PROJECT XL PROPOSAL
PRETREATMENT PROGRAM
REINVENTION

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I. INTRODUCTION

A. Project Summary

Recognizing that the existing command and control approach for regulating indirect industrial wastewater discharges does not fairly recognize or encourage environmental performance beyond that of baseline compliance, the Narragansett Bay Commission (NBC) is proposing an experimental program that will test new ways of recognizing and encouraging superior environmental performance. Through Project XL the Narragansett Bay Commission will conduct a two year study that will utilize regulatory flexibility to encourage superior environmental performance by the metal finishing industries located within the Narragansett Bay Commission's servicing district.

As part of this project 10 metal finishing companies that have achieved superior environmental performance will be given varying levels of regulatory flexibility based upon their relative environmental performance averaged over a seven-year period (1992 through 1998). Ten poor performing metal finishing companies will also be identified and will be given increased regulatory environmental oversight plus pollution prevention technical assistance. The main goals of this project are as follows:

1. Define quantitative environmental performance criteria for NBC's approximately 140 permitted metal finishing companies.

2. Establish a regulatory flexibility incentives program that rewards exceptional environmental performance and encourages improvement from poor performing companies,

3. Direct regulatory oversight and pollution prevention technical assistance efforts towards poor environmental performing companies,

4. Measure the effect this approach has on several environmental performance indicators, and

5. Demonstrate that a focussed regulatory approach that better utilizes regulatory staff time and effort can result in measurably improved environmental results.

This approach differs vastly from the "strict command and control" approach currently required by both federal and state environmental regulations. Through the existing regulatory framework, companies with no history of environmental violations and very proactive pollution prevention programs are subject to the

same strict oversight and reporting requirements as companies with long histories of poor environmental performance. By refocusing its regulatory efforts the Narragansett Bay Commission plans to demonstrate that superior environment performance can be achieved through incentives and cooperation at less cost to both the industrial community and environmental regulatory authorities.

B. NBC Organization

The NBC was created by the Rhode Island General Assembly in 1980 to improve the water quality of Narragansett Bay and its tributaries. At that time Rhode Island's largest wastewater treatment plant, the Field's Point Facility in Providence, was responsible for allowing nearly 65 million gallons of untreated or partially treated sewage to flow into Rhode Island's waters everyday, thereby jeopardizing the state's and region's environmental and economic well-being

To combat these conditions, the NBC took over the failing facility from the City of Providence in 1982 and spent the next decade and over $90 million rehabilitating and transforming the facility into a state-of-the-art, nationally recognized operation. In 1992, when the Field's Point facility's rehabilitation was complete, the NBC expanded its responsibilities to include the acquisition of the former Blackstone Valley District Commission and its Bucklin Point Wastewater Treatment Facility in East Providence. NBC's service area encompasses the metropolitan Providence and Blackstone Valley areas, which includes Providence, North Providence, Johnston, Pawtucket, Central Falls, Cumberland, Lincoln, the northern portion of East Providence and small sections of Cranston and Smithfield. Eighty-nine miles of large underground pipes that collect wastewater from approximately 360,000 persons and 8,000 businesses, 83 combined sewer overflows, 32 tidegate structures and 8 pump stations make up the NBC's wastewater collection system.

The NBC is governed by a 23-member Board of Commissioners which represent the municipalities in the District, as well as four legislative and ten gubernatorial appointments. Empowered with responsibilities ranging from ensuring that the NBC operates with a balanced budget to approving contracts for improving and sustaining the treatment facilities and wastewater collection system, the Board meets monthly to decide the direction of the NBC.

The NBC work force is divided into four divisions: Executive, Administrative and Finance, Operations, and Planning, Policy, and Regulation. Each of the 282 dedicated employees that make up these divisions work together as a team to diligently and professionally meet and fulfill the NBC 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."

The NBC has received numerous awards, grants, and recognition for its superior efforts and accomplishments. A list of these awards and accomplishments can be found in Appendix I of this project proposal.

C. Description of Facilities

Under virtually every street in the NBC service area is a sewer pipe that carries away unwanted wastewater from homes, schools, businesses and industries to one of NBC's two wastewater treatment facilities. Most of the time, gravity moves the flow through the sewer system to the facility where it will receive treatment. When gravity is not enough to move the flow, one of eight pumping stations is used.

Flow from Providence, North Providence, Johnston and portions of Lincoln and Cranston is conveyed through 61 miles of NBC-owned pipes to the Field's Point facility for treatment. The Field's Point facility is the state's largest and one of the country's oldest wastewater treatment facilities and is designed to provide preliminary and primary treatment of incoming flows up to 200 million gallons per day (MGD) and secondary activated sludge treatment for 65 MGD. Field's Point is located within an industrial setting adjacent to the Providence River. Rhode Island Hospital, the state's largest hospital is within a three-mile radius of the Field's Point facility.

Flow from Pawtucket, Central Falls, Cumberland, Lincoln, the northern portion of East Providence and a small section of Smithfield is conveyed through 28 miles of NBC owned pipes to the Bucklin Point facility. The facility is designed to provide preliminary and primary treatment of incoming flows of approximately 50 MGD and secondary activated sludge treatment for 31 MGD. Bucklin Point is located on the Seekonk River is adjacent to a residential neighborhood and a wildlife habitat. Memorial Hospital in Pawtucket is within a 5 mile radius of the Bucklin Point facility.

NBC takes great pride in its role as an environmental leader and readily seeks to further establish this role in the community beyond that of just wastewater treatment. As an example of these efforts the NBC has established a Wildlife Management Program at its Bucklin Point Wastewater Treatment Facility. This area is home to fox, pheasant, osprey, duck, and swan and is an established pathway for migratory waterfowl and Neotropical bird species. This initiative has created a team spirit among the employees and the local community and has encouraged the public to visit the facility and learn more about the benefits of

environmental and habitat protection. In 1995 the NBC received the Public Service Award from the Association of Metropolitan Sewerage Agencies for its efforts in establishing this Wildlife Management Program.

Additional information on NBC's facilities and operations and a site map of the NBC service district can be found in Appendix II.

D. Industrial Wastewater Control

Combined the Field's Point and Bucklin Point facilities receive and treat wastewater from more than 70% of the State of Rhode Island's industry. In order to protect treatment plant workers and plant operations from potentially harmful industrial wastewater discharges, the NBC has in place a very successful state and federally mandated and authorized Industrial Pretreatment (PT) regulatory program.

The NBC PT Program regulates and monitors industrial wastewater discharges enforcing local NBC rules and regulations, as well as, certain state and federal wastewater discharge regulatory requirements. Without regulation industrial wastewater discharges containing toxic substances could enter the sewer system causing a host of health, operational, and environmental problems.

Heavy metals and other toxic materials can interfere with the operation of the wastewater treatment process by upsetting the biological environment. If this were to occur NBC could possibly fail to meet permit requirements established by the Rhode Island Department of Environmental Management (RIDEM) and EPA and could be subject to fines of up to $25,000 for every day the facility in not in compliance. Heavy metals in wastewater can settle out in sludge thereby contaminating it, increasing disposal costs, and preventing any potential beneficial use. Remaining heavy metals and toxics that pass through the treatment facility would flow into the Providence and Seekonk Rivers affecting marine life and human health.

The NBC PT staff is made up of eight engineers and four engineering technicians who are responsible for permitting, monitoring and regulating more than 1,100 industrial and commercial users. PT staff conduct regular inspections of all permitted users thereby enforcing strict wastewater discharge and operating standards. Since taking over the Field's Point treatment plant and initiating the PT Program, NBC has reduced metal and cyanide loadings to the treatment plant headwork by more than 95%. In recognition of the PT staff's extraordinary efforts and accomplishments NBC has been chosen to receive EPA's Pretreatment Excellence award twice, the first time in 1992 and most recently in 1998.

In December of 1992, with the aid of an EPA Pollution Prevention Incentives for States (PPIS) grant award, the NBC initiated a non-regulatory technical assistance Pollution Prevention Program. NBC's Pollution Prevention Program complements the PT Program's efforts to control industrial wastewater discharges by assisting the industrial community with eliminating and reducing pollutants at their source, as opposed to end-of-pipe treatment.

The NBC Pollution Prevention Program staff currently consists of a Pollution Prevention Manager, a Pollution Prevention Consultant, and a Pollution Prevention Engineer. Through a contract with the University of Rhode Island's (URI) Center for Pollution Prevention, NBC also has used, from time to time, several graduate and undergraduate Chemical and Environmental Engineers to assist on pollution prevention projects.

The basic goals and objectives of NBC's Pollution Prevention Program are met by:

- Promoting pollution prevention philosophies and methodologies among the industrial users of the NBC system through on-site technical assistance activities and user education;

- Identifying regulatory and non-regulatory barriers that may be preventing the implementation of source reduction and pollution prevention activities;

- Developing readily available, easily accessible, and efficient sources of pollution prevention information for use by the industrial community, and

- Identifying, developing, and encouraging the implementation and use of processes, practices, and products that reduce or eliminate the generation of pollutants and wastes as part of industrial operations.

The original grant award used to initiate the NBC Pollution Prevention Program ended in September of 1997, however, the NBC continues to support this program through NBC funds and additional grant awards.

E. Contact Information

Questions, comments or informational requests regarding this Project XL may be directed to:

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II. PROJECT DESCRIPTION

A. Project Overview

The NBC permits and regulates approximately 140 metal finishing companies. Through EPA's Project XL Program, NBC will attempt to improve the environmental performance of a select number of metal finishing companies by establishing regulatory flexibility incentives that promote and reward superior environmental performance and allow for focussed compliance and technical assistance attention on lower level environmental performers.

NBC will redirect PT regulatory efforts away from 10 metal finishing companies that have demonstrated superior environmental performance records (Tier I Companies) and will focus these efforts on 10 companies with lower performance records (Tier II Companies). Specific criteria defining Tier I and Tier II performance levels can be found in Section II – C of this proposal. Utilizing regulatory flexibility NBC will establish a "ladder" of environmental performance recognition where top performers are allowed regulatory flexibility and lessened regulatory oversight while lower level performers are given more regulatory oversight and pollution prevention technical assistance. The ultimate goal of this project is to demonstrate that through more efficient use of existing resources and manpower, NBC can achieve measurable improvements in the environmental performance levels of Tier II companies while encouraging and assisting Tier I companies to at least maintain and possibly improve their current level of superior environmental performance at effective cost.

As part of this Project XL, NBC will utilize requested regulatory flexibility within the context of an existing EPA grant supported regulatory relief initiative, NBC's Metal Finishing 2000 Program. This program establishes environmental performance criteria that identifies superior environmental performance and rewards these efforts with NBC regulatory flexibility.

B. The Metal Finishing 2000 Program

Metal Finishing 2000 is a product of the Common Sense Initiative. This program establishes criteria for which Tier I metal finishing companies (i.e. best of the best environmental performers) will be identified, recognized and rewarded for their

superior efforts. Criteria elements are similar to those considered by EPA as part of Project XL and include a company's:

- Overall Environmental Compliance
- Pollution Prevention Efforts
- Employee Environmental Education
- Improved Environmental Performance

Descriptions of the type of performance information collected and reviewed as part to the Metal Finishing 2000 application process is described below. A Metal Finishing 2000 Program Application is included in Appendix III.

1. Environmental Compliance

Each participant in NBC-Metal Finishing 2000 must have an exceptional environmental compliance record with federal, state, and local environmental, and OSHA regulations. For regulatory problems that have occurred each applicant must demonstrate that they have put forth a good-faith effort to return to compliance in an expeditious manner. While a perfect compliance record is not required for participation, a pattern of repeated violations and/or inadequately addressed violations will prevent an applicant from meeting participation criteria.

Each applicant must disclose:

- All non-compliance issues that have arisen at the applicant's facility over the past three years,
- The applicant's response to those issues, demonstrating a fast and safe return to compliance, and
- A description of response actions taken to prevent future non-compliance.

All information submitted by an applicant is verified by NBC through a search of NBC PT, federal, state, and local regulatory files and databases. NBC Pollution Prevention staff in order to confirm environmental performance, also visit with each applicant.

2. Pollution Prevention Efforts

Applicants must be able to demonstrate a commitment to and use of pollution prevention policies and procedures as part of their waste management practices. The national pollution prevention policy, as part of the Pollution Prevention Act of 1990, states:

- Pollution should be prevented or reduced at the source whenever economically feasible,

- Pollution that cannot be prevented should be recycled in an environmentally sound manner whenever possible,

- Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and

- Disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

NBC-Metal Finishing 2000 applicants must be able to demonstrate their commitment and use of pollution prevention policies and procedures through any combination of the following:

- An established company Environmental Policy Statement

- The use of a Pollution Prevention Facility Management Plan,

- Demonstration of reduction in waste generation trends through such documentation as: hazardous waste manifests, Biennial Hazardous Waste reports, TRI reports, water and/or sewer bills, self-monitoring compliance reports, etc. As part of this response the applicant must be prepared to demonstrate that reduction in waste generation did not result solely from a decline in production,

- Having worked with and implemented suggestions made by one or more of the pollution prevention technical assistance programs available in Rhode Island,

- Implementation of water use reduction techniques and/or technologies, and

- Involvement with an industrial community based environmental or pollution prevention program or committee such as: the Rhode Island Pollution Prevention Council, the NBC Regulatory Advisory Committee, the NBC Citizens Advisory Committee, the Rhode Island Pollution Prevention Conference, the National Pollution Prevention Roundtable, and/or trade association environmental work-groups.

3. Employee Environmental Education

Applicants must have in place an educational system that trains employees in proper environmental management practices and procedures, and encourages employees to help find and initiate new and innovative ways of reducing pollutants at the source of generation. Training may be offered in-house or through outside contractors or educational institutes.

4. Improved Environmental Performance

In addition to establishing itself as a Tier I environmental performer each applicant must clearly define the type and extent of regulatory flexibility desired. The applicant must demonstrate how this regulatory flexibility will result in improved environmental performance, or how obtaining flexibility will ease in maintaining the current level of environmental performance.

When responding to this item the applicant must:

- Describe in detail the type and extent of regulatory flexibility being requested. For instance, if the applicant wishes to eliminate a specific reporting requirement he/she must describe the reporting requirement, the regulatory authority which requires the reporting, and the reason why this particular requirement should be eliminated. Under the existing Metal Finishing 2000 Program NBC has authority only over requirements of its own rules and regulations. However, should a reasonable request for flexibility outside of NBC requirements be made, the NBC will work as an advocate to help obtain flexibility from other regulatory authorities. **Currently, no guarantee is being made that flexibility outside of NBC's authority will be granted.**

- Describe in detail how obtaining regulatory flexibility will result in improved environmental performance or ease in maintaining existing environmental performance standards. A request for flexibility that does not result in clear-cut overall improved environmental performance may not be granted.

C. Quantifying Tier I and Tier II Performance Levels

In order to quantifiably define Tier I and Tier II performance and to establish industry wide baseline performance levels, NBC has initiated a detailed review and analysis of seven to ten years of environmental performance data on all NBC permitted metal finishing companies.

Using this data NBC is establishing quantitative performance levels that distinguish Tier I and Tier II environmental performance levels in relation to

industry wide average performance levels. Data being collected and analyzed includes but is not limited to the following environmental performance indicators:

- Industrial wastewater effluent quality based on sampling and monitoring activities conducted by NBC's Environmental Monitoring and Data Analysis (EMDA) Program staff
- Hazardous waste generation based on hazardous waste manifests and Biennial Reports
- Water Consumption based on water bills and actual water meter readings
- Toxic chemical emissions based on TRI Reports
- Number of pH Effluent Limitation Violations issued by NBC
- Number of Reporting Requirement Violations issued by NBC

Based on the experiences of NBC's PT staff a list containing the names of 10 potential Tier I and 13 potential Tier II metal finishing companies has been compiled. Utilizing the environmental compliance data listed above, average performance levels for each Tier level will be calculated and measured against average industry wide performance levels. This analysis will help to designate a particular company's performance level and will establish quantitative performance goals for the metal finishing community and NBC to work towards.

Appendix III contains a summary of industrial wastewater quality data collected to date. Figure 1 below shows a seven year comparison of the average wastewater quality of the 13 Tier II performers, all NBC permitted metal finishers, and the 10 Tier I performers. Figure 2 shows the seven-year average performance of each of these groups.

Figure 1

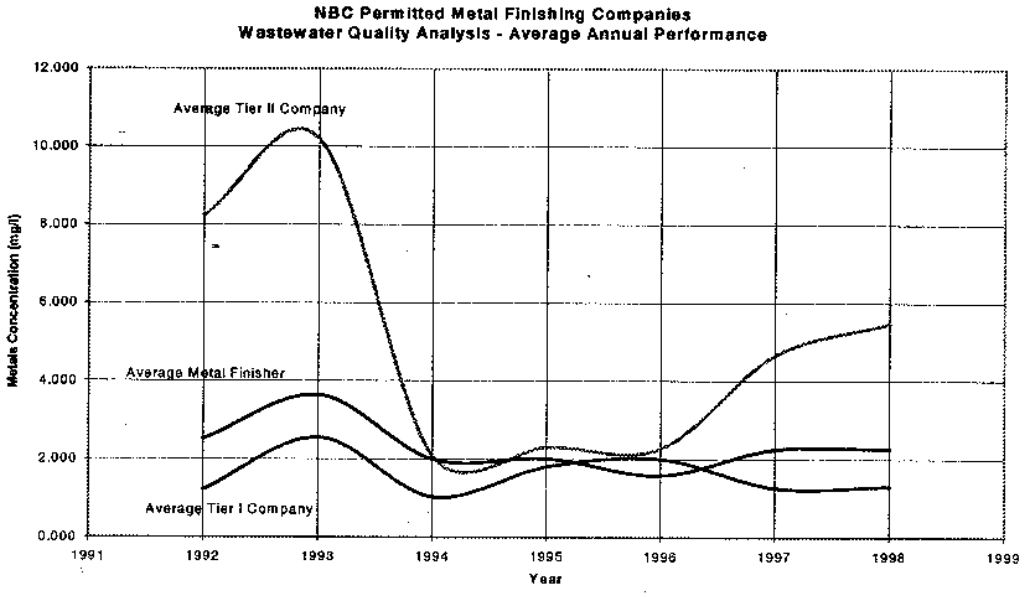
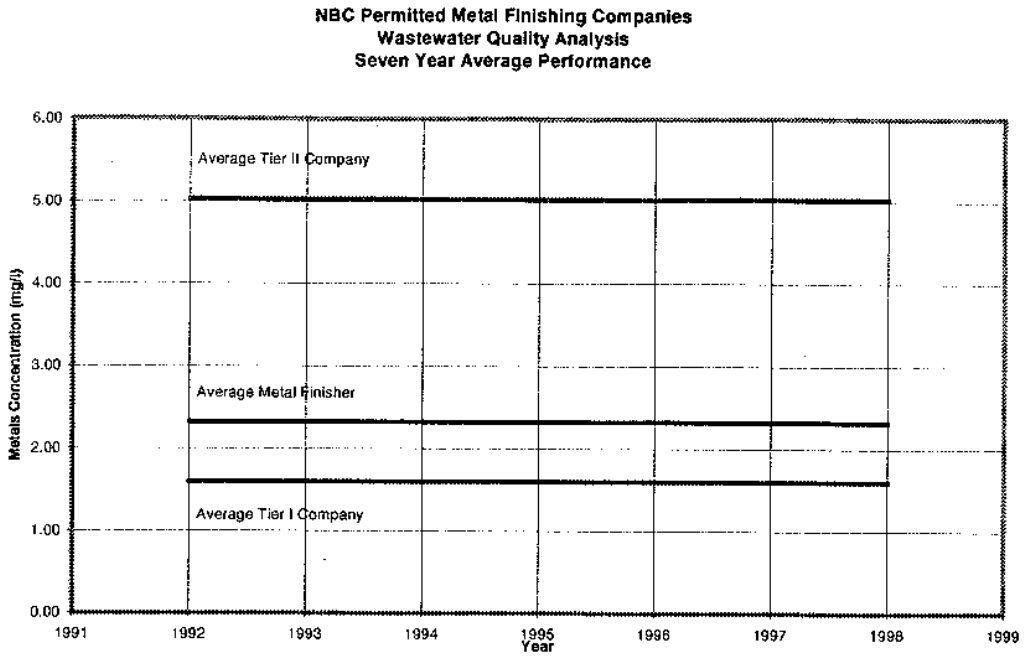


Figure 2



1. NBC Regulatory Flexibility

In order to be considered for acceptance into the NBC Metal Finishing 2000 Program an applicant must have a demonstrated environmental performance trend that, on average, surpasses the performance trend of the average NBC permitted metal finishing company based on 1992 through 1998 data. Referring to Figure 2 an applicant's average total metals concentration in their wastewater will have to be below that of the average metal finisher (2.25 mg/l) for the period 1992 through 1998. Similar average numerical performance standards will be developed for:

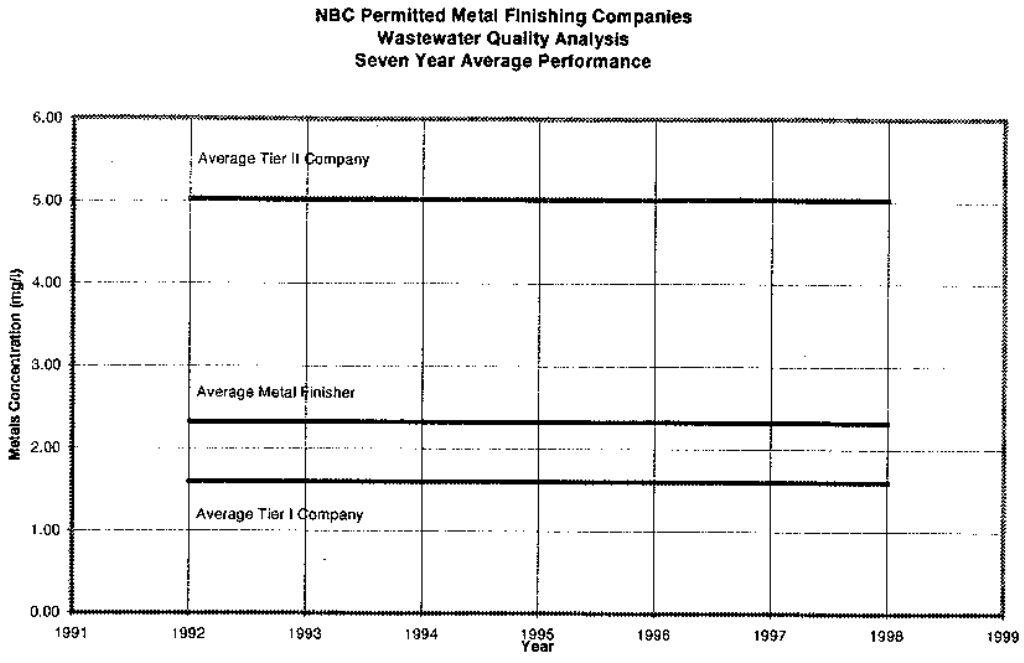
- Production normalized water usage,
- Production normalized F006 sludge generation, and
- Production normalized toxic chemical releases.

Failure to meet any one criteria would prevent a company from being classified as Tier I. Meeting these minimum performance criterion will allow a company to utilize regulatory flexibility options associated only with NBC requirements.

2. Project XL Regulatory Flexibility

Once accepted into the Metal Finishing 2000 Program the applicant, in order to receive relief from Project XL defined federal requirements will need to

Figure 2



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2. Project XL Regulatory Flexibility

Once accepted into the Metal Finishing 2000 Program the applicant, in order to receive relief from Project XL defined federal requirements will need to

demonstrate an even greater level of environmental performance. Required Project XL criteria for each regulatory flexibility benefit is as follows:

1) Elimination of regulatory inspections or replacement of annual regulatory inspections with pollution prevention audits:

   - Three years of NBC inspection reports demonstrating no violations of NBC record-keeping and reporting requirements[1].
   - Three years of NBC inspection reports demonstrating no violations of NBC operational requirements[2].
   - Three years of self-monitoring and NBC EMDA effluent data results demonstrating that, with the exception of pH, the company has not been is Significant Non-Compliance with any NBC discharge limit.
   - The company must have in place a NBC approved environmental management self-audit program.

2) Less self-monitoring of wastewater effluent:

   - Three years of NBC inspection reports demonstrating no major[3] violations of NBC record-keeping and reporting requirements.
   - Three years of NBC inspection reports demonstrating no major violations of NBC operational requirements.
   - Three years of self-monitoring and NBC EMDA effluent data results that do not exceed any effluent standard with the exception of pH.

3) Elimination of self-monitoring for constituents not used within a facility:

   - Three years of NBC inspection reports demonstrating no major violations of NBC record-keeping and reporting requirements.
   - Three years of NBC inspection reports demonstrating no major violations of NBC operational requirements.
   - Three years of self-monitoring and NBC EMDA effluent data that shows only detection limit levels of constituent of concern.

Definitions of Significant Non-Compliance Criteria can be found in Appendix III. Additional criteria may be developed as data on each environmental performance indicator is compiled and analyzed.

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[1] Examples of record-keeping and reporting requirements include timely submittals of all self-monitoring reports, maintenance of training records, timely notification of spills and/or accidents, etc.

[2] Examples of operational requirements include proper use and maintenance of all pretreatment and safety equipment, proper training of employees, proper response to spills and or accidents, etc.

[3] NBC PT staff will determine if a particular violation is considered major.

D. Metal Finishing 2000 Application Review

NBC Metal Finishing 2000 applications are reviewed at several levels prior to a company being classified as a Metal Finishing 2000 Tier I environmental performer. The application process includes a detailed site visit by NBC Pollution Prevention staff and a review of application information by NBC's PT staff, EPA's NEEATeam, and RIDEM's Office of Technical Assistance. Application approval by all review personnel must be obtained prior to a company being accepted into the Metal Finishing 2000 Program.

Upon acceptance into the NBC Metal Finishing 2000 Program selected companies will be afforded the opportunity to utilize regulatory flexibility options made available through Project XL. For each metal finishing company recognized as a Tier I environmental performer one Tier II metal finishing company will be selected to receive additional regulatory compliance oversight and pollution prevention assistance. Selection of Tier II companies will be based on a review of environmental performance data (any company that does not perform as well as an average metal finisher is a potential candidate) and performance assessments made by NBC's PT staff. Efforts put forth by NBC's PT and P2 staff to improve the performance level of each Tier II company will be documented and the resulting changes in environmental performance will be measured.

E. Specific Project Elements

Through this Project XL, NBC seeks to obtain the authority to be flexible with respect to the enforcement of several federal industrial pretreatment discharge regulatory requirements. NBC believes that by establishing "partnerships" with industry it will be able to work together more efficiently and effectively to find and utilize new regulatory and assistance oriented approaches that can both foster the use of innovative environmental pollution prevention practices and strengthen Rhode Island's industrial base and economy.

This Project XL seeks to identify and address problems associated with strict adherence to some very specific environmental regulatory requirements. While regulations have helped bring the industrial community to current levels of environmental performance, they may be now hampering further improvements. In some cases the regulatory requirements addressed in this project proposal may be putting excessive burdens upon industry and the various environmental regulatory agencies charged with their enforcement.

Benefits of addressing these specific regulatory issues through this Project XL include:

1) Less regulatory oversight effort will be expended on companies that have good to exceptional environmental records based on the performance criteria included in the Metal Finishing 2000 Program application which includes overall environmental compliance. This time and effort can then be used to focus attention on problematic companies and industrial sectors. Time once used to inspect and monitor companies that have few to no environmental problems will be used to gain a better understanding and promote the use of pollution prevention and source reduction.

2) Increased use of pollution prevention and source reduction practices and procedures. Rewards associated with these programs, such as: lower operating costs, an improved relationship with the local community, improved regulatory compliance, and improved employee relations will encourage companies to achieve and maintain superior levels of environmental performance.

3) Use of more innovative environmental management practices, procedures, and technologies. With the threat of regulatory enforcement minimized, companies will be more willing to try new innovative waste reduction methods.

4) Improved communication between NBC and the regulated industrial community. By addressing environmental problems on a "partnership" level, industry and regulatory staff will be able to communicate each other's concerns and ideas in a more clear-cut and efficient manner.

Implementation of Project XL regulatory flexibility will require the performance of several tasks (NBC Voluntary Commitments) on the part of the NBC and should result in marked and measurable environmental improvements (Projected Outcomes – NBC Corporate Aspirations).

1. NBC Voluntary Commitments

As part of this Project XL NBC will commit to the following tasks and/or activities that go beyond existing day-to-day PT and Pollution Prevention Program commitments and tasks:

1) Complete data analysis allowing for Tier I and Tier II identification and classification as discussed in Section II A and establish environmental performance criteria for which varying levels of regulatory flexibility will be granted.

2) Perform whole facility Pollution Prevention Audits of 10 individual Tier I Metal Finishing companies over a two-year period. These Pollution

Prevention Audits may initially require additional work and effort on the part of NBC's Pollution Prevention and PT Program staff, however, utilizing the regulatory flexibility items outlined in this proposal effort associated with regulatory oversight of these select Tier I companies will decrease.

3) Perform 10 combined pollution prevention/environmental compliance audits of 10 individual Tier II metal finishing companies. Tier II companies will be selected through a review of historical environmental performance data and through recommendations made NBC's PT staff. These combined pollution prevention/environmental compliance audits may take the place of one annually required regulatory inspection. Once again initially work and effort will increase on the part of NBC staff, however, the improved environmental performance of these companies will reduce future work and effort on the part of NBC and will eliminate both existing and potential environmental problems.

4) In order to demonstrate and document improved environmental performance of Tier II companies NBC will increase the effluent sampling collection and analysis of each Tier II company involved with this study by two additional sampling event per year. NBC sampling of Tier I companies will continue to be collected on a twice per year basis.

2. Projected Outcomes - NBC Corporate Aspirations

By realigning PT regulatory and Pollution Prevention technical assistance efforts toward specifically identified Tier II metal finishing companies NBC expects to demonstrate measurable and cost effective environmental improvements. Should this approach prove successful NBC would work toward extending appropriate regulatory flexibility options to qualifying companies within other industrial sectors.

Based on a review of environmental performance data collected and analyzed to date the NBC anticipates improving the environmental performance levels of 10 Tier II metal finishing companies by:

1) Decreasing their average process water usage by 25 %.

2) Decreasing their average hazardous waste (F006) generation by 25 %.

3) Decreasing the average concentration of total metals in their effluent by 25 %.

4) Decreasing the number of NBC enforcement actions taken against the 10 participating Tier II companies by 75 %.

III. PROJECT XL CRITERIA

A. Superior Environmental Performance

Through this Project XL NBC seeks to achieve superior environmental performance by the industrial community as a whole. This superior environmental performance will be demonstrated in the form of:

- More companies utilizing pollution prevention in place of end-of-pipe treatment,
- Less production water usage,
- Lower TRI emissions,
- Less hazardous waste generation by participating companies,
- Fewer overall industrial user violations,
- More companies participating in NBC's Pollution Prevention Technical assistance efforts and programs,
- Higher quality wastewater discharges, and
- A more productive industrial community.

Quantitative targets associated with some of these goals can be found in Section II E-2 Project Outcomes – NBC Corporate Aspirations.

1. Project XL Tier 1 - Environmental Performance without Project XL

The NBC has an exceptional environmental track record with respect to both its compliance with EPA and RIDEM permit requirements and with the control and reduction of industrial pollutants to its treatment plants. Efforts and improvements in the area of industrial wastewater control and pollution prevention will continue in the absence of the Project XL, however, the restrictions imposed by certain regulatory requirements may not allow for improvements to be made in certain areas.

In the absence of Project XL elements NBC's Metal Finishing 2000 Program will continue making use of the limited regulatory flexibility available through NBC's existing regulatory authority. PT staff will participate by granting Metal Finishing 2000 companies flexibility with certain reporting requirements. A significant amount of their time and effort, however, will continue to be spent conducting annual regulatory inspections and regularly monitoring each Metal Finishing 2000 company. Without the regulatory flexibility offered through Project XL NBC's attempt to use incentives to encourage environmental improvements will be severely limited.

2. Project XL Tier 2 - Environmental Performance if Project XL is Implemented

Utilizing the regulatory flexibility sought through this Project XL, NBC will fully test the ability of metal finishing companies to cost effectively improve upon their current environmental performance levels using pollution prevention and source reduction practices and procedures. Project XL incentives reward superior environmental performance and encourage improved performance by historically poor performing companies. Changes to the existing regulatory approach include:

1) Monitoring Requirements

- Allow for reduced self-monitoring requirements for participating Metal Finishing 2000 Tier I SIUs (40 CFR 403.8 (f) (2) (v)). Less time and money spent on monitoring by companies with exceptional environmental performance levels will allow these companies to pursue other environmental goals.

- Eliminate certain categorical monitoring requirements based on a company's non-use of such materials (40 CFR 403.12 (e)): For instance, metal finishing companies are required to monitor for cyanide whether they use cyanide based products or not. Eliminating this requirement for companies that meet Metal Finishing 2000 and Project XL participation criteria will allow for expenses associated with this requirement to be used on activities with more productive environmental gains.

2) Permit and Inspection Requirements

- Modify the definition of SIU's (40 CFR 403.3 (t)) to exclude the 10 selected metal finishing companies that meet both Metal Finishing 2000 and Project XL performance criteria. This will allow NBC to reduce or eliminate standard regulatory inspections of these companies. Time and effort saved by NBC regulatory personnel conducting fewer inspections of companies that meet appropriate Metal Finishing 2000 and Project XL criteria will allow for more focused attention on pollution prevention efforts and monitoring and regulating more problematic companies. Using the flexibility options offered through this Project XL and as part to the Metal Finishing 2000 Program, NBC Pollution Prevention staff may conduct pollution prevention/compliance audits in place of regulatory inspections.

The regulatory requirements from which NBC seeks flexibility do not promote cross media transfer of pollutants. Flexibility is focused on promoting pollution prevention and source reduction, not alternative end-of-pipe treatment and disposal. Regulatory flexibility will be used on a limited basis within the context

of the EPA grant funded Metal Finishing 2000 Program. Each company involved will continue to be monitored by NBC, and while the number of formal inspections may be reduced as part of the flexibility projects, the presence of NBC at each company will initially increase through technical assistance activities.

Anticipated performance improvements are outlined in Section II-E-2 of this proposal. The benefits of this approach and the success achieved by each participating company will be measured in part through tracking and documenting various environmental performance indicators. Environmental improvements will include:

i. Improved environmental wastewater quality: NBC tracks all industrial self monitoring and NBC compliance monitoring information on a computer database. The success of this Project XL will result in marked improvements in wastewater quality by participating companies. Comparison will be made between a company's baseline wastewater quality, just prior to program participation, and that achieved with the aid of pollution prevention efforts made as part of this Project XL.

ii. Improved house-keeping: NBC and RIDEM regulatory inspectors will detect noticed improvements in participating companies environmental program organization and general facility house-keeping practices. This will be evidenced by fewer violations being noted during inspections and more positive comments being made on inspections reports.

iii. More Significant Industrial Users (SIUs) achieving 100% full compliance records: NBC annually recognizes all SIUs that have achieved full compliance with all NBC regulatory requirements during the previous calendar year. Each year NBC awards these companies with a plaque and publishes their names and accomplishments in the Providence Journal and Providence Business News. The success of this program will result in more companies being recognized for achieving this level of compliance.

3. Comparison of Project XL Tiers 1 and 2

NBC will continue to be a leader in the area of industrial pretreatment and pollution prevention with or without the benefits afforded through Project XL. Improvements will continue to be made with respect to establishing better working relationships with the industrial community and to further incorporate pollution prevention into daily industrial pretreatment activities.

Without Project XL the benefits to both NBC and participating companies with respect to the Metal Finishing 2000 program will remain somewhat limited. NBC

will continue to spend a good deal of time meeting federally mandated inspection and reporting criteria that could be substantially reduced through this Project XL. Industry will continue to spend money and manpower conducting regulatory compliance activities that result in little to possibly no overall environmental benefit. NBC expects to see a marked increase in the involvement and interest by the industrial community in the Metal Finishing 2000 Program by incorporating the extended flexibility options offered by Project XL. As of February 1999 seven companies have submitted Metal Finishing 2000 applications. Upon notifying the industrial community of the extended flexibility options offered through Project XL, NBC expects to see a marked increase in the number of companies seeking to achieve the environmental performance level required to participate in this program.

Transferability of successful program elements to other Publicly Owned Treatment Works (POTWs) will be limited due to the fact that only NBC specific regulatory issues will be addressed as part of the Metal Finishing 2000 Program in the absence of Project XL. Many of these regulatory flexibility options may be unique to NBC and not directly transferable to other POTW's and PT Programs. By addressing flexibility with federal requirements, the results of this program could be readily utilized on a national level. Tables 1 and 2 below compare anticipated project activities associated with and without Project XL flexibility:

Table 1
Project Comparison Tier I Companies

	Goals and Activities With Project XL	**Goals and Activities Without Project XL**
Tier I Companies (10)		
# of Annual Inspections	0	20
EMDA Compliance Sampling Events	20	20
# of Annual Company Self-Audits Conducted	10	0
# Annual Pollution Prevention Audits	10	0*

Table 2
Project Comparison Tier II Companies

	Goals and Activities With Project XL	Goals and Activities Without Project XL
Tier II Companies (10)		
# of Annual Inspections	20	20
EMDA Compliance Sampling Events	40	20
# Annual Pollution Prevention Audits	10	0*
% Decrease in Process Water Usage	25%	N/A
% Decrease in Total Metal Concentration in Wastewater	25%	N/A
% Decrease in F006 Waste Generation	25%	N/A
% Decrease in the Number of Enforcement Actions	75%	N/A

* Currently pollution prevention technical assistance is offered on a request only basis. As part of the NBC Metal Finishing 2000 Program and Project XL all participating companies will have pollution prevention audits performed by the staff of NBC's Pollution Prevention Program.

B. Cost Savings and Paperwork Reduction

1. Less Sampling and Self Monitoring:

Self monitoring costs vary depending upon the parameters being analyzed. Savings associated with the elimination of one metal analysis can be as much as $70 per sampling. Savings from the elimination of cyanide analysis can be as much as $40 per sample. The cost savings realized from eliminating the need to test for constituents not present in a wastewater stream can be used to increase the frequency of tests made on problematic constituents, employee training, and/or pollution prevention initiatives. The greatest benefits, however, may be those associated with taking a first step toward using common sense regulations: a better working relationship with the industrial community, a demonstrated focus on real environmental concerns, and the development of a better working partnership between NBC and industry to solve environmental problems.

2. Fewer Regulatory Inspections:

As part of this Project XL, NBC proposes reducing the number of regulatory inspections performed of top environmental performing companies and replacing some or all of these inspections with pollution prevention audits. The replacement of regulatory inspections with technical assistance orientated pollution prevention audits is expected to result in the elimination of many reoccurring environmental problems and thus less time spent addressing the same problems over and over again.

Reduction in the number of regulatory inspections being conducted will save a great deal of time and effort on the part of both NBC and each participating company. The dollar value associated with implementing this regulatory flexibility option, however, is hard to quantify due to the site specific nature associated with the time and effort required of both parties. Information on the savings and benefits realized by both NBC and each participating company will be documented on a site-specific basis as part of Metal Finishing 2000 Program activities.

3. Paper Work Reduction:

Permit writing, inspections report documentation, and compliance reporting will all be simplified and minimized as part to this Project XL proposal. Cost and time saving realized through implementation of each flexibility option will be studied and documented as part of Metal Finishing 2000 Program activities.

C. Stake-Holder Involvement

The NBC has well established relationships and open lines of communication with the various organizations, community groups, and other stakeholders affected by NBC activities. The NBC maintain these lines of communication through its Citizens Advisory Committee, attending trade association meetings, holding workgroups and seminars, and regularly inviting stakeholders to attend workgroup meetings on the various NBC initiatives.

In order to obtain the most from this project the NBC will work in partnership with the Rhode Island Department of Environmental Management (RIDEM), the University of Rhode Island's' Center for Pollution Prevention, the Rhode Island Council of Electroplaters (RICE), Save the Bay, and the Rhode Island Economic Development Corporation. Contacts for each of these organizations are as follows:

Rhode Island Council of Electroplaters
1030 Ten Rod Road

Exeter, RI 02822
401/295-8600
Ms. Judith Hanratty

University of Rhode Island-Department of Chemical Engineering
Crawford Hall
Kingston, RI 02908
Dr. Stanley Barnett
401/874-2323

Rhode Island Department of Environmental Management
235 Promenade Street
Providence, RI 02908
401/277-3434
Mr. Richard Enander

Save the Bay
434 Smith Street
Providence, RI 02908
401/272-3540
Mr. Curt Spalding

Rhode Island Economic Development Corporation
One West Exchange Street
Providence, RI 02909
401/222-2601
Mr. James Saletnik

In order to assure that the above agencies and organizations understand and support this project a letter outlining project goals and objectives will be sent to each contact and each organization will be invited to participate in the various aspects of program implementation.

D. Innovation or Pollution Prevention

As of December of 1998 NBC's Pollution Prevention Program has interacted with more than 250 individual companies on a variety of pollution prevention and regulatory improvement projects. Pollution Prevention staff utilize cost effective common sense approaches to solving industrial waste management problems focusing on source elimination and reduction. Some results of this work include:

2) Zero Discharge of an Industrial Adhesive Manufacturer's Wastewater.

3) Zero Discharge of a Dispersed Pigment Manufacturer's Wastewater.

4) Extensive Use of Ion Exchange as a Water Recycling Tool Throughout the Metal Finishing Community.

5) Extensive Use of Membrane Filtration Throughout the Industrial Community as a Water Recycling Tool.

6) Quick Low Cost Correction of Many pH Monitoring and Control System Problems Throughout the Industrial Community.

7) Improved Waste Management Practices by the Industrial Community.

The experience and expertise of NBC's Pollution Prevention and PT staff will be heavily utilized as part of the Metal Finishing 2000 Program. NBC is confident that more and more companies will begin to fully utilize pollution prevention techniques and technologies promoted as a result of the regulatory flexibility outlined in this Project XL. Utilizing information collected as part of the Metal Finishing 2000 application process, NBC will establish a baseline pollution prevention performance level for each participating company. This baseline can then be compared to each company's progress at varying stages of program participation.

E. Transferability

The proposed Project XL has potentially far reaching affects beyond that of municipal wastewater treatment operations. The regulatory flexibility requested through this Project XL will directly affect how, and to what extent, the industrial community meets its environmental responsibilities. The goal of this program is to ease the burden on industry while working to achieve "beyond compliance" environmental performance. Should this approach prove successful the wide variety of industrial operations located within the NBC serving district will give ample experiences to allow for transferability to most industrialized areas.

F. Feasibility

The NBC has in place a Pollution Prevention Program with staff dedicated to providing technical assistance to the industrial community. In addition to the NBC funds committed to this program, NBC has been awarded three matching fund grants through the EPA PPIS grant program to initiate a Metal Finishing 2000 Program, a Metal Finishing Guidance Manual education program and a CLEAN-P2 Regulatory Relief Program. Total grant funds are in excess of one hundred and forty thousand ($140,000) dollars.

NBC is committed to the goals of these programs and projects and participates on a national level with respect to their implementation. NBC's Director for Planning, Policy, and Regulation is member of the National Common Sense Initiative Metal Finishing Subcommittee and along with the NBC's Executive Director and Board of Commissioners is a strong proponent of pollution prevention solutions to environmental problems.

G. Evaluation, Monitoring, and Accountability

Through the Metal Finishing 2000 Program NBC has committed to working with at least six Tier I metal finishing companies on regulatory flexibility projects. These commitments at a minimum will extend to Project XL. As mentioned in section II-A of this proposal a shifting of NBC workforce efforts from Tier I company oversight to Tier II compliance and assistance will occur as part of implementing the requested regulatory flexibility options.

If the six field engineers on the PT staff each begin working with one metal finishing company within the context of the Metal Finishing 2000 Program, as much as a 5% of their time and effort could be redirected to Tier II compliance and assistance activities. The result will be overall environmental improvement by Tier II companies. As more companies move up to Tier I performance levels, even more time and effort can be spent on problematic environmental issues.

In order to measure and demonstrate environmental improvements over existing environmental performance levels NBC will utilize, in addition to data on environmental performance indicators mentioned above, environmental performance data obtained through:

1) NBC's Industrial Compliance Databases: NBC's PT staff maintain detailed records of each SIU's compliance status consisting 11 individual compliance criteria elements. This information is reviewed each year as part of NBC's PT Program annual report compilation and NBC's Environmental Merit Awards program. Improvements made in the reduction of noted violations will be carefully documented as part of this Project XL.

2) RIDEM's Regulatory Compliance Files: As part of the Metal Finishing 2000 and Program participating companies will have to compile a three year environmental compliance history. This baseline information, which will be reviewed by both RIDEM and EPA New England, will be used to measure overall environmental improvements.

3) Pollution Prevention Technical Assistance Site Visits: NBC's Pollution Prevention staff conduct regular site visits of industrial facilities throughout the NBC serving district. Information on pollution prevention activities of

each participating company will be carefully documented at the initiation of Project XL and progress with respect to the expansion of pollution prevention efforts and activities will be noted and documented.

4) The Strategic Goals Program Company Profile Database: The Strategic Goals Program, a product of the Common Sense Initiative, sets voluntary environmental goals for participating metal finishing companies. Current productivity information, waste generation data, and water use information is compiled by each participating company and is maintained on a central database accessible through the internet. This information will be used to measure advancements made by metal finishing companies participating in NBC's Metal Finishing 2000 Program. The University of Rhode Island (URI) has applied for an EPA grant to initiate a program that will train and make available graduate students to help compile this data. NBC will work with URI to assure that collected data benefits the needs of both the Strategic Goals Program and Project XL.

H. Shifting of Risk Burden

The goal of this Project XL is to test better ways of implementing industrial wastewater pollution prevention and regulatory enforcement programs resulting in improved environmental and worker health and safety conditions. At no time will the use of regulatory flexibility allow for a deterioration of base line environmental performance levels or worker safety and health conditions.

IV. REQUESTED FLEXIBILITY

The Metal Finishing 2000 Program, as currently designed, tests the ability of NBC to use its existing regulatory and enforcement discretion to promote the use of pollution prevention and common sense regulations. Under Project XL, NBC will expand upon available regulatory flexible options offered as part of the Metal Finishing 2000 program to Tier I environmental performers and will substitute pollution prevention audits in place of some regulatory inspections, in order assist Tier II companies better utilize pollution prevention approaches. Specific regulatory modifications will include:

Requested Regulatory Flexibility	Federal Regulation
1. Modify the definition of SIU to exclude metal finishing companies designated as Tier I through NBC's Metal Finishing 2000 Program and that meet defined Project XL performance criteria. Properly modifying this definition will allow NBC to be flexibility with inspections, reporting, and effluent monitoring requirements.	40 CFR 403.3 (t)
2. Eliminate regulatory inspections of metal finishing companies that meet both Metal Finishing 2000 Tier I and Project XL criteria. In place of inspections Regulatory requirements will be verified through the submittal of written assurance by company representatives that the company is in compliance with all applicable requirements, pollution prevention audits, and possibly scheduled regulatory visits. Each company that utilizes this flexibility item will need to have an NBC approved self-audit program in place.	40 CFR 403.8 (f) (2) (v)
3. Eliminate self-monitoring requirements of certain constituents by metal finishing companies designated as Tier I through NBC's Metal Finishing 2000 Program based on historical non-use of any materials containing such constituents. Eliminating this requirement for companies that meet Metal Finishing 2000 and Project XL criteria will allow for expenses associated with this requirement to be used on activities with more productive environmental gains.	40 CFR 403.12 (e)

The Metal Finishing 2000 Program requires participation by both NBC Pollution Prevention and PT regulatory staff. Time made available by conducting fewer regulatory inspections of Tier I companies will be used working with companies in an assistance oriented fashion and focusing regulatory attention on problematic companies.

V. COMPLIANCE AND ENFORCEMENT PROFILE

1. Any violations of environmental regulations or permits within the last five years.

Operating data for the years 1994-1998 for the Field's Point and Bucklin Point Wastewater Treatment Facilities (WWTFs) is provided in Appendix IV. As noted

in these summary sheets, the NBC has experienced some violations at its WWTFs during the last five years. The most notable violations have been for fecal coliform, total residual chlorine and settable solids. These violations are being addressed through the construction and upgrading of the treatment facilities, primarily through the construction of de-chlorination facilities.

The summary sheets in Appendix IV provide information on the parameter regulated, the permit limit, and an indication, through the use of shading, of violations (monthly, maximum or daily) or other unusual levels of a parameter (such as laboratory or sampling error).

2. Any on-going enforcement action or outstanding compliance issues

None, other than existing consent agreements (see 3 below).

3. Any obligations under an administrative order or judicial decree

In 1992, the NBC and the Rhode Island Department of Environmental Management entered into a Consent Agreement (RIA-029) regarding the issuance of a new RIPDES permit (RI0100315). This consent agreement essentially modified the NBC's RIPDES permit discharge limits for the Field's Point WWTF as well as required the NBC to conduct various studies. No compliance issues with regard to this consent agreement exist.

Similarly, a Consent Agreement exist for the Bucklin Point WWTF (Permit RI0100072). No compliance issues with regard to this consent agreement exist.

In June of 1994, the EPA filed a Civil Administrative Complaint against the NBC for alleged violations of the Clean Air Act at the NBC's Field's Point facility. The alleged violations included exceeding particulate matter and opacity standards from the Field's Point incinerator. In April of 1996 NBC and EPA entered into a Consent Agreement regarding this matter. All conditions of that Consent Agreement have been fulfilled and no new violations have since occurred.

On January 23, 1995 the RIDEM issued a Notice of Violation and Order and Penalty to NBC with respect to violations of RIDEM Air Pollution Control Regulation No. 9: "Air Pollution Control Permits". In July of 1995 NBC entered into a Consent Agreement with RIDEM settling all matters regarding the January 23, 1995 NOVAP. All conditions of that Consent Agreement have been fulfilled and new violations have since occurred.

4. Any litigation against EPA or the state which your company, community or facility is party to.

None.

5. Any relevant civil lawsuits pending against your company or facility

No relevant lawsuits

VI. SCHEDULE INFORMATION

As mentioned previously in this proposal the requested regulatory flexibility will be utilized in the context of NBC's Metal Finishing 2000 Program. Implementation of the requested flexibility items into these programs can take place immediately upon EPA, and if necessary, RIDEM approval.

The completion date for the Metal Finishing 2000 grant funded project is scheduled for September, 30 2000, however if proved successful, this program will continue. Some project milestones have already been achieved. The Metal Finishing 2000 Program has a developed application package that has been mailed out all metal finishing companies serviced by the NBC and currently six potential participants have submitted applications. As of July 1999 one application has been processed and that company is being recognized as a Tier I Metal Finisher. Table 3 contains a time line of proposed Project XL activities.

Table 3
Project XL Activity Timeline

Month:	October 99	November 99	December 99	January 00	February 00	March 00	April 00	May 00	June 00	July 00	August 00	September 00	October 00	November 00	December 00	January 01	February 01	March 01	April 01	May 01	June 01	July 01	August 01	September 01
Task																								
Collect Production Data																								
Complete Data Analysis																								
Identify Tier I Companies																								
Complete Tier I P2 Audits																								
Complete and Process Metal Finishing Applications																								
Initiate Use of Project XL Regulatory Flexibility																								
Identify Tier II Companies																								
Complete Tier II Regulatry/P2 Audits																								
Increase Monitoring and Oversight of Tier II companies																								
Study Measure and Document Results																								

APPENDIX I

Narragansett Bay Commission Awards & Accomplishments

1998

- Narragansett Bay Commission Pretreatment Program named "best in the country" by US EPA and winner of its National Pretreatment Excellence Award in the Large Significant Industrial Users category. This award honors those organizations that are demonstrating their commitment to the protection and improvement of the nation's waters through their operation and exemplary pretreatment programs.
- Narragansett Bay Commission Chairman receives Association of Metropolitan Sewerage Agencies National Environmental Achievement Award for excellence in state public service.
- Narragansett Bay Commission receives Association of Metropolitan Sewerage Agencies' Public Information & Education Award for documentary that chronicles the history of Rhode Island's largest wastewater treatment facilities and the important role they play in our community.
- The Bucklin Point facility honored by the Rhode Island Department of Environmental Management as Rhode Island's second best wastewater treatment facility in its category.

1997

- Narragansett Bay Commission and its Field's Point facility named one of four national success stories of the Clean Water Act by the Water Environment Federation
- Narragansett Bay Commission and its Field's Point facility named an environmental success story and finalist in Renew America's annual national award for environmental sustainability
- Narragansett Bay Commission and its stakeholder workgroup reach consensus on a comprehensive plan to control combined sewer overflows

1996

- Narragansett Bay Commission receives Association of Metropolitan Sewerage Agencies' Public Service Award for the establishment of a Wildlife Management Program at the Bucklin Point facility
- Narragansett Bay Commission and its Field's Point facility named an "environmental success story" and finalist in Renew America's annual national award for environmental sustainability

1995

- The Field's Point facility is hailed the BEST operated and maintained large secondary wastewater treatment facility in the country by the US Environmental Protection Agency and winner of National Excellence Award
- The Field's Point facility is recognized as the BEST operated and maintained large secondary wastewater treatment facility in New England by the US Environmental Protection Agency, Region I
- Narragansett Bay Commission receives Association of Metropolitan Sewerage Agencies' Public Service Award for the establishment and furtherance of the Environmental Enforcement Fund (EEF) program
- Narragansett Bay Commission receives EPA's Environmental Merit Award for EEF program
- Narragansett Bay Commission receives Post, Buckley, Schuh, & Jernigan Project Excellence Award

1994

- Laboratories become state licensed and laboratory personnel registered Environmental Laboratory Technologies by the National Registry of Environmental Professionals
- Field's Point sludge incinerator tested and issued US EPA's first sludge incinerator operating permit in the country since the passage of its 503 sludge regulations in 1993
- Narragansett Bay Commission and its Field's Point facility named an "environmental success story" and finalist in Renew America's national award for environmental sustainability

1993

- Narragansett Bay Commission receives national award from the Professional Engineers in Private Practice for its professional services selection system
- Narragansett Bay Commission sets own record for pollution removal at Field's Point-- 84% reduction since 1982
- The Field's Point facility receives Narragansett Water Pollution Control Association's Maguire Group Award for Most Efficient Large Wastewater Treatment Facility in state

1993, 1989, 1988 & 1984

- Field's Point Wastewater Treatment Facility receives Narragansett Water Pollution Control Association's Whitman & Howard Award for Most Improved Large Wastewater Treatment Facility in Rhode Island

1993, 1992, 1991, 1990 & 1989

- AMSA Silver Award for operation of the Field's Point Wastewater Treatment Facility

1992, 1991, 1990, 1989 & 1988

- Field's Point facility receives Save The Bay's highest designation for treatment performance

1992

- The Narragansett Bay Commission acquires the Bucklin Point Wastewater Treatment Facility in East Providence
- The Bucklin Point Wastewater Treatment Facility receives Narragansett Water Pollution Control Association's Whitman & Howard Award for Most Improved Large facility in Rhode Island
- Applied for and received $300,000 US EPA grant for the establishment of a Pollution Prevention Program
- American Consulting Engineer's Council of New England Award for the design of the Ernest Street Pumping Station upgrade

1990

- American Consulting Engineers Council of New England's Excellence Award for the Field's Point design
- US EPA National Excellence Award for Pretreatment Program for Plants Larger than 20 mgd

1987

- Save The Bay Award to Executive Director for Outstanding Commitment to Bay cleanup

1986

- Consulting Engineer's Council of New Jersey Engineering Excellence Award for the Allens Avenue Interceptor Repair

1985

- US EPA Laboratory Certification
- State of Rhode Island Governor's Triple E Award for Energy Efficient Operations Priority

Other

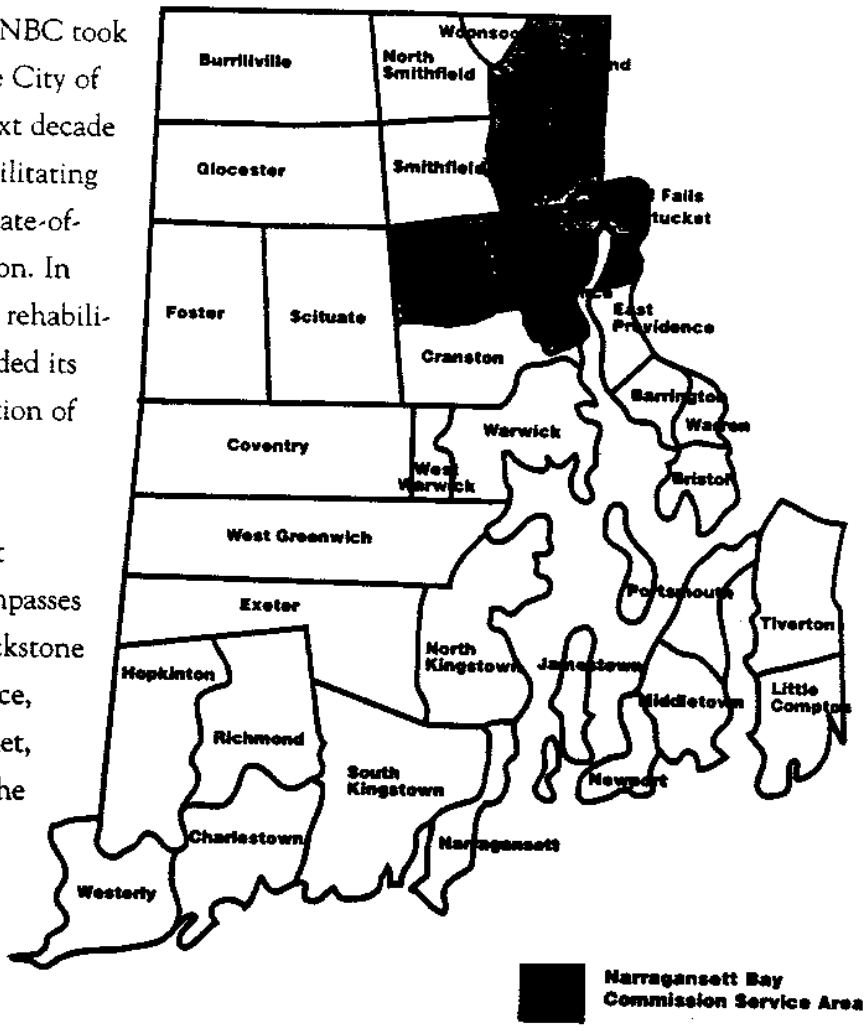
- Applied for and received over $80 million in state and Federal grants

APPENDIX II

The Narragansett Bay Commission

The Narragansett Bay Commission (NBC) was created by the Rhode Island General Assembly in 1980 to improve the water quality of Narragansett Bay and its tributaries. At that time, the Field's Point Wastewater Treatment Facility in Providence was responsible for allowing nearly 65 million gallons of untreated or partially treated sewage to flow into Rhode Island's waters everyday, jeopardizing the state's and region's environmental and economic well-being. Once bountiful shellfishing beds were closed due to pollution, and travelers of the Bay reported to have seen grease deposits the size of soccer balls floating on the water surface.

To combat these conditions, the NBC took over the failing facility from the City of Providence in 1982 and spent the next decade and over ninety million dollars rehabilitating and transforming the facility into a state-of-the-art, nationally recognized operation. In 1992, when the Field's Point facility's rehabilitation was complete, the NBC expanded its responsibilities to include the acquisition of the former Blackstone Valley District Commission and its Bucklin Point Wastewater Treatment Facility in East Providence. NBC's service area encompasses the metropolitan Providence and Blackstone Valley areas, which includes Providence, North Providence, Johnston, Pawtucket, Central Falls, Cumberland, Lincoln, the northern portion of East Providence and small sections of Cranston and Smithfield. Eighty-nine miles of large underground pipes that collect wastewater from approximately 360,000 persons and 8,000 businesses, 83 combined sewer overflows, 32 tidegate structures and 8 pump stations make up the NBC's wastewater collection system.



The NBC is governed by a 23-member Board of Commissioners which represent the municipalities in the District, as well as four legislative and ten gubernatorial appointments. Empowered with responsibilities ranging from ensuring that the NBC operates with a balanced budget to approving contracts for improving and sustaining the treatment facilities and wastewater collection system, the Board meets monthly to decide the direction of the NBC .

Introduction to Narragansett Bay

With over 400 miles of coastline, it's difficult to imagine any Rhode Islander left unaffected by the Bay's benefits. And not just the aesthetic joys and recreational enrichment it provides, but the influx of revenues that impact the fiscal well-being of our state.

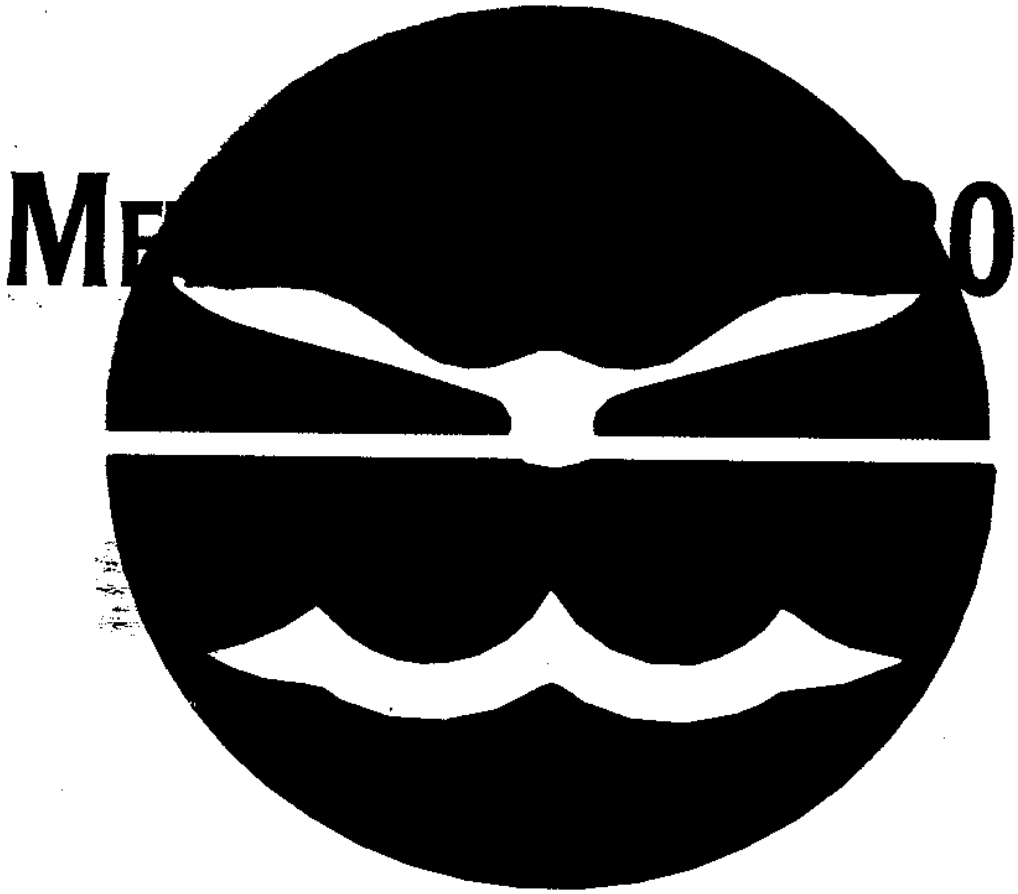
In Narragansett Bay, fresh water from the land mixes with sea water to create a highly productive ecosystem known as an estuary. This semi-enclosed body of water has free connection with the open sea, and within it sea water is diluted by fresh water derived from land drainage. At the base of the food chain is plankton. In Narragansett Bay, this is the most important primary producer. The next highest order organisms living on and in the bottom of the Bay include clams, quahogs, crabs, lobsters, snails, shrimp, and sponges. Vast numbers of fish species migrate in and out of the Bay according to seasonal patterns. Over 350 species of birds have been spotted over or near Narragansett Bay. Only 40 or so are yearly residents, while many others rest here during the summer or pass through on their way north and south.

Prior to the Civil War, southern aristocrats flocked to Newport to escape the heat and malaria of the south. Later in that century, the "city by the sea" became an internationally known playground for the wealthy, and the Bay too evolved into a resort popular with every level of society. Jamestown was where one went for seclusion. Wickford and the casino at Narragansett Pier lured a sportier crowd. The less flamboyant sought out the many coves and beaches to spend a summer holiday or day off from work. Spectacular amusement parks, shore dinner restaurants, and grand hotels sparkled their reflections across the moonlit Bay. Cottages dotted the shoreline. And linking it all was a fleet of excursion boats and scheduled passenger service from Boston and New York. In more recent times the people of the Bay are still the rich and the less rich, each group reaping a harvest of delight and relaxation. Whether it be pleasure boating, sportfishing or simply lounging on the weathered porch of a Bay bungalow. Reaping a quite different harvest are commercial fishermen who carry on a more business-like relationship with Narragansett Bay and its inhabitants. Their long tradition of nets and rakes has firmly established Rhode Island as a treasured seafood resource.

As early as the middle 1800's, Providence city engineers recognized that a system of sewage and storm water collection was essential to the well being of an expanding population. Borrowing technology from Europe, workers built Rhode Island's first sewerage network to collect waste before entering surrounding rivers. And by 1900, Rhode Island had a major wastewater treatment facility at Field's Point. That seemed like a viable solution for a long time. But developing technology over the last four or five decades began to tell a grimmer story. A closer, more clinical look revealed just how disruptive the population and industrial growth had been to the Bay. But rather than wring hands in despair, many people took up the challenge. The word had to be spread to local, state and federal legislators, and to the voters. Some determined individuals rallied together under one banner: **the Narragansett Bay Commission**.

APPENDIX III

NARRAGANSETT BAY COMMISSION
PARTICIPATION APPLICATION



1997 Application: Program Description

The Narragansett Bay Commission (NBC), in partnership with the Rhode Island Department of Environmental Management (RIDEM), EPA Region I New England (EPA-NE), Save the Bay, and the Rhode Island Contract Electroplaters, is proud to announce a solicitation for participation in a Rhode Island based Common Sense Initiative project: NBC-Metal Finishing 2000.

NBC-Metal Finishing 2000 is an ambitious effort to explore, develop, and test alternative regulatory and compliance approaches for the metal finishing industry within Rhode Island. The primary goal of NBC-Metal Finishing 2000 is to create a flexible regulatory approach for companies that are exceptional environmental performers. This program will reduce regulatory oversight of a qualifying company's operations in return for environmental results that exceed the environmental standards of the traditional regulatory system. The NBC will work with six to eight metal finishers to find new ways of protecting the environment while fostering growth in the metal finishing industry.

Eligibility

To be eligible for participation in NBC-Metal Finishing 2000 a company must:

- ★ Perform any of the following six metal finishing operations: Electroplating, Electroless Plating, Anodizing, Coating (chromating, phosphating, and coloring), Chemical Etching and Milling, and Printed Circuit Board Manufacturing;
- ★ Be subject to Narragansett Bay Commission pretreatment requirements;
- ★ Meet Program Participation Criteria as described below.

Program Participation Criteria

Each company that wishes to participate in the NBC-Metal Finishing 2000 program must demonstrate that they are are consistently in compliance with regulations and are able to document their efforts in making environmental improvements that move beyond compliance. An applicant's environmental performance level will be evaluated in accordance with the following four criteria:

- ★ ***Environmental Compliance***

  Participants in NBC-Metal Finishing 2000 must have an exceptional environmental compliance record with federal, state, and local environmental and OSHA regulations. For regulatory problems that have occurred the applicant must demonstrate that they have put forth a good-faith effort to return to compliance in an expeditious manner. While a perfect compliance record is not required for participation a pattern of repeated violations and/or inadequately addressed violations will prevent an applicant from meeting participation criteria.

  Demonstration of meeting environmental compliance criteria may be made through a disclosure of:
  -All non-compliance issues that have arisen at the applicant's facility over the past three years,
  -The applicant's response to those issues, demonstrating a fast and safe return to compliance, and
  -A description of response actions taken to prevent future non-compliance.

★ ***Pollution Prevention Efforts***

Applicants must be able to demonstrate a commitment to and use of pollution prevention policies and procedures as part of their waste management practices. The national pollution prevention policy, as stated in the Pollution Prevention Act of 1990 is:

- •Pollution should be prevented or reduced at the source whenever possible.
- •Pollution that cannot be prevented should be recycled in an environmentally sound manner whenever possible.
- •Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible, and
- •Disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

Applicants may demonstrate their commitment and use of pollution prevention policies and procedures through any combination of the following:

- •The use of a Pollution Prevention Facility Management Plan,
- •Demonstration of reduction in waste generation trends through such documentation as: hazardous waste manifests, Biennial Hazardous Waste reports, TRI reports, water and/or sewer bills, etc. As part of this response the applicant must be prepared to demonstrate that reduction in waste generation did not result solely from a decline in production.
- •Having worked with and implemented suggestions made by one or more of the pollution prevention technical assistance programs available in Rhode Island,
- •Implementation of water reduction use techniques and/or technologies, and/or
- •Involvement with an industrial community based environmental or pollution prevention program or committee such as: the Rhode Island Pollution Prevention Council, the NBC Regulatory Advisory Committee, the NBC Citizens Advisory Committee, the Rhode Island Pollution Prevention Conference, the National Pollution Prevention Roundtable, and/or trade association environmental work-groups.

★ ***Employee Environmental Education***

Applicants must have in place an educational system that trains employees in proper environmental management practices and procedures, and encourages employee involvement with finding and initiating new and innovative ways of reducing pollutants at the source of generation. Training may be offered in-house or through outside contractors or educational institutes.

★ ***Improved Environmental Performance***

In addition to establishing itself as an exceptional Environmental Performer an applicant must clearly define the type and extent of regulatory flexibility desired, and must demonstrate how this regulatory flexibility will result in improved environmental performance, or how obtaining flexibility will ease in maintaining the current level of environmental performance.

When responding to this item an applicant must be sure to:

-Describe in detail the type and extent of regulatory flexibility being requested. For instance, if the applicant wishes to eliminate a specific reporting requirement he/she must describe the reporting requirement, the regulatory authority which requires the reporting, and a reasoning of why this particular requirement should be eliminated. While NBC has authority only over requirements of its own rules and regulations, should a reasonable request for flexibility outside of NBC requirements be made, the NBC may be able to work as a advocate to obtain flexibility from other regulatory authorities. However, no guarantee is being made that flexibility outside of NBC's authority will be granted.

-Describe in detail how obtaining regulatory flexibility will result in improved environmental performance or ease in maintaining existing environmental performance standards. Requests for flexibility that do not result in clear cut overall improved environmental performance may not be granted.

How Does the Metal Finishing 2000 Program Work ?

Interested companies may call the NBC Pollution Prevention Manager to request more information and to arrange for an initial confidential meeting with NBC non-regulatory personnel. The following outlines the steps to be taken by interested companies to obtain the benefits of the NBC's Metal Finishing 2000 Program:

- ★ The Company contacts the NBC Pollution Prevention Manager.
- ★ Initial meeting is held with NBC Pollution Prevention non-regulatory staff and company representatives.
- ★ NBC Pollution Prevention staff and company representatives will review the company's compliance record, pollution prevention efforts, and overall environmental management practices.
- ★ NBC Pollution Prevention staff and company representatives will discuss the various regulatory requirements from which possible flexibility may be granted. No guarantee of flexibility will be offered at this time.
- ★ With NBC Pollution Prevention staff assistance the company will complete a Metal Finishing 2000 participation application.
- ★ The completed participation application will be reviewed by regulatory personnel from NBC, RIDEM Air, Water, and Waste divisions, and EPA Region I.
- ★ Upon application approval, NBC regulatory and Pollution Prevention personnel will work with company personnel to implement regulatory flexibility options. This may include the development and execution of written agreements between all applicable regulatory oversight agencies and the company.
- ★ NBC Pollution Prevention staff will continue to work with the company to ensure that environmental compliance is maintained.

Metal Finishing 2000 Flexibility Options

The following is a partial list of activities that could be considered for exemption from certain NBC regulatory notification and permitting requirements:

No Prior Notification Required

Upon acceptance into the program the following activities would require no prior notification to the NBC, however, follow-up notification in the form of revised site plans, pretreatment plans, emergency procedures, etc., will be required within 30 days of making changes:

- ★ Relocation of existing tanks.
- ★ Re-piping of process water/wastewater flow.
- ★ Installation of additional rinse tanks.
- ★ Initiation of certain pollution prevention/source reduction techniques or practices such as:
  - -Installation and use of "hang-bars" over process tanks,
  - -Installation and use of fog-spray rinse systems,
  - -Installation and use of ion exchange equipment for recycling of process water,
  - -Use of membrane separation equipment (including Reverse Osmosis and Diffusion dialysis) for recycling of process water and materials,
  - -Use of electrolytic recovery equipment,
  - -Hazardous material replacement, provided no cross media contamination occurs as part of this activity, and
  - -Process changes that result in the elimination or reduction of hazardous material usage.
- ★ Installation of equipment to treat incoming water for production use which may include Ion Exchange, Carbon Absorption and Reverse Osmosis.

Limited Notification Required

The following activities will require only limited reporting, i.e. phone call:

- ★ New industrial activities that do not include the addition of any regulated constituents not already included in the participating company's existing permit. As an example, prior to installing a plating line that uses different chemical constituents than those already in place, a participating company will need to notify the NBC's Industrial Pretreatment Program before installing the plating line.
- ★ New industrial activities that will not increase current water usage by more than 10% and will not put the company into a different permit category,
- ★ The addition of new production lines/equipment, and
- ★ Installation of proven water pollution control/prevention and/or wastewater recycling equipment/technologies, such as:
  - -Ion Exchange Equipment
  - -Membrane Separation Equipment
  - -Diffusion Dialysis Equipment
  - -Carbon Absorption Equipment

These flexibility options apply provided the company monitors wastewater effluent to assure compliance with all NBC discharge requirements and limitations. The company must report any and all violations immediately upon discovery by calling 222-3738. The company must then respond within 5 working days with a written response describing how they will correct or have corrected the problem and how they will prevent it from reoccurring.

Narragansett Bay Commission Metal Finishing 2000 Participation Application

Company Name _____

Address _____

City, State, Zip _____

Phone _____ Fax _____

Owner _____ Title _____

Number of Employees _____

Parent Company _____

Company Contact _____ Title _____

Products Made _____

_____

Description of Production Process _____

_____

Rating

In order to be selected as a participant in the NBC-Metal Finishing 2000 program an applicant must, at the time of application, ha achieved and maintained an elevated level of environmental performance. Selected companies must meet the standards as described in the Program Participation Criteria section. Applicants must:

- ★Clearly and thoroughly respond to each of the following four environmental subject areas in narrative form (not to exceed three pages per subject).
- ★Introduce each response with the subject heading.
- ★Be sure to substantiate claims by referring to verifiable evidence wherever possible.

Note, your response to the first three subjects noted below will be used in the determination of your company's tier rating. Respon to the fourth subject will help you to determine the overall environmental and economic benefits to be gained through your partici- pation in the NBC Metal Finishing 2000 Program.

★ ***Environmental Compliance Information***

List all environmental regulatory inspections, audits, investigations, etc., conducted of your company over the last three years Include the date of each inspection, the purpose of each inspection (i.e., pretreatment, air pollution, hazardous waste), the names of environmental regulatory inspectors, the name of company personnel that participated in the inspection, a brief description of activities conducted during each inspection, and a description of the outcome of the inspection. Think carefully about how each past environmental violation has been responded to by your company and address this in your response.

★ ***Pollution Prevention Efforts***

Describe in detail all efforts put forth by your company to reduce the amount of pollutants generated as part of your manufacturing operations. Include a summary of the results these efforts have had on your company's compliance with federal, state and local environmental rules and regulations, your company's work environment, and your company's productivity.

★ ***Employee Environmental Education***

Describe in detail all efforts put forth by your company to promote employee environmental education. Demonstrated efforts may include: in-house educational programs, company financed educational programs, and/or established incentives for employees to attend after-work environmental classes, courses or seminars.

★ ***Improved Environmental Performance***

In addition to establishing yourself as an exceptional Environmental Performer, you must clearly define the type and extend o regulatory flexibility desired. Emphasis must be made on how this regulatory flexibility will result in improved environmental performance or how obtaining flexibility will reduce time, effort, and/or cost of maintaining your current level of environmental performance.

Other Incentives and Benefits afforded to Selected Participating Companies

As a participant in this program a company may request more specific regulatory flexibility options that will be addressed on a case-by-case basis. These may include, but are not limited to:

- ★ Reduction of reporting requirements such as:
  -pH monitoring reports
  -Effluent monitoring reports
- ★ Reduced frequency of regulatory inspections or substitution of these inspections with non-regulatory pollution prevention audits.
- ★ Possible reduction in permit fees (based on Public Utilities Commission (PUC) filings).
- ★ Assistance with the implementation of a non-conventional or innovative waste reduction and/or waste management practices or procedure.

For More Information:

Pollution Prevention Manager
The Narragansett Bay Commission
235 Promenade Street, Suite 500, Providence, Rhode Island 02908
401-222-6680/TDD 401-222-6680
FAX 401/222-2584
ppr@narrabay.com

Environmental Performance Data
1992 through 1998
NBC Permitted Metal Finishing Companies

Tier I Companies	Cd (mg/l)	Cr (mg/l)	Cu (mg/l)	Pb (mg/l)	Ni (mg/l)	Zn (mg/l)	CN (mg/l)	Ag (mg/l)	Flow (GPD)	Total Metals (mg/l)
1992	0.0051	0.1351	0.3974	0.0645	0.2093	0.3863	0.1796	0.0191	21903	1.217
1993	0.0077	0.2638	0.5404	0.0426	0.3482	1.3081	0.2454	0.0421	23429	2.553
1994	0.0091	0.1556	0.3849	0.0566	0.2187	0.1649	0.0626	0.0430	17018	1.033
1995	0.0083	0.2536	0.5640	0.0786	0.5342	0.3318	0.3218	0.0402	26548	1.811
1996	0.0051	0.1359	0.6585	0.0674	0.6776	0.4025	0.1407	0.0473	32757	1.994
1997	0.0087	0.1646	0.4589	0.1652	0.2078	0.1358	0.2351	0.1245	26081	1.266
1998	0.0102	0.0918	0.5232	0.0551	0.3348	0.2489	0.5684	0.0419	25177	1.306
Tier II Companies										
1992	0.0569	0.1194	1.8000	1.0650	4.2987	0.7150	0.5867	0.1804	13541	8.235
1993	0.0118	0.2299	6.4570	0.0853	1.8533	1.4649	0.5979	0.0901	13485	10.192
1994	0.0133	0.0493	0.6552	0.0783	0.9583	0.2880	0.3814	0.0333	16784	2.076
1995	0.0291	0.1034	0.9528	0.0567	0.7239	0.3876	0.6023	0.0593	12979	2.313
1996	0.0148	0.0354	1.1114	0.0717	0.8346	0.1466	0.5879	0.0631	16755	2.278
1997	0.0192	0.0564	2.3529	0.0570	0.7149	1.1591	4.1739	0.3007	15259	4.660
1998	0.0428	0.2660	2.0528	0.1097	1.9733	0.8516	4.3805	0.1768	20382	5.473
Average Metal Finisher										
1992	0.0339	0.1761	0.6207	0.4152	0.9084	0.3126	0.2489	0.0474	19645	2.514
1993	0.0249	0.1860	1.6860	0.0845	1.1004	0.4887	0.3264	0.0649	16335	3.635
1994	0.0161	0.1019	0.6588	0.0574	0.7277	0.3660	0.2791	0.0692	16372	1.997
1995	0.0166	0.1985	0.7613	0.0578	0.5887	0.2798	0.6394	0.1146	23532	2.017
1996	0.0102	0.1535	0.5524	0.0526	0.5302	0.1954	0.5653	0.0897	17273	1.584
1997	0.0137	0.1413	0.7715	0.0548	0.4901	0.3531	1.2396	0.4287	16705	2.253
1998	0.0179	0.1728	0.8182	0.0807	0.8133	0.2914	0.7818	0.0690	20326	2.263

SIGNIFICANT NON-COMPLIANCE CRITERIA

(a) 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) the daily maximum limit or the average limit for the sample pollutant parameter;

(b) Technical Review Criteria (TRC) violations, defined here as those in which 33% or more of all measurements for each pollutant parameter taken during a six (6) month period equal or exceed the product of the daily maximum limit or the average limit multiplied by the applicable TRC (TRC = 1.4 for 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 Narragansett Bay Commission (NBC) determines has caused, alone or in combination with other discharges, interference or pass through, including endangering the health of NBC personnel or the general public;

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

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

(f) Failure to provide, within thirty (30) days after the due date, required reports such as a baseline monitoring reports, ninety (90) day compliance reports, Self-Monitoring Compliance Reports and reports on compliance with compliance schedules;

(g) Failure to accurately report non-compliance;

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

EXPLANATION OF SIGNIFICANT NON-COMPLIANCE (SNC) CRITERIA

SNC Criteria A 66 % or more of measurements are in violation of effluent standards for any six (6) month review period.

Example: Firm samples for copper ten (10) times in the six (6) month evaluation period of January 1 through June 30. Copper results are as follows:

(1)	1.16 ppm	-	In Compliance	(6)	1.21 ppm	-	Violation
(2)	2.34 ppm	-	Violation	(7)	4.35 ppm	-	Violation
(3)	1.26 ppm	-	Violation	(8)	1.40 ppm	-	Violation
(4)	2.31 ppm	-	Violation	(9)	2.17 ppm	-	Violation
(5)	0.87 ppm	-	In Compliance	(10)	0.91 ppm	-	In Compliance

The discharge limit for copper is 1.20 ppm, 7 out of 10 samples exceed this limit, therefore 70% of the copper samples are in violation, resulting in the firm being in SNC for copper for Criteria A.

SNC Criteria B Technical Review Criteria - 33% or more of measurements for the six (6) month review period exceed the limit multiplied by the TRC value. The TRC value = 1.2 for all parameters except oil and grease, where the TRC = 1.4

Example: For copper the TRC value multiplied by the copper limit = 1.2 x 1.2 = 1.44. Using the same results for copper as given in the example above:

Measurements		Copper TRC Limit	In Compliance With TRC Limit?
(1)	1.16 ppm	1.44 ppm	Yes
(2)	2.34 ppm	1.44 ppm	No
(3)	1.26 ppm	1.44 ppm	Yes
(4)	2.31 ppm	1.44 ppm	No
(5)	0.87 ppm	1.44 ppm	Yes
(6)	1.21 ppm	1.44 ppm	Yes
(7)	4.35 ppm	1.44 ppm	No
(8)	1.40 ppm	1.44 ppm	Yes
(9)	2.17 ppm	1.44 ppm	No
(10)	0.91 ppm	1.44 ppm	Yes

The TRC limit for copper, 1.44 is exceeded four (4) our of ten (10) samples in the review period, therefore, 40% exceedence of the TRC limit occurred, resulting in the firm being in SNC for Criteria B.

SNC Criteria C Any violation of a pretreatment effluent limit that has caused interference or pass-through of NBC facilities.

Example: A firm dumps an electroplating tank containing copper and cyanide. These toxic chemicals kill the microorganism at the NBC Wastewater Treatment facility, interfering with NBC operations. The firm is in SNC for Criteria C.

Example: A firm discharges a concentrated red dye containing copper. The red color passes through the NBC Wastewater Treatment facility, discoloring the receiving waters of Narragansett Bay. The firm is in SNC for Criteria C.

SNC Criteria D Discharging a pollutant that has caused imminent endangerment to human health or the environment.

Example: A firm dumps a degreasing solvent such as trichloroethylene into the sewer. Toxic chemical odors are evolved and enter nearby homes, businesses and endangers sewer workers. The firm is in SNC for Criteria D.

Example: An automotive repair facility dumps gasoline into the sewer creating toxic odors and explosive conditions in the sewer system. The firm is in SNC for criteria D.

SNC Criteria E Failure to meet, within ninety (90) days after a scheduled completion date, a compliance milestone...

Example: The firm, required by a compliance order, compliance schedule, permit or other document, fails to achieve a compliance milestone such as installing a pretreatment system, by the required date and exceeds the compliance milestone deadline by more than ninety (90) days. The firm is in SNC for Criteria E.

SNC Criteria F Failure to submit documents within thirty (30) days from the due date.

Example: A firm is required to sample in May and the compliance report is due by June 30. The report is submitted to the NBC on July 31, thirty one (31) days past the due date, therefore the firm is in SNC for Criteria F.

SNC Criteria G Failure to accurately report non-compliance.

Example: A firm is required to continuously record the pH of their effluent and to report the results monthly to the NBC on a monitoring report form. During the annual NBC inspection of the firm, the pH charts are reviewed and it is determined that low and high effluent pH violations have not been reported. The firm is in SNC for Criteria G and could face additional enforcement action for falsification of monitoring reports.

SNC Criteria H Any violation that adversely effects the operation or implementation of the pretreatment program.

Example: A firm refuses to allow access to NBC inspectors or harasses the NBC inspectors while performing their duties. The firm would be in SNC for Criteria H.

Determination of Industrial User (IU) Significant Noncompliance (SNC)

1. The POTW (in conjunction with the Approval Authority) must establish its "Pretreatment Year."

2. At the end of each quarter, POTWs and States should evaluate their IU's compliance status for the two criteria which are evaluated on a six month time frame (i.e., the "A" and "B" criteria - 403.8(f)(2)(vii)(A) and (B)) as illustrated below. The example below assumes a " Pretreatment Year" equal to the calendar year.

FIRST EVALAUTION PERIOD

End of previous "Pretreatment Year" | Beginning of the current "Pretreatment Year."

Oct. | Nov. | Dec. | Jan. | Feb. | Mar.

3. At the end of the first quarter (March 30th in our example), the POTW must evaluate the data from an industrial user for the previous six months (e.g., beginning with October 1 of the previous "Pretreatment Year" as in our example). Likewise, the POTW must evaluate six months of data at the end of each subsequent quarter (e.g., June 30th, September 30th, and December 31st).

SECOND EVALUATION PERIOD

Jan. | Feb. | Mar. | Apr. | May | Jun

4. At the end of the "Pretreatment Year," the POTW must summarize the compliance status of its industrial users over the reporting period and report on this compliance status to the Approval Authority. The POTW must publish all industrial users which were identified in SNC during the "Pretreatment Year," unless the IU was previously published for violations which occurred solely in the last quarter of the previous "Year."

THIRD EVALUATION PERIOD

Apr. | May | Jun. | Jul. | Aug. | Sep

FOURTH EVALUATION PERIOD

Jul. | Aug. | Sep. | Oct. | Nov. | Dec

End of the current "Pretreatment Year."

APPENDIX IV

NARRAGANSETT BAY COMMISSION - FIELD'S POINT, 1994

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL	AUG.	SEP.	OCT.	NOV.	DEC.	MAX.	MIN.	AV
ACUTE MYSID BAHA	LC50				100			100			100			100	>100	>100	
ARBACIA PUNTUCATA CHRONIC	NOEL				100			100			100			100	100	100	
BOD INFL	MG/L	-	126	104	93	111	109	129	115	110	108	135	150	128	150	93	
BOD EFFL	MG/L	30/	6.6	4.8	4.2	9.2	7.9	7.4	7.1	9.2	7.2	12.5	13	9.2	13	4.2	
BOD EFFL	MG/L	45	7.1	7.1	5.3	13.4	11	9.1	8.1	12	8.3	16	14	10.4	16	5.3	
pH EFFL	MG/L	6/9	6.7	6	5.4	6.6	6.2	6.2	5.8	6	6	6	6.2	6.1	6.6	5.7	
TSS INFL	MG/L		86	83	75	96	86.8	93.4	93	98	96	113	116	89.6	116	75	
TSS EFFL	MG/L	30/	17	12	10	17	19	13.2	15	16	13	18	22	17.8	22	10	
TSS EFFL	MG/L	45	20	13	12	27	33	25	19	19	14	23	30	20.7	33	12	
SS EFFL	ML/L		TR	TR	TR	TR	0.02	TR	0.3	0.25	0.45	0.13	0.7	TR	0.7	0.02	0
SS EFFL	ML/L		TR	TR	0.1	TR	0.2	TR	1	0.55	1.1	1	10	0.5	10	0.1	
O & G EFFL	MG/L	AVG	4.1	2.9	1.7	3.7	2.23	1.4	1.5	1.6	0.8	3.1	3	1.4	4.1	0.8	
O & G EFFL	MG/L	MAX	5.7	3.4	1.8	4	3	1.7	2.2	1.9	1.1	3.6	4.4	1.6	5.7	1.1	
AMMONIA-N EFFL	MG/L		12	11.5	6.57	8.29	10.3	8.74	10	10.4	11.1	10.3	12.3	12.4	12.4	6.57	10
NITRITE-N EFFL	MG/L		0.122	0.03	0.02	0.07	0.19	0.052	0.6	0.612	0.15	0.074	0.162	0.311	0.612	0.024	0
NITRATE-N EFFL	MG/L		3.88	0.71	0.51	0.33	0.87	5.71	3.6	1.01	0.3	0.682	1.88	4.01	5.71	0.298	1
PHOSPHORUS EFFL	MG/L		1	1	7.7	0.6	2	1.7	1.6	1.79	1.43	1.98	1.66	0.891	7.7	0.6	1
CYANIDE INFL	UG/L		59.1	93.5	29.2	45.9	52.4	70.8	46	98	100	87.5	86	38.7	100	29.2	67
CYANIDE EFFL	UG/L	84/	16.1	53.9	9.17	8.5	10.1	8.8	8.3	11	6.2	12.9	12	12.3	53.9	6.2	14
CYANIDE EFFL	UG/L	182	57.5	138	15	11.5	12	11	18	30	9	22	20.5	19	138	9	30
CADMIUM INFL	UG/L		1.4	1.5	0.76	1	1.4	2.3	1.2	2.3	1.3	2.2	2	1.9	2.3	0.76	
CADMIUM EFFL	UG/L	149/	0.76	0.9	0.68	0.7	1.3	1.7	0.7	1.6	0.8	1.2	1.3	1.1	1.7	0.675	
CADMIUM EFFL	UG/L	172	1.1	1.4	1.4	1.6	2.5	2.4	2	3	1.6	1.6	2.2	1.6	3	1.1	
CHROMIUM HEX INFL	UG/L		41	48.3	48.4	61.5	54.6	61.5	53	43	145	189	277	153	277	41	99
CHROMIUM HEX EFFL	UG/L	800/	8.5	16.6	7.01	16.2	13.1	12.6	13	13.9	24.5	63.1	70	24.2	70	7.01	23
CHROMIUM HEX EFFL	UG/L	4400	15	38	15	26	25	38.2	34	27	50.8	157	280	38	280	15	82
COPPER INFL	UG/L		221	148	223	120	120	185	141	139	149	214	213	130	223	120	166
COPPER EFFL	UG/L	133/	87.6	85.1	72.2	67.9	78.3	61.7	46	86	56.9	51.1	49	63.8	87.6	46.4	67
COPPER EFFL	UG/L	274	134	111	94.8	84.8	104	94.8	82	122	118	68.8	82	97.2	134	68.8	99
LEAD INFL	UG/L		28.7	21.6	25.5	23.7	29.4	37.2	31	25.4	29.6	26.8	53.3	24.9	53.3	21.6	29
LEAD EFFL	UG/L	90/	9.42	12	7.54	6.61	16.1	14.4	9.9	12	11.3	9.41	14	5.87	16.1	5.87	10
LEAD EFFL	UG/L	560	22.4	23.8	16.9	9.8	57.8	25.8	29	22.4	20.6	16.4	42	9.6	57.8	9.6	24
NICKEL INFL	UG/L		220	170	227	136	120	179	161	149	136	168	194	118	227	15.5	163
NICKEL EFFL	UG/L	326/	183	166	122	132	131	177	110	164	134	128	124	105	183	105	139
NICKEL EFFL	UG/L	718	252	229	188	194	166	276	183	287	238	175	166.0	122	287	122	206
SILVER INFL	UG/L		17.2	13.6	8.68	10.4	9.58	12.9	13	11.1	12.4	16.3	15.8	10.9	17.2	8.68	12.6
SILVER EFFL	UG/L	16/	7.34	5.34	3.68	3.95	4.37	4.31	5.2	8	3.49	5.51	5.06	3.22	8	3.22	5.0
SILVER EFFL	UG/L	32	11.6	8.32	6.47	5.84	7.18	6.66	8.8	17.4	5.59	8.7	11.2	5.62	17.4	5.59	8.6
ZINC INFL	UG/L		180	237	252	148	124	220	192	153	132	240	264	147	264	124	191
ZINC EFFL	UG/L	380/	103	126	135	98.8	86.4	118	72	121	74	92.5	102	82.8	135	71.5	100.9
ZINC EFFL	UG/L	718	136	228	307	118	129	194	101	237	127	128	183	110	307	101	166.5
METHYLENE CH-EFFL	UG/L	710	7.5	2.2	3.5	4.1	7	4.2	5	9	5	10	10	6	10	2.2	6.13
TETRACHLOROETHYLENE EFFL	UG/L	33	5.9	6	3	3.7	2	2	5	5	5	10	10	9	10	2	5.55
1,1,1-TRICHLOROETHANE EFFL	UG/L	4.5	2	2	2	2	2	2	5	5	5	10	10	1	10	1	4
BIS PHTHALATE EFFL	UG/L	104	10	10	10	10	25	15	41	85	40	40	76	40	85	10	33.5
TRICHLOROETHYLENE EFFL	UG/L	35	17	2	6.5	2	2	4.4	5	45	5	10	10	1	45	1	9
FLOW IN CONDUIT INFL	AVG		44.97	44.8	64.2	48.5	44	41.72	40	41.7	40.4	35.55	38.95	45.03	64.19	35.55	44.15
FLOW IN CONDUIT INFL	MAX		110.36	66.2	119	60.9	58.1	67.88	53	67.08	86.3	41.25	90.45	83.94	119.30	41.25	74.64
FLOW IN CONDUIT EFFL	AVG	55	42.56	44.3	59.3	48.1	43.2	41.03	40	39.83	39.1	35.55	37.32	42.76	59.30	35.55	42.73
FLOW IN CONDUIT EFFL	MAX	77	72.12	60.8	78.8	54.7	57.6	58.8	123	58.34	60.7	41.25	54.95	60.33	123.31	41.25	65.14
CHLORINE EFFL	ppm	AVG	2	1.8	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.8	1.8	1.8	2	1.5	1.7
CHLORINE EFFL	ppm	MAX	2.1	2.1	1.7	1.8	2.2	1.8	2	2	1.8	1.9	2	2.3	2.3	1.7	2.0
MERCURY INFL	UG/L		0.816	0.35	0.37	0.68	0.42	0.535	0.6	0.73	0.72	0.570	0.569	0.859	0.859	0.349	0.605
MERCURY EFFL	UG/L	8/	0.276	0.14	0.3	0.42	0.4	0.4	0.4	0.42	0.4	0.400	0.4	0.484	0.484	0.14	0.370
MERCURY EFFL	UG/L	18.5	0.518	0.28	0.3	0.85	1.03	0.405	0.4	0.621	0.4	0.400	0.4	0.630	1.03	0.277	0.519
COLIFORM FECAL EFFL	MPN	200/400	12	20	14	28	[redacted]	22	50	[redacted]	[redacted]	[redacted]	120	70	121	12	47
BOD % REM	%	79/	94	95	95	92	93	94	94	92	93	90	81	82	95	81	91
TSS % REM	%	82/	80	86	87	82	78	86	84	84	86	84	92	93	93	78	85
DICHLOROETHENE EFFL	UG/L	6	5.3	2	2	2	2	2	5	5	5	10	10	2	10	2	4

NARRAGANSETT BAY COMMISSION - FIELD'S POINT, 1994

Fecal Coliform Violations: GEOMEAN PROCESS MPN/100ml	
	4/12-1450; 4/25-800;
	5/22-600; 5/30-600;
	8/15-700; 8/29-500; 8/94-problems with autoclave (complete sterilization not complete)
	8/18-rain day 10.90 MGD Bypass Flow.
	9/5-2100; 9/8-2200; 9/16-700; 9/30-5000;
	10/17-2400; 10/18-500; 10/23-500; 10/24-900; 11/3-500; 11/11-500; 11/12-500; 11/18-900; 11/20-800;
	12-700; 12/2-500; 12/5-800; 12/20-500; 12/24-2200;
Cyanide	2/21 and 2/23 Lab error, were preserved inaccurately (reported to Angelo Liberti 3/14/94)
	Month of March, three days data missing due to improper preservation of sample bottles
Chromium, Hexavalent Inf.	
	7/94-collected but unable to analyze colorimetrically because of interferences.
	9/28-not analyzed
BOD	9/24-no INF sample collected.
Cadmium	during the week of 11/21-11/25 only 1 metal sample was collected due to sampler problems.

NARRAGANSETT BAY COMMISSION, BUCKLIN POINT, 1994

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV	DEC.	MAX.	MIM.	AV
ACUTE MYSID BAHIA	LC50	100			100			100			100			100	100	100	
ACUTE MENIDIA	LC50	100			100			53.04			100			100	100	53.04	
ACUTE MYSID BAHIA	NOAEL				25			50			100			100	100	25	
ACUTE MENIDIA	NOAEL				50			12.5			100			100	100	12.5	
BOD INFL	MG/L	--	231	229	166	180	219	222	240	187	247	265	240	216	265	166	
BOD EFFL	MG/L	30	9	7.8	11.9	12.5	10.9	9.2	7.3	8.3	9	11.2	8.7	7.5	12.5	7.3	
BOD EFFL	MG/L	45	9.3	9.8	15.9	24.4	14.9	10.5	9.3	11.4	16	14.2	11.6	10.2	24.4	9.3	
pH EFFL	MG/L	6.9	7	7	6.7	7.1	7	7.3	7.3	6.8	6.8	7	7.3	7	7.3	6.7	
TSS INFL	MG/L		230	209	157	173	253	248	258	182	246	252	208	206	258	157	21
TSS EFFL	MG/L	30/	14.3	10.1	14.5	16.3	13.3	11.4	11	13.8	10.9	15.1	12.8	11.4	16	10.1	
TSS EFFL	MG/L	45	17.6	11.9	19.7	31.9	23	13.6	34.7	19	13	18.4	17.9	16.7	34.7	11.9	2
SS EFFL	ML/L	0.1	0.15	0.1	0.2	0.3	0.2	0.1	0.14	0.2	0.3	0.1	0.1	0.2	0.3	0.1	0
SS EFFL	ML/L	.3	0.7	0.2	1.3	0.7	1	0.3	0.25	1.1	1.5	0.2	0.2	1	1.5	0.2	0
O & G EFFL	MG/L		4.3	2.2	3.8	2.5	2.9	3	3	1.2	1	1.5	1.8	8.3	8.3	1.0	2
AMMONIA-N EFFL	MG/L		19.3	17.4	13	11.4	18.1	15.5	20.2	15.4	15.5	18.8	21.4	17.3	21.4	11.4	16.8
NITRITE-N EFFL	MG/L		0.08	0.03	0.31	0.165	0.012	0.052	0.053	0.045	1.96	0.005	0.01	0.11	1.96	0.005	0.23
NITRATE-N EFFL	MG/L		0.19	4.94	0.279	0.289	0.662	0.127	0.251	0.174	2.52	0.2	0.08	0.11	4.94	0.1	0.8
PHOSPHORUS EFFL	MG/L		5.3	2.2	1.5	2.1	3	4.3	3.32	2.49	3.72	3.01	2.44	2.45	5	0.5	3
CYANIDE INFL	UG/L		7	10.1	17.4	10.8	13.4	10	6.8	11.9	9	10.5	12.3	10	17.4	6.8	10.8
CYANIDE EFFL	UG/L	AVG	7	9.5	12.1	7.5	9.8	8.6	5.8	7.4	10.8	10.8	9.6	10	12.1	6.8	9.1
CYANIDE EFFL	UG/L	MAX	12	9.5	20.5	8	12	11	8	9	20	15	12	10	20.5	8	12.3
CADMIUM INFL	UG/L		1.6	1	2.7	1.1	1.2	1.7	2.7	3.1	1.2	1.3	1.3	1.4	3.1	1.2	1
CADMIUM EFFL	UG/L	AVG	0.6	0.3	0.3	0.4	0.5	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.6	0.3	
CADMIUM EFFL	UG/L	MAX	1.3	0.3	0.4	0.8	0.9	0.9	0.4	0.4	0.4	0.4	0.4	0.6	1.3	0.3	0.6
CHROMIUM HEX INFL	UG/L		72.8	50	47.6	126	97	143	70.8	194	260	224	229	158	260	47.6	126.9
CHROMIUM HEX EFFL	UG/L	AVG	16.4	18.7	18.6	21.9	21.1	15.9	13.9	25	58.7	38.6	25.6	16	58.7	13.9	24.2
CHROMIUM HEX EFFL	UG/L	MAX	25	37	35	32.5	27	19.6	21	42	92	96.3	76.9	39	96.3	19.6	45.3
COPPER INFL	UG/L		244	212	208	170	267	227	182	288	271	169	216	146	288	146	216.7
COPPER EFFL	UG/L	AVG	60	19.2	33.1	60	24	30	22.9	23.4	20.7	26	17.9	19.3	60	17.9	29.7
COPPER EFFL	UG/L	MAX	179	23.3	51.4	179	28.7	57	34.5	36.3	28.3	49.6	23.2	22.2	179	22.2	59.4
LEAD INFL	UG/L		52.1	36.9	31	28.7	48.9	66.3	40.1	73	43	29.9	34.5	31.7	73	28.7	43.9
LEAD EFFL	UG/L	AVG	11.4	7.1	7.3	11.1	6.3	6.4	4.2	6.4	4.2	3.7	4.5	3.9	11.4	3.7	6.4
LEAD EFFL	UG/L	MAX	32.8	10.6	15	31.4	11.2	11.1	5.4	10.4	7.1	6	7.2	4.6	32.8	4.6	13.1
NICKEL INFL	UG/L		89	49.9	59.8	51.1	58.2	80.3	90.3	75	56.2	39.4	38.6	54.4	90.3	38.6	61.9
NICKEL EFFL	UG/L	AVG	49.1	45.2	40.4	43.2	24	51.3	34.2	25.9	28.6	28	25.6	31.6	51.3	24	35.5
NICKEL EFFL	UG/L	MAX	73	82.8	83.3	59.6	29.4	85.5	42.5	32.7	49	44.6	34.8	50.3	85.5	29.4	55.6
SILVER INFL	UG/L		8.4	10.4	7.9	8.1	14.8	14.1	9.2	12	9.74	15.3	10.3	6.66	15.3	6.66	10.8
SILVER EFFL	UG/L	AVG	3.05	1.32	1.7	2.5	1.38	1.84	1.6	1.57	1.7	1.79	1.82	1.95	3.05	1.32	1.9
SILVER EFFL	UG/L	MAX	9.6	2.23	2.76	6.54	1.92	2.19	2.58	2.8	1.26	2.94	2.98	3.44	9.6	1.26	3.4
ZINC INFL	UG/L		336	250	193	279	254	279	208	246	177	170	246	138	336	138	231.3
ZINC EFFL	UG/L	AVG	128	62.1	43.3	107	53.4	56.7	49.9	38.9	27.2	45.6	50.4	31.7	128	27.2	57.7
ZINC EFFL	UG/L	MAX	261	73.9	86.9	197	66.8	95.8	74.8	53.3	34.6	76.4	70.8	40.4	261	34.6	92.5
METHYLENE CH-EFFL	UG/L		2	2	2	2	2	2	5	7	7	10	10	5	10	2	5
TETRACHLOROE-THYLENE EFFL	UG/L		2	2	2	2	2	2	5	5	5	10	10	1	10	1	4
1,1,1-TRI-CHLOROETHANE	UG/L		2	2	2	2	2	2	5	5	5	10	10	1	10	1	4
TRICHLOROETHYLEN E EFFL	UG/L		2	2	2	2	2	2	5	5	5	10	10	1	10	1	4
FLOW IN CONDUIT INFL	AVG		23.1	23.4	31.54	24.61	22.67	22.41	22.72	25.40	22.59	20.93	22.48	24.90	31.54	20.93	23.90
FLOW IN CONDUIT INFL	MAX	84	39.7	31.8	50.44	31.85	34.40	27.58	29.29	36.33	41.14	25.30	33.93	43.31	50.44	25.3	35.42
FLOW IN CONDUIT EFFL	AVG	31	22.9	23.4	30.07	24.48	22.56	22.38	22.70	X	21.70	20.93	22.35	24.68	30.07	20.93	23.46
FLOW IN CONDUIT EFFL	MAX	46	35.1	30.6	45.35	31.33	33.23	27.48	29.29	X	29.07	25.3	32.8	40	45.35	25.3	32.69
CHLORINE EFFL	MG/L	AVG	1.6	1.6	1.6	1.58	1.6	1.56	2.3	1.78	1.86	X	1.7	1.9	2.3	1.58	1.7
CHLORINE EFFL	MG/L	MAX	1.9	1.8	1.8	1.86	1.7	1.58	4.5	2.09	1.44	X	2.1	2	4.5	1.44	2.1
MERCURY INFL	UG/L		0.25	0.22	0.326	0.69	0.33	0.447	0.4	0.69	0.752	0.400	0.448	0.596	0.752	0.222	0.463
MERCURY EFFL	UG/L	8/	0.14	0.1	0.3	0.69	0.3	0.38	0.4	0.4	0.407	0.400	0.400	0.407	0.69	0.1	0.360
MERCURY EFFL	UG/L	8.5	0.25	0.1	0.3	1.86	0.3	0.4	0.4	0.4	0.429	0.400	0.400	0.427	1.86	0.1	0.472
COLIFORM FECAL EFFL	MPN	200/ 400	59	8	94	39	401	427	347	58	43	194	80	42	427	8	149
BOD % REM	%	85	96.1	96.6	92.8	93.1	95	95.9	97	95.6	96	95.8	96.4	96.5	97	92.8	96
TSS % REM	%	85	93.8	95.1	90.8	90.6	94.7	95.4	93.4	92.4	94	94	93.8	94.5	95.4	90.6	94

FOOTNOTES:	
Fecal Coliform Violations: MPN/100mls	
	1/1-500; 1/2-1100; 1/3-700; 1/4-2800; 1/5-1400; 1/6-1300; 1/18-900;
	5/1-500; 5/5-5000; 5/6-500; 5/12-500; 5/15-900; 5/16-800; 5/18-700; 5/19-800; 5/20-600; 5/21-1400; 5/23-500;
	5/24-500; 5/25-800; 5/29-800;
	6/1-1400; 6/6-800; 6/9-500; 6/11-500; 6/12-800; 6/13-500; 6/14-1700; 6/16-900; 6/18-500; 6/19-500; 6/20-900; 6/23-900;
	6/26-1400; 6/27-1100; 6/28-500; 6/29-1100; 6/30-1700; 9/18-1100;
	10/5-1100; 10/11-800; 10/17-900; 10/23-500; 11/10-500; 12/24-5000.
Settleable Solids: ML/L	
	1/28 the afternoon grab sample had 0.7 ml/L settleable solids. No explanation for this excursion.
	3/5-1.0am; 3/10-1.3am; 3/29-0.4pm;
	5/7-1.0am; 5/26-0.7am;
	9/23-0.4; 9/24-1.3;
	12/5-1.0pm; 12/11-0.5am; 0.50pm; 12/24-1.0am; 0.5pm;
Chlorine TR MG/L:	**Chlorine Residual with monitoring location of R is for Dry Weather Sampling. Chlorine Residual with monitorin**
	location of W is for Wet Weather Sampling. The discarge shall not cause visible discoloration of the receiving waters.
	1/1-2.1; 1/5-2.2; 1/6-2.1; 1/18-2.2; 1/20-2.2; 1/29-2.2; 2/8-2.3; 2/20-2.1; 2/26-2.3;
	3/3-8.8,(occurred during a loss of power; 3/4-2.3; 3/5-2.2; 3/21-2.1; 3/23-2.9; 3/27-2.4;
	5/2-2.3; 5/3-2.4; 5/8-2.1; 5/23-2.1; 5/25-2.5; 5/26-2.5;
	6/2-2.1; 6/7-2.4; 6/8-3.8; 6/10-3.7; 6/11-2.5; 6/12-2.2; 6/13-2.2; 6/19-2.5; 6/21-2.1; 6/22-2.2; 6/24-2.1;
	6/26-2.1; 6/29-2.5; 6/30-2.4;
	9/1-2.3; 9/2-3.0; 9/4-5.6; 9/6-2.9; 9/7-4.8; 9/8-3.0; 9/9-2.2; 9/10-2.9; 9/11-3.0; 9/12-2.9; 9/13-2.6;
	9/14-2.4; 9/16-2.2; 9/17-2.2; 9/18-3.0; 9/19-2.4; 9/29-2.4; 9/29-2.9; 9/21-2.2; 9/22-2.6; 9/23-2.1; 9/24-2.5; 9/25-2.3;
	9/26-2.6; 9/29-2.6;
	10/1-2.1; 10/3-2.2; 10/10-2.1; 10/12-2.2; 10/14-2.1; 10/16-2.1; 10/18-2.2; 10/20-2.1; 10/22-2.3; 10/24-2.3;
	10/27-2.1; 10/30-2.2; 10/31-2.1;
	11/2-2.1; 11/3-2.1; 11/4-2.2; 11/5-2.4; 11/6-2.5; 11/10-2.3; 11/11-2.6; 11/14-2.4; 11/15-2.8; 11/16-2.6; 11/18-3.4;
	11/19-2.4; 11/21-2.4; 11/22-2.8; 11/24-2.2; 11/25-2.1; 11/26-2.1; 11/27-2.7; 11/28-2.2; 11/30-2.4;
BOD	On 10/23, the final effluent BOD exceeded all our normal dilutions. We have no explanation for this high number. The result for this day is calculated to be >50.
	On 11/22, there was no BOD result for the By-pas event due to lab error. On 3/25 there was no BOD on the influent due to lab error.

NARRAGANSETT BAY COMMISSION - FIELD'S POINT, 1995

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MAX.	MIN.	AVG
ACUTE MYSID SAMA	LC50				100			100			100				>100	>100	>1
ARBACIA PUNTUCATA CHRONIC	NOEL				100			100			100				100	100	>1
BOD INFL	MG/L	-	113	129	120	163	144	125	153	141	126	114	123	128	163	113	13
BOD EFFL	MG/L	30/	9.9	12.5	8.5	5.9	4.2	7.2	5.7	4.2	5.5	5	9	7.9	12.5	4.2	-
BOD EFFL	MG/L	45	12.7	17.3	14.3	8.3	8.8	10	6	8.3	5.8	6	12	9.3	17.3	5	9
PH EFFL	MG/L	6.9	6.2	6.5	6.1	6.3	6	5.9	6.1	5.6	6.2	6.2	6.3	6.4	6.5	5.6	6
TSS INFL	MG/L		102	131	126	166	137	111	137	126	120	106	127	106	166	102	12
TSS EFFL	MG/L	30/	18	24.7	22	15	17	18	13.6	11.5	14	14	28	19	28	11.5	-
TSS EFFL	MG/L	45	21.7	25	40	16.1	27.6	27	20	17	19.1	19	35	18	40	16.1	2
SS EFFL	ML/L		TR	TR	5.2	TR	0.4	0.1	0.6	0.12	0.49	0.45	2.6	0.2	5.2	0.04	-
SS EFFL	ML/L		TR	36	0.2	0.1	2.2	0.95	*	0.6	1.4	2.5	12	0.2	36	0.1	5
O & G EFFL	MG/L	AVG	1.5	2.4	2.5	4.8	2.4	2.4	1.7	1	1.6	*	1.2	2.2	4.8	*	2
O & G EFFL	MG/L	MAX	2	2.8	2.8	11.1	2.7	2.5	2.2	1.2	2.3	1.4	1.9	2.9	11.1	1.2	3
AMMONIA-N EFFL	MG/L		9.74	10.4	11.5	10	10.4	8.91	12.5	8.51	11.8	11.9	11.4	6.72	12.5	6.72	10.32
NITRITE-N EFFL	MG/L		0.01	0.07	0.03	0.20	0.03	0.20	0.06	0.26	0.37	0.28	0.14	0.10	0.37	0.01	0.15
NITRATE-N EFFL	MG/L		1.5	1.2	0.51	0.19	23	3.6	3.1	1.8	0.44	0.33	5.3	4.5	23	0.19	3.79
PHOSPHORUS EFFL	MG/L		0.8	1.2	0.8	0.7	1.3	0.7	2.1	1.9	1.1	1.5	3.2	1.7	3.2	0.7	1.43
CYANIDE INFL	UG/L		57.4	50.2	37.4	56.2	43.2	160	53.9	87	79.9	85.8	83.3	57.9	160	37.4	71.5
CYANIDE EFFL	UG/L	84	11.7	11.8	10	10	10.8	15.8	11.8	16	10.2	11.2	8.4	5	16	5	10.3
CYANIDE EFFL	UG/L	182	19	22	10	10	15.5	42.5	21	52.5	12	20.5	10	5	52.5	5	20.1
CADMIUM INFL	UG/L		1.9	1.8	1.5	2	1.4	1.9	0.98	2.1	1.9	1.2	1	0.7	2.1	0.7	1.5
CADMIUM EFFL	UG/L	149	1.2	0.96	0.9	1.2	0.6	1.2	0.26	0.9	0.6	0.7	0.9	0.5	1.2	0.26	0.8
CADMIUM EFFL	UG/L	172	1.6	1.4	1.5	1.6	1.4	2.6	0.5	1.7	0.8	1	1.2	0.9	2.6	0.5	1.4
CHROMIUM HEX INFL	UG/L		97.8	140	112	82.1	111	93	81.8	104	97.8	104	98.4	85.4	140	81.8	103.8
CHROMIUM HEX EFFL	UG/L	800	16	20	15.2	11.9	12.7	15.8	13.3	20	33.1	36.4	19.4	16	36.4	11.9	19.8
CHROMIUM HEX EFFL	UG/L	4400	59.4	43	49	24	31	25	25	61	36	92	66	31	92	24	45.3
COPPER INFL	UG/L		96	143	114	132	139	172	108	137	101	101	77.2	87.4	172	77.2	117.3
COPPER EFFL	UG/L	133/	60.6	55.3	34.8	43.8	26.6	29.7	24.5	18	22	29	47	35.6	60.6	18	35.61
COPPER EFFL	UG/L	274	140	70	55.2	66	4.4	56.8	38.4	35.7	33.8	39.6	76.4	55.8	140	4.4	55.3
LEAD INFL	UG/L		26.8	30.3	27.8	23.3	24.3	23.8	31.9	23.1	17	16	18.3	13.6	31.9	13.6	23.3
LEAD EFFL	UG/L	90/	10.1	10.8	9.14	7.84	5.8	5.5	6.76	5	2.1	3.3	8.7	7.2	10.8	2.1	6.6
LEAD EFFL	UG/L	560	19.6	23.4	21.9	15.4	8.7	13.3	9.4	8.5	3.5	6.8	20.3	25.1	25.1	3.5	14.7
NICKEL INFL	UG/L		118	131	122	136	196	159	144	156	102	156	144	113	196	118	137
NICKEL EFFL	UG/L	326/	150	99.1	113	128	118	125	110	105	89.5	131	127	117	150	89.5	117.7
NICKEL EFFL	UG/L	718	288	134	162	195	155	166	127	137	100	225	203	179	288	100	173
SILVER INFL	UG/L		8.04	8.36	12	13.1	8.86	10.5	8.12	15.1	13.5	10.3	9.06	9.16	15.1	8.04	10.51
SILVER EFFL	UG/L	16/	2.88	3.12	4.68	4.42	2.71	2.21	3.33	4.52	6.9	5	5.63	4.75	6.9	2.21	4.21
SILVER EFFL	UG/L	32	3.98	4.82	6.74	6.24	4.08	3.63	7.47	6.38	9.67	8.5	9.0	7.46	9.67	3.63	6.5
ZINC INFL	UG/L		160	186	165	171	183	192	206	230	181	145	91.2	124	230	91.2	170
ZINC EFFL	UG/L	380/	98	99.1	91	79.7	57.9	60.4	62.7	56.9	53.4	70.1	62.2	82.2	99.1	53.4	72.9
ZINC EFFL	UG/L	718	163	144	128	105	80.2	122	92	86.6	84	114	89.7	142	163	80.2	112.5
METHYLENE CH-EFFL	UG/L	/10	28	6	4	4	4.3	9	2	11	5	4	4	2.5	28	2	6.98
TETRACHLOROETHYLENE EFFL	UG/L	33	1	1	1	1	2	1	1	1	1	1	1	1	2	1	1.08
1,1,1-TRICHLOROETHANE EFFL	UG/L	4.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BIS PHTHALATE EFFL	UG/L	/104	40	40	20	14	40	10	27	10	10	10	10	10	40	10	20.1
TRICHLOROETHYLENE EFFL	UG/L	/35	1	1	1	2	1	2	1	1	6	2.5	1	1.8	6	-	2
FLOW IN CONDUIT INFL	AVG		45.55	43.19	44.57	42.57	43.15	42.30	37.87	38.04	37.17	43.50	48.39	39.91	48.39	37.17	42.18
FLOW IN CONDUIT INFL	MAX		74.98	78.67	62.18	58.20	64.46	61.99	52.80	57.38	72.20	92.60	96.87	61.73	96.87	52.80	69.51
FLOW IN CONDUIT EFFL	AVG	65	44.42	41.98	50.03	42.33	42.65	41.74	37.68	37.76	36.54	41.01	45.56	39.53	50.03	36.54	41.77
FLOW IN CONDUIT EFFL	MAX	77	61.09	58.08	59.22	55.50	54.52	56.83	49.46	52.47	53.43	57.51	64.09	49.82	64.09	49.46	56.00
CHLORINE EFFL	ppm	AVG	1.7	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.7	1.7	1.6	1.6	1.7	1.5	1.6
CHLORINE EFFL	ppm	MAX	1.8	1.7	1.8	1.7	1.8	1.7	1.7	1.7	2	2	1.8	2.2	2.2	1.7	1.9
MERCURY INFL	UG/L		0.424	0.501	0.461	0.612	0.571	0.684	0.742	0.509	0.509	0.420	0.313	0.220	0.742	0.220	0.497
MERCURY EFFL	UG/L	8/	0.400	0.400	0.400	0.400	0.403	0.400	0.408	0.400	0.344	0.232	0.161	0.116	0.408	0.116	0.339
MERCURY EFFL	UG/L	/8.5	0.400	0.400	0.400	0.400	0.426	0.400	0.475	0.400	0.400	0.743	0.292	0.287	0.743	0.287	0.419
COLIFORM FECAL EFFL	MPN	200/400	18	22	33	17	40	38	45	118	158	92	37	30	158	17	58
BOD % REM	%	79/	91	90	93	96	97	94	96	97	96	95.6	92	94	97	90	94
TSS % REM	%	82/	82	81	82	91	88	82	90	90	88	89	78	83	91	78	85
DICHLOROETHENE EFFL	UG/L	6	2	2	2	2	2	1	1	1	4	4	4	2	4	*	2

NARRAGANSETT BAY COMMISSION - FIELD'S POINT, 1995

Fecal Coliform Violations: GEOMEAN PROCESS MPN/100ml	
	1/20-3000; 1/26-2200; 2/24-3000; 2/28-2400;
	4/7-1600; 4/15-500; 4/20-1700; 5/12-1600; 5/16-800;
	7/18-500; 7/29-800; 8/3-500; 8/5-1300; 8/19-2400; 8/21-800; 8/30-500;
	wk of 9/3-9/9(472); 9/3-500; 9/6-500; 9/7-700; 9/8-900; 9/9-500; 9/13-900; 9/14-500; 9/17-3000;
	9/21-500; 9/22-1100; 9/23-2200; 10/1-1100; 10/3-500; 10/4-800; 10/5-1300; 10/8-1100;
	10/9-2400; 10/11-2400; 10/14-500; 11/9-500; 11/16-800;12/7-700; 12/14-500;
BOD	2.3- no BOD on effluent reported since EPA Q.C. not met.
	5.20 TSS influent sampler malfunction 5.31 Lab mishap-no results. BOD Effluent 5.31 Lab mishap-no results
Total Suspended Solids	5.20 influent sampler malfunction
Methylene Chloride	8-composite of three grabs
pH	8 11-4:00pm
Settleable Solids: ML L	

NARRAGANSETT BAY COMMISSION, BUCKLIN POINT, 1995

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MAX.	MIM.	AVG
ACUTE MYSID SAHIA	LC50	100			77			100			100			100	100	77	
ACUTE MENIDIA	LC50	100			81			56			100			100	100	81	
ACUTE MYSID SAHIA	NOAEL				12.5			50			50			100	100	12.5	
ACUTE MENIDIA	NOAEL				50			50			100			12.5	100	12.5	
BOD INFL	MG/L	--	177	187	242	224	224	289	335	322	281	284	200	255	335	137	25
BOD EFFL	MG/L	30/	5.7	8	7	6.9	7	4	6	6	8	10	9	7	10	4	
BOD EFFL	MG/L	50	9.7	9	8	8.7	8	5	9	9	11	12	12	9	12	5	
pH EFFL	MG/L	6.9	6.8	7	7	7	7	7	6.4	7	6.2	6.4	6.2	6.5	7	6.2	
TSS INFL	MG/L		181	220	216	187	163	383	292	286	247	299	191	229	383	163	24
TSS EFFL	MG/L	30/	23.5	17	14	13.1	12	9	10	11	13	18	17	10	18	9	
TSS EFFL	MG/L	50	44	18	18	19.6	16	10	16	13	16	22	21	12	22	10	16
SS EFFL	ML/L	0.1/	0.1	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.1	0.2
SS EFFL	ML/L	.3	0.6	0.3	1.5	1.8	0.6	0.2	0.6	0.6	0.6	1.3	3	5	5	0.2	1.4
O & G EFFL	MG/L		1.8	1.7	2.9	1.6	2.6	2.4	1.1	2.3	1.4	1.8	1.3	27	27	1.1	4.2
AMMONIA-N EFFL	MG/L		17.9	15.1	26.4	20.5	19.5	24.4	5.78	6.61	3.35	7.62	6.22	5.38	26.4	3.38	13.44
NITRITE-N EFFL	MG/L		0.01	0.01	0.1	0.02	0.033	0.023	0.08	0.88	1.72	4.570	2.4	0.46	4.57	0.011	0.936
NITRATE-N EFFL	MG/L		0.02	0.07	0.04	0.09	0.54	0.03	3.4	5	0.22	6	6.8	12.3	12.3	0.0	3.1
PHOSPHORUS EFFL	MG/L		3	3	2.5	2.6	3.3	1.4	4.4	3.6	3.8	4.3	2.25	3.3	4.4	1.4	3.1
CYANIDE INFL	UG/L		13.4	21.8	12.8	10	16.4	82	12.5	14.5	12.5	10.1	19.6	22.2	82	10.0	21.3
CYANIDE EFFL	UG/L	AVG	12	12.1	10	10	10	10	10	10.4	10	10.5	10.8	5	12.1	5.0	9.9
CYANIDE EFFL	UG/L	MAX	18.5	20.5	10	10	10	10	10	12	10	12	24	5	24	5.0	12.1
CADMIUM INFL	UG/L		1.4	1.5	1.6	2.2	1.1	1.7	1.7	2.3	1.9	1.4	0.8	0.7	2.3	0.7	2
CADMIUM EFFL	UG/L	AVG	0.4	0.2	0.4	1	0.2	0.5	0.24	0.6	0.4	0.3	0.4	0.3	1	0.2	
CADMIUM EFFL	UG/L	MAX	0.5	0.3	0.6	1.8	0.3	0.7	0.35	0.8	0.5	0.4	0.6	0.3	1.8	0.3	0.6
CHROMIUM HEX INFL	UG/L		242	219	180	198	111	67	96	129	117	140	162	66	219	66	135
CHROMIUM HEX EFFL	UG/L	AVG	61	25	15.5	22.8	21	15	41.9	52	86	79	71	25	86	15	41.3
CHROMIUM HEX EFFL	UG/L	MAX	174	68	32	47	61	34	85	115	190	142	111	49	190	32	94.9
COPPER INFL	UG/L		210	19	170	192	201	164	174	232	208	145	122	110	232	19	157.9
COPPER EFFL	UG/L	AVG	20.4	4.1	20	17.8	16.5	13	10.9	18	14.4	18.8	27.1	11.5	27.1	4.1	15.6
COPPER EFFL	UG/L	MAX	25.1	5	21	21.9	19.7	14.8	13.6	23	21.6	23.3	57	14.6	57	5	21.4
LEAD INFL	UG/L		35.6	35.4	36.8	34.5	29.9	31.3	63.6	45.8	34.8	28	21.6	22.3	63.6	21.6	34.9
LEAD EFFL	UG/L	AVG	8.1	7.1	6	4.1	3.7	2.8	4.1	4.1	3.2	2.1	4.9	2.3	7.1	2.1	4.7
LEAD EFFL	UG/L	MAX	13.4	9.2	6	7	7.3	3.6	5.6	5.1	4.6	2.5	12.3	2.8	12.3	2.5	6.2
NICKEL INFL	UG/L		47.4	45.9	48.7	32.2	46.8	124	56.2	80	55.2	48.4	41.6	29.9	124	29.9	55.4
NICKEL EFFL	UG/L	AVG	29.6	34.7	44.7	17.7	25.1	45.6	28.7	47.4	23.8	27	28.7	20	47.4	17.7	31.2
NICKEL EFFL	UG/L	MAX	48.3	58	85.4	21.6	45.2	65.5	45.2	64.6	31	34.8	34.7	25.8	85.4	21.6	46.5
SILVER INFL	UG/L		7.64	5.09	7.4	7.2	6.65	10.2	7.7	8.1	11.5	9.1	8.2	9.5	11.5	5.09	8.2
SILVER EFFL	UG/L	AVG	0.7	1.32	1.74	1.17	0.97	0.67	1.1	1.36	1.8	2.2	2.2	1.86	2.2	0.67	1.5
SILVER EFFL	UG/L	MAX	0.97	1.53	2.76	1.76	1.46	0.84	1.98	1.68	2	2.6	3.5	2.13	3.5	0.84	2.0
ZINC INFL	UG/L		190	158	155	183	182	184	302	258	215	256	113	92	302	92	190.7
ZINC EFFL	UG/L	AVG	43.2	49	43.3	41.7	41.1	57.5	48.4	44.6	31	78	46.6	39.4	78	31	47.3
ZINC EFFL	UG/L	MAX	47.6	63.3	55	47.6	46.2	82	77.4	61	46	86	73	54.6	86	46	62.9
METHYLENE CH- EFFL	UG/L		5	5	4	4	4	4	1	4	5.18	4	4	1	5.18	1	4
TETRACHLOROE-THYLENE EFFL	UG/L		1	1	1	1	1	1	1	1	1.53	1	1	1	1.53	1	1
1,1,1-TRI-CHLOROETHANE	UG/L		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TRICHLOROETHYLEN E EFFL	UG/L		1	1	1	2	1	1	1	1	1	1	1	1	2	1	1
FLOW IN CONDUIT INFL	AVG		####	21.74	23.67	####	22.33	22.07	20.17	21.11	18.96	20.83	21.47	17.53	23.67	17.53	21.16
FLOW IN CONDUIT INFL	MAX	87	####	35.23	35.23	####	34.35	20.05	26.77	33.43	33.21	37.42	36.91	25.32	37.42	20.05	31.73
FLOW IN CONDUIT EFFL	AVG	31	####	21.62	23.49	####	22.21	20.97	20.08	21.06	18.79	20.02	21.04	17.39	23.49	17.39	20.85
FLOW IN CONDUIT EFFL	MAX	48	####	33.27	35.23	####	32.84	23.54	25.06	33.43	28.89	34.2	36.9	24.17	36.91	23.54	30.63
CHLORINE EFFL	MG/L	AVG	1.6	1.4	1.7	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.4	1.6
CHLORINE EFFL	MG/L	MAX	1.8	1.6	1.7	1.3	1.5	1.7	1.8	2.2	2	2	1.9	2.1	2.2	1.3	1.8
MERCURY INFL	UG/L		0.4	0.5	0.4	0.4	0.4	0.477	0.79	0.45	0.400	0.168	0.100	2.1	2.1	0.1	0.562
MERCURY EFFL	UG/L	8/	0.4	0.4	0.4	0.4	0.4	0.419	0.4	0.4	0.400	0.134	0.107	0.086	0.419	0.086	0.322
MERCURY EFFL	UG/L	8.5	0.4	0.4	0.4	0.4	0.4	0.477	0.4	0.4	0.400	0.276	0.148	0.095	0.477	0.095	0.345
COLIFORM FECAL EFFL	MPN		33	35	80	82	457	186	17	58	8	28	32	0.12	457	0.12	90
BOD % REM	%	85	96.2	95.7	97.1	96.9	96.9	98.6	98.2	98.1	97.2	96.5	95.5	97.3	98.6	95.5	97
TSS % REM	%	85	87	92.3	93.5	93	92.6	97.2	96.6	96.1	94.7	94	91.1	95.6	97.2	91.1	94

FOOTNOTES:	
Fecal Coliform Violations: MPN/100mls	
	1/1-16,000; 1/7-3000; 2/28-2400; 3/16-500; 3/25-900; 4/6-2400; 4/24-3000; 4/29-16000;
	5/1-24000; 5/3-2800; 5/4-900; 5/5-500; 5/6-800; 5/11-1100; 5/12-1700; 5/13-600; 5/16-1700; 5/20-1300;
	5/21-3000; 5/22-600; 5/23-500; 5/24-1700; 5/26-500; 5/27-600; 5/28-900; 5/31-700;
	6/2-800; 6/9-600; 6/11-1100; 6/13-500; 6/14-700; 6/15-600; 6/25-2600; 7/7-500; 7/29-2800; 9/3-1100;
	10/6-1300; 11/1-500; 11/2-900; 11/12-2200;
Settleable Solids: ML L	
	1/29-0.6am; 3/17-1.0pm; 3/22-1.5am; 4/5-1.5am; 4/10-1.8am; 4/13-1.50am;5/1-0.60; 7/11-0.6;
	8.5-3500; 8/10-500; 8/16-500; 8/20-800; 8/29-500; 8/3-0.60am;
	9/2-0.6am; 9/16-0.5am; 9/17-0.5pm; 9/18-0.5am; 10/6-1.3am; 10/7-0.4am; 10/11-0.5am; 10/14-1.0am; 10/22-0.8a
	10/24-0.5am; 10/28-0.5pm;11/2-1.5am; 2.0pm; 11/3-0.5am; 11/8-1.1pm; 11/12-3.0am; 0.5pm; 11/19-0.5am;
Total Suspended Solids: MG/L	
	1/16-103 - due to a broken pipe that led to the sampler-manual composites were taken until pipe was fixed.
	12/5-10.0; 12/10-0.5;
BOD	1/16 No composite sample was received by the lab for the by-pass event due to broken pipe.
	No results for 5/30 effluent and 5/31 influent due to lab error.
Chlorine Residual	7/10-2.1; 7/24-2.3; 9/18-2.4; 9/22-2.1; 10/2-2.1;
Chromium Hexavalent	8/2-no result-interferences; 8/30-colored sample;

NARRAGANSETT BAY COMMISSION – FIELD'S POINT, 1996

PROCESS	UNITS	LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	AVGS.
ACUTE MYSID BAHA	LC50				>100			>100			>100			>100	
ARBACIA PUNTUCATA CHRONIC	NOEL				100			100			100			100	100.00
BOD INFL	MG/L	--	106	101	92	85	98	127	111	118	120	92	124	94	104.73
BOD EFFL	MG/L	30/	11 9	8 1	8 6	9	9	8	5 8	5 5	6 9	9.7	8 8	7 7	8.24
BOD EFFL	MG/L	66	39	20	12	25	25	14	12	9	11	21	26	15	19.00
TSS INFL	MG/L		91 5	84	75	69	85	110	98	118	117	69	84	67	88.96
TSS EFFL	MG/L	30/	24 8	18	18	18	14	15	13	11	16	20	15	11	16.15
TSS EFFL	MG/L	174	54	48	44	58	44	26	25	21	24	56	32	21	38.67
SS EFFL	ML/L	0.1/	1 8	0 8	0 1	0 4	0 29	0 16	0 24	0 1	0 33	0 2	0 1	0 1	0.39
SS EFFL	ML/L	0.3	36	20	0 25	2	0 15	1 1	1 1	0 25	2 1	0 5	0 4	0 1	5.33
O & G EFFL	MG/L	AVG	2 4	1 9	1 8	1 3	0 8	1 4	0 8	1 5	0 8	0 8	2 4	1 4	1.45
O & G EFFL	MG/L	MAX	3 5	2 2	2	1 8	1 3	1 6	1 2	2 7	0 9	1 3	2 9	1 7	1.92
AMMONIA-N EFFL	MG/L		8 40	8 53	9 24	9 86	9 41	4 37	7 22	2 8	4 13	8 51	7 06	5 94	7.21
NITRITE-N EFFL	MG/L		0 093	0 138	0 038	0 047	0 137	0 391	0 215	0 55	0 485	0 46	0 155	0 57	0.28
NITRATE-N EFFL	MG/L		2 6	1 2	0 25	0 6	0 52	3 9	3 72	5 5	4	3 75	78	1	8.50
PHOSPHORUS EFFL	MG/L		2	1 46	0 8	0 3	0 8	0 75	1 3	1 2	5 3	2 05	*	0 045	1.47
CYANIDE INFL	UG/L		85 2	33 6	46 6	29 7	37 1	46 2	54 6	46 8	68 2	126	121	134	50.38
CYANIDE EFFL	UG/L	84/	6 0	5 7	5	5 6	6 7	5	5	9 06	10	10	10	10	7.34
CYANIDE EFFL	UG/L	182	14 0	11 5	5	10	21	5	5	22	10	10	10	10	11.13
CADMIUM INFL	UG/L		0 9	1	1	1 2	1 6	1 4	1 6	2 2	1 3	1 3	30 6	*	3.76
CADMIUM EFFL	UG/L	149/	0 8	0 7	0 5	0 9	1 1	1	1	0 9	1	0 9	1 0	0 5	1.61
CADMIUM EFFL	UG/L	172	1 2	0 9	0 8	1 9	2	1 3	1 5	2 3	1 8	1 4	1 0	0 8	2.16
CHROMIUM HEX INFL	UG/L		174	82 2	54 4	6 2	50 4	49 7	55	53 7	60 4	59 2	55 4	43 4	62.00
CHROMIUM HEX EFFL	UG/L	800/	41 2	25 7	10 5	9 3	14 9	12 3	9 6	11 1	12 3	11 8	9 1	9 3	14.76
CHROMIUM HEX EFFL	UG/L	4400	128	75 9	22	15	54 4	44	27	25 5	30	29	22 4	15 9	40.75
COPPER INFL	UG/L		92 0	80 7	90 5	117	86 5	124	128	91 2	115	90 9	111	45 4	96.85
COPPER EFFL	UG/L	133/	45 5	34 9	34 8	27 1	35 5	42 9	33 7	29 2	41	37	55 4	21 2	36.52
COPPER EFFL	UG/L	274	79 0	47 2	57	40	52 2	74 2	50 8	47 2	65 9	51 2	76 4	41 8	56.82
LEAD INFL	UG/L		13 8	12 6	12 4	13 3	14 6	21 8	16 2	18 1	16 2	11	17 8	9 7	14.79
LEAD EFFL	UG/L	90/	5 5	2 9	3 6	5 6	4 8	2 1	3 2	5 47	3 89	4 13	6 8	3 2	4.27
LEAD EFFL	UG/L	560	15 5	6 2	6 8	8 9	7 8	3 1	5 8	25 6	8 9	9	13 9	5 2	9.72
NICKEL INFL	UG/L		127	101	93 6	97	93 7	171	131	144	164	128	153	93 3	124.72
NICKEL EFFL	UG/L	326/	116	92 9	84 8	75	78 6	92	102	107	162	118	121	65 7	101.25
NICKEL EFFL	UG/L	718	156	136	109	114	105	120	296	155	381	160	182	93 5	167.30
SILVER INFL	UG/L		9 38	6 2	8 92	10 4	12 3	10 5	9 4	7 68	10 7	7 35	8 66	4 04	8.79
SILVER EFFL	UG/L	16/	5 11	2 87	3 01	3 1	4 36	4 03	3 8	2 1	4 88	3 35	3 8	1 53	3.50
SILVER EFFL	UG/L	32	8 04	3 78	4 5	4 7	4 46	5 84	6 17	4 86	7 08	4 43	6 21	2 35	5.25
ZINC INFL	UG/L		108	126	139	94	96	133	135	178	115	84 1	93 4	71 6	114.43
ZINC EFFL	UG/L	380/	78 4	86 9	81 2	52 8	62 1	64 9	56 9	76 7	60 3	65 4	58 6	48 5	66.06
ZINC EFFL	UG/L	718	125	116	99	83 9	99 4	76	92	130	72	106	85 3	72 6	96.43
METHYLENE CH-EFFL	UG/L	10	9 28	4 7	6 16	11 7	7 8	11	8 4	1 63	24 8	8 5	12.6	2 9	8.30
TETRACHLOROETHYLENE EFFL	UG/L	33	1	1	1 8	1 6	3 5	1	1 6	1	1	1	3	2 3	1.15
1,1,1-TRICHLOROETHANE EFFL	UG/L	4.5	1	1	1	1	1	1	1	1	1	1	1	1	1.00
BIS PHTHALATE EFFL	UG/L	104	5	10	10	5.15	10	10	5	2	2	2	6	6 6	6.15
TRICHLOROETHYLENE EFFL	UG/L	35	1	49 9	2 5	1	1	1	1 1	1	1	1	1	1	5.21
FLOW IN CONDUIT INFL	AVG		53 08	51 92	52.81	58 85	48 63	42 24	44 25	39.44	44 85	49 82	43 71	61 83	49.29
FLOW IN CONDUIT INFL	MAX		107 53	76 91	73 94	113 39	71 31	59 75	104,10	66.15	84.14	106.00	80 36	99 37	86.96
FLOW IN CONDUIT EFFL	AVG		50 22	51 08	52.20	55 52	48.27	41.94	42.32	39 03	43 32	46.95	42.58	57 97	47.62
FLOW IN CONDUIT EFFL	MAX		73 95	63.23	68 19	78.09	61 89	56.32	63.04	53.51	63 43	66.74	56 23	70 22	64.57
CHLORINE EFFL	MG/L	AVG	1 6	1 5	1 5	1 5	1 5	1 5	1 7	1 5	1 5	1 6	1 6	1 5	1.54
CHLORINE EFFL	MG/L	MAX	2	1 7	1 6	1 7	1 6	1 8	2.1	1 9	1 8	2	1 8	1 7	1.81
MERCURY INFL	UG/L		0 173	0 223	0 146	0 101	0 477	0 268	0 18	0 254	0 167	0 122	0 212	0 109	0.20
MERCURY EFFL	UG/L	8/	0 081	0 174	0 093	0 075	0 212	0 152	0 083	0 075	0 094	0 075	0 086	0 075	0.11
MERCURY EFFL	UG/L	8.5	0.116	0 262	0 156	0 075	0 95	0 281	0 124	0 075	0 161	0 075	0 162	0 075	0.21
COLIFORM FECAL EFFL	MPN	200/400	100	45	44	7	27	190	115	37	69	208	131	49	51.20
BOD % REM	%	79/	89	92	90	89.4	91	94	95	95	94	89	92.7	91	91.84
TSS % REM	%	82/	73	78	76	73 9	84	86	87	91	86	71	82.1	84	81.00
DICHLOROETHENE EFFL	UG/L	6	2	2	2	2	2	2	2	2	1	2	2	2	1.92

FOOTNOTES FOR FIELD'S POINT

Fecal Coliform (MPN/100mL) GEOMEAN CALCULATION

1/4=500, 1/6=1300, 1/17=2400, 1/18=900, 1/26=500, 2/12=3000, 2/28=1300,
6/4=900, 6/9=500, 6/11=500, 6/14=615, 6/17=500, 6/18=2400, 6/19=800, 6/20=1600, 6/21=300, 6/23=500, 6/27=900,
7/3=500, 7/8=800, 7/13=700, 7/22=2350, 7/24=700
8/12=900; 8/26=800; 8/27=500; 9/10=770; 9/11=2400; 9/13=3000; 9/17=490; 9/29=1600;
10/1=900, 10/11=1100, 10/16=500, 10/17=600, 10/18=1100, 10/26=900, 10/25=500, 10/31=900
11/15=500, 11/7=500, 11/23=300, 11/24=500, 11/25=500, 11/26=2400;
11/28=500; 12/2=500; 12/12=500; 12/17=3000;

Unable to report BOD's for 10/2 & 10/3 due to contaminated dilution water.

Methylene Chloride
11/12=12.6 ppb

NARRAGANSETT BAY COMMISSION – BUCKLIN POINT, 1996

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	AVGS.
ACUTE MYSID BAHIA	LC50	100			>100			>100			>100			>100	
ACUTE MENIDIA	LC50	100			>100			>100			>100			>100	
ACUTE MYSID BAHIA	NOAEL				100			0			100			100	75
ACUTE MENIDIA	NOAEL				100			0			100			100	75
BOD INFL	MG/L	—	237	196	189	186	200	287	263	270	249	234	218	172	225.1
BOD EFFL	MG/L	30/	9	11	9	8	8	14	8	9	10	11	8	14	9.917
BOD EFFL	MG/L	60	19	35	14	30	18	42	40	29	31	28	51	53	32.5
TSS INFL	MG/L		214	142	151	142	167	242	262	192	218	156	146	130	180.2
TSS EFFL	MG/L	30/	16	15	13	14	10	23	12	11	17	18	12	26	15.58
TSS EFFL	MG/L	100	92	49	18	50	21	81	122	33	65	67	92	180	71.67
SS EFFL	ML/L	0.1/	1	0.2	0.1	0.06	0.2	0.2	0.2	0.4	0.3	0.5	0.9	0.4	0.372
SS EFFL	ML/L	0.3	7.5	1	0.6	2	0.6	0.3	2.1	1.6	0.8	2.2	5.6	2.8	2.258
O & G EFFL	MG/L		2.2	2.1	3.2	31.5	0.8	0.9	0.8	3.5	1.6	2.3	9.6	1.7	4.933
AMMONIA-N EFFL	MG/L		8.9	11.5	16.5	15.4	16	10.5	11	6.89	5.6	5.49	5.54	5.92	9.928
NITRITE-N EFFL	MG/L		2.05	1.23	0.6	0.04	0.07	2.1	1.9	0.62	0.55	0.66	0.5	0.55	0.906
NITRATE-N EFFL	MG/L		9	4.5	0.4	0.57	0.08	5	3.53	6.3	7	0.79	3.1	3	3.606
PHOSPHORUS EFFL	MG/L		4.13	5.03	2.7	3.1	3.7	4.9	2.75	4.7	6.25	5.4	5.2	4	4.405
CYANIDE INFL	UG/L		6.2	6.1	5.5	19.8	6.9	11.8	5.3	5.1	10	10.1	11.5	10.5	9.075
CYANIDE EFFL	UG/L	AVG	6.7	5	12.6	5	5	6.8	5	5	10	10.7	10	10	7.65
CYANIDE EFFL	UG/L	MAX	13.5	5	35.5	5	5	12	5	5	10	12	10	10	10.67
CADMIUM INFL	UG/L		0.5	0.92	0.8	1	0.8	1.3	1.1	1.5	1.6	1.6	1.1	0.4	1.052
CADMIUM EFFL	UG/L	AVG	0.3	0.4	0.3	0.3	0.5	0.4	0.3	0.4	0.3	0.4	0.4	0.6	0.383
CADMIUM EFFL	UG/L	MAX	0.3	0.6	0.4	0.3	0.8	0.5	0.3	0.8	0.4	0.6	0.5	1.4	0.575
CHROMIUM HEX INFL	UG/L		192	74	110	110	97.6	53.6	115	141	170	101	78.8	32.7	106.3
CHROMIUM HEX EFFL	UG/L	AVG	85	24.2	53	29.2	11.4	17.7	19.5	15.2	7.8	9.5	6.5	6.6	23.8
CHROMIUM HEX EFFL	UG/L	MAX	201	50.9	177	61.7	22	40	31.3	27.4	11.2	49.2	10.9	8.2	57.57
COPPER INFL	UG/L		204	71.2	167	81	115	152	160	146	122	151	151	113	136.1
COPPER EFFL	UG/L	AVG	17.7	15.5	12.2	17	15.8	33.4	13.2	23.3	18.6	15.6	39.1	26.6	20.67
COPPER EFFL	UG/L	MAX	28.4	21.7	14.3	36.4	28.8	68.8	16.5	39.8	24.6	24.6	92	67.8	38.64
LEAD INFL	UG/L		16.9	19.8	20.2	18.4	23.4	48.5	34.2	24	39.3	21.6	15.6	13.8	24.56
LEAD EFFL	UG/L	AVG	2.1	3.6	2	5.7	3.5	5	3.5	3.2	7.4	3.3	6.3	5.8	4.283
LEAD EFFL	UG/L	MAX	2.9	9.6	2.5	12.6	4.7	10.7	8.8	4.6	8.4	4.8	18.5	14.4	8.542
NICKEL INFL	UG/L		26	27.9	48	27.3	42.6	76	58.8	47.8	46.9	51.1	51.5	23.7	43.98
NICKEL EFFL	UG/L	AVG	17.6	23.3	29.7	16	36.3	37.6	37.4	23.5	20.2	33.4	33.3	19.3	27.3
NICKEL EFFL	UG/L	MAX	23.1	27.7	65.8	22.8	85.6	81	67.2	35.6	26.6	56.8	43.2	24.9	47.53
SILVER INFL	UG/L		9.2	6.84	8.9	8.7	7.3	10.7	10.4	9.6	11.6	9.2	9.1	8.5	9.17
SILVER EFFL	UG/L	AVG	2.22	2.3	2.3	2.49	1.33	3	1.6	1.58	3.22	1.78	2.75	2.8	2.281
SILVER EFFL	UG/L	MAX	2.64	2.62	2.5	4.23	1.83	4.3	2.51	2.03	4.31	2.87	5.68	5	3.377
ZINC INFL	UG/L		169	103	149	111	132	232	187	166	166	146	126	125	151
ZINC EFFL	UG/L	AVG	47.9	50.6	33.8	21	44.1	59.5	42.8	56.1	47	55.7	62	51.8	47.69
ZINC EFFL	UG/L	MAX	71.8	82.9	39.5	36	59.9	96	54.3	66.4	57	65.3	111	88	69.01
METHYLENE CH-EFFL	UG/L		1	1.4	1	1.9	1	1	1	3.37	1	1	4	1	1.556
TETRACHLOROE-THYLENE EFFL	UG/L		1	1	1	1.29	1	1	1	1	1	1	1	1	1.024
1,1,1-TRI-CHLOROETHANE EFFL	UG/L		1	1	1	1	1	1	1	1	1	1	1	1	1
TRICHLOROETHYLEN E EFFL	UG/L		1	1	1	1.03	1	1	1	1	1	1	1	1	1.003
FLOW IN CONDUIT INFL	AVG		25.39	28.04	27.70	29.40	25.17	21.43	21.09	19.96	21.34	23.79	21.74	30.11	24.50
FLOW IN CONDUIT INFL	MAX		45.58	36.95	44.86	47.10	32.35	29.96	46.48	34.17	41.57	55.13	37.84	50.30	42.02
FLOW IN CONDUIT EFFL	AVG		24.80	27.29	27.43	28.09	24.10	21.36	20.57	18.98	20.94	22.29	21.10	28.11	23.76
FLOW IN CONDUIT EFFL	MAX		38.30	29.51	40.45	39.58	29.70	28.19	35.11	26.14	35.01	36.83	28.43	35.68	33.56
CHLORINE EFFL	MG/L	AVG	1.7	1.6	[illegible]	[illegible]	1.7	1.7	[illegible]	[illegible]	1.7	1.8	1.7	1.8	1.70
CHLORINE EFFL	MG/L	MAX	2.2	2	2.2	2.2	1.8	2	2.6	2.6	2	2.4	2	2.3	2.192
MERCURY INFL	UG/L		0.079	0.21	0.075	0.075	0.271	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.103
MERCURY EFFL	UG/L	8/	0.082	0.14	0.075	0.075	0.172	0.128	0.075	0.075	0.075	0.075	0.084	0.075	0.094
MERCURY EFFL	UG/L	8.5	0.108	0.15	0.075	0.075	0.558	0.173	0.075	0.075	0.075	0.075	0.112	0.075	0.135
COLIFORM FECAL EFFL	MPN		55	14	29	8	22	33	47	[illegible]	[illegible]	[illegible]	11	12	29.39
BOD % REM	%	85	96.2	94.4	95.2	95.7	96	95.1	97	96.7	96	95.3	96.3	92	95.49
TSS % REM	%	85	92.5	89.4	91.4	90.1	94	90.5	95.4	94.3	92.2	88.5	91.8	85	91.26

FOOTNOTES FOR BUCKLIN POINT

Fecal Coliform (MPN/100mL): GEOMEAN CALCULATION

1/13=800; 1/17=500; 1/21=No Result Reported. Sample Taken From the Wrong Location. 2/28=500; 6/16=800; 6/18=650; 6/20=3200; 6/21=500; 6/23=1300; 7/13=2.6; 8/13=2625; 9/10=500; 9/15=500; 10/9=900; 10/20=1600; 11/23=500; 11/26=1700;

Settleable Solids (ml/L)

1/20=7.5; 1/21=0.4; 2/24=1.0; 2/25=0.5; 3/17=0.6; 5/1=0.6; 5/4=0.6; 5/6=0.5; 5/30=0.4; 7/2=0.4; 7/13=2.1; 7/14=0.5; 7/20=0.4; 8/13=1.6; 8/25=0.6; 9/17=0.8; 9/18=0.6; 11/26=5.6;

weekly avg. for 6/23 - 6/29= 0.2;

Chromium, Hexavalent

2/97=Hexavalent chrome on influent=matrix interference(unable to analyze).

Chlorine, TR

3/6=2.2 mg/L; 4/16=2.2 mg/L; 8/6=2.6; 8/13=2.2; 10/20=2.4; 10/21=2.1;

Unable to report BOD's for 10/2 & 10/3 due to dilution water toxic Inf; and 10/1 & 10/2 Eff..

NARRAGANSETT BAY COMMISSION - FIELD'S POINT, 1997

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MAX.	MIN.	AVG
ACUTE MYSID BAHIA	LC50				>100			>100			>100			>100	>100	>100	>1
ARBACIA PUNTUCATA CHRONIC	NOEL				100			100			100			100	100	100	
BOD INFL	MG/L	-	106	115	114	79	120	141	132	126	150	161	131	141	161	79	
BOD EFFL	MG/L	30/	7 2	4 4	4 4	6 6	10	7 3	4	4 5	5 8	6 2	7 4	6 2	10	4	6
BOD EFFL	MG/L	50	23	24	10	16	20	20	8	5 3	7 7	9 1	9	8 8	24	5 3	13
TSS INFL	MG/L		106	141	151	69	102	133	126	142	133	166	125	115	166	69	12
TSS EFFL	MG/L	30/	16	16	12	11	11	15	11	12	14	20	19	15	20	11	
TSS EFFL	MG/L	50	33	77	28	23	18	24	20	14	17	28	24	17	77	14	2
SS EFFL	ML/L	0.1/	0 1	0.05	0.4	0.05	0.05	0.05	0.06	0.3	0 17	0 04	19	0 3	19	0 04	
SS EFFL	ML/L	0.3	0.3	0 05	2.5	0 25	0.05	0.05	0.35	1.2	1 0	0 5	24	0 9	24	0 05	2 5
O & G EFFL	MG/L	AVG	3.4	1.6	1 22	1.8	1 3	1 3	1.4	1.1	1 0	1 2	2	1 2	3 4	1	
O & G EFFL	MG/L	MAX	3.7	1.7	1 47	2.7	1.4	1.6	1.7	1.5	1 2	2.2	2.1	1 5	3.7	1 2	1
AMMONIA-N EFFL	MG/L		10.6	14.8	9.52	9.02	11.3	7.73	8.9	7.34	11.5	16.4	9.13	6.22	16.4	6.22	10 21
NITRITE-N EFFL	MG/L		0 224	0.416	0.26	0.237	0.27	1 34	0.28	0.19	0.235	0.7	0.21	0 234	1 34	0 19	0 383
NITRATE-N EFFL	MG/L		0.58	2.2	1.7	1	2.6	2.1	3.4	2	0.5	3.3	18.6	5 5	18.6	0 5	3.62
PHOSPHORUS EFFL	MG/L		2.4	1.55	0.8	0.35	1 25	1 5	2.5	2.95	1 35	1 9	1 2	2 15	2.95	0 35	1 66
CYANIDE INFL	UG/L		40.4	30.9	52.4	23.6	38.2	52.5	54.4	56.4	124	71.4	74.6	61	124	23 6	56 7
CYANIDE EFFL	UG/L	84/	6.8	5	114	5.2	5	7 5	5.2	5.9	8.6	7 2	8.4	9.4	114	5	15 7
CYANIDE EFFL	UG/L	/182	21	5	5	7	5.5	18	7	10	21	12	13.5	40	40	5	13 9
CADMIUM INFL	UG/L		1.4	1 6	1 6	0 9	1	0.4	0 9	2	1.4	1 8	1 4	2.1	2 1	0 4	1 4
CADMIUM EFFL	UG/L	149/	1	0.5	1	0.5	0.4	0.3	0.2	1	0.5	0.4	0.6	0.9	1	0 2	0 6
CADMIUM EFFL	UG/L	/172	1 6	0 8	1 2	1	0 7	0.3	0.4	1 8	0 9	1 2	1 5	1 6	1 9	0 3	1 1
CHROMIUM HEX INFL	UG/L		27 8	40 4	29 4	30 4	35.6	78.5	72.9	66.2	43.3	65.6	87	85	87	27 9	55 2
CHROMIUM HEX EFFL	UG/L	800/	7 6	8.2	12	7	8 8	14 3	15.3	9.7	9 8	12 7	9 2	12 5	15 3	7	10 5
CHROMIUM HEX EFFL	UG/L	4400	15 8	15	25	11	15	51 7	62	22 3	26 7	30 2	18	32 2	62	11	27 1
COPPER INFL	UG/L		90.6	83.4	101	58.5	84.4	115	102	100	121	163	86.1	127	163	58.5	102.3
COPPER EFFL	UG/L	133/	51.6	31 1	42.4	22.7	26.6	34 3	24.8	33.3	28.2	26.1	33.8	47.1	51 6	22.7	33 5
COPPER EFFL	UG/L	274	99.4	42.6	62	35.7	40.5	44.4	34.5	41.5	48.3	46.8	69.1	74.9	99 4	34 5	53.3
LEAD INFL	UG/L		28.8	20.8	24.7	11	13.6	26.5	21	41.5	42.8	60.4	14	18 7	60.4	11	27 1
LEAD EFFL	UG/L	90/	8.9	4.4	2.9	2.8	3.5	3.6	2.5	4.6	25	4.1	2.9	3.7	25	2 5	5 7
LEAD EFFL	UG/L	560	18.8	12	6.4	4.9	6.4	8.4	4.7	13.2	28.8	8	4.9	12.9	28.8	4 7	10 3
NICKEL INFL	UG/L		98.1	118	93.4	87	116	229	142	99	180	151	103	117	229	87	128
NICKEL EFFL	UG/L	328/	94.4	96.1	88.5	78	115	151	102	90.6	187	110	78.6	93.7	187	78	107
NICKEL EFFL	UG/L	/718	142	132	110	147	165	426	158	130	204	208	110	137	426	110	172
SILVER INFL	UG/L		5.86	12.6	6.83	5.02	8.7	10	10.1	9	8.7	13.9	9.8	11 5	13.9	5.02	9 3
SILVER EFFL	UG/L	16/	2.53	3.26	2.57	2.68	2.8	2.1	3.1	3.1	1	2.5	2.7	2.5	3 26	1	2 5
SILVER EFFL	UG/L	/32	4.84	4.57	3.48	4.95	7.3	3.2	12.7	8.1	2	6.3	8.6	4 4	12.7	2	5 3
ZINC INFL	UG/L		121	136	111	108	104	143	145	131	128	191	109	125	191	104	129
ZINC EFFL	UG/L	380/	71 4	62.9	70.8	69	55	55.4	66.9	72.1	65.6	56.9	63.6	71.9	72.1	55	65.1
ZINC EFFL	UG/L	/718	132	118	116	127	64.2	88.5	119	86.9	88.1	77.4	82.9	108	132	64.2	100 7
METHYLENE CH-EFFL	UG/L	/10	3.3	9.6	2	3.46	3.75	6.1	3	6.4	2.44	2.5	1.6	4	9.6	1 6	4 01
TETRACHLOROETHYLENE EFFL	UG/L	/33	5.1	9.87	1 58	2.12	1.39	1	2.1	1	1	1	1	1 99	9.87	1	2 43
1,1,1-TRICHLOROETHANE EFFL	UG/L	/4.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BIS PHTHALATE EFFL	UG/L	/104	2	2	2	2	2	1	2	2	2	8.6	2	2	8.6	1	2 5
TRICHLOROETHYLENE EFFL	UG/L	/35	1 5	1	1	1.62	1	2	1	1	1	1	1	1	2	1	1
FLOW IN CONDUIT INFL	AVG		48.38	46.5	48.06	63.91	47.1	40.47	37.7	41.22	37.98	36.3	45.1	39.77	63.91	36.3	44 38
FLOW IN CONDUIT INFL	MAX		70.3	71.77	87.73	89.94	63.9	51.67	54	77.49	48.71	58	79.2	62.76	89.94	48.7	67.96
FLOW IN CONDUIT EFFL	AVG	65	46.95	45.53	46.05	60.4	46 51	40.26	37.5	39.71	37.92	35.7	42.4	39.27	60.4	35.7	43.18
FLOW IN CONDUIT EFFL	MAX	77	57 97	58.28	63.05	73.49	56.76	45.44	49.2	59.16	48.71	47.3	61.6	54 4	73 49	45.4	56 29
CHLORINE EFFL	MG/L	AVG	1 6	1 5	1 4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1 6	1 4	1 5
CHLORINE EFFL	MG/L	MAX	1 8	1 8	1 8	1 8	1 6	1 7	1 7	1 7	1 7	1 8	2.2	1 7	2 2	1 6	1 8
MERCURY INFL	UG/L		0.124	0.141	0.111	0.15	0.148	0.378	0.22	0.18	0.323	0.24	0.17	0.155	0.378	0.11	0.194
MERCURY EFFL	UG/L	8/	0.079	0.08	0.075	0.076	0.075	0.317	0.12	0.096	0.108	0.12	0.09	0.076	0.317	0.08	0.109
MERCURY EFFL	UG/L	/8.5	0.094	0.101	0.075	0.088	0.075	0.5	0.24	0.132	0.178	0.21	0.14	0.086	0.5	0.08	0.159
COLIFORM FECAL EFFL	MPN	200/400	31	6	14	27	58	142	44	280	280	210	110	28	280	6	100
BOD % REM	%	79/	93	96	96	84	92	95	91	96	96	96	95	96	96	84	94
TSS % REM	%	82/	85	89	92	92	89	89	97	92	89	88	85	87	97	85	90
DICHLOROETHENE EFFL	UG/L	/6	2	1	1	1	1	1		1	2	1	1	1	2	1	

NARRAGANSETT BAY COMMISSION, BUCKLIN POINT, 1997

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MAX.	MIM.	AVG
ACUTE MYSID BAHIA	LC50	100			>100			>100			>100			>100	>100	>100	>1
ACUTE MENIDIA	LC50	100			>100			>100			>100			>100	>100	>100	>1
ACUTE MYSID BAHIA	NOAEL				100			100			100			100	100	100	
ACUTE MENIDIA	NOAEL				100			100			100			100	100	100	
BOD INFL	MG/L	--	210	228	205	144	178	220	245	239	223	254	207	243	254	144	2
BOD EFFL	MG/L	30/	9	13	6	7	10	6	6	8	7	7	10	11	13	6	
BOD EFFL	MG/L	50	52	33	24	15	21	17	21	12	14	11	12	15	52	11	2
TSS INFL	MG/L		75	211	257	126	143	172	181	282	174	177	120	121	282	75	1
TSS EFFL	MG/L	30/	27	13	14	11	10	10	17	16	16	17	22	21	27	10	
TSS EFFL	MG/L	50	173	33	30	23	21	20	55	18	15	29	24	33	173	15	4
SS EFFL	ML/L	0.1/	2	0.2	0.4	0.4	0.1	0.1	0.1	0.4	0.3	0.4	0.5	0.1	2	0.1	0
SS EFFL	ML/L	.3	13.8	0.4	2.5	1	0.03	0.3	0.4	0.9	2.1	0.4	2.2	0.2	13.8	0.0	2
O & G EFFL	MG/L		1.2	2	3.86	1.1	1.3	1.9	2.9	6.4	1.2	1	2.4	2.4	6.4	1.0	2
AMMONIA-N EFFL	MG/L		10.7	10.6	10.6	9.8	11.1	8.46	8.74	6.27	4.31	4.54	6.38	26.4	26.4	4.31	9.83
NITRITE-N EFFL	MG/L		0.152	0.2	0.47	0.795	1.22	1.01	0.94	0.165	0.135	0.059	0.315	0.94	1.22	0.059	0.533
NITRATE-N EFFL	MG/L		0.42	0.55	4.4	3.3	0.3	5.6	5.3	6.8	4.2	0.3	10	7.1	10	0.3	4.2
PHOSPHORUS EFFL	MG/L		3.85	3.25	2.7	2.35	5.2	5.5	4.4	3.15	2.95	4.4	3.7	6.9	6.9	2.4	4.2
CYANIDE INFL	UG/L		5.6	5	5	6.8	8.3	11.2	10.2	11.9	15.7	19.8	24.4	8.4	24.4	5.0	
CYANIDE EFFL	UG/L	AVG	5	5	5	5	5	5.8	5	5	5	5	5	5.9	5.9	5.0	5
CYANIDE EFFL	UG/L	MAX	5	5	5	5	5	8	5	5	5	5	5	8.8	8.8	5.0	5.5
CADMIUM INFL	UG/L		0.8	0.9	1.4	0.4	0.5	0.5	1.6	1.8	1.2	1.3	0.5	0.7	1.8	0.4	
CADMIUM EFFL	UG/L	AVG	0.3	0.3	0.5	0.2	0.2	0.3	0.4	1.2	0.4	0.2	0.3	0.3	1.2	0.2	
CADMIUM EFFL	UG/L	MAX	0.4	0.3	0.7	0.2	0.2	0.3	0.7	1.8	0.6	0.3	0.4	0.4	1.8	0.2	0.5
CHROMIUM HEX INFL	UG/L		57.4	57.4	53.5	55.2	57	24.3	188	205	197	114	169	195	205	24.3	114.4
CHROMIUM HEX EFFL	UG/L	AVG	6.8	6.9	8	10.3	6.8	24.7	14.2	15.3	13	10.7	10.8	18.5	24.7	6.8	12.2
CHROMIUM HEX EFFL	UG/L	MAX	8.4	8	11	17	9	40.4	24.9	30.5	41.3	21.2	17	46.7	46.7	8	23.0
COPPER INFL	UG/L		89	86.5	118	64.8	97	89.2	178	144	103	130	111	134	178	64.8	112.3
COPPER EFFL	UG/L	AVG	19.4	14.4	17	17.3	17.1	14.4	23.9	20.6	21	26.5	28.7	42.4	42.4	14.4	21.9
COPPER EFFL	UG/L	MAX	47.1	21.2	19.8	28.3	19.5	16.5	36.3	21.4	29.2	32	30.6	59.2	59.2	16.5	30.1
LEAD INFL	UG/L		15.3	12.5	35.8	9.6	11.8	12.3	54.8	41.2	43	58	6.7	10	58	6.7	25.9
LEAD EFFL	UG/L	AVG	4.7	1.8	3	4.7	2.5	2.3	3.4	3.4	15.7	3.2	3.1	4.6	15.7	1.8	4.4
LEAD EFFL	UG/L	MAX	13.5	2.2	5.4	8	4.2	5.1	4.7	3.8	19.4	6.5	4.4	12.1	19.4	2.2	7.4
NICKEL INFL	UG/L		21	37.6	54	20.4	152	36.5	65.1	64	37.7	64	26.8	41.1	152	20.4	51.7
NICKEL EFFL	UG/L	AVG	16.3	22.6	34	18.2	31.7	29	46.8	39.6	44.3	34	39	33.9	46.8	16.3	32.5
NICKEL EFFL	UG/L	MAX	18.1	27.6	47.6	22.6	35.9	48.9	83.1	47.6	55.5	38.6	42.8	39.8	83.1	18.1	42.3
SILVER INFL	UG/L		6.07	9.6	8.7	7.39	6.1	9.5	18.4	12.2	7.3	14.9	8.8	19.1	19.1	6.07	10.7
SILVER EFFL	UG/L	AVG	1.64	3.3	2.62	2.95	2.5	3	2.6	1.5	0.7	2.4	2.5	4.8	4.8	0.7	2.5
SILVER EFFL	UG/L	MAX	3.04	4.4	3.75	4.21	5	5.3	5.1	2	0.8	3.6	2.8	5.7	5.7	0.8	3.8
ZINC INFL	UG/L		102	112	167	92	100	103.2	258	205	186	174	84.9	98	258	84.9	140.2
ZINC EFFL	UG/L	AVG	47	41.4	37.8	45.7	44.2	41.2	60.5	62.6	58.9	57.4	62.3	63.6	63.6	37.8	51.9
ZINC EFFL	UG/L	MAX	78	46	41.2	48.3	46.2	47	67.5	72.4	64.6	66.9	66.4	80.2	80.2	41.2	60.4
METHYLENE CH-EFFL	UG/L		3.5	4.1	2	2	2	2	2	2	3.6	0	2	2	4.1	0	2
TETRACHLOROE-THYLENE EFFL	UG/L		1	1	1	1	1	1	1	1	1	0	1	1	1	0	1
1,1,1-TRI-CHLOROETHANE	UG/L		1	1	1	1	1	1	1	1	1	0	1	1	1	0	1
TRICHLOROETHYLEN E EFFL	UG/L		1	1	1	1	1	1	1	1	1	0	1	1	1	0	1
FLOW IN CONDUIT INFL	AVG		25.67	24.6	25.1	33.46	24.91	21.09	19.71	21.13	19.55	19.41	22.38	21.21	33.46	19.41	23.19
FLOW IN CONDUIT INFL	MAX	67	40.68	39.59	36.34	46.12	33.17	25.05	29.84	38.11	24.57	32.06	38.26	32.28	46.12	24.57	34.67
FLOW IN CONDUIT EFFL	AVG	31	25.25	24.6	24.44	32.61	24.62	21.06	19.66	20.48	19.34	19.22	21.87	20.84	32.61	19.22	22.83
FLOW IN CONDUIT EFFL	MAX	46	35.31	39.59	36.34	41.13	31.8	25.05	28.23	33.72	24.44	32.06	34.98	30.99	41.13	24.44	32.80
CHLORINE EFFL	MG/L	AVG	1.7	1.7	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7
CHLORINE EFFL	MG/L	MAX	2.2	2	2.2	2.2	2.2	1.8	1.9	1.7	1.8	1.8	1.8	1.8	2.2	1.7	2.0
MERCURY INFL	UG/L		0.075	0.075	0.075	0.078	0.08	0.245	0.146	0.078	0.079	0.077	0.08	0.077	0.245	0.075	0.097
MERCURY EFFL	UG/L	8/	0.075	0.075	0.075	0.075	0.075	0.245	0.092	0.079	0.075	0.075	0.079	0.075	0.245	0.075	0.091
MERCURY EFFL	UG/L	/8.5	0.075	0.075	0.075	0.075	0.075	0.5	0.108	0.092	0.075	0.075	0.092	0.075	0.5	0.075	0.116
COLIFORM FECAL EFFL	MPN		9	7	13	9	16	18	10	80	20	8	111	4	60	4	15
BOD % REM	%	85	96	94	97.1	95	94	97	98	97	97	97	95	95	98	94	96
TSS % REM	%	85	84	94	94.6	91	93	94	91	94	91	90	82	83	94.6	82	90

NARRAGANSETT BAY COMMISSION, BUCKLIN POINT, 1997

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MAX.	MIM.	AVG
ACUTE MYSID BAHIA	LC50	100			>100			>100			>100			>100	>100	>100	>1
ACUTE MENIDIA	LC50	100			>100			>100			>100			>100	>100	>100	>1
ACUTE MYSID BAHIA	NOAEL				100			100			100			100	100	100	
ACUTE MENIDIA	NOAEL				100			100			100			100	100	100	
BOD INFL	MG/L	--	210	228	205	144	178	220	245	239	223	254	207	243	254	144	2
BOD EFFL	MG/L	30/	9	13	6	7	10	6	6	8	7	7	10	11	13	6	
BOD EFFL	MG/L	50	52	33	24	15	21	17	21	12	14	11	12	15	52	11	2
TSS INFL	MG/L		75	211	257	126	143	172	181	282	174	177	120	121	282	75	1
TSS EFFL	MG/L	30/	27	13	14	11	10	10	17	16	16	17	22	21	27	10	
TSS EFFL	MG/L	50	173	33	30	23	21	20	55	18	15	29	24	33	173	15	4
SS EFFL	ML/L	0.1/	2	0.2	0.4	0.4	0.1	0.1	0.1	0.4	0.3	0.4	0.5	0.1	2	0.1	0
SS EFFL	ML/L	.3	13.8	0.4	2.5	1	0.03	0.3	0.4	0.9	2.1	0.4	2.2	0.2	13.8	0.0	2
O & G EFFL	MG/L		1.2	2	3.86	1.1	1.3	1.9	2.9	6.4	1.2	1	2.4	2.4	6.4	1.0	2
AMMONIA-N EFFL	MG/L		10.7	10.6	10.6	9.8	11.1	8.46	8.74	6.27	4.31	4.54	6.38	26.4	26.4	4.31	9.83
NITRITE-N EFFL	MG/L		0.152	0.2	0.47	0.795	1.22	1.01	0.94	0.165	0.135	0.059	0.315	0.94	1.22	0.059	0.533
NITRATE-N EFFL	MG/L		0.42	0.55	4.4	3.3	0.3	5.6	5.3	6.8	4.2	0.3	10	7.1	10	0.3	4.2
PHOSPHORUS EFFL	MG/L		3.85	3.25	2.7	2.35	5.2	5.5	4.4	3.15	2.95	4.4	3.7	6.9	6.9	2.4	4.2
CYANIDE INFL	UG/L		5.6	5	5	6.8	8.3	11.2	10.2	11.9	15.7	19.8	24.4	8.4	24.4	5.0	
CYANIDE EFFL	UG/L	AVG	5	5	5	5	5	5.8	5	5	5	5	5	5.9	5.9	5.0	5
CYANIDE EFFL	UG/L	MAX	5	5	5	5	5	8	5	5	5	5	5	8.8	8.8	5.0	5.5
CADMIUM INFL	UG/L		0.8	0.9	1.4	0.4	0.5	0.5	1.6	1.8	1.2	1.3	0.5	0.7	1.8	0.4	
CADMIUM EFFL	UG/L	AVG	0.3	0.3	0.5	0.2	0.2	0.3	0.4	1.2	0.4	0.2	0.3	0.3	1.2	0.2	
CADMIUM EFFL	UG/L	MAX	0.4	0.3	0.7	0.2	0.2	0.3	0.7	1.8	0.6	0.3	0.4	0.4	1.8	0.2	0.5
CHROMIUM HEX INFL	UG/L		57.4	57.4	53.5	55.2	57	24.3	188	205	197	114	169	195	205	24.3	114.4
CHROMIUM HEX EFFL	UG/L	AVG	6.8	6.9	8	10.3	6.8	24.7	14.2	15.3	13	10.7	10.8	18.5	24.7	6.8	12.2
CHROMIUM HEX EFFL	UG/L	MAX	8.4	8	11	17	9	40.4	24.9	30.5	41.3	21.2	17	46.7	46.7	8	23.0
COPPER INFL	UG/L		89	86.5	118	64.8	97	89.2	178	144	103	130	111	134	178	64.8	112.3
COPPER EFFL	UG/L	AVG	19.4	14.4	17	17.3	17.1	14.4	23.9	20.6	21	26.5	28.7	42.4	42.4	14.4	21.9
COPPER EFFL	UG/L	MAX	47.1	21.2	19.8	28.3	19.5	16.5	36.3	21.4	29.2	32	30.6	59.2	59.2	16.5	30.1
LEAD INFL	UG/L		15.3	12.5	35.8	9.6	11.8	12.3	54.8	41.2	43	58	6.7	10	58	6.7	25.9
LEAD EFFL	UG/L	AVG	4.7	1.8	3	4.7	2.5	2.3	3.4	3.4	15.7	3.2	3.1	4.6	15.7	1.8	4.4
LEAD EFFL	UG/L	MAX	13.5	2.2	5.4	8	4.2	5.1	4.7	3.8	19.4	6.5	4.4	12.1	19.4	2.2	7.4
NICKEL INFL	UG/L		21	37.6	54	20.4	152	36.5	65.1	64	37.7	64	26.8	41.1	152	20.4	51.7
NICKEL EFFL	UG/L	AVG	16.3	22.6	34	18.2	31.7	29	46.8	39.6	44.3	34	39	33.9	46.8	16.3	32.5
NICKEL EFFL	UG/L	MAX	18.1	27.6	47.6	22.6	35.9	48.9	83.1	47.6	55.5	38.6	42.8	39.8	83.1	18.1	42.3
SILVER INFL	UG/L		6.07	9.6	8.7	7.39	6.1	9.5	18.4	12.2	7.3	14.9	8.8	19.1	19.1	6.07	10.7
SILVER EFFL	UG/L	AVG	1.64	3.3	2.62	2.95	2.5	3	2.6	1.5	0.7	2.4	2.5	4.8	4.8	0.7	2.5
SILVER EFFL	UG/L	MAX	3.04	4.4	3.75	4.21	5	5.3	5.1	2	0.8	3.6	2.8	5.7	5.7	0.8	3.8
ZINC INFL	UG/L		102	112	167	92	100	103.2	258	205	186	174	84.9	98	258	84.9	140.2
ZINC EFFL	UG/L	AVG	47	41.4	37.8	45.7	44.2	41.2	60.5	62.6	58.9	57.4	62.3	63.6	63.6	37.8	51.9
ZINC EFFL	UG/L	MAX	78	46	41.2	48.3	46.2	47	67.5	72.4	64.6	66.9	66.4	80.2	80.2	41.2	60.4
METHYLENE CH-EFFL	UG/L		3.5	4.1	2	2	2	2	2	2	3.6	0	2	2	4.1	0	2
TETRACHLOROE-THYLENE EFFL	UG/L		1	1	1	1	1	1	1	1	1	0	1	1	1	0	1
1,1,1-TRI-CHLOROETHANE	UG/L		1	1	1	1	1	1	1	1	1	0	1	1	1	0	1
TRICHLOROETHYLEN E EFFL	UG/L		1	1	1	1	1	1	1	1	1	0	1	1	1	0	1
FLOW IN CONDUIT INFL	AVG		25.67	24.6	25.1	33.46	24.91	21.09	19.71	21.13	19.55	19.41	22.38	21.21	33.46	19.41	23.19
FLOW IN CONDUIT INFL	MAX	67	40.68	39.59	36.34	46.12	33.17	25.05	29.84	38.11	24.57	32.06	38.26	32.28	46.12	24.57	34.67
FLOW IN CONDUIT EFFL	AVG	31	25.25	24.6	24.44	32.61	24.62	21.06	19.66	20.48	19.34	19.22	21.87	20.84	32.61	19.22	22.83
FLOW IN CONDUIT EFFL	MAX	46	35.31	39.59	36.34	41.13	31.8	25.05	28.23	33.72	24.44	32.06	34.98	30.99	41.13	24.44	32.80
CHLORINE EFFL	MG/L	AVG	1.7	1.7	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7
CHLORINE EFFL	MG/L	MAX	2.2	2	2.2	2.2	2.2	1.8	1.9	1.7	1.8	1.8	1.8	1.8	2.2	1.7	2.0
MERCURY INFL	UG/L		0.075	0.075	0.075	0.078	0.08	0.245	0.146	0.078	0.079	0.077	0.08	0.077	0.245	0.075	0.097
MERCURY EFFL	UG/L	8/	0.075	0.075	0.075	0.075	0.075	0.245	0.092	0.079	0.075	0.075	0.079	0.075	0.245	0.075	0.091
MERCURY EFFL	UG/L	/8.5	0.075	0.075	0.075	0.075	0.075	0.5	0.108	0.092	0.075	0.075	0.092	0.075	0.5	0.075	0.116
COLIFORM FECAL EFFL	MPN		9	7	13	9	16	18	10	80	20	8	111	4	60	4	15
BOD % REM	%	85	96	94	97.1	95	94	97	98	97	97	97	95	95	98	94	96
TSS % REM	%	85	84	94	94.6	91	93	94	91	94	91	90	82	83	94.6	82	90

FOOTNOTES:

Fecal Coliform Violations: GEOMEAN PROCESS

3/26-2,400; 4/18-500; 6/8-3,000; 8/17-500; 8/31-900; 9/8- 500;

Settleable Solids: ML/L

1/15-1.73; 1/24-1.31; 2/4-0.4; 3/25-2.6; 4/1-1.0; 4/5-1.0; 5/4-0.6; 7/4-0.4; 8/21-0.9; 8/22-0.4; 8/23-0.8; 8/30-0.6; 9/6- 0.6; 9/7- 0.5; 9/13- 0.8; 9/20- 0.6; 9/26- 0.4 9/28- 0.4; 9/29- 2.1

Total Suspended Solids: MG/L

1/16-13.6; 1/25-1.8; 1/28-1.4

Methyl Chloride ug/l:

2/10-4.1;

6/8-3,000 MPN/100mL

Chlorine TR MG/L:

3/10-2.1; 3/31-2.2; 4/3-2.1; 4/18-2.2; 4/19-2.2; 4/29-2.2; 5/29-2.2; 9/12- 2.3; 12/25 - 2.3;

6/97: Mercury instrument off-line for part of month; samples sent out which led to two different MDL (.075 & .05)

NARRAGANSETT BAY COMMISSION - FIELD'S POINT, 1998

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MAX.	MIN.
ACUTE MYSID SAMA	LC50				>100			100			100			100	>100	>100
ARBACIA PUNTUCATA CHRONIC	NOEL				100			100			100			100	100	100
BOD INFL	MG/L	–	107	107	100	121	112	102	110	109	125	125	135	160	160	100
BOD EFFL	MG/L	30/	7.08	7.8	10	13	8.4	6.4	6.6	7.9	8.1	11	13	13	13	6.4
BOD EFFL	MG/L	50	9	12	16	14	9.7	7.3	8	9.6	10.6	14.8	18	18	18	7.3
PH EFFL	MG/L	6/9	6.51	6.2	6.1	6.5	6.4	6.2	6	6.3	6.7	6.5	6.6	6.6	6.7	6
TSS INFL	MG/L		89	99	92	104	121	120	117	111	138	104	109	128	138	89
TSS EFFL	MG/L	30/	14	13	16	12	17	12	11	13	16	17	22	22	22	11
TSS EFFL	MG/L	50	20	21	26	17	19	16	14	15	19	20	31	30	31	14
SS EFFL	ML/L		1.2	2.2	3.8	0.7	1.5	1.1	0.1	0.4	2.8	2.4	2.1	3.0	3	0.1
SS EFFL	ML/L		3.8	10.5	2.6	10.8	5.9	5.2	0.4	18.1	8.0	11	8	14.5	18.1	0.4
O & G EFFL	MG/L	AVG	1.3	1.7	2	1.1	3.5	2.6	0.96	2.92	1.2	1.78	2	2.4	3.5	0.96
O & G EFFL	MG/L	MAX	1.9	2.1	2.7	1.2	6.2	5.4	1.2	3.75	1.64	2.79	2.7	3.3	6.2	1.2
AMMONIA-N EFFL	MG/L		6.72	8.01	9.15	9.05	6.45	4.95	3.2	8.6	10.1	10.5	14.4	14	14.4	3.2
NITRITE-N EFFL	MG/L		0.056	0.133	0.144	0.276	0.16	0.194	0.11	0.576	0.109	0.288	0.789	0.104	0.789	0.05
NITRATE-N EFFL	MG/L		0.51	2.6	1.3	0.06	0.32	3	3.9	0.9	0.1	0.2	0.06	0.01	3.9	0.01
PHOSPHORUS EFFL	MG/L		1.6	0.85	0.5	1.8	1.7	1.85	1.9	1.05	2.3	1.75	1.6	1.5	2.3	0.5
CYANIDE INFL	UG/L		53.2	36.4	44.7	44.2	39.9	27.6	17.2	26	41.8	32.4	24	27.7	53.2	17.2
CYANIDE EFFL	UG/L	84/	6.4	6.4	5.8	9.1	5.1	5.3	5	6	7	6.1	8.7	7.2	9.1	5
CYANIDE EFFL	UG/L	182	9.5	9.5	12	32	5.5	6.5	5	11	15	13	20	11.5	32	5
CADMIUM INFL	UG/L		1.6	1.2	1.9	1.3	2.2	2.3	1.3	0.9	2.1	1.3	2.3	2.2	2.3	0.9
CADMIUM EFFL	UG/L	149/	1	0.7	0.8	0.6	1.1	1.6	0.8	0.3	1.2	0.9	1	1.1	1.6	0.3
CADMIUM EFFL	UG/L	172	1.5	0.8	2	1.2	1.6	3.2	1.4	0.4	2.2	2.5	1.8	1.4	3.2	0.4
CHROMIUM HEX INFL	UG/L		56.8	40.2	38.8	56.6	44.4	42.1	49.6	55	69.7	57.9	74.2	68.3	74.2	38.8
CHROMIUM HEX EFFL	UG/L	800/	9.5	9	6.7	14.9	6.5	11.9	11.7	18.8	16.6	16.2	16.3	18.2	18.8	6.5
CHROMIUM HEX EFFL	UG/L	4400	13.6	23.4	11	39	12	24	20	27	40	28	34	31	40	11
COPPER INFL	UG/L		85.4	66.2	56.5	75.7	83.5	63.3	68.2	93.7	84.1	78.6	87.3	82.2	93.7	56.5
COPPER EFFL	UG/L	133/	36.3	27.4	21.2	26.9	31	26.7	24.5	20.2	16.3	32.2	29.3	25.3	36.3	16.3
COPPER EFFL	UG/L	274	51	33.9	40.4	58.8	37	31	38.4	27.7	26.8	77.9	58.1	47.7	77.9	26.8
LEAD INFL	UG/L		18.5	23.1	18.8	15.1	21.8	11.2	13.9	59.9	49.9	12	5.7	9.4	59.9	5.7
LEAD EFFL	UG/L	90/	5.1	4.8	5.8	1.8	3.4	3.4	3.4	3.3	35.7	3.42	2.2	2.4	35.7	1.8
LEAD EFFL	UG/L	560	9.5	8.4	20.4	3.6	6.5	5.9	6	7.2	62	11.4	4.3	5.1	62	3.6
NICKEL INFL	UG/L		84.8	86.4	73.4	70.3	70.2	66.1	59.9	79.8	79.3	105	93.3	100	105	59.9
NICKEL EFFL	UG/L	326/	76.3	72.1	68.7	68	57.5	60.6	53.1	52.8	63.5	59.9	79.1	80.8	80.8	52.8
NICKEL EFFL	UG/L	718	105	146	98.6	112	99.3	89.2	82.5	62.7	107	88.9	92.0	110	146	52.7
SILVER INFL	UG/L		7.5	8.4	7.3	6.5	7	8.5	8	10.2	5.8	9.9	8.2	5.1	10.2	5.1
SILVER EFFL	UG/L	16/	2.4	2.1	2.6	2.9	3.4	2.1	2.2	5.2	1.8	3.4	2.5	1.1	5.2	1.1
SILVER EFFL	UG/L	32	5.4	3.2	4.4	6.3	8.8	2.8	3.3	19	2.9	7.5	6.0	2.8	19	2.8
ZINC INFL	UG/L		104	108	96.6	88.7	119	110	110	153	160	98.8	102	107	160	98.7
ZINC EFFL	UG/L	360/	60.6	65.9	71.1	52.8	62.5	68.2	56.6	51	45.2	59.8	65	58.4	71.1	45.2
ZINC EFFL	UG/L	718	74.1	103	114	61.5	84.5	101	102	68.2	57.6	95.7	88.1	75.1	114	57.6
METHYLENE CH-EFFL	UG/L	10	1.1	8.6	2.67	2	13	8.95	2	8.1	1.09	3.68	2	3.6	13	1.09
TETRACHLOROETHYLENE EFFL	UG/L	33	1	1.2	2.07	1.5	1.1	2.62	1.97	1	1	1	1	1	2.62	1
1,1,1-TRICHLOROETHANE EFFL	UG/L	74.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BIS PHTHALATE EFFL	UG/L	104	2	2	2	2	2	2	4.4	51.2	2	2	2	6	51.2	2
TRICHLOROETHYLENE EFFL	UG/L	35	1	1.4	2.56	1.4	3.4	1	1.74	26.9	1	1	1	3.7	26.9	1
FLOW IN CONDUIT INFL	AVG		54.39	57.87	64.16	55.76	60.62	65.4	52.6	46.24	42.24	41.83	39.60	36.44	65.40	36.44
FLOW IN CONDUIT INFL	MAX		100.4	79.18	116.5	80.44	94.57	132.7	76.6	86.41	67.38	71.42	65.80	60.12	132.70	60.12
FLOW IN CONDUIT EFFL	AVG	85	51.01	55.01	60.44	53.46	57.3	57.91	52.2	44.7	41.46	40.87	38.55	36.13	60.44	36.13
FLOW IN CONDUIT EFFL	MAX	77	76.3	74.74	74.7	65.67	73.44	75.46	70.6	58.12	58.72	62.89	49.83	50.58	76.30	49.83
CHLORINE EFFL	ppm	AVG	1.6	1.4	1.2	1.2	1.5	1.4	1.3	1.2	1.2	1.3	1.3	1.3	1.6	1.2
CHLORINE EFFL	ppm	MAX	1.8	1.7	1.6	1.6	1.7	1.9	1.8	1.4	1.4	1.8	1.4	1.5	1.9	1.4
MERCURY INFL	UG/L		0.161	0.11	0.229	0.231	0.148	0.195	0.16	[redacted]	0.174	0.107	0.17	0.132	0.5	0.11
MERCURY EFFL	UG/L	8/	0.082	0.078	0.134	0.095	0.109	0.08	0.08	[redacted]	0.076	0.077	0.08	0.075	0.5	0.08
MERCURY EFFL	UG/L	18.5	0.102	0.099	0.198	0.162	0.218	0.09	0.08	0.5	0.081	0.090	0.11	0.075	0.5	0.08
COLIFORM FECAL EFFL	MPN	200/400	[redacted]								31	[redacted]		198	9	
BOD % REM	%	79/	93	93	90	89	92	94	92	93	94	91	90	92	94	89
TSS % REM	%	62/	84	87	83	88	86	90	90	88	88	84	80	83	90	90
DICHLOROETHENE EFFL	UG/L	6	1	1	1	1.3	1	1	1	1	1	1	1	1	1.3	1

NARRAGANSETT BAY COMMISSION - FIELD'S POINT, 1998

Fecal Coliform Violations: GEOMEAN PROCESS MPN/100ml	
	1/28/98=500MPN/100mL; 2/26/98=5000MPN/100mL;
	*1 -Fecal Coliform weekly avg. excursion 3/15-3/21.
	*2 - Fecal Coliform: Daily excursions: 3/9=5000; 3/10=900; 3/11=3000; 3/16=500; 3/17=1600;
	3/18=1550; 3/19=2800; 3/20=3000; 3/25=500.; 5/30/98=1700; 6/30/98=900; 7/12/98=900; 7/31/98=500
	Fecal Coliform Monthly Average does not include 8/23/98;
	11/3/98=5000; 11/5/98=900; 11/7/98=500; 11/11/98=1600; 11/29/98=500;
	12/5/98=3000; 12/6/98=2400; 12/7/98=900; 12/8/98=1100; 12/22/98=9000; 12/23/98=900; 12/30/98=900
	Daily Max Fecal Violation; 8/8/98=3000; 8/14/98=900; 8/28/98=1725; 8/29/98=800MPN/100mL
	Daily Fecal Violation: Weekly Fecal Violation ; 9/4=1100; 9/5=500; 9/7=980; 9/9=500; 9/15=500;
	9/18=1600; 9/19=900; 9/25=500;
Mercury	Mercury Analyzer in repair; ESS results 8/98
Total Suspended Solids	12/22/98 - rain day TSS daily max excursion
BOD	*2,3: No influent sample collected for 12/7/98, because of shutdown of grit chamber where sample aspirator was
Settleable Solids: ML/L	
	11/3/98 TSS effluent
pH	*1 5/98= 5.9 @ 1:00pm (lab grab)This figure of 5.9 was reported in error, later fixed to 6.5* the correct figure
	*1 The effluent auto pH meter went off line 3/19/98. A new transmitter has been ordered.
	The pH's from 3/20 - 3/31 is the ones taken manually by the lab.)
	4/98: pH data is from the two grabs/day analyzed by the lab. The control monitoring pH unit is in
	the process of being evaluated

NARRAGANSETT BAY COMMISSION, BUCKLIN POINT, 1998

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP	OCT	NOV.	DEC.	MAX.	M/M	AVG
ACUTE MYSID BAHIA	LC50	100			100			100			100			100	100	100	
ACUTE MENIDIA	LC50	100			60			96			100			100	100	60	
ACUTE MYSID BAHIA	NOAEL				12.5			100			50			50	100	12.5	
ACUTE MENIDIA	NOAEL				25			0			100			50	100	0	
BOD INFL	MG/L	--	170	176	166	137	182	183	190	166	203	247	257	291	291	166	
BOD EFFL	MG/L	30	30	16	13	18	19	17	13	12	13	18	19	22	30	12	
BOD EFFL	MG/L	50	47	26	14	27	26	26	17	15	17	24	32	27	47	14	
pH EFFL	MG/L	6-9	6.7	6.6	6.4	6.3	6.5	6.5	6.8	6.7	6.7	6.3	6.6	6.6	6.8	6.3	
TSS INFL	MG/L		103	110	125	132	147	137	147	144	156	195	181	204	204	103	
TSS EFFL	MG/L	30/	80	20	14	14	19	26	13	15	18	20	15	18	80	13	
TSS EFFL	MG/L	50	100	34	16	16	28	63	17	22	21	28	18	23	100	16	
SS EFFL	ML/L	0.1/	17.3	1	0.2	0.2	0.4	0.8	0.2	0.2	0.2	0.3	0.4	0.1	17.3	0.1	
SS EFFL	ML/L	3	40.2	2.5	0.8	0.2	4	2.3	0.8	0.8	1	0.8	1.8	0.2	40.2	0.2	4
O & G EFFL	MG/L		1.2	4	6.6	2.7	3.6	1.9	1.1	2	2.6	2.22	3.2	2	6.6	1.1	2
AMMONIA-N EFFL	MG/L		19.7	15.2	12.3	13.2	14.8	14.7	10	15.6	15.9	15.8	17.4	15.4	19.7	10	15.0
NITRITE-N EFFL	MG/L		0.145	0.088	0.087	0.223	0.304	0.019	0.281	0.5	0.336	0.301	0.26	0.31	0.5	0.019	0.231
NITRATE-N EFFL	MG/L		7.5	0.05	0.04	0.02	0.02	0.02	0.07	0.29	0.1	0.25	0.2	0	7.5	0.0	1.1
PHOSPHORUS EFFL	MG/L		4.1	4.7	7.4	7.4	5.6	3.45	4.35	5.2	4.5	6.15	5.2	8.2	8.2	3.5	5.5
CYANIDE INFL	UG/L		9	20.6	8	9.9	12.1	5.5	36.8	24.8	25.2	21	26.6	13.3	36.8	5.5	17.1
CYANIDE EFFL	UG/L	AVG	5.5	7.6	5.1	5.6	5	6.8	12.2	8.5	12.8	21	14.1	13.4	21	5.0	9.8
CYANIDE EFFL	UG/L	MAX	7	15.5	6	8	5	12	19	19	19	24	29	29	29	5.0	16.0
CADMIUM INFL	UG/L		0.5	0.7	0.7	0.7	0.8	1	0.8	0.9	1.4	1.2	1.7	1.8	1.8	0.5	1.0
CADMIUM EFFL	UG/L	AVG	0.4	0.2	0.3	0.3	0.4	0.05	0.3	0.3	0.8	0.5	0.5	0.9	0.9	0.05	0.4
CADMIUM EFFL	UG/L	MAX	0.5	0.3	0.4	0.4	0.6	0.9	0.4	0.3	1.4	0.6	0.7	2.1	2.1	0.3	0.7
CHROMIUM HEX INFL	UG/L		115	104	56	66.2	112	72	77	101	146	110	90	112	115	146	99.3
CHROMIUM HEX EFFL	UG/L	AVG	18.3	22.3	10.2	25.8	88	16.4	25	13.6	6.2	23.5	40.2	27.1	98	6.2	26.4
CHROMIUM HEX EFFL	UG/L	MAX	28.6	38	14	38	45.8	28	37	23	10.4	27.5	64	37	64	10.4	32.6
COPPER INFL	UG/L		156	102	86	85	94	72.3	87	84	81	106	120	121	156	72.3	99.6
COPPER EFFL	UG/L	AVG	56	23.2	19.1	19.7	23.7	15.2	17	15.2	16.6	21.4	22.7	25.4	56	15.2	22.9
COPPER EFFL	UG/L	MAX	106	49.6	25.3	23.8	32.6	18.2	20.8	22.3	24.7	25.6	32.7	36.1	106	18.2	34.8
LEAD INFL	UG/L		8.4	15	14.9	14.8	13.6	14.4	11.2	15.8	21.7	9.2	15.2	18.9	21.7	8.4	14.4
LEAD EFFL	UG/L	AVG	7.4	4.4	2.7	2.2	2.3	2.6	1.9	1.9	10.7	1.9	2.3	3.1	10.7	1.9	3.9
LEAD EFFL	UG/L	MAX	12.1	7.8	4.6	4	3.6	5.1	2	1.9	25.2	1.9	3.6	5.6	25.2	1.9	6.5
NICKEL INFL	UG/L		43.3	35.9	31.4	40.6	40	28.3	56.7	41.5	51	44.1	116	43	116	28.3	48.0
NICKEL EFFL	UG/L	AVG	38	20.3	24.1	27	34.6	38	41.1	36.9	112	51.2	34.1	39	112	20.3	41.4
NICKEL EFFL	UG/L	MAX	53	23.4	25.8	34.9	59.4	85.7	50.6	41.7	48.5	87.1	49.1	50.6	87.1	23.4	51.7
SILVER INFL	UG/L		12.9	11.4	7.3	6.4	6.9	4.1	9	10.4	8.7	11.6	14.5	10.7	14.5	4.1	9.5
SILVER EFFL	UG/L	AVG	7.4	3.5	1.9	1.4	2	1.4	1.9	2.7	2	3.3	3.6	1.4	7.4	1.4	2.7
SILVER EFFL	UG/L	MAX	14.8	7	2.8	1.6	3	2.1	2	3.2	3.5	3.8	5	2.8	14.8	1.6	4.3
ZINC INFL	UG/L		91	105	208	140	116	89	98	135	125	141	183	150	208	89	131.8
ZINC EFFL	UG/L	AVG	84	54.3	52.2	40.8	35.3	35.3	30.7	41.5	47.1	55.8	54.8	57.4	84	30.7	49.1
ZINC EFFL	UG/L	MAX	116	73.9	72.4	44.8	38.2	41.6	39.2	51	56.5	66.4	60.7	73	116	38.2	51.5
METHYLENE CH-EFFL	UG/L		2	2	2	2	2	7.8	2	2	2.1	2	2	2	7.8	2	2.5
TETRACHLOROE-THYLENE EFFL	UG/L		1	1	1.02	1	2.92	1	1	1	1	1	1	1	2.92	1	1
1,1,1-TRI-CHLOROETHANE	UG/L		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TRICHLOROETHYLEN E EFFL	UG/L		1	1	1.75	1	1	1	1	1	1	1	1	1	1.75	1	1
FLOW IN CONDUIT INFL	AVG		27.03	29.12	33.83	29.70	30.74	33.32	26.88	23.24	21.86	22.80	21.73	20.29	33.83	20.29	26.71
FLOW IN CONDUIT INFL	MAX	67	41.69	53.26	57.78	38.98	68.00	75.00	65.00	66.00	67.00	66.00	67.00	65.00	75.00	38.98	60.39
FLOW IN CONDUIT EFFL	AVG	31	25.26	24.41	31.81	28.47	30.74	33.32	26.88	23.24	21.86	22.80	21.73	20.29	33.32	20.29	25.90
FLOW IN CONDUIT EFFL	MAX	48	36.19	40.7	47.59	38.28	58	75	65	66	67	66	67	65	75	36.19	58.48
CHLORINE EFFL	MG/L	AVG	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.7	1.8	1.7	1.8	1.8	1.6	1.7
CHLORINE EFFL	MG/L	MAX	1.8	1.8	1.8	1.7	1.7	2.3	2.2	2.3	2	2	2.2	2.6	2.6	1.7	2.2
MERCURY INFL	UG/L		0.075	0.075	0.146	0.075	0.077	0.078	0.075	0	0.900	0.075	0.076	0.107	0.9	0	0.147
MERCURY EFFL	UG/L	8/	0.075	0.075	0.116	0.076	0.094	0.075	0.075	0.5	0.098	0.075	0.075	0.075	0.5	0.075	0.117
MERCURY EFFL	UG/L	8.5	0.075	0.075	0.148	0.078	0.119	0.076	0.075	0.5	0.136	0.075	0.075	0.075	0.5	0.075	0.125
COLIFORM FECAL EFFL	MPN		33	13	10	8	22	20	36	117	142	28	21	10	142	8	38
BOD % REM	%	85	82	91	92	90	90	90	93	93	94	93	93	92	94	82	91
TSS % REM	%	85	42	82	89	89	86	81	91	90	88	90	91	91	91	42	84

FOOTNOTES:	
Fecal Coliform Violations: MPN/100mls	
	1-16/98-1700; 1/23/98-500; 1-24/98-5000; 2/5/98-1100; 2/12/98-500; 3/1/98-500; 4/10/98-2,400;
	5/24/98-500; 5/30/98-500; 7/15/98-16,000; 7/18/98-900; 7/25/98-2,400; 7/31/98-9,000;
	8/21-2,400; 8/25-900; 8/26-1,600; 8/28-2,900; 8/29-5,000; 10/31-1,600;
Settleable Solids: ML/L	
	1-16/98-11.0; 1-17/98-0.4; 1/23/98-20.0; 1/24/98-3.0; 1/25/98-1.8; 1/27/98-20.2; 1/28/98-40.2; 1/29/98-40.0; 1/30/98-10.0;
	2/2/98-2.6; 2/4/98-0.8; 2/5/98-3.0; 2/12/98-1.4; 2/21/98-0.4; 2/28/98-0.6;
	3/9/98-0.6; 3/15/98-0.4; 3/21/98-0.8; 3/24/98-0.4; 5/2/98-0.6; 5/6/98-0.4; 5/10/98-2.0; 5/30/98-0.6;
	7/6/98-0.8; 7/18/98-0.4; 8/2-0.8; 8/17-0.8; 8/26-0.6; 10/5-0.6; 10/9-0.8; 10/17-0.6; 11/11-1.8;
Total Suspended Solids: MG/L	
	1/7/98-141; 1/15/98-126; 1/21/98-103; 1/22/98-150; 1/23/98-239; 1/27/98-138; 1/28/98-125;
	4/2/98-1.0 (am grab).
Methyl Chloride ug/l:	
Bioassay:	LC50-Menidia:60%
Chlorine TR MG/L:	
	1/16/98-2.2; 1/24/98-2.2; 2/18/98-2.1; 2/24/98-2.2; 3/9/98-2.5;
Cyanide	Fourth sample accidently discarded. 7/98
BOD	12/17 & 12/19/98 the BOD value for the final effluent exceeded 41. We were not able
	to determine the exact values due to inadequate dilution of the samples.
	We have since made a change in the procedure where we will be
	using a wider range of dilutions that would routinely determine BODs of 4-120 mg/L.