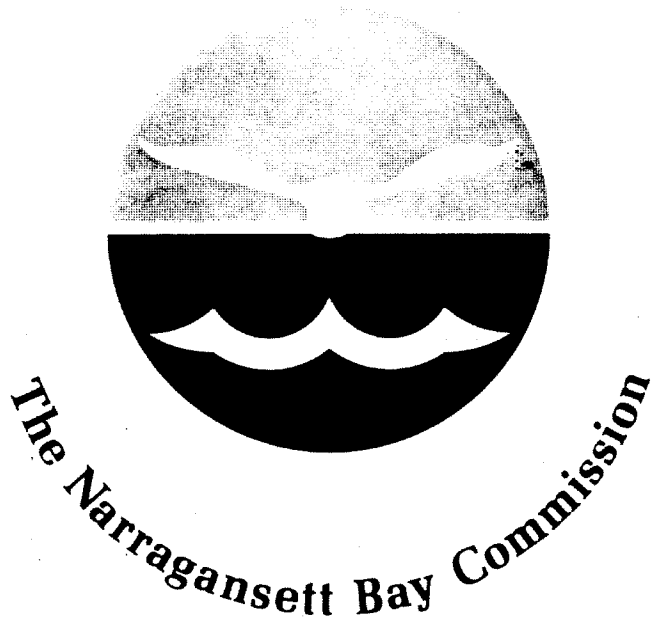
PROJECT XL PROPOSAL
PRETREATMENT PROGRAM
REINVENTION



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Vincent Mesolella, Jr.
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February, 1999

I. INTRODUCTION

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 $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.

In order to protect treatment plant workers and plant operations from potentially harmful industrial wastewater discharges the NBC has in place a very successful 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. 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 elimination and reduction of pollutants at their source as opposed to end-of-pipe treatment.

This Project XL addresses federal and state environmental requirements and regulations that may be resulting in little to no environmental improvement or protection and may in fact be hampering industrial growth and/or the use of pollution prevention techniques and technologies by the industrial community. Through this Project XL the NBC will obtain expanded flexibility

within its regulatory program to focus regulatory efforts on problematic industry sectors while reducing oversight and regulatory requirements on select companies that have established themselves as superior environmental performers. Additionally, NBC will eliminate the threat of enforcement actions on companies that are working to solve problems using pollution prevention approaches.

A. NBC Organization

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 fine efforts and accomplishments. A list of these awards and accomplishments can be found in Appendix I of this project proposal.

B. 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 the Narragansett Bay Commission'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 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 treatment to 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.

In 1995 the NBC received the Public Service Award from the Association of Metropolitan Sewerage Agencies for its Wildlife Management Program at the Bucklin Point Wastewater Treatment Facility. This area is home to fox, pheasant, osprey, duck, swan and is an established pathway for migratory waterfowl and neotropical bird species. This initiative has created a team spirit among the employees and community and it is hoped that this endeavor will encourage the public to visit the facility and learn more about the benefits of environmental and habitat protection.

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

C. Industrial Wastewater Control

Combined the Field's Point and Bucklin Point facilities receive and treat more than 70% of the State of Rhode Island's industrial wastewater. Since these treatment facilities are not specifically designed to remove heavy metals and other toxic chemicals from wastewater, the EPA requires NBC to have in place an PT Program to regulate and control the release of toxic chemicals and materials into the sewer system.

Without regulation, toxic substances could enter the sewer system, causing a host of health, operations, and environmental problems. For instances, these substances may pose a safety hazard to NBC personnel working in the sewers, if dumped in high concentrations or if mixed with other chemicals forming toxic gases in the sewer system. Heavy metals and other toxic materials also 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. NBC would be subject to fines of up to $25,000 for every day the facility in not in compliance. Further, 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 could pass through the treatment facility and 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 responsible for permitting, monitoring, and regulating more than 1,100 permitted industrial and commercial users. PT staff conduct regular inspections of all permitted users 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.

As mentioned in the introductory section of this proposal, NBC received a grant in September 1991 from EPA's PPIS Program to develop a technical assistance Pollution Prevention Program within its servicing district. The NBC Pollution Prevention Program, initiated in December of 1992, is designed to help the industrial community by implementing pollution prevention techniques and technologies that result in less waste generation, smoother running and less costly operations, and improved environmental regulatory compliance. The NBC Pollution Prevention Program staff currently consists of a Pollution Prevention Manager, a Pollution Prevention Consultant, and a Pollution Prevention Engineer. Additionally, through a contract with the University of Rhode Island's Center for Pollution Prevention, NBC has available 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 and providing incentives to implement 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.

D. 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

Through this Project XL NBC seeks to obtain increased flexibility within its PT program's regulatory authority to test new and better ways of controlling industrial wastewater discharges while promoting the use of pollution prevention. This regulatory flexibility will be put into use within the context of two existing EPA grant supported regulatory relief initiatives: NBC's Metal Finishing 2000 and CLEAN-P2 Regulatory Relief Programs.

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 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

Specific environmental performance information collected and reviewed as part to the Metal Finishing 2000 application process is included in Appendix III. Applications are reviewed at several levels prior to a company being classified as a 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. While Metal Finishing 2000 is designed specifically for the metal finishing industry, NBC plans, in the future, to extend successful program elements to other industrial sectors.

NBC's CLEAN-P2 Program is based on EPA's Small Business Compliance Incentives Policy and allows NBC to provide some limited enforcement relief to companies that are working with NBC to incorporate pollution prevention practices and procedures into their operations. Pollution prevention efforts requires a change. These changes may involve the raw materials purchased to make a certain product, the production process used to make a product, or the final product itself. With change comes adjustment. Participating companies will benefit by being allowed the time required to establish and perfect pollution prevention techniques and methodologies without the worry or concern of potential enforcement actions for violations that may occur during adjustment periods. Participation criteria and a detailed description of program elements is spelled out in the CLEAN P2 Program Project Policy and Guidelines in Appendix III.

These two programs are designed to test new regulatory approaches that will achieve improved environmental compliance by the local industrial community. An agreement signed by and between NBC, RIDEM, and EPA Region I - New England, has allowed NBC to make full use of existing regulatory and enforcement discretion to promote the use of pollution prevention and source reduction techniques and technologies through these programs. Within the guidelines of the Pretreatment Program XL Pilot NBC will expand beyond the local regulatory barriers being tested by offering a limited number of companies flexibility with state and federal pretreatment regulatory requirements in addition to specific NBC regulations.

Regulatory flexibility will be used to find approaches that focus on environmental protection and common sense practices and procedures. Because this Project XL will allow NBC to investigate flexible applications of federal and state regulations, the results of this project will be readably transferable to other pretreatment programs on both a state and national level.

As part of the Metal Finishing 2000 Program NBC has committed to working with a minimum of six Tier I metal finishing companies on the development

of a flexible regulatory compliance oversight track. As part of the CLEAN-P2 Regulatory Relief Program NBC is committed to working with at least 15 Tier II level companies on finding ways of improving their environmental performance with the goal of eventually achieving Tier I performance criteria.

Effort on the part of both NBC PT and Pollution Prevention staff is required to make these programs work. With the assistance of the additional flexibility offered through participation in this Project XL, NBC will be able to reduce oversight activities associated with Tier I companies and will be able to focus additional PT staff time on improving Tier II performance levels.

NBC envisions a direct correlation between the time and effort saved from less Tier I oversight and that redirected to Tier II oversight, i.e., every hour gained from less Tier I regulatory activity can be dedicated to Tier II compliance and technical assistance. Overall, however, industry wide environmental benefits will be even greater. Tier I companies will be expected to continue to improve upon their current environmental performance levels as part of participating in the Metal Finishing 2000 program, therefore gains made in the Tier II performance categories will contribute to an increase in the overall environmental performance of the entire industrial community as a whole.

Metal Finishing 2000 and CLEAN-P2 Regulatory Relief are funded through EPA matching grant funds and are limited in duration. NBC plans, however, to work diligently with the industrial community, RIDEM and EPA Region I - New England to make these programs successful and sustainable after grant funding has expired. Detailed information on the NBC Metal Finishing 2000 and CLEAN P2 Programs, including a Metal Finishing 2000 application package and signed copy of the CLEAN P2 Program Project Policy and Guidelines, can found in Appendix III.

B. 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 these regulations have helped bring the industrial community to new 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.

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 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
- A more productivity industrial community

In order to measure and demonstrate environmental improvements over existing environmental performance levels NBC will utilize environmental performance data obtained through:

i. 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.

ii. RIDEM's Regulatory Compliance Files: As part of the Metal Finishing 2000 and CLEAN-P2 Programs 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.

iii. NBC's Industrial Wastewater Monitoring Databases: NBC maintains a database of the results of all chemical analysis performed on industrial wastewater discharge samples. This information can be used to establish a wastewater quality baseline and demonstrate improvements in wastewater discharge quality as a result of implementing Project XL.

iv. 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.

v. 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 and CLEAN-P2 Programs. 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.

1. 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 Project XL elements NBC's Metal Finishing 2000 and CLEAN P2 Programs will still be implemented making use of the limited regulatory flexibility available through NBC 's existing regulatory authority. PT staff will participate on a limited basis 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.

NBC will make every attempt to grant top environmental performing companies maximum regulatory flexibility as a reward for their environmental efforts and accomplishments and every opportunity to promote each company's recognition will be made. The CLEAN P2 Project will be promoted and implemented in its exiting format. Due to the somewhat burdensome work associated with developing and signing program participation agreements initial interest in this program may be limited.

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

Utilizing the regulatory flexibility sought through this Project XL, NBC will test the ability of select companies to more cost effectively maintain and possibly improve upon their current environmental performance levels using pollution prevention and source reduction practices and procedures.

For instance, one flexibility issue is to remove the burden from the industrial community to regularly test their wastewater for constituents that are not

used within their facility and historically have not been detected in their wastewater. The granting of this flexibility will:

i. Allow these companies to focus on more important environmental concerns,

ii. Allow for more testing of constituents that are known to be used within their facility,

iii. Demonstrate a common sense regulatory enforcement approach on the part of NBC, EPA, and RIDEM, and

iv. Encourage other companies to eliminate the use of these materials with the added benefit of no future monitoring costs.

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 very limited basis within the context of the two EPA grant funded projects. Each company involved with these programs 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.

The benefits of this approach and the success achieved by each participating company will be measured in part through tracking and documenting:

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 can 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 is 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 and CLEAN P2 programs 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 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 both the Metal Finishing 2000 and CLEAN-P2 Programs by incorporating he extended flexibility options offered by Project XL. As of February 1999 seven companies have submitted Metal Finishing 2000 applications and one company has expressed interest in CLEAN-P2. 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 applying of participation in both programs.

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 and CLEAN P2 Programs 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.

B. Cost Savings and Paperwork Reduction

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.

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 and CLEAN-P2 Program activities.

Paper Work Reduction:

Permit writing, inspections report documentation, and compliance reporting will all be simplified and minimized as part to this Project XL proposal. For example: replacement of categorical concentration and mass based regulatory standards with local limit standards will greatly ease the burden upon NBC permit writing staff and will give the industrial community clear-cut compliance goals. Cost and time saving realized through implementation of this flexibility option will be studied and documented as part of Metal Finishing 2000 and CLEAN-P2 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 Contract 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 1999 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:

1. Zero Discharge of an Industrial Adhesive Manufacturer's Wastewater.

2. Zero Discharge of a Dispersed Pigment Manufacturer's Wastewater.

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

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

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

6. 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 both the Metal Finishing 2000 and CLEAN P2 Programs. 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 package and CLEAN-P2 audit elements NBC will be able to 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. For instance: as part of pollution prevention site visits and continued regulatory inspections, where applicable, NBC will document increased pollution prevention efforts and accomplishments. This data will be collected and reported as part of each Metal Finishing 2000 and CLEAN-P2 semi-annul progress reports to EPA.

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. Both the Metal Finishing 2000 and CLEAN P2 programs will directly implement the regulatory flexibility options offered through this Project XL.

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. Through the CLEAN P2 program NBC is committed to working with fifteen companies on pollution prevention audit and implementation 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 more time and effort can be spent on problematic environmental issues.

All project work will be documented and recorded. As part of each grant award semi-annual reports will be produced addressing, at a minimum, all areas of project monitoring and measurements outlined under Item III (A) of

this proposal. Each report, as well as, case studies, presentation materials, and other project products will be made readily available to all stakeholders through meetings, the NBC monthly newsletter, the NBC Web Page, and documentation publication.

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 and CLEAN-P2 Regulatory Relief Programs, as currently designed, test 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, as part of the CLEAN-P2 Program. Specific regulatory modifications will include:

i. Less 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 companies with exceptional environmental performance levels will allow for NBC and these companies to pursue other environmental goals. As mentioned in section III (B) of this proposal by eliminating the need for companies to self monitor for constituents not used within their facility these companies can focus on increased monitoring of problematic constituents or could focus additional attention and money on pollution prevention efforts.

ii. Fewer inspections of SIUs (40 CFR 403.8 (f) (2) (v)): Time and effort saved by NBC regulatory personnel by conducting fewer inspections of participating companies 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 and CLEAN P2 Programs, NBC PT and Pollution Prevention staff will jointly conduct pollution prevention/compliance audits in place of some regulatory inspections.

iii. Replacement of categorical concentration and mass based discharge standards with local limits requirements (40 CFR 403.6 (c) (i)): Local limit discharge standards have been developed to specifically protect the NBC's treatment plant operations, and in many cases they are more stringent than federal categorical and/or mass based standards. Regulating all industrial users in accordance with local limit requirements will ease the burden of regulatory staff to individualize permits and inspection procedures and will result in better overall protection of plant operations and the environment since this time can now be focused on problematic discharges.

iv. Elimination of certain categorical monitoring requirements based on a company's non-use of such materials (40 CFR 403.6): 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 participation criteria will allow for expenses associated with this requirement to be used on activities with more productive environmental gains.

v. Reclassification of some small categorical SIUs to non-SIU status (40 CFR 403.3): There are many small industrial users conducting limited categorically regulated operations that by definition put them in the significant user classification. Small shops conducting bright-dip or metal etching processes are classified as metal finishers and held to the strict reporting and monitoring requirements of that classification but pose little potential harm to treatment plant operations and/or the environment . Time and effort spent by NBC regulating these users under this classification can be more effectively spent on the regulating and monitoring larger truly significant or problematic industrial users.

Both Metal Finishing 2000 and CLEAN-P2 Regulatory Relief require participation by NBC PT regulatory staff. Time made available by conducting fewer regulatory inspections 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 settleable 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 two on-going projects: NBC's Metal Finishing 2000 and CLEAN-P2 Programs. Implementation of the requested flexibility items into these programs can take place immediately upon EPA, and if necessary, RIDEM approval.

Both grant projects each have a two year duration, however, both programs, if proved successful, will continue after the grant projects end. Some project milestones for each of this programs 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. Program policy agreements with respect to the CLEAN P2 Program were signed with EPA Region I New England and RIDEM in September 1998 and promotion of this program throughout the industrial community has begun.

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

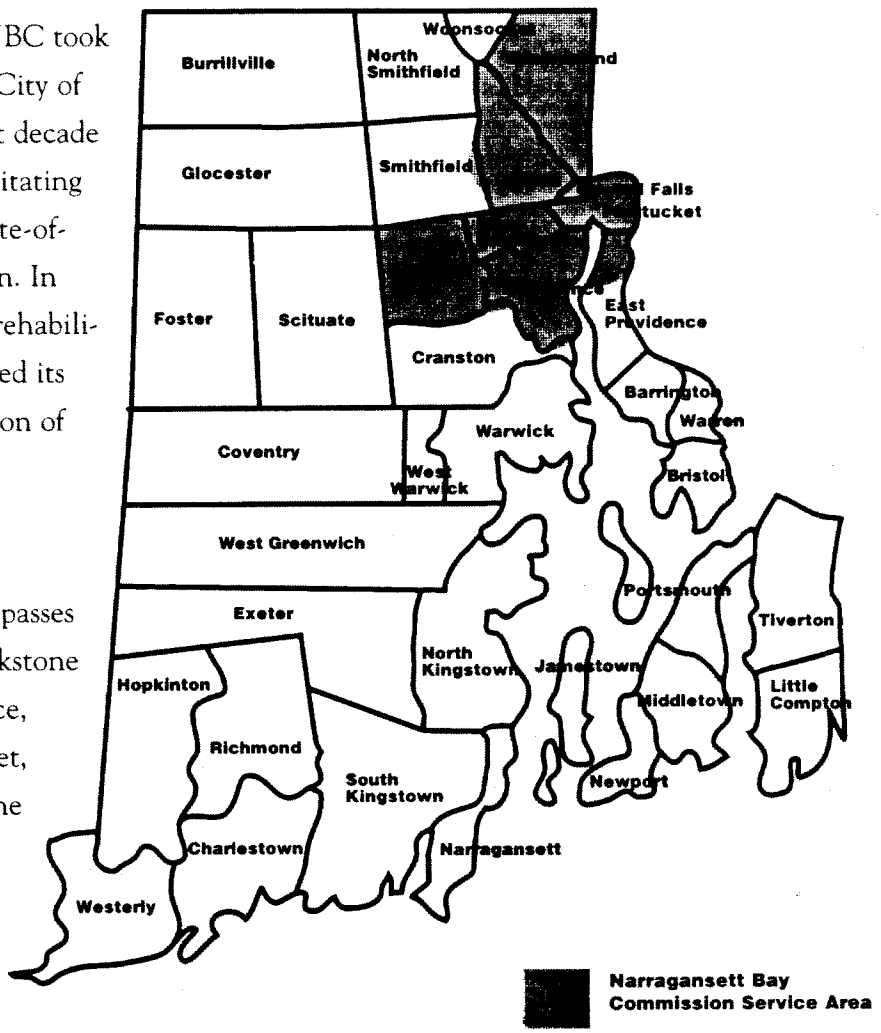
- The Field's Point facility is hailed the BEST operated and maintained large secondary wastewater treatment facility in the country by the US Environmental Protection Agency and winner of National Excellence Award
- The Field's Point facility is recognized as the BEST operated and maintained large secondary 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

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.

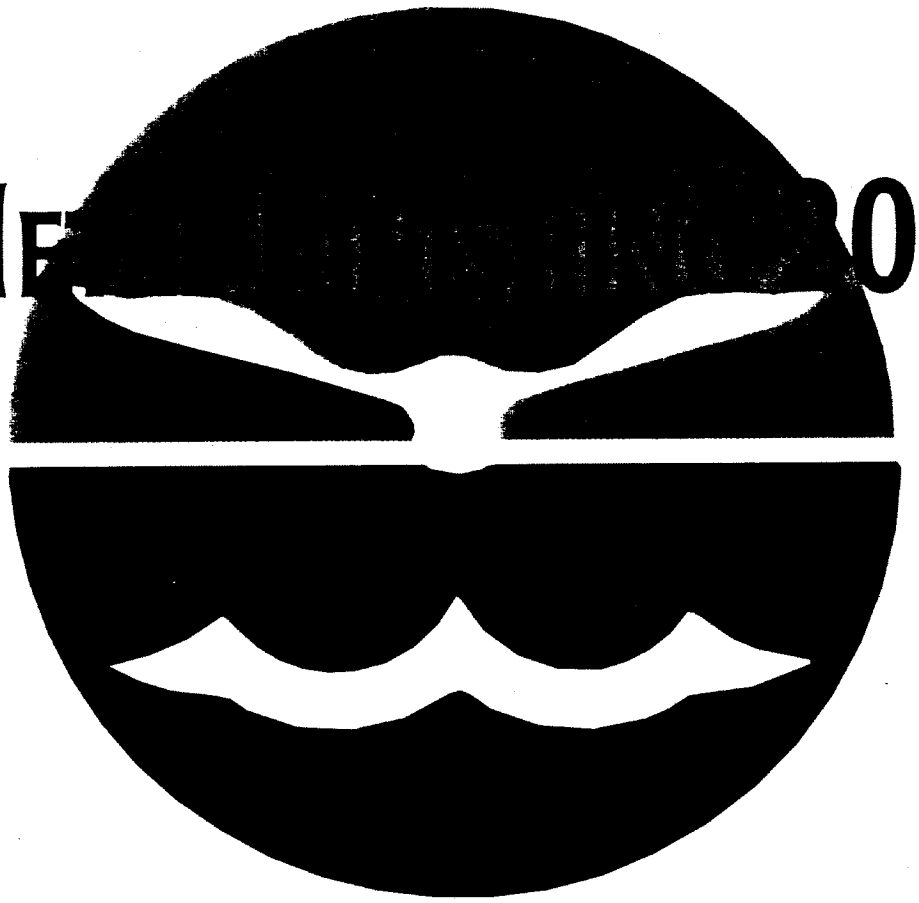
To combat these conditions, the NBC took over the failing facility from the City of Providence in 1982 and spent the next decade and over ninety million dollars rehabilitating and transforming the facility into a state-of-the-art, nationally recognized operation. In 1992, when the Field's Point facility's 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 .

APPENDIX III

NARRAGANSETT BAY COMMISSION
PARTICIPATION APPLICATION



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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 [illegible] 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, have 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. Response to the fourth subject will help you to determine the overall environmental and economic benefits to be gained through your participation 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.

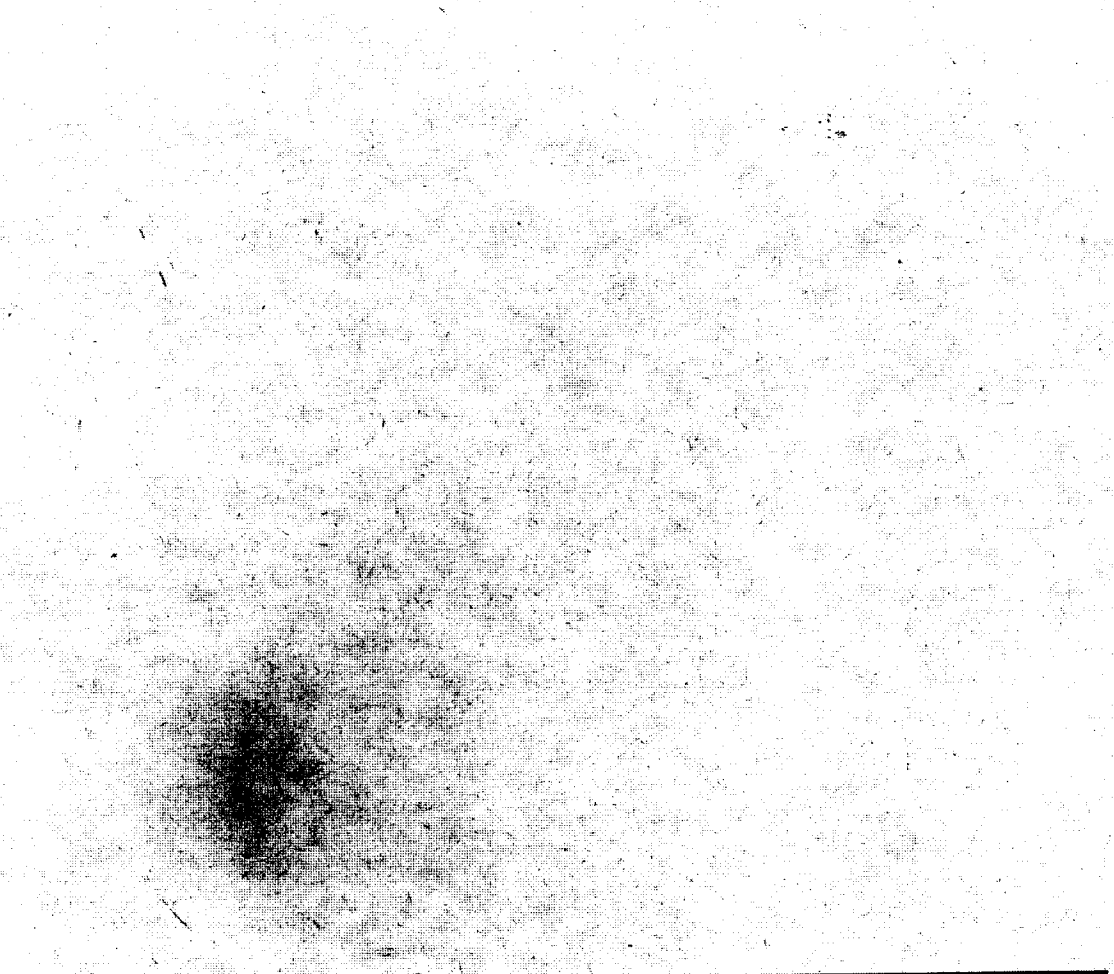
★ ***Improved Environmental Performance***

In addition to establishing yourself as an exceptional Environmental Performer, you must clearly define the type and extend of 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

Narragansett Bay Commission CLEAN-P2 Regulatory Relief Program
Project Policy and Guidelines

A. Introduction

The Narragansett Bay Commission (NBC), in partnership with EPA-New England ("EPA") and the Rhode Island Department of Environmental Management ("RIDEM"), has established the NBC CLEAN-P2[1] Regulatory Relief Program. This program offers no cost, comprehensive environmental regulatory and technical assessments and limited enforcement relief provisions to qualifying Rhode Island industrial companies within the NBC district. To obtain the benefits offered through the NBC's CLEAN-P2 Regulatory Relief Program, participating companies must correct environmental compliance problems promptly and demonstrate a good faith effort to exceed their regulatory compliance obligations through the use of pollution prevention measures as set forth in this Project Policy and Guidelines (Policy) and the Participation Agreement (Agreement) that each company must sign. Each participating company will work with, and as a part of, a Regulatory Relief Assessment Team made up of NBC Pollution Prevention and Industrial Pretreatment personnel, appropriate participating company personnel, and other environmental and industrial experts as needed.

EPA, RIDEM, and NBC will refrain from initiating an enforcement action seeking civil/administrative penalties, or will mitigate civil/administrative penalties for certain violations of NBC wastewater pretreatment rules and regulations, subject to the criteria and guidelines set forth in this policy. The enforcement relief criteria described below are intended to provide incentives for participation in a program designed to maximize pollution prevention and to encourage prompt correction of violations.

The CLEAN-P2 Regulatory Relief Program is based upon the provisions of EPA's June 1996 Policy on Compliance Incentives for Small Business (Small Business Policy).

By measuring the success of this program through its ability to improve the environmental performance of participating companies, we expect to be able to assist in the evolution of national compliance policies.

---

[1] Compliance Leadership through Environmental Assessments and Negotiation Pollution Prevention

B. Applicability

The enforcement relief provisions of this Policy apply to all small to medium sized companies that participate in the NBC CLEAN-P2 Regulatory Relief Program as limited by Section F, Penalty Mitigation Guidelines, subsection 6.

This Policy sets forth how EPA, RIDEM, and NBC expect to exercise their enforcement discretion in deciding on an appropriate enforcement response and determining an appropriate civil/administrative penalty for violations of NBC wastewater pretreatment rules and regulations identified through the CLEAN-P2 Regulatory Relief Program.

This Policy is to be used for settlement purposes and is not intended for use in pleadings, or at hearing or trial. To the extent that this Policy may differ from the terms of applicable enforcement response policies under media-specific programs, this document supersedes these policies.

This Policy and corresponding enforcement relief applies only to the "Rules and Regulations for the use of Wastewater Facilities within the Narragansett Bay Water Quality Management District Commission" as these rules and regulations relate to industrial wastewater discharges.

C. **Eligibility Criteria**

To be eligible[2] for regulatory/enforcement relief, a company must:

1. Be located within the NBC district,

2. Have a demonstrated history of putting forth good faith efforts to comply with environmental rules and regulations,

3. Meet the definition of a small business (person, corporation, partnership, or other entity who employs 100 or fewer individuals across all facilities and operations owned by the entity); except as provided in Section F, Penalty Mitigation Guidelines, subsection 6, and

4. Enter into a CLEAN-P2 Regulatory Relief Program Participation Agreement. The CLEAN-P2 Regulatory Relief Program Participation Agreement includes the following pollution prevention project commitments:

[2] If a business has been subject to enforcement actions for environmental violations the NBC or RIDEM or the Attorney General or EPA may determine that the company is ineligible for the penalty mitigation provisions of this Policy given the business' compliance history.

a) The company agrees to return to compliance within the correction periods defined in this Policy and where appropriate to implement waste minimization and pollution prevention alternatives for achieving compliance.

b) The company agrees to develop a Pollution Prevention Action Plan which includes all of the pollution prevention projects recommended by the CLEAN P2 Regulatory Relief Assessment Team. Those companies with an existing Waste Minimization Plan shall incorporate these projects into its existing plan.

c) The company agrees to, within an agreed upon time period, develop, test and implement one or more of the pollution prevention recommendations detailed in the CLEAN P2 Regulatory Relief Assessment Report that would go beyond its compliance requirements.

d) The Company agrees to share the results of the project(s) with the CLEAN-P2 Regulatory Relief partners (EPA, RIDEM, and the NBC).

Due to limited resources the NBC reserves the exclusive right to limit individual companies participation in this program.

D. Criteria for Civil Penalty Mitigation

EPA, RIDEM, and NBC will eliminate or mitigate enforcement/regulatory action and penalty demands for certain violations of NBC pretreatment rules and regulations in accordance with the limitations set forth in section F of this Policy based on the following criteria:

1. The company's compliance record with NBC rules and regulations for the previous three years will determine the company's eligibility for the enforcement relief accorded by this Policy as follows:

   a. If a company has been subject only to lower level NBC enforcement actions (Warning Letters or Notices of Violation), the company will be eligible for all of the penalty mitigation provisions contained herein.

   b. If, within the last three years, the company has been subject to an NBC Administrative Order, and the same violation for which the Administrative Order was issued is identified during the CLEAN-P2 Regulatory Relief Program Inspection, the company will be ineligible for the penalty mitigation provisions contained herein with respect to that specific recurring violation.

c. If the company has demonstrated a pattern of violations and has been subject to an NBC Administrative Order during the previous three years, the company will be ineligible for the penalty mitigation provisions contained herein.

2. The policy's civil penalty mitigation provisions will not apply to a particular violation if:

   a. The violation has caused actual serious harm or risk to public health, safety, or the environment;

   b. The violation may present an imminent and substantial endangerment to public health or the environment;

   c. The violation presents a significant health, safety or environmental threat (e.g., violations involving hazardous or toxic substances may present such threats); or

   d. The violation involves criminal conduct.

   e. The violation is not inadvertent.

   f. The company has failed to attempt to promptly and responsibly correct the violation.

E. Correction Period

Companies are expected to remedy the violations within the shortest practicable period of time, and, where appropriate, to implement waste minimization and pollution prevention alternatives for achieving compliance. Correcting the violation includes remediating any environmental harm associated with the violation. In all cases violations must be corrected within the time periods set forth below.

1. All violations shall be corrected within 90 days following detection of the violation; subject to Sections E (2) and (3).

2. For violations that cannot be corrected within 90 days, the correction period may be extended for an additional period not to exceed 90 days, so long as the company enters into a written agreement that sets forth the additional correction period and any additional steps to be undertaken by the company to achieve compliance.

3. The schedule may be extended for an additional period of 180 days (i.e. up to a period of one year from the date the violation is detected) only if necessary to allow the business to correct the violation by implementing pollution prevention measures.

F. Penalty Mitigation Guidelines

EPA, RIDEM, and NBC will exercise their enforcement discretion to eliminate or mitigate civil administrative penalties as follows.

1. The enforcement relief provisions of the Policy apply only to violations that occur after the CLEAN-P2 Assessment is conducted. Violations covered by this Policy include those that arise as a result of efforts to correct compliance problems found during the CLEAN-P2 Assessment and/or as a result of efforts to improve operations through pollution prevention measures implemented as a result of the CLEAN-P2 Assessment.

2. All violations detected at the time of the initial CLEAN P2 Regulatory Relief Assessment will be subject to usual enforcement responses, in the NBC's discretion. The CLEAN P2 Regulatory Relief Assessment Report will identify those areas where the company requires improved environmental performance.

3. NBC will eliminate escalated enforcement actions and civil/administrative penalties, subject to the provisions contained in this section and Section F, if a company satisfies all of the criteria in Sections C, D and E.

4. If a company meets all of the criteria, except that it requires a longer correction period than provided by Section E (i.e., more than 180 days for non-pollution prevention remedies, or more than 360 days for pollution prevention remedies), NBC will waive up to 100% of the gravity component of the penalty, but *may* seek the full amount of any economic benefit associated with the violation(s).[3]

5. If a CLEAN-P2 Regulatory Relief Program participant has not met all the criteria above, but has otherwise made a good faith effort to comply, NBC has discretion, pursuant to other applicable policies, to refrain from filing an enforcement action seeking civil penalties or to mitigate its demand for penalties to the maximum extent appropriate. These policies generally recognize good faith efforts to comply and allow for

[3] In determining how much of the gravity component of the penalty is appropriate, the nature of the violation, the duration of the violation, the environmental or public health impacts of the violation, good faith efforts by the company to promptly remedy the violation, and the company's overall record of compliance with environmental requirements will be considered.

mitigation of the penalty where there is a documented inability to pay all or a portion of the penalty, thereby placing emphasis on enabling the company to finance compliance.

- For participating companies that do not meet the size criteria for small businesses as described in the Eligibility Criteria section of this Policy, all aspects of this Policy will apply except that NBC will retain its full discretion to recover any economic benefit gained as a result of noncompliance. For any violations which in the opinion of the NBC do not merit a penalty due to the insignificant amount of any economic benefit, the entire penalty may be forgiven.

G. Enforcement Relief Exemptions

1. If violations involving criminal conduct; or, causing actual serious harm or risk to public health safety or the environmental; or, presenting an imminent and substantial endangerment to public health or the environment; or, presenting a significant health, safety or environmental threat; not identified during the Regulatory Relief Assessment, are revealed throughout the course of the CLEAN-P2 Regulatory Relief Program the NBC retains the discretion to terminate a company's participation in the CLEAN-P2 Regulatory Relief Program. In such circumstances, the NBC reserves the right to exercise its enforcement authority for any violation(s) identified at the company prior to the notice of termination.

2. Violations detected through Federal, state or local enforcement inspections or reported to an agency as required by an applicable statute, regulations, permit, judicial or administrative order, or consent agreement remain fully enforceable.

3. NBC action of providing compliance assistance is not a legal defense in any enforcement action. This policy does not limit the discretion of EPA, RIDEM, or NBC to use information/knowledge obtained through compliance assistance as evidence in subsequent enforcement actions.

4. A company is subject to all applicable enforcement response policies (which may include discretion whether or not to take formal enforcement action) for all violations that have been detected through the CLEAN-P2 Regulatory Relief Program and were not remedied within the corrections period. The penalty in such action may include the time period before and during the correction period.

Paul E. Pault, P.E.
Executive Director
Narragansett Bay Commission
235 Promenade Street
Providence, RI 02908

Date

Andrew H. McLeod, Director
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908

7/28/98
Date

John P. DeVillars, Regional Administrator
US Environmental Protection Agency
New England Regional Office
JFK Federal Building
Boston, MA 02203

9/22/98
Date

EFFECTIVE DATE: 9/22/98 **1998.**

APPENDIX IV

NARRAGANSETT BAY COMMISSION - FIELD'S POINT 1994

PROCESS	UNITS	LIMITS AVG/MAX	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAX	MIN	AVGS
ACUTE MYSID BAHIA	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	139	115	110	108	135	150	128	150	93	117
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	8.1
BOD EFFL	MG/L	45	7.1	7.1	5.3	13.4	11	9.1	8.1	12	9.3	16	14	10.4	16	5.3	10.2
pH EFFL	MG/L	6.9	5.7	6	6.4	6.5	6.2	6.2	5.8	6	6	6	6.2	6.1	6.6	5.7	6
TSS INFL	MG/L		86	83	75	96	86.8	93.4	93	98	96	113	116	99.6	116	75	95
TSS EFFL	MG/L	30/	17	12	10	17	19	13.2	15	16	13	18	22	17.8	22	10	16
TSS EFFL	MG/L	45	20	13	12	27	33	25	19	19	14	23	30	20.7	33	12	21
SS EFFL	ML/L		TR	TR	TR	TR	0.02	TR	0.3	0.26	0.45	0.13	0.7	TR	0.7	0.02	0.32
SS EFFL	ML/L		TR	TR	0.1	TR	0.2	TR	1	0.55	1.1	1	10	0.5	10	0.1	1.81
O & G EFFL	MG/L	AVG	4.1	2.9	1.7	3.7	2.23	1.4	1.6	1.6	0.8	3.1	3	1.4	4.1	0.8	2.5
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	2.9
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	10.36
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	0.20
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	1.96
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	1.95
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	67.2
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	14.1
CYANIDE EFFL	UG/L	182	57.5	**138**	15	11.5	12	11	18	30	9	22	20.5	19	138	9	30.3
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	1.6
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	1.1
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	1.9
CHROMIUM HEX INFL	UG/L		41	48.3	48.4	61.5	64.6	61.5	**53**	43	145	189	277	163	277	41	99.6
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	23.6
CHROMIUM HEX EFFL	UG/L	4400	15	38	15	26	25	38.2	34	27	**50.8**	157	280	38	280	15	62.0
COPPER INFL	UG/L		221	148	223	120	120	185	141	139	149	214	213	130	223	120	166.9
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	67.2
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	99.4
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	29.7
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	10.7
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	24.7
NICKEL INFL	UG/L		220	170	227	136	120	179	16	149	136	168	194	118	227	15.5	153
NICKEL EFFL	UG/L	326/	183	166	122	132	131	177	110	164	134	128	124	105	183	105	139.7
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	12.5
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	10	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	44.16
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	65	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	1.6	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	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	8.5	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	**26**	**58**	22	**33**	**39**	**72**	**76**	**121**	**70**	121	12	47
BOD % REM	%	79/	94	95	95	92	93	94	94	92	93	90	81	82	95	81	91
TSS % REM	%	62/	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
	4-12-450; 4-25-500;
	5-22-500; 5-30-500;
	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; 9-9-2200; 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.

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAX	MIN	AVGS
ACUTE MYSID BAHIA	LC50	100			100			100			100			100	100	100	100
ACUTE MENIDIA	LC50	100			100			53.04			100			100	100	53.04	76
ACUTE MYSID BAHIA	NOAEL				25			50			100			100	100	25	58
ACUTE MENIDIA	NOAEL				50			12.5			100			100	100	12.5	81
BOD INFL	MG/L	--	231	228	166	190	218	222	240	187	247	265	240	216	265	166	221
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	9
BOD EFFL	MG/L	45	9.8	8.8	15.9	24.4	14.9	13.6	9.3	11.4	16	14.2	11.8	10.2	24.4	8.8	13
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	7
TSS INFL	MG/L		230	208	157	173	253	248	258	182	246	252	208	206	258	157	218
TSS EFFL	MG/L	30	14.3	10.1	14.5	16.3	13.3	11.4	17	13.8	10.9	15.1	12.8	11.4	17	10.1	13
TSS EFFL	MG/L	45	17.6	11.3	19.7	31.9	23	13.6	34.7	19	13	18.4	17.9	16.7	34.7	11.3	22
SS EFFL	ML/L	0.1	0.15	0.1	0.2	0.3	0.2	0.1	0.14	0.21	0.3	0.1	0.1	0.2	0.3	0.1	0.2
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	0.7
O & G EFFL	MG/L		4.3	2.2	3.8	2.6	2.9	3	3	1.2	1	1.5	1.8	6.3	6.3	1.0	2.9
AMMONIA-N EFFL	MG/L		19.3	17.4	13	11.4	16.1	15.5	20.2	15.4	15.5	18.8	21.4	17.9	21.4	11.4	16.82
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	0.236
NITRATE-N EFFL	MG/L		0.18	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		5.2	2.2	15	2.1	3	4.3	3.32	2.49	3.72	3.01	2.44	0.45	15	0.5	3.3
CYANIDE INFL	UG/L		7	10.1	17.4	10.8	13.4	10	6.8	11.9	9	10.5	12.9	10	17.4	6.8	10.9
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	5.8	9.1
CYANIDE EFFL	UG/L	MAX	12	9.5	20.5	8	12	11	8	9	20	15	12	10	20.5	8.0	12.3
CADMIUM INFL	UG/L		1.5	1	0.7	1.1	1.2	1.7	0.7	3.1	1.2	1.3	1.3	1.4	3.1	0.7	1
CADMIUM EFFL	UG/L	AVG	0.5	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	0.4
CADMIUM EFFL	UG/L	MAX	1.3	0.3	0.4	0.8	0.9	0.8	0.4	0.4	0.4	0.4	0.4	0.6	1.3	0.3	0.6
CHROMIUM HEX INFL	UG/L		72.3	50	47.6	106	87	143	70.8	194	260	224	229	158	260	47.6	136.9
CHROMIUM HEX EFFL	UG/L	AVG	16.4	18.7	18.6	21.9	21.1	15.9	13.8	25	58.7	38.6	25.6	16	58.7	13.8	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	17.8	19.3	60	17.8	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		62.1	36.9	31	28.7	48.9	66.3	40.1	73	43	29.8	34.5	31.7	73	28.7	43.8
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	12	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	35.6
NICKEL EFFL	UG/L	MAX	73	82.8	83.3	59.6	29.4	85.5	42.6	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	10.6
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	126	62.1	43.3	107	53.4	56.7	49.9	38.9	27.2	45.6	50.4	31.7	126	27.2	57.7
ZINC EFFL	UG/L	MAX	261	73.8	66.9	197	66.8	95.8	74.8	53.3	34.6	76.4	70.8	40.4	261	34.6	92.6
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
TRICHLOROETHYLENE 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	32.9	40	45.35	25.3	32.69
CHLORINE EFFL	MG/L	AVG	1.6	1.6	1.6	1.58	1.6	1.58	2.3	1.78	1.65	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; 1.4-3800; 1.5-1400; 1.6-1300; 1.13-900;
	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; 10.23-600; 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 excusrion
	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 monitoring
	location of W is for West 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; 6/19-2.6; 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	AVGS
ACUTE MYSID BAHIA	LC50																
ARBACIA PUNTUCATA CHRONIC	NOEL																
BOD INFL	MG/L	--	113	129	120	163	144	125	153	141	126	114	133	108	163	108	132
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	7.9	12.5	4.2	7.2
BOD EFFL	MG/L	45	12.7	17.3	14.3	8.3	8.8	10	6	6.3	6.8	6	12	9.3	17.3	6	9.9
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	6.2
TSS INFL	MG/L		102	131	126	166	137	111	137	126	120	106	127	106	166	102	125
TSS EFFL	MG/L	30/	18	24.7	22	15	17	18	13.6	11.5	14	14	28	18	28	11.5	18
TSS EFFL	MG/L	45	21.7	25	40	16.1	27.6	27	20	17	19.1	19	35	18	40	16.1	24
SS EFFL	ML/L		TR	TR	5.2	TR	0.4	0.1	0.6	0.12	0.49	0.45	2.5	0.3	5.2	0.04	0.5
SS EFFL	ML/L		TR	36	0.2	0.1	2.2	0.85	1	0.6	1.4	2.5	12	0.2	36	0.1	5.19
O & G EFFL	MG/L	AVG	1.5	2.4	2.5	4.8	2.4	2.4	1.7	1	1.6	1	1.2	2.2	4.8	1	2.1
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	3.0
AMMONIA-N EFFL	MG/L		9.74	10.4	11.5	10	10.4	8.91	12.6	8.51	11.8	11.9	11.4	6.72	12.6	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	1.6	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	63.9	87	79.9	85.8	83.3	57.8	160	37.4	71.8
CYANIDE EFFL	UG/L	84	11.7	11.8	10	10	10.8	15.8	11.8	16	10.2	11.2	6.4	5	16	5	10.9
CYANIDE EFFL	UG/L	182	19	22	10	10	15.5	42.5	21	52.5	12	20.5	10	5	52.5	5	20.0
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	1.6	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	100.6
CHROMIUM HEX EFFL	UG/L	800	16	20	16.2	11.9	12.7	15.8	13.3	20	33.1	36.4	19.4	16	36.4	11.9	19.2
CHROMIUM HEX EFFL	UG/L	4400	59.4	43	49	24	31	25	26	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	35.6
COPPER EFFL	UG/L	274	140	70	55.2	66	44	56.8	38.4	35.7	33.8	39.6	76.4	55.8	140	44	56.0
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	23.0
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	6.9
LEAD EFFL	UG/L	560	19.6	23.4	21.8	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		18	131	122	136	196	159	144	156	102	156	144	113	196	18	131
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	178	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	10.5
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	4.76	6.9	2.21	4.2
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	73.8
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	1	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	1.8
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	48	116	156	92	37	80	156	17	58
BOD % REM	%	79/	91	90	93	96	97	94	96	97	96	95.6	92	94	97	90	94
TSS % REM	%	62/	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	1	2

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Fecal Coliform Violations	GEOMEAN PROCESS MPN /100ml
	1 20-3000; 1 25-2200; 3 24-3000; 3 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 13-800; 9 14-600; 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 18-800; 12 7-700; 12 14-600
BOD	2 3- no BOD on effluent reported since EPA QC not met
	5 20 TSS effluent sampler malfunction 5 31 Lab m'snaping results BOD Effluent 5 31 Lab m'snaping results
Total Suspended Solids	5 20 effluent sampler malfunction
Methylene Chlorine	8 8-composite of three grabs
pH	8 11-4:00pm
Settleable Solids: ML/L	

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAX	MIM	AVGS
ACUTE MYSID BAHIA	LC50	100			92			100			100			100	100	92	98
ACUTE MENIDIA	LC50	100			81			84			100			100	100	81	91
ACUTE MYSID BAHIA	NOAEL				12.5			50			50			100	100	12.5	63
ACUTE MENIDIA	NOAEL				50			50			100			12.5	100	12.5	63
BOD INFL	MG/L	--	197	187	242	224	224	289	335	322	381	284	200	256	335	187	259
BOD EFFL	MG/L	30	6.7	8	7	6.9	7	4	6	6	8	10	9	7	10	4	7
BOD EFFL	MG/L	50	9.7	9	8	8.7	8	5	9	8	11	12	12	9	12	5	9
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	7
TSS INFL	MG/L		181	220	216	187	163	383	292	286	247	299	191	229	383	163	247
TSS EFFL	MG/L	30	23.5	17	14	13.1	12	9	10	11	13	18	17	10	18	9	13
TSS EFFL	MG/L	50	44	18	18	18.6	15	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	6.78	6.61	9.35	7.62	6.22	5.38	26.4	5.38	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	0
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	135.0
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	84.9
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	4.8	2.3	7.1	2.1	4.0
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	6.0
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	25.6	85.4	21.6	46.5
SILVER INFL	UG/L		7.64	5.09	7.4	7.2	6.66	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	67	####	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	46	####	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	60	82	457	186	17	89	8	26	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; 5/4-800; 5/5-500; 5/6-500; 5/11-1100; 5/12-1700; 5/13-500; 5/16-1700; 5/20-1300;
	5/21-3000; 5/22-500; 5/23-500; 5/24-1700; 5/26-500; 5/27-500; 5/28-900; 5/31-700;
	6/2-800; 6/9-500; 6/11-1100; 6/13-500; 6/14-700; 6/15-500; 6/25-2400; 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; 10/22-0.8am;
	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.
	12/6-10.0; 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	8/2-no result-interferences; 8/30-colored sample;
Hexavalent	

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 BAHIA	LC50				>100			>100			>100			>100	
ARBACIA PUNCTUCATA CHRONIC	NOEL				100			100			100			100	100.00
BOD INFL	MG/L		106	101	92	85	98	127	111	118	120	92	124	84	104.73
BOD EFFL	MG/L	30/	11.8	8.1	8.6	9	9	8	5.8	6.5	6.9	9.7	9.8	11	8.24
BOD EFFL	MG/L	66	38	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	64	48	44	58	44	26	26	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	1.6	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	2.8	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	6.94	7.21
NITRITE-N EFFL	MG/L		0.093	0.138	0.038	0.047	0.137	0.391	0.215	0.65	0.485	0.46	0.165	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	0.75	78	1	8.50
PHOSPHORUS EFFL	MG/L		2	1.46	0.8	0.3	0.8	0.75	1.3	1.2	5.9	2.05	1	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	18.4	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	1	3.76
CADMIUM EFFL	UG/L	149/	0.8	0.7	0.5	0.9	1.1	1	1	0.9	1	0.9	10	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	10	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	75.8	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	80.9	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	78.0	47.2	57	40	52.2	74.2	50.8	47.2	65.8	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	13.8	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	93.6	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	2.95	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	1.1	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	1.65
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	99.97	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	89	206	131	49	61.20
BOD % REM	%	79/	89	92	90	89.4	91	94	95	95	94	89	92.7	91	91.84
TSS % REM	%	62/	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=900; 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=900; 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

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	185	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	82	49	18	50	21	81	122	33	65	67	92	190	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	.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	8.6	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	5.82	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	6.4	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	11.6	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	18.8	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	51.6	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	66.8	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	24.60
FLOW IN CONDUIT INFL	MAX		45.58	36.95	44.86	47.10	32.35	29.96	48.48	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	33.58
CHLORINE EFFL	MG/L	AVG	1.7	1.6	1.6	1.7	1.7	1.7	1.7	1.7	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	82	47	83	49	51	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=0.6; 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..

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PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAX	MIN	AVGS
ACUTE MYSID BAHIA	LC50				>100			>100			>100				>100	>100	>100
ARBACIA PUNCTUCATA CHRONIC	NOEL				100			100			100				100	100	100	100
BOD INFL	MG/L	--	106	115	114	79	120	141	132	126	150	161	131	141	161	79	126
BOD EFFL	MG/L	30/	7.2	4.4	4.4	6.6	10	7.3	4	4.5	6.8	6.2	7.4	6.2	10	4	6.2
BOD EFFL	MG/L	50	23	24	10	16	20	20	8	5.3	7.7	9.1	9	9.8	24	5.3	13.4
TSS INFL	MG/L		106	141	151	69	102	133	126	142	133	166	125	115	166	69	125
TSS EFFL	MG/L	30/	16	16	12	11	11	15	11	12	14	20	19	15	20	11	14
TSS EFFL	MG/L	/50	33	77	28	23	18	24	20	14	17	28	24	17	77	14	27
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	1.71
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	2.60
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	1.5
O & G EFFL	MG/L	MAX	3.7	1.7	1.47	2.7	1.4	1.6	1.7	1.6	1.2	2.2	2.1	1.6	3.7	1.2	1.9
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	7.6	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	13.8
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	1.6	1.6	1.8	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	27.8	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	10.6
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	88.1	127	163	58.5	102.8
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	27.0
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	325/	94.4	96.1	88.5	78	115	151	102	90.6	187	110	78.6	93.7	187	78	107.1
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	11.6	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	2.6
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	5.9
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	56.28
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	0.176	0.21	0.14	0.086	0.5	0.08	0.159
COLIFORM FECAL EFFL	MPN	200/400	31	6	14	27	55	142	44	260	268	212	110	26	268	6	100
BOD % REM	%	79/	93	96	96	84	92	95	91	96	96	96	95	96	96	84	94
TSS % REM	%	62/	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	1

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Fecal Coliform Violations: GEOMEAN PROCESS MPN/100ml
1/9-2400; 1/11-2400
4/7-500; 4/1 TRC=1.4 mg/L; 4/14-no sample due to snow storm; 5/16-1400 with TRC=1.8mg/L a grab sample of 0.25
5/1-1600; 5/3-1850; 5/17-2400; 5/18-2620; 5/26-700; 7/18-500; 7/24-500; 7/30-1100; 7/31-900;
8/5-16000; 8/6-1320; 8/12-900; 8/13-500; 8/14-500; 8/15-500; 8/16-900; 8/18-500; 8/21-2400; 8/25-900; 8/30-9000
Daily Max Fecal Violation = 9/22/97; Weekly Fecal Violation = 9/21 - 9/27/97;
Daily Fecal Violation: 9/9 = 500; 9/13 = 500; 9/14 = 500; 9/15 = 1600; 9/20 = 900; 9/21 = 900; 9/22 = 16000;
9/23 = 1600; 9/24 = 1600; 9/26 = 1400; 9/27 = 700; 9/30 = 900;
10/1 =1600; 10/7=500; 10/8=1100; 10/9=900; 10/10=2800; 10/11=1600; 10/12=1600; 10/14=1700; 10/15=1600;
10/18=700; 10/19=700; 10/21=500; 10/25=900; 11/8/97 = 2.2 mg/L; 11/11/97=1600;
11/14/97=500; 11/16/97=1600; 11/21/97=9000; 11/22/97=800; 12/23/97=500; TRC=2.7 mg/L 12/23;
5/29 & 5/30 all three dilutions (100, 150, 200 ml) did not meet the criteria for BOD procedure.
However, the TSS on those days were 15mg/L and 9mg/L which did not warrent a lower dilution for the BOD set-up.
6/97: Mercury instrument off-line for part of the month of 6/97; samples sent out which led to two different MDL(.075 and 0.500 ppb).
6/2-All three dilutions (100, 150, 200 ml) did not meet the BOD criteria of a residual of aleast 1 mg/L.
Settleable Soilds: ML/L
7/4-0.4; 11/8/97; 94 mg/L; 11/9/97 = 59 mg/L;

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB.	MAR.	APR	MAY	JUN	JUL	AUG.	SEP	OCT	NOV	DEC	MAX	MIM.	AVGS.
ACUTE MYSID BAHIA	LC50	100			>100			>100			>100			>100	>100	>100	>100
ACUTE MENIDIA	LC50	100			>100			>100			>100			>100	>100	>100	>100
ACUTE MYSID BAHIA	NOAEL				100			100			100			100	100	100	100
ACUTE MENIDIA	NOAEL				100			100			100			100	100	100	100
BOD INFL	MG/L	--	210	228	205	144	178	220	245	239	223	254	207	243	254	144	216
BOD EFFL	MG/L	30/	9	13	6	7	10	6	6	8	7	7	10	11	13	6	8
BOD EFFL	MG/L	50	52	33	24	15	21	17	21	12	14	11	12	15	52	11	21
TSS INFL	MG/L		75	211	257	126	143	172	181	282	174	177	120	121	282	75	170
TSS EFFL	MG/L	30/	27	13	14	11	10	10	17	16	16	17	22	21	27	10	16
TSS EFFL	MG/L	50	173	33	30	23	21	20	55	18	15	29	24	33	173	15	40
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	0.4
SS EFFL	ML/L	/.3	13.6	0.4	2.5	1	0.03	0.3	0.4	0.9	2.1	0.4	2.2	0.2	13.6	0.0	2.0
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	2.3
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	5.38	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	4.0
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	4.0
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	11.0
CYANIDE EFFL	UG/L	AVG	5	5	5	5	5	5.8	5	5	5	5	5	5.9	5.9	5.0	5.1
CYANIDE EFFL	UG/L	MAX	5	5	5	5	5	8	5	5	5	5	5	8.8	8.8	5.0	5.6
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	1
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	0
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	112.0
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	37.8	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	21.08	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	60	20	8	11	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; 9/6-500

Settleable Solids: ML/L

1/15-1.3; 1/24-1.3; 2/4-0.4; 3/25-2.5; 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.*

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 - FIELDS POINT 1998

PROCESS	UNITS	LIMITS AVG/MAX	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAX	MIN
ACUTE MYSID BAHIA	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	134	125	135	166	166	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	8	12	16	14	9.7	7.3	8	9.6	10.6	14.3	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	127	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	0.8	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	0.06
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	76.7	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	62.7
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	88.7
ZINC EFFL	UG/L	380/	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	6.1	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	4.5	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	55.78	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	78.6	86.41	67.38	71.42	65.80	60.12	132.70	60.12
FLOW IN CONDUIT EFFL	AVG	65	51.01	55.01	60.44	53.46	57.3	57.91	52.2	44.7	41.46	40.67	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	0.0	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	0.5	0.076	0.077	0.08	0.075	0.5	0.08
MERCURY EFFL	UG/L	8.5	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	8	12	76	69	330	16	61	140	148	31	124	198	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	80
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
	3/98=5000MPN/100mL; 2/26/98=5000MPN/100mL
	** Fecal Coliform weekly avg. excursion 3/15-3/21
	*2 - Fecal Coliform - Daily excursions: 3/9=5000; 3/16=900; 3/17=3000; 3/18=500; 3/19=550; 3/19=2800; 3/20=3000; 3/25=500; 5/30/98=1700; 5/30/98=900; **2/98=900; **3/98=500;
	Fecal Coliform Monthly Average does not include 8/23/98.
	3/98=5000; **5/98=900; **7/98=500; 11//98=1600; 11/29/98=500;
	*2/5/98=3000; *2/6/98=2400; *2/7/98=900; *2/8/98=1100; *2/22/98=9000; *2/23/98=900; *2/30/98=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	*2/22/98 - rain day TSS daily max excursion.
BOD	*2/98 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	**5/98= 5.9 @ 1:00pm (lab grab)This figure of 5.9 was reported in error, later fixed to 6.51, the correct figure.
	**The effluent auto pH meter went off line 3/19/98. A new transmittor 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 1993

PROCESS	UNITS	PERMIT LIMITS AVG/MAX	JAN.	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAX	MIN	AVGS
ACUTE MYSID BAHIA	LC50	100			100			33			100			100	100	33	83
ACUTE MENIDIA	LC50	100			50			66			100			100	100	50	75
ACUTE MYSID BAHIA	NOAEL				12.5			100			50			50	100	12.5	56
ACUTE MENIDIA	NOAEL				25			0			100			50	100	0	42
BOD INFL	MG/L	-	172	178	166	187	182	163	190	166	203	247	257	231	257	163	201
BOD EFFL	MG/L	30	30	16	13	18	18	17	13	12	13	18	19	22	30	12	17
BOD EFFL	MG/L	50	47	26	24	27	26	26	17	15	17	24	32	27	47	14	25
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	6.5
TSS INFL	MG/L		103	110	126	132	147	137	147	144	156	195	191	204	204	103	149
TSS EFFL	MG/L	30/	60	20	14	14	19	26	13	15	18	20	16	18	60	13	21
TSS EFFL	MG/L	50	100	34	16	16	28	63	17	22	21	28	18	23	100	16	32
SS EFFL	ML/L	0.1/	17.3	1	0.2	0.2	0.4	0.6	0.2	0.2	0.2	0.3	0.4	0.1	17.3	0.1	1.9
SS EFFL	ML/L	.3	40.2	3	0.8	0.2	4	2.3	0.8	0.8	1	0.6	1.8	0.2	40.2	0.2	4.7
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	2.8
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	15.00
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	0.238
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	0.7
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	17.7
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
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
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	14.6	110	90	112	115	14.6	85.9
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	88	6.2	25.4
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	99.5
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	34.3
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	3.6
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	6.6	25.2	1.9	6.5
NICKEL INFL	UG/L		43.3	35.9	31.4	40.6	40	26.3	56.7	41.5	51	44.1	116	49	116	26.3	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	60.6	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	106	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	61.1
METHYLENE CH-EFFL	UG/L		2	2	2	2	2	7.8	2	2	2.1	2	2	2	7.8	2	2
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	53.28	57.78	38.98	68.00	75.00	65.00	66.00	67.00	66.00	67.00	65.00	75.00	38.98	60.89
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	46	36.19	40.7	47.59	38.28	68	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	2.0
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	0.126
COLIFORM FECAL EFFL	MPN		33	13	10	8	22	20	38	117	142	25	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 28-2,800; 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.