



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

April 22, 2009

CERTIFIED MAIL

Mr. Michael Covellone, Director of Water Supply
Providence Water
552 Academy Avenue
Providence, RI 02908

**RE: P.J. Holton Water Treatment Plant
Consent Agreement No. RIA-380 & Final pH Modification
RIPDES No. RI0021601**

Dear Mr. Covellone:

Enclosed is your final Rhode Island Pollutant Discharge Elimination System (RIPDES) Permit modification issued pursuant to the referenced application. State regulations, promulgated under Chapter 46-12 of the Rhode Island General Laws of 1956, as amended, require this permit modification to become effective on the date specified in the permit modification.

Also enclosed is information relative to hearing requests and stays of RIPDES Permits.

We appreciate your cooperation throughout the development of this permit modification. Please be advised that in accordance with Consent Agreement No. RIA-380 Part 11(c), upon the effective date of the enclosed permit modification the conditions of Consent Agreement No. RIA-380 have been fulfilled by the Rhode Island Department of Environmental Management and Providence Water and as a result RIA-380 is hereby terminated. Should you have any questions concerning this permit modification, feel free to contact Brian Lafaille, P.E. of the State Permits Staff at (401) 222-4700, extension 7731.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric A. Beck".

Eric A. Beck, P.E.
Supervising Sanitary Engineer

EAB:

Enclosures

cc: David Turin, EPA Region 1 (Electronic Copy)
Traci Pena, RIDEM-OWR (Electronic Copy)
Annie McFarland, RIDEM-OWR (Electronic Copy)



RESPONSE TO COMMENTS

NO SIGNIFICANT COMMENTS WERE RECEIVED ON THE DRAFT PERMIT MODIFICATION FOR THIS FACILITY; THEREFORE, NO RESPONSE WAS PREPARED.

HEARING REQUESTS

If you wish to contest any of the provisions of this permit modification, you may request a formal hearing within thirty (30) days of receipt of this letter. The request should be submitted to the Administrative Adjudication Division at the following address:

Bonnie Stewart, Clerk
Department of Environmental Management
Office of Administrative Adjudication
235 Promenade Street, 3rd Floor
Providence, Rhode Island 02908

Any request for a formal hearing must conform to the requirements of Rule 49 of the State Regulations.

STAYS OF RIPDES PERMITS

Should the Department receive and grant a request for a formal hearing, the contested conditions of the permit will not automatically be stayed. However, the permittee, in accordance with Rule 50, may request a temporary stay for the duration of adjudicatory hearing proceedings. Requests for stays of permit conditions should be submitted to the Office of Water Resources at the following address:

Angelo S. Liberti, P.E.
Chief of surface Water Protection
Office of Water Resources
235 Promenade Street
Providence, Rhode Island 02908

All uncontested conditions of the permit will be effective and enforceable in accordance with the provisions of Rule 49.

MODIFICATION

AUTHORIZATION TO DISCHARGE UNDER THE
RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of Chapter 46-12 of the Rhode Island General Laws, as amended, RIPDES Permit No. RI0021601 issued to Providence Water, for the P.J. Holton Water Treatment Plant on July 12, 2006, shall be modified as follows:

The minimum pH limitations for Outfalls 002A and 001B on Pages 2 and 3 of RIPDES Permit No. RI0021601 shall be replaced by the minimum pH limitations on Pages 2 and 3 in Attachment A of this permit modification reflecting the pH limit modification from 6.5-9.0 s.u. to 6.0-9.0 s.u. for outfalls 002A and 001B.

Part I.A.3 of RIPDES Permit No. RI0021601 shall be replaced with the Part I.A.3 in Attachment B of this permit modification.

Except as set forth in this modification, the remaining effluent limitations, monitoring requirements and other conditions in the original permit are unchanged and in effect.


This modification shall become effective on the date of signature.

This permit and the authorization to discharge expire at midnight, September 1, 2011.

This change modifies the permit issued on July 12, 2006.

This modification consists of four (4) pages.

Signed this 22nd day of April, 2009.



Angelo S. Liberty, P.E., Chief of Surface Water Protection
Office of Water Resources
Rhode Island Department of Environmental Management
Providence, Rhode Island

Attachment A

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- During the period beginning on the effective date of this permit modification and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number 002A (treated filter backwash, treated sedimentation basin cleaning discharges and treated water quality analyzer flows from the overflow structure of Lagoon 2). Such discharges shall be limited and monitored by the permittee as specified below:

| Effluent Characteristic | Discharge Limitations Quantity - lbs./day | | Concentration - specify units | | Monitoring Requirement | | |
|--------------------------------------|--|---------------|-------------------------------|------------------------------|-----------------------------|-----------------------|------------------------|
| | Average Monthly | Maximum Daily | Average Monthly *(Minimum) | Average Weekly *(Average) | Maximum Daily *(Maximum) | Measurement Frequency | Sample Type |
| Flow | --- MGD | --- MGD | | | | Continuous | Recorder |
| TSS | 91 lb/day | 218 lb/day | 5 mg/l | | 11 mg/l | 2/Month | Composite ¹ |
| Turbidity | | | --- NTU | | --- NTU | 2/Month | Composite ¹ |
| pH | | | (6.0 S.U.) | | (9.0 S.U.) | 2/Month | 4 Grabs ² |
| Total Residual Chlorine ³ | | | 11 ug/l | | 19 ug/l | 2/Month | Grab |
| Total Iron ⁴ | | | --- mg/l | | --- mg/l | 2/Month | Grab |
| Total Aluminum ⁴ | | | 70 ug/l | | 600 ug/l | 2/Month | Grab |
| Total Lead | | | --- ug/l | | --- ug/l | 1/Quarter | Grab |

¹ All composite sampling must consist of a minimum of four (4) grabs spaced equally apart during the selected sampling day.

² Compliance with these limitations shall be determined by taking a minimum of four (4) grab samples. The grab samples must be analyzed for pH immediately (<15 minutes after sample collection). The maximum value to be reported is the highest individual measurement obtained during the monitoring period. The minimum value to be reported is the lowest individual measurement obtained during the monitoring period.

³ The following methods may be used to analyze the grab samples: (1) Low Level Amperometric Titration, Standard Methods (18th Edition) No. 4500-CJ E; (2) DPD Spectrophotometric, EPA No. 330.5 or Standard Methods (18th Edition) No. 4500-CJ G. The limit at which compliance/noncompliance determinations will be based is the Quantitation Limit which is defined as 50 ug/l for TRC. These values may be reduced by permit modification as more sensitive methods are approved by EPA and the State.

⁴ Sampling for Total Iron and Total Aluminum is only required during months in which Iron based and/or Aluminum based coagulation chemicals are used in the water treatment process. For all other periods sampling is not required.

--- signifies a parameter which must be monitored and data must be reported; no limit has been established at this time.

* Values in parentheses () are to be reported as Minimum/Maximum for the reporting period rather than Average Monthly/Maximum Daily.

** All filter backwash and sedimentation basin cleaning discharges must be treated prior to discharging from Outfall 002A.

*** Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: Outfall 002A (Final Discharge from Lagoon 2).

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning on the effective date of this permit modification and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number 001B (treated filter backwash, treated sedimentation basin cleaning discharges and treated water quality analyzer flows from the overflow structure of Lagoon 1B). Such discharges shall be limited and monitored by the permittee as specified below:

| Effluent Characteristic | Discharge Limitations | | Concentration - specify units | | Monitoring Requirement | | |
|--------------------------------------|-----------------------|---------------|-------------------------------|------------------------------|-----------------------------|-----------------------|------------------------|
| | Average Monthly | Maximum Daily | Average Monthly *(Minimum) | Average Weekly *(Average) | Maximum Daily *(Maximum) | Measurement Frequency | Sample Type |
| Flow | --- MGD | --- MGD | | | | Continuous | Recorder |
| TSS | 91 lb/day | 218 lb/day | 5 mg/l | | 11 mg/l | 2/Month | Composite ¹ |
| Turbidity | | | --- NTU | | --- NTU | 2/Month | Composite ¹ |
| pH | | | (6.0 S.U.) | | (9.0 S.U.) | 2/Month | 4 Grabs ² |
| Total Residual Chlorine ³ | | | 11 ug/l | | 19 ug/l | 2/Month | Grab |
| Total Iron ⁴ | | | --- mg/l | | --- mg/l | 2/Month | Grab |
| Total Aluminum ⁴ | | | 70 ug/l | | 600 ug/l | 2/Month | Grab |
| Total Lead | | | --- ug/l | | --- ug/l | 1/Quarter | Grab |

¹All composite sampling must consist of a minimum of four (4) grabs spaced equally apart during the selected sampling day.

² Compliance with these limitations shall be determined by taking a minimum of four (4) grab samples. The grab samples must be analyzed for pH immediately (<15 minutes after sample collection). The maximum value to be reported is the highest individual measurement obtained during the monitoring period. The minimum value to be reported is the lowest individual measurement obtained during the monitoring period.

³The following methods may be used to analyze the grab samples: (1) Low Level Amperometric Titration, Standard Methods (18th Edition) No. 4500-ClE; (2) DPD Spectrophotometric, EPA No. 330.5 or Standard Methods (18th Edition) No. 4500-ClG. The limit at which compliance/noncompliance determinations will be based is the Quantitation Limit which is defined as 50 ug/l for TRC. These values may be reduced by permit modification as more sensitive methods are approved by EPA and the State.

⁴ Sampling for Total Iron and Total Aluminum is only required during months in which Iron based and/or Aluminum based coagulation chemicals are used in the water treatment process. For all other periods sampling is not required.

--- signifies a parameter which must be monitored and data must be reported; no limit has been established at this time.

* Values in parentheses () are to be reported as Minimum/Maximum for the reporting period rather than Average Monthly/Maximum Daily.

** All filter backwash and sedimentation basin cleaning discharges must be treated prior to discharging from Outfall 001B.

***Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: Outfall 001B (Final discharge from Lagoon 1B)

Attachment B

Permit No. RI0021601
Page 4 of 10

3. The pH of the effluent shall not be less than 6.0 – 9.0 standard units.
4. The discharge shall not cause visible discoloration of the receiving waters.
5. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.
6. The turbidity of the receiving water shall not exceed 10 NTU over natural background.
7. Solids, sludges, or biosolids removed in the course of treatment or control of wastewaters, shall be properly disposed of in compliance with applicable state laws, regulations, and permit requirements, and in a manner such as to prevent any pollutant from such materials from entering the waters of the State.
8. **Within six (6) months of the effective date of this permit, the permittee is required to develop and implement a comprehensive Residuals Management Plan. Within six (6) months of the effective date of this permit the permittee must submit the Residuals Management Plan to the DEM.** The components of the Residuals Management Plan must include the following:
 - A. Characterization of the form, quantity, and quality of the residuals;
 - B. Determination of the appropriate regulatory requirements;
 - C. Identification of feasible disposal options;
 - D. Selection of appropriate residuals processing/treatment technologies and development of a residuals management strategy that meets the regulatory goals established for the water treatment facility;
 - E. Development of best management practices which at a minimum include the following: a) an evaluation of the water treatment residuals storage capacity within each residuals treatment unit and identification of criteria which will serve as a trigger to determine when treatment units (i.e. lagoons, equalization basins, etc.) need to be pulled offline in order to avoid short circuiting and potential permit violations; b) development of procedures and periodic evaluation techniques necessary to gauge the remaining storage capacity of residuals treatment units; c) an evaluation of the need for coordination between WTP operators and personnel responsible for the operation of WTP residuals treatment units; d) development of maintenance procedures to deactivate and prepare treatment units for sludge removal. These maintenance procedures must identify the appropriate steps necessary to temporarily lower the water level in the treatment unit, remove settled sludges, and restore the flow through the treatment unit in such a way that degradation of the receiving waters and permit violations will be prevented;
 - F. A requirement that the discharge of sedimentation basin cleanings are prohibited during periods when Lagoons 1A, 1B, or 2 are out of service;
 - G. A requirement that all critical activities associated with the operations and maintenance of the water treatment plant residuals treatment units be documented and copies of such documentation be kept on site at all times throughout the effective life of the permit;
 - H. A requirement to review the Residuals Management Plan (at a minimum)

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 PROMENADE STREET
PROVIDENCE, RHODE ISLAND 02908-5767

STATEMENT OF BASIS

RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM (RIPDES) PERMIT TO DISCHARGE TO WATERS OF THE STATE

RIPDES PERMIT NO.

RI0021601

NAME AND ADDRESS OF APPLICANT:

Providence Water
552 Academy Avenue
Providence, RI 02908

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

P.J. Holton Water Treatment Plant
61 North Road, Route 116
Scituate, Rhode Island 02831

RECEIVING WATER:

Pawtuxet River – North Branch

CLASSIFICATION:

B

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

In accordance with Consent Agreement No. RIA-380 entered into between the Rhode Island Department of Environmental Management (DEM) and Providence Water on July 30, 2007 the DEM is proposing to modify the pH limitations for outfalls 002A and 001B contained in RIPDES Permit No. RI0021601 issued on July 12, 2006. The effluent pH limitations were 6.5-9.0 standard units (s.u.) while the proposed limitations would expand the permitted range to 6.0-9.0 standard units.

II. Permit Limitations and Conditions

The proposed permit modifications to effluent limitations and monitoring requirements may be found in the draft permit modification.

III. Permit Modification Basis and Explanation of Effluent Limitation Derivation

The Facility

The Providence Water Supply Board (PWSB) operates a water treatment and filtration plant in Scituate, RI. The plant employs conventional chemical treatment combined with rapid sand filtration to purify the raw water prior to distribution to consumers. The P.J. Holton Water Treatment Plant obtains its water from a surface supply located on the North Branch of the Pawtuxet River.

The facility is involved in the production of potable water for “domestic” and “industrial” uses. The discharge originates from two outfalls 002A and 001B located at the overflow of settling lagoon 2 and settling lagoon 1B, respectively. The discharge from the lagoons consist of treated filter backwash, treated sedimentation basin cleaning flows, and treated water quality analyzer discharges originating from the P.J. Holton Water Purification Plant operated by the Providence Water Supply Board. As part of the water treatment plant residuals treatment system there are three lagoons that are used as settling basins to remove any settled solids that are removed as part of the filter backwash process and periodically removed from the North or South sedimentation basins during cleaning operations that take place approximately every 3-5 years. The majority of the water discharged to the lagoon network infiltrates into the subsurface with a portion of the treated water also overflowing from outfall 002A and when necessary 001B. As the water treatment plant waste streams pass through the lagoon network the majority of water treatment plant residuals settle to the bottom of the lagoons and are periodically removed, allowed to dry, and shipped offsite. Additional periodic or continuous flows are discharged to the lagoon system which include: groundwater and various storm and roof drainage from roofs and parking areas.

Receiving Water

The North Branch of the Pawtuxet River at the location where outfalls 002A and 001B ultimately discharge after first passing through a wetland area is designated as Water Use Classification “B” designating these waters for fish and wildlife habitat and primary and secondary contact recreational activities. They shall be suitable for compatible industrial processes and cooling, hydropower, aquacultural uses, navigation, and irrigation and other agricultural uses. These waters shall have good aesthetic value.

Basis for the Permit Modification

Permit No. RI0021601 was issued on July 12, 2006. Because Providence Water was concerned that it would not be able to comply with the lower pH limit of 6.5 s.u. on a continuous basis, Providence Water requested a stay of the final permit limits and on July 30, 2007 the DEM and Providence Water entered into a Consent Agreement, RIA-380, to resolve these contested permit limits.

Part 11 of RIA-380 addressed the pH compliance issue. The DEM and Providence Water jointly agreed that Providence Water could conduct a Site-Specific pH study to determine whether the natural background pH of the discharge location is significantly different than the pH range of 6.5-9.0 s.u. specified in the final permit issued on July 12, 2006. In a letter dated September 28, 2007 the DEM approved Providence Water’s proposed Scope of Work for conducting the Site-Specific pH Study. On November 26, 2008 the DEM received the results of the Site Specific pH evaluation report conducted by Pare Corporation on behalf of Providence Water. Based on the results of the pH evaluation report, Providence Water seeks to modify the pH limitations for

outfalls 001B and 002A from 6.5-9.0 s.u. to a range proposed in the pH evaluation report of 6.0-9.0 s.u. Based on the findings of the Site Specific pH Evaluation Report the DEM is in agreement that modifying the pH limitations in the final permit to a range of 6.0 –9.0 s.u. is appropriate.

Site Specific pH Study Results

As previously mentioned, Pare Corporation conducted a Site Specific pH study to evaluate and propose an alternative low pH discharge limitation for the Providence Water discharge permit if the background pH in the receiving wetland upgradient from the Lagoon 002A outfall was determined to be significantly different than the range of 6.5 to 9.0 s.u. The report was entitled *Providence Water Supply Board Site Specific pH Study for the P.J. Holton Purification Plant Scituate, RI* dated November 2008.

The pH study included evaluating the existing soil and surface water pH within the wetland system located immediately downstream of the Lagoon 002A outfall (the “receiving wetland”) and compared those values to soil and surface water pH as measured within a “reference wetland”. The reference wetland was selected for its physical and biological similarities to the receiving wetland but was located outside the area of influence of outfall 002A. The pH values in the reference wetland were considered to reflect natural background conditions of the receiving wetland, if the receiving wetland wasn’t impacted by the lagoon discharges. The study also included evaluating effluent discharge pH data from Lagoon 002A, as provided by Providence Water.

Identification and evaluation of the receiving and reference wetlands included field visits to classify and delineate the wetlands in accordance with the current RIDEM wetland regulations (2007). Dominant wetland vegetation was inventoried, and monitoring locations were established in the field using wooden stakes. Four monitoring points were established for water sampling. Two of these were located in the receiving wetland, one in the reference wetland, and one in the Pawtuxet River between the receiving and reference wetland. In addition, two monitoring points were established for soil sampling, one each in the receiving and reference wetland. Surface water pH data were collected approximately once per month for 12 months (14 sampling rounds total). Soil pH data were collected quarterly over 12 months (four sampling rounds total).

Based on the data collected as part of this study, the natural background pH as measured in the reference wetland was lower than the observed pH in the receiving wetland. The data and the statistical analysis performed by Pare Corporation, show that the natural background pH of the reference wetland is 5.5-7.0 s.u., significantly lower than the Treatment Plant’s current discharge limit of 6.5-9.0 s.u.

As the natural background wetland pH range is already lower than the pH measured in the receiving wetland, Pare Corporation concluded that infrequent, short-term discharges of effluent with a pH slightly lower than 6.5 would not have a significant adverse impact on the receiving wetland, supporting a reduction in the final effluent limit to pH 6.0.

As a result of the Site Specific pH Study findings the DEM is in agreement that expanding the pH range from 6.5-9.0 s.u. to 6.0-9.0 s.u. is appropriate and would not adversely effect the receiving wetland.

IV. 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 Rhode Island Department of Environmental Management, Office of Water Resources, 235 Promenade Street, Providence, Rhode Island, 02908-5767. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to the Rhode Island Department of Environmental Management. 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 (30) days of public notice whenever the Director finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Director will respond to all significant comments and make these responses available to the public at DEM's Providence Office.


Following the close of the comment period, and after a public hearing, if such hearing is held, the Director 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 thirty (30) days following the notice of the final permit decision any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of Rule 49 of the Regulations for the Rhode Island Pollutant Discharge Elimination System.

V. DEM Contact

Additional information concerning the permit may be obtained between the hours of 8:30 am and 4:00 pm, Monday through Friday, excluding holidays from:

Brian Lafaille, P.E.
RIPDES Program
Department of Environmental Management
235 Promenade Street
Providence, RI 02908
Telephone: (401) 222-4700, ext. 7731
Email: brian.lafaille@dem.ri.gov

3-2-09
Date


Eric A. Beck, P.E.
Supervising Sanitary Engineer
RIPDES Permitting Section
Office of Water Resources
Department of Environmental Management