraising gala for the Providence Community Library, the nonprofit organization that runs the city's neighborhood libraries.

Providence Community Library took over the city neighborhood libraries in July 2009 from Providence Public Library, the nonprofit organization that still runs the downtown library.

More than 100 volunteers will be at the library from 10 a.m. to 2 p.m. The fundraiser is March 26.

Built in 1924 and located on Elmwood Avenue, Knight Memorial is one of the largest and grandest of the city's neighborhood libraries, but has suffered from years of neglect, according to David Dvorchak of Providence Community Library.

Among the volunteers this Saturday will be middle-school children using the library as one of their community projects as well as the Community Service Committee of the Warwick Chamber of Commerce.

PHILIP MARCELO

CMYK A6 MAIN 2/25

TABLE 32
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/09
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

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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

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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

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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

TABLE 32
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/09
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-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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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

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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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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

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AO #FP-02-03 VICTORY FINISHING TECHNOLOGIES	09/10/2003	CONSENT ORDER 6/8/05	$55,000.00	$5000.00	$5000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-03-03 NEW ENGLAND INDUSTRIES	09/10/2003	CONSENT ORDER 3/9/04	$35,000.00	$1,500.00	$1,500.00	$0.00	$500.00	$500.00	$0.00	$0.00	$0.00	$0.00
AO #FP-01-04 ELMHURST EXTENDED CARE	3/5/2004	CONSE4NT ORDER 10/27/04	$20,000.00	$7,500.00	$7,500.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
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 ASSOCIATIONS, INC.	08/25/08	CONSENT ORDER 4/15/09	$67,000	$24,000.00	$9,000.00	$15,000	$0.00	$0.00	$0.00	$400.00	$400.00	$0.00
AO #FP-01-09 Mazey's Restaurant Charles Street Facility	10/8/2009	PENDING NEGOTIATIONS	$9,000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
AO #FP-02-09 Mazey's Restaurant Smith Street Facility	10/8/2009	PENDING NEGOTIATIONS	$9,500	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

TABLE 32
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/09
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
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

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

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

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

TABLE 32
SUMMARY OF ENFORCEMENT ACTIONS THROUGH 12/31/09
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-01-07 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

VII. SPECIAL PROJECTS AND PROGRAMS

Introduction

The Narragansett Bay Commission (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 team effort consisting of many sections of the NBC, including the Pretreatment, Environmental, Safety & Technical Assistance (ESTA), Permits & Planning, Laboratory and Environmental Monitoring & Data Analysis (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 to the two NBC wastewater treatment facilities by providing free technical assistance and educational programs to local industries. Through this program, the NBC educates firms about pollution prevention measures, 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 problems and determine the solutions needed to restore Narragansett Bay. The Laboratory Section operates daily to analyze the thousands of samples delivered by EMDA. The EMDA Section also performs wastewater sampling at the two treatment facilities every day in accordance with RIPDES permit requirements. This Chapter details the projects, studies, and programs that the Pretreatment, ESTA, Permits & Planning, EMDA and Laboratory Sections have worked on in 2009.

Status of Projects, Programs and Studies

Environmental, Safety and Technical Assistance (ESTA) Program

The NBC initiated a pollution prevention technical assistance program in September of 1991 with the assistance of a $300,000 grant from the U.S. Environmental Protection Agency's (EPA) Pollution Prevention Incentives for States (PPIS) Program for the purpose of promoting the use of pollution prevention and source reduction techniques and technologies among the industrial community serviced by the NBC. Over the years the Pollution Prevention Section evolved from a traditional pollution prevention program, into a section that provides technical assistance both internally and externally, overseeing the NBC safety training program, assisting with environmental compliance and energy conservation issues as well as providing pollution prevention assistance In 2006 the name of the NBC Pollution Prevention Section was changed to the Environmental, Safety & Technical Assistance (ESTA) Section to recognize the many responsibilities performed by this section. The ESTA section continues 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. The ESTA Section's pollution prevention services are free of charge, non-regulatory and confidential.

The goals and objectives of the ESTA Section's 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.

The ESTA staff performs technical assistance site visits of NBC industrial users, organizes and conducts workshops and seminars, and produces educational fact-sheets. The NBC ESTA staff conducted 24 individual site visits during 2009 on a variety of pollution prevention and environmental regulatory compliance improvement projects.

NBC's ESTA Section's 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 33 summarizes the project periods and funding amounts for each of these grant awards.

TABLE 33

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
Total Grants Awards To NBC			$1,017,000

In addition to grant funded projects, the ESTA Section is involved with numerous 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:

- ***Stormwater Pollution Prevention –*** In October 2004 NBC was awarded a $35,000 EPA Pollution Prevention Grant to address stormwater management issues. This project has focused on two stormwater issues – management of stormwater runoff from industrial and commercial sources and MS4s in urbanized areas and identification, quantification and minimization of industrial and commercial operations on CSO discharges.

    - Stormwater Management

      The NBC's Rules and Regulations prohibit the discharge of stormwater to a public sewer unless the NBC determines that a combined sewer is the only reasonable means available for disposal. In order to help address this issue NBC has and continues to develop best management practices for minimizing stormwater discharges. Information contained in these Best Management Practices is based on NBC's experiences working with industrial/commercial users that have developed successful stormwater management programs along with information found in existing stormwater management best management practices.

    - CSO Discharges

      ESTA and Pretreatment staff with assistance from and in cooperation with URI and DEM continue to identify industrial/commercial facilities within the NBC service districts that have the potential to impact CSO discharges. ESTA, through on-going Pollution Prevention Assessments helps to identify the various sources of pollutants and ways of preventing/minimizing pollutant discharges. Information gained through these assessments will help NBC to direct additional technical assistance and educational efforts to the wider universe of industrial/commercial users and will help to identify environmental performance metrics by which to measure the overall success of project efforts.

  The ESTA Section continues to assist the Interceptor Maintenance (IM) Section as they develop and implement a CMOM Program. The IM Section is responsible for maintaining more than 96 miles of NBC owned interceptor sewers, seven pump stations, 84 regulators, 32 tide gates, 500 catch basins and 66 CSOs. Information collected through this pollution prevention project will help with identifying environmental objectives and targets within the IM CMOM.

- ***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 is conducting detailed energy audits of its various facilities and operations in order to identify energy conservation opportunities and is researching 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 have included:

- Low impact hydroelectric energy captured from wastewater flow
- Wind derived energy
- 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 will be 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 applied for and received $50,000 in grant funds from the Rhode Island Office of Energy to conduct feasibility studies into the use of Wind Energy at the Field's Point Wastewater Treatment Facility (WWTF) and bio-gas in a Combined Heat and Energy Process (CHP) at the Bucklin Point WWTF. In October 2006 NBC received approval from the Internal Revenue Service to issue $2.6 million in Clean Renewable Energy Bonds (CREB) to implement these projects.

In December 2009 NBC completed final Feasibility Project Reports on the FP WWTF Renewable Wind Energy Project and BP WWTF Renewable Biogas Energy Project. Both projects were found to be technically and economically achievable. Grant funding to help support the development and implementation of these projects is being sought through the Rhode Island Office of Energy Resources and the Rhode Island Economic Development Corporation. In January 2010 NBC received approval from the Federal Aviation Administration to erect three wind turbines at the FP WWTF at heights up to 360 feet.

- ***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 Rhode Island WWTF. The NBC State Innovation Grant Project has two components. First, NBC and its partners will develop a program for Rhode Island WWTFs on Energy Focused Environmental Management Systems (EF-EMS) using the *plan-do-check-act* approach to continuous process improvement, to reduce energy use and improve energy efficiency for

WWTFs. Second, NBC will institute a Fats Oils & Grease Management Environmental Results Program (ERP) for the food processing sector through the Pretreatment Program 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 WWTFs 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 WWTF;
- 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 will establish a roundtable to assist each participating WWTF with implementation of their EF-EMS.

The goal of the ERP for the food processing sector will be to improve management of fats, oils & grease resulting in reduction in total oil & grease discharges to the sewer system through:

- Enrollment of food processing facilities 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;
- Development of a compliance assistance program that includes compliance information hand-outs on BMPs and fats, oils & grease management self-certification form for restaurants;
- Conducting ERP follow-up assessments;
- Development of an assessment of ERP-related compliance improvements and BMP implementation through statistical comparison of compliance improvements between the baseline and post-implementation assessments.

Additionally, the project will identify both opportunities and problems associated with using collected fats, oils & grease for possible use for the production of bio-diesel fuel and to enhance bio-gas production at wastewater treatment facilities. In 2009, a checklist addressing how grease is managed at food preparation facilities was developed. Pretreatment staff began using it during inspections in May 2009. A list of 200 permitted restaurants was generated from the Pretreatment database. These restaurants were inspected and the new checklist was used to develop a baseline for this ERP project.

By combining the EF-EMS and ERP approaches to environmental programs, NBC will test an innovative approach to wastewater management and regulation as well as renewable energy practices. This State Innovation Grant Project is designed to take full advantage of NBC's experiences and expertise with respect to efficient WWTF energy management and apply those experiences initially to a wider community of WWTFs within the State of Rhode Island and eventually to WWTFs on a regional and national level.

NBC anticipates that this project will improve the energy efficiency of participating WWTFs by a minimum of 5-10% and, by utilizing renewable energy opportunities, decrease energy demand from the local power grid by as much as 10-20%. By reducing the energy demand of participating WWTFs through more efficient energy use and the use of renewable energy sources, the project will reduce the generation of greenhouse gases while accomplishing the same or better level of wastewater treatment. The project outcomes include cleaner air and water resulting in healthier communities and healthier ecosystems.

During 2009, as part of the EF-EMS component of this project NBC held a Project Kick-Off Meeting, a Portfolio Manager Training Workshop, and four Roundtable Meetings and conducted eight preliminary energy assessments of participating WWTFs. Work on the ERP component consisted of conducting 200 baseline survey assessments of local restaurants and food service establishments and the development of a draft Fats, Oils & Grease BMP Workbook.

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 that of 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 2009, the NBC recognized numerous firms for their exemplary environmental activities performed in 2008. NBC recognized one company for its extraordinary pollution prevention efforts with the presentation of an Environmental Merit Award, fourteen companies with Perfect Compliance Awards for achieving 100% compliance with all NBC regulatory requirements and one company was recognized for its efforts with managing stormwater. The award recipients are as follows:

Pollution Prevention Environmental Merit Award Winner:

Providence Chain Company

Perfect Compliance Award Winners:

Callico Metals, Inc. d/b/a Oster Pewter
Contract Specialties, Inc.
Darlene Group
Dominion Energy Manchester Street, Inc.
Fujifilm Electronic Materials USA, Inc.
Impco, Inc.
Interplex Metals RI Corporation
Narragansett Electric Company – Gas Holding Facility
Pilgrim Screw Corporation
Northland Environmental, LLC
Pilgrim Screw Corporation
Technical Materials, Inc.
Technodic, Inc.
Truex, Inc.
Univar USA, Inc.

Stormwater Management Award Winner:

The Wheeler School

Each award recipient received a plaque and had their company name and environmental accomplishments published in the Providence Journal. Applications for 2009 NBC Environmental Merit Awards will be sent out in March 2010 and the presentation of these awards will take place in mid 2010.

Water Audit and Technical Assistance Program

The NBC Water Audit & Technical Assistance Program was established with the goals of reducing water use and wastewater production of its major water users and to minimize where possible, the NBC's capital expenditures towards sewer facility improvements and/or expansion due to increased wastewater flow. Given these goals, the NBC Water Audit & Technical Assistance Program assists commercial, industrial, and institutional customers to utilize water more efficiently and ultimately reduce wastewater flow into the sewer system.

The NBC Water Audit & Technical Assistance Program is non-regulatory, free of charge and voluntary. It typically consists of the following:

- Reviewing the customer's water sources and water-using systems;

- Developing and recommending methods and procedures to reduce the customer's water usage;
- Evaluating the cost-effectiveness of these recommendations;
- Assisting the customer in implementing these recommendations;
- Tracking the customer's future water use to determine the effectiveness of these new methods and procedures.

As part of a water audit, the NBC supplies participants with reports containing recommendations and cost/benefit analyses of saving water. Water Audit Reports provide a breakdown of current water usage, recommends water reduction methods, and summarizes the cost savings for their water, sewer, and heating bills. By compiling these reports, the NBC can obtain valuable information about future flows into the sewer system. During 2009, Permits & Planning staff continued to offer these services to NBC customers.

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.

Open communication is an integral part of the sewer connection permit process. Once a permit application is received, the Permits & Planning Section reviews it for accuracy and adequacy, then forwards it for further review and comment to various NBC sections. The sections that may be required to review the permit application include Pretreatment, Interceptor Maintenance, and Engineering.

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 recognized the need for a database management computer program to efficiently and effectively analyze data such as changing wastewater flow per district or by City/Town, generate reports such as customer listing for the Customer Service Section, and most importantly, to expedite the Sewer Connection Permitting process. In 2009, 207 Sewer Connection Permits Applications were processed, the majority of which were for residential connections. The Pretreatment Section reviewed 19 of the 207 sewer connection permit requests in 2009 to determine if a wastewater discharge permit would be necessary. As a result, seventeen of these sewer users were required to obtain a Wastewater Discharge Permit.

Stormwater Mitigation Program

The Permits & Planning staff regularly work with building officials and developers to implement Stormwater Management for new construction projects. As part of the Sewer Connection Application process, a Stormwater Management Plan must be developed. This plans 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, approximately 1,427,938 gallons of storm flow for a 25 year storm and approximately 485,364 gallons for a three month storm were eliminated from Fields Point in 2009. These are stormwater flows that would have impacted the NBC sewer system and new CSO tunnel. Since this program was established in 2003 almost five million gallons of stormflow have been mitigated from the Field's Point system based upon a three month storm event, and the design basis for the CSO tunnel. This provides additional capacity in the CSO tunnel for raw sewage requiring treatment. The success of this program has been recognized by the National Association of Clean Water Agencies (NACWA) who presented the NBC with an Environmental Merit Award and by the Environmental Business Council, who presented the NBC with the Leadership Award for a Non-Profit Organization for this program.

Silver & Mercury Loading Reduction Programs

On September 30, 1992 the DEM Division of Water Resources issued RIPDES Permit Number RI0100315 to the NBC for the Field's Point Treatment Facility. This RIPDES permit established for the first time effluent discharge limitations for heavy metals and various other toxics. The monthly average RIPDES discharge limitation established for Total Silver was very stringent, 1.6 micrograms per liter. In order for the NBC to regularly meet this effluent discharge limitation, the agency immediately took aggressive action in the form of regulation and education of users.

The majority of users discharging silver bearing wastestreams into the NBC sewer system are small non-significant commercial and industrial users, while a small portion of the silver loading is generated from residential users conducting home photo darkroom operations. The Pretreatment Section implemented an aggressive regulatory approach to reduce the silver loading from non-significant commercial and industrial users. This regulatory approach included the permitting of many users, including colleges and technical schools which have photo processing darkrooms, doctor and dentist offices, and other medical facilities which develop x-rays, previously unpermitted printing firms which

perform photo, film, or plate processing operations, and any remaining photo or film processing facilities that were unpermitted.

The discharge permits issued to these facilities require regular compliance monitoring of the process discharges and prohibit the discharge of untreated developer or fixative solutions. The installation of pretreatment equipment is usually necessary for a facility to achieve compliance with the existing NBC total silver discharge limitations. Over the years, the NBC sponsored several educational workshops and seminars regarding silver waste recovery and management. In addition, the NBC has worked closely with the RI Dental Association, the Hospital Association of Rhode Island, and the National Silver Coalition to educate their members about common silver concerns.

In 2001, Pretreatment staff began the process of reevaluating the Silver Loading Reduction Program to ensure that all silver dischargers are properly permitted. Telephone books and directories were reviewed and compared to the existing list of NBC permitted users. A listing of users requiring facility inspection and possible permitting was generated.

The NBC is a participant in 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, the dental facility inspections were delayed so that the mercury amalgam issue could be addressed and incorporated into all new wastewater discharge permits issued to dentists.

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, the NBC Pretreatment staff initiated the Dental BMP Program and began issuing permits to dental facilities that implemented the BMP standards.

A half-day workshop to introduce the Dental BMP was held on March 31, 2004. Another half-day workshop focusing on the installation, operation and maintenance of amalgam separators was held on May 12, 2004. This workshop also addressed concerns regarding the BMP and further explained BMP requirements. Both workshops were well attended by representatives of the dental community.

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

Throughout 2005 Pretreatment and ESTA staff continued to work with the dental community to ensure compliance with the BMP. As of the end of 2005, all dental facilities elected to implement Option 1 of the BMP.

Throughout 2009, 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.

In November 2004, the NBC was awarded a Citation by the Governor of Rhode Island for the development and implementation of the BMP. The citation acknowledged the cooperative efforts of the ESTA, Pretreatment and Public Relations Sections of the NBC along with the Rhode Island Dental Association. 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 will help our laboratory achieve low level mercury "clean analysis" of <1.0 ppt. To date our laboratory's detection limit for mercury is 1.4 ppt. The NBC mercury reduction project has been very successful at reducing mercury loading. Since the inception of the BMP program mercury loadings were reduced by 47.3% at Field's Point and 25.0% at Bucklin Point.

Grease Discharge Control Program

In 1990, the NBC instituted a Grease Discharge 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 Discharge Control Program has essentially resolved these problems.

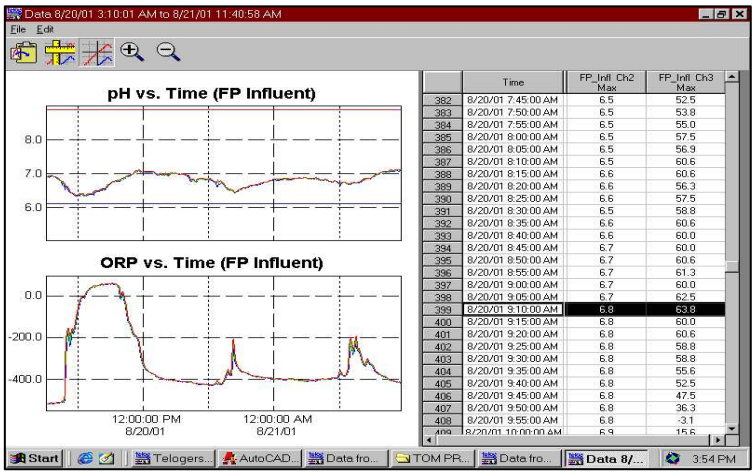
The NBC Grease Discharge Control Program is a permitting program which requires commercial users to install one of two acceptable types of grease removal equipment, the automatic electrical grease removal unit (GRU) or the large in-ground passive grease interceptor (GI). The permit requires the user 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.

During 2008, the NBC's Pretreatment Section was contacted by out of state agencies to assist them on the development and implementation of their grease control programs. Representatives from the New Hampshire Department of Environmental Services, Portsmouth, NH Department of Health and the Springfield Water and Sewer Commission from Springfield, MA, each spent a day with Pretreatment staff. During the visits, the agency representatives were given an overview the NBC's program and how it got started and were furnished with forms and handouts that are used to educate users and issue Wastewater Discharge Permits. In addition, the representatives accompanied Pretreatment staff on inspections of restaurants to see what physical inspections of grease removal equipment, kitchens and paperwork entail. As a result of these meetings Pretreatment staff were invited to give presentations on the NBC's Grease Control and Inspection Programs. The first presentation was at the State of New Hampshire's Get Control of Fats, Oils & Grease Workshop in May 2008. The second presentation was given at New England Interstate Water Pollution Control Commission's 2008 Fats, Oils and Grease Workshop held in October 2008 in Providence, RI. A third presentation was at the State – EPA Environmental Results Program (ERP) consortium meeting held in Reno, NV in September 2008. Throughout 2009 Pretreatment staff continued to provide assistance to other agencies.

Treatment Plant Influent Computer Monitoring Program

The Providence area was once known as the "jewelry capital of the world." Although the number of metal finishers has decreased in recent years, numerous metal finishing companies still operate in the NBC service area and the potential for wastewater pollution from toxic chemicals is great if on-site pretreatment is not performed properly. Metal finishing companies have the potential to discharge high and low pH wastewater in conjunction with heavy metals; likewise, wastewater with a high or low oxidation / reduction potential (ORP) can be associated with a discharge of cyanide, hexavalent chromium or excessive chlorine.

Several years ago, using Environmental Enforcement Funds obtained from fines levied on polluters, the Pretreatment Section purchased environmental probes and data recording equipment manufactured by Telog Instruments, Inc. to monitor the wastewater influent at the treatment plants. The monitoring stations had the functionality to continuously recorded and transmitted pH and ORP data to the Pretreatment office each night via modem and telephone line. Since pH and ORP data may indicate the presence of a more serious pollutant, influent data was reviewed on a daily basis by Pretreatment staff and monthly analysis of the data was performed to help determine trends associated with plant operations. Data from the monitoring stations could also be viewed in real time from Pretreatment office computers. This Telog Monitoring System was eliminated when the Plant Process Information (PI) System began to monitor influent and effluent pH on a continuous basis. Plant Process Monitors review PI data continuously and immediately notify Pretreatment and EMDA staff of any concerns. Viewing data in real time is useful in the event that an unusual influent impacts the treatment plant. Staff located in the Pretreatment office can immediately observe the influent status and determine the course of action to take. Computerized monitoring of the POTW influents using the PI system continued in 2009.



Screenshot of treatment facility influent monitoring software

The remote monitoring program was expanded in 2005 to include additional parameters at pump stations throughout the two NBC districts. The Pretreatment and Engineering Sections worked to install LEL probes at the Washington Park, Reservoir Avenue and Central Avenue Pump Stations and configured existing telemetry equipment to notify the Pretreatment Section if programmed set points are exceeded. The data can be viewed using the Plant Process Information (PI) system. This equipment assists Pretreatment with tracking releases of flammable materials such as solvents and fuels and allow the proper response to prevent such materials from impacting the treatment facilities.

Nine Minimum Controls Compliance Program for CSOs

Throughout 2009 the NBC 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 the ESTA staff for

help to come back into compliance. These programs ensure that industrial wastewater is properly treated to levels acceptable for discharge and unsure that materials cannot be spilled into the sewer system or through a CSO. This is supported by the 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, 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. 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.

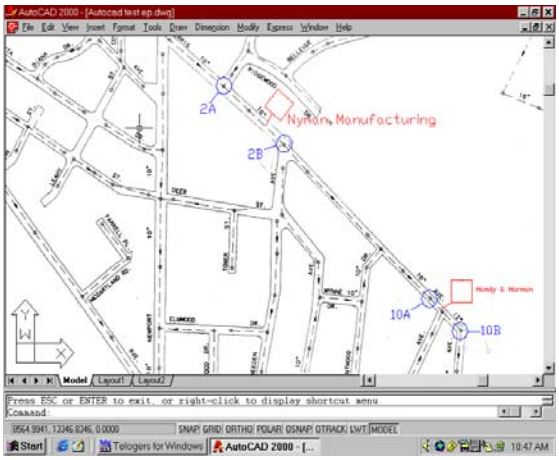
In 2009, EMDA staff collected samples at CSOs located in the Field's Point and Bucklin Point districts to measure contaminant levels during wet weather overflow events at the first flush, the height of the storm and near the termination of the event, CSO sites downstream of industrial areas were selected 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 parameters met the local limits, indicating the NBC pretreatment and pollution prevention elements of the NBC Nine Minimum Controls Program are effective.

The NBC also works with the community to minimize the impacts of 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. Save the Bay received a $3,500 grant from the NBC to install these labels throughout the NBC district.

Computerization of Sewer System Maps Project

The Pretreatment Section maintains a set of 33 different maps to identify the location of each significant industrial user and the manholes that are used for surveillance monitoring of each SIU. Paper copies of these maps are stored in each Pretreatment and EMDA vehicle for reference during special investigations and for manhole monitoring activities. The status of the SIUs is always changing, since new facilities open and existing facilities close or relocate. This creates a challenge with the paper map system because each time a new SIU begins operating, the master map must be updated, copied, and distributed to each of the 15 locations where copies of the maps are stored. This is not only time consuming but also expensive. In order to simplify the process and make the maps more useful and accessible, the NBC initiated an ambitious goal of converting all existing maps to a digital format in an AutoCAD platform.

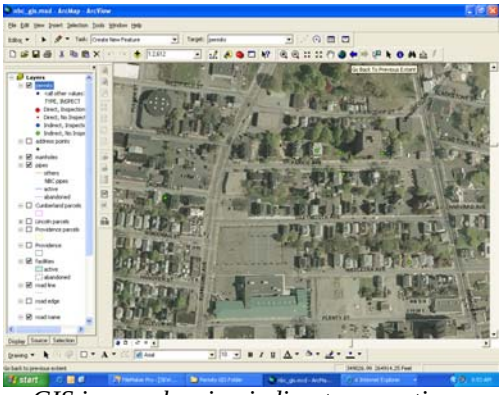
During 2003, the NBC began to identify the locations of each permitted user and the location of the keymanholes associated with SIUs and Zero Discharge companies. This process was completed in early 2004 for existing permitted users. As new companies are permitted the information is entered on the computerized maps. Information regarding each user's location is placed on a layer of the AutoCAD drawing associated with the user's category. By storing information in different layers staff is able to filter out information that does not pertain to the current needs of the investigator. For example, investigating colored wastewater impact to a NBC facility is more effective with the computerized maps since Pretreatment staff is able to show only those users who have the potential to discharge colored wastewater.



Portion of East Providence map showing the location of two SIUs and their surveillance monitoring manholes

These maps are stored on the NBC computer network and are widely available to NBC staff from their computer workstations. In addition, the NBC has purchased two laptop computers that have access to the maps and can be used during special investigations. This tool is more powerful than the paper maps and can be updated easily so they contain the most current information.

During 2006 the Permits & Planning Section began to implement GIS. Sewer connections are located on the NBC GIS system maps. Direct and indirect connections are differentiated. A database which includes the applicant name, address and connection type has been created for GIS. In 2008, Permits & Planning staff developed a layer on the GIS maps and corresponding database for the location of privately owned pump stations to comply with the new DEM O&M Regulations. Data points continued to be entered on the layer throughout 2009. In late 2006 Pretreatment staff began working with Permits & Planning and Engineering staff to locate industrial and commercial users on the NBC GIS software and this work continued throughout 2009.



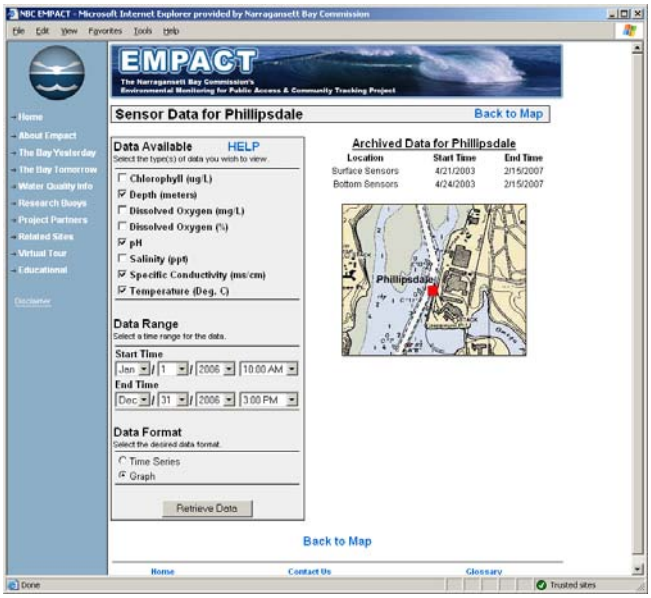
GIS image showing indirect connections to the NBC sewer system

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, the Chairman appointed the NBC Director of Policy, Planning & Regulation Division to spearhead volunteer clean-up efforts.

During 2009, the NBC sponsored an Earth Day Clean-Up event of the Woonasquatucket River on April 22, 2009. The event took place at sites along the river from Park Street to Olneyville in Providence. NBC staff as well as volunteers from the public and private sectors participated in this event. The clean-up was successful, as 105 cubic yards of material was removed from the river and along the banks. The items removed from the river included tires, bottles, cans, auto parts, scrap metal, and trash. The NBC worked with the City of Providence to ensure the streets in the surrounding area were swept after the event to further clean the area and minimize additional impact on the river. The NBC will organize and sponsor clean-up events during 2010 to further enhance the beauty and public safety of the Woonasquatucket River.

Fixed-Site On-Line Water Quality Monitoring



In 2009, the EMDA Section continued work on the formerly EPA-funded Environmental Monitoring for Public Access and Community Tracking (EMPACT) Project. The monitoring stations established under the EMPACT project extend water quality monitoring of Narragansett Bay into the upper, urbanized reaches of the estuary and the important data generated by this project is available in real-time on the internet at **www.narrabay.com**. These stations have been established in proximity to the Field's Point and Bucklin Point wastewater treatment plant outfalls. The Bullock's Reach buoy station is located between Gaspee Point and Conimicut Point in the Providence River and the Phillipsdale Landing station is a dock site located on the Seekonk River in East Providence. These monitoring stations directly benefit Narragansett Bay research by allowing for continuous, real-time water quality monitoring in the Providence and Seekonk Rivers. Through radio telemetry and phone connections, Bay researchers can consistently track changes in the rivers from a remote location, saving valuable resources and decreasing the response time to anomalous conditions. This data also provides a baseline of water quality across seasons, as well as prior to major waterway changes such as dredging. State-of-the-art technology at these sites collects measurements for depth, temperature, salinity, pH, dissolved oxygen, turbidity (at the bottom) and fluorescence, a proxy for chlorophyll and phytoplankton activity (at the surface). Data is collected by the sondes at the Bullock's Reach buoy and Phillipsdale Landing dock site every 15 minutes. Data from the buoy is transmitted via radio signal to a base station at Field's Point every hour and data from the Phillipsdale Landing station is transmitted every hour by phone connection. During 2001 and 2002, EMDA and URI-GSO worked together to service and maintain the Bullock's Reach buoy. In 2003, the buoy maintenance was taken over by EMDA. In late 2003, uncorrected raw data from both water quality stations also became available for use by the general public via a link on the NBC website, located at http://www.narrabay.com/empact/**.** EMDA staff continued to maintain the buoy as well as the Phillipsdale Landing dock site since that time. The EMDA staff is also continually making improvements to equipment and infrastructure to ensure the reliability of data collected. EMDA is also a part of the Narragansett Bay Fixed Site Water Quality Monitoring Network, which includes the DEM, URI, and the Narragansett Bay National Estuarine Research Reserve (NBNERR). EMDA attends yearly meetings with the Network and communicates regularly with the Network Quality Assurance Officer to coordinate efforts for maintaining fixed water quality monitoring sites throughout the Bay and to streamline data from all of the Narragansett Bay fixed monitoring sites.

A new buoy was deployed by the NBC in 2006 to replace the Bullocks Reach buoy which was struck by a vessel and destroyed in late 2004. In 2006, EMDA also added a third, mid-depth sonde to the buoy set up to get a better picture of water quality throughout the water column. The physical deployment locations and monitoring equipment remained essentially unchanged during 2009, from the prior monitoring season. Data from the Bullock's Reach buoy site has become an important component of the DEM's monitoring of water quality in the upper reaches of the Bay.

Emergency Situation/Extreme Conditions Sampling

The NBC has implemented 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 the monitoring necessary to evaluate the impacts from the event. During 2009, there was one event. On December 10, 2009 the Bucklin Point plant experienced a discharge of partially treated wastewater when the UV system failed, allowing 679,750 gallons of treated but not disinfected wastewater to discharge from the facility. In order to assess the environmental impact of this release extensive monitoring was conducted in the Providence River and the Conditional Shellfishing Areas on the days following the event in addition to the regularly scheduled Bay bacteria sampling. The results of the sampling indicated the bacteria level decreased the day following the release but increased again four days later. The increase was due to a rain event of 0.99 inches that occurred on the previous day. Based on the extensive sampling it was determined the effects of the bypass were short lived and most likely did not extend more than a couple of days after the event.

Woonasquatucket River Education Program

In June, 2002 EMDA was awarded a grant by the Partnership for Narragansett Bay to design and implement an education project. The approved pilot program, entitled '*What's In Your River: A Woonasquatucket River Education Pilot Project*' educated students in grades 3-5 on the importance of their local watershed.

The pilot project was designed in conjunction with the Woonasquatucket River Watershed Council (WRWC), and gave students within communities along the Woonasquatucket River an interactive learning experience built around a local river system, extending to the diverse ecosystems of the entire watershed. The project involved six schools from five communities along the Woonasquatucket River: Providence, North Providence, Johnston, Glocester, and Smithfield. Participating classes ranged from grades 3-5, with approximately 200 students involved. The project lasted for one full school year (2002-2003).

Additionally, the pilot program provided an internship to one area student enrolled in a college teaching program. An education project intern was hired in 2002, and worked with EMDA staff to design and implement the final stages of the project. In addition to the internship offered through the grant, the NBC funded a summer intern in 2002 to assist in compiling materials for the teacher handbook. EMDA staff began work upon notification of the grant award. Preparation continued throughout the summer months to

have the project in place by the opening of the school year. EMDA staff created a Project Handbook containing information on the NBC and the WRWC, the Woonasquatucket River watershed, history and culture of the area, information on collecting and interpreting data, and supplemental activities for students. Concurrently, monitoring kits and supply trunks were created for distribution to participating classrooms, and individual monitoring sites were selected for each school to utilize over the course of the project. Monitoring kits include tests for dissolved oxygen, nitrates, phosphates, turbidity, pH, BOD, temperature, and macroinvertebrate observation and identification. Supply trunks include all equipment necessary for field visits, including nitrile gloves, anti-microbial hand wipes, and waste containers.

In the fall of 2003, the program expanded to include over 800 students and in 2004, the *What's In Your River* environmental education program continued to flourish. Four schools signed up to participate and in early fall each visited their local watershed with staff from the NBC for a water quality monitoring event. The program continued through the end of the 2005 school year, consisting of two additional water quality monitoring events as well as an environmental symposium where students and teachers from each participating school presented data findings and participated in fun educational activities. A new component was added to the program in 2004, a contest which asked each school to come up with public service announcements supporting clean water in the state of Rhode Island. Three winning announcements where chosen to be aired on the local Radio Disney station. The entire program including buses, supplies, staff and all educational materials was funded by the NBC.

Students participating in the NBC Woon Watershed Explorers Program

The NBC improves the program each year. In 2005, *What's In Your River* became the *Woon Watershed Explorers Program.* This program included several new components including classroom visits once a month, student achievement badges and journal writing. There were nine schools and more than 400 students involved during in the 2005 program. In 2007, NBC extended the program to meet the needs of its entire service district by accepting four new schools for a total of eleven schools and over 520 students. During 2007 the program received a National Environmental Achievement Award in the category of Public Information and Education from NACWA, and in 2008 and 2009, the program continued to enhance its application of state and national science education standards by including modules on amphibians and taking tours to the wastewater treatment facilities. 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 NBC considers this program to be imperative to its success in its relentless pursuit of public outreach and education.

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 was to develop models of circulation and transport within the Providence and Seekonk Rivers and Upper Narragansett Bay for aiding in the management of the NBC treatment facilities. The development of hydrodynamic modeling will allow the NBC to track the fate of a pollutant through Narragansett Bay once it was discharged from one of the two NBC treatment plants. It is the NBC's hope that this modeling project will ultimately lead to the development of a nutrient Total Maximum Daily Load 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 the three transect locations. 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 also 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 make recommendations that would allow the model to ultimately satisfy DEM criteria and ensure that the model will be a useful tool in predicting equilibrium nutrients concentrations at various levels of input from area wastewater treatment facilities.

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 final report was submitted 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. NBC amended its contract with URI-GSO to continue work during 2010, which includes further refinement of the model in several areas of the bay which show unusual water circulation patterns. URI-GSO plans to deploy multiple instruments in strategic areas in early 2010 to determine fine nuances of these water circulation patterns within Narragansett Bay. These efforts purportedly will result in even greater model accuracy.

Floatables Control Program

The NBC has a long-standing commitment to improving water quality in the urban rivers of Providence. In addition to removing a significant portion of debris within the rivers during NBC sponsored clean-up events, these events also remove debris from the river banks. This debris, during rain events, can become floatable pollution in the rivers, as water levels rise and wash away wind-blown items such as food packaging, plastic bags, and other non-sanitary items. Previous work by the NBC during 2004 indicated that the majority of floatable pollution in the rivers does not originate from combined sewer overflows, but rather from improperly discarded litter. The NBC has employed various methods to control floatable debris such as deploying booms across the Woonasquatucket River, netting across a combined sewer outfall, as well as hosting river clean-up events.

In 2009 the NBC hosted an Earth Day River Clean-Up which resulted in 105 cubic yards of materials, including tires, trash, bottles, auto parts, and scrap metal being removed from and around the river.

Mussel Study

The NBC began a mussel study in 2008 that will replicate previous studies done in the 1980s and is meant to evaluate water quality improvements attributed to the success of NBC toxic pollutant reduction programs. For this study, control mussels from Rhode Island Sound were collected and analyzed by the NBC lab to get a baseline data set for mussels living in a well-flushed, open ocean environment. Another set of these mussels was collected at the same location and deployed at two stations in the Providence River, at Sabin Point and Conimicut Point. This set of mussels was divided into four groups, with two groups at each site. One group was deployed for three weeks and one group was deployed for four weeks at each site. These mussels were collected at the end of October and analyzed by the NBC laboratory. This study was repeated in 2009, although the group of mussels from the Sabin Point location was lost and found much further south and will therefore not be analyzed. The control mussels and Conimicut Point mussels will be analyzed by the lab in 2010. Data from the 2008 and 2009 study will be compared to the 1980's study results and will provide a good indicator of water quality improvements for toxic pollutants over the past 30 years.

CSO Tunnel Evaluation Study

On November 1, 2008, Phase I of the NBC Combined Sewer Overflow abatement project became operational, drastically reducing the volume of CSO discharges that occur during rain events by capturing excess flows in an underground storage tunnel. In order to better characterize the water quality improvements realized by the CSO storage tunnel the NBC began a monitoring program in 2008 to study the effects that an individual storm has on water quality in Upper Narragansett Bay. Fecal coliform bacteria are an important indicator of water quality. The focus of this study is to evaluate bacteria levels, which are expected to be dramatically reduced due to the tunnel operation. This monitoring program consists of collecting daily samples from numerous sample locations in the upper bay. Sampling was conducted the day prior to the rain event and then every day thereafter until water quality returned to normal levels. Data collected prior to the tunnel

going on-line will be used as a baseline to compare similar sampling events conducted after the CSO tunnel was put online. In 2009 the DEM became a partner in this project. By working with the DEM the NBC was able to expand the study area to evaluate fecal coliform inputs from other sources in the area and incorporate a FDA approved laboratory for some of the analyses. The DEM hopes to use data from this study to evaluate shellfish closure criteria.

On Going Projects

Over the years the Pretreatment, ESTA and EMDA Sections initiated many projects that have become integral parts of their programs. Work continues on these 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
National Metal Finishing Strategic Goals Program
Environmental Management Systems Program
Pollution Prevention for Hospitals and Health Care Facilities
Pollution Prevention for Auto Salvage Yards
Septage Permitting Program

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 important work will continue in 2010.

VIII. NBC PRETREATMENT PROGRAM GOALS

Status of 2009 Goals

The 2008 Pretreatment Program Annual Report was submitted to the Rhode Island Department of Environment Management (DEM) on March 13, 2009 and defined the goals established for 2009 for the NBC toxic reduction and control programs. These goals are often above and beyond those Pretreatment Program requirements mandated by the DEM and the EPA. This chapter outlines the progress made during 2009 toward meeting these goals and defines the goals established for 2010.

- **2009 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 try to inspect each SIU twice, as all SIUs were inspected two or more times during 2009. The EMDA Section performed well toward satisfying its self-imposed goal to sample each SIU at least twice in 2009 as all but two SIUs were sampled twice in 2009. One company, Northland Environmental, LLC discharged only on an infrequent batch basis during the first half of 2009. The company only discharged five times in 2009. Since all discharges occurred during the first half of 2009, only one sample was able to be collected. The second company, The Colibri Group abruptly ceased discharges in early 2009. Therefore, only one sample was able to be collected. Many SIUs were sampled more than twice due to the implementation of a monitoring procedure to immediately resample any user once a violation is observed as a result of a NBC sampling event. Additional information regarding the NBC sampling and inspection programs is provided in CHAPTER III.

- **2009 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: During 2009, the Pretreatment staff greatly increased the number of inspections conducted of commercial and non-significant industrial users. In 2009, the Pretreatment staff conducted 2,249 inspections. This is an increase of 27.9% from 2008. Pretreatment staff performed thorough inspections of 96.3% of permitted non-significant industrial users. During 2009, Pretreatment Technicians inspected 64.7% of the permitted restaurants and commercial buildings with cafeterias, and 51.5% of all other commercial users, somewhat short of our self imposed goal. Additional information regarding the NBC inspection program is provided in CHAPTER III.

- **2009 Goal:** Perform expeditious 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 2009, as 425 Wastewater Discharge Permits were issued in various industrial and commercial categories. During the year, permits were issued to metalfinishers, centralized waste treatment facilities, 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 2009, as 132 of the 425 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 2009 the Pretreatment Section performed expeditious reviews of 216 process and pretreatment system plan submittals. Of these 216 plan submittals, 136 were promptly approved, 33 were approved with conditions to be met, five were rejected since NBC requirements were not satisfied and no action was taken initially on 32 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 days and issuing permits within ten business days in 2009. During 2009, 207 Sewer Connection Permits were issued. This represents a 34.9% decrease from 2008 which is attributed to a slowdown in the housing market. Additional information regarding this program is provided in CHAPTER VII.

- **2009 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: For many years, the NBC has conducted 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 in the past. During 2005 senior Pretreatment staff continued to conduct surveys of the NBC district to ensure that the existing list of known mill complexes and industrial areas was complete. As a result of these surveys, the number of industrial areas and mill complexes requiring annual inspections was greatly increased from 52 in 2004 to 67 in 2005. This self imposed goal to inspect 50% of mill complexes was not met in 2009, as 28 of the 67 or 41.8% industrial

areas and mill complexes were inspected once in 2009. 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 even though the 2009 goal was not met. 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 2009.

- **2009 Goal:** Ensure the protection of the two NBC POTWs and Narragansett Bay to minimize incidents of pass through and interference.

  Accomplishment: Pretreatment staff 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 2009, Pretreatment staff conducted 56 of these investigations. To assist NBC staff in conducting these investigations, Spill Response and Tracking training is provided. The training was provided to Pretreatment and EMDA staff in July and August 2009.

  Pretreatment and EMDA staff also respond to notifications from 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 and effluent of the treatment plants have exceeded preset concentrations, EMDA and Pretreatment staff work together to find the source. The activities that staff conduct include installing manhole samplers in key locations and inspecting all facilities in the district with the potential to impact that the plant with the pollutant in question.

- **2009 Goal:** Continue regulatory inspections of Septage Haulers as part of the NBC Septage Discharge Control Program.

  Accomplishment: During 2001, new solids removal equipment went on-line at the NBC Lincoln Septage Receiving Station. To ensure the proper operation of this equipment, the Pretreatment Section worked throughout 2001 to completely reevaluate the NBC Septage Discharge Control Program. All septage discharge and billing procedures were reevaluated and revised. Standard operating procedures were developed and implemented regarding discharging septage, billing of septage discharges, completing and maintaining septage manifests, and weighing of septage vehicles. The master septage discharge permit was revised to incorporate these many changes. Revised permits were issued to each permitted septage hauler during 2002. Pretreatment staff also developed and distributed an educational brochure in 2002 that summarizes the NBC septage discharge regulations and procedures. In August 2002, Pretreatment staff expanded its

procedure for verification of Septage Manifest forms. During 2009, Pretreatment staff verified the authenticity of 41 septic system pump-outs reported on manifest forms. This exceeded the goal for 2009. In addition, Pretreatment staff conducted 41 inspections at the Septage Receiving Station during 2009. Additional information regarding the NBC Septage Discharge Control Program is provided in CHAPTER VII.

- **2009 Goal:** Improve Data Management.

  Accomplishment: Throughout 2009 Permits & Planning staff continued to increase the database on the NBC GIS system. The database expanded to 2,130 data points which include the name, address and type of connection (residential or commercial). Direct and indirect sewer connections are also indicated.

  In 2009, Permits & Planning staff worked with NBC Information Technology (IT) staff to develop a sewer connection database that will enable better tracking and monitoring of Sewer Connection Permit requirements. The database will be implemented in 2010.

  All receiving water monitoring stations are now located in the NBC GIS system. In 2008 a new method of graphically depicting fecal monitoring data was developed to improve interpretation of the data. 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 2009, the data continued to be graphically represented on the GIS maps.

  Throughout 2009, Pretreatment staff continued to work with NBC IT staff to enhance the Pretreatment Software.

- **2009 Goal:** Conduct computer monitoring of the influent of the Field's Point and Bucklin Point treatment plants to ensure protection of the POTWs and Narragansett Bay.

  Accomplishment: During 2009, the Field's Point PI computer monitoring systems were checked daily by the Process Monitor for unusual influents. Pretreatment and EMDA staff were notified of all incidents of unusual influent and all incidents of unusual influent were promptly investigated. Most of these incidents were slightly high pH influents of short duration. The computer monitoring equipment at both wastewater treatment facilities will continue to be monitored routinely during 2010.

- **2009 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 40-hr HAZWOPER training. During 2009 the NBC continued its program of conducting 8-hr HAZWOPER refresher training using

in-house trainers and expertise. ESTA, EMDA, and Pretreatment staff certified in 40-hr HAZWOPER training are given at least 8-hrs of refresher training throughout the year on such topics as: Hazard Communication and Hazard Recognition, Chemistry of Hazardous Materials, Confined Space Entry, Spill Response and Tracking, Traffic Control and Personnel Protective Equipment Use. The NBC continues to conduct in-house employee training on CPR/AED with 42 employees certified in 2009. In 2009 NBC staff was provided with eight hour HAZWOPER refresher training by the Rhode Island Fire Academy. This training included using CAMEO software utilized by emergency response personnel when dealing with hazardous materials incidents.

The NBC also continued to conduct in-house employee training on CPR/AED with more than 40 employees certified in 2009. In October of 2009 NBC was notified that it will be receiving the 2009 Burke Safety Award from the New England Water Environment Association.

- **2009 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: During 1996, Pretreatment supervisory personnel began to develop a Pretreatment Program Manual of Standard Operating Procedures (SOP) and Protocols. Work on this project continued through 2006 and at this time the manual consists of all existing standard operating procedures. As existing procedures are reviewed and revised or new procedures are developed, they are documented in this manual. During 2009, Pretreatment staff continued to review the SOP manual and update it accordingly.

  During 2009, EMDA staff continued to detail all standard procedures and procedural changes for the two sections. 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.

  During 2009, Pretreatment, EMDA, Laboratory and Legal staff worked to standardize the Chain of Custody (COC) procedures. The COC procedures ensure that samples are handled properly. The COC was finalized in late 2009.

  During 2009, policies continued to be updated in the NBC Policy Manual.

- **2009 Goal**: – Continue to assess water conservation efforts and reuse opportunities.

  Accomplishment: Throughout 2009 ESTA staff continued to work with the metal finishing community to help reduce their process water use. Activities included technical assistance measuring and monitoring water usage, providing assistance with water conservation projects and collection and reporting of water use data elements.

  During 2009 ESTA staff began to investigate the reuse of wastewater and biosolids at the two treatment plants. A basic literature search was conducted to obtain information to support this project.

- **2009 Goal:** Environmental Merit Awards Program - Solicit nominations from companies and staff, evaluate all Significant Industrial User performance data, and hold Awards Ceremony.

  Accomplishment: In 2009, the NBC recognized two organizations for environmental achievements with respect to pollution prevention and storm water management and fourteen Significant Industrial Users for achieving 100% compliance with all NBC regulatory requirements. The awards were presented to the organizations at a breakfast held on September 29, 2009. Additional information regarding this program is provided in Chapter VII.

- **2009 Goal:** Environmental Management Systems - continue involvement with Rhode Island ISO 14001 Roundtable and help to promote industrial community involvement with the Rhode Island ISO 14001 Roundtable.

  Accomplishment: The Rhode ISO 14001 Roundtable did not meet during 2009. However the NBC, through its pollution prevention technical assistance efforts, continued to promote the use of ISO 14001 Environmental Management Systems among the industrial community within the State of Rhode Island through on-site technical assistance efforts, workshops, written factsheets and presentations.

- **2009 Goal**: Workshops – Conduct environmental compliance/pollution prevention workshop for NBC industrial/commercial users.

  Accomplishment: On April 1, 2009, NBC organized and held a full day workshop on how to use EPA's "Energy Management Guidebook for Wastewater and Water Utilities". The workshop held at the University of Rhode Island's Narragansett Bay Campus was attended by more than twenty representatives from fifteen of Rhode Island's nineteen Wastewater Treatment Facilities (WWTF). The workshop covered key aspects of the EPA Guidebook and the Plan-Do-Act-Check Process including:

    - Establishing Energy Goals
    - Benchmarking Energy Use
    - Developing an Energy Policy
    - Establishing Energy Objectives and Targets

At the conclusion of the workshop attendees were given a demonstration of the EPA Energy Star Portfolio Manager system by NBC's Pollution Prevention Engineer.

On April 29, 2009, NBC organized and held a half day workshop on how to use EPA's Portfolio Manager Software to enter and efficiently track monthly energy use. The workshop was held at the Barry Hall computer training room within the Pastore Center in Cranston and was attended by eleven representatives from eight of Rhode Island's nineteen WWTFs. Attendees were able to setup accounts for their respective WWTFs, enter multiple building locations, enter at least one year's worth of energy usage (gas, oil, electric), share their data with the EPA and other RI WWTFs and receive an 'energy rating' that will be used as the basis for improvement. Materials on how to track Power Factor and kW Demand were distributed at the conclusion of the workshop.
On December 2, 2009 NBC assisted with organizing a National Grid sponsored workshop on "Improving Energy Efficiencies in Wastewater Treatment Facilities" at the Inn at the Crossings in Warwick. The workshop was attended by more than 40 representatives of WWTFs from Rhode Island and South Eastern Massachusetts.

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

- **2009 Goal:** Energy Conservation – Develop a report on renewable energy use options for NBC, investigating the feasibility of installing a wind turbine at Field's Point and a bio-gas fed micro-turbine/reciprocating engine at Bucklin Point.

  Accomplishment: In December 2009 Final Project Feasibility Reports were completed for NBC's FP WWTF Renewable Wind Energy Project and NBC's BP WWTF Renewable Biogas Project. As a result of these studies NBC will be moving forward with implementing a wind energy project at the FP WWTF consisting of up to three utility scale wind turbines (600 kW to 1,650 kW) and a Combined Heat and Power project at the BP WWTF capable of generating as much as 500 kW of electrical power. The NBC will continue to seek grant funding for these projects.

- **2009 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. The EMDA staff successfully sampled 446 industrial surveillance manholes during 2009, 256 in the Bucklin Point district and 190 in the Field's Point district. This is a 15.5% increase in the number of manholes sampled from the number sampled in

2008. In addition to the 446 industrial manholes, the NBC collected samples from 29 sanitary manholes. The EMDA Section also attempted to collected samples from eight 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 9 manholes per week, meeting the goal of 6 to 10 manholes per week.

- **2009 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. It used flow data acquired by Engineering to determine loadings estimates from drainage districts. EMDA continued to sample in NBC interceptors at metering stations, which provide flow information, allowing the NBC to better define the sources of contaminants to the influent at each treatment facility. 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 NBC's 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. This study began in 1999, was expanded in 2000 and throughout 2009. 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 29 sampling events of residential manholes were conducted during 2009.

- **2009 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 2009. During 2007, EMDA staff implemented new QA/QC sample collection practices to ensure the highest quality samples were being collected. This was continued in 2009. During 2009, the NBC complied with RIPDES permit requirements to sample at the two treatment plants every day of the year and with all mandated reporting. EMDA staff continued to sample all process operations at both plants to acquire the data needed to optimize plant performance. EMDA staff also researched, purchased and installed new samplers that minimize the need for human intervention in sample collection, thus

minimizing the risk of human error. In 2009, EMDA staff continued to replace outdated automatic samplers with new state-of-the-art samplers that minimize the risk of human error. During 2009, new refrigerated automatic samplers were purchased to be installed at the Bucklin Point wet weather influent sampling locations. The new samplers are capable of communicating with the plant's SCADA system to control sample collection during wet weather events. Once the samplers are activated after receiving flow signals they will operate automatically to further minimize the risk of human error.

- **2009 Goal:** To review, evaluate and log all analytical data obtained from EMDA's 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 2009, 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 2009, EMDA published the data collected from the 2008 monitoring season. During 2009, EMDA continued to work closely with the Laboratory LIMS Administrator, as well as with IT personnel to review existing databases to identify areas of improvement. EMDA has worked to develop and implement a log in which any information impacting analytical results can be entered. This will allow successors to determine what occurred when analytical trends or data differ from historical values. Throughout 2009, Pretreatment staff worked with IT staff on the PT-LIMS interface to download data from LIMS to the PT system.

- **2009 Goal**: Design and implement an on-line centralized database.

  Accomplishment: Progess on Data Central, a centralized database website, in which all data can be uploaded, was made during 2009. The database will be accessible through www.narrabay.com and will allow immediate access to selected data for use by NBC staff and stakeholders. EMDA and Laboratory staff have worked to create an inventory of all data files existing in hard copy form. These files will be scanned for eventual input into the database. Current and past DMRs dating back to 2004 have been scanned and are ready to be uploaded into the new Data Central database.

- **2009 Goal**: Monitor the receiving waters of both the Field's Point and Bucklin Point treatment facilities to continue the EMPACT Program previously funded through a USEPA grant.

  Accomplishment: In 2009 the NBC continued to monitor water quality 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, during 2009 bi-weekly samples at these and other upper bay stations were collected for fecal coliform and nutrient analyses. Due to limited resources, planned chlorophyll-a samples were not taken on a bi-weekly basis. TSS samples were added to the bi-weekly schedule however. 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 NBC's EMPACT website.

- **2009 Goal:** Conduct tributary river sampling for fecal coliform analysis.

  Accomplishment: In 2009 the 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 this data to determine trends in fecal inputs to these waterways. The results of the tributary river monitoring for fecal coliforms 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. This data has provided a baseline to measure the success of the CSO remediation project, and new data to be collected in 2010 and beyond will be used to evaluate the tunnel's success in reducing adverse impacts to area tributary rivers and Narragansett Bay.

- **2009 Goal:** Continue to evaluate the effect of the NBC effluent on water quality of the receiving waters.

  Accomplishment: During 2009 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 2009. 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 2008, extensive monitoring of the upper Bay was conducted over thirteen consecutive days after record rainfalls to determine CSO impacts upon conditional shellfish areas. This monitoring provided invaluable background data necessary to evaluate the effectiveness of the CSO remediation tunnel which became

operational in November 2008. This monitoring continued throughout 2009 to expand the database. More detailed information about these projects is provided in CHAPTER VII.

- **2009 Goal:** Conduct Toxics Compliance Monitoring of two CSO wet weather event discharges as well as the North Diversion Structure discharges at Bucklin Point annually as a part of the NBC's Nine Minimum Controls Program.

  Accomplishment: EMDA staff sampled a CSO wet weather overflow during a rain event on December 3, 2009. The aim of this wet weather sampling event was 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 wet weather sampling was conducted at Outfall 218 at Bucklin Brook, Outfall 045 at Rathbone Street, and the Bucklin Point North Diversion Structure. The sampling plan was designed to collect three samples at the outfall throughout the overflow event. The first sample was 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 was taken during the stage of highest overflow rate and a third sample taken near the conclusion of the event.

- **2009 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 2009. This monitoring consists of monthly sampling from the mouths of the Ten Mile, Runnins, Palmer, Warren Reservoir, Cole, Lee and Taunton rivers, as well as from multiple sites on the Blackstone River. In addition, a sample is collected monthly from the mouth of the Pawtuxet River to provide more accurate data on all sources of nutrient loadings to Upper Narragansett Bay. The data shows NBC contributions are not as large a percent loading as first thought, especially during rain events.

- **2009 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: 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 dramatic 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 2009. Data collected from this location will be used to evaluate the tunnel's success in reducing adverse impacts to area tributary rivers.

- **2009 Goal:** Research sources of fecal coliform bacteria in urban rivers.

  Accomplishment: During 2009, EMDA continued to research methods to identify human vs. non-human sources of fecal coliform bacteria in urban rivers. As a result of both natural and anthropogenic inputs, major portions of the NBC receiving waters and the urban river are impacted by pathogens. As a result of these inputs, these waterbodies are on the 303(d) list of impaired waterbodies. This research will investigate techniques for the rapid determination of pathogens, as well as develop alternative means of determining their sources. Caffeine, optical brighteners, and human-specific pathogens have been and will continue to be further investigated to determine whether or not a predictable relationship between observed pathogen concentrations and indicator chemicals can be discerned. Additionally, if a predictable relationship exists, the NBC will evaluate if it can be used to quantitatively assess source contributions to observed pathogen concentrations.

- **2009 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 2009, sampler replacements continued, replacing samplers in critical RIPDES required monitoring areas as older equipment was scheduled to be replaced under the 5-year capital improvement planning process. During 2009, four more automatic samplers between both facilities were replaced.

  During 2009, Laboratory staff evaluated and developed new analytical techniques and methods. The TCLP, Total Organic Carbon, and Chlorophyll-A techniques were put on-line in 2009. Throughout 2009, the Laboratory analyzed all RIPDES permitted parameters for the Field's Point and Bucklin Point facilities. In order for the NBC maintain State Certification and EPA DMR reporting requirements, the Laboratory must perform proficiency testing. In 2009, the NBC Laboratory attained 100% accuracy for the lab's analytical proficiency on both the Proficiency Testing for State Lab Certification and for EPA's DMR reporting. Back-up equipment for vital permit analyses was also put on-line to improve agency compliance. In 2009, all laboratory equipment in the NBC laboratories located in the laboratory building, Field's Point plant and Bucklin Point plant were calibrated by Caley & Whitmore.

- **2009 Goal:** Evaluate the success of NBC toxic programs by performing a trace metals study of shellfish.

  Accomplishment: During 2008, EMDA and Laboratory staff worked to mimic a study done over 20 years ago involving measuring trace metals concentrations in shellfish to determine the health of these biological organisms living in the Bay in an effort to demonstrate water quality improvements as a result of NBC toxic pollutant reduction programs. The study to investigate metals contents in Blue Mussels is now underway. Ninety mussels were collected on September 29, 2008 from Jamestown for the study. On September 30, 2008, mussels were deployed at

two sites, one site just south of Sabin Point, the other site just north of Conimicut Point. Two baskets each containing eighteen mussels were deployed at each site using a line with anchor, a subsurface float and a large surface float. These mussels remained at these two sites for a time period of three weeks and four weeks, respectively, after which they were collected and analyzed by NBC Laboratory personnel for metals content. A set of eighteen mussels were also collected and frozen to serve as the control group in order to analyze them for baseline metals content and to be able to make a comparison to the mussels that were deployed in the Upper Bay. This study was repeated in 2009. Mussels were deployed at the same locations as the 2008 study. The mussels from a control group and Conimicut Point will be analyzed in 2010. The mussels deployed at Sabin Point were dislodged from the original location, therefore, they will not be analyzed. The results from 2008 and 2009 studies will be compared to the 1980 study.

- **2009 Goal:** Participate in community based environmental and educational projects.

  Accomplishment: The NBC sponsored its annual Earth Day River Clean-Up event on April 22, 2009. The event took place along the banks of the Woonasquatucket River in Providence at five sites from Park Street to Olneyville. NBC staff and volunteers from the public and the private sectors participated in the event. The event was successful as 105 cubic yards of material was removed from the river and its banks.

  In 2009, the NBC cosponsored shellfish relocation events with the DEM, RI Department of Health, RI Shellfisherman's Association and the Nature Conservancy. Five transplant events took place in April and May. More than 660,000 pound of shellfish were collected from restricted waters and relocated to management areas where the shellfish were allowed to cleanse themselves and reproduce.

- **2009 Goal:** Conduct studies during extreme weather or emergency events.

  Accomplishment: During 2009 the NBC performed one study during an emergency event. On December 10, 2009 the Bucklin Point plant experienced a discharge of partially treated wastewater when the UV disinfection system failed, allowing approximately 680,000 gallons of treated but not disinfected wastewater to discharge from the facility. In order to assess the impact of this release extensive monitoring was conducted in the Providence River and the Conditional Shellfishing Areas on the days following the release. The results of the monitoring indicated the bacteria level decreased the day following the release but increased again four days later. The increase was due to a rain event of 0.99 inches that occurred on the previous day. Based upon the extensive monitoring it was determined the effects of the bypass were short lived and most likely did not extend more than a couple of days.

Major Program Goals for 2010

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 of 100% of unusual influent reports ▪ Respond to 100% of reports of illegal dumping, spills and blockages ▪ Respond to automatic notifications from LIMS of incidents of non-compliance ▪ Pretreatment and EMDA staff respond to 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 25 pollution prevention technical assistance site visits
	Water Conservation and Reuse	▪ Continue to assess water conservation efforts among industrial users ▪ Begin to investigate WWTF reuse of wastewater and biosolids ▪ Seek grant funds to support WWTF effluent reuse investigation/projects
Monitoring and Analytical Initiatives	Sample industrial discharges to sewer system to ensure compliance with regulations.	▪ Sampling of SIUs twice (EPA/DEM requires one sampling) ▪ Immediately 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 key manhole monitoring ▪ Continue flow monitoring as part of sample collection efforts to define total loading ▪ Continue monitoring of residential sources of pollutants to better define background loading
	Conduct surveillance monitoring in sewer system to ensure compliance with regulations.	▪ As needed and dependent on specific needs defined by staff observations and reports ▪ 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 equipment and procedures to continually improve monitoring activities
	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 2 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 ▪ Partner with URI-GSO on an emerging pollutant study. Deploy and retrieve passive samplers in the upper bay and in the plant influent and effluent ▪ Learn analytical procedures to extract emerging pollutants from passive samplers, analyze for the pollutants and quantify ambient concentrations in the bay and plant influent and effluent
	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. ▪ Evaluate laboratory capabilities to analyze for sulfates and sulfites. ▪ Maintain all Laboratory licensing certifications.
Permitting	Expeditious review and issuance of permits	▪ Respond to all discharge permit applications and renewals within two weeks ▪ Review submitted Pretreatment facility plans on a weekly basis in staff meetings ▪ Respond to all incomplete Sewer Connection Permit applications within two days. ▪ Issue Sewer Connection Permit permits within two weeks
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 ▪ Provide groundwork for uploading data to internet for immediate staff and stakeholder review and use ▪ Provide internet access to monitoring data for immediate staff and stakeholder viewing ▪ Computerize all past analytical data. ▪ Scan all past DMRs into an electronic format.
	Provide access to all NBC monitoring data	▪ Develop a monitoring plan by November 15th for approval by the Directors ▪ 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 ▪ Issue 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	Maximize the use of NBC computer systems	▪ Locate sewer connections, LID projects, industrial and commercial users, and private pump stations on the NBC GIS system ▪ Continue to locate and update users and surveillance manholes on the computerized maps ▪ Continue to locate and update all monitoring locations on NBC's GIS system ▪ Generate Discharge Monitoring Reports by LIMS ▪ Update safety training tracking software ▪ Roll out the new Sewer Connection Permit information management system.
	Energy Conservation	▪ Issue RFQ/P for FP WWTF Renewable Wind Energy Project ▪ Issue RFQ/P for BP WWTF Renewable Biogas Energy Project ▪ Continue to investigate energy conservation and ultimately energy opportunities ▪ Seek grant funding for energy conservation projects
	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.
	Research sources of fecal coliform bacteria in urban rivers	▪ Investigate methods that could be used to identify human vs. non-human source of fecal coliform bacteria in urban rivers. ▪ Seek funding to implement above research/pilot project.
	Participate in community based environmental and educational projects	▪ Organize and participate in one river clean-up event ▪ Participate in the Woonsaquatucket River Environmental Educational Program. ▪ Participate in the DEM/RI Shellfishermen's Association Shellfish transplant program.
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

Goal Category	Goal Outline	Goal Description
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	▪ Conduct one environmental compliance/pollution prevention workshop for NBC industrial/commercial users ▪ Participate in at least two public workshops ▪ Present NBC monitoring data at workshop. ▪ Conduct one workshop on NBC requirements for public officals.
	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 Infectious Materials Exposure Control training to pertinent NBC personnel ▪ 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.