

WASTING OUR WATERS AWAY

Technical Report

Wastewater Discharges into the Atlantic Ocean from New Jersey



A call for fundamental
changes to protect aquatic resources,
improve wastewater management,
and direct water use policies.



Clean Ocean Action
POB 505 Sandy Hook, NJ 07732
phone 732-872-0111
www.CleanOceanAction.org

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ABOUT THE PUBLICATION

This technical report is the result of intensive investigations on 1998 treated wastewater discharges into the ocean and has been developed to provide the public with information regarding the status of these discharges. A citizen's guide to wastewater management and ocean discharge entitled "The Ocean is a Flush Away" accompanies this report. Information collected and presented here represent the best information available from New Jersey Department of Environmental Protection (NJDEP) files and from communications with NJDEP representatives and treatment facility managers over two years. Some information may be lacking or quickly outdated, since facilities are renewing their discharge permits and/or pursuing plans for expansions. In addition, state water quality and use regulations and policies are changing. Visit www.CleanOceanAction for updated information about wastewater discharges to the ocean.

The technology and regulations regarding wastewater are constantly evolving. Please send comments and updates about this report to Clean Ocean Action. The issue of wastewater discharge and marine water quality is a long-term issue. With resources, the compilation of discharge data and tracking of facility operations will continue and future reports will be published. Send your comments: Clean Ocean Action, Wastewater, PO Box 505, Sandy Hook, New Jersey 07732 (phone: 732.872.0111; fax: 732.872.8041; e-mail: Outreach@CleanOceanAction.org). Copies of this technical report can be ordered from COA for \$10 per copy, and copies of the citizen's guide to wastewater treatment can be ordered for \$5 per copy. All publications are printed on 100% post-consumer and acid and chlorine free paper. These documents are also available free-of-charge at www.CleanOceanAction. Documents are formatted for double-sided pages.

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INTRODUCTION

In 1999, Clean Ocean Action set out to answer two questions, “What is being discharged into the ocean from municipal wastewater treatment facilities, and how much?” These questions resulted in a two-year intensive study to evaluate the potential problems and issues resulting from wastewater treatment plants that discharge directly into the Atlantic Ocean. Four general findings emerged:

- enormous volumes of freshwater resources from the state’s watersheds are used and destroyed;
- ocean discharge of effluent from wastewater facilities is inadequately monitored and water quality based limits on toxins to protect marine life are lacking;
- the public is unaware of the problems and responsibilities associated with wastewater, and;
- the state fails to hold basic information about wastewater discharges.

The research was difficult—state files were incomplete, difficult to access, and in disarray. Often, data were obtained directly from the wastewater treatment facility. COA’s investigation opened a door and uncovered a haphazard system of monitoring, assessing, and limiting the discharge of pollutants from wastewater treatment plants. The study also revealed that major policy issues are looming.

Executive Summary

During the investigation of municipal wastewater treatment facilities, COA revealed many surprises. A few highlights include:

- ***Seventeen sewage treatment facilities discharged nearly 65 billion gallons of freshwater and treated effluent into the Atlantic Ocean from fourteen ocean outfalls. That is 170 million gallons per day--- more than today’s flow of the South River, a major tributary to the Raritan River.***
- ***Testing for toxins varies widely and some wastewater facilities test only once every 4 to 5 years. Over 60% of citizens polled in a survey said wastewater should be tested everyday.***
- ***No ocean discharge limits exist for concentrations of priority pollutants. State guidelines called “Recommended Quantitation Levels” are encouraged, but even some of these far exceed ambient water quality criteria.***
- ***Public access to information is difficult and official records are incomplete or mislabeled. Careless record keeping strongly indicates a lack of oversight by Department of Environmental Protection (NJDEP) to ensure permit compliance.***
- ***Marine Surface Water Quality Standards specifically to protect aquatic life do not exist for 72% of the 124 toxic substances regulated by NJDEP.***
- ***The state has just begun a wastewater reuse program without public input and regulations.***
- ***Public education is needed. In a survey conducted by COA, 98% of those polled believed their untreated effluent to be harmful, but 30% admitted not knowing why.***

In addition, the study suggests that decisions are being made, which will have long term ramifications on the state and environment. The actions are imminent and time is running out for citizens to act proactively and ensure that decisions that are made will protect the environment and quality of life. These actions include:

- Coastal wastewater treatment facilities are renewing their discharge permits, providing a once providing a once-in 5-year opportunity to improve treatment and monitoring requirements.
- Many wastewater facilities are operating near-capacity. Facilities will be (or are) proposing expansion proposals that will directly affect land use planning in the region.
- According to NJDEP, marine water quality standards will be revised and updated.

Introduction to Ocean Dischargers in New Jersey

By law, New Jersey’s wastewater treatment facilities must process wastewater with secondary treatment facilities—meaning there is a two-part treatment process. In the first stage, wastewater is physically managed to reduce solids through screening and settling systems. The second stage reduces biological and other organic contamination. The resulting processed wastewater or effluent must meet state guidelines that are specified in the wastewater treatment plant’s permit, called a New Jersey Pollution Discharge Elimination System (NJPDES) permit, before it is discharged into the ocean. The permitting system requires data collection and monitoring, which the state ostensibly uses to ensure compliance and the protection of public health and the environment.

Key terms used in this report:

Discharger: A state permitted wastewater treatment plant that discharges effluent directly into the ocean.

Wastewater: the used water and other wastes sent to a wastewater treatment plant.

Effluent or discharges: the processed wastewater that is pumped into the ocean

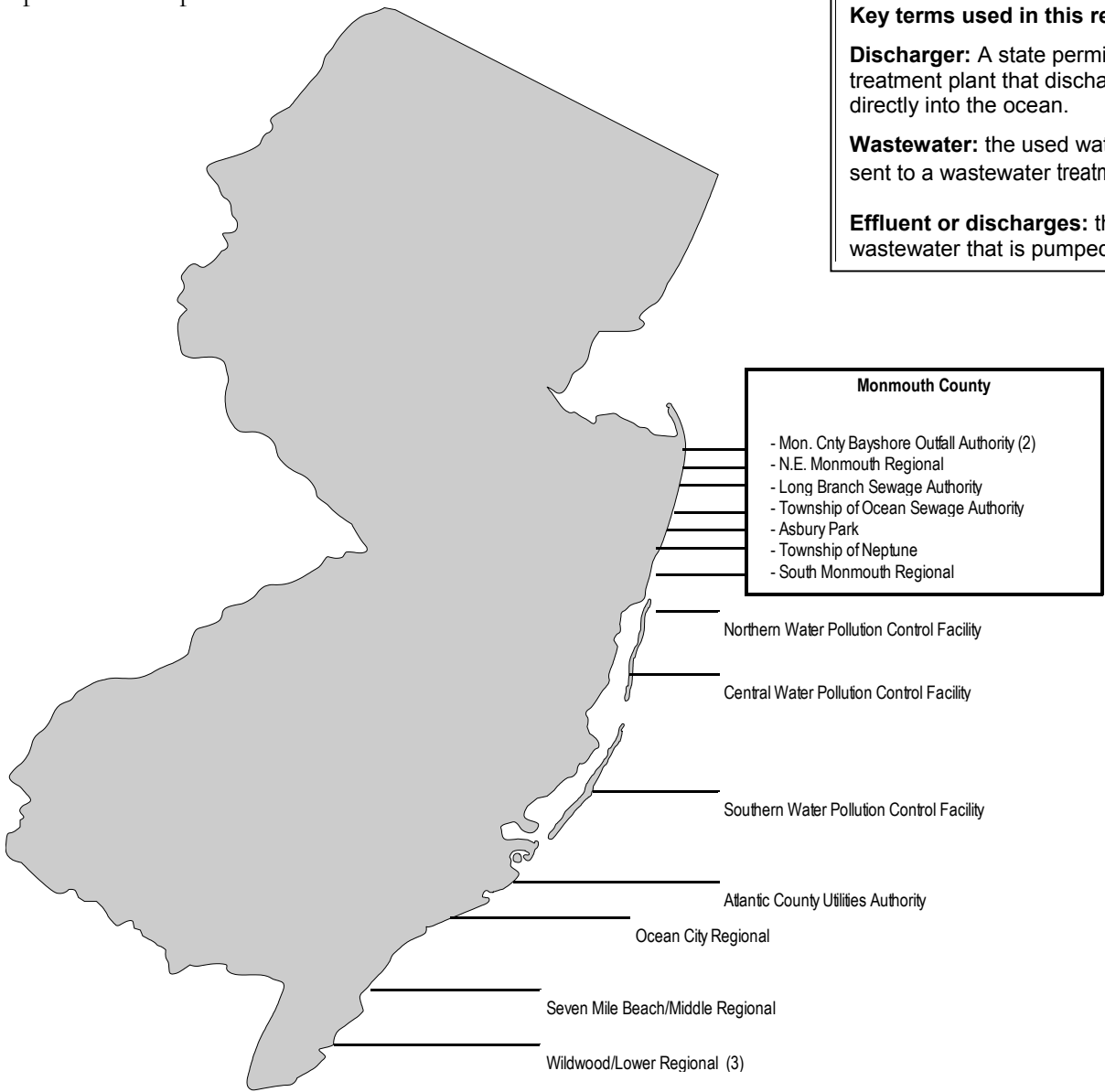



Figure 1. Location of Ocean Outfalls

Municipal wastewater treatment facilities, outfalls, and combined ocean outfalls were investigated. A “combined ocean outfall” is a facility that discharges treated wastewater from more than one wastewater treatment facility. Combined ocean outfalls are: Monmouth County Bayshore Outfall (receives wastewater from Bayshore Regional Sewerage Authority, Township of Middletown Sewerage Authority) and Wildwood/Lower Regional Outfall (receives wastewater from Cape May Regional, Wildwood/Lower Regional Wastewater Treatment Facility, and Township of Lower Municipal Utilities Authority). All facilities that treat wastewater and discharge it into the ocean were investigated in this report, with the exception of Township of Lower facility in Cape May County.

DATA COLLECTION & INVESTIGATIVE APPROACHES

Discharge reports and facility information from 1998 were collected, investigated, and processed by COA in 1999 and 2000. Sources of this information included the review of facility files at NJ Department of Environmental Protection, personal communications with each facility's supervisor and staff, completion of surveys by facilities, and use of the US Environmental Protection Agency's (EPA) online Permit Compliance System. In addition, state policies and standards relating to treated wastewater discharges were reviewed, including beneficial reuse policies and marine water quality standards. Public awareness was investigated by a survey of New Jersey citizens.

 US Environmental Protection Agency's (EPA) Online Permit Compliance System is a source for information on discharges to surface waters. Find it at: www.epa.gov/enviro/html/pcs/pcs_overview.html

Collection of Information on Wastewater Treatment Facilities and Ocean Discharges

The primary source of discharge information was collected from NJDEP files. However, there were unexpected obstacles to obtaining data. The NJDEP required that the investigation of information in the files (which include both correspondences between the state and the facility and discharge monitoring data) must be requested under the New Jersey Right to Know Law. Once access to the data was obtained, the investigation was further hampered by incomplete records in NJDEP files. Files that were inspected were missing monitoring reports or state inspection reports.

The completeness of the state's files varied according to the environmental specialist that was in-charge of file management for each facility--- some facilities' files were organized, complete, and included extra information (e.g., other than data reports), while other files were disorganized and incomplete.

To obtain facilities' complete year histories, COA sought data directly from the facilities. A lack of initial response from the facilities further slowed the investigation. Letters of introduction and multiple surveys were distributed to facilities as part of the data collection process. A few facilities were prompt and complete in their response. Other facilities, however, required follow-up communications. Over time, open dialogue improved and the facilities became more responsive. Data collected from the facilities were then cross-checked with NJDEP files, which resulted in only a few inconsistencies. These inconsistencies were corrected by communicating with the facility, NJDEP, and/or collecting information from the EPA online Permit Compliance System. After collecting and summarizing each facility's discharges and infrastructure information, a final fact sheet summarizing each facility was given to each facility for their review. Most facilities did not respond to the final fact sheet.

After this extensive and labor intensive data collection process, COA had the state's most complete set of data on effluent discharged into the ocean by NJ's coastal wastewater treatment plants.

Results from these investigations were used to collect, tabulate, and evaluate essential information for each facility permit. Specifically, status of toxin monitoring frequencies, facility capacities and volume stress imposed on these facilities by each community, facility compliance, parameters that have limitations versus parameters that do not have limitations on discharges, operations and maintenance reviews, communities serviced by each facility, and dates of last upgrades and projected needs for future upgrades.

How Results are Presented

A series of findings and recommendations developed from this investigation highlight the primary needs of wastewater facilities that must be addressed by citizens, communities, facilities, and the state. Accompanying these findings and recommendations are comparisons between the facilities for various measures of wastewater treatment and fact sheets on each facility.

FINDINGS & RECOMMENDATIONS

This section contains the results and conclusions from investigations COA conducted in 1999 and recommendations for addressing concerns about wastewater treatment and ocean discharge. Findings and recommendations include the following topics as they relate to wastewater treatment:



Public Access to Information (page 5)

Water Volumes Discharged to the Ocean (page 6)



Toxins: Monitoring and Discharges (page 7)



Facility Compliance, (page 9)



Marine Surface Water Quality (page 12), and



Public Awareness (page 13)



FINDINGS & RECOMMENDATIONS: PUBLIC ACCESS

Findings on Public Access to Information:

Data collection is problematic. Record-keeping and file maintenance is sporadic at best and indicates that some facilities are not being closely monitored, regulated or inspected.

NJ State Files: Access is time consuming, due to the requirement to file a request under the New Jersey Right to Know Law. Once access is granted, New Jersey Department of Environmental Protection (NJDEP) files are not always complete. For example, Daily Monitoring Reports (DMRs) and other facility information are missing from some files. Some NJDEP environmental specialists in charge of filing and reviewing facility information are cooperative, but others are hesitant to respond to public requests. In particular, files for the Wildwood facility were confusing and sometimes mislabeled.

Wastewater Treatment Facilities: Overall, some facilities are cooperative but many do not have the staff and time to assist in filling these data gaps.

Other Data Sources: EPA Permit Compliance System (PCS) contains information on DMRs and is the only online source of information to fill-in data gaps for some facilities; however, it is difficult to download and not complete for many facilities.

Recommendations:

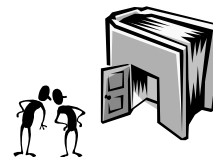
Consistent and complete public access approach must be adopted to manage the data.

NJ State:

- Prioritize making data available to citizens.
- Drop the requirement for data to be obtained through the New Jersey Right to Know Law.
- Use the NJDEP's on-line databases to provide citizens with complete data from treatment facility discharges. (Currently the NJDEP has data available on the state's website for total average flow through facilities, as well as a permittee database. This information can easily be expanded for each permit to include all data on discharges of toxins and other parameters measured by facilities.)
- Ensure files are complete and contain all reports and findings documents for permits, especially during public review periods.
- Provide discharge effluent data through the Environmental Data Exchange (ENDEX) (<http://www.state.nj.us/dep/gis/>).

Wastewater treatment facilities:

- Provide citizens with information about the plant's operations. Publicly owned facilities must be open to public investigation.



State Agency public documents can be obtained by requesting such information under the New Jersey Right to Know Law.

For more information about the NJ Right-to-Know State Program, call (609) 292-6714 and visit www.state.nj.us/dep/legal/inforeq.htm.

To inspect, copy, or obtain a copy of any public document, please contact:
NJ Department of
Environmental Protection
Office of Legal Affairs
Attn: Public Records
Requests
401 East State Street
P.O. Box 402
Trenton, N.J. 08625-0402

Contact information for
**NJ Department of
Environmental
Protection,
Division of Water
Quality:**

401 East State Street,
PO Box 029
Trenton, NJ 08625-0029
Ph: 609-292-4543
website: www.state.nj.us/dep/dwq

FINDINGS & RECOMMENDATIONS: WATER VOLUMES



In a survey of nearly 200 citizens in

New Jersey, 51% of respondents answered that a person uses 50 to 100 gallons per day and 13% answered that a person uses less than 50 gallons per day. The US EPA estimates that the average citizen uses 120 gallons of water a day.

Your Use and Abuse

Taking a shower:

5 gallons/minute

Brushing teeth:

1 gallon

Washing clothes:

30 to 50 gallons

Dishwasher:

16 gallons/load

Washing Car:

5 to 8 gallons/minute

Lawn Sprinkler:

330 gallons/hour

Information on the New Jersey's wastewater beneficial reuse program can be found at:

www.state.nj.us/dep/dwg/reuseff.htm

The draft technical manual entitled "Technical Manual for Reclaimed Water for Beneficial Reuse" can be found at:

www.state.nj.us/dep/dwg/techman.htm

Findings on Water Volumes:

Wasted Water: New Jersey discharges an extraordinary volume of water into the Atlantic Ocean. Nearly 170 million gallons of water per day were discharged in 1998--this amounts to nearly 65 billion gallons of fresh water. This is fresh water that would have normally recharged bogs, wetlands, streams, rivers, and estuaries.

More is Less: Quality of treatment depends on the facility not exceeding its capacity. Nine wastewater facilities exceeded 80% capacity for at least four months during 1998. NJDEP uses the 80% capacity measure to trigger Capacity Assurance Plans. Some facilities are planning expansions to accommodate increased flows, and others are considering receiving additional flows without obvious plans for expansion, allowing increased development to use the expanded capacities.

Using Water Like It's Water: Estimates of *per capita* flow into treatment facilities suggest that some communities exceed federal estimates of 120 gallons of water-use per day per person by as much as 50 to 70 gallons. Water conservation is not aggressively pursued nor required by communities, even when it could delay or deter expensive expansion of wastewater treatment facilities.

When It Rains, It Pours: Many treatment facilities experience their highest flows due to infiltration during high rainfall storms. Treating rainwater is expensive, and it further starves the ecosystem of much needed water.

Opportunity Knocks: NJDEP is currently using a draft wastewater reuse program; however it has not been reviewed by the public, has no regulations, and has not been developed into a comprehensive strategy for water management.

Recommendations:

Effective water conservation programs are urgently needed in New Jersey.

- Water conservation must become a household and community obligation. The state has made limited progress (e.g., requiring low-volume water tanks on toilets), however, more proactive steps are needed community-wide. Incentive programs in the form of financial credit for reductions in water use could be explored.
- Watershed areas must assess the extent of freshwater infiltration in sewers. Areas of high infiltration must be remedied.
- Environmentally-sound, beneficial reuse of wastewater must be adopted. Convene a task force of environmental citizens, planners, and experts to draft policy recommendations. A reuse program should: (1) consult with watershed management areas, (2) have public review, (3) have an independent scientific and regulatory panel that includes experts involved in successful, environmentally-sound, beneficial reuse in other states, (4) include demonstration projects that involve the surrounding community
- Reduce land-use demands.

FINDINGS & RECOMMENDATIONS: TOXINS

Findings on Toxins:

Monitoring for toxins is highly variable and there are few limits on the concentrations of priority pollutants allowed in effluent.

Monitoring Requirements: Required testing of effluent ranges from quarterly (once every three months) to once per permit cycle (*once every 4-5 years*).

No Limits: For toxins, there are no criteria or limits; however, NJDEP does have “Recommended Quantitation Levels (RQL’s)”. These RQL’s sometimes exceed ambient water quality criteria. In addition, the consequences of exceeding these levels are not clear.

The only toxins that all of the facilities test for every month are chlorine residuals called “chlorine produced oxidants (CPO). However, there are no criteria or limits for these toxins, even though some facilities discharge effluent with high levels of CPOs. Many facilities are moving towards establishing limits on CPOs, but not for at least four more years.

What’s Going On in the Ocean? Current monitoring does not adequately assess trends of contamination in the area of an ocean outfall. or beyond

Recommendations:

- Toxin testing should occur more frequently. Depending on the facility and its past history, frequencies should be increased to, at a minimum, quarterly.
- “Toxin scans” by each facility should be available to the public upon request (e.g., each facility or NJDEP must have a “fact sheet” that presents the latest toxin scan results). This information must also be included in all permit renewal applications and on the NJDEP web site.
- Ensure enforcement of the laws, and investigate compliance with monitoring and testing frequencies.
- NJDEP must set water-quality based effluent limits for all toxins including chlorine produced oxidants. Limits must be established that are protective of the aquatic ecosystem (for sensitive species at sensitive lifestages and the food chain), both near and far from an outfall zone.
- NJDEP must implement more comprehensive biological and chemical monitoring programs in areas of ocean outfalls. A “sediment quality triad” monitoring approach should be applied where sediment chemistry, sediment toxicity tests (for chronic and acute effects), and biological communities are assessed. Water quality (including for various toxins) and bioaccumulation must also be measured in outfall areas.

*“the dose is the poison”
Toxins are chemicals that
have the potential to cause
adverse health effects to
humans and wildlife.*

Toxins monitored in New Jersey’s Treated Wastewater:

Metals & Cyanide: Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Zinc, Cyanide, Phenols.

Pesticides: includes Aldrin, Alpha-BHC, Gamma-BHC (Lindane), Chlordane, 4,4’-DDT, 4,4’-DDE, 4,4’-DDD, Dieldrin, PCB and 10 other compounds.

Base/Neutral Compounds: includes Anthracene, Benzo(a)Pyrene, Chrysene, Dimethyl Phthalate, Fluoranthene, Di-B-Octyl Phthalate, and 40 other compounds.

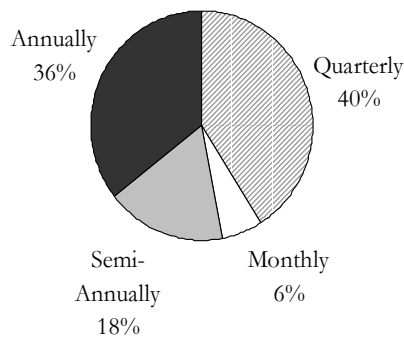
Acid Compounds: includes Phenol, Pentachlorophenol, and 9 other compounds

Volatiles: includes Benzene, Bromoform, Chloroform, Methyl Bromide, Methyl Chloride, Vinyl Chloride, and 22 other compounds

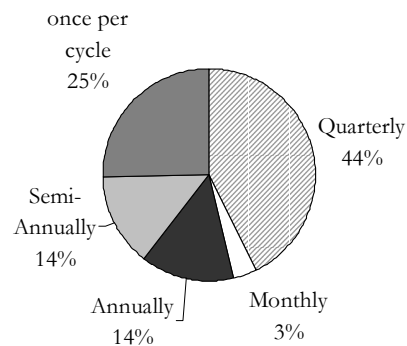
FINDINGS & RECOMMENDATIONS: TOXINS, continued

The following figures illustrate the monitoring frequencies for the ocean dischargers of wastewater effluent. Information on monitoring frequencies was gathered from facility permits and was updated by personal communications with all of the facilities. These data represent the monitoring frequencies as reported by facilities in 1999. **Once per permit cycle:** Monitoring is once every 4 to 5 years. **Annually:** Once every year. **Semi-Annually:** Two times per year. **Quarterly:** Once every three months, four times per year. **Monthly:** Once per month.

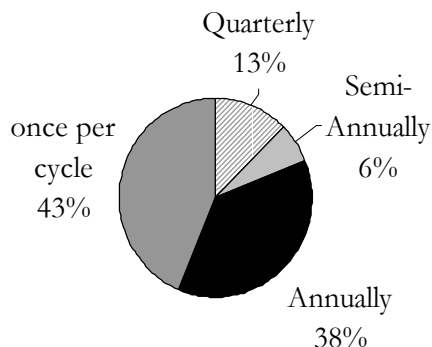
Monitoring frequency for acute toxicity, 1999. 17 treatment and outfall facilities were surveyed for frequency of acute toxicity bioassays. See facility Fact Sheets for details.



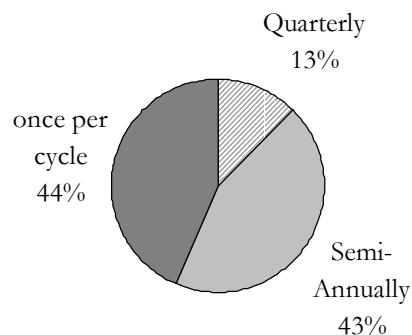
Monitoring frequency for metals, 1999. Some facilities test certain metals more frequently than others, thus total >100%. See facility Fact Sheets for details.



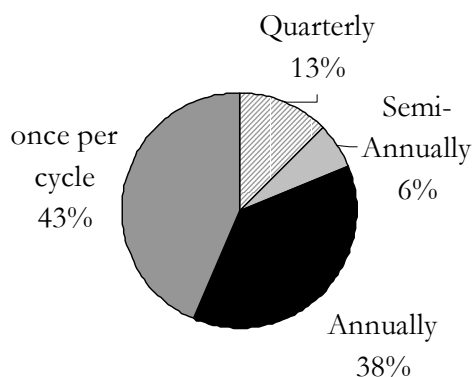
Monitoring frequency for pesticides, 1999. 16 treatment and outfall facilities monitor for pesticides; Cape May is excluded. See facility Fact Sheet for details.



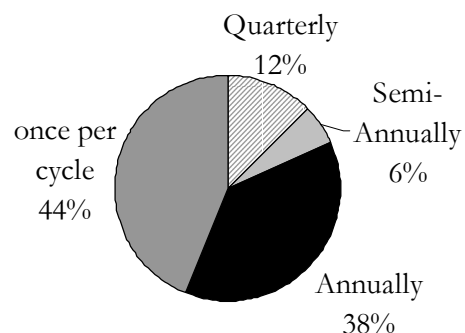
Monitoring frequency for acid compounds, 1999. 16 treatment and outfall facilities monitor for acid compounds; Cape May is excluded. See facility Fact Sheets for details.



Monitoring frequency for base/neutral compounds, 1999. 16 treatment and outfall facilities monitor for base/neutral compounds; Cape May is excluded. See facility Fact Sheets for details.



Monitoring for volatile compounds, 1999. 16 treatment and outfall facilities monitor for volatile compounds; Cape May is excluded. See facility Fact Sheets for details.



FINDINGS & RECOMMENDATIONS: FACILITY COMPLIANCE

Findings on Facility Compliance:

The following two pages show how the facilities rate for various measures of wastewater treatment effectiveness and efficiency. The measures rated were: Chlorine produced oxidants, total suspended solids, biological oxygen demand, removal efficiency, enterococci concentrations, fecal coliform concentrations, acute toxicity, capacity, and state review results.

Data used for these ratings are available upon request from COA.

In general, facilities were in-compliance with state-imposed limits (e.g. total suspended solids, biological oxygen demand, removal efficiency, fecal coliform). The only exceptions in 1998 were for acute toxicity test results in specific months for three facilities. However, these limits are inadequate and do not include limits on many types of pollutants, such as nutrients and toxins.

One curiosity was that all facilities were well within their limits for the pathogen indicator Fecal Coliform, but some facilities far-exceeded the current water quality criterion for the other pathogen indicator enterococci. There are currently no limits for enterococci concentrations in effluent, and federal beach monitoring programs will soon mandate use of the enterococci indicator for bathing beach quality.

Recommendations:

Limit toxins: As discussed in previous sections, the NJDEP must strengthen limits to protect the marine environment against degradation. Water quality based effluent limits for nutrients and toxins to protect sensitive species at sensitive life stages and the food chain must be established and applied.

Limit pathogens: The NJDEP must establish limits for enterococci in facility permit requirements to meet water quality standards. In addition, NJDEP must evaluate the effectiveness of chlorination on pathogen destruction since it seems that chlorination used by some facilities is destroying fecal coliform, but not enterococci. New pathogen indicators should be considered.

Investigate, educate, and enforce: The causes for exceeding limits (including acute toxicity) should be fully investigated after each incident. The public should be notified of a facility's exceedances, which must be promptly corrected. Facilities' test results (including toxin scans) should be made available to the public in the permit renewal notices.



Pathogens:

- are a wide range of microorganisms, ranging from viruses to single-celled bacteria to multi-cellular parasites,
- are everywhere,
- can produce disease in host organisms (such as humans, birds, fish).

Human Pathogens:

- can cause infections and respiratory and gastro-intestinal illnesses,
- can be introduced into coastal waters by run-off from the land and from sewage discharges,
- are monitored by bacterial indicators (fecal coliform bacteria and enterococci) that are easy to test for and can indicate potential for human health effects from recreational contact (for bacterial pathogens only).

For more information about human pathogens in the ocean, check out COA's website at:
www.CleanOceanAction.org

TABLE OF COMPARISONS BETWEEN WASTEWATER TREATMENT AND DISCHARGE FACILITIES FOR 1998.

NJ facilities that discharged into the Atlantic Ocean were rated for various factors, including discharges of chlorine produced oxidants and pathogens, state operations/maintenance reviews, and facility capacity. Using this table, facilities can be compared for individual factors. Read the following pages for explanation of the meaning of each rating.

Facilities were rated on a scale of 0 to 3, where 0 is the worst rating and 3 is the best rating.

In general, ratings are based on facility compliance with state-imposed limits (*see recommendation sections of this report for critiques of the state program and its failure to protect the marine environment from wastewater dischargers*)

NA= data not collected from NJDEP files and was not available from other sources.

NM= data not collected by the facility for this year.

	CPO [1]	TSS [2]	(C)BOD [3]	Removal efficiency [4]	Enterococci [5]	Coliform [6]	Toxicity, minimum [7]	Toxicity, average [7]	Capacity [8]	state review [9]
Atlantic County:										
Atlantic County	0	2	3	3	3	3	0	2	1	2
Cape May County:										
Cape May	0	3	3	3	3	3	NA	NA	3	3
Ocean City	0	3	3	3	3	3	3	3	3	3
Seven Mile	0	3	3	3	3	3	NA	NA	3	3
Wildwood (Treatment Facility Only)	0	3	3	3	3	3	NM	NM	3	3
Monmouth County:										
Asbury Park	0	3	3	3	3	3	0	1	3	0
Bayshore	0	2	3	3	NA	3	NA	NA	3	1
Long Branch	0	3	3	3	2	3	3*	3*	1	1
MCBOA	2	3	3	3	3	3	0	1	3	0
NE Monmouth	0	3	3	3	1	3	3*	3*	0	3
S. Monmouth	2	3	3	3	3	3	2	2	1	3
Twنشp. Middletown	0	3	3	3	3	3	1	1	1	1
Twنشp. Neptune	0	3	3	3	3	3	NM	NM	1	3
Twنشp. Ocean	0	3	3	3	1	3	NM	NM	1	2
Ocean County:										
Central Water Pollution Control	1	3	2	3	0	3	NM	NM	1	2
Northern Water Pollution Control	0	3	2	3	1	3	NM	NM	1	3
Southern Water Pollution Control	0	3	3	3	0	3	3*	3*	3	3

[1] CPO: Chlorine Produced Oxidants. These ratings are based on comparisons between facility discharges and the concentration 0.2 mg/L (ppm), or 200 ug/L (ppb), which is the level above which water quality-based effluent limits may be required (NJAC 7:9B-1.6(c)). Average monthly concentrations during 1998 were averaged for this rating. A rating of “3” is given if the facility discharge is between 0 and 49% of 0.2 mg/L. A rating of “2” is given if the facility discharge is between 50% and 99% of 0.2 mg/L. A rating of “1” is given if the facility discharge is between 100% and 199% of 0.2 mg/L, and a rating of “0” is given if the facility discharge is equal to or exceeding 200% of 0.2 mg/L. Ratings of “1” and “0” indicate that limitations of CPO discharge may be required for this facility. Note that CPO’s are not currently limited in ocean discharge permits.

[2] TSS: Total Suspended Solids. These ratings are based on comparisons between facility discharges and their current permit limitations. Average monthly concentrations during 1998 were averaged for this rating. A rating of “3” is given if the facility discharge is between 0 and 49% of its permit limits. A rating of “2” is given if the facility discharge is between 50% and 99% of its permit limits. No facilities received ratings of “1” or “0”, which are ratings that would indicate that permit violations occurred.

[3] (C)BOD: (Carbonaceous) Biological Oxygen Demand. These ratings are based on comparisons between facility discharges and their current permit limitations. Average monthly concentrations during 1998 were averaged for this rating. A rating of “3” is given if the facility discharge is between 0 and 49% of its permit limits. A rating of “2” is given if the facility discharge is between 50% and 99% of its permit limits. No facilities received ratings of “1” or “0”, which are ratings that would indicate that permit violations occurred.

[4] Removal Efficiency: If facilities meet over 85% removal of TSS and BOD throughout the year, a rating of 3 is given.

[5] Enterococci: These ratings are based on comparisons between facility discharges and NJDEP marine surface water quality standards for the pathogen indicator Enterococci. A rating of “3” is given if the facility discharge is between 0 and 49% of the water quality criterion; “2” is given if the facility discharge is between 50% and 99% of the water quality criterion; “1” is given if the facility discharge is between 100% and 199% of the water quality criterion; and “0” is given if the facility discharge is equal to or exceeds 200% of the water quality criterion. Enterococci concentrations are not limited in discharge permits. Ratings of “1” and “0” indicate that limitations may be required.

[6] Fecal coliform: These ratings are based on comparisons between facility discharges and NJDEP marine surface water quality standards and permit limitations for the pathogen indicator Fecal coliform. Average monthly concentrations during 1998 were averaged for this rating. A rating of “3” is given if the discharge is between 0 and 49% of the water quality criterion; “2” is given if the facility discharge is between 50% and 99% of the water quality criterion. Fecal coliform concentrations are limited in permits and equal the NJDEP marine surface water quality standards. No facilities received “1” or “0”, ratings that would indicate that permit violations occurred.

[7] Toxicity: These ratings are based on comparisons between acute toxicity in wastewater and permit limits (no less than 50% survival). “Minimum” refers to the minimum survival reported in 1998, and “average” refers to the average of all toxicity tests reported by that facility in 1998. An asterisk (*) after a number means that only one toxicity test was performed by the facility in 1998. A rating of “3” is given if the effluent toxicity was 90% to 100% survival; “2” is given if toxicity was 70% to 89% survival; “1” is given if toxicity was 50% to 69% survival; and “0” is given if toxicity was less than 50% survival. “0” indicates that permit limitations were violated in 1998 for acute toxicity.

[8] Capacity: These ratings are based on comparisons between actual discharge volumes and 80% of the facility’s capacity (design flow). If facilities exceed 80% in more than three consecutive months, capacity assurance plans may be required. A rating of “3” is given if flow did not exceed 80% capacity; “2” is given if flow exceeded 80% capacity in 1 to 2 months in 1998; “1” is given if flow exceeded 80% capacity in 3 to 6 months; and “0” is given if flow exceeded 80% capacity in more than 6 months. Ratings of “1” or “0” indicate that the facility’s capacity may be stressed.

[9] State Review: These ratings are based on NJDEP (state) reviews of each facility’s operations and maintenance. A rating of “3” is given if there are no unsatisfactory or marginal NJDEP ratings; “2” is given if there are 1 to 3 marginal ratings; “1” is given if there are more than 3 marginal ratings; “0” is given if there are any unsatisfactory ratings. Refer to each facility’s fact-sheet for information on the reasons for marginal and unsatisfactory ratings.

Findings & Recommendations: Marine Surface Water Quality



Category I waters, as defined by NJDEP: *“those waters designated...for purposes of implementing the anti-degradation policies set forth at N.J.A.C. 7:9B-1.5(d) for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, other characteristics of aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance or exceptional fisheries resource(s).”*

Category II waters are defined as: *“those waters not designated as Outstanding National Resource Waters or Category One at N.J.A.C. 7:9B-1.15 for purposes of implementing the anti-degradation policies set forth at N.J.A.C. 7:9B-1.5(d).”*

Findings on Marine Surface Water Quality:

Currently, the NJ Department of Environmental Protection (NJDEP) has focused its review of and has proposed changes to the Surface Water Quality Standards primarily for freshwaters. These proposals include upgrades to waterbody classifications and new water quality standards. However, standards and classifications for marine waters must also be updated and revised in order to protect aquatic life and human health. Of the 124 toxic substances regulated and tested for in effluents by NJDEP, 90 substances (72%) do not have standards designed specifically to protect aquatic life in estuarine and ocean waters. In addition, criteria for nutrients are lacking.

There is also a conflict in water body classifications and shellfish harvesting. Even though more areas of marine waters are being opened to shellfish harvesting, the areas of marine waters classified as “Category I”—marine waters with the highest protections—are not being expanded. This suggests that portions of New Jersey’s marine waters sustaining harvestable shellfish are not protected by the most protective Category I status, and thus are not safeguarded to the highest degree against degradation.

The current state of water quality standards is mired in bureaucracy. The State of New Jersey is currently developing and implementing rules and guidance that will have long-term effects on land-use and water quality. The NJDEP is currently proposing Water Quality Management Planning (WQMP) Rules and guidance for implementing former Governor Whitman’s Executive Order No. 109 (EO 109). Implications of the proposed rules and guidance will affect ocean dischargers, especially as they relate to treatment facility capacity and land-use issues (e.g., sewer expansion proposal in Cape May). Also, proposed changes by NJDEP to the Surface Water Quality Standards specifically target freshwater discharges, but include language that could affect ocean discharges (e.g. changes to mixing zone language).

Recommendations:

- New Jersey surface water quality standards must be updated for marine waters. Specifically, standards must be implemented that are designed to protect aquatic organisms from chronic effects. In addition, concentrations of toxins in animal tissue must be measured from all marine areas, especially those within shellfish harvesting areas. Marine areas must also be considered for upgrading to Category I waters. In addition, marine monitoring programs should be expanded to assess trends in toxins.
- The EO 109 guidance and proposed WQMP have recently come under intense scrutiny and criticism by other environmental groups dedicated to cleaning-up inland waterways and drinking water. Similar scrutiny and critical review of the implications of these rules and guidance to the health of marine waters are required. In addition, work is needed to ensure that (1) Surface Water Quality Standards are developed to protect aquatic life, and (2) as standards for the marine environment are developed and implemented, that there is consistency between all proposed rules and guidance relating to discharges into the marine environment.

FINDINGS & RECOMMENDATIONS: PUBLIC AWARENESS

Findings on Public Awareness:

In a survey by COA of nearly 200 citizens from central and northern New Jersey areas, 98% answered “Yes” when asked if they thought that wastewater discharge is a cause of pollution in the marine environment. Nearly 30%, however, did not know *why* their untreated wastewater was harmful to the environment. In addition, of those surveyed, 25% did not know what kind of wastewater disposal system (e.g. on-site septic system, municipal wastewater treatment facility) that their home used. For those respondents who knew that their wastewater was treated at a municipal wastewater treatment facility, nearly 60% did not know where the facility was located or where the effluent was discharged. See pages 14 to 17 for the survey and its results.

Recommendations:

Local citizens, municipalities, and state agencies should develop and implement educational programs to teach citizens about wastewater treatment and discharge within their community. For example:

- Educational Challenge: Adopt Water Knowledge Standards in Schools and Communities
 - Every child must be taught the importance of the water cycle. By 6th grade, each child should know what watershed they live in.
 - By 9th grade, every child should know where their wastewater from school and home is treated and discharged and have visited the treatment facility or facilities.
 - By High School graduation, each young adult should have conducted a water audit at home and developed ways to conserve water.

Programs and goals such as these can be used to raise awareness in New Jersey about the need for:



- proper and environmentally protective wastewater management,
- support for facilities that treat wastewater,
- responsible use of septic systems,
- conservation of water, and
- reduction of toxins at their source.

Getting involved:

- Help your treatment facility by practicing source reduction at home: conserve water, reduce pollutants.
 - Urge local businesses to conserve water and reduce pollutants.
 - Check out the Clean Ocean Action guide for citizens about wastewater treatment and ocean discharge.
 - Refer to Appendix 1 to find out where your treatment facility is, then read its fact sheet in this report.
 - Ask questions about your facility, keep up to date on the facility’s plans for expansion, attend environmental commission and watershed meetings in your area.
 - For details on how to get further involved, contact Clean Ocean Action:
by mail:
P.O. Box 505, Sandy Hook, NJ 07732;
by phone: 732-872-0111;
or by e-mail: Outreach@CleanOceanAction.org.
- Also check out our website www.CleanOceanAction.org

6a. Do you consider your untreated household wastewater to be environmentally harmful?

A. Yes---89% B. No---10% 1% no answer

6b. Why or why not?

Reasons for "Yes":	% respondents
Chemicals/toxins	32%
Nutrients/phosphates in soaps	2%
Bacteria/pathogens	5%
"Dirty" because of multiple factors (e.g. nutrients + toxins)	16%
Because it changes the environment	4%
Don't know or no answer	30%
Reasons for "No"	
Only "environmentally-friendly" cleaners used at home	4%
Soap is not harmful	1%
Because it goes to a sewage treatment plant	2%
Don't know or no answer	3%

7. Do you use environmentally-friendly, non-toxic household detergents and cleaners?

Frequency:	Always	frequently	occasionally	never	Don't know	No answer
% respondents:	14%	40%	35%	2%	8%	1%

8. What kind of wastewater disposal does your home use?

Type of disposal:	A. septic system	B. disposal to wastewater facility	C. Don't know	D. No answer
% respondents:	9%	66%	24%	1%

9. If you answered "B" to the above question, do you know where your wastewater plant is located?

A. Yes---44% B. No---56%

10. On average, how many gallons of water does one citizen use in one day in the home?

Volume:	< 50 gal.	50-100 gal.	100-150 gal.	>150 gal.	No answer
% respondents:	13%	51%	22%	11%	2%

Answer: USEPA estimates that, on average, a person uses 120 gallons of water per day in the household

11. Wastewater treatment plants on NJ's coast discharge to the ocean. How many discharge points are there along the NJ coast?

Volume:	< 5.	5 – 10	10 – 15	15 - 20	> 20	No answer
% respondents:	3%	19%	13%	9%	44%	12%

Answer: There are 14 discharge points along the NJ coast.

12. On average every day, how many gallons of water from NJ are discharged into the Atlantic Ocean?

Volume:	1-50 mgd	50 – 100 mgd	100-200 mgd *	> 200 mgd	No answer
% respondents:	3%	19%	36%	29%	13%

Answer: 170 million gallons per day, based on 1998 data collected by COA.

13. How close to the beach is the closest discharge point ?

distance:	< 1000 ft	1000-2000* ft	2000-4000 ft	> 4000 ft	No answer
% respondents:	51%	22%	12%	4%	11%

Answer: 1600 ft. (located at Monmouth Beach)

14. Secondary wastewater treatment is used in NJ. Its purpose is to:

Its purpose is to:	% respondents
Remove more than 95% of toxins	6
Remove more than 85% of toxins	8
Remove more than 95% of solid material	7
Remove more than 85% of solid material *	7
Remove more than 95% of toxins and solids	19
Remove more than 85% of toxins and solids	37
No answer	16

Answer: "Remove more than 85% of solids"; all other answers above are incorrect.

15. How often do you think wastewater plants discharging to the ocean should test for toxins?

Frequency:	daily	monthly	1x per 3 mths	annually	1x per two yrs	No answer
% respondents:	61%	24%	2%	2%	2%	9%

Note: depending on the facility and toxin, maximum monitoring is once per 3 months (for 12-13% of facilities) and minimum monitoring is once per permit cycle (1x per 3-5 years for nearly 45% of facilities)

16. Do you consider chlorine to be a toxin? **A. Yes---84%** **B. No---9%** No answer---7%

17. True or False (Circle one): New Jersey sets limits for toxins that can be released by treatment plants.

True: 50% **False:** 36% **No answer:** 14%

Note: NJDEP does not set permit limits for toxins. Therefore, facilities can not have effluent violations for toxins. NJDEP has recommended guidelines for toxin discharges.

18. Do industries discharge waste into the ocean via wastewater treatment plants?

A. Yes---71% **B. No---21%** No answer---8%

Answer: Yes, industries do discharge wastewater via treatment plants (but not all industries).

19. *In NJ, do wastewater treatment plants keep track of all companies that discharge to their plants, no matter what the size of the company?*

Answers:	% respondents
Yes	14
No*	72
Not relevant because wastewater facilities only treat household waste	4
No answer	10

Answer: Wastewater treatment facilities do not keep track of all companies that discharge to their plants. Exceptions to this are the Ocean County facilities.

20. *If you were told that wastewater discharged to the ocean had high levels of toxins, what actions do you think are the most effective to reduce the pollution?*

- A.** reduce the toxins entering into the treatment plant by source-reduction---7%
- B.** improve wastewater treatment---6%
- C.** both A & B---80%

No answer---7%

Note: Typically, both source reduction and better treatment are recommended. Only improving treatment results in higher toxins in sludge. Only reducing toxins entering the facility may not result in significantly lower toxin levels for some toxins (including nutrients as pollutants).

21. *If your local wastewater treatment plant needed upgrades to better treat wastewater would you support:*

Would you support:	% respondents		
	Yes	No	No answer
Increased local tax	52	39	9
Increased commercial user fees	80	11	9
Increased residential user fees	57	34	9
Increased Federal spending for national programs	72	19	9
Increased State spending for statewide programs	75	16	9
Increased local spending	57	34	9

22. *Can citizens comment on public wastewater treatment facility permit renewals and discharge requirements?* **A.** Yes---66% **B.** No---25% No answer---9%

23. *In many dry areas in the nation and world, wastewater is treated and re-used. Would you oppose re-use of wastewater if the water was properly treated?*

- A.** Yes---23% **B.** No---71% No answer---6%

24. *Would you like to know more about your wastewater and its effects?*

- A.** Yes---82% **B.** No---12% No answer---6%

FACILITY FACT SHEETS

Information was compiled for each wastewater treatment facility (or Publicly Owned Treatment Works, POTW's) that treats wastewater and discharges effluent to the ocean. The Township of Lower Municipal Utilities Authority (permit NJ0023809) which discharges through the Cape May County Municipal Utilities Authority Wildwood/Lower Regional Outfall was not reviewed and thus is not included. The information presented includes facility permit and infrastructure facts and data from 1998 discharges.

Pages 19 and 20 review the types of information found on each fact sheet, including the sources from which data were obtained. Facility fact sheets are arranged in alphabetical order by county. Use the following table to find a specific facility:

FACILITY NAME	Page Numbers
Atlantic County:	
Atlantic County Utilities Authority	21-22
Cape May County:	
Cape May Regional Wastewater Treatment Plant	23-24
Ocean City Regional Wastewater Treatment Facility	25-26
Seven Mile Beach/Middle Region Wastewater Treatment Facility	27-28
Wildwood/Lower Regional Wastewater Treatment Facility	29-30
Wildwood/Lower Regional Wastewater Outfall	29, 31
Monmouth County:	
Asbury Park Wastewater Treatment Facility	33-34
Bayshore Regional Sewerage Authority	35-36
Long Branch Sewerage Authority	37-38
Monmouth County Bayshore Outfall Authority (MCBOA)	39-40
Northeast Monmouth County Regional Sewerage Authority	41-42
South Monmouth Regional Sewerage Authority	43-44
Township of Middletown Sewerage Authority	45-46
Township of Neptune Sewerage Authority	47-48
Township of Ocean Sewerage Authority	49-50
Ocean County:	
Central Water Pollution Control Facility	51-53
Northern Water Pollution Control Facility	55-57
Southern Water Pollution Control Facility	59-60

FACILITY FACT SHEETS

What's in the fact sheets?

The following is information that can be found in each facility fact sheet and the sources from which that information was obtained.

Permit Information:

- Permit Number, Issuance and Expiration dates

Service Area:

- Population serviced was estimated from sources including census reports, municipalities, and treatment facilities.
- Municipalities serviced were obtained from treatment facilities.
- Indirect Users – non-domestic indirect users and the volumes that they contribute to the facility were obtained from the facility.

Infrastructure:

- Outfall position information (including Latitude, Longitude, distance from shore and depth) was obtained from the facility and from NJDEP files and cross-checked using National Oceanic Atmospheric Administration (NOAA) nautical charts.
- Construction and upgrade information was obtained from the facility.
- Capacity:
 - Facility capacity information was obtained from the facility and NJDEP files. This information includes:
 - Average design flow
 - Peak design flow
 - Number of months that flow exceeded 80% of capacity was calculated by comparing average monthly flow to 80% of average design flow.

- Treatment train information was obtained from the facility and NJDEP files.

- Method of Sludge Disposal was obtained from the facility and NJDEP files.

Monitoring:

- Monitoring Frequency was obtained from the facility in 1999. Monitoring frequencies are quarterly, semi-annually, annually, bi-annually, daily, and monthly. Toxins for which facilities may test are categorized as:
 - Metals
 - Acids,
 - Pesticides
 - Volatiles
 - Base/Neutrals
 - and the indicators of toxins:
 - Acute toxicity bioassays
 - Chronic toxicity bioassays

State Review and Violations:

- Date of State Inspection: obtained from NJDEP files
- State Review was obtained from NJDEP files. The state review can conclude that the facility is acceptable, conditionally acceptable, or unacceptable.
- Violations/Deficiencies were obtained from NJDEP files. The State review documents outline types of violations and/or deficiencies at the facility by rating specific aspects. Rating system is “unsatisfactory”, “satisfactory”.
- Effluent violations were obtained from the facility and NJDEP files.

Wastewater Treatment Facility

Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD).

The following information is given:

- Average capacity (design flow) in Millions of Gallons per Day, MGD
- Eighty percent (80%) of the average capacity in MGD.
(Capacity information was obtained from the facility and NJDEP files.)
- Average flow per capita in gallons per day per person (calculated by dividing annual average flow, in Gallons per Day, by the population serviced).
- Number of months that flow exceeded 80% capacity was calculated by comparing the actual monthly average flow to 80% capacity.

Data of monthly average flow for the year 1998 are displayed for each facility. Data were collected from Daily Monitoring Reports at NJDEP, the facility and EPA's Permit Compliance System.

Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l).

There are no limits for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

Data of average concentrations of chlorine produced oxidants (in mg/l) that were discharged into the ocean in the year 1998 are displayed for each facility. Data were collected from Daily Monitoring Reports at NJDEP, the facility, and EPA's Permit Compliance System.

Figure 3. 1998 Average (Carbonaceous) Biological Oxygen Demand (mg/l).

The permit limits for Biological Oxygen Demand (BOD) discharge is 30 mg/l average and 45 mg/l maximum. Permit limits for Carbonaceous Biological Oxygen Demand (CBOD) is 24 mg/l average and 40 mg/l maximum. The following information is given for each facility:

- (C)BOD permit violations, and
- average monthly (C)BOD loading in kilograms per day, kg/d

Data of the average (Carbonaceous) Biological Oxygen Demand (in mg/l) in treated effluent that was discharged into the ocean in the year 1998 are displayed for each facility. Data were collected from Daily Monitoring Reports at NJDEP, the facility, and EPA's Permit Compliance System.

Figure 4. 1998 Average Total Suspended Solids (mg/l).

The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. The following information is given for each facility:

- TSS permit violations, and
- average monthly TSS loading in kilograms per day, kg/d

Data of the average total suspended solids (in mg/l) in treated effluent that was discharged into the ocean in the year 1998 are displayed for each facility. Data were collected from Daily Monitoring Reports at NJDEP, the facility, and EPA's Permit Compliance System.

Atlantic County Utilities Authority

1701 Absecon Blvd.
Atlantic City, NJ 08401

Atlantic County

609-348-5500

Permit Information:

- Number: NJ0024473
- Issued on 06/30/95
- Expires on 08/31/00
- Permit modification application to allow beneficial reuse finalized on January 31, 2000.
- No permit renewal application has been released for public review and comment (as of June 25, 2001).

Service Area:

- Population serviced: 200,000
- Absecon
- Atlantic City
- Brigantine
- Egg Harbor City
- Egg Harbor Township
- Galloway Township
- Hamilton Township
- Linwood
- Longport
- Margate
- Northfield
- Pleasantville
- Somers Point
- Ventnor
- Indirect Users:

Indirect Users	Volume Discharged, Gallons per day, average
Atlantic County Improvement Authority	0
Atlantic County Utilities Authority	17,200
Midtown Thermal Control System	23,400
Pinelands Park Landfill	<u>3,300</u>
Total	43,900
% of Total Discharged	0.14 %

Infrastructure:

- Outfall position
 - east of Ventnor City (~ S. Delancy Pl.)
 - Latitude 39°19'15"
 - Longitude 74°26'38"
 - 8,000 feet offshore
 - Depth- 29 feet below mean tide
- Construction completed in 1978
- Last upgrade in 1998
- Capacity:
 - Average design flow: 40 MGD
 - Peak design flow : 80 MGD for 4 hours
 - Number of months flow exceeded 80% of capacity: 3
- Wastewater is processed through the following units:
 1. bar screens
 2. primary clarifiers
 3. aeration basins
 4. final clarifiers
 5. disinfection
- Sludge Disposal: incineration on-site; ash used in land application

Monitoring:

- Monitoring frequency, in 1999:
 - Metals, Acids, Pesticides, Volatiles and Base/Neutrals: quarterly
 - Acute Toxicity: quarterly
 - Chronic Toxicity: 4 per permit cycle in separate quarters

State Review and Violations *(note: more recent reviews have been completed by NJDEP):*

- Date of State Inspection: January, 1999
- State Review: Acceptable
- Violations/Deficiencies: Marginal ratings because: (1) incomplete chain-of-custody for samples, (2) missing permit label on well, (3) incomplete monthly inspection logs
- Effluent violations: None reported by NJDEP. However, facility exceeded permit limitations for acute toxicity on 02/98 (as reported on Daily Monitoring Report)

Atlantic County Utilities Authority Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 40 MGD, and 80% of the capacity is 32 MGD. Average flow volume per capita was estimated to be 154 gallons per person per day (not including volumes contributed by indirect users). Flow exceeded 80% capacity during 3 months in 1998

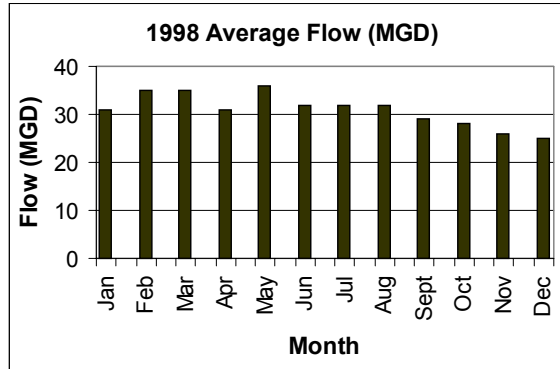


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects). *Note:* this facility reports CPO in kg/d, only. CPO in mg/l calculated by COA.

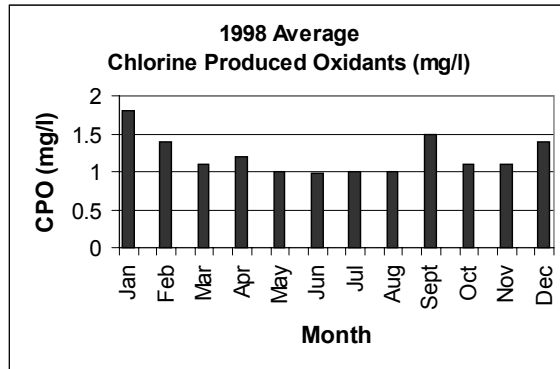


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average loading from this discharger was 989 kg/d.

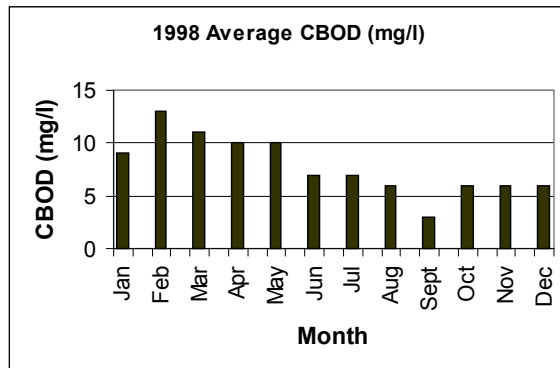
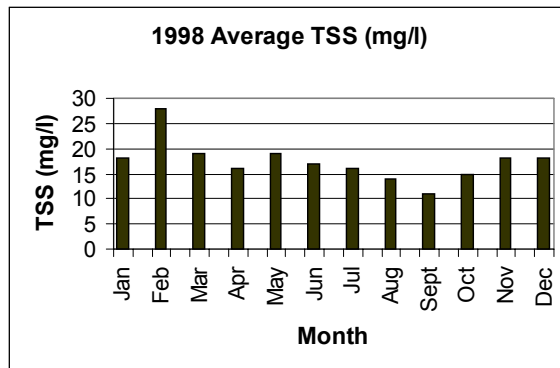


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading from this discharger was 2111 kg/d.



Cape May Regional Wastewater Treatment Plant

541 Sunset Blvd.

Cape May Point, NJ 08212

Cape May County

609-465-9026

Permit Information:

- Number: NJ0020371
- Issued on 02/06/01
- Expires on 03/31/06

Service Area:

- Population serviced: 7,189
 - Cape May
 - Cape May Point
 - West Cape May
- Indirect Users: no Significant Indirect Users

Infrastructure:

- Discharge to Cape May County Municipal Utilities Authority's Wildwood/Lower Regional Outfall, which discharges to the Atlantic Ocean at:
 - east of southern Wildwood Crest, Jefferson Ave.
 - Latitude 38°56'45"
 - Longitude 74°50'00"
 - 4,800 feet offshore
 - Depth: 32 feet below low tide
- Construction completed in 1988
- Anticipated upgrade in 2020
- Capacity:
 - Average design flow– 3.0 MGD
 - Number of months flow exceeded 80% of capacity: none

- Wastewater is processed through the following units:
 1. bar screen
 2. primary clarifiers
 3. rotating biological contactor bays
 4. secondary clarifiers
 5. disinfection
 6. pumping station
- Sludge Disposal: Reuses sludge by producing fertilizer. Small amounts of liquid sludge are used in land application.

Monitoring:

- Monitoring Frequency, in 1999 prior to permit renewal:
 - Only required monitoring for acute toxicity on a semi-annual basis.
- Monitoring Frequency, required by current permit:
 - Metals, Acids, Pesticides, Volatiles and Base/Neutrals: semi-annually
 - acute toxicity: semi-annually

State Review and Violations (*note*: more recent reviews have been completed by NJDEP):

- Date of State Inspection: September 1998
- State Review: Acceptable
- Violations/Deficiencies: None reported by state review; however, NJDEP files show that Daily Monitoring Reports were overdue for months of 8/98, 10/98, 11/98, 12/98.
- No effluent violations

Cape May Regional Wastewater Treatment Plant Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 3 MGD, and 80% of the capacity is 2.4 MGD. This facility discharges to the Atlantic Ocean through the Wildwood/Lower Regional Outfall. Average flow volume per capita was estimated to be 195 gallons per person per day. Flow did not exceed 80% capacity in 1998

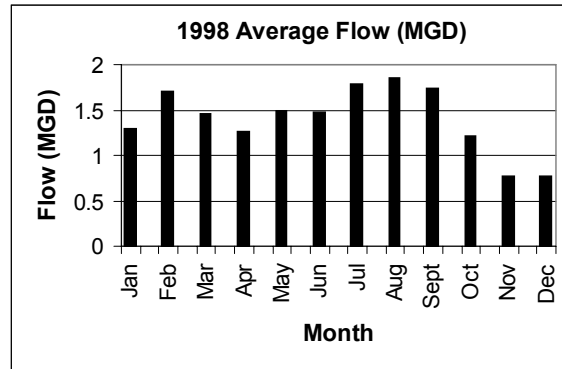


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/L (200 µg/L; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

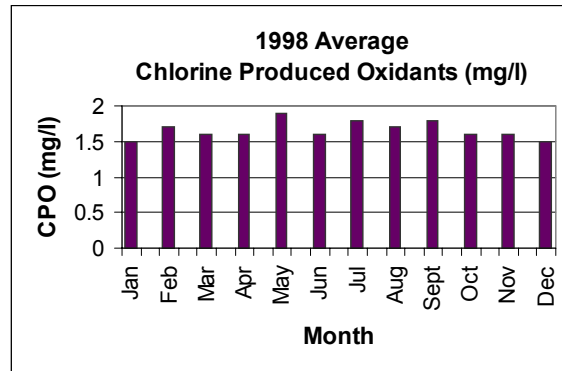


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading contributed to the Wildwood/Lower Regional Outfall from this discharger was 56 kg/d.

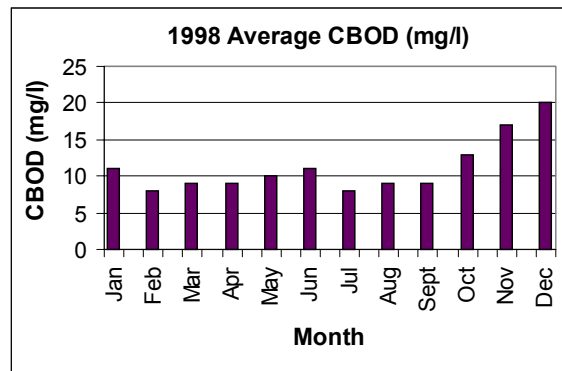
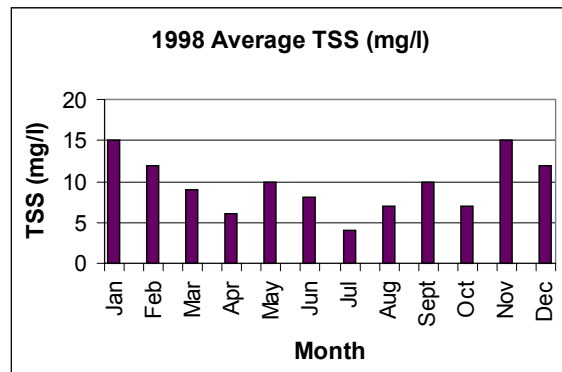


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading contributed to the Wildwood/Lower Regional Outfall from this discharger was 52 kg/d.



Ocean City Regional Wastewater Treatment Facility

West Avenue and 45th Street

Ocean City, NJ 08226

Cape May County

609-465-9026

Permit Information:

- Number: NJ0035343
- Issued on 02/01/01
- Expires on 03/31/06

Service Areas:

- Population serviced: 20,249
 - Ocean City
- Indirect Users: none

Infrastructure:

- Outfall position
 - east of southern Ocean City (46th Street)
 - Latitude 39°13'30.3"
 - Longitude 74°36'24.5"
 - 6,000 feet offshore
 - Depth: 35 feet below mean sea level
- Construction completed in 1981
- Last upgrade in 1994
- Anticipated upgrade in 2020
- Capacity:
 - average design flow: 7.3 MGD
 - number of months flow exceeded 80% of capacity (in 1998): none

- Wastewater is processed through the following units:

1. bar screen (not operational)
2. primary clarifiers
3. rotating biological contactors
4. secondary clarifiers
5. chlorination chamber

- Sludge Disposal: beneficially reuses sludge by producing fertilizer; small amounts of liquid sludge are used in land application.

Monitoring:

- Monitoring frequency, in 1999 prior to permit renewal:
 - Manganese and Silver: semi-annually
 - All other metals, Acids, Pesticides, Volatiles, and Base/Neutrals: once per permit cycle
 - acute toxicity: quarterly
 - chronic toxicity: semi-annually
- Monitoring frequency, as required by current permit:
 - Metals, Acids, Pesticides, Volatiles, and Base/Neutrals: semi-annually
 - acute toxicity: semi-annually

State Review and Violations (*note: more recent reviews have been completed by NJDEP*):

- Date of State Review: August 1998
- State Review: Acceptable
- Violations/ Deficiencies: None
- No effluent violations

Ocean City Regional Wastewater Treatment Facility

Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 7.3 MGD, and 80% of the capacity is 5.84 MGD. Average flow volume per capita was estimated to be 181 gallons per person per day (not including volumes contributed by indirect users). Flow did not exceed 80% capacity in 1998

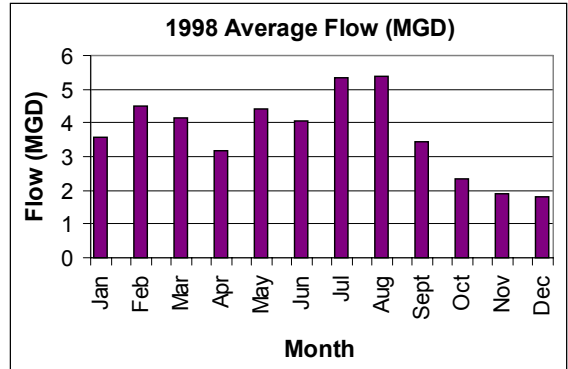


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

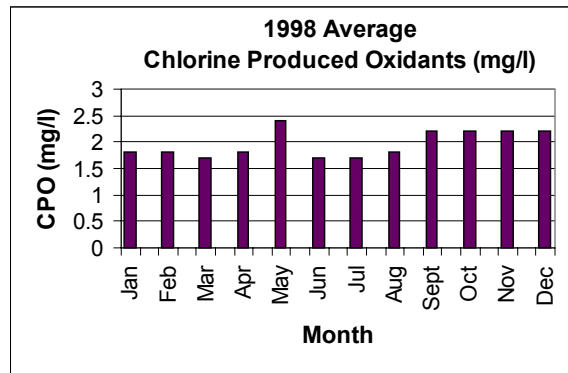


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading from this discharger was 150 kg/d.

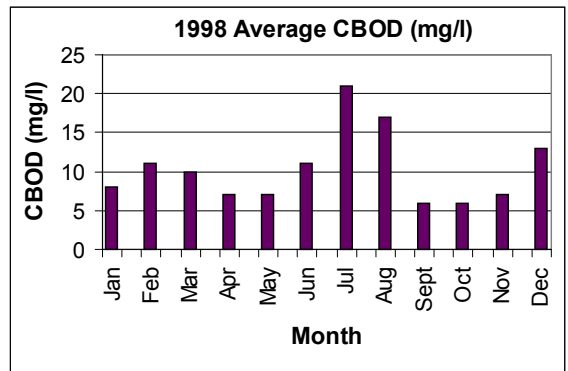
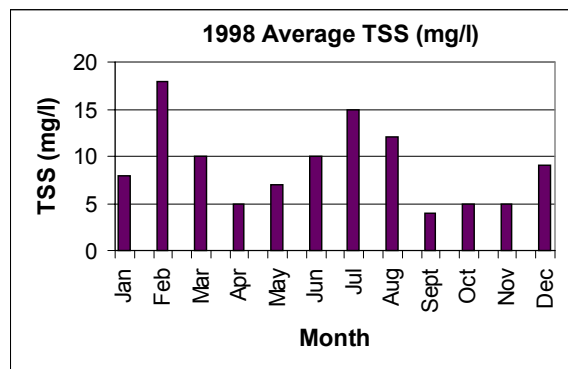


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading from this discharger was 130 kg/d.



Seven Mile Beach/Middle Region Wastewater Treatment Facility

1306 Moore Road
Crest Haven Complex
Cape May Court House, NJ 08210
Cape May County
609-465-9026

Permit Information:

- Number: NJ0052990
- Issued on 12/12/00
- Expires on 03/31/06

Service Area:

- Population serviced: 23,923
 - Avalon
 - Middle Township
 - Sea Isle City
 - Stone Harbor
- Indirect Users: no Significant Indirect Users

Infrastructure:

- Outfall position
 - east of Avalon (30th Street)
 - Latitude 39°05'10"
 - Longitude 74°42'15"
 - 5530 feet offshore
 - Depth: 36 feet below mean sea level
- Construction completed in 1985
- Anticipated upgrade in 2020
- Capacity:
 - Average design flow: 7.63 MGD
 - Peak design flow: 19.8 MGD
 - Number of months flow exceeded 80% of capacity (in 1998): none

- Wastewater is processed by:
 1. bar screen
 2. grit chamber
 3. primary clarifiers
 4. rotating biological contactors
 5. secondary clarifiers
 6. disinfection (with sodium hypochlorite)

- Sludge Disposal: Reuses sludge by producing fertilizer; land application

Monitoring:

- Monitoring frequency, in 1999 prior to permit renewal:
 - Manganese and Silver: semi-annually
 - All other metals, Acids, Pesticides, Volatiles, and Base/Neutrals: once per permit cycle.
 - Acute toxicity: quarterly
- Monitoring frequency, as required by current permit:
 - Metals, Acids, Pesticides, Volatiles, and Base/Neutrals: semi-annually
 - Acute toxicity: semi-annually

State Review and Violations (*note*: more recent reviews have been completed by NJDEP):

- Date of State Inspection: August 1998
- State Review: Acceptable
- Violations/Deficiencies: None
- No effluent violations

Seven Mile Beach/Middle Region Wastewater Treatment Facility Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 7.63 MGD, and 80% of the capacity is 6.1 MGD. Average flow volume per capita was estimated to be 181 gallons per person per day (not including volumes contributed by indirect users). Flow did not exceed 80% capacity in 1998

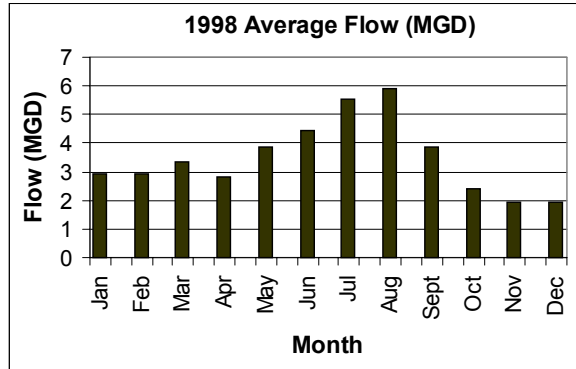


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

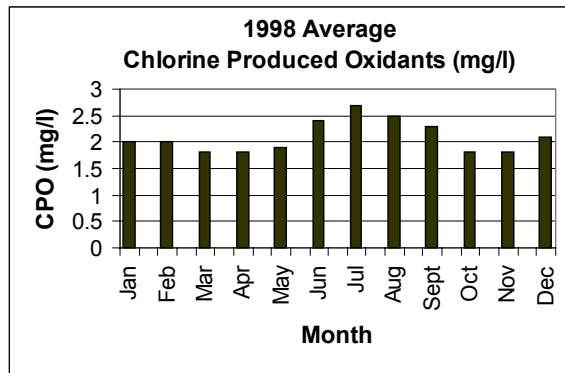


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading from this discharger was 97.2 kg/d.

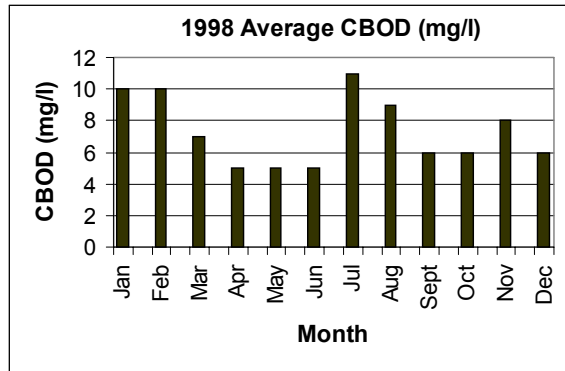
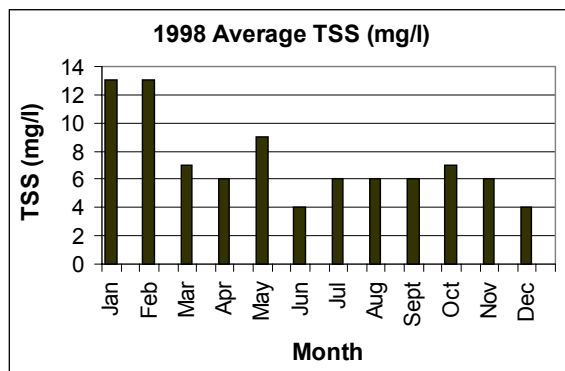


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading from this discharger was 148 kg/d.



Wildwood/Lower Regional Wastewater Treatment Facility

2701 East Route 47
Rio Grande, NJ 08242
Cape May County
609-465-9026

Permit Information:

- Number: NJ0053007, discharge DSN003A (prior to current permit, DSN001A)
- Issued on 02/06/01
- Expires on 03/31/06
- Permit allows beneficial reuse of treated wastewater.

Service Area:

- Population serviced: 27,046
 - Rio Grande
 - West Wildwood
 - Wildwood
 - Wildwood Crest
- Indirect Users: no Significant Indirect Users
- This facility discharges through the Cape May County Municipal Utilities Authority, Wildwood/Lower Regional Outfall (permit #NJ0053007, discharge DSN001A (prior to current permit, DSN001B)).

Infrastructure:

- Outfall position
 - east of southern Wildwood Crest, Jefferson Avenue
 - Latitude 38°56'45"
 - Longitude 74°50'00"
 - 4,800 feet offshore
 - Depth: 32 feet below low tide
- Construction completed in 1988
- Anticipated upgrade in 2020
- Capacity:
Wildwood/Lower Regional WTF
(#NJ0053007, discharge DSN003A):
 - average design flow: 14.13 MGD
 - number of months flow exceeded 80% of capacity (in 1998): none

(capacity, continued)

Wildwood/Lower Regional Outfall

(#NJ0053007, discharge DSN001A):

- average design flow: 21.18 MGD
- number of months flow exceeded 80% of capacity (in 1998): none

- Wastewater is processed by:
 1. bar screen
 2. aerated grit chambers
 3. primary clarifiers
 4. rotating biological contactors
 5. secondary clarifiers
 6. chlorine disinfection
- Sludge Disposal: Reuses sludge by producing fertilizer. Small amounts of liquid sludge are used in land application.

Monitoring:

- Monitoring frequency (for DSN003A), in 1999 prior to permit renewal:
 - Cyanide and Manganese: quarterly
 - All other metals, Acids, Pesticides, Volatiles, and Base/Neutrals: once per permit cycle.
 - Acute toxicity: semi-annually
- Monitoring frequency (for DSN003A and DSN001A), as required by current permit:
 - Metals, Acids, Pesticides, Volatiles, and Base/Neutrals: semi-annually
 - Acute toxicity: semi-annually
- Contact COA for information on the facility's monitoring requirements for beneficial reuse.

State Review and Violations (*note*: more recent reviews have been completed by NJDEP):

- Date of State Inspection: April 1999
- State Review: Acceptable
- Violations/Deficiencies: None
- No effluent violations

Wildwood/Lower Regional Wastewater Treatment Facility (DSN003A)

Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 14.13 MGD, and 80% of the capacity is 11.30 MGD. This facility discharges through the Wildwood/Lower Regional Outfall (DSN001A). Average flow volume per capita was estimated to be 138 gallons per person per day. Flow did not exceed 80% capacity in 1998

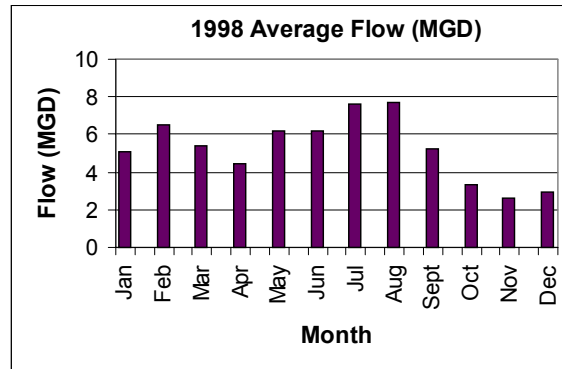


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

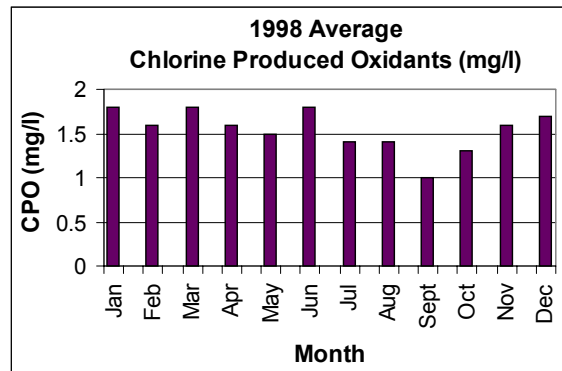


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading contributed to the Wildwood/Lower Regional Outfall from this discharger was 179 kg/d.

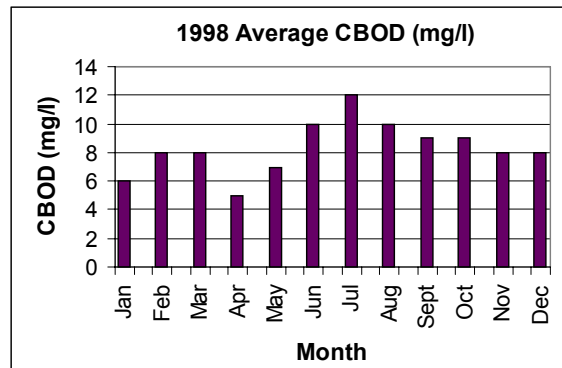
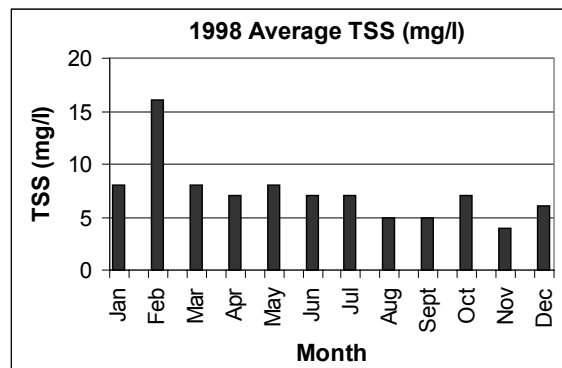


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading contributed to the Wildwood/Lower Regional Outfall from this discharger was 169 kg/d.



Wildwood/Lower Regional Outfall (DSN001A)

Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 21.18 MGD, and 80% of the capacity is 16.94 MGD. This facility discharges treated wastewater from Wildwood/Lower Regional Wastewater Treatment Facility and Township of Lower Municipal Utilities Authority. Flow did not exceed 80% capacity in 1998

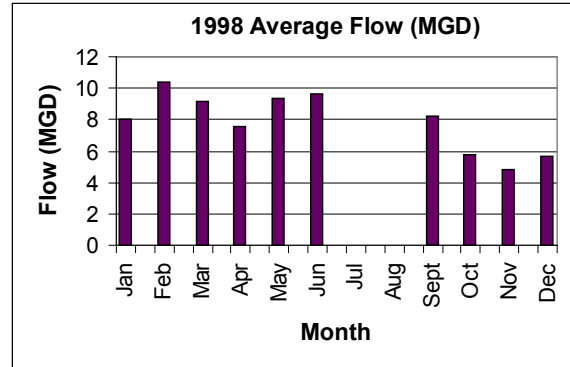


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

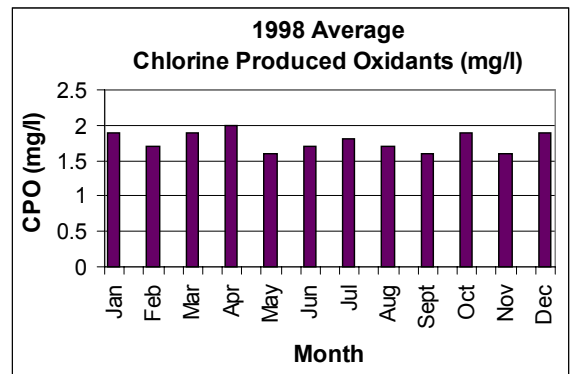


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading to the Atlantic Ocean from this discharger was 323 kg/d.

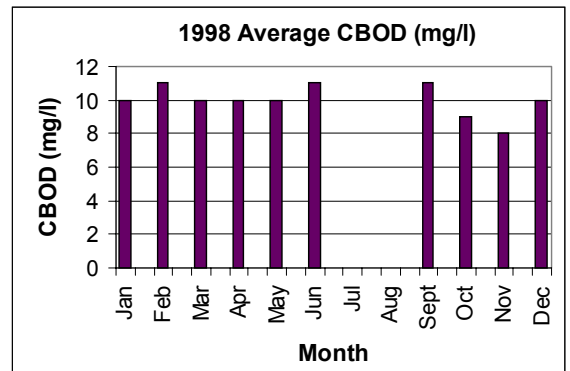
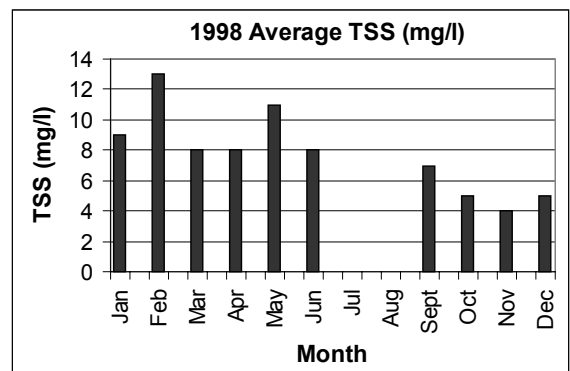


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 272 kg/d.



Asbury Park Wastewater Treatment Facility

8th Avenue and Ocean Avenue

Asbury Park, NJ 07712

Monmouth County

732-774-513

Permit Information:

- Number: NJ0025241
- Issued on 06/30/95
- Expires on 08/31/00
- No permit renewal application has been released for public review and comment (as of June 25, 2001).

Service Area:

- Population serviced: 16,000
 - Asbury Park
- Indirect Users: no Significant Indirect Users

Infrastructure:

- Outfall position
 - east of northern Asbury Park (approximately 7th & 8th Streets)
 - Latitude 40°13'38"
 - Longitude 73°59'38"
 - 1,600 feet offshore
 - Depth: 25 feet below mean sea level
- Construction completed in 1988
- Last upgrade in 1988
- Capacity:
 - Average design flow: 4.4 MGD
 - Peak design flow: 12 MGD
 - Number of months flow exceeded 80% of capacity: none
- Wastewater is processed through the following units:
 1. comminutors
 2. wet well
 3. influent pumps
 4. primary settlers
 5. rotating biological contactors with underflow clarifiers
 6. disinfection with sodium hypochlorite
 7. effluent pumps

- Sludge Disposal: incinerator

Monitoring:

- Monitoring frequency, in 1999:
 - Metals (Cadmium, Copper, Lead, Nickel, Zinc, Arsenic, Chromium, Mercury, Selenium, Antimony, Cyanide and Silver): quarterly
 - Beryllium, Manganese and Thallium: semi-annually
 - Acids, Pesticides, Volatiles, and Base/Neutrals: semi-annually for the first two years and annually for the remainder of the permit cycle
 - Acute toxicity: semi-annually
 - Chronic toxicity: quarterly

State Review and Violations (*note*: more recent reviews have been completed by NJDEP):

- Date of State Inspection: October 1998
- State Review: Unacceptable
- Violations/Deficiencies: Unsatisfactory rating because of failure to monitor metals and cyanide in 9-11/97 and 6-8/98 monitoring periods.
- Effluent violations: None reported by NJDEP. However, facility exceeded permit limitations for acute toxicity on 07/98 (as reported on Daily Monitoring Report).

Asbury Park Wastewater Treatment Facility

Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 4.4 MGD, and 80% of the capacity is 3.5 MGD. Average flow volume per capita was estimated to be 161 gallons per person per day. Flow did not exceed 80% capacity in 1998

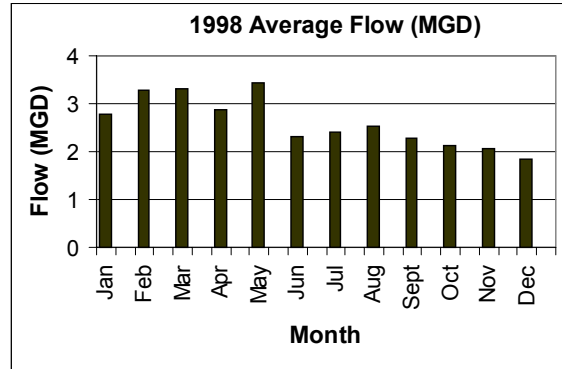


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

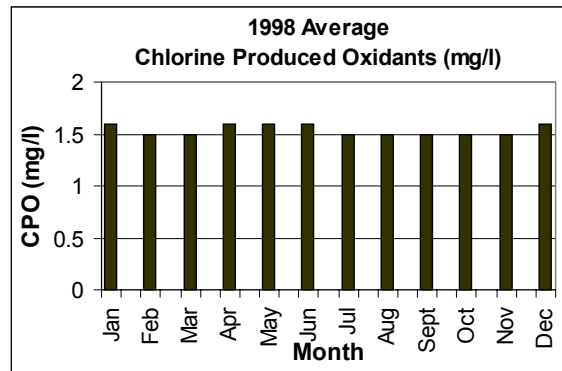


Figure 3. 1998 Average Biological Oxygen Demand (mg/l). The permit limits for Biological Oxygen Demand (BOD) discharge is 30 mg/l average and 45 mg/l maximum. This discharger had no BOD permit violations. Average monthly BOD loading to the Atlantic Ocean from this discharger was 50 kg/d.

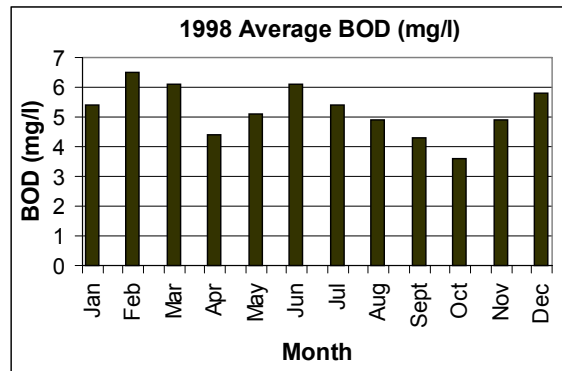
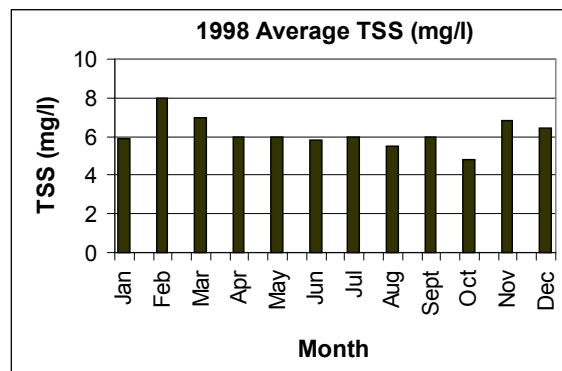


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 66 kg/d.



Bayshore Regional Sewerage Authority

100 Oak Street
Union Beach, NJ 07735
Monmouth County
732-739-1095

Permit Information:

- Number: NJ0024708
- Issued on 06/28/96
- Expires on 07/31/01
- No permit renewal application has been released for public review and comment (as of June 25, 2001).

Service Area:

- Population serviced: 82,000
 - Aberdeen Township
 - Hazlet Township
 - Holmdel Township
 - Keansburg Borough
 - Keyport Borough
 - Marlboro Township
 - Matawan Borough
 - Union Beach Borough
- Indirect Users: This table includes only Significant Indirect Users (SIU's).

Indirect Users	Volume Discharged
	Gallons per day, average
International Flavors and Fragrances	126,142
Lucent Technologies	<u>17,497</u>
Total	143,639
% of Total Discharged	1.6%

Infrastructure:

- Outfall discharge to Monmouth County Bayshore Outfall Authority (MCBOA)
 - east of southern Sandy Hook
 - Latitude 40°27'02"
 - Longitude 74°10'57"

- Refer to MCBOA fact sheet for total ocean discharge information for this outfall.
- Construction completed in 1974
- Last upgrade in 1995
- Capacity:
 - Average design flow: 16 MGD
 - Number of months flow exceeded 80% of capacity: none
- Wastewater is processed through the following units:
 1. screening
 2. grit separation
 3. primary sedimentation by clarifiers
 4. biological treatment by aeration/activated sludge
 5. secondary clarification
 6. disinfection with sodium hypochlorite
- Sludge Disposal: incineration on-site

Monitoring:

- Monitoring frequency, in 1999:
 - Metals: quarterly
 - Volatiles and Base/Neutrals: semi-annually
 - Acids and Pesticides: annually
 - Acute toxicity: quarterly

State Review and Violations *(note: more recent reviews have been completed by NJDEP):*

- Date of State Inspection: March 1998
- State Review: Acceptable
- Violations/Deficiencies: Marginal ratings because: (1) potable water protections within the facility, (2) several discharges from a manhole, (3) Operations & Maintenance Manual being updated, (4) 2 of 7 settling units off-line for repairs and moderate amounts of algae on spillways of other units, (5) record-keeping.
- No effluent violations

Bayshore Regional Sewerage Authority

Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 16 MGD, and 80% of the capacity is 12.8 MGD. Average flow volume per capita was estimated to be 109 gallons per person per day (not including volumes contributed by indirect users). Flow did not exceed 80% capacity in 1998

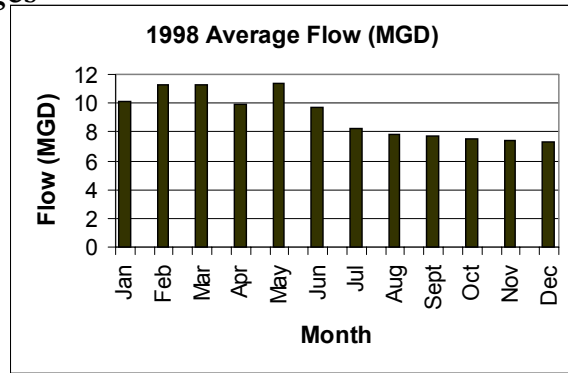


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

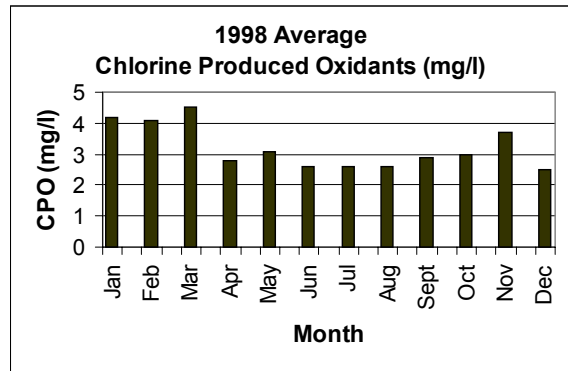


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly BOD loading to the Atlantic Ocean from this discharger was 193 kg/d.

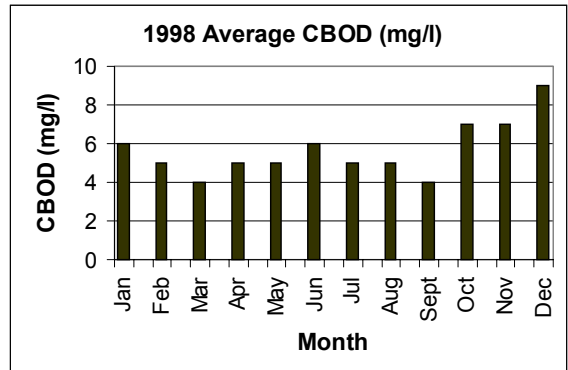
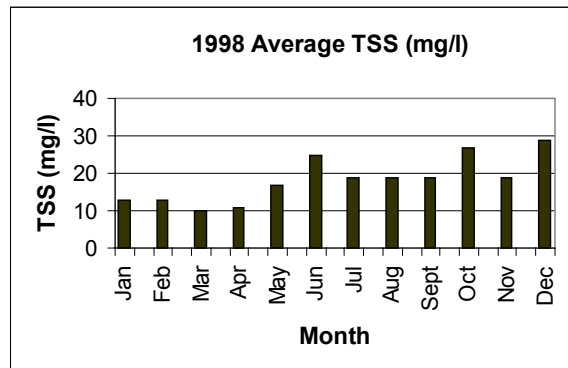


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 613 kg/d.



Long Branch Sewerage Authority

150 Joline Avenue
P.O. Box 700
Long Branch, NJ 07740
Monmouth County
732-222-0500

Permit Information:

- Number: NJ0024783
- Issued on 06/30/95
- Expires on 08/31/00
- Permit renewal application was released for public review and comment on 02/06/01. No final permit has been issued (as of June 25, 2001).

Service Area:

- Population serviced: 29,500
 - Long Branch
 - Parts of West Long Branch
 - 2 houses in Monmouth Beach
- Indirect Users: no Significant Indirect Users

Infrastructure:

- Outfall position
 - east of Seven Presidents Park
 - Latitude 40°18'52"
 - Longitude 73°58'22"
 - 1,920 feet offshore
 - Depth: 30 feet below mean sea level
- Construction completed in 1947
- Last upgrade in 1984
- Capacity:
 - Average design flow: 5.4 MGD
 - Peak design flow: 8.10 MGD
 - Number of months flow exceeded 80% of capacity (in 1998): 5
- Wastewater is processed through the following units:
 1. bar screen
 2. comminutor
 3. wet well
 4. primary settling tanks
 5. aeration tanks

6. final settling tanks
7. chlorine contact tank
8. pump station

- Sludge Disposal: treatment on-site and land application

Monitoring:

- Monitoring frequency, in 1999:
 - Copper, Manganese and Zinc: quarterly
 - All other Metals: semi-annually
 - Pesticides: semi-annually
 - Acids, Volatiles, and Base/Neutrals: annually
 - Acute toxicity: annually

State Review and Violations (*note: more recent reviews have been completed by NJDEP*):

- Date of State Inspection: May 1999
- State Review: Acceptable
- Violations/Deficiencies: Marginal ratings because: (1) some solids on surface of the effluent chamber from the secondary clarifiers, (2) some amounts of visible floc observed in final effluent; some minor reporting errors
- No effluent violations

Long Branch Sewerage Authority Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 5.4 MGD, and 80% of the capacity is 4.3 MGD. Average flow volume per capita was estimated to be 135 gallons per person per day (not including volumes contributed by indirect users). Flow exceeded 80% capacity during 5 months in 1998.

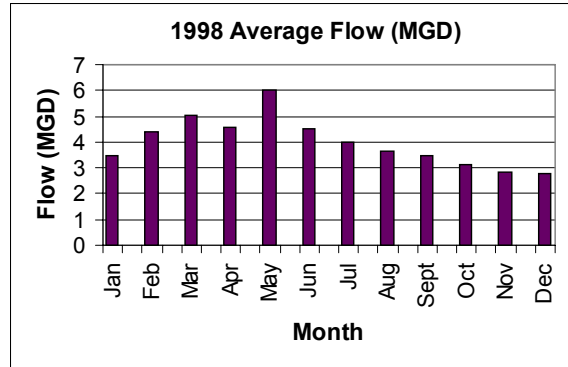


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

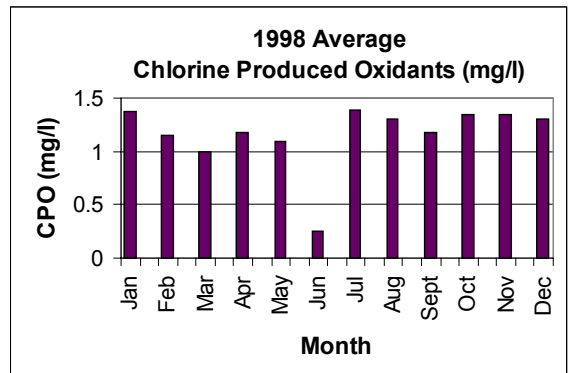


Figure 3. 1998 Average Biological Oxygen Demand (mg/l). The permit limits for Biological Oxygen Demand (BOD) discharge is 30 mg/l average and 45 mg/l maximum. This discharger had no BOD permit violations. Average monthly BOD loading to the Atlantic Ocean from this discharger was 137 kg/d.

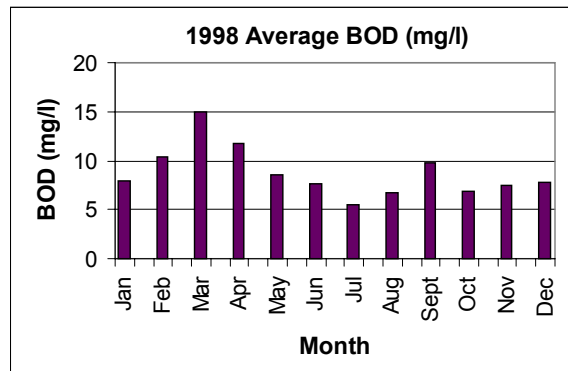
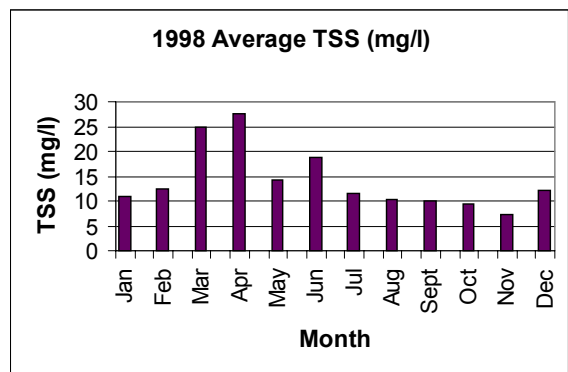


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 226 kg/d.



Monmouth County Bayshore Outfall Authority (MCBOA)

200 Harbor Way

P.O. Box 184

Belford, NJ 07718

Monmouth County

732-495-2100

Permit Information:

- Number: NJ0024694
- Issued on 02/05/99
- Expires on 03/31/04

Service Area:

- MCBOA:
 - is a pumping station, and
 - receives effluent from Bayshore Regional Sewerage Authority and Township of Middletown Sewerage Authority.

Infrastructure:

- Outfall position:
 - east of southern Sandy Hook
 - Latitude 40°23'30"
 - Longitude 73°57'39"
 - 4,000 feet offshore
 - Depth: 38 feet below mean sea level
- Construction completed in 1969
- Last upgrade in 1999
- Capacity:
 - Average design flow: 33 MGD
 - Peak design flow: 73 MGD
 - Number of months flow exceeded 80% capacity: none
- Pump stations bring treated wastewater into MCBOA's facility. At each pump station, there are retention basins to attenuate peak flows. Some sludge is generated.
- Sludge Disposal: sludge is returned to the generating customer for disposal.

Monitoring:

- Monitoring frequency, in 1999:
 - Metals: annually
 - Beryllium, Thallium, Acids, Pesticides, Volatiles, Total Phenols, and Base/Neutrals: once per permit cycle.
 - Acute toxicity: quarterly

State Review and Violations *(note: more recent reviews have been completed by NJDEP):*

- Date of State Inspection: January 1999
- State Review: Unacceptable
- Violations/Deficiencies:
 - Marginal ratings because (1) permit applications for potable water protection are forthcoming (2) Operations & Maintenance manual are being developed,
 - Unsatisfactory ratings because (1) several unpermitted discharges of treated effluent into the Raritan Bay, (2) inadequate record-keeping including improper notification to the State Department of discharges to the Raritan Bay.
 - Exceeded permit limitations for acute toxicity on 10/98 (as reported on Daily Monitoring Report).
 - Failed to meet groundwater standards for ammonia concentration (as measured in monitoring wells for groundwater protection) from April to December 1998.

Monmouth County Bayshore Outfall Authority (MCBOA)

Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 33 MGD, and 80% of the capacity is 26.4 MGD. See Bayshore Regional and Township of Middletown wastewater treatment facilities for per capita discharge volumes. Flow did not exceed 80% capacity in 1998.

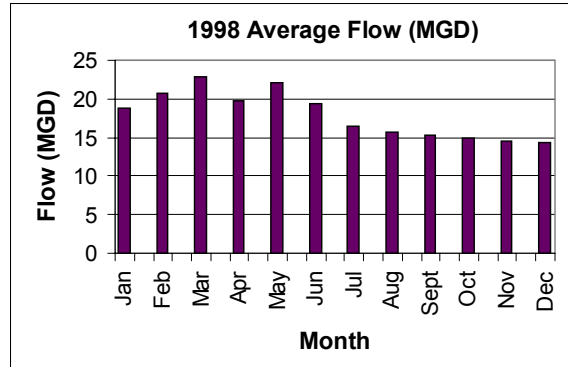


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

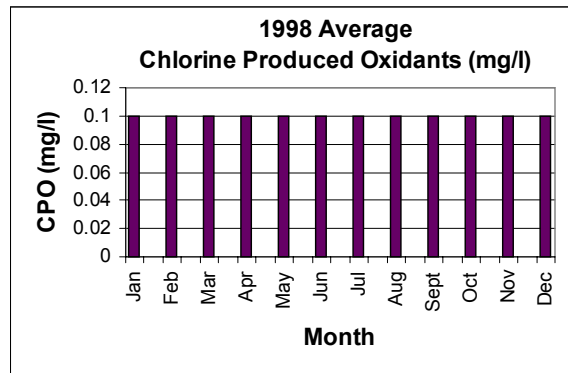


Figure 3. 1998 Average Biological Oxygen Demand (mg/l). The permit limits for Biological Oxygen Demand (BOD) discharge is 30 mg/l average and 45 mg/l maximum. This discharger had no BOD permit violations. Average monthly BOD loading to the Atlantic Ocean from this discharger was 262 kg/d.

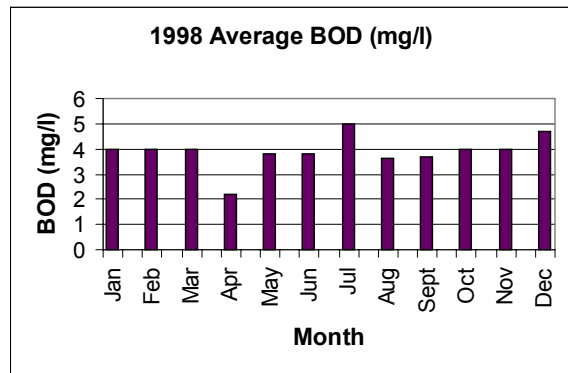
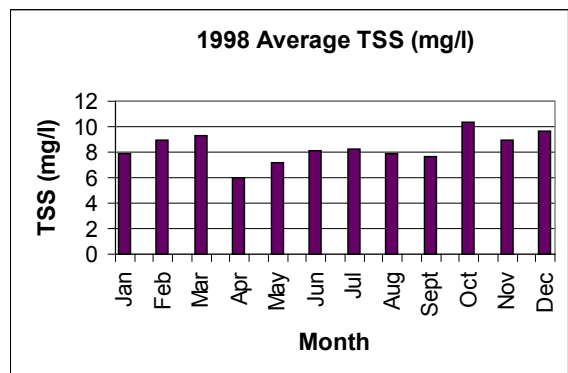


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 569 kg/d.



Northeast Monmouth County Regional Sewerage Authority

One Highland Avenue
Monmouth Beach, NJ 07750

Monmouth County

732-229-8578

Permit Information:

- Number: NJ0026735
- Issued on 06/22/01
- Expires on 07/31/06

Service Area:

- Population serviced: 87,000
- Camp Charles - Red Bank Wood
- Eatontown - Rumson
- Fair Haven - Sea Bright
- Fort Monmouth - Shrewsbury
- Little Silver - Shrewsbury Borough
- Monmouth Beach - Tinton Falls
- Oceanport - West Long Branch
- Indirect Users: All users in this table are Significant Indirect Users (SIUs).

Indirect Users	Volume Discharged gallons per day, average
Precision Circuits, Inc. *	32,000
Monmouth Park Racetrack	<u>100,000</u>
Total	132,000
% of Total Discharged	1.1%

* terminated on 01/15/99

Infrastructure:

- Outfall position
 - east of Monmouth Beach (~ Cottage Rd.)
 - Latitude 40°20'04"
 - Longitude 73°57'58"
 - 1,762 feet offshore
 - Depth: 20 feet below mean sea level
- Construction completed in 1971
- Last upgrade in 1991

- Upgrades in 2001 to expand to 13.83 MGD.
- Capacity:
 - Average design flow: 11.4 MGD
 - Peak design flow: 31 MGD
 - Number of months flow exceeded 80% capacity (in 1998): 11
- Wastewater is processed through the following units:
 1. pumping station
 2. pre-chlorination chamber
 3. comminution and grit chamber
 4. aeration tanks
 5. clarifiers
 6. filtration facilities
 7. wastewater recycling pumping station
 8. post-chlorination chamber
 9. effluent pumping station
- Sludge Disposal: incineration off-site

Monitoring:

- Monitoring frequency, in 1999 prior to permit renewal application:
 - Arsenic, Cyanide, and Manganese: quarterly
 - All other metals, Acids, Pesticides (except Aldrin), Volatiles, and Base/Neutrals: once per permit cycle
 - Aldrin: quarterly.
 - Acute toxicity: annually
- Monitoring frequency, as required by current permit:
 - Cyanide: quarterly
 - All other metals, Acids, Pesticides, Volatiles, and Base/Neutrals: semi-annually

State Review and Violations *(note: more recent reviews have been completed by NJDEP):*

- Date of State Inspection: March 1999
- State Review: Acceptable
- Violations/Deficiencies: None
- No effluent violations

Northeast Monmouth County Regional Sewerage Authority Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 11.4 MGD, and 80% of the capacity is 9.12 MGD. Average flow volume per capita was estimated to be 131 gallons per person per day (not including volumes contributed by indirect users). Flow exceeded capacity during 11 months in 1998.

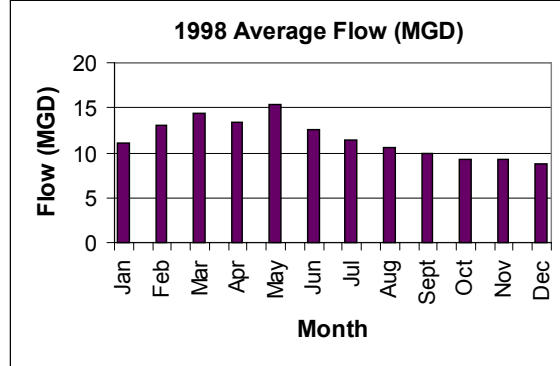


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

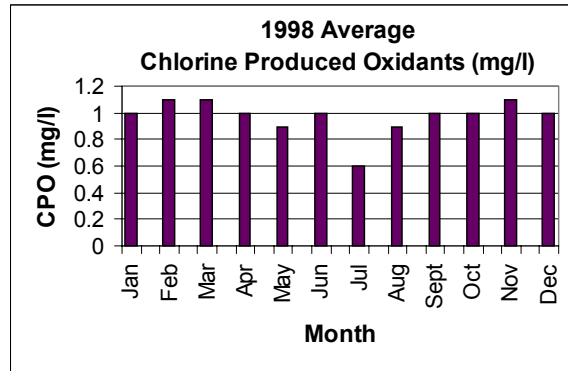


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading to the Atlantic Ocean from this discharger was 332 kg/d.

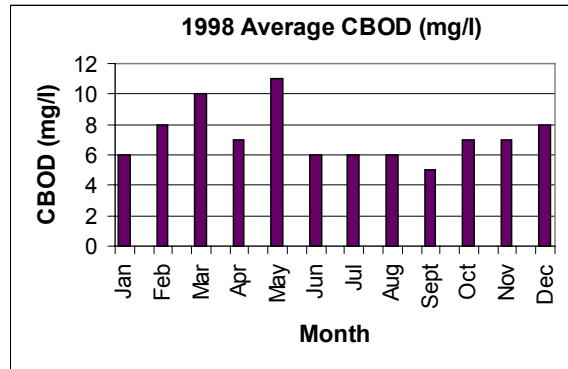
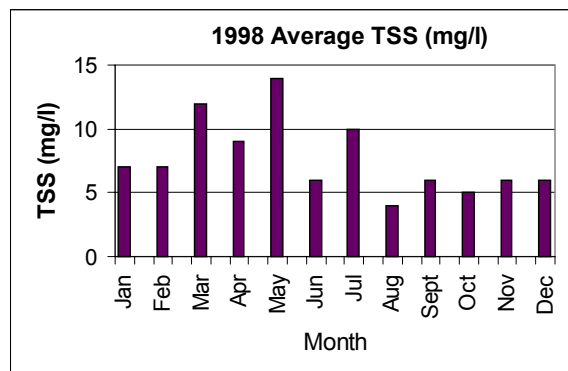


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 359 kg/d.



South Monmouth Regional Sewerage Authority

1235 18th Avenue
Wall Township, NJ 07719
Monmouth County
732-681-0611

Permit Information:

- Number: NJ0024562
- Issued on 08/01/95
- Expires on 07/31/00
- Permit renewal application was released for public review and comment on 05/11/01. No final permit has been issued (as of June 25, 2001).

Service Area:

- Population serviced: 91,000
 - Belmar
 - Brielle
 - Manasquan
 - Sea Girt
 - Spring Lake
 - Spring Lake Heights
 - South Belmar
 - Wall Township
- Indirect Users: no Significant Indirect Users

Infrastructure:

- Outfall position
 - East of North and South Boulevards (East of Twin arches)
 - Latitude 40°09'42.7"
 - Longitude 73°59'53.9"
 - 4,480 feet offshore (from beach to first diffuser port)
 - Depth: approximately 50 feet below mean sea level
- Construction completed in 1979

- Upgrades and improvements made on an annual basis as Special Projects
- Capacity:
 - Average design flow: 9.1 MGD
 - Peak design flow: 20 MGD
 - Number of months flow exceeded 80% capacity (in 1998): 4
- Wastewater is processed by:
 1. bar screen
 2. 2 aerated grit removal chambers
 3. 2 primary clarification/settling tanks
 4. 2 trickling filter tanks
 5. 2 secondary settling tanks (sodium hypochlorite is added at exit as disinfection)
 6. aerated stabilization tanks
 7. leveling pond
- Sludge Disposal: incineration off-site

Monitoring:

- Monitoring frequency, in 1999 prior to permit renewal application:
 - Metals, Acids, Pesticides, Volatiles, and Base/Neutrals: Quarterly.
 - Acute toxicity: Quarterly

State Review and Violations (*note: more recent reviews have been completed by NJDEP*):

- Date of State Inspection: August 1998
- State Review: Acceptable
- Violations/Deficiencies: None
- No effluent violations

South Monmouth Regional Sewerage Authority Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 9.1 MGD, and 80% of the capacity is 7.28 MGD. Average flow volume per capita was estimated to be 73 gallons per person per day. Flow exceeded capacity during 4 months in 1998.

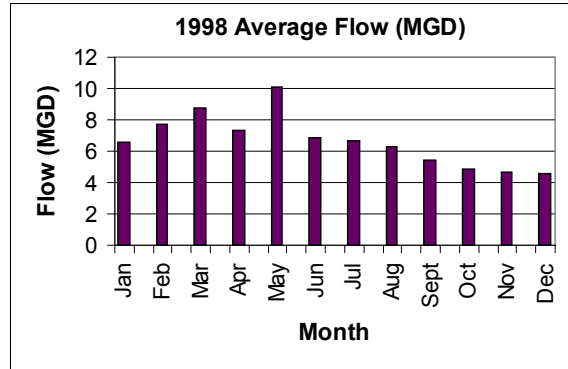


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

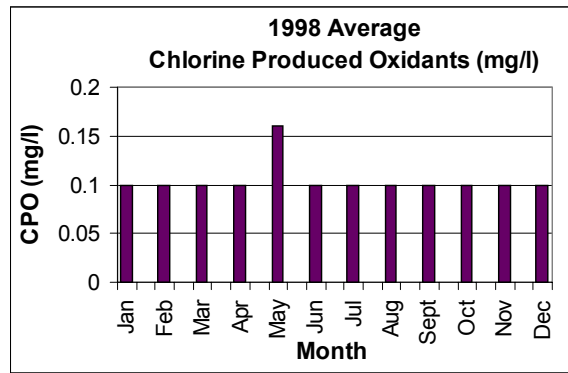


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading to the Atlantic Ocean from this discharger was 353 kg/d.

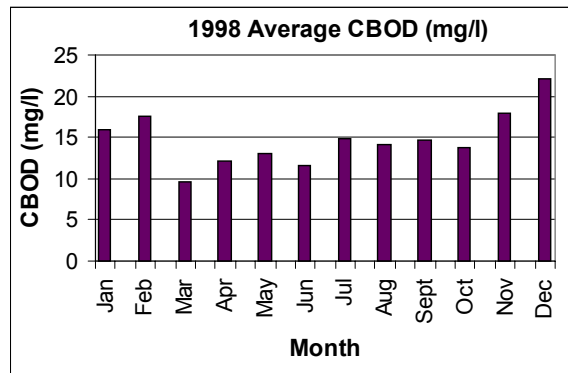
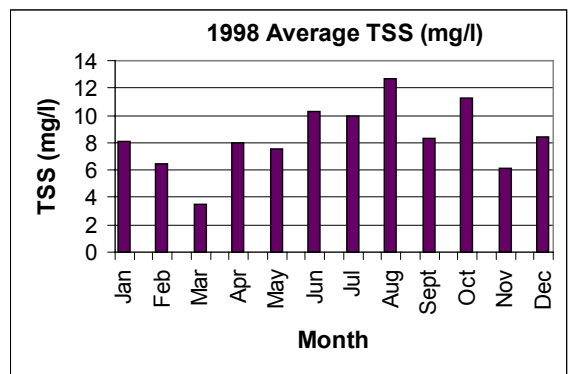


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 204 kg/d.



Township of Middletown Sewerage Authority

Center Avenue
Belford, NJ 07718-0205

Monmouth County

732-495-1010

Permit Information:

- Number: NJ0025356
- Issued on 06/28/96
- Expires on 07/31/01
- No permit renewal application has been released for public review and comment (as of June 25, 2001).

Service Area:

- Population serviced: 75,000
 - Borough of Atlantic Highlands
 - Borough of Highlands
 - Township of Middletown
- Indirect Users: no Significant Indirect Users

Infrastructure:

- Discharge to Monmouth County Bayshore Outfall Authority (MCBOA)
 - east of southern Sandy Hook
 - Latitude 40°25'49"
 - Longitude 74°04'52"
 - Refer to MCBOA fact sheet for outfall information.
- Construction completed in 1969
- Last upgrade in 1985
- Anticipated upgrade in 2002
- Capacity:
 - Average design flow: 11.25 MGD
 - Peak design flow: 22.1 MGD
 - Number of months flow exceeded 80% of capacity: 6

- Wastewater is processed through the following units:

1. bar screens
2. wet well
3. circular grit pond
4. primary clarifiers
5. aeration basins
6. secondary clarifiers
7. chlorine contact tanks
8. discharge to MCBOA

- Sludge Disposal: disposal at landfill

Monitoring:

- Monitoring frequency, in 1999:
 - Metals: monthly
 - Acids, Pesticides, Volatiles, Base/Neutrals: annually
 - Acute toxicity: quarterly

State Review (*note*: more recent reviews have been completed by NJDEP):

- Date of State Inspection: March 1998
- State Review: Conditionally Acceptable
- Violations/Deficiencies:
 - “Conditionally Acceptable” was based on errors on Daily Monitoring Reports and failure to submit an annual report.
 - Marginal ratings because (1) may require permits for potable water protection, (2) some secondary settling tanks had a moderate amount of algae on spillways, (3) errors in record-keeping, (4) at time of inspection, flow exceeded average design flow, (5) final effluent was “slightly turbid with grease”.
- No effluent violations.

Township of Middletown Sewerage Authority

Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 11.25 MGD, and 80% of the capacity is 9 MGD. Average flow volume per capita was estimated to be 122 gallons per person per day. Flow exceeded capacity during 6 months in 1998.

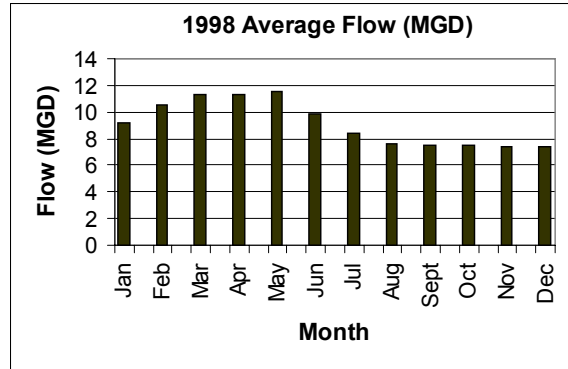


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

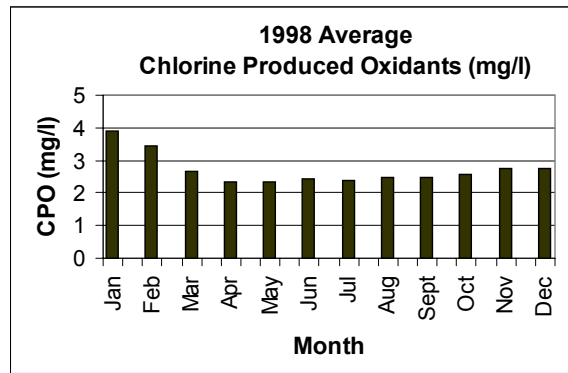


Figure 3. 1998 Average Biological Oxygen Demand (mg/l). The permit limits for Biological Oxygen Demand (BOD) discharge is 30 mg/l average and 45 mg/l maximum. This discharger had no BOD permit violations. Average monthly BOD loading to the Atlantic Ocean from this discharger was 294 kg/d.

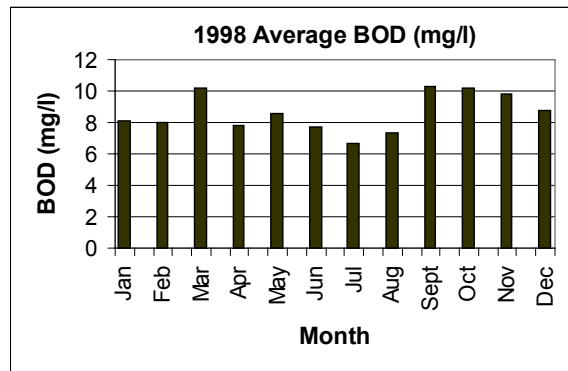
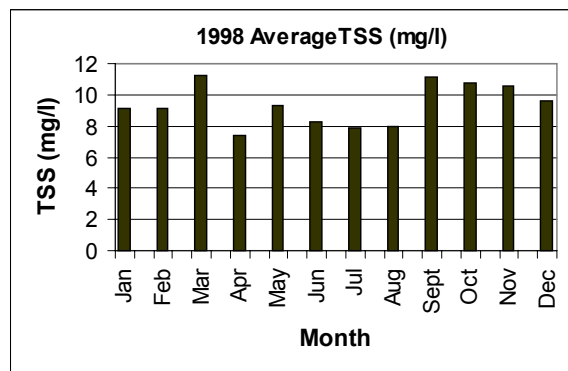


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 329 kg/d.



Township of Neptune Sewerage Authority

634 Old Corlies Avenue

Neptune, NJ 07754

Monmouth County

732-922-3434

Permit Information:

- Number: NJ0024872
- Issued on 01/28/99
- Expires on 02/28/04

Service Area:

- Population serviced: 59,000
 - Neptune
 - Neptune City
 - Avon
 - Bradley Beach
 - Ocean Grove
 - Tinton Falls
 - Wall Township
- Indirect Users: no Significant Indirect Users

Infrastructure:

- Outfall position
 - east of Avon-by-the-Sea and Bradley Beach (Sylvan Lake)
 - Latitude 40°11'58"
 - Longitude 74°03'47"
 - 5,800 feet offshore
 - Depth: 50 feet below mean sea level
- Construction completed in 1965
- Last upgrade in 1979
- Presently under renovation
- Capacity:
 - Average design flow: 8.5 MGD
 - Peak design flow: 11.05 MGD
 - Number of months flow exceeded 80% capacity (in 1998): 4

- Wastewater is processed through the following units:

1. bar screen
2. comminutor
3. parsall flume
4. primary settling tanks
5. trickling filters
6. final settling tanks
7. chlorine contact tank
8. stabilization pond
9. outfall pump station

- Sludge Disposal: incineration off-site and composting and surface disposal.

Monitoring:

- Monitoring frequency, in 1999:
 - All metals except Manganese: once per permit cycle
 - Manganese: quarterly
 - Acids, Pesticides, Volatiles, and Base/Neutrals: once per permit cycle
 - Acute toxicity: monthly

State Review and Violations (*note: more recent reviews have been completed by NJDEP*):

- Date of State Inspection: October 1997 (no 1998 inspection reports were available when NJDEP files were inspected in 1999).
- State Review: Acceptable
- Violations/Deficiencies: None
- No effluent violations

Township of Neptune Sewerage Authority

Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 8.5 MGD, and 80% of the capacity is 6.8 MGD. Average flow volume per capita was estimated to be 110 gallons per person per day. Flow exceeded capacity during 4 months in 1998.

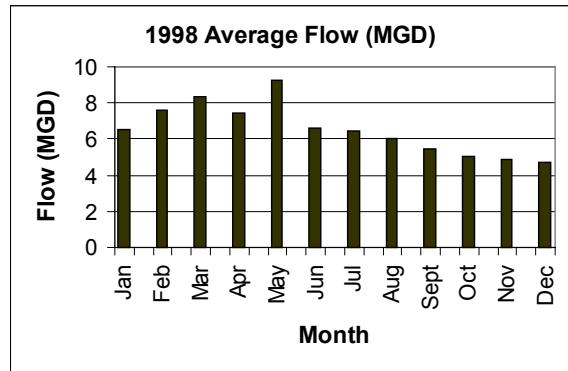


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

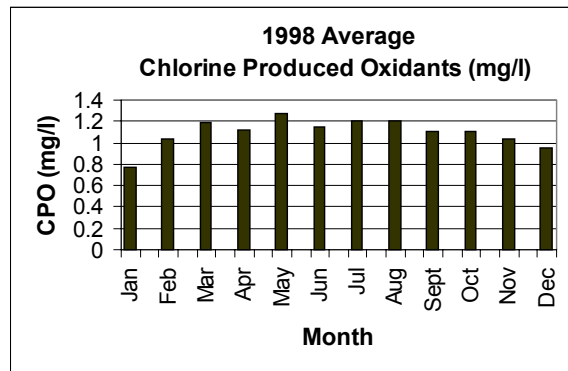


Figure 3. 1998 Average Biological Oxygen Demand (mg/l). The permit limits for Biological Oxygen Demand (BOD) discharge is 30 mg/l average and 45 mg/l maximum. This discharger had no BOD permit violations. Average monthly BOD loading to the Atlantic Ocean from this discharger was 204 kg/d.

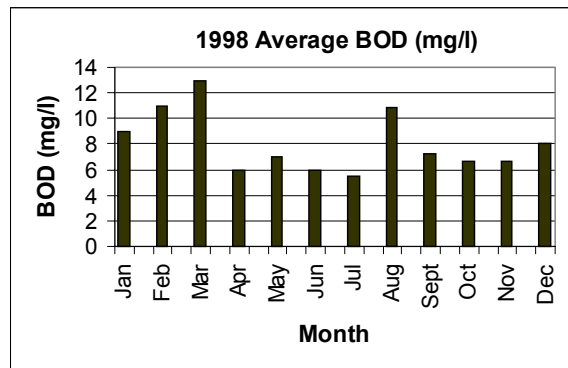
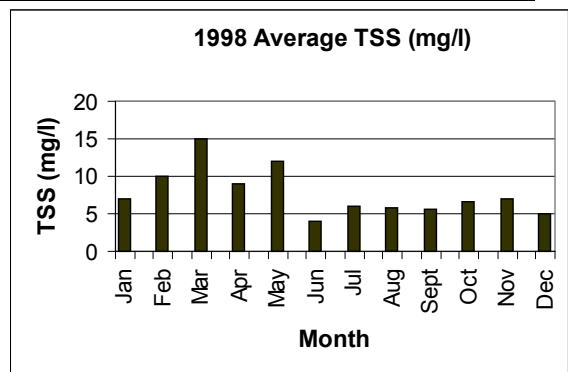


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 204 kg/d.



Township of Ocean Sewerage Authority

224 Roosevelt Avenue

Oakhurst, NJ 07755

Monmouth County

732-531-2213

Permit Information:

- Number: NJ0024520
- Issued on 06/30/95
- Expires on 08/31/00
- No permit renewal application has been released for public review and comment (as of June 25, 2001).

Service Area:

- Population serviced: 30,000
 - Allenhurst
 - parts of Deal
 - Interlaken
 - Loch Arbour
 - Oakhurst
 - Wanamassa
 - Wayside
- Indirect Users: no Significant Indirect Users

Infrastructure:

- Outfall position
 - east of Deal (~ Roosevelt Avenue)
 - Latitude 40°15'19"
 - Longitude 73°59'12"
 - 1800 feet offshore
 - Depth: 34 feet below mean sea level
- Construction completed in 1968
- Last upgrade for treatment plant in 1988
- Last upgrade for ocean outfall in 1993
- Capacity:
 - average design flow: 7.5 MGD
 - peak design flow: 25 MGD
 - number of months flow exceeded 80% capacity (in 1998): 4

- Wastewater is processed by:
 1. bypass bar screen
 2. wet well, a pump station
 3. grit chamber
 4. primary settling tank
 5. pure oxygen tanks (activated sludge process)
 6. final clarifier
 7. chlorine contact tank

- Sludge Disposal: incineration off-site

Monitoring:

- Monitoring frequency, in 1999:
 - Chromium, Manganese, Nickel, and Silver: quarterly
 - All other metals, Acids, Pesticides, Volatiles, and Base/Neutrals: once per permit cycle
 - Acute toxicity: annually

State Review and Violations:

- Date of State Inspection: October 1998
- State Review: Acceptable
- Violations/Deficiencies: Marginal rating because the final effluent was "clear with some algae". Also, levels of chromium, silver, nickel, and manganese were absent from the Daily Monitoring Report for the April 1998 period.
- No effluent violations

Township of Ocean Sewerage Authority Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 7.5 MGD, and 80% of the capacity is 6 MGD. Average flow volume per capita was estimated to be 187 gallons per person per day. Flow exceeded capacity during 4 months in 1998.

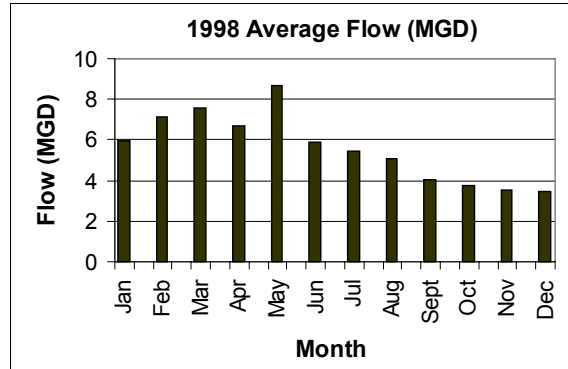


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

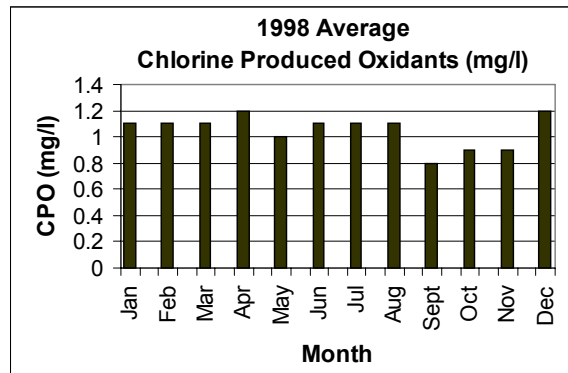


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading to the Atlantic Ocean from this discharger was 193 kg/d.

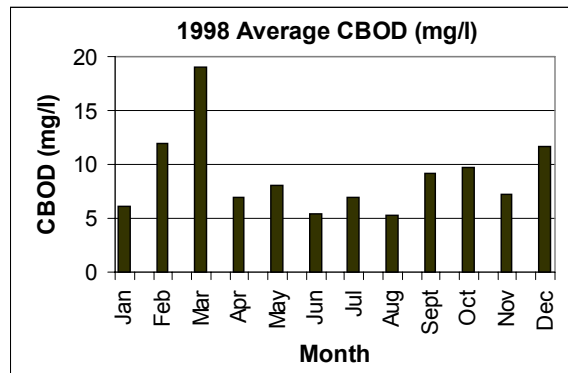
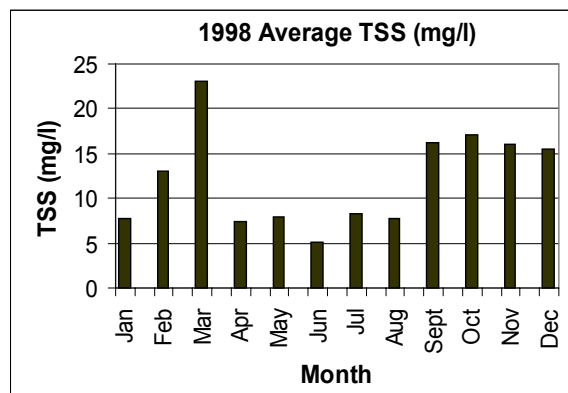


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 257 kg/d.



Central Water Pollution Control Facility, Ocean County Utilities Authority

501 Hickory Lane
 Bayville, NJ 08721
Ocean County
 732-269-4500

Permit Information:

- Number: NJ0029408
- Issued on 06/30/95
- Expires on 07/31/00
- No permit renewal application has been released for public review and comment (as of June 25, 2001).

Service Area:

- Population serviced: 230,000
 - Barnegat Township
 - Beachwood
 - Berkeley
 - Crestwood
 - Dover
 - Island Heights Borough
 - Lacey
 - Lakehurst
 - Lakewood
 - Lavallette
 - Manchester
 - Ocean Gate
 - Ocean Township
 - Seaside Heights
 - Seaside Park
 - South Toms River

- Indirect Users: The Ocean County Utilities Authority provided information on the total permitted industrial/non-domestic flow for 1998 in gallons per year.

Indirect User	Average Volumes	
	Gal. per day (estimated)	Gal. per year
Allyn Manufacturing Co., Inc	8	3,000
GPU Nuclear	800	291,865
Lacey MUA Water Treatment Plant #1	1,960	715,225
Lacey MUA Water Treatment Plant #2	1,500	547,400
Ocean County Landfill Corp.	61,889	22,589,635
Southern Ocean Landfill	11,584	4,228,200
United Water Company, Water Treatment Plant #1	7,963	2,906,625
United Water Company, Water Treatment Plant #2	12,205	<u>4,454,910</u>
Total	97,909	35,736,860
% of Total Discharge	0.45%	

Infrastructure:

- Outfall position
 - east of south-end of South Seaside Park (23rd Avenue)
 - Latitude 39°54'12"
 - Longitude 74°03'41"
 - 5,000 feet offshore
 - Depth: 58 feet below mean low tide
- Construction completed in 1979

(infrastructure, continued)

- Last upgrade in 1999
- Anticipated upgrade: ongoing

- Capacity:
 - Average design flow: 28 MGD
 - Number of months flow exceeded 80% of capacity: 5

- Wastewater is processed through the following units:
 1. bar screening
 2. grit removal (through aerated grit chambers)
 3. sedimentation and scum removal (primary clarifiers)
 4. sedimentation (secondary clarifiers)
 5. disinfection (chlorine- sodium hypochlorite- contact tank)

- Sludge Disposal: Reuses sludge by producing Oceangro©, a fertilizer.

Monitoring:

- Monitoring frequency, in 1999:
 - Arsenic, Chromium, Copper, Manganese, Thallium, Silver and Zinc: Quarterly
 - All other metals, Acids, Pesticides, Volatiles, and Base/Neutrals: Annually
 - Acute toxicity: Annually

State Review and Violations (*note*: more recent reviews have been completed by NJDEP):

- Date of State Inspection: October 1998
- State Review: Acceptable
- Violations/Deficiencies: Marginal rating because primary clarifiers have rust and corrosion (the facility is however actively addressing this deficiency).
- No effluent violations

Central Water Pollution Control Facility, Ocean County Utilities Authority

Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 28 MGD, and 80% of the capacity is 22.4 MGD. Average flow volume per capita was estimated to be 98 gallons per person per day (not including volumes contributed by indirect users). Flow exceeded capacity during 5 months in 1998.

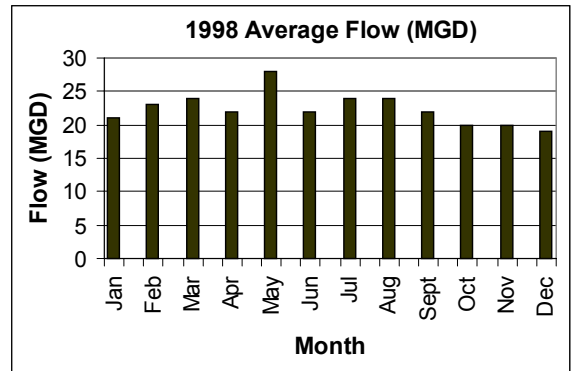


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

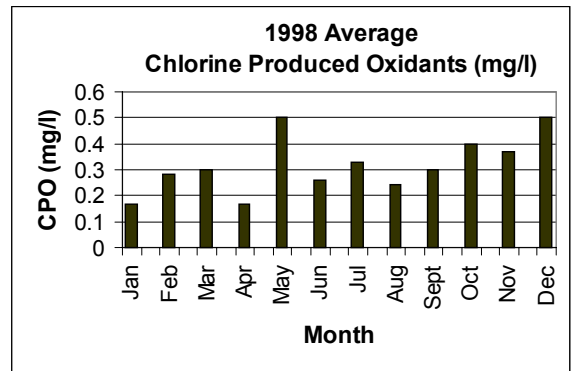


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading to the Atlantic Ocean from this discharger was 1284 kg/d.

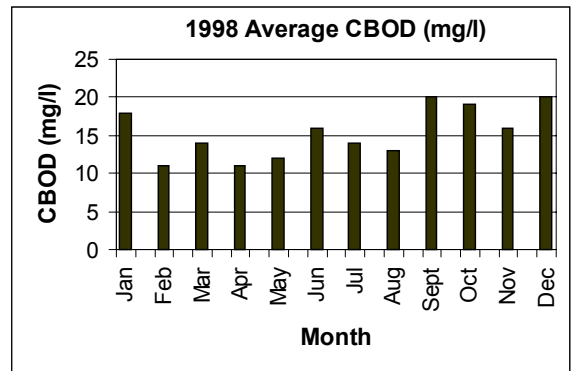
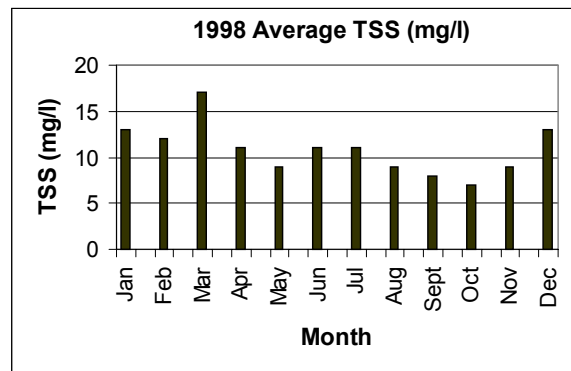


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 921 kg/d.



Northern Water Pollution Control Facility, Ocean County Utilities Authority

255 Mantoloking Road
Brick, NJ 08723
Ocean County
732-269-4500 x8226

Permit Information:

- Number: NJ0028142
- Issued on 06/30/95
- Expires on 08/31/00
- No permit renewal application has been released for public review and comment (as of June 25, 2001).

Service Area:

- Population serviced: 230,000

Ocean County

- Brick Township
- Jackson
- Manasquan
- Mantoloking Borough
- Point Pleasant Borough
- Point Pleasant Beach

Monmouth County

- Freehold
 - Freehold Borough
 - Farmingdale
 - Wall Township
- Indirect Users: The Ocean County Utilities Authority provided information on the total permitted industrial/non-domestic flow for 1998 in gallons per year.

Indirect Users	Volume Discharged	
	Gal/day, estimated	Gal./year
Boro of Point Pleasant (Clif.WTP)*	1,437.0	524,500
Boro of Point Pleasant (Riv.WTP)*	137.0	50,000
Boro of Point Pleasant Beach WTP*	2,564.4	936,000
Brick Township MUA(GWR)	17,748.1	6,478,070
Brick Township MUA WTP*	24,788.1	9,047,663
Exxon Company USA	8,450.4	3,084,411
Freehold Twp. Jackson Mill WTP*	20,975.3	7,656,000

Indirect Users	Gal/day, estimated	Gal./year
Freehold Twp. Koenig Lane WTP*	6,468.5	2,361,000
Frequency Engineering Labs	1,788.5	652,800
Glasseal Products, Inc.	20,867.4	7,616,600
Gusmer, A Division of PMC	80.2	29,268
Jackson Twp. MUA WTP*	39,759.0	14,512,000
Lakewood Cogeneration, L.P.	49,126.2	17,931,050
Lone Pine Landfill Tech. Comm.	145,604.3	53,145,554
May National Associates of NJ	1,211.0	441,990
Monmouth County Bd. Free/Waste Disposal Inc.	134,218.1	48,989,609
Nestle Beverage Company	551,026.1	201,124,544
NJ American Water Co.- Sunset WTP*	33,005.5	12,047,000
NJ American Water Co.- Oak Glen WTP*	13,207.8	4,820,845
Old Fashioned Kitchen	7,166.2	2,615,680
Paco Pharmaceutical Services	24,406.7	8,908,434
Permacel	20.5	7,480
Prestone Products Corp.	290.0	105,840
Shore Plating/Shore Anodizing	2,836.5	1,035,321
Six Flags Great Adventure	115.1	42,000
Texaco Refining and Marketing Inc.	4,101.9	1,499,032
Worthington Biochemical	<u>5,474.0</u>	<u>1,998,000</u>
Total	1,116,879	407,660,691
% of Total Discharged	5%	

* WTP- Water Treatment Plant

Infrastructure:

- Outfall position
 - east of Mantoloking (~ Princeton Ave.)
 - Latitude 40°01'55"
 - Longitude 74°01'39"
 - 5,000 feet offshore
 - Depth: 58 feet below mean sea level
- Construction completed in 1976
- Last upgrade in 1996

(Infrastructure, continued)

- Anticipated upgrade in 2000
- Capacity
 - Average design flow: 28 MGD
 - Future average design flow: 32 MGD
 - Number of months flow exceeded 80% present capacity (in 1998): 5
- Wastewater is processed by:
 1. bar screening, grit removal
 2. primary clarification
 3. activated sludge treatment
 4. secondary clarification
 5. sodium hypochlorite disinfection

- Sludge Disposal: Reuses sludge by producing Oceangro©, a fertilizer.

Monitoring:

- Monitoring frequency, as reported by facility in 1999:
 - Copper, Zinc, Nickel and Silver: quarterly
 - All other metals, Acids, Pesticides, Volatiles, and Base/Neutrals: annually
 - Acute toxicity: annually

State Review and Violations (*note*: more recent reviews have been completed by NJDEP):

- Date of State Inspection: October 1998
- State Review: Acceptable
- Violations/Deficiencies: None
- No effluent violations

Northern Water Pollution Control Facility, Ocean County Utilities Authority Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 28 MGD, and 80% of the capacity is 22.4 MGD. Average flow volume per capita was estimated to be 93 gallons per person per day (not including volumes contributed by indirect users). Flow exceeded capacity during 5 months in 1998.

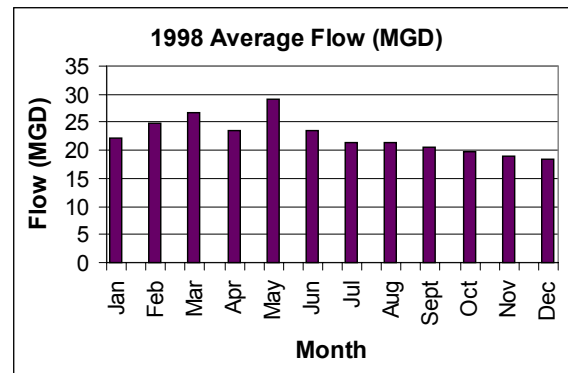


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

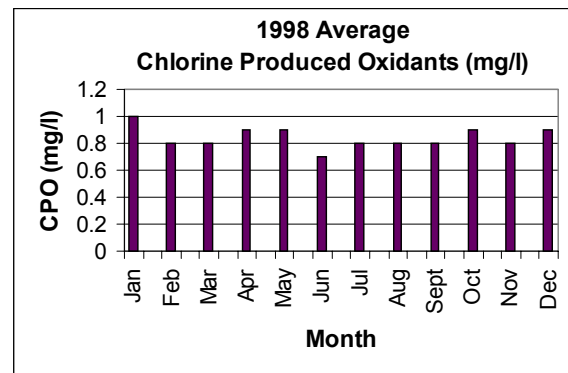


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading to the Atlantic Ocean from this discharger was 1045 kg/d.

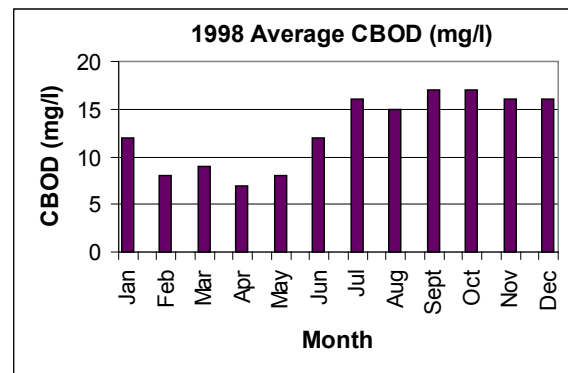
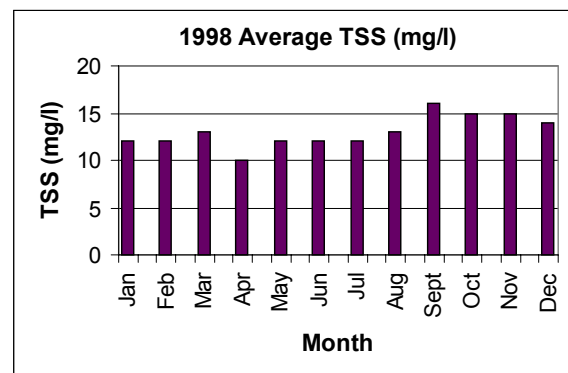


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 1102 kg/d.



Southern Water Pollution Control Facility, Ocean County Utilities Authority

150 Cedar Run Dock Road

Manahawkin, NJ 08050

Ocean County

732-269-4500 x8226

Permit Information:

- Number: NJ0026018
- Issued on 06/30/95
- Expires on 07/31/00
- Permit renewal application released on 03/28/01 for public review and comment. No final permit has been issued (as of June 25, 2001).

Service Area:

- Population serviced: 90,000
 - Barnegat Light - Long Beach
 - Beach Haven - Shipbottom
 - Eagleswood - Stafford
 - Harvey Cedar - Surf City Borough
 - Little Egg - Tuckerton
- Indirect Users: The Ocean County Utilities Authority provided information on the total permitted industrial/non-domestic flow for 1998 in gallons per year.

User	Average Volume	
	gallons per day, estimated	gallons per year
Beach Haven Water Utility	9,621.9	3,512,000
Boro of Harvey Cedars WTP#1 *	4,093.2	1,494,000
Boro of Harvey Cedars WTP#2 *	3,232.9	1,180,000
Boro of Surf City WTP Well #4 *	1,643.8	600,000
Boro of Surf City WTP Well #5*	1,890.4	690,000
Boro of Surf City WTP Well #6*	1,676.4	612,000
Total	2,258.9	8,088,000
% of Total Discharged	0.3%	

* WTP- Water Treatment Plant

Infrastructure:

- Outfall position
 - east of Ship Bottom Boro (5th Street)
 - Latitude 39°38'26"
 - Longitude 74°08'41"
 - 5,000 feet offshore
 - Depth: 39 feet below mean sea level
- Construction completed in 1977
- No major upgrades anticipated
- Capacity:
 - Average design flow: 20 MGD
 - Number of months flow exceeded 80% capacity (in 1998): none
- Wastewater is processed by:
 1. screw pump influent well
 2. bar screens
 3. aerated grit chamber
 4. primary settling tanks
 5. aeration tanks
 6. final settling tanks
 7. chlorine contact tanks
- Sludge Disposal: Reuses sludge by producing Oceangro ©, a fertilizer

Monitoring:

- Monitoring frequency, as reported by facility in 1999:
 - Cadmium, Chromium, Copper, Manganese, Nickel, Zinc: Quarterly
 - All other metals, Acids, Pesticides, Volatiles, and Base/Neutrals: Annually
 - Acute toxicity: Annually

State Review and Violations *(note: more recent reviews have been completed by NJDEP):*

- Date of State Inspection: October 1998
- State Review: Acceptable
- Violations/Deficiencies: None
- No effluent violations

Southern Water Pollution Control Facility, Ocean County Utilities Authority Discharges

Figure 1. 1998 Average Flow in Millions of Gallons per Day (MGD). The facility's average capacity (design flow) is 20 MGD, and 80% of the capacity is 16 MGD. Average flow volume per capita was estimated to be 81 gallons per person per day (not including volumes contributed by indirect users). Flow did not exceed capacity in 1998.

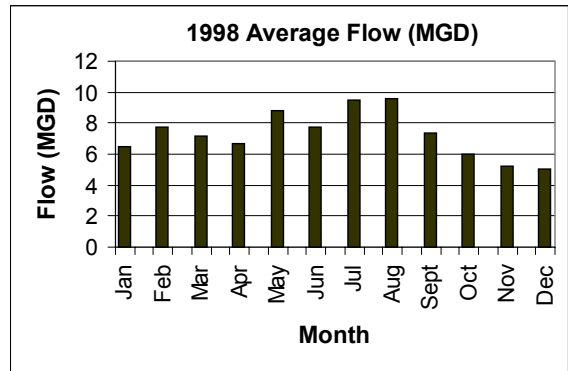


Figure 2. 1998 Average Chlorine Produced Oxidants (mg/l). There are no limits in effect for chlorine produced oxidants (CPO). Water quality-based effluent limits may be required if concentrations exceed 0.2 mg/l (200 µg/l; N.J.A.C. 7:9B-1.6(c)). Marine surface water quality criteria are: 0.13 mg/l (to protect against acute effects) and 0.075 mg/l (to protect against chronic effects).

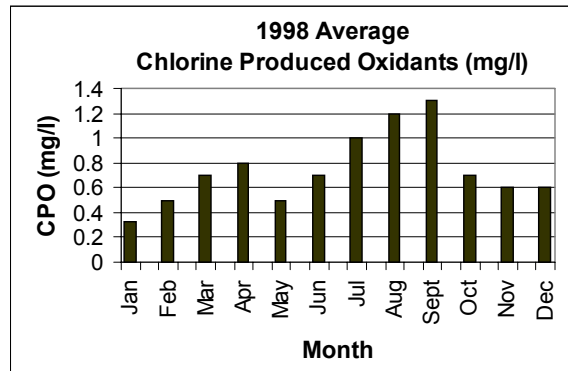


Figure 3. 1998 Average Carbonaceous Biological Oxygen Demand (mg/l). The permit limits for Carbonaceous Biological Oxygen Demand (CBOD) discharge is 25 mg/l average and 40 mg/l maximum. This discharger had no CBOD permit violations. Average monthly CBOD loading to the Atlantic Ocean from this discharger was 325 kg/d.

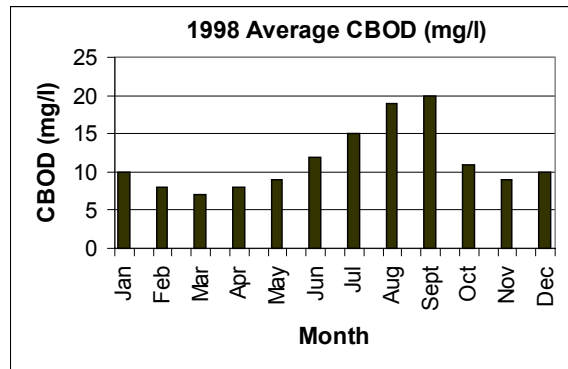
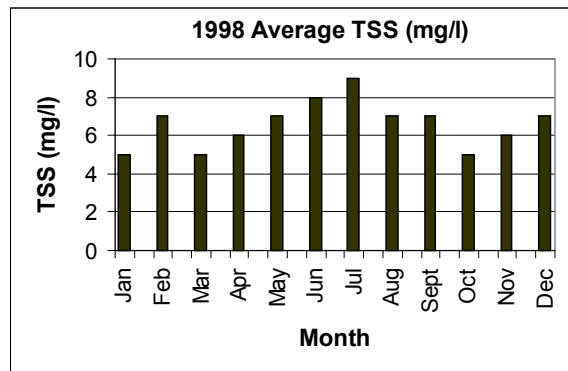


Figure 4. 1998 Average Total Suspended Solids (mg/l). The permit limits for Total Suspended Solids (TSS) discharge are 30 mg/l average and 45 mg/l maximum. This discharger had no TSS permit violations. Average monthly TSS loading to the Atlantic Ocean from this discharger was 186 kg/d.



APPENDIX I

Wastewater Treatment Facility Locator Table

Use this table to locate your wastewater treatment facility. Town names are organized alphabetically by county. Some towns are serviced by more than one facility; contact the treatment facilities to find the facility that services your home. For more information, including contact details, for your wastewater facility, refer to the fact sheets in this report. *Note:* Only facilities investigated in this report are listed. Towns serviced by Township of Lower Municipal Utilities Authority are not in this table (contact COA for towns serviced by Township of Lower MUA).

County/Town	Wastewater Treatment Facility
Atlantic County:	
Absecon	Atlantic County Utilities Authority
Atlantic City	Atlantic County Utilities Authority
Brigantine	Atlantic County Utilities Authority
Egg Harbor City	Atlantic County Utilities Authority
Egg Harbor Township	Atlantic County Utilities Authority
Galloway Township	Atlantic County Utilities Authority
Hamilton Township	Atlantic County Utilities Authority
Linwood	Atlantic County Utilities Authority
Longport	Atlantic County Utilities Authority
Margate	Atlantic County Utilities Authority
Northfield	Atlantic County Utilities Authority
Pleasantville	Atlantic County Utilities Authority
Somers Point	Atlantic County Utilities Authority
Ventnor	Atlantic County Utilities Authority
Cape May County	
Avalon	Seven Mile Beach/Middle Region Wastewater Treatment Facility
Cape May	Cape May Regional Wastewater Treatment Plant
Cape May Point	Cape May Regional Wastewater Treatment Plant
Middle Township	Seven Mile Beach/Middle Region Wastewater Treatment Facility
Ocean City	Ocean City Regional Wastewater Treatment Facility
Rio Grande	Wildwood/Lower Regional Wastewater Treatment Facility
Sea Isle City	Seven Mile Beach/Middle Region Wastewater Treatment Facility
Stone Harbor	Seven Mile Beach/Middle Region Wastewater Treatment Facility
West Cape May	Cape May Regional Wastewater Treatment Plant
West Wildwood	Wildwood/Lower Regional Wastewater Treatment Facility
Wildwood	Wildwood/Lower Regional Wastewater Treatment Facility
Wildwood Crest	Wildwood/Lower Regional Wastewater Treatment Facility

Monmouth County:	Wastewater Treatment Facility
Aberdeen Township	Bayshore Regional Sewerage Authority
Allenhurst	Township of Ocean Sewerage Authority
Asbury park	Asbury Park Wastewater Treatment Facility
Avon	Township of Neptune Sewerage Authority
Belmar	South Monmouth Regional Sewerage Authority
Borough of Atlantic Highlands	Township of Middletown Sewerage Authority
Borough of Highlands	Township of Middletown Sewerage Authority
Bradley Beach	Township of Neptune Sewerage Authority
Brielle	South Monmouth Regional Sewerage Authority
Camp Charles Wood	Northeast Monmouth County Regional Sewerage Authority
Deal (sections)	Township of Ocean Sewerage Authority
Eatontown	Northeast Monmouth County Regional Sewerage Authority
Fair Haven	Northeast Monmouth County Regional Sewerage Authority
Fort Monmouth	Northeast Monmouth County Regional Sewerage Authority
Hazlet Township	Bayshore Regional Sewerage Authority
Holmdel Township	Bayshore Regional Sewerage Authority
Interlaken	Township of Ocean Sewerage Authority
Keansbury Borough	Bayshore Regional Sewerage Authority
Keyport Borough	Bayshore Regional Sewerage Authority
Little Silver	Northeast Monmouth County Regional Sewerage Authority
Loch Arbour	Township of Ocean Sewerage Authority
Long Branch	Long Branch Sewerage Authority
Manasquan	South Monmouth Regional Sewerage Authority
Marlboro Township	Bayshore Regional Sewerage Authority
Matawan Borough	Bayshore Regional Sewerage Authority
Monmouth Beach (2 houses)	Long Branch Sewerage Authority
Monmouth Beach	Northeast Monmouth County Regional Sewerage Authority
Neptune	Township of Neptune Sewerage Authority
Neptune City	Township of Neptune Sewerage Authority
Oakhurst	Township of Ocean Sewerage Authority
Ocean Grove	Township of Neptune Sewerage Authority
Oceanport	Northeast Monmouth County Regional Sewerage Authority
Red Bank	Northeast Monmouth County Regional Sewerage Authority
Rumson	Northeast Monmouth County Regional Sewerage Authority
Sea Bright	Northeast Monmouth County Regional Sewerage Authority
Sea Girt	South Monmouth Regional Sewerage Authority
Shrewsbury	Northeast Monmouth County Regional Sewerage Authority
Shrewsbury Borough	Northeast Monmouth County Regional Sewerage Authority
South Belmar	South Monmouth Regional Sewerage Authority
Spring Lake	South Monmouth Regional Sewerage Authority
Spring Lake Heights	South Monmouth Regional Sewerage Authority
Tinton Falls	Township of Neptune Sewerage Authority
Tinton Falls	Northeast Monmouth County Regional Sewerage Authority
Township of Middletown	Township of Middletown Sewerage Authority
Union Beach Borough	Bayshore Regional Sewerage Authority

Monmouth County, cont'd:	Wastewater Treatment Facility:
Wall Township (sections)	Ocean County Utilities Authority-Northern Facility
Wall Township (sections)	Township of Neptune Sewerage Authority
Wall Township (sections)	South Monmouth Regional Sewerage Authority
Wanamassa	Township of Ocean Sewerage Authority
Wayside	Township of Ocean Sewerage Authority
West Long Branch (sections)	Long Branch Sewerage Authority
West Long Branch (sections)	Northeast Monmouth County Regional Sewerage Authority
Ocean County:	
Barnegat Light	Southern Water Pollution Control Facility
Barnegat Township	Central Water Pollution Control Facility
Beach Haven	Southern Water Pollution Control Facility
Beachwood	Central Water Pollution Control Facility
Berkeley	Central Water Pollution Control Facility
Brick Township	Northern Water Pollution Control Facility
Crestwood	Central Water Pollution Control Facility
Dover	Central Water Pollution Control Facility
Eagleswood	Southern Water Pollution Control Facility
Farmingdale	Northern Water Pollution Control Facility
Freehold	Northern Water Pollution Control Facility
Freehold Borough	Northern Water Pollution Control Facility
Harvey Cedar	Southern Water Pollution Control Facility
Island Heights Borough	Central Water Pollution Control Facility
Jackson	Northern Water Pollution Control Facility
Lacy	Central Water Pollution Control Facility
Lakehurst	Central Water Pollution Control Facility
Lakewood	Central Water Pollution Control Facility
Lavallette	Central Water Pollution Control Facility
Little Egg	Southern Water Pollution Control Facility
Long Beach	Southern Water Pollution Control Facility
Manasquan	Northern Water Pollution Control Facility
Manchester	Central Water Pollution Control Facility
Mantoloking Borough	Northern Water Pollution Control Facility
Ocean Gate	Central Water Pollution Control Facility
Ocean Township	Central Water Pollution Control Facility
Point Pleasant Beach	Northern Water Pollution Control Facility
Point Pleasant Borough	Northern Water Pollution Control Facility
Seaside Heights	Central Water Pollution Control Facility
Seaside Park	Central Water Pollution Control Facility
Shipbottom	Southern Water Pollution Control Facility
South Toms River	Central Water Pollution Control Facility
Stafford	Southern Water Pollution Control Facility
Surf City Borough	Southern Water Pollution Control Facility
Tuckerton	Southern Water Pollution Control Facility