

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended: (33 U.S.C. §§1251 et seq.; the "CWA"),

Wells Sanitary District

is authorized to discharge from a facility located at

197 Eldridge Road
Wells, Maine 04090

to receiving waters named Atlantic Ocean, a Class SB water,

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on .

This permit and the authorization to discharge expire at midnight, March 31, 2001.

This permit supersedes the permit issued on September 27, 1990.

This permit consists of 12 pages in Part I including effluent limitations, monitoring requirements, etc., 35 pages in Part II including General Conditions and Definitions, and Attachments A, B, C and D.

Signed this day of

Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

DRAFT PERMIT

FOR REVIEW

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning effective date and lasting through the completion of facility upgrade, the permittee is authorized to discharge from Outfall Serial Number 001, treated domestic wastewater, to the Atlantic Ocean.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>						<u>Monitoring Requirement</u>	
	Mass kg/day (lbs/day)			Concentration (specify units)			<u>Measurement Frequency</u>	<u>Sample Type</u>
<u>Average Monthly</u>	<u>Average Weekly</u>	<u>Maximum Daily</u>	<u>Average Monthly</u>	<u>Average Weekly</u>	<u>Maximum Daily</u>			
Flow (MGD)	---	---	---	2.0 MGD	---	---	Continuous	Recorder
BOD	227 (500)	341 (750)	379 (834) ¹	30 mg/l	45 mg/l	50 mg/l ¹	3/Week	Composite
TSS	227 (500)	341 (750)	379 (834) ¹	30 mg/l	45 mg/l	50 mg/l ¹	3/Week	Composite
Settleable Solids	---	---	---	---	Report ml/l	Report ml/l	1/Day	Grab
Fecal Coliform ^{1,2}	---	---	---	15/100 ml	---	50/100 ml	1/Week	Grab
Chlorine Residual ^{1,2,4}	---	---	---	---	---	0.35 mg/l	2/Day	Grab
LC50 ³	---	---	---	---	---	≥ 100 %	1/Year	Composite
pH ¹	See Part A.3.a.						1/Day	Grab

See Footnotes on page 4.

*** The discharge shall not cause a violation of the Water Quality Standards of the State of Maine.

*** Samples taken in compliance with the monitoring requirements specified above shall be taken after the last point of treatment before discharging to the Atlantic Ocean.

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning upon completion of facility upgrade and lasting through the permit expiration date, the permittee is authorized to discharge from Outfall Serial Number 001, treated domestic wastewater to the Atlantic Ocean.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>			<u>Concentration</u> (specify units)			<u>Monitoring Requirement</u>	
	<u>Average</u> <u>Monthly</u>	<u>Mass</u> <u>kg/day (lbs/day)</u> <u>Average</u> <u>Weekly</u>	<u>Maximum</u> <u>Daily</u>	<u>Average</u> <u>Monthly</u>	<u>Average</u> <u>Weekly</u>	<u>Maximum</u> <u>Daily</u>	<u>Measurement</u> <u>Frequency</u>	<u>Sample</u> <u>Type</u>
Flow (MGD)	---	---	---	3.0 MGD	---	---	Continuous	Recorder
BOD	341 (751)	512 (1127)	569 (1252) ¹	30 mg/l	45 mg/l	50 mg/l ¹	3/Week	Composite
TSS	341 (751)	512 (1127)	569 (1252) ¹	30 mg/l	45 mg/l	50 mg/l ¹	3/Week	Composite
Settleable Solids	---	---	---	---	Report ml/l	Report ml/l	1/Day	Grab
Fecal Coliform ^{1,2}	---	---	---	15/100 ml	---	50/100 ml	1/Week	Grab
Chlorine Residual ^{1,2,4}	---	---	---	---	---	0.32 mg/l	2/Day	Grab
LC50 ^{1,3}	---	---	---	---	---	≥ 100 %	1/Year	Composite
pH ¹	See Part A.3.a.						1/Day	Grab

See Footnotes on page 4.

*** The discharge shall not cause a violation of the Water Quality Standards of the State of Maine.

*** Samples taken in compliance with the monitoring requirements specified above shall be taken after the last point of treatment before discharging to the Atlantic Ocean.

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Footnotes:

- 1 Required as a State of Maine certification requirement under 40 Code of Federal Regulations 124.53(e)(2).
- 2 Seasonal Limitation: Limits apply between May 10th and September 30th of each year. The Maine Department of Environmental Protection shall reserve the right to require year-round disinfection.
- 3 The permit establishes an acute whole effluent toxicity limit. The acute limit is an LC50 of greater than or equal to 100%. This limit is considered to be maximum day limit.

The LC50 is defined as the percent of effluent which causes mortality to 50 percent of the test organisms. The permit limit of greater than or equal to 100% is defined as a sample composed of 100% effluent.

Whole effluent acute toxicity testing shall be conducted once per year using Mysid Shrimp (Mysidopsis bahia) for the invertebrate species and Inland Silverside (Menidia beryllina) for the vertebrate test species. Toxicity test samples shall be collected and tests completed during the first quarter, which ends on March 31. Results are to be submitted by the 15th day of the month following the end of the quarter. Refer to chart below.

Quarter	Test Species		Acute Limit (LC50)	Chronic Limit (C-NOEC)	Submit Results By:
	Invertebrate	Vertebrate			
First	Mysid Shrimp (M. bahia)	Inland Silverside (M. beryllina)	≥ 100%	---	April 15

The marine acute toxicity test protocol may be found in Attachment A.

- 4 Total Residual Chlorine shall be tested using Amperometric titration or the DPD spectrophotometric method. The EPA approved methods are found in Standard Methods for the Examination of Water and Wastewater, 17th or 18th Edition, Method 4500-CL E and Method 4500-CL G or U.S.E.P.A. Manual of Methods of Analysis of Water and Wastes, Method 330.5.

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- A.3. a. The pH of the effluent shall not be less than 6.0 nor greater than 8.5 standard units at anytime, unless these values are exceeded due to natural causes or as a result of the approved treatment processes.
- b. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.
- c. The discharge shall not cause visible discoloration or turbidity in the receiving waters which would impair the usages designated by the classification of the receiving waters.
- d. The effluent shall not contain material in concentrations or combinations which are hazardous or toxic to aquatic life; or which would impair the usages designated by the classification of the receiving waters.
- e. Notwithstanding specific conditions of this permit, the effluent must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.
- f. The permittee's treatment facility shall maintain a minimum of 85 percent removal for both total suspended solids (TSS) and biochemical oxygen demand (BOD). The percent removal shall be based on monthly average values.
- g. When the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the designed flow, the permittee shall submit to the permitting authorities a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.
- h. Pollutants introduced into POTWs by a non-domestic source (user) shall not Pass Through the POTW or Interfere with the operation or performance of the works.

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- A.4. All POTWs must provide adequate notice to the Director of the following:
- a. Any new introduction of pollutants into that POTW from an indirect discharger in a primary industry category discharging process water; and
 - b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
 - c. For purposes of this paragraph, adequate notice shall include information on:
 - (1) the quality and quantity of effluent introduced into the POTW; and
 - (2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

B. SLUDGE CONDITIONS

- a. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices and with the CWA Section 405(d) technical standards.

If an applicable management practice or numerical limitation for pollutants in sewage sludge is more stringent than existing federal and state regulation is promulgated under Section 405(d) of the CWA, this permit shall be modified or revoked and reissued to conform to the promulgated regulations.

- b. The permittee shall give prior notice to the Director of any change(s) planned in the permittee's sludge use or disposal practice.
- c. A change in the permittee's sludge use or disposal practice is a cause for modification of the permit. It is a cause for revocation and reissuance of the permit if the permittee requests or agrees.

When sludge is removed from clarifiers and land applied, the following conditions apply:

1. The permittee and the applier of the bulk sewage sludge shall comply with the following general requirements:
 - a. Bulk sewage sludge shall not be applied to the land except in accordance with 40 CFR Part 503 Subpart B.

- b. The permittee shall provide the person who applies the bulk sewage sludge written notification of the concentration of total nitrogen (as N on a dry weight basis) in the bulk sewage sludge.
- c. The person who applies the bulk sewage sludge shall obtain notice and necessary information from the permittee to comply with the requirements of 40 CFR Part 503 Subpart B.
- d. When the permittee provides the bulk sewage sludge to a person who applies the bulk sewage sludge, the permittee shall provide the person who applies the bulk sewage notice and necessary information to comply with the requirements of 40 CFR Part 503 Subpart B.
- e. When the permittee provides the bulk sewage sludge to a person who prepares the bulk sewage sludge, the permittee shall provide the person who prepares the bulk sewage sludge notice and necessary information to comply with the requirements of 40 CFR Part 503 Subpart B.
- f. The person who applies the bulk sewage sludge shall provide the owner or lease holder of the land on which the bulk sewage sludge is applied notice and necessary information to comply with the requirements of 40 CFR Part 503 Subpart B.
- g. When bulk sewage sludge is applied in a state other than Maine, the person who prepares the sewage sludge shall provide notice to the permitting authority for the state in which the sewage sludge will be applied. Notice shall be given prior to the initial application and shall contain the following information:
 - i. The location of each site by either street address or latitude and longitude.
 - ii. The approximate period of time the bulk sewage sludge will be applied to each site.
 - iii. The name, address, telephone number and National Pollutant Discharge Elimination System permit number (if applicable) for the person who prepares the bulk sewage sludge.
 - iv. The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if applicable) for the person who applies the bulk sewage sludge.

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2. Pollutant limitations

a. The maximum concentration of metals in the sewage sludge that is applied to the land shall not exceed the following (dry weight basis):

Arsenic.....	75 mg/kg
Cadmium.....	85 mg/kg
Copper.....	4300 mg/kg
Lead.....	840 mg/kg
Mercury.....	57 mg/kg
Molybdenum.....	75 mg/kg
Nickel.....	420 mg/kg
Selenium.....	100 mg/kg
Zinc.....	7500 mg/kg

b. The sewage sludge shall not be applied to the land if any of the pollutant concentrations in Paragraph 2a are exceeded.

c. The monthly average concentration of metals in the sewage sludge shall not exceed the following (dry weight basis):

Arsenic.....	41 mg/kg
Cadmium.....	39 mg/kg
Copper.....	1500 mg/kg
Lead.....	300 mg/kg
Mercury.....	17 mg/kg
Nickel.....	420 mg/kg
Selenium.....	100 mg/kg
Zinc.....	2800 mg/kg

3. The permittee shall meet Class B pathogen requirements utilizing one of the methods specified in Attachment B.

4. The permittee shall meet one of vector attraction reduction requirements specified in Attachment C.

5. The permittee shall monitor the sewage sludge for the pollutants in Paragraph 2a, the pathogen density requirements and the vector attraction reduction requirements at the following frequency: once per year (based on 270 dry metric tons) during the second quarter (April 1 through June 30).

6. The person who applies the bulk sewage sludge to the land shall comply with the following management practices:

a. The bulk sewage sludge shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under section 4 of the Endangered Species Act, or its designated habitat.

- b. The bulk sewage sludge shall not be applied to agricultural land, forest land, a public contact site or a land reclamation site that is frozen, snow-covered, or flooded so that the bulk sewage sludge enters a wetland or other water of the United States as defined in 40 CFR 122.2, except as provided in a permit issued pursuant to section 402 or 404 of the Clean Water Act.
 - c. Bulk sewage sludge shall not be applied to agricultural land, forest land, a public contact site, or a land reclamation site that is less than 10 meters (33 feet) from waters of the United States, as defined in 40 CFR 122.2.
 - d. The whole sludge application rate shall be applied at an agronomic rate designed to (i) provide the amount of nitrogen needed by the crop or vegetation grown on the land; and (ii) minimize the amount of nitrogen that passes below the root zone for the crop or vegetation grown of the land into the groundwater.
7. The person who applies the bulk sewage sludge shall insure that the following site restrictions are met for each site on which the bulk sewage sludge is applied:
- a. Food crops with harvested parts that touch the sewage sludge/soil mixture and are not totally above the land surface shall not be harvested for 14 months after application of sewage sludge.
 - b. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil.
 - c. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil.
 - d. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of sewage sludge.
 - e. Animals shall not be allowed to graze on the land for 30 days after application of sewage sludge.

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- f. Turf grown on land where sewage sludge is applied shall not be harvested for one year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn.
 - g. Public access to land with a high potential for public exposure shall be restricted for one year after application of sewage sludge.
 - h. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.
8. The permittee shall develop and retain the following information for five years:
- a. The concentration of each pollutant listed in Paragraph 2a of this section.
 - b. The following certification statement:

"I certify, under penalty of law, that the Class B pathogen requirement in §503.32(b) and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in §503.33(b)(1) through (b)(8), if one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen reduction requirements [and vector attraction reduction requirements, if applicable] have been met. I am aware that there are significant penalties for false certification including the possibility of fine or imprisonment."
 - c. A description of how the Class B pathogen requirements are met.
 - d. When the permittee is responsible for meeting the vector attraction reduction requirements, a description of how the vector attraction reduction requirements are met.
9. The person who applies the bulk sewage sludge shall develop and maintain the following information for five years:

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- a. The following certification statement:

"I certify, under penalty of law, that the management practices in §503.14, the site restrictions in §503.32(b)(5), and the vector attraction reduction requirements in [insert either §503.33(b)(9) or (b)(10), if one of those requirements is met] have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices and site restrictions [and the vector attraction reduction requirements if applicable] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."
 - b. A description of how the management practices in Paragraphs 6a through d are met for each site.
 - c. A description of how the site restrictions in Paragraphs 7a through h are met for each site.
 - d. When the applicer is responsible for meeting the vector attraction reduction requirements, a description of how the vector attraction reduction requirement in either §503.33(b)(9) or (b)(10) is met.
10. The permittee shall report the information in Paragraphs 8a, b, c and d annually on or before February 19. Reports shall be submitted to the address in the Monitoring and Reporting section of this permit.
 11. All sludge sampling and analysis shall be in accordance with the procedures detailed in Attachment D.
 12. The permittee shall notify the person who applies the bulk sewage sludge of the following information/requirements:
 - a. Information in Paragraph 1b.
 - b. Requirement in Paragraph 1f.
 - c. Management practices in Paragraphs 6a through d.
 - d. Site Restrictions in Paragraphs 7a through h.
 - e. Recordkeeping requirements in Paragraphs 9a through d.

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13. If the permittee intends to apply sludge to land application sites not identified at the time of permit issuance, the permittee shall submit a land application plan 180 days prior to initial application at the new site. The plan shall:
 1. Describe the geographic area covered by the plan;
 2. Identify site selection criteria;
 3. Describe how sites will be managed; and
 4. Provide for advance public notice as required by state and local laws, and notice to landowners and occupants adjacent to or abutting the proposed land application site.

C. REPORTING

1. Copies of all reports including toxicity testing reports and schedule or compliance reports required herein, but excluding Monthly Discharge Monitoring Reports (see item 2 below) shall be submitted to:

U.S. Environmental Protection Agency (SPA)
P.O. Box 8127
Boston, MA 02114

2. Monitoring results obtained during the previous month shall be summarized for each month and reported on Discharge Monitoring Report Forms provided by the Maine Department of Environmental Protection and postmarked no later than the 15th day of the month following the completed period.

A signed copy of the Discharge Monitoring Report Form and all other reports required herein, shall be submitted to the State at the following address:

Maine Department of Environmental Protection
312 Canco Road
Portland, Maine 04103

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ATTACHMENT A

Acute Toxicity Test Procedure and Protocol:

- o Mysid Shrimp (Mysidopsis bahia) definitive 48 hour test.
- o Inland Silverside (Menidia beryllina) definitive 48 hour test.

I. GENERAL REQUIREMENTS

The permittee shall conduct acceptable toxicity tests in accordance with the appropriate test protocols described below. The permittee shall collect discharge samples and perform the toxicity tests that are required by Part I of the NPDES permit. Acute toxicity data shall be reported as outlined in Section IX.

II. TEST FREQUENCY AND SAMPLING REQUIREMENTS

See Part I of the NPDES permit for sampling location, sample type, test frequency, test species, and test date(s) requirements. Chain of Custody information should be provided for each sample tested.

A sampling event is defined as a single discharge (composite or grab) sample.

III. METHODS

Methods to follow are those recommended by EPA in:

Peltier, W., and Weber, C.I., 1985. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, Third Edition. Office of Research and Development, Cincinnati, OH. EPA/600/4-85/013.

Any exceptions are stated herein.

IV. SAMPLE COLLECTION

A discharge sample shall be collected. Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for the chemical and physical analyses. The remaining sample shall be dechlorinated (if necessary) in the laboratory using sodium thiosulfate for subsequent toxicity testing. Grab samples must be used for pH, temperature, and total residual oxidants (as per 40 CFR Part 122.21).

The Methods for Aquatic Toxicity Identification Evaluations (Phase I) EPA/600/3-88/034, Section 8.7, provides detailed information regarding the use of sodium thiosulfate (i.e. dechlorination).

All samples held overnight shall be refrigerated at 4°C.

V. DILUTION WATER

Dilution water used for acute toxicity analysis shall be collected at a point away from the discharge which is free from toxicity or other sources of contamination. When using receiving water as the dilution water an additional control (0% effluent), made up from a standard dilution water of known quality, will also be run.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate surface water or standard dilution water of known quality with a conductivity, salinity, total suspended solids, and pH similar to that of the receiving water may be substituted **AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S)**. It may prove beneficial to the permittee to have the proposed dilution water source screened for suitability prior to toxicity testing. For further information, see Section 6, page 22 of EPA/600/4-85/013.

VI. REGION I RECOMMENDED EFFLUENT TOXICITY TEST CONDITIONS FOR THE MYSID (Mysidopsis bahia) 48 HOUR TEST¹

1. Test type	Static, non-renewal
2. Salinity	25 ppt \pm 10 percent for all dilutions
3. Temperature ($^{\circ}$ C)	25 $^{\circ}$ C \pm 1 $^{\circ}$ C
4. Light quality	Ambient laboratory illumination
5. Photoperiod	16 hour light, 8 hour dark
6. Test chamber size	250 ml
7. Test solution volume	200 ml
8. Age of test organisms	1-5 days
9. No. Mysids per test chamber	10
10. No. of replicate test chambers per treatment	2
11. Total no. Mysids per test concentration	20
12. Feeding regime	Light feeding (2 drops concentrated brine shrimp nauplii, approx 100 nauplii/mysid) twice daily
13. Aeration ²	None
14. Dilution water	Natural seawater, synthetic salt water, or deionized water mixed with hypersaline brine.
15. Dilution factor	0.5
16. Number of dilutions ³	5 plus a control. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
17. Effect measured	Mortality - no movement of body or appendages on gentle prodding

18. Test acceptability	90% or greater survival of test organisms in control solution
19. Sampling requirements	For on-site tests, samples are used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must be first used within 48 hours of collection.
20. Sample volume required	Minimum 4 liters

Footnotes:

1. Adapted from EPA/600/4-85/013.
2. If dissolved oxygen falls below 40% saturation, aerate at rate of less than 100 bubbles/min. Routine DO checks are recommended.
3. When receiving water is used for dilution an additional control made up of standard dilution water (0% effluent) is required.

VII. REGION I RECOMMENDED TOXICITY TEST CONDITIONS FOR THE
INLAND SILVERSIDE (Menidia beryllina) 48 HOUR TEST¹

1. Test Type	Static, non-renewal
2. Salinity	25 ppt \pm 2 ppt
3. Temperature	25°C \pm 1°C
4. Light Quality	Ambient laboratory illumination
5. Photoperiod	16 hr light, 8 hr dark
6. Size of test vessel	250-1000 ml
7. Volume of test solution	Minimum 200ml/replicate
8. Age of fish	7-21 days
9. No. fish per chamber	10 (not to exceed loading limits)
10. No. of replicate test vessels per treatment	2
11. Total no. organisms per concentration	20
12. Aeration ²	None
13. Dilution water	Natural seawater, synthetic saltwater, or deionized water mixed with hypersaline brine
14. Dilution factor	0.5
15. Number of dilutions ³	5 plus a control. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16. Effect measured	Mortality-no movement on gentle prodding.
17. Test acceptability	90% or greater survival of test organisms in control solution.

18. Sampling requirements

For on-site tests, samples must be used within 24 hours of the time they are removed from the sampling device. Off-site test samples must be used within 48 hours of collection.

19. Sample volume required

Minimum 4 liters

Footnotes:

1. Adapted from EPA/600/4-85/013.
2. If dissolved oxygen falls below 40% saturation, aerate at rate of less than 100 bubbles/min. Routine DO checks recommended.
3. When receiving water is used for dilution an additional control made up of standard dilution water (0% effluent) is required.

VIII. CHEMICAL ANALYSIS

The following chemical analyses shall be performed for each sampling event.

<u>Parameter</u>	<u>Effluent</u>	<u>Diluent</u>	<u>Minimum Detection Limit (mg/L)</u>
pH	x	x	---
Specific Conductance	x	x	---
Salinity	x	x	PPT(o/oo)
Total Residual Oxidants ¹	x	x	0.02
Total Solids and Suspended Solids	x	x	---
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
<u>Total Metals</u>			
Cd	x		0.01
Cr, Ni	x		0.05
Pb, Zn, Cu	x		0.01
Al	x		0.02

Superscript:

¹ Total Residual Oxidants

Methods: either of the following methods from the 16th Edition of the APHA (1985) Standard Methods for the Examination of Water and Wastewater must be used for these analyses:

Method 408-C (Amperometric Titration Method)-the preferred method;
Method 408-D (Ferrous Titration Method).

IX. TOXICITY TEST REPORT

The following must be reported:

- Description of sample collection procedures, site description;
- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis; and
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended.

Toxicity test data shall include the following:

- Survival for each concentration and replication at time 24, and 48 hours.
- LC50 and 95% confidence limits shall be calculated using one of the following methods in order of preference Probit, Trimmed Spearman Karber, Moving Average Angle, or the graphical method. All printouts (along with the name of the program, the date, and the author(s)) and graphical displays must be submitted. When data is analyzed by hand, worksheets should be submitted.

The Probit, Trimmed Spearman Karber, and Moving Average Angle methods of analyses can only be used when mortality of some of the test organisms are observed in at least two of the (% effluent) concentrations tested (i.e. partial mortality). If a test results in a 100% survival and 100% mortality in adjacent treatments ("all or nothing" effect), a LC50 may be estimated using the graphical method.

- All chemical data/physical generated (include detection limits).
- Raw data and bench sheets.
- Any other observations or test conditions affecting test outcome.

X. REPORTING

Signed copies of the toxicity testing reports shall be submitted as required by of Part I of the permit.

ATTACHMENT B

Pathogens
(503.32)

Class A - Alternative 1 (503.32(a)(3))

- (i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in §503.10(b), §503.10(c), §503.10(e), or §503.10(f).
- (ii) The temperature of the sewage sludge that is used or disposed shall be maintained at a specific value for a period of time.
 - (A) When the percent solids of the sewage sludge is seven percent or higher, the temperature of the sewage sludge shall be 50 degrees Celsius or higher; the time period shall be 20 minutes or longer; and the temperature and time period shall be determined using equation (3), except when small particles of sewage sludge are heated by either warmed gases or an immiscible liquid.

$$D = \frac{131,700,000}{10^{0.1400t}} \quad (3)$$

Where,

D = time in days.

t = temperature in degrees Celsius.

- (B) When the percent solids of the sewage sludge is seven percent or higher and small particles of sewage sludge are heated by either warmed gases or an immiscible liquid, the temperature of the sewage sludge shall be 50 degrees Celsius or higher; the time period shall be 15 seconds or longer; and the temperature and time period shall be determined using equation (3).

- (C) When the percent solids of the sewage sludge is less than seven percent and the time period is at least 15 seconds, but less than 30 minutes, the temperature and time period shall be determined using equation (3).
- (D) When the percent solids of the sewage sludge is less than seven percent; the temperature of the sewage sludge is 50 degrees Celsius or higher; and the time period is 30 minutes or longer, the temperature and time period shall be determined using equation (4).

$$D = \frac{50,070,000}{10^{0.1400t}} \quad (4)$$

Where,

D = time in days.

t = temperature in degrees Celsius.

Class A - Alternative 2 (503.32(a)(4))

- (i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in §503.10(b), §503.10(c), §503.10(e), or §503.10(f).
- (ii)(A) The pH of the sewage sludge that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours.
 - (B) The temperature of the sewage sludge shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12.
 - (C) At the end of the 72 hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

Class A - Alternative 3 (503.32(a)(5))

- (i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in §503.10(b), §503.10(c), §503.10(e), or §503.10(f).

- (ii)(A) The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains enteric viruses.
 - (B) When the density of enteric viruses in the sewage sludge prior to pathogen treatment is less than one Plaque-forming Unit per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses until the next monitoring episode for the sewage sludge.
 - (C) When the density of enteric viruses in the sewage sludge prior to pathogen treatment is equal to or greater than one Plaque-forming Unit per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses when the density of enteric viruses in the sewage sludge after pathogen treatment is less than one Plaque-forming Unit per four grams of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the enteric virus density requirement are documented.
 - (D) After the enteric virus reduction in (ii)(C) of this subsection is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to enteric viruses when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented in (ii)(C) of this subsection.

- (iii)(A) The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains viable helminth ova.

- (B) When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is less than one per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova until the next monitoring episode for the sewage sludge.
- (C) When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is equal to or greater than one per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova when the density of viable helminth ova in the sewage sludge after pathogen treatment is less than one per four grams of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the viable helminth ova density requirement are documented.
- (D) After the viable helminth ova reduction in (iii)(C) of this subsection is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to viable helminth ova when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented in (iii)(C) of this subsection.

Class A - Alternative 4 (503.32(a)(6))

- (i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in §503.10(b), §503.10(c), §503.10(e), or §503.10(f).
- (ii) The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in §503.10(b), §503.10(c), §503.10(e), or §503.10(f), unless otherwise specified by the permitting authority.

- (iii) The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in §503.10(b), §503.10(c), §503.10(e), or §503.10(f), unless otherwise specified by the permitting authority.

Class A - Alternative 5 (503.32(a)(8))

- (i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella, sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in §503.10(b), §503.10(c), §503.10(e), or §503.10(f).
- (ii) Sewage sludge that is used or disposed shall be treated in one of the Processes to Further Reduce Pathogens described in Appendix B.

Class A - Alternative 6 (503.32(a)(8))

- (i) Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella, sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in §503.10(b), §503.10(c), §503.10(e), or §503.10(f).
- (ii) Sewage sludge that is used or disposed shall be treated in a process that is equivalent to a Process to Further Reduce Pathogens, as determined by the permitting authority.

Class B - Alternative 1 (503.32(b)(2))

- (i) Seven samples of the sewage sludge shall be collected at the time the sewage sludge is used or disposed.
- (ii) The geometric mean of the density of fecal coliform in the samples collected in (2)(i) of this subsection shall be less than either 2,000,000 Most Probable Number per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

Class B - Alternative 2 (503.32(b)(3))

Sewage sludge that is used or disposed shall be treated in one of the Processes to Significantly Reduce Pathogens described in Appendix B.

Class B - Alternative 3 (503.32(b)(4))

Sewage sludge that is used or disposed shall be treated in a process that is equivalent to a Process to Significantly Reduce Pathogens, as determined by the permitting authority.

APPENDIX B - PATHOGEN TREATMENT PROCESSES

A. PROCESSES TO SIGNIFICANTLY REDUCE PATHOGENS (PSRP)

1. Aerobic digestion

Sewage sludge is agitated with air or oxygen to maintain aerobic conditions for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 40 days at 20 degrees Celsius and 60 days at 15 degrees Celsius.

2. Air drying

Sewage sludge is dried on sand beds or on paved or unpaved basins. The sewage sludge dries for a minimum of three months. During two of the three months, the ambient average daily temperature is above zero degrees Celsius.

3. Anaerobic digestion

Sewage sludge is treated in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius.

4. Composting

Using either the within-vessel, static aerated pile, or windrow composting methods, the temperature of the sewage sludge is raised to 40 degrees Celsius or higher and remains at 40 degrees Celsius or higher for five days. For four hours during the five days, the temperature in the compost pile exceeds 55 degrees Celsius.

5. Lime Stabilization

Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 after two hours of contact.

B. PROCESSES TO FURTHER REDUCE PATHOGENS (PFRP)

1. Composting

Using either within-vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55 degrees Celsius or higher for three days.

Using the windrow composting method, the temperature of the sewage sludge is maintained at 55 degrees or higher for 15 days or longer. During the period when the compost is maintained at 55 degrees or higher, there shall be a minimum of five turnings of the windrow.

2. Heat drying

Sewage sludge is dried by direct or indirect contact with hot gases to reduce the moisture content of the sewage sludge to 10 percent or lower. Either the temperature of the sewage sludge particles exceeds 80 degrees Celsius or the wet bulb temperature of the gas in contact with the sewage sludge as the sewage sludge leaves the dryer exceeds 80 degrees Celsius.

3. Heat treatment

Liquid sewage sludge is heated to a temperature of 180 degrees Celsius or higher for 30 minutes.

4. Thermophilic aerobic digestion

Liquid sewage sludge is agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time of the sewage sludge is 10 days at 55 to 60 degrees Celsius.

5. Beta ray irradiation

Sewage sludge is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca. 20 degrees Celsius).

6. Gamma ray irradiation

Sewage sludge is irradiated with gamma rays from certain isotopes, such as Cobalt 60 and Cesium 137, at room temperature (ca. 20 degrees Celsius).

7. Pasteurization

The temperature of the sewage sludge is maintained at 70 degrees Celsius or higher for 30 minutes or longer.

ATTACHMENT C

Vector Attraction Reduction

Alternative 1 - (503.33(b)(1))

The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent.

Alternative 2 - (503.33(b)(2))

When the 38 percent volatile solids reduction requirement in §503.33(b)(1) cannot be met for an anaerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. When at the end of the 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved.

Alternative 3 - (503.33(b)(3))

When the 38 percent volatile solids reduction requirement in §503.33(b)(1) cannot be met for an aerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 15 percent, vector attraction reduction is achieved.

Alternative 4 - (503.33(b)(4))

The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

Alternative 5 - (503.33(b)(5))

Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.

Alternative 6 - (503.33(b)(6))

The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

Alternative 7 - (503.33(b)(7))

The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials.

Alternative 8 - (503.33(b)(8))

The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.

Alternative 9 - (503.33(b)(9))

- (a) Sewage sludge shall be injected below the surface of the land.
- (b) No significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.

Alternative 10 - (503.33(b)(10))

Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.

Alternative 11 - (503.33(b)(11))

Sewage sludge placed on an active sewage sludge unit shall be covered with soil or other material at the end of each operating day.

ATTACHMENT D

SAMPLING AND ANALYSIS

(40 CFR 503.8)

- (a) Sampling: Representative samples of sewage sludge that is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator shall be collected and analyzed.
- (b) Analytical methods: The following methods shall be used to analyze samples of sewage sludge.
- (1) Enteric viruses
ASTM Method D 499-89, "Standard Practice for Recovery of Viruses from Wastewater Sludge", Annual Book of ASTM Standards: Section 11, Water and Environmental Technology, 1992.
 - (2) Fecal Coliform
Part 9221 E or Part 9222 D, "Standard Methods for the Examination of Water and Wastewater", 18th edition, American Public Health Association, Washington, D.C., 1992.
 - (3) Helminth ova
Yanko, W.A., "Occurrence of Pathogens in Distribution and Marketing Municipal Sludges", EPA 600/1-87-014, 1987. NTIS PB 88-154273/AS, National Technical Information Service, Springfield, Virginia.
 - (4) Inorganic pollutants
Method SW-846 in "Test Methods for Evaluating Solid Waste", U.S. Environmental Protection Agency, November 1986.
 - (5) Salmonella sp. bacteria
Part 9260 D.1, "Standard Methods for the Examination of Water and Wastewater", 18th edition, American Public Health Association, Washington, D.C., 1992; or
Kenner, B.B. and H.A. Clark, "Determination and Enumeration of Salmonella and Pseudomonas aeruginosa", J. Water Pollution Control Federation, 46(9):2163-2171, 1974.
 - (6) Specific oxygen uptake rate
Part 2710 B, "Standard Methods for the Examination of Water and Wastewater", 18th edition, American Public Health Association, Washington, D.C., 1992.
 - (7) Total solids, fixed solids, and volatile solids
Part 2540 G, Standard Methods for the Examination of Water and Wastewater", 18th edition, American Public Health Association, Washington, D.C., 1992.
- (c) Percent volatile solids reduction
Percent volatile solids reduction shall be calculated using a procedure in "Environmental Regulations and Technology- Control of Pathogens and Vectors in Sewage Sludge", EPA 625/R-92/013, U.S. Environmental Protection Agency, Cincinnati, Ohio, 1992.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES.

NPDES PERMIT NO.: ME0100790

NAME AND ADDRESS OF APPLICANT:

Wells Sanitary District
P.O. Box 428
Wells, Maine 04090-0428

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Wells Sanitary District Wastewater Treatment Facility
197 Eldridge Road
Wells, Maine

RECEIVING WATER: Atlantic Ocean

CLASSIFICATION: SB

I. Proposed Action, Type of Facility, and Discharge Location.

The above named applicant has requested that the U.S. Environmental Protection Agency (EPA) reissue its NPDES permit to discharge into the designated receiving water (Atlantic Ocean). The facility is engaged in the collection and treatment of municipal (sanitary) wastewater. The discharge is from a secondary wastewater treatment plant that is currently designed to process 2.0 million gallons per day (MGD) of wastewater. However, when Phase I of a plant expansion is completed, the facility will be capable of processing 3.0 MGD of wastewater. This expansion will utilize activated sludge which is the same as the existing treatment process. The collection system is a separate system. The permit includes sludge monitoring requirements consistent with Section 405(d) of the Clean Water Act (CWA).

II. Description of Discharge.

Recent treatment-plant effluent-monitoring data (June 1994 through March 1996) were used to develop this permit and are summarized in Attachment A. This data was extracted from monthly Discharge Monitoring Reports submitted to EPA by the Wells Sanitary District.

III. Limitations and Conditions.

The effluent limitations of the draft permit, the monitoring requirements, and implementation schedule (if required) may be found in the draft NPDES permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

The State of Maine Department of Environmental Protection (MEDEP) maintains a separate but similar wastewater discharge licensing system to that of the EPA. The MEDEP issued a discharge license to the Wells Sanitary District on August 12, 1994, regulating discharges from the facility. The Maine Discharge License is Number W000653-46-C-R. This draft permit coincides with both the MEDEP license and the current NPDES permit which expired on September 27, 1995. The MEDEP license covers plant flows from Outfall 001. Language pertaining to effluent limitations for Outfall 001 as described in the Maine License and correspondence has been adopted by EPA in this draft permit *and is shown in italics.*

The most recent NPDES permit was issued to the Wells Sanitary District on September 27, 1990. A permit modification was issued on January 29, 1993 which reduced the toxicity testing and monitoring frequency requirement from once per quarter to once per year. The modification did not indicate a specific time to perform the yearly toxicity test. Based on conversations with the permittee, yearly acute toxicity testing is performed in January of each year.

Description of Influent

The Wells Sanitary District Wastewater Treatment Facility (WWTF) is engaged in the collection and treatment of residential and commercial (sanitary) wastewater. No industrial wastewater is received by the WWTF. *The facility is authorized to receive 3,000 gallons per day of septage.*

The Wells Sanitary District has a separated sewer collection system with no combined sewer overflow points.

Wastewater Treatment

The treatment facility provides a secondary level of treatment via an activated sludge process and disinfection by chlorination. Dissipation of chlorine occurs naturally over time when the effluent is pumped through the discharge pipe to the Atlantic Ocean.

The permittee proposed to increase the treatment facility discharge to 3.0 MGD when the current permit was issued in September 1990. In September 1990, the NPDES permit was issued with two limit pages. The first set of limits were based on a plant design flow of 1.5 million gallons per day (MGD) and a dilution of 54:1 and were effective until December 31, 1990. The second set of limits were based on a plant design flow of 3.0 MGD and a dilution of 43:1 and were effective January 1, 1991 through the expiration date of the permit.

The Wells Sanitary District has constructed and put into service two 65 foot diameter secondary clarifiers in the Fall of 1990. The existing design capacity of these clarifiers is 3.0 MGD. However, other treatment units at this facility are not capable of treating 3.0 MGD. A partial list of the treatment units requiring upgrading to 3.0 MGD includes the aeration system, the chlorine detention tanks, and the facility's influent and effluent pumps.

In February, 1993 the MEDEP conducted an evaluation of the design capacity of the Wells Sanitary District's wastewater treatment facility prior to license renewal. Based on this objective engineering evaluation, the MEDEP has determined that the treatment facility is capable of treating up to 2.0 MGD.

The MEDEP approves the application of Wells Sanitary District to discharge a monthly average of 2.0 MGD of secondary treated municipal wastewaters prior to completion of a facility upgrade, and 3.0 MGD after completion of a facility upgrade, to the Atlantic Ocean, Class SB, subject to conditions outlined in Waste Discharge License #W000653 issued August 12, 1994.

Receiving Water Quality Standards

Maine law, 38 M.R.S.A., Section 465-A & 480-B indicate that the Atlantic Ocean, at the point of discharge, is classified as a Class SB waterbody.

Maine law, 38 M.R.S.A., Section 465-B(2) states that the Atlantic Ocean, Class SB, shall be of such quality that they are suitable for the designated uses of recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation and navigation and as habitat for fish and other estuarine and marine life. The habitat shall be characterized as unimpaired.

Discharges to Class SB waters shall not cause adverse impact to estuarine and marine life in that the receiving waters shall be of sufficient quality to support all estuarine and marine species indigenous to the receiving water without detrimental changes in the resident biological community. There shall be no new discharge to Class SB waters which would cause closure of open shellfish areas by the Department of Marine Resources.

Receiving Water Quality Conditions

The State of Maine 1992 Water Quality Assessment Report, prepared pursuant to Section 305(b) of the Federal Water Pollution Control Act indicates that the receiving water is attaining its SB classification.

Plant Dilution

Effluent from the facility discharges to the Atlantic Ocean off Moody's Point through a four port high-velocity diffuser designed to create initial rapid mixing utilizing both momentum and buoyancy forces. This concrete diffuser is situated on the ocean floor about 850 feet from shoreline at mean low tide.

A computer model called CORMIX1 (Cornell Mixing Zone Expert System) along with the diffuser's design specifications was used to determine each port's plume configuration and dilution factor for both design flows. Results from CORMIX1 indicate average flux dilution to be approximately 54:1 for the 1.5 MGD design flow and 43:1 for the 3.0 MGD design flow for the 1990 permit re-issuance. Information generated from using this computer model indicates plumes emanating from each port merge just prior to surfacing. Surfacing starts about 6 feet past the northeast corner of the diffuser.

The MEDEP has determined that the discharge will be diluted by a factor of 46 to 1, after initial mixing at a flow of 2.0 MGD. The MEDEP has further determined that the discharge will be diluted by a factor of 43 to 1, after initial mixing at the point of discharge at a flow of 3.0 MGD.

The effluent limitations in the draft permit are based on the dilutions for 2.0 MGD and 3.0 MGD listed above.

Effluent Limitations

The average monthly discharge flow limits of 2.0 MGD and 3.0 MGD are based on current and future design flows.

Average monthly and average weekly effluent limitations for Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) were developed using secondary treatment limitations found in the Clean Water Act of 1977 §301(b)(1)(B) as defined in 40 Code of Federal Regulations (CFR) §133.102. The BOD and TSS limits based on 3.0 MGD and test frequency of three per week remain the same as stated in the expiring permit and recently issued State License. See Attachment C for calculations.

The EPA and MEDEP agree that the Total Suspended Solids are an appropriate measure of the solids content being discharged to the receiving waters. Settleable Solids are a "process-control parameter". The reporting of settleable solids will aid in assessment of the operation of the plant but need not be an effluent limit. The settleable solids requirement has been changed from a limit (average weekly = 0.1 ml/l and maximum daily = 0.3 ml/l) to a reporting requirement in this draft permit.

The limitations on pH, total residual chlorine, Fecal Coliform bacteria, and the daily maximums for BOD and TSS are based on state certification requirements under Section 401(d) of the CWA, 40 CFR §124.53 and §124.55.

The pH range of 6.0 to 8.5 is a state certification requirement set forth by the MEDEP under Section 401(d) of the CWA, 40 CFR §124.53 and §124.55.

The effluent limits for daily maximum Total Chlorine Residual (TRC) of 0.32 mg/l (2.0 MGD design flow) and 0.35 mg/l (3.0 MGD design flow) are based on EPA's Marine Chronic Water Quality Criteria of 0.0075 mg/l defined in the EPA Quality Criteria for Water, 1986 (Gold Book) as adopted into the State Water Quality Standards, multiplied by the available dilution from the Atlantic Ocean. See Attachment B for calculations. *Limits on total residual chlorine are specified to ensure attainment of the instream water quality criteria for levels of chlorine and that the best practicable treatment technology is utilized to abate the discharge of chlorine.*

The Fecal Coliform average monthly limit of 15/100 ml and daily maximum limit 50/100 ml are based on the State of Maine Water Classification Program, Maine law, 38 M.R.S.A., Section 465-B(2) for Class SB waters and requires application of the best practicable treatment technology. The test frequency of 1/Week had been adopted from the MEDEP License. In the previous permit issued in 1990, both the average monthly and the maximum daily limits were 15/100 ml and the test frequency was three per week.

In a letter to the EPA dated March 21, 1996, the MEDEP stated: *Our reading of the National Shellfish Sanitation Program standards is that Fecal coliform numbers should not exceed 15 colonies per 100 ml as a monthly average and 50 colonies/100 ml as a daily maximum. The MEDEP is currently issuing State Licenses based on these standards.*

Fecal Coliform bacteria and chlorine residual limits are seasonal and apply between May 10th and September 30th of each year. However, the MEDEP reserves the right to require resumption of disinfection to protect the health, safety and welfare of the public.

The facility does participate in the seasonal disinfection program. The department of Marine Resource approves of seasonal disinfection provided that if the shellfish growing area becomes suitable for harvesting, the applicant will resume disinfection on a year-round basis.

Whole Effluent Toxicity (WET) Testing

The current EPA-Region I policy is to include toxicity testing in all major municipal permits. Toxicity testing frequency and protocol is determined from the available dilution (presently 46 to 1 based on 2.0 MGD). The explanation for the dilution may be found in Attachment B. EPA recognizes a toxicity modification issued on January 29, 1993 which reduced test frequency from quarterly (4/yr) to once per year (1/yr) conducted during the first quarter. Whole effluent acute toxicity testing shall continue to be performed once per year using Mysid Shrimp (Mysidopsis bahia) for the invertebrate species and Inland Silverside (Menidia beryllina) for the vertebrate test species. Toxicity test samples shall be collected and tests completed during the first quarter, which ends on March 31. Results are to be submitted by the 15th day of the month following the end of the quarter.

The LC50 limit in this permit is greater than or equal to 100% and is considered a daily maximum. The results will be used to assure the discharge is free from pollutants in concentrations or combinations that are toxic to aquatic life. If toxicity is found, more frequent testing and monitoring may be required. Refer to the Toxicity Testing Protocol in Attachments A of the draft NPDES permit for a more complete description of the testing requirements.

The State of Maine Waste Discharge License requires the permittee to perform Whole Effluent Toxicity testing yearly (1/yr) for acute and chronic tests on the Inland Silverside, chronic only on the Seas Urchin (*Arbacia punctulata*), and acute on the Mysid Shrimp. The permittee shall submit to EPA a copy of WET tests performed for the MEDEP.

Discharge Impact on Receiving Water Quality

As licensed, the MEDEP has determined the existing water uses will be maintained and protected and the discharge will not cause or contribute to the failure of the waterbody to meet standards for Class SB classification.

Antidegradation

The MEDEP has determined the existing water use will be maintained and protected. The increased discharge will not consume greater than 30 percent of the assimilative capacity of the receiving waters.

EPA performed an Ocean Discharge Criteria Evaluation of the Wells Sanitary District in 1990 and made a determination of no unreasonable degradation to the marine environment for their increase in design flow from 1.5 MGD to 3.0 MGD. This determination was made following regulations described in 40 CFR Part 125, Subpart M -- Ocean Discharge Criteria and in 45 Federal Register 65942, October 3, 1980. EPA's summary finding excerpted from that evaluation is as follows:

"Wells is a small coastal community with no industrial inputs to its municipal wastewater. The volume of flow from the treatment plant is relatively small, averaging less than 0.5 MGD over the last two years of operation. Dilution of the effluent is rapid and significant before it reaches any resource areas. There have been no beach closings since the plant has been in operation. Commercial and recreational fishing seems unaffected. No endangered species or rare/significant habitats will be impacted. There is no specific data on ecological impacts, however significant impacts are unlikely due to the nature of the effluent and the high dilution capabilities of the area. No data currently exists on the discharge of bacteria and chlorine, but these parameters will be monitored after the issuance of the new permit. Based on the information gathered, EPA does not believe that this discharge is causing unreasonable degradation to the marine environment. EPA does not believe any additional monitoring is necessary at this time."

Sludge

The Maine Department of Environmental Protection has issued Wells Sanitary District seven (7) sludge disposal licenses that allow sludge from their treatment plant to be spread onto agricultural lands at various sites in Dayton (5), Biddeford (1) and Arundel (1), Maine.

Section 405(d) of the CWA requires that sludge conditions be included in all municipal permits. The sludge conditions in the permit satisfy this requirement. Sludge generated from the facility is land applied and stock piled in the winter. On a yearly basis (based on 270 dry metric tons) during the second quarter (April 1 through June 30), the permittee is required to test a representative sample of sludge for pathogens, vectors, and the following parameters: arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc.

The effluent monitoring requirements have been established to yield data representative of the discharge by the authority under Section 308(a) of the CWA in accordance with 40 CFR §122.41(j), §122.44, and §122.48.

The remaining general and special conditions of the permit are based on the NPDES regulations 40 CFR Parts §122 through §125 and consist primarily of management requirements common to all permits.

V. State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the Maine Department of Environmental Protection has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State and expects that the draft permit will be certified.

VI. Comment Period, Hearing Requests, and Procedures for Final Decisions.

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection, Mailcode CME, JFK Federal Building, Boston, Massachusetts 02203. Any

person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision any interested person may submit a request for a hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of 40 CFR 124.74, 48 Fed. Reg. 14279-14280 (April 1, 1983).

VII. EPA Contact

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Jonathan F. Britt
U.S. Environmental Protection Agency
Maine State Office
Mail Code - CME
John F. Kennedy Federal Building
Boston, MA 02203-2211
Telephone: (617) 565-4438

June 13, 1996
Date

David A. Fierra, Director
Office of Ecosystem Protection
U.S. Environmental Protection
Agency

Attachment A
Wells Sanitary District
Permit No. ME0100790

DESCRIPTION OF DISCHARGE: The 2.0 MGD discharge from Outfall 001 is composed of residential and commercial wastewater. Twenty two months of DMR data were analyzed from June 1, 1994 through March 31, 1996.

DISCHARGE: Through Outfall 001.

DATE	FLOW MGD MONTHLY AVG	BOD % REMOVAL	TSS % REMOVAL	BOD lb/day MONTHLY AVG	BOD lb/day DAILY MAX	TSS lb/day MONTHLY AVG	TSS lb/day DAILY MAX	FECAL COLIFORM ¹ #/100 ml DAILY MAX	SETTLABLE SOLIDS ml/l DAILY MAX	TRC ¹ mg/l DAILY MAX	pH SU DAILY MAX
06/30/94	0.581	87	84	59	102	61	153	5	0.01	0.27	7.3
07/31/94	0.928	93	96	159	269	88	203	4	0.03	0.23	7.43
08/31/94	0.962	91	94	228	424	134	309	60	0.3	0.30	7.3
09/30/94	0.597	86	91	97	152	41	74	22	0.01	0.3	7.2
10/31/94	0.443	94	98	35	103	32	69	NR	0.01	NR	7.5
11/30/94	0.423	95	96	48	114	26	56	NR	0.01	NR	7.6
12/31/94	0.518	93	97	41	67	21	42	NR	0.01	NR	7.5
01/31/95	0.451	92	97	34	72	17	36	NR	0.01	NR	7.7
02/28/95	0.324	91	89	22	37	15	46	NR	0.01	NR	7.7
03/31/95	0.476	90	91	36	87	31	59	NR	0.05	NR	7.6
04/30/95	0.383	95	96	30	57	19	39	NR	0.02	NR	7.3
05/31/95	0.471	95	96	38	59	35	86	13	0.03	1.0	7.6
06/30/95	0.593	86	90	81	225	39	94	13	0.60	0.83	7.8
07/31/95	0.978	93	97	147	234	67	124	>60	0.01	0.52	7.59
08/31/95	0.941	85	93	173	313	73	132	99	0.05	0.45	7.4
09/30/95	0.569	93	94	83	225	60	199	99	0.01	0.46	7.4
10/31/95	0.446	97	96	12	27	12	17	NR	0.01	NR	7.7
11/30/95	0.522	96	94	9	919	14	23	NR	0.01	NR	7.1
12/31/95	0.376	97	97	17	26	18	31	NR	0.01	NR	7.4
01/31/96	0.435	94	98	27	57	17	32	NR	0.05	NR	7.4
02/29/96	0.473	93	96	38	90	22	65	NR	0.01	NR	7.3
03/31/96	0.522	94	98	39	88	26	57	NR	0.01	NR	7.5

Seasonal limit applies between May 10th and September 30th of each year.

NR = Not Required Permit

Attachment A (con't)
Wells Sanitary District
Permit No. ME0100790

DESCRIPTION OF DISCHARGE: The 2.0 MGD discharge from Outfall 001 is composed of residential and commercial wastewater.

DATE	Mysidopsis bahia (Mysid Shrimp)		Menidia beryllina (Inland Silverside)		Menidia beryllina ¹ (Inland Silverside)		Arbacia punctulata ¹ (Sea Urchin)		Arbacia punctulata ¹ (Sea Urchin)	
	ACUTE		ACUTE		CHRONIC		ACUTE		CHRONIC	
	LC50	A-NOEC	LC50	A-NOEC	C-NOEL	LOEC	LC50	A-NOEC	C-NOEL	LOEC
10/17/94	>76%	76%	>77%	77%	77%	>77%	>77%	77%	77%	>77%
01/09/95	>79%	79%	>78	78%	78%	>78%	>75%	75%	75%	>75%
01/09/96	>76%	76%	>76%	76%	76%	>76%	>74%	74%	74%	>74%

¹ State of Maine License Requirement.

Attachment C
Wells Sanitary District (ME0100790)
BOD and TSS Calculations

Calculations of maximum allowable loads for average monthly and weekly as well as maximum daily BOD₅ and TSS are based on the following equation.

$$L = C \times DF \times 8.345$$

where:

- L = Maximum allowable load in lbs/day (1 lb = 2.2 kg)
- C = Maximum allowable effluent concentration for reporting period in mg/L. Reporting periods are average monthly and weekly as well as maximum daily.
- DF = Design flow of facility in MGD
- 8.345 = Factor to convert effluent concentration in mg/L and design flow in MGD to lbs/day.

BOD and TSS Mass Loading Calculations (2.0 MGD):

Month Ave.	[30]	X 8.34	(Constant)	X 2.0	(effluent flow)	≈	500 lb/day
Week Ave.	[45]	X 8.34	(Constant)	X 2.0	(effluent flow)	=	750.6 lb/day
						≈	750.0 lb/day
Day Max.	[50]	X 8.34	(Constant)	X 2.0	(effluent flow)	=	834 lb/day
Month Ave.	[30]	X 3.79	(Constant)	X 2.0	(effluent flow)	≈	227 kg/day
Week Ave.	[45]	X 3.79	(Constant)	X 2.0	(effluent flow)	≈	341 kg/day
Day Max.	[50]	X 3.79	(Constant)	X 2.0	(effluent flow)	≈	379 kg/day

BOD and TSS Mass Loading Calculations (3.0 MGD):

Month Ave.	[30]	X 8.345	(Constant)	X 3.0	(effluent flow)	≈	751 lb/day
Week Ave.	[45]	X 8.345	(Constant)	X 3.0	(effluent flow)	≈	1127 lb/day
Day Max.	[50]	X 8.345	(Constant)	X 3.0	(effluent flow)	≈	1252 lb/day
Month Ave.	[30]	X 3.79	(Constant)	X 3.0	(effluent flow)	≈	341 kg/day
Week Ave.	[45]	X 3.79	(Constant)	X 3.0	(effluent flow)	≈	512 kg/day
Day Max.	[50]	X 3.79	(Constant)	X 3.0	(effluent flow)	≈	569 kg/day

The above calculated values are consistent with the MEDEP License issued on August 12, 1994.