RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

April 12, 2012

CERTIFIED MAIL

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

RE: Providence Water P.J. Holton Water Treatment Plant Final Permit
RIPDES Permit No. RI0021601

Dear Mr. Covellone:

Enclosed is your final Rhode Island Pollutant Discharge Elimination System (RIPDES) Permit 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 to become effective on the date specified in the permit.

As outlined in the statement of basis for this permit, the Department of Environmental Management (DEM) is willing to enter into a Consent Agreement which will establish interim limits for any pollutants for which the P.J. Holton Water Treatment Plant cannot comply and establish an enforceable compliance schedule for completing any treatment plant changes that will be necessary to bring the facility into permit compliance. Please note that, in order to enter into a Consent Agreement, Providence Water will need to file a hearing request and a stay request in accordance with the attached instructions within thirty (30) days of receipt of this letter.

Also enclosed is a copy of the Department's response to the comments received on the draft permit and information relative to hearing requests and stays of RIPDES Permits.

We appreciate your cooperation throughout the development of this permit. Should you have any questions concerning this permit, feel free to contact Brian Lafaille, PE of the State Permits Staff at (401) 222-4700, extension 7731.

Sincerely,

Joseph B. Haberek, PE
Principal Sanitary Engineer

Enclosures

cc: Traci Pena, RIDEM-OWR (electronic)
Annie McFarland, RIDEM-OWR (electronic)
Frederick J. Crosby, Providence Water (electronic)

RESPONSE TO COMMENTS

From March 2, 2012 to April 6, 2012, the Rhode Island Department of Environmental Management (DEM) solicited public comment on a draft Rhode Island Pollutant Discharge Elimination System (RIPDES) permit for the P.J. Holton Water Treatment Plant. The following is a synopsis of the significant comments received and the DEM responses to those comments.

The following responses address the comments that were raised by Providence Water in a letter dated March 15, 2012.

Comment 1: Providence Water is writing this letter in order to identify the conditions of the draft RIPDES permit issued for the P.J. Holton Water Purification Works ("Plant") that it believes will be infeasible to comply with. This letter is being provided to preserve our right to request a stay of the problematic requirements set forth in the subject permit. It is Providence Water's understanding that a permit will issue at the close of the public comment period, and upon our subsequent request of a stay, and the anticipated approval by D.E.M., from PW and D.E.M. would enter into a mutual consent agreement.

The standard set for iron discharge from our lagoon is not feasible for Providence Water to meet on a continual and consistent basis. Ferric Sulfate is inherently a part of the treatment process at our Plant and necessary for purifying water. As an iron coagulant promoting settling and clarification within the sedimentation basins at the Plant, it is unavoidably the main component in our Plant residuals. As you are aware, those residuals are sent to the residual lagoons where settling of the residuals occurs and a portion of the supernatant discharges to the adjacent wetland and flows on to the Pawtuxet River approximately 300 feet away. Alternatives to this long-standing treatment process are unreasonable, and as such, are not planned as part of any treatment changes at the Plant in the future.

Providence Water has, in recent years made a substantial financial investment in improving its residuals handling process, and in restoring the function of the lagoons by removing decades of accumulated residuals that had left the entire lagoon system virtually devoid of any storage capacity. Providence Water believes that forcing alternatives to its water treatment or residuals handling process, for the intended purposed identified in the permit, would be an unwise use of financial resources and put an unnecessary burden upon its ratepayers. On a cost-to-benefit basis, modifications to the present treatment processes, built solely for the purpose of additional treatment of the residuals, would be unjustified.

While Providence Water is receptive to other available treatment options to meet D.E.M's proposed standards, the few limited times per year that Providence Water might exceed the proposed iron levels in the draft permit do not, in Providence Water's opinion, pose a realistic environmental risk, and the significant expenditures related to meeting these standards would pose a largely non-beneficial use of ratepayer money.

Accordingly, Providence Water is requesting that within negotiations for an eventual consent agreement, there also be an opportunity to discuss the prospect for a waiver or variance of conditions to the monitoring criteria in the permit.

We thank you for the opportunity to comment during this public hearing period and look forward to reaching a mutually beneficial solution to this issue.

Response 1: As previously indicated the DEM is willing to enter into a consent agreement with Providence Water which includes a compliance schedule that will provide time for the

implementation of changes necessary to comply with the limitations for Total Iron at outfalls 002A and 001B. The specific compliance schedule will be negotiated between Providence Water and the DEM during the development of the Consent Agreement. However, it is anticipated that the schedule may include one or more of the following compliance options: outfall relocation, improvements to the existing lagoon treatment system, or the installation of additional treatment equipment/processes. In order to enter into a Consent Agreement, Providence Water will need to file a hearing request and a stay request in accordance with the attached instructions within thirty (30) days of receipt of this letter.

HEARING REQUESTS

If you wish to contest any of the provisions of this permit, 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
One Capitol Hill - Second Floor
Providence, Rhode Island 02903

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.

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,

Providence Water
552 Academy Avenue
Providence, RI 02908

is authorized to discharge from a facility located at

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

to receiving waters named

Pawtuxet River – North Branch

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

This permit shall become effective on July 1, 2012.

This permit and the authorization to discharge expire at midnight, five (5) years from the effective date.

This permit supersedes the permit issued on July 12, 2006.

This permit consists of nine (9) pages in Part I including effluent limitations, monitoring requirements, etc. and 10 pages in Part II including General Conditions.

Signed this 13th day of April, 2012.

Angelo S. Liberti

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

PART I

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

1. During the period beginning on the effective date 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	Grab[2]
Total Residual Chlorine			11 ug/l[3]		19 ug/l[3]	2/Month	Grab
Total Iron			800 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 one (1) grab sample. The grab sample 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-Cl E; (2) DPD Spectrophotometric, EPA No. 330.5 or Standard Methods (18th Edition) No. 4500-Cl G. The limit at which compliance/noncompliance determinations will be based is the Quantitation Limit which is defined as 20 ug/l for TRC. This value may be reduced by permit modification as more sensitive methods are approved by EPA and the State.

--- 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.

**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 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 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				Monthly	Estimate
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	Grab[2]
Total Residual Chlorine			11 ug/l[3]		19 ug/l[3]	2/Month	Grab
Total Iron			800 ug/l		--- ug/l	2/Month	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 one (1) grab sample. The grab sample 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-Cl E; (2) DPD Spectrophotometric, EPA No. 330.5 or Standard Methods (18th Edition) No. 4500-Cl G. The limit at which compliance/noncompliance determinations will be based is the Quantitation Limit which is defined as 20 ug/l for TRC. This value may be reduced by permit modification as more sensitive methods are approved by EPA and the State.

--- 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.

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

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. The permittee is required to maintain and implement a comprehensive Residuals Management Plan. 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)

on a yearly basis and must be updated as necessary. A copy of the Residuals Management Plan and records of the annual reviews must be available on site at all times throughout the effective life of this permit.

The DEM may notify the permittee at any time that the Residuals Management Plan is deficient or does not meet one or more of the minimum requirements of the permit. After such notification from the DEM, the permittee shall make changes to the Residuals Management Plan and shall submit to the DEM a written certification that the requested changes have been made. Unless otherwise provided by the DEM, the permittee shall have thirty (30) days after such notification to make the necessary changes. The permittee shall immediately amend the Residuals Management Plan if it proves to be ineffective in achieving the general objectives of controlling pollutants in discharges associated with the water treatment facility. Changes must be noted and then submitted to the DEM within thirty (30) days of amending the Residuals Management Plan. Amendments to the Residuals Management Plan may be reviewed by the DEM in the same manner as specified above.

9. This permit only authorizes the use of iron based water treatment chemicals as the primary coagulation agent (i.e. ferric sulfate). The permittee must notify the DEM and obtain written approval prior to using any other non iron-based coagulation agent (i.e. aluminum sulfate).

10. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

    a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

        (1) One hundred micrograms per liter (100 ug/l);

        (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitro-phenol; and one milligram per liter (1 mg/l) for antimony;

        (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. s122.21(g)(7); or

        (4) Any other notification level established by the Director in accordance with 40 C.F.R. s122.44(f) and Rhode Island Regulations.

    b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

        (1) Five hundred micrograms per liter (500 ug/l);

        (2) One milligram per liter (1 mg/l) for antimony;

        (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R.

s122.21(g)(7); or

(4) Any other notification level established by the Director in accordance with 40 C.F.R. s122.44(f) and Rhode Island Regulations.

c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or by-product any toxic pollutant which was not reported in the permit application.

11. This permit serves as the State's Water Quality Certificate for the discharges described herein.

B. DETECTION LIMITS

The permittee shall assure that all wastewater testing required by this permit, is performed in conformance with the method detection limits listed below. In accordance with 40 CFR Part 136, EPA approved analysis techniques, quality assurance procedures and quality control procedures shall be followed for all reports required to be submitted under the RIPDES program. These procedures are described in "Methods for the Determination of Metals in Environmental Samples" (EPA/600/4-91/010) and "Methods for Chemical Analysis of Water and Wastes" (EPA/600/4-79/020).

The report entitled "Methods for the Determination of Metals in Environmental Samples" includes a test which must be performed in order to determine if matrix interferences are present, and a series of tests to enable reporting of sample results when interferences are identified. Each step of the series of tests becomes increasingly complex, concluding with the complete Method of Standard Additions analysis. The analysis need not continue once a result which meets the applicable quality control requirements has been obtained. Documentation of all steps conducted to identify and account for matrix interferences shall documented and maintained onsite.

If, after conducting the complete Method of Standard Additions analysis, the laboratory is unable to determine a valid result, the laboratory shall report "could not be analyzed". Documentation supporting this claim shall be maintained onsite. If valid analytical results are repeatedly unobtainable, DEM may require that the permittee determine a method detection limit (MDL) for their effluent or sludge as outlined in 40 CFR Part 136, Appendix B.

When calculating sample averages for reporting on discharge monitoring reports (DMRs):

1. "could not be analyzed" data shall be excluded, and shall not be considered as failure to comply with the permit sampling requirements;

2. results reported as less than the MDL shall be reported as zero in accordance with the DEM's DMR Instructions, provided that all appropriate EPA approved methods were followed.

Therefore, all sample results shall be reported as: an actual value, "could not be analyzed", or zero. The effluent or sludge specific MDL must be calculated using the methods outlined in 40 CFR Part 136, Appendix B. Samples which have been diluted to ensure that the sample concentration will be within the linear dynamic range shall not be diluted to the extent that the analyte is not detected. If this should occur the analysis shall be repeated using a lower degree of dilution.

LIST OF TOXIC POLLUTANTS

The following list of toxic pollutants has been designated pursuant to Section 307(a)(1) of the Clean Water Act. The Method Detection Limits (MDLs) represent the required Rhode Island MDLs.

Volatiles - EPA Method 624		MDL ug/l (ppb)
1V	acrolein	10.0
2V	acrylonitrile	5.0
3V	benzene	1.0
5V	bromoform	1.0
6V	carbon tetrachloride	1.0
7V	chlorobenzene	1.0
8V	chlorodibromomethane	1.0
9V	chloroethane	1.0
10V	2-chloroethylvinyl ether	5.0
11V	chloroform	1.0
12V	dichlorobromomethane	1.0
14V	1,1-dichloroethane	1.0
15V	1,2-dichloroethane	1.0
16V	1,1-dichloroethylene	1.0
17V	1,2-dichloropropane	1.0
18V	1,3-dichloropropylene	1.0
19V	ethylbenzene	1.0
20V	methyl bromide	1.0
21V	methyl chloride	1.0
22V	methylene chloride	1.0
23V	1,1,2,2-tetrachloroethane	1.0
24V	tetrachloroethylene	1.0
25V	toluene	1.0
26V	1,2-trans-dichloroethylene	1.0
27V	1,1,1-trichloroethane	1.0
28V	1,1,2-trichloroethane	1.0
29V	trichloroethylene	1.0
31V	vinyl chloride	1.0

Acid Compounds - EPA Method 625		MDL ug/l (ppb)
1A	2-chlorophenol	1.0
2A	2,4-dichlorophenol	1.0
3A	2,4-dimethylphenol	1.0
4A	4,6-dinitro-o-cresol	1.0
5A	2,4-dinitrophenol	2.0
6A	2-nitrophenol	1.0
7A	4-nitrophenol	1.0
8A	p-chloro-m-cresol	2.0
9A	pentachlorophenol	1.0
10A	phenol	1.0
11A	2,4,6-trichlorophenol	1.0

Pesticides - EPA Method 608		MDL ug/l (ppb)
1P	aldrin	0.059
2P	alpha-BHC	0.058
3P	beta-BHC	0.043
4P	gamma-BHC	0.048
5P	delta-BHC	0.034
6P	chlordane	0.211
7P	4,4 ' -DDT	0.251
8P	4,4 ' -DDE	0.049
9P	4,4 ' -DDD	0.139
10P	dieldrin	0.082
11P	alpha-endosulfan	0.031
12P	beta-endosulfan	0.036
13P	endosulfan sulfate	0.109
14P	endrin	0.050
15P	endrin aldehyde	0.062
16P	heptachlor	0.029
17P	heptachlor epoxide	0.040

Pesticides - EPA Method 608		MDL ug/l (ppb)
18P	PCB-1242	0.289
19P	PCB-1254	0.298
20P	PCB-1221	0.723
21P	PCB-1232	0.387
22P	PCB-1248	0.283
23P	PCB-1260	0.222
24P	PCB-1016	0.494
25P	toxaphene	1.670

Base/Neutral - EPA Method 625		MDL ug/l (ppb)
1B	acenaphthene *	1.0
2B	acenaphthylene *	1.0
3B	anthracene *	1.0
4B	benzidine	4.0
5B	benzo(a)anthracene *	2.0
6B	benzo(a)pyrene *	2.0
7B	3,4-benzofluoranthene *	1.0
8B	benzo(ghi)perylene *	2.0
9B	benzo(k)fluoranthene *	2.0
10B	bis(2-chloroethoxy)methane	2.0
11B	bis(2-chloroethyl)ether	1.0
12B	bis(2-chloroisopropyl)ether	1.0
13B	bis(2-ethylhexyl)phthalate	1.0
14B	4-bromophenyl phenyl ether	1.0
15B	butylbenzyl phthalate	1.0
16B	2-chloronaphthalene	1.0
17B	4-chlorophenyl phenyl ether	1.0
18B	chrysene *	1.0
19B	dibenzo (a,h)anthracene *	2.0
20B	1,2-dichlorobenzene	1.0
21B	1,3-dichlorobenzene	1.0
22B	1,4-dichlorobenzene	1.0
23B	3,3 ' -dichlorobenzidine	2.0
24B	diethyl phthalate	1.0
25B	dimethyl phthalate	1.0
26B	di-n-butyl phthalate	1.0
27B	2,4-dinitrotoluene	2.0
28B	2,6-dinitrotoluene	2.0
29B	di-n-octyl phthalate	1.0
30B	1,2-diphenylhydrazine (as azobenzene)	1.0
31B	fluoranthene *	1.0
32B	fluorene *	1.0
33B	hexachlorobenzene	1.0
34B	hexachlorobutadiene	1.0
35B	hexachlorocyclopentadiene	2.0
36B	hexachloroethane	1.0
37B	indeno(1,2,3-cd)pyrene *	2.0
38B	isophorone	1.0
39B	naphthalene *	1.0
40B	nitrobenzene	1.0
41B	N-nitrosodimethylamine	1.0
42B	N-nitrosodi-n-propylamine	1.0
43B	N-nitrosodiphenylamine	1.0
44B	phenanthrene *	1.0
45B	pyrene *	1.0
46B	1,2,4-trichlorobenzene	1.0

OTHER TOXIC POLLUTANTS

	MDL ug/l (ppb)
Antimony, Total	3.0
Arsenic, Total	1.0
Beryllium, Total	0.2
Cadmium, Total	0.1
Chromium, Total	1.0
Chromium, Hexavalent	20.0
Copper, Total	1.0
Lead, Total	1.0
Mercury, Total	0.2
Nickel, Total	1.0
Selenium, Total	2.0
Silver, Total	0.5
Thallium, Total	1.0
Zinc, Total	5.0
Asbestos	**
Cyanide, Total	10.0
Phenols, Total	50.0
TCDD	**
MTBE (Methyl Tert Butyl Ether)	1.0

* Polynuclear Aromatic Hydrocarbons
** No Rhode Island Department of Environmental Management (RIDEM) MDL

NOTE:

The MDL for a given analyte may vary with the type of sample. MDLs which are determined in reagent water may be lower than those determined in wastewater due to fewer matrix interferences. Wastewater is variable in composition and may therefore contain substances (interferents) that could affect MDLs for some analytes of interest. Variability in instrument performance can also lead to inconsistencies in determinations of MDLs.

To help verify the absence of matrix or chemical interference the analyst is required to complete specific quality control procedures. For the metals analyses listed above the analyst must withdraw from the sample two equal aliquots; to one aliquot add a known amount of analyte, and then dilute both to the same volume and analyze. The unspiked aliquot multiplied by the dilution factor should be compared to the original. Agreement of the results within 10% indicates the absence of interference. Comparison of the actual signal from the spiked aliquot to the expected response from the analyte in an aqueous standard should help confirm the finding from the dilution analysis. (Methods for Chemical Analysis of Water and Wastes EPA-600/4-79/020).

For Methods 624 and 625 the laboratory must on an ongoing basis spike at least 5% of the samples from each sample site being monitored. For laboratories analyzing 1 to 20 samples per month, at least one spiked sample per month is required. The spike should be at the discharge permit limit or 1 to 5 times higher than the background concentration determined in Section 8.3.2, whichever concentration would be larger. (40 CFR Part 136 Appendix B Method 624 and 625 subparts 8.3.1 and 8.3.11).

C. MONITORING AND REPORTING

1. Monitoring

All monitoring required by this permit shall be done in accordance with sampling and analytical testing procedures specified in Federal Regulations (40 CFR Part 136). Special attention should be put towards following the sampling techniques, preservation, and holding times listed in Table II of 40 CFR Part 136.

2. Reporting

Monitoring results obtained during the previous month shall be summarized and reported on Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the month following the completed reporting period.

Signed copies of these, and all other reports required herein, shall be submitted to:

RIPDES Program
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908

PART II
TABLE OF CONTENTS

GENERAL REQUIREMENTS

DEFINITIONS

GENERAL REQUIREMENTS

(a) Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Chapter 46-12 of the Rhode Island General Laws and the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

(1) The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

(2) The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA is subject to a civil penalty not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307 or 308 of the Act is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment of not more than 1 year, or both.

(3) Chapter 46-12 of the Rhode Island General Laws provides that any person who violates a permit condition is subject to a civil penalty of not more than $5,000 per day of such violation. Any person who willfully or negligently violates a permit condition is subject to a criminal penalty of not more than $10,000 per day of such violation and imprisonment for not more than 30 days, or both. Any person who knowingly makes any false statement in connection with the permit is subject to a criminal penalty of not more than $5,000 for each instance of violation or by imprisonment for not more than 30 days, or both.

(b) Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Director. (The Director shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

(c) Need to Halt or Reduce Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(d) Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

(e) Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures, and, where applicable, compliance with DEM "Rules and Regulations Pertaining to the Operation and Maintenance of Wastewater Treatment Facilities" and "Rules and Regulations Pertaining to the Disposal and Utilization of Wastewater Treatment Facility Sludge." This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

(f) Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause, including but not limited to: (1) Violation of any terms or conditions of this permit; (2) Obtaining this permit by misrepresentation or failure to disclose all relevant facts; or (3) A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

(g) Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

(h) Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

(i) Inspection and Entry

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

(1) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(2) Have access to and copy, at reasonable times any records that must be kept under the conditions of this permit;

(3) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

(4) Sample or monitor any substances or parameters at any location, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA or Rhode Island law.

(j) Monitoring and Records

(1) Samples and measurements taken for the purpose of monitoring shall be representative of the volume and nature of the discharge over the sampling and reporting period.

(2) The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings from continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 5 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

(3) Records of monitoring information shall include:

(i) The date, exact place, and time of sampling or measurements;

(ii) The individual(s) who performed the sampling or measurements;

(iii) The date(s) analyses were performed;

(iv) The individual(s) who performed the analyses;

(v) The analytical techniques or methods used; and

(vi) The results of such analyses.

(4) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136 and applicable Rhode Island regulations, unless other test procedures have been specified in this permit.

(5) The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall upon conviction, be punished by a fine of not more than $10,000 per violation or by imprisonment for not more than 6 months per violation or by both. Chapter 46-12 of the Rhode Island General Laws also provides that such acts are subject to a fine of not more than $5,000 per violation, or by imprisonment for not more than 30 days per violation, or by both.

(6) Monitoring results must be reported on a Discharge Monitoring Report (DMR).

(7) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136, applicable State regulations, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

(k) Signatory Requirement

All applications, reports, or information submitted to the Director shall be signed and certified in accordance with Rule 12 of the Rhode Island Pollutant Discharge Elimination System (RIPDES) Regulations. Rhode Island General Laws, Chapter 46-12 provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $5,000 per violation, or by imprisonment for not more than 30 days per violation, or by both.

(l) Reporting Requirements

(1) Planned changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.

(2) Anticipated noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with the permit requirements.

(3) Transfers. This permit is not transferable to any person except after written notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under State and Federal law.

(4) Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(5) Twenty-four hour reporting. The permittee shall immediately report any noncompliance which may endanger health or the environment by calling DEM at (401) 222-3961, (401) 222-6519 or (401) 222-2284 at night.

A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The following information must be reported immediately:

(i) Any unanticipated bypass which causes a violation of any effluent limitation in the permit; or

(ii) Any upset which causes a violation of any effluent limitation in the permit; or

(iii) Any violation of a maximum daily discharge limitation for any of the pollutants specifically listed by the Director in the permit.

The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

(6) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (1), (2), and (5), of this section, at the time monitoring reports are submitted. The reports shall contain the information required in paragraph (l)(5) of the section.

(7) Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, they shall promptly submit such facts or information.

(m) Bypass

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

(1) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (2) and (3) of this section.

(2) Notice.

(i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of the bypass.

(ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Rule 14.18 of the RIPDES Regulations.

(3) Prohibition of bypass.

(i) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

(A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, where "severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production;

(B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(C) The permittee submitted notices as required under paragraph (2) of this section.

(ii) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph (3)(i) of this section.

(n) Upset

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(1) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph (2) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(2) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(a) An upset occurred and that the permittee can identify the cause(s) of the upset;

(b) The permitted facility was at the time being properly operated;

(c) The permittee submitted notice of the upset as required in Rule 14.18 of the RIPDES Regulations; and

(d) The permittee complied with any remedial measures required under Rule 14.05 of the RIPDES Regulations.

(3) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

(o) Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. Discharges which cause a violation of water quality standards are prohibited. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increases, or process modifications which will result in new, different or increased discharges of pollutants must be reported by submission of a new NPDES application at least 180 days prior to commencement of such discharges, or if such changes will not violate the effluent limitations specified in this permit, by notice, in writing, to the Director of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by the permit constitutes a violation.

(p) Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner consistent with applicable Federal and State laws and regulations including, but not limited to the CWA and the Federal Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq., Rhode Island General Laws, Chapters 46-12, 23-19.1 and regulations promulgated thereunder.

(q) Power Failures

In order to maintain compliance with the effluent limitation and prohibitions of this permit, the permittee shall either:

> In accordance with the Schedule of Compliance contained in Part I, provide an alternative power source sufficient to operate the wastewater control facilities;

or if such alternative power source is not in existence, and no date for its implementation appears in Part I,

> Halt reduce or otherwise control production and/or all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

(r) Availability of Reports

Except for data determined to be confidential under paragraph (w) below, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the DEM, 291 Promenade Street, Providence, Rhode Island. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA and under Section 46-12-14 of the Rhode Island General Laws.

(s) State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law.

(t) Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, and local laws and regulations.

(u) Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

(v) Reopener Clause

The Director reserves the right to make appropriate revisions to this permit in order to incorporate any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA or State law. In accordance with Rules 15 and 23 of the RIPDES Regulations, if any effluent standard or prohibition, or water quality standard is promulgated under the CWA or under State law which is more stringent than any limitation on the pollutant in the permit, or controls a pollutant not limited in the permit, then the Director may promptly reopen the permit and modify or revoke and reissue the permit to conform to the applicable standard.

(w) Confidentiality of Information

(1) Any information submitted to DEM pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, DEM may make the information available to the pubic without further notice.

(2) Claims of confidentiality for the following information will be denied:

(i) The name and address of any permit applicant or permittee;

(ii) Permit applications, permits and any attachments thereto; and

(iii) NPDES effluent data.

(x) Best Management Practices

The permittee shall adopt Best Management Practices (BMP) to control or abate the discharge of toxic pollutants and hazardous substances associated with or ancillary to the industrial manufacturing or treatment process and the Director may request the submission of a BMP plan where the Director determines that a permittee's practices may contribute significant amounts of such pollutants to waters of the State.

(y) Right of Appeal

Within thirty (30) days of receipt of notice of a final permit decision, the permittee or any interested person may submit a request to the Director for an adjudicatory hearing to reconsider or contest that decision. The request for a hearing must conform to the requirements of Rule 49 of the RIPDES Regulations.

DEFINITIONS

1. For purposes of this permit, those definitions contained in the RIPDES Regulations and the Rhode Island Pretreatment Regulations shall apply.

2. The following abbreviations, when used, are defined below.

cu. M/day or M^3/day	cubic meters per day
mg/l	milligrams per liter
ug/l	micrograms per liter
lbs/day	pounds per day
kg/day	kilograms per day
Temp. °C	temperature in degrees Centigrade
Temp. °F	temperature in degrees Fahrenheit
Turb.	turbidity measured by the Nephelometric Method (NTU)
TNFR or TSS	total nonfilterable residue or total suspended solids
DO	dissolved oxygen
BOD	five-day biochemical oxygen demand unless otherwise specified
TKN	total Kjeldahl nitrogen as nitrogen
Total N	total nitrogen
NH_3-N	ammonia nitrogen as nitrogen
Total P	total phosphorus
COD	chemical oxygen demand
TOC	total organic carbon
Surfactant	surface-active agent
pH	a measure of the hydrogen ion concentration
PCB	polychlorinated biphenyl
CFS	cubic feet per second
MGD	million gallons per day
Oil & Grease	Freon extractable material
Total Coliform	total coliform bacteria
Fecal Coliform	total fecal coliform bacteria
ml/l	milliliter(s) per liter
NO_3-N	nitrate nitrogen as nitrogen
NO_2-N	nitrite nitrogen as nitrogen
NO_3-NO_2	combined nitrate and nitrite nitrogen as nitrogen
$C1_2$	total residual chlorine

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

The above named applicant has applied to the Rhode Island Department of Environmental Management (DEM) for reissuance of a RIPDES Permit to discharge into the designated receiving water. The facility is involved in the production of potable water for "domestic" and "industrial" uses. The discharge is 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 Treatment Plant operated by the Providence Water Supply Board (Providence Water). As part of the water treatment plant residuals treatment system there are three lagoons that are used as settling basins to remove any solids that are included in the filter backwash and from the wastewater generated 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 and a portion of the treated water also overflows 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 that are discharged to the lagoon systems include: groundwater and various storm and roof drainage from roofs and parking areas. A process flow diagram of the facility is shown in Attachment B.

II. Permit Limitations and Conditions

The effluent limitations, monitoring requirements, and any implementation schedule (if required) may be found in the draft permit. A quantitative description of the discharge in terms of significant effluent parameters based on discharge monitoring report (DMR) data for the last five years is shown in Attachment A. The DEM is willing to enter into a consent agreement with Providence Water in order to establish an enforceable compliance schedule allowing additional time for the facility to come into compliance with permit limits for Total Iron and Total Residual Chlorine applicable to outfalls 001B and 002A.

III. Permit 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 (WTP) obtains its water from a surface supply located on the north Branch of the Pawtuxet River. The watershed contains 92.8 square miles of land. The previous permit was issued on July 12, 2006 and became effective on September 1, 2006. On August 22, 2009 the pH limitations applied in the 2006 permit were changed from 6.5-9.0 s.u. to 6.0 to 9.0 s.u. for outfalls 002A and 001B based on the results of a pH study that showed that discharges at these new pH values would not cause adverse water quality impacts. In June 2011 the facility submitted a revised permit application to the DEM. In a letter from the DEM to the Providence Water dated July 15, 2011 the 2006 permit was administratively continued.

Treatment Process

Water from the Scituate Reservoir treated at the P.J. Holton WTP is drawn through one of three separate intakes at the Gate House located at Gainer Dam. The water is conveyed by gravity through twin 60-inch aqueducts which converge into a single 94-inch aqueduct into the plant and then enters aerators, which oxidize the water and are designed to remove carbon dioxide, taste and odors from the raw water.

From the aerators, the water continues by gravity to a circular tank known as the Tangential Mixer where ferric sulfate is added as a coagulant to remove detritus material (i.e. organic waste material from decomposing plants, etc.). Just prior to entering the mixer, quicklime is added to adjust pH and make the water non-corrosive. The water then enters the Coagulation and Sedimentation Basins, so that the "floc" formed by the coagulant will settle to the bottom, leaving clear water at the top. The combined capacity of both basins is 162.1 million gallons, which provides for a two to three day retention time. As the water exits the sedimentation basins it is chlorinated prior to entering the filters.

The purification plant presently operates eighteen (18) rapid sand filters, which give the plant a capacity of 144 million gallons a day. The primary function of the filters is to capture particles, and they must be periodically backwashed in order to clean and restore their hydraulic capacity. After the water is filtered through the plant it enters a series of clear wells prior to leaving the plant via a 78-inch and a 90-inch aqueduct at which point treated water is distributed for use.

This permit authorizes the discharge of treated filter backwash and treated sedimentation basin cleaning flows. The filter backwash waste stream, as mentioned previously, originates from a series of eighteen (18) rapid sand filters used for potable water production. When the filter backwashing process is underway, filtered particles are rinsed from the filter media and discharged by overland flow via a drainage swale to three lagoons positioned in sequence to assist in settling out remaining water treatment residuals from the filter backwash flows. The initial settling lagoon is lagoon 1A, this lagoon is followed by lagoon 1B, and finally all water passes through lagoon 2 for final polishing before discharging to a wetland area which ultimately discharges to the North Branch of the

Pawtuxet River. In addition to discharging filter backwash on a daily basis to the settling lagoons, once approximately every 3-5 years, either the north or south sedimentation basin is drained and cleaned of all settled water treatment residuals. Approximately 40 - 110 MG of stored water along with settled residuals are discharged into the downstream lagoon system. The sedimentation basin cleaning process is estimated to take several weeks. All water treatment residuals are removed by utilizing bulldozers and rinsing the sedimentation basins with fire hoses. From there, all settled material and rinse water together are directed to the downstream lagoon network where residuals settle to the bottom of the lagoons. The water treatment process diagram is included in Attachment B. The process diagram is designated as the Providence Water Treatment Process Flow Schematic. Attachment B also includes an aerial photograph which identifies where each of the two outfalls, 002A, and 001B discharge to the wetland complex which ultimately discharges to the Pawtuxet River. Although the outfall from lagoon 2 (002A) is the primary outfall, outfall 001B will also be used during periods when lagoon 2 is being dredged of settled treatment residuals.

Receiving Water

The ultimate receiving water is the North Branch of the Pawtuxet River which is designated as Water Use Classification "B". 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. The North Branch of the Pawtuxet River is currently not meeting Rhode Island Water Quality Standards and is listed as impaired for Lead (Pb) and Mercury in Fish Tissue according to the State of Rhode Island 2010 303(d) List, List of Impaired Waters dated July 2011.

General Requirements

Development of RIPDES permit limitations is a multi-step process consisting of the following steps: identifying applicable technology-based limits; calculating allowable water-quality based discharge levels based on instream criteria, background data and available dilution; establishing Best Professional Judgement (BPJ) limits in accordance with Section 402 of the CWA; and assigning the most stringent as the final discharge limitations.

Water quality criteria are comprised of numeric and narrative criteria. Numeric criteria are scientifically derived ambient concentrations developed by EPA or States for various pollutants of concern to protect human health and aquatic life. Narrative criteria are statements that describe the desired water quality goal. A technology-based limit is a numeric limit, which is determined by examining the capability of a treatment process to reduce or eliminate pollutants.

Appendix B of the Water Quality Regulations describes the flows used to determine compliance with the aquatic life criteria, specifying that the design flow to be utilized for aquatic life criteria shall not be exceeded at or above the lowest average seven (7) consecutive day low flow with an average recurrence frequency of once in ten (10) years (7Q10). Since the effluent discharges from outfall 001B or 002A discharge directly into a wetland complex prior to flowing into the North Branch of the Pawtuxet River, a dilution factor of one (1) was used in the determination of water quality-based discharge limits.

Water Quality Based Permit Limitations

The allowable effluent limitations were established based on the non-class A freshwater acute and chronic aquatic life criteria and human health criteria specified in Appendix B of the Rhode Island Water Quality Regulations, as amended, using 80% allocation when no background data was available and 90% allocation when background data is available. Since there is no background data available and a dilution factor of one (1) was used the allowable water quality-based discharge levels are set equal to 80% of the water quality criteria for Class B waters as listed in Appendix B of the Rhode Island Water Quality Regulations using the following equation:

$$Limit = (Criteria)*(80\%)$$

In accordance with 40 CFR 122.44(d)(1)(iii), water quality based effluent limitations are only required for those pollutants in the discharge that have the reasonable potential to cause or contribute to the exceedence of instream criteria. In order to evaluate the need for permit limits, the allowable monthly average (chronic) and allowable maximum daily (acute) discharge concentrations are compared to the Discharge Monitoring Report (DMR) data or other monitoring data.

Total Suspended Solids

The previous permit issued on July 12, 2006 established mass and concentration based total suspended solids limits using data from historical treatment system performance records collected at the P.J. Holton Water Treatment Plant. These TSS permit limits have been carried forward in accordance with the DEM's antibacksliding requirements.

Turbidity

Turbidity monitoring requirements have been included in this permit in order to establish a database of NTU data that can be used to determine compliance with water quality criteria. The permit also includes a narrative condition that the receiving water's turbidity not be increased more than 10 NTU over background.

Total Iron

Due to the fact that the P.J. Holton WTP utilizes Ferric Sulfate as the primary coagulation agent in the water treatment process, the RIPDES program evaluated the impact that it may have on the receiving water during filter backwash discharges. The previous permit did not specify limits for Total Iron due to the fact that there were no water quality criteria in place for Total Iron when the permit was last issued. Instead, the previous permit assigned twice per month monitoring to help establish a database of loadings, to quantitatively assess the impact of loading and transport of iron to the receiving water. Since the permit was last issued the water quality regulations have been updated and now include water quality criteria for Total Iron. After reviewing the effluent data submitted on DMRs for the last five years it was determined that the discharge from the facility has reasonable potential to exceed the applicable water quality-based permit limitations for Total Iron. Therefore Total Iron limits have been assigned. However, based on a review of the historic Total Iron concentrations, it doesn't appear that the facility will be able to immediately comply with these limits. As a result, the DEM is willing to enter into a consent agreement with Providence Water in order to establish an enforceable compliance schedule allowing additional time for the facility to come into compliance with Total Iron limitations.

Total Aluminum

Due to the fact that the P.J. Holton Plant does not use Aluminum as a coagulation agent in the water treatment process, limitations have been removed from the permit. Instead, this permit has been modified to prohibit the use of Aluminum-based chemicals (i.e., Aluminum sulfate).

Total Lead

Monitoring for Total Lead was required in the previous permit based on the fact that the North Branch of the Pawtuxet River was impaired for Lead. During the nineteen quarterly monitoring periods reviewed from December 2006 thru June 2011 total lead was shown to be consistently below detection. Based on this analysis, the DEM has determined that the facility does not have "reasonable potential" to cause or contribute to an in-stream exceedance for Total Lead. As a result, a limit is not required.

Total Residual Chlorine

When calculating Total Residual Chlorine (TRC) limits 100% allocation of TRC was used due to the fact that chlorine is not expected to be found in ambient water and it is a non-conservative pollutant. Therefore, the permit limit is calculated using the following equation:

$$Limit_1 = (Criteria)*(100\%)$$

Based on the above mentioned equation, limits for chlorine were calculated as: Monthly Average Limit (ug/l) = 11, and Maximum Daily Limit (ug/L) = 19. The limit at which compliance/noncompliance determinations will be based is the Quantitation Limit which is defined as 20 ug/l for TRC. These values may be reduced by permit modification as more sensitive methods are approved by EPA and the State. Based on the information supplied by the permittee as part of the June 10, 2011 reapplication submittal, chlorine concentrations in the water entering the sand filters ranges anywhere from 0.99 mg/l to 1.16 mg/L. The DEM has determined that based on this information, permit limitations and monitoring twice per month is required to help ensure that the discharge does not exceed water quality standards for TRC.

pH

The effluent limitations for pH contained in the previous permit were established in accordance with the Rhode Island Water Quality Regulations Table 1.8.D.(2) Class Specific Criteria –Class B Fresh Waters. Table 1.8.D.(2) Class Specific Criteria – Class B Fresh Waters specifies that the pH must be in the range of 6.5-9.0 s.u. or as naturally occurs. When the 2006 permit was issued 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. As a result 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 on behalf of Providence Water. Based on the results of the pH evaluation report, Providence Water sought 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. After reviewing the data collected as part of the 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 demonstrated that the natural background pH of the reference wetland was 5.5-7.0 s.u., significantly lower than the Treatment Plant's original discharge limit of 6.5-9.0 s.u. Given the fact that the natural background wetland pH range was already lower than the pH measured in the receiving wetland, it was concluded that discharges of effluent with a pH 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. Based on the findings of the Site Specific pH Evaluation Report the DEM was in agreement that modifying the pH limitations in the final permit to a range of 6.0-9.0 s.u. was appropriate. These same limits have been carried forward in this permit.

Residuals Management Requirements

Water treatment plant residuals form when suspended solids in the raw water react with chemicals such as coagulants added as part of the water treatment process and from the addition of associated process control chemicals such as lime. Some potable water treatment processes generate residuals that are relatively easy to process and dispose of. For example, leaves, limbs, logs, plastic bottles, and other large floating debris separated from water during the initial screening process can be disposed of at conventional solid waste landfills. However, most other

treatment processes produce more complex residual waste streams that may require advanced processing and disposal methods to protect human health and the environment.

The primary residuals that are produced at the P.J. Holton WTP are sludges (i.e., water that contains suspended solids from the source water and the reaction products of chemicals added in the treatment process). The P.J Holton WTP utilizes *liquid ferric sulfate*, and *quicklime* for the pretreatment process prior to beginning the flocculation, clarification, and filtration phases. Water that passes through the filters during filter backwashing periods is also treated with chlorine prior to backwashing. For a typical coagulation filtration system such as the one used at the P.J. Holton WTP the typical disposal options for these residuals consist of the following: landfilling, surface discharge of filter backwash and other treated waste streams, disposal to the sanitary sewer, or shipping to a facility which possesses an effective Solid Waste Beneficial Use Determination (BUD) issued by the DEM Office of Waste Management.

The P.J. Holton WTP directs both routine filter backwash discharges and sedimentation basin residuals to the onsite Lagoon network consisting of lagoons 1A, 1B, and 2. The discharges from either lagoon 2 or lagoon 1B consist of the supernatant from the lagoons. The supernatant enters a wetland complex immediately upon passing through the overflow structures. All accumulated residuals that settle to the bottom of the lagoons will be periodically removed, stored onsite to dry and will eventually be shipped offsite for disposal or reuse.

This permittee is required to develop, implement, and periodically revise when necessary a comprehensive Residuals Management Plan. A Residuals Management Plan was developed by the facility in February 2007 and it was last updated in May 2011. The specific Residuals Management Plan requirements can be found in the permit.

Water Treatment Chemicals

As described in the treatment process section, the P.J. Holton WTP utilizes several water treatment chemicals. The treatment chemicals used at the plant are: Lime-D-Scale, Quicklime, Limestone, liquid chlorine, ferric sulfate, and hydrofluorosilicic acid. Each of the chemicals have been evaluated to determine whether or not restrictions on their use are necessary to protect the wetland complex and the North Branch of the Pawtuxet River. Because total iron monitoring and limitations are included in the permit no additional usage restrictions are recommended by the DEM for ferric sulfate. Lime-D-Scale, Quicklime, and Limestone are used as pH adjustment chemicals and as such their usage will be regulated primarily through the application of the pH limitations listed in the permit. Fluorosilic Acid is introduced into the treatment process after backwashing takes place and therefore usage restrictions are not necessary as this chemical is not expected to be present in the discharge from outfall 002A and 001B. Total Residual Chlorine limitations have also been applied in the permit, therefore no additional usage restrictions are recommended for liquid chlorine.

Stormwater

This permit does not authorize the discharge of stormwater from the facility. Based on the RIPDES Program's review it has been determined that facilities that fall under SIC code 4941 – Distribution of Potable Water are not required to obtain coverage under the NPDES Storm Water Multi-Sector General Permit and therefore the facility is not required to apply.

Antibacksliding/Antidegradation

The Anitbacksliding Provision of the Clean Water Act (found at Section 402(o) and repeated at 40 CFR 122.44(l)) prohibits reissuing a permit containing less stringent effluent limits than the comparable limits from the previous permit. Since none of the permit limits, both concentration and mass loadings, are less stringent than in the previous permit, antibacksliding regulations are being met. The draft permit is being reissued with limitations as stringent or more stringent than those in the existing permit with no change to the outfall locations.

those in the existing permit with no change to the outfall locations.

Selection of Final Permit Limits

The effluent monitoring requirements have been specified in accordance with RIPDES regulations as well as 40 CFR 122.41(j), 122.44(l), and 122.48 to yield data representative of the discharge. The Office has determined that all permit limitations are consistent with the Rhode Island Antidegradation Policy.

The remaining general and specific conditions of the permit are based on the RIPDES regulations as well as 40 CFR Parts 122 through 125 and consist primarily of administrative and management requirements common to all permits.

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 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 a.m. and 4:00 p.m., Monday through Friday, excluding holidays from:

Brian D. Lafaille, PE
Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908
Telephone: (401) 222-4700 ext. 7731; Email: brian.lafaille@dem.ri.gov

2/21/12
Date

Joseph B. Haberek, PE
Principal Sanitary Engineer
RIPDES Permitting Section
Office of Water Resources
Department of Environmental Management

ATTACHMENT A

DESCRIPTION OF DISCHARGE: Filter Backwash from P.J. Holton WTP
DISCHARGE: 001B

PARAMETER	MO AVG[1]	DAILY MAX[1]
Total Residual Chlorine (ug/l)	0	0
Iron, total (as Fe) (ug/l)	520	600
pH (S.U.)	6.85 (min)	7.04 (max)
TSS (LB/DAY)	3.55	6.45
TSS (mg/L)	0.64	0.94
Turbidity (NTU)	1.04	1.13
Flow (MGD)	0.59	0.74
Lead, total (as Pb) (ug/l)	No data	No data

[1] All data represents the average of the monthly average DMR data or the average of the daily maximum DMR data submitted by the permittee for the period covering September 2006 thru October 2006. After this point in time no discharge was reported at this outfall.

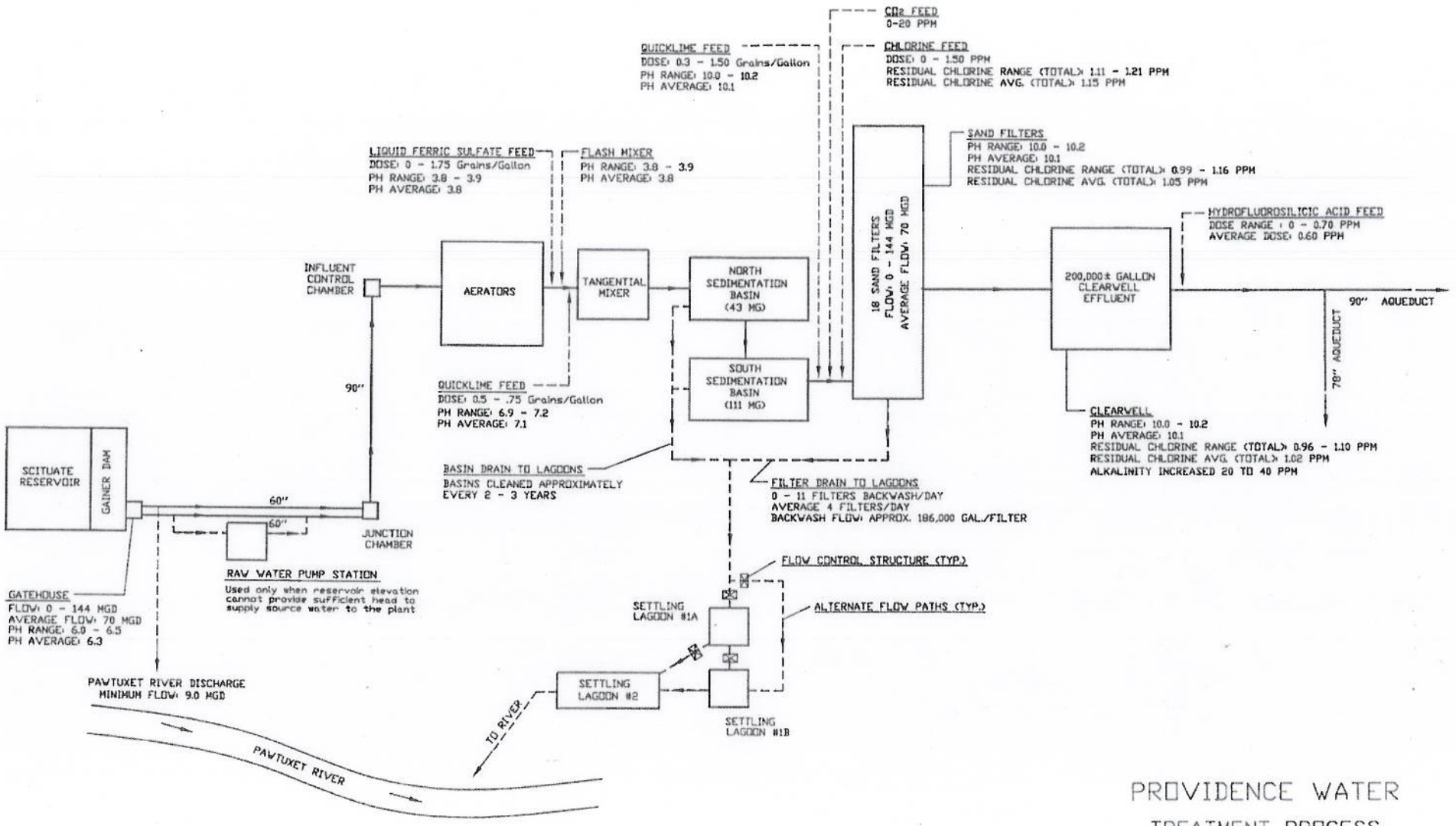
DESCRIPTION OF DISCHARGE: Filter Backwash from P.J. Holton WTP
DISCHARGE: 002A

PARAMETER	MO AVG[1]	DAILY MAX[1]
Total Residual Chlorine (ug/l)	19.5	26.4
Iron, total (as Fe) (ug/l)	900	1180
pH (S.U.)	6.64 (min)	7.04 (max)
TSS (LB/DAY)	42	160
TSS (mg/L)	1.37	2.00
Turbidity (NTU)	1.85	2.29
Flow (MGD)	2.80[2]	6.55[2]
Lead, total (as Pb) (ug/l)	0.47	0.47

[1] All data represents the average of the monthly average data or the average of the daily maximum DMR data submitted by the permittee for September 2006 thru August 2011.

[2] Flow data may have been reported incorrectly due to an error in the software system used to convert the electronic flowmeter signal into a usable output. Therefore, this flow data may be incorrect based on faulty readings reported between the Summer of 2010 and April 12, 2011. The software error has since been corrected.

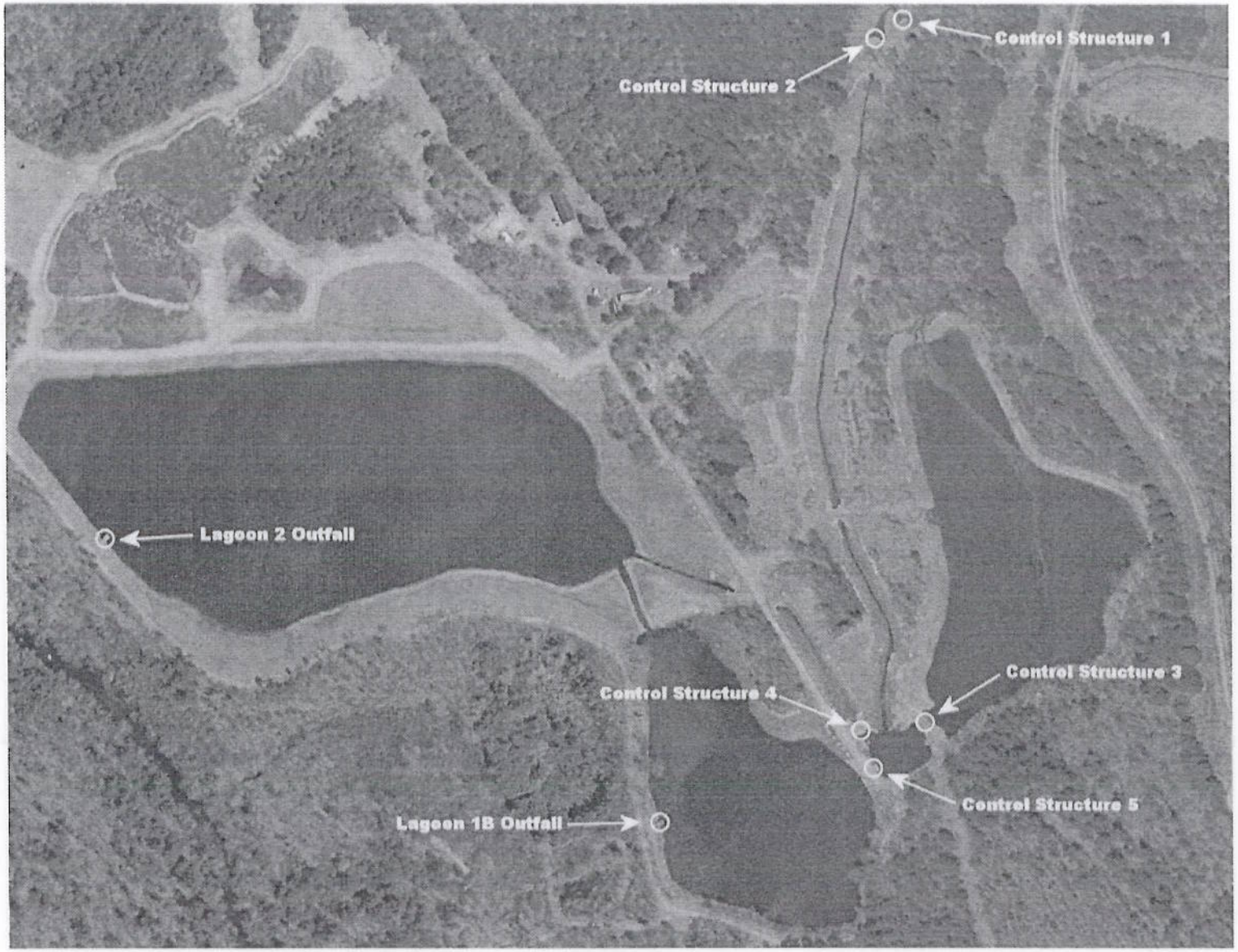
ATTACHMENT B



PROVIDENCE WATER

TREATMENT PROCESS FLOW SCHEMATIC

APRIL 2011



Normal Operation: Stoplogs in Control Structures 2 and 4.

Isolate Lagoon 1A: Stoplogs in Control Structures 1, 3 and 4; no stoplogs in Control Structures 2 and 5.

Isolate Lagoon 1B: Stoplogs in Control Structures 2 and 5; no stoplogs in Control Structures 1, 3 and 4.