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

PUBLIC NOTICE OF PROPOSED PERMIT ACTION UNDER THE RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM (RIPDES) PROGRAM WHICH REGULATES DISCHARGES INTO THE WATERS OF THE STATE UNDER CHAPTER 46-12 OF THE RHODE ISLAND GENERAL LAWS OF 1956, AS AMENDED.

DATE OF NOTICE: Friday, July 26, 2024

PUBLIC NOTICE NUMBER: PN 24-04

DRAFT RIPDES PERMIT

RIPDES PERMIT NUMBER: RI0021598

NAME AND MAILING ADDRESS OF APPLICANT:

Rhode Island Airport Corporation
2000 Post Road
Warwick, Rhode Island 02886

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Rhode Island T.F. Green International Airport
2000 Post Road
Warwick, Rhode Island 02886

RECEIVING WATERS:

Tributaries to Warwick Pond (Water body ID#: RI0007024R-05)
Buckeye Brook and Tributaries (Water body ID#: RI0007024R-01)
Tuscatucket Brook (Water body ID#: RI0007025R-05)

RECEIVING WATER CLASSIFICATIONS:

B (Tributaries to Warwick Pond and Buckeye Brook and Tributaries)
and A (Tuscatucket Brook)

The above-named applicant has applied to the Rhode Island Department of Environmental Management (DEM) for reissuance of a RIPDES Permit to obtain permit coverage for stormwater discharges associated with industrial activity into the designated receiving waters. The applicant is engaged in the operation of a major commercial airport serving Rhode Island, southeastern Massachusetts, and

Connecticut. The discharges to surface waters are from seventeen (17) perimeter outfalls that receive stormwater flows from the Rhode Island T.F. Green International Airport's ("the Airport's") storm drainage system consisting of storm drains, catch basins, underground piping, and structural stormwater controls. The discharges are to the following receiving waters: Tributaries to Warwick Pond, Buckeye Brook and Tributaries, and Tuscatucket Brook. This permit authorizes stormwater and certain allowable non-stormwater discharges from the seventeen (17) outfalls as defined in the Permit to waters of the State from the Airport's storm sewer system. The permit also includes requirements for three (3) internal outfalls: Outfall 100A, Outfall 200A, and Outfall 300A. The discharge from internal Outfall 100A consists entirely of treated effluent from the Aboveground Storage Tank (AST) fuel farm water treatment system. Outfall 100A is an internal waste stream associated with Outfall 001A and is defined as the effluent of the AST fuel farm water treatment system. The discharges from internal Outfalls 200A/300A consist of flows that are bypassed at a location downstream of the diversions points for the terminal area (200A) and cargo area (300A). These internal outfalls associated with the glycol diversion systems and are further discussed in the permit's associated Fact Sheet.

The draft permit and/or Fact Sheet has been revised to reflect the following: revisions to outfalls 002A, 003A, 008A, and 010A wet weather monitoring requirements, which includes Total Cadmium monitoring, quarterly PFAS monitoring, and Enterococci monitoring; the addition of dry weather monitoring requirements for outfalls 002A, 003A, 008A, and 009A, which includes water quality-based limits for Total Aluminum, Total Arsenic, Total Cadmium, Total Copper, Total Iron, Total Lead, and Total Zinc; revisions to minor outfall monitoring requirements that includes the removal of outfall 005A, semiannual PFAS monitoring, and Enterococci monitoring; consistency with the 2019 RIPDES Multi-Sector General Permit (MSGP) concerning the definition of a measurable storm event and listing of a allowable non-stormwater discharges; consistency with the NPDES Sufficiently Sensitive Test Methods and Reporting Rule; an updated reporting section to reflect the electronic submission of DMRs by the Airport in order to comply with the NPDES Electronic Reporting Rule; and updated Storm Water Pollution Prevention Plan (SWPPP) conditions, which includes submitting an amended SWPPP and Drainage Master Plan within 180 days of the effective date of the permit, consistency with the 2019 RIPDES MSGP stormwater plan requirements, and a permit condition requiring the facility submit an Impervious Cover Reduction Plan within 12 months of the effective date of the permit.

The permit contains limitations and conditions to ensure that it is protective of water quality. The DEM has also determined that the proposed permit complies with the antidegradation provisions of the Rhode Island Water Quality Regulations and that existing uses will be maintained and protected.

FURTHER INFORMATION:

A fact sheet (describing the type of facility and significant factual, legal and policy questions considered in this permit action) may be obtained at no cost by writing or calling DEM as noted below:

Aaron Mello
Environmental Engineer II
Rhode Island Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, Rhode Island 02908-5767
(401) 537-4255
e-mail: aaron.mello@dem.ri.gov

The administrative record containing all documents relating to this permit action is on file and may be inspected, by appointment, at the DEM's Providence office mentioned above between 8:30 a.m. and 4:00 p.m., Monday through Friday, except holidays.

PUBLIC WORKSHOP:

DEM will be holding a Public Workshop to discuss the draft permit. The Workshop will be held at the City of Warwick Municipal Annex, Sawtooth Building Community Room, 65 Centerville Road, Warwick, Rhode Island on Wednesday, August 7, 2024 from 6:00 p.m. to 8:00 p.m.

If you have any questions regarding the workshop, please contact Aaron Mello at (401) 537-4255. Please note that the workshop is informal and not intended to be a forum for submittal of comments into the official record regarding the draft permit. Only written comments received during the comment period, and oral testimony provided at the hearing regarding the draft RIPDES permit, will be considered part of the record.

PUBLIC HEARING:

Pursuant to Chapter 42-17.4 of the Rhode Island General Laws a public hearing has been scheduled to consider these permits. Notice should be taken that a public hearing will be held at the following time and place:

6:00 PM Monday, September 9, 2024
Room 280
235 Promenade Street
Providence, Rhode Island 02908

In accordance with the RIPDES Regulations, the following is a summary of the procedures that shall be followed at the Public Hearing:

a. The Presiding Officer shall have the authority to open and conclude the Hearing and to maintain order; and

b. Any persons appearing at such a hearing may submit oral or written statements and data concerning the draft permit.

In addition, for the sake of accuracy, it is requested that statements be submitted in writing at the time of the hearing or be mailed to the DEM's Office of Water Resources RIPDES Program, at the above address, before the date of the hearing. Oral testimony will also be heard at the Public Hearing but will be limited to five (5) minutes in duration.

235 Promenade Street is accessible to individuals who are handicapped. If communication assistance (readers/interpreters/captioners) is needed, or any other accommodation to ensure equal participation, please call Aaron Mello or RI Relay 711 at least three (3) business days prior to the meeting so arrangements can be made to provide such assistance at no cost to the person requesting.

PUBLIC COMMENT PERIOD: (July 26, 2024 to September 10, 2024)

Interested parties may submit comments on the permit actions and the administrative record to the address above no later than 4:00 PM on Tuesday, September 10, 2024.

Any person, including the permittee/applicant, who believes these permit actions are inappropriate, must raise all reasonably ascertainable issues and submit all reasonably available arguments and factual grounds supporting their position, including all supporting material, by the close of the public comment period under 250-RICR-150-10-1.42 of the Regulations for the Rhode Island Pollutant Discharge Elimination System. The public comment period is from Friday, July 26, 2024 to Tuesday, September 10, 2024. Commenters may request a longer comment period if necessary to provide a reasonable opportunity to comply with these requirements. Comments should be directed to DEM as noted above.

If, during the public comment period, significant new questions are raised concerning the permit, DEM may require a new draft permit or fact sheet or may reopen the public comment period. A public notice will be issued for any of these actions.

FINAL DECISION AND APPEALS:

Following the close of the comment period, and after a public hearing, if such hearing is held, the Director will issue a final decision and forward a copy of the final decision to the permittee and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final decision, any interested person may submit a request for a formal hearing in accordance with the requirements of 250-RICR-150-10-1.50 of the Regulations for the Rhode Island Pollutant Discharge Elimination System.

22 July 2024
Date

Heidi Travers
Heidi Travers, P.E.
Environmental Engineer IV
RIPDES, Office of Water Resources
Department of Environmental Management

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, the

Rhode Island Airport Corporation
2000 Post Road
Warwick, Rhode Island

is authorized to discharge from a facility located at

Rhode Island T. F. Green International Airport
2000 Post Road
Warwick, Rhode Island

to receiving waters named

Tributaries to Warwick Pond; Buckeye Brook and Tributaries;
and Tuscatucket Brook

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

This permit shall become effective on _____.

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

This permit supersedes the permit issued on July 30, 2012.

This permit consists of 53 pages in Part I and Part II including effluent limitations, monitoring requirements, General Conditions, etc.

Signed this day of 2024.

DRAFT

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Joseph B. Haberek, P.E., Administrator 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 date, the permittee is authorized to discharge from outfall serial number(s) designated 002A, 003A, 008A, and 010A during wet weather. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity – specify units		Concentration – specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow	--- GPD	--- GPD				Quarterly(6)(7)	Cont/Estimate(1)
pH			(6.5 SU)		(9.0 SU)	Quarterly(6)(7)	Measurement
Temperature		--- °F				Quarterly(6)(7)	Measurement
Oil & Grease					15 mg/l	Quarterly(6)(7)	Grab(4)(5)
TSS			--- mg/l		--- mg/l	Quarterly(6)(7)	Grab(4)(5)
BOD_5			--- mg/l		--- mg/l	Quarterly(6)(7)	Grab/Composite(2)(3)
Propylene Glycol			--- mg/l		--- mg/l	Quarterly(6)	Grab/Composite(2)(3)
COD			--- mg/l		--- mg/l	Quarterly(6)(7)	Grab/Composite(2)(3)
Potassium (K^+)			--- mg/l		--- mg/l	Quarterly(6)	Grab/Composite(2)(3)
Sodium (Na^+)			--- mg/l		--- mg/l	Quarterly(6)	Grab/Composite(2)(3)
Surfactants			--- ug/l		--- ug/l	Quarterly(6)(7)	Grab/Composite(2)(3)
Dissolved Oxygen			--- mg/l		--- mg/l	Quarterly(6)(7)	Measurement
Total Organic Carbon (TOC)			--- mg/l		--- mg/l	Quarterly(6)(7)	Grab/Composite(2)(3)
Enterococci			--- cfu/100 ml		--- cfu/100 ml	Quarterly(6)(7)	Grab(4)(5)
Total Aluminum			--- ug/l		--- ug/l	Quarterly(6)(7)	Grab/Composite(2)(3)
Total Chromium			--- ug/l		--- ug/l	Quarterly(6)(7)	Grab/Composite(2)(3)
Total Cadmium			--- ug/l		--- ug/l	Quarterly(6)(7)	Grab/Composite(2)(3)
Total Copper			--- ug/l		--- ug/l	Quarterly(6)(7)	Grab/Composite(2)(3)
Total Iron			--- mg/l		--- mg/l	Quarterly(6)(7)	Grab/Composite(2)(3)
Total Lead			--- ug/l		--- ug/l	Quarterly(6)(7)	Grab/Composite(2)(3)
Total Zinc			--- ug/l		--- ug/l	Quarterly(6)(7)	Grab/Composite(2)(3)
PFAS Analytes (8)(9)			--- ng/L		--- ng/L	Quarterly(6)(7)	Grab(5)

--- 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/Average/Maximum for the reporting period rather than Average Monthly/Average Weekly/Maximum Daily.

(1) Average Monthly Flow and Maximum Daily Flow shall be determined by the use of a continuous flow monitor for twelve (12) hours following the initiation of precipitation that generates runoff for Outfalls 002A, 003A, and 008A. Outfall 010A is not equipped with a continuous monitor. Average Monthly Flow shall be calculated and reported for each outfall as the arithmetic average of the flow measurements made during each monitoring event over the duration of the event for Outfalls 002A, 003A, and 008A. Average Monthly flow shall be calculated and reported for Outfall 010A using the average intensity for the duration of the event. Maximum Daily Flow for Outfalls 002A, 003A, and 008A shall be reported for each outfall as the total of the flow measurements made during each monitoring event. Maximum Daily Flow for Outfall 010A shall be calculated using the depth and duration of precipitation as water equivalent for the event.

(2) Analytical results reported as Average Monthly must be determined from composite samples taken with a continuous sampler or as a combination of a minimum of twelve-(12) sample aliquots taken during the first twelve-(12) hours following the initiation of precipitation that generates runoff with each aliquot being at least 100 ml and collected at a minimum of hourly intervals. Composite samples can be either flow-weighted or time-weighted. During snow events and other freezing (i.e., sleet, freezing rain) or non-freezing (i.e., rain) precipitation events, the start of precipitation shall be assumed to occur then there is a storm event that results in an actual discharge ("measurable storm event") as defined in Part I.A.9.

(3) Analytical results reported as Maximum Daily must be the maximum of the composite samples or the maximum of the twelve (12) sample aliquots collected during the twelve (12) hour period for all measured storm events for each reporting quarter in accordance with Note (2) above.

(4) Analytical results reported as Average Monthly must be determined from the arithmetic average of three (3) individual hourly grab samples taken during the first three (3) hours following the initiation of precipitation that generates runoff. The Geometric Mean shall be used to obtain the "average monthly" values for Enterococci.

(5) Samples must consist of a single grab sample collected no later than three (3) hours following the initiation of precipitation that generates runoff. If the collection of a grab sample during the specified time period could not be achieved, a sample can be taken during a subsequent period not to exceed six (6) hours following the initiation of precipitation that generates runoff, providing the permittee submit with the monitoring report, a description of why a sample during the specified period could not be collected.

(6) Sampling required for Quarter 1 and Quarter 4. One (1) precipitation event shall be monitored for Quarter 1 and one (1) precipitation event shall be monitored for Quarter 4 while aircraft deicing is occurring. If sampling while aircraft deicing is occurring is not feasible, samples must be collected during a period of non-aircraft deicing for a measurable storm event as defined in Part I.A.9. Quarter 1 is defined as the period from January 1 through March 31, and Quarter 4 is defined as the period from October 1 through December 31.

(7) Sampling required for Quarter 2 and Quarter 3. One (1) precipitation event shall be monitored for Quarter 2 and one (1) precipitation event shall be monitored for Quarter 3. Quarter 2 is defined as the period from April 1 through June 30, and Quarter 3 is defined as the period from July 1 through September 30.

(8) Sampling shall be conducted for the PFAS parameters listed in Attachment A. PFAS shall be analyzed using Clean Water Act wastewater draft analytical method 1633 until a 40 CFR Part 136 approved test method for wastewater is approved. The permittee must report the analytical results in NetDMR for all PFAS analytes required to be tested as part of the method as shown in Attachment A.

(9) After one year of monitoring, if all samples are non-detect for all forty PFAS compounds using draft method 1633, the Permittee may request to remove the requirement for PFAS monitoring. Until written notice is received from DEM indicating that the monitoring requirements have been changed, the Permittee is required to continue the monitoring specified in this Permit.

Wet weather samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: Outfalls 002A, 003A, 008A, and 010A.

PART I

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

2. During the period beginning on the effective date and lasting through permit expiration date, the permittee is authorized to discharge from outfall serial number(s) designated 002A, 003A, 008A, and 009A during dry weather. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity – specify units		Concentration – specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow	--- GPD	--- GPD				Quarterly(4)	Cont/Estimate(1)
Outfalls 002/003							
Total Cadmium			0.141 ug/l		0.9 ug/l	Quarterly(4)	Grab/Composite(2)(3)
Total Copper			4.45 ug/l		6.26 ug/l	Quarterly(4)	Grab/Composite(2)(3)
Total Iron			900 ug/l		--- ug/l	Quarterly(4)	Grab/Composite(2)(3)
Total Lead			1.11 ug/l		28.6 ug/l	Quarterly(4)	Grab/Composite(2)(3)
Total Zinc			57.5 ug/l		57.5 ug/l	Quarterly(4)	Grab/Composite(2)(3)
Outfalls 008/009							
Total Arsenic[5]			1.26 ug/l		306 ug/l	Quarterly(4)	Grab/Composite(2)(3)
Total Cadmium			0.13 ug/l		0.81 ug/l	Quarterly(4)	Grab/Composite(2)(3)
Total Copper			4.08 ug/l		5.69 ug/l	Quarterly(4)	Grab/Composite(2)(3)
Total Iron			900 ug/l		--- ug/l	Quarterly(4)	Grab/Composite(2)(3)
Total Lead			0.98 ug/l		25.1 ug/l	Quarterly(4)	Grab/Composite(2)(3)
Total Zinc[5]			57.5 ug/l		57.5 ug/l	Quarterly(4)	Grab/Composite(2)(3)

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

(1) Average Monthly Flow and Maximum Daily Flow shall be determined by the use of a continuous flow monitor for twenty-four (24) hours during dry weather for Outfalls 002A, 003A, 008A, and 009A. Average Monthly Flow shall be calculated and reported for each outfall as the arithmetic average of the flow measurements made during each monitoring event over the duration of dry weather sampling for Outfalls 002A, 003A, 008A, and 009A. Maximum Daily Flow for Outfalls 002A, 003A, 008A, and 009A shall be reported for each outfall as the total of the flow measurements made during each monitoring event.

(2) Analytical results reported as Average Monthly must be determined from composite samples taken with a continuous sampler or as a combination of a minimum of twenty-four (24) sample aliquots taken during the first twenty-four-(24) hours of dry weather with each aliquot being at least 100 ml and collected at a minimum of hourly intervals.

(3) Analytical results reported as Maximum Daily must be the maximum of the composite samples or the maximum of the twenty-four (24) sample

aliquots collected during the twenty-four (24) hour period for all measured dry weather samples for each reporting quarter in accordance with Note (2) above.

(4) Sampling required for Quarters 1, 2, 3, and 4 (as defined by Notes (6) and (7) in Part I.A.1) during dry weather. Dry weather is defined as all flow in the storm water drainage system during a period of non-precipitation that is at least 48 hours from the previously measurable storm event that is greater than 0.1 inches of water equivalent per twenty-four (24) hours in magnitude.

(5) Analytical results for Total Arsenic and Total Zinc only required to be reported for samples taken from Outfall 008A.

Dry weather samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: Outfalls 002A, 003A, 008A, and 009A.

PART I

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

3. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number(s) designated 001A, 004A, 006A, 007A, 009A, 011A, 012A, and 013A during wet weather. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity – specify units		Concentration – specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow	--- GPD	--- GPD				2/Year(6)	Estimate(1)
pH			(6.5 SU)		(9.0 SU)	2/Year(6)	Measurement
Oil & Grease					15 mg/l	2/Year(6)	Grab(2)(3)
TSS			--- mg/l		--- mg/l	2/Year(6)	Grab/Composite(1)(3)
BOD_5			--- mg/l		--- mg/l	Annual	Grab/Composite(1)(3)
Enterococci			--- cfu/ml		--- cfu/ml	Annual	Grab(2)(3)
Potassium (K^+)			--- mg/l		--- mg/l	Annual	Grab/Composite(1)(3)
Sodium (Na^+)			--- mg/l		--- mg/l	Annual	Grab/Composite(1)(3)
PFAS Analytes (7)(8)			--- ng/l		--- ng/l	2/Year(6)	Grab(3)

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

(1) Results reported as Average Monthly must be determined from composite samples consisting of a minimum of three (3) sample aliquots taken during the first three (3) hours following the initiation of precipitation that generates runoff with each aliquot being at least 100 ml and collected intervals no less than fifteen (15) minutes. Composite samples can be either flow-weighted or time-weighted. During snow event and other freezing (i.e., sleet, freezing rain) or non-freezing (i.e., rain) precipitation events, the start of precipitation shall be assumed to occur then there is a storm event that results in an actual discharge ("measurable storm event") as defined in Part I.A.9.

(2) Analytical results reported as Average Monthly must be determined from the arithmetic average of three (3) individual hourly grab samples taken during the first three (3) hours following the initiation of precipitation that generates runoff. The Geometric Mean shall be used to obtain the "average monthly" values for Enterococci.

(3) Samples must consist of a single grab sample collected no later than three (3) hours following the initiation of precipitation that generates runoff. If the collection of a grab sample during the specified time period could not be achieved, a sample can be taken during a subsequent period not to exceed six (6) hours following the initiation of precipitation that generates runoff, providing the permittee submit with the monitoring report, a description of why a sample during the specified period could not be collected.

(4) Maximum Daily Flow shall be the calculated flow for the sampling event using depth and duration of precipitation as water equivalent for the event.

(5) Sampling required for at least one (1) precipitation event during Quarter 1 or Quarter 4 while aircraft deicing is occurring. If sampling while aircraft deicing is occurring is not feasible, samples must be collected during a period of non-aircraft deicing for a measurable storm event as defined in Part I.A.9. Quarter 1 is defined as the period from January 1 through March 31, and Quarter 4 is defined as the period from October 1 through December 31.

(6) For Flow, pH, Oil & Grease, TSS, and PFAS analytes one (1) sampling event shall occur during Quarter 1 or Quarter 4 per the requirements of Footnote (5). The second sampling event may occur during a precipitation event during any calendar quarter.

(7) Sampling shall be conducted for the PFAS parameters listed in Attachment A. PFAS shall be analyzed using Clean Water Act wastewater draft analytical method 1633 until a 40 CFR Part 136 approved test method for wastewater is approved. The permittee must report the analytical results in NetDMR for all PFAS analytes required to be tested as part of the method as shown in Attachment A.

(8) After two years of monitoring, if all samples are non-detect for all forty PFAS compounds using draft method 1633, the Permittee may request to remove the requirement for PFAS monitoring. Until written notice is received from DEM indicating that the monitoring requirements have been changed, the Permittee is required to continue the monitoring specified in this Permit.

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

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: Outfalls 001A, 004A, 006A, 007A, 009A, 011A, 012A and 013A.

PART I

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

4. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number 100A. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity – specify units		Concentration – specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow	--- GPD(1)	--- GPD(2)				1/Discharge	Estimate(3)
pH			(6.5 SU)		(9.0 SU)	1/Discharge	Measurement
Benzene			5.0 ug/l		5.0 ug/l	1/Discharge	Grab
Toluene			--- ug/l		--- ug/l	1/Discharge	Grab
Ethylbenzene			--- ug/l		--- ug/l	1/Discharge	Grab
Total Xylenes			--- ug/l		--- ug/l	1/Discharge	Grab
Total BTEX			100 ug/l		100 ug/l	1/Discharge	Grab
MTBE			--- ug/l		--- ug/l	1/Discharge	Grab
Total Iron			--- mg/l		--- mg/l	1/Discharge	Grab
Benzo (a) Anthracene			--- ug/l		--- ug/l	1/Discharge	Grab
Benzo (a) Pyrene			--- ug/l		--- ug/l	1/Discharge	Grab
Benzo (b) Fluoranthene			--- ug/l		--- ug/l	1/Discharge	Grab
Benzo (k) Fluoranthene			--- ug/l		--- ug/l	1/Discharge	Grab
Chrysene			--- ug/l		--- ug/l	1/Discharge	Grab
Dibenzo (a,h) Anthracene			--- ug/l		--- ug/l	1/Discharge	Grab
Indeno (1,2,3-cd) Pyrene			--- ug/l		--- ug/l	1/Discharge	Grab
Acenaphthene			--- ug/l		--- ug/l	1/Discharge	Grab
Acenaphthylene			--- ug/l		--- ug/l	1/Discharge	Grab
Anthracene			--- ug/l		--- ug/l	1/Discharge	Grab
Benzo (ghi) Perylene			--- ug/l		--- ug/l	1/Discharge	Grab
Fluoranthene			--- ug/l		--- ug/l	1/Discharge	Grab
Fluorene			--- ug/l		--- ug/l	1/Discharge	Grab
Naphthalene			--- ug/l		--- ug/l	1/Discharge	Grab

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity – specify units		Concentration – specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Phenanthrene			--- ug/l		--- ug/l	1/Discharge	Grab
Pyrene			--- ug/l		--- ug/l	1/Discharge	Grab
Total Petroleum Hydrocarbon			--- mg/l		1.0 mg/l	1/Discharge	Grab

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

(1) Average Monthly Flow shall be reported as the arithmetic average of the Maximum Daily Flows recorded for each discharge during the quarterly reporting period.

(2) Maximum Daily Flow shall be reported as the maximum of the flow recorded for each discharge during the quarterly reporting period

(3) Monitor flow and submit a flow log with the monitoring results. The flow log shall include the rate and duration of flow including the time(s) of day when flow commences and ceases. At a minimum, the flow must be measured and reported each time a sample is collected.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: Outfall 100A (the effluent from the AST fuel farm water treatment system).

PART I

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

5. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number 200A. The permittee shall provide real time monitoring of concentrations upstream of the diversion point and flow monitoring at a location downstream of the diversion point. All flows that bypass the collection and treatment system and are discharged to waters of the state (i.e., not diverted to storage, treatment, and discharge to the sanitary sewer system) will be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity – specify units		Concentration – specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow, by-passing treatment[(1)]			--- GPM		0 GPM	Continuous[(4)]	Flow Meter
Bypass Volume[(1)]					--- gallons	Once/Bypass Event[(4)]	Calculated
Number of Bypass Events[(1)]					---	Once/Bypass Event[(4)]	Calculated
Total Organic Carbon (TOC) [(1)]			--- mg/l		--- mg/l	Once/15 min. [(2)(4)]	Online Instrument
Propylene Glycol (PG) [(1)]			--- mg/l		--- mg/l	Once/15 min [(3)(4)]	Correlation

[(1)] Flow monitoring will occur downstream of the diversion point prior to mixing with other flows and represents flow that is discharging toward the outfall. A Bypass Event is defined as a discharge that begins after the approved Response Period and the calculated PG concentration exceeds 2,950 mg/l and ends when the calculated PG is less than 2950 mg/l or flow ceases. The average flow bypassing treatment, the average calculated PG concentration and Bypass Volume shall be recorded for each Bypass Event. The approved Response Period represents the period between measurement of a calculated PG concentration greater than 2,950 mg/l and cessation of flow toward the outfall due to pump start-up, dewatering of the pump wet well and dewatering of the outfall line at the point of flow measurement. The response period shall be established as ten minutes and shall be subject to modification based on the conditions as described in Part I.C.6.c.(1).viii. Permittee shall submit a flow log with the monitoring results for any time period where the calculated PG concentration exceeds the diversion limit of 2,950 mg/l, which includes the duration of the bypass flow, the time(s) of day when the bypass flow commences and ceases, the calculated PG concentration and the bypass volume.

[(2)] TOC concentration shall be measured every 15 minutes at a location upstream of the diversion point and reported only for bypass events.

[(3)] The correlation between online Total Organic Carbon (TOC) measurement and propylene glycol (documented in the SWPPP and agreed to by RIDEM) shall be used to estimate the propylene glycol concentration.

(4) Sampling only required for Quarter 1 and Quarter 4. Quarter 1 is defined as the period from January 1 through March 31, and Quarter 4 is defined as the period from October 1 through December 31.

The number of bypass events shall be reported as the total number of events during the reporting period rather than Maximum.

PART I

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

6. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number 300A. The permittee shall provide real time monitoring of concentrations upstream of the diversion point and flow monitoring at a location downstream of the diversion point. All flows that bypass the collection and treatment system and are discharged to waters of the state (i.e., not diverted to storage, treatment, and discharge to the sanitary sewer system) will be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity – specify units		Concentration – specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow, by-passing treatment[(1)]			--- GPM		0 GPM	Continuous[(4)]	Flow Meter
Bypass Volume[(1)]					--- gallons	Once/Bypass Event[(4)]	Calculated
Number of Bypass Events[(1)]					---	Once/Bypass Event[(4)]	Calculated
Total Organic Carbon (TOC) [(1)]			--- mg/l		--- mg/l	Once/15 min. [(2)(4)]	Online Instrument
Propylene Glycol (PG) [(1)]			--- mg/l		--- mg/l	Once/15 min [(3)(4)]	Correlation

[(1)] Flow monitoring will occur downstream of the diversion point prior to mixing with other flows and represents flow that is discharging toward the outfall. A Bypass Event is defined as a discharge that begins after the approved Response Period and the calculated PG concentration exceeds 1,000 mg/l and ends when the calculated PG is less than 1,000 mg/L or flow ceases. The average flow bypassing treatment, the average calculated PG concentration and Bypass Volume shall be recorded for each Bypass Event. The approved Response Period represents the period between measurement of a calculated PG concentration greater than 1,000 mg/l and cessation of flow toward the outfall due to pump start-up, dewatering of the pump wet well and dewatering of the outfall line at the point of flow measurement. The response period shall be established as ten minutes and shall be subject to modification based on the conditions as described in Part I.C.6.c.(1).viii. Permittee shall submit a flow log with the monitoring results for any time period where the calculated PG concentration exceeds the diversion limit of 1,000 mg/l, which includes the duration of the bypass flow, the time(s) of day when the bypass flow commences and ceases, the calculated PG concentration and the bypass volume.

[(2)] TOC concentration shall be measured every 15 minutes at a location upstream of the diversion point and reported only for bypass events.

[(3)] The correlation between online Total Organic Carbon (TOC) measurement and propylene glycol (documented in the SWPPP and agreed to by RIDEM) shall be used to estimate the propylene glycol concentration.

(4) Sampling only required for Quarter 1 and Quarter 4. Quarter 1 is defined as the period from January 1 through March 31, and Quarter 4 is defined as the period from October 1 through December 31.

The number of bypass events shall be reported as the total number of events during the reporting period rather than Maximum.

7. a. The pH of the effluent shall not be less than 6.5 nor greater than 9.0 standard units, unless these values are exceeded due to natural causes or as a result of the approved treatment processes.

   b. The discharge shall not cause visible discoloration of the receiving waters that would impair any usages specifically assigned to the receiving waters.

   c. The discharge shall not cause odors in the receiving water to such a degree as to create a nuisance or interfere with the existing or designated uses.

   d. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.

   e. The discharge shall not cause stream bank erosion and/or any soil erosion and sedimentation.

8. This permit also authorizes the discharge of storm water from outfalls 006B, 006C, 006D, 007B and 014B. Outfalls 006A and 007A are in the same drainage areas with similar industrial activities as outfalls 006B, 006C, 006D and 007B, therefore, monitoring from outfalls 006A and 007A are considered representative. Outfall 014B is in a drainage area similar to 013A and therefore monitoring from outfall 013A is considered representative.

9. All wet weather samples, except those collected at internal Outfalls 200A and 300A, must be collected from a storm event that results in an actual discharge from the site ("measurable storm event") that follows the preceding measurable storm event by at least forty-eight (48) hours (2 days). The 48-hour (2-day) storm interval does not apply if the permittee is able to document that less than a 48-hour (2-day) interval is representative for local storm vents during the sampling period. In the case of snowmelt, the monitoring must be performed at a time when a measurable discharge occurs at the site.

10. The permittee shall not add chemicals (including but not limited to disinfecting agents, detergents, emulsifiers, and "bioremedial agents including microbes") to the stormwater collection system without prior approval from DEM.

11. This permit does not authorize discharges to the separate storm sewer system or to waters of the State from floor drains and trench drains located inside of buildings and/or hangars.

12. The permit does not authorize discharges to the separate storm sewer system or to waters of the State from vehicle, aircraft, or equipment washing activities.

13. This permit does not authorize the use of any Type I aircraft deicing fluid (ADF) which displays greater toxicity than the products currently used at the Airport. The toxicity of the Type I ADF products expressed as Propylene Glycol shall not be lower than 3,300 mg/l as determined by a 96-h LC50 bioassay test on *Pimephales promelas* (Fathead minnow).

14. This permit does not authorize the discharge of sanitary wastewater to the separate storm sewer system or to waters of the State.

15. Non-storm water discharges including those from rubber removal practices and dry weather discharges of deicing/anti-icing chemicals are not authorized by this permit. Dry weather discharges are those discharges generated by processes other than those included in the definition of storm water. In §1.4.A.110 of the RIPDES regulations (See 250-RICR-150-10-1.4.A.110), the definition of storm water includes storm water runoff, snowmelt runoff, and surface runoff and drainage. All other discharges constitute non-storm water discharges. Discharges of process wastewater or spills in snowmelt runoff are not authorized by this permit. Discharges of aircraft deicing/anti-icing fluid (ADF/AAF)

and/or pavement deicing materials entrained in storm water constitute storm water discharges for purposes of this permit.

16. Unless identified by the permittee or the DEM as significant sources of pollutants to waters of the United States, the following non-storm water discharges are authorized under this permit to enter the storm water drainage system: discharges from firefighting activities; fire hydrant flushings; routine external building washdown / power wash water that does not use detergents or hazardous cleaning products (such as those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols); lawn watering; uncontaminated groundwater; springs; air conditioning condensate; potable waterline flushings; irrigation drainage; foundation or footing drains where flows are not contaminated with process materials, such as solvents, or contaminated by contact with soils, where spills or leaks of toxic or hazardous materials have occurred; water sprayed for dust control or at a truck load wet-down station; incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but NOT intentional discharges from the cooling tower (e.g., “piped” cooling tower blowdown or drains); uncontaminated utility vault dewatering; dechlorinated water line testing water; hydrostatic test water that does not contain any treatment chemicals and is not contaminated with process chemicals; and discharges from washing of vehicles provided: chemicals, soaps, detergents, hazardous cleaning products (such as those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols), steam, or heated water are not used; cleaning is restricted to the outside of the vehicle (e.g., no engines, transmissions, undercarriages, or truck beds); or washing is not used to remove accumulated industrial materials, paint residues, heavy metals or any other potentially hazardous materials from surfaces. If any of these discharges may reasonably be expected to be present and to be mixed with storm water discharges, they must be specifically identified and addressed in the facility’s Storm Water Pollution Prevention Plan (SWPPP) required in Part I.C.

17. 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.

18. Aboveground Storage Tank (AST) Fuel Farm:

a. The permittee shall properly operate and maintain the AST fuel farm storm water treatment system. Mechanical failure or breakthrough of the treatment system causing an exceedance of any permit limits shall be immediately reported to the Office of Water Resources.

b. The permittee shall treat all stormwater pumped from the containment dike associated with the AST fuel farm with a Granular Activated Carbon treatment system designed to meet the effluent limitations listed in Part I.A.4. The system shall not be modified without written approval from the Office of Water Resources.

c. The treatment system shall be inspected at a minimum of once per month to assure the system is operating efficiently and to look for evidence of iron bacteria build-up. As a result of these inspections, appropriate actions shall be taken immediately to resolve any problems discovered during the inspection (i.e., removal of iron scale). Records documenting the inspections and any actions taken shall be retained and made available to the Office of Water Resources upon request.

d. Discharge shall cease if any of the contaminants listed in Part I.A.4. are found in the effluent above the detection limits listed in Part I.D. The discharge may recommence once steps have been taken to ensure the limits will not be exceeded again. At a minimum, these steps shall include replacement of the activated carbon filter.

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

B. OPERATION AND MAINTENANCE

1. All surface runoff from process or work areas at the facility shall be treated by the existing storm water Best Management Practices (BMPs) at the facility. The facility utilizes the following storm water BMPs: Deicer Treatment and Management System, Detention Basins (parking lot, infield area, Airfield Maintenance Facility), Infiltration Basins (cargo collection area, terminal glycol collection area, Deicer Treatment Facility), Underground Detention Systems/Infiltration Trenches/Sand Filters at the eastern end of Runway 34, Infiltration Trenches at the western end of Runway 16, Pervious area infiltration, Modular Storm Water Treatment Systems, Oil/Water separators, etc. Process or work areas are defined for the purpose of this permit as all of those areas subject to spills and leaks of raw materials or products (i.e., secondary containment areas, fuel storage and transfer areas, vehicle and equipment maintenance and/or cleaning areas, material loading or unloading areas, material storage areas, aboveground/undergrounds storage tanks (ASTs/USTs), waste disposal areas, and areas where deicing/anti-icing chemicals are stored and applied to aircraft, etc.).

2. The release of runoff from any secondary containment area, holding basin, or any area noted above shall be controlled so that this discharge alone or in combination with any other

sources of wastewater does not exceed the optimum design flow rates for the applicable BMPs or cause violations of the effluent limitations specified in this permit.

3. All storm water accumulated in any holding basin(s) or secondary containment area(s) shall be inspected to verify that it is free of product or sheen prior to draining to any other storm water handling system at the facility. If a sheen is detected by visual observations, the area will be covered with oil absorbent blankets to collect petroleum product. After the sheen has been absorbed and the absorbent blankets have been removed, the draining process will begin. If the amount of petroleum product is such that professional clean-up action is required, then all the liquid from the containment area(s) shall be removed by a Rhode Island-licensed hazardous waste hauler and properly disposed of off-site. Any discharges of accumulated storm water shall not cause an exceedance of any permit limits.

4. The storm water collection and treatment system shall be operated and maintained in order to provide optimal treatment of the storm water prior to discharge to the receiving water(s).

5. The SWPPP in Part I.C. shall specifically address the adequacy of containment of leaks and spills in storage areas (from Drums, Additive Tanks, Petroleum Product Tanks, Deicing/Anti-Icing Chemicals, Pavement Deicing Chemicals, etc.), truck loading area(s), and fueling area(s). Adequate containment must exist at these locations so as to prevent untreated discharges from reaching any surface water.

6. A schedule for routinely inspecting and cleaning (as needed) all storm water BMPs at the facility shall be specified in the SWPPP. In addition, the SWPPP shall identify procedures for insuring compliance with the permit during any cleaning or maintenance periods.

7. The permittee shall assure the proper management of solid and hazardous waste in accordance with regulations promulgated under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1978 (40 U.S.C. 6901 et seq.), or amendments thereto.

C. STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS

1. A Storm Water Pollution Prevention Plan (SWPPP) shall be maintained and implemented by the permittee. **An amended SWPPP shall be submitted to the Office of Water Resources within one hundred eighty (180) days of the effective date of this permit to incorporate the Runway 5-23 extension and any other pertinent development projects since the last permit reissuance.** The SWPPP shall be prepared in accordance with good engineering practices and identify potential sources of pollutants, which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity from the facility. In addition, the SWPPP shall describe and ensure the implementation of Best Management Practices (BMPs) which are to be used to reduce or eliminate the pollutants in storm water discharges associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit.

2. The SWPPP shall be signed by the permittee in accordance with §1.12 of the RIPDES regulations (See 250-RICR-150-10-1.12) and retained on-site. The SWPPP shall be made available upon request by the DEM.

3. If the SWPPP is reviewed by the DEM, the permittee may be notified at any time that the SWPPP does not meet one or more of the minimum requirements of this part. After such notification from the DEM, the permittee shall make changes to the SWPPP and shall submit 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.

4. The permittee shall immediately amend the SWPPP whenever there is a change in design, construction, operation, or maintenance, which has a significant effect of the potential for the discharge of pollutants to the waters of the State; a release of reportable quantities of hazardous substances and oil; or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. Changes must be noted and then submitted to DEM within fourteen (14) days. Amendments to the SWPPP may be reviewed by DEM in the same manner as Part I.C.3. of this permit.

5. The SWPPP shall include, at a minimum, the following items:

   a. Description of Potential Pollutant Sources. The SWPPP must provide a description of potential sources which may be reasonably expected to add significant amounts of pollutants to storm water discharges, or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. It must identify all activities and significant materials, which may be significant pollutant sources. Each plan shall include:

      (1) A legible site map with a suitable scale such as 1"=40', 1"=50', or 1"=100' that supports easy identification of the following items (If the drainage area(s) is/are very large, the on-site map scale must be no smaller than 1"=100'):

         i. boundaries of the property and the size of the property in acres;

         ii. directions of storm water flow (e.g., use arrows to show which ways storm water will flow);

         iii. locations of all surface waterbodies, including wetlands, in the immediate vicinity of the facility indicating if any of the waters are impaired and, if so, whether the waters have TMDLs established on them or other water quality determination;

         iv. the location and extent of significant structures and delineation of impervious surfaces;

         v. locations of all stormwater control measures;

         vi. location of stormwater conveyances including ditches, pipes, and swales;

         vii. locations of storm water inlets and outfalls, with a unique identification code for each outfall (e.g., Outfall 001, 002), identify if the outfall will be used as a stormwater monitoring point, and an approximate outline of the area draining to each outfall;

         viii. if applicable, locations where the facility discharges stormwater into a municipal separate storm sewer system (MS4);

         ix. locations of potential pollutant sources and locations where significant materials are exposed to precipitation;

         x. locations where major spills or leaks have occurred;

         xi. location and description of non-storm water discharges;

xii. locations of the following activities where such activities are exposed to precipitation: fueling stations; vehicle and equipment maintenance and/or cleaning areas; loading/unloading areas; locations used for the treatment, storage, or disposal of wastes; liquid storage tanks; processing and storage areas; access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; the location of transfer of substance in bulk; machinery; airplane deicing and anti-icing areas; glycol storage, processing, and handling areas; and runway deicing and rubber removal areas;

xiii. locations of the following activities specific to this facility: all underground injection control (UIC) systems, including systems that are owned or operated by RIAC's tenants; all outfall pipes, including pipes that are owned or operated by RIAC's tenants; all aboveground storage tanks (ASTs) and underground storage tanks (USTs), including tanks that are owned or operated by RIAC's tenants; and all floor drains in each building, including floor drains that are located in buildings that are owned or operated by RIAC's tenants (the location of the discharge point must be provided for each floor drain); and

xiv. location and source of runoff from adjacent property containing significant quantities of pollutants of concern to the facility (an evaluation of how the quality of the storm water running onto the facility impacts the storm water discharges may be included).

(2) General Location Map. Provide a topographic map showing the general location of the facility with enough detail to identify the location of the facility and the receiving waters within one mile of the facility.

(3) An estimate of the overall runoff coefficient for the site, determined by an acceptable method, such as, but not limited to, area weighting.

(4) Receiving Waters and Wetlands. The name of the nearest receiving water(s) with waterbody identification number (if one is assigned), including intermittent streams, the areal extent and description of wetland that may receive discharges from the facility, impairments and a list of pollutants causing impairments if applicable.

(5) Summary of Potential Pollutant Sources. The permittee must identify each separate area at the facility where industrial materials or activities are exposed to storm water and/or from which allowable non-stormwater discharges are released. Industrial materials or activities include, but are not limited to, material handling equipment or activities; industrial machinery; storage, cleaning, fueling and maintenance of vehicles and equipment storage; and raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. For each, separate area identified, the description must include:

i. A list of the activities (e.g., material storage, loading, access areas equipment fueling and cleaning, cutting steel beams);

ii. A list of the associated pollutant(s) or pollutant parameter(s) (e.g., crankcase oil, iron, biochemical oxygen demand, pH, etc.) associated with each activity. The pollutant list must include all significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of five (5) years before this permit and the present;

iii. Method of on-site storage or disposal;

iv. For each area of the facility that generates storm water discharges associated with industrial activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow and an estimate of the types of pollutants, which are likely to be present in the storm water discharge;

v. The permittee must clearly identify areas where potential spills and leaks, which can contribute pollutants to storm water discharges, can occur, and their accompanying drainage points. For areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility to be covered under this permit, the permittee must provide a list of significant spills and leaks of toxic or hazardous pollutants that occurred during the five (5) year period prior to this permit. The list must be updated if significant spills or leaks occur in exposed areas of the facility during the time the permittee is covered by the permit. Significant spills and leaks include, but are not limited to, releases of oil or hazardous substances in excess of quantities that are reportable under CWA §311 (see 40 CFR 110.10 and 40 CFR 117.21) or section 102 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

(6) Non-storm Water Discharges

i. *Certification of Non-Storm Water Discharges.* The SWPPP must include a certification that all discharge locations (i.e., outfalls) have been tested or evaluated for the presence of non-storm water. The certification must be signed in accordance with §1.12 of the RIPDES regulations (See 250-RICR-150-10-1.12) and include the information required in Part I.C.5.i.(5) of the permit.

ii. *Allowable Non-Storm Water Discharges*. Certain sources of non-storm water are allowable under Part I.A.16 of this permit. In order for these discharges to be allowed, the SWPPP must include the following:

a. Identification of each allowable non-storm water source;

b. the location where it is likely to be discharged; and

c. descriptions of appropriate BMPs for each source.

Except for flows from firefighting activities, the permittee must identify in the SWPPP all sources of allowable non-storm water that are discharged under the authority of this permit.

(7) Salt Storage. The permittee must document the location of any storage

piles containing salt and used for deicing or other commercial or industrial purposes and any controls in place to minimize the exposure of salt to precipitation.

(8) A summary of existing sampling data describing pollutants in storm water discharges from the facility.

b. Storm Water Management Controls. The permittee must develop a description of storm water management controls appropriate for the facility and implement such controls. The appropriateness for implementing controls listed in the SWPPP must reflect identified potential sources of pollutants at the facility. The description of storm water management controls must address the following minimum components, including a schedule for implementing such controls:

(1) *Pollution Prevention Team.* The SWPPP must identify a specific individual(s) within the facility organization as members of a team that are responsible for developing the SWPPP and assisting the facility manager in its implementation, maintenance, and revision. The SWPPP must clearly identify the responsibilities of each team member. The activities and responsibilities of the team must address all aspects of facility's SWPPP.

(2) *Risk Identification and Assessment/Material Inventory.* The SWPPP must assess the potential of various sources which contribute pollutants to storm water discharge associated with the industrial activity. The SWPPP must include an inventory of the types of materials handled. Each of the following must be evaluated for the reasonable potential for contributing pollutants to runoff: loading and unloading operations, outdoor manufacturing or processing activities, significant dust or particulate generating processes, and on-site waste disposal practices. Factors to consider include the toxicity of chemicals; quantity of chemicals used, produced, or discharged; the likelihood of contact with storm water, and the history of significant leaks or spills of toxic or hazardous pollutants. Also, include in the inventory of exposed materials a description of the potential pollutant sources from the following activities: aircraft, runway, ground vehicle and equipment maintenance and cleaning; aircraft and runway deicing operations; and fire suppression foam testing operations. If the permittee uses deicing chemicals, the permittee must maintain a record of the monthly quantities used.

(3) *Preventative Maintenance.* A preventative maintenance program must involve inspection and maintenance of storm water management devices (i.e., oil/water separators, catch basins) as well as inspecting and testing plant equipment and systems to uncover conditions that could cause breakdown or failures resulting in discharges of pollutants to surface waters.

(4) *Minimizing Exposure.* Where practicable, industrial materials and activities should be protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt, or runoff.

(5) *Good Housekeeping.* Good housekeeping requires the maintenance of a clean, orderly facility. If applicable, the following areas must be specifically addressed:

i. Aircraft, Vehicle, and Equipment Storage Areas: The storage of aircraft, vehicles and equipment with actual or potential fluid leaks must be confined to designated areas (delineated on the site

map). The SWPPP must describe measures that prevent or minimize contamination of the storm water runoff from these areas. The facility shall consider the use of drip pans under aircraft/vehicles/equipment, indoor storage of the aircraft/vehicles/equipment, installation of berming and diking of this area, use of absorbents, roofing or covering storage areas, cleaning pavement surface to remove oil and grease, or other equivalent methods.

ii. Fueling Areas: The SWPPP must describe measures that prevent or minimize contamination of the storm water runoff from fueling areas. The facility shall consider berming the fueling area(s), using spill and overflow protection and cleanup equipment, minimizing run-on/runoff of storm water to the fueling area(s) by way of storm water drains, using dry cleanup methods, collecting the storm water runoff and providing treatment or recycling, or other equivalent measures.

iii. Material Storage Areas: Storage units of all materials (e.g., used oil, used oil filters, spent solvents, paint wastes, radiator fluids, transmission fluids, hydraulic fluids) must be maintained in good condition, so as to prevent contamination of storm water, and plainly labeled (e.g., “used oil”, “spent solvents”, etc.). The SWPPP must describe measures that prevent or minimize contamination of the storm water runoff from such storage areas. The facility shall consider indoor storage of the materials, storing waste materials in a centralized location, installation of berming and diking of the area, minimizing run-on/runoff of storm water to the areas, using dry cleanup methods, collecting the storm water runoff and providing treatment, or other equivalent methods.

iv. Aircraft, Vehicle, and Equipment Cleaning Areas: The SWPPP must describe measures that prevent the discharge of aircraft/vehicle/equipment wash waters, including tank-cleaning operations. The facility shall consider performing all cleaning operations indoors, covering the cleaning operation, ensuring that all washwaters drain to the intended collection system, collecting the storm water runoff from the cleaning area and providing treatment or recycling, or other equivalent measures. These discharges are not authorized by this permit.

v. Aircraft, Vehicle, and Equipment Maintenance Areas: The SWPPP must describe measures that prevent or minimize contamination of the storm water runoff from all areas used for aircraft/vehicle/equipment maintenance (including the maintenance conducted on the aircraft in dedicated hangars). The facility shall consider performing all maintenance activities indoors, using drip pans, maintaining an organized inventory of materials used in the shop, draining all parts of fluids prior to disposal, prohibiting wet cleanup practices where the practices would result in the discharge of pollutants to storm water drainage systems, using dry cleanup methods, collecting the storm water runoff from the maintenance area and providing treatment or recycling, minimizing run-on/runoff of storm water areas or other equivalent measures.

(6) *Spill Prevention and Response Procedure.* Areas where potential spills can occur, and their accompanying drainage points, must be identified clearly in the SWPPP. The potential for spills to enter the storm water drainage system must be eliminated wherever feasible. Where appropriate, specific material handling procedures, storage requirements, and procedures for cleaning up spills must be identified in the SWPPP and made available to the appropriate personnel. The necessary equipment to implement a clean-up must also be made available to personnel. The permittee shall immediately notify the office of releases in excess of reportable quantities.

(7) *Storm Water Management.* The SWPPP must contain a narrative consideration of the appropriateness of traditional storm water management practices. Based on an assessment of the potential of various sources at the plant to contribute pollutants to storm water discharges associated with industrial activity (see Part I.C.5.b(2) of this permit), the SWPPP must provide that measures, determined to be reasonable and appropriate, be implemented and maintained.

(8) *Sediment and Erosion Prevention.* The SWPPP must identify areas which; due to topography, activities, or other factors; have a high potential for significant soil erosion and identify measures to limit erosion.

(9) *Employee Training.* Employee training programs must inform personnel responsible for implementing activities identified in the SWPPP, or otherwise responsible for storm water management at all levels, of the components and goals of the SWPPP. Training should address topics such as spill response, good housekeeping, and material management practices. The SWPPP must identify periodic dates for such training.

(10) *Disposal Procedures*. The disposal procedures for tank bottom waters, tank bottom sludge, oil/water separator sediments, oil/water separator oils, oil absorbent cleaning material(s) and any washdown waters containing detergents, dispersants, emulsifiers, etc. must be documented in the SWPPP.

(11) *Routine Facility Inspections.* Qualified plant personnel must be identified to inspect the following areas of the facility: areas where industrial materials or activities are exposed to stormwater; areas identified in the SWPPP and those that are potential pollutant sources; areas where spills or leaks have occurred in the past five (5) years; and stormwater control measures used to comply with the effluent limits contained in this permit. Material handling areas must be inspected for evidence of, or the potential for, pollutants entering the drainage system. A tracking or follow up procedure must be used to ensure that the appropriate action has been taken in response to the inspection. Records of inspections must be maintained on site for at least five (5) years. Routine facility inspections must be conducted quarterly and with at least one member of the facility's stormwater pollution prevention team participating. At a minimum, the permittee must conduct monthly inspections during all months in which deicing chemicals may be used in the areas where deicing/anti-icing occurs and has the potential to enter the storm water collection system. Also, if significantly or deleteriously large quantities of deicing chemicals are being spilled or discharged, or if water quality impacts have been reported, increase the frequency of the inspections to weekly until such time as the chemical spills/discharges or impacts are reduced to acceptable levels. The DEM may specifically require the permittee to increase inspections and SWPPP reevaluations as

necessary.

(12) *Recordkeeping and Internal Reporting Procedures.* Incidents such as spills, or other discharges, along with other information describing the quality and quantity of storm water discharges must be included in the records. All inspections and maintenance activities must be documented and maintained on site for at least five (5) years.

c. Deicing Fluid Collection and Management. A description of equipment and operation and management procedures related to deicing fluid usage and collection. The description of such operations and procedures must address the following minimum components:

(1) *Collection Program Operating Procedures.* Standard operating procedures and overall glycol recovery goals for the collection program must be detailed. The terminal area and cargo glycol collection system shall be sized to collect 99.9% of all flows above the diversion concentrations (2,950 mg/l for the terminal area and 1,000 mg/l for the cargo area) based on simulations of 62 years of historical data. Operations and equipment for the various components of the collection program that must be addressed include, at a minimum, the following:

i. Implementation of the Deicer Management System of real-time monitoring and collection, storage and discharge to the sanitary sewer system of glycol-impacted stormwater; from the terminal deicing area that exceeds 2,950 mg/l propylene glycol (or its surrogate equivalent); and, glycol-impacted stormwater from the cargo deicing area that exceeds 1,000 mg/l propylene glycol (or its surrogate equivalent);

a. The diverted glycol-impacted storm water from the terminal and cargo area collection systems will be treated on-site and discharged to the City of Warwick sanitary sewer system.

b. The terminal area collection system will be installed with one point of diversion but be designed to be capable of incorporating two additional diversion points.

c. The Deicer Management System will function in concert with the glycol blending facility.

d. If the GlyCAST™ model or other simulation is used as a decision making tool to justify structural changes that are subject to approval by the DEM after the diversion system is in place, RIAC will calibrate the model with empirical data collected from permit sampling requirements and the operation of the diversion system. RIAC will provide DEM with the calibration data.

ii. Seasonal collection program operating schedule including procedures and a schedule to ensure that all collection, handling, and processing equipment is on-site and operational prior to October 15th of each year. *The operating schedule shall be submitted annually with the third quarter Discharge Monitoring Report (DMR) forms due by October 15th*;

iii. Dry weather and wet weather operating procedures;

iv. Management and description of glycol storage tanks;

v. Recordkeeping forms and procedures;

vi. Procedures for calibration and assessment of the on-line TOC sample collection and analysis system associated with the cargo and terminal area deicer fluid collection systems and for determination of the corresponding propylene glycol concentrations. These procedures shall include collection of discrete samples (from both the cargo and terminal area systems) during a deicing event, when flow exists at the downstream sampling location for analysis of TOC and PG.

vii. Operation of mobile collection units, included a unit dedicated to the Cargo area for dry weather and secondary deicing

a. Operation of mobile collection units and glycol recovery vehicles during dry weather and wet weather deicing events when activity within the terminal and cargo area is conducive to GRV use collection (i.e." low activity wet weather") and at secondary deicing locations.

b. Location and operation of catch basin valve inserts;

c. Procedures for ensuring that aircraft deicing fluids (ADFs) do not enter the storm drainage system near secondary deicing areas. Catch basin inserts in secondary deicing areas shall remain closed during deicing events. The inserts may be opened once the deicing fluids have been collected.

d. Collection equipment for each area where deicing occurs and associated temporary or day storage tanks of adequate capacity located in an area that will allow collection equipment to expeditiously resume collection activities after reaching capacity.

e. Training program for secondary deicing and dry weather glycol collection and processing facility personnel

viii. Procedures for assessment of the period between measurement of PG concentrations that exceeds the diversion limit for both the terminal and cargo areas and cessation of flow toward the outfall due to pump start-up, dewatering of the pump wet well and dewatering of the outfall line at the point of flow measurement. An assessment was conducted during start-up and commissioning of the collection and treatment system and the results submitted to DEM in a letter dated February 13, 2015 that confirmed a 10-minute Response Period. The Response Period shall not be modified without further reassessment and written approval from the DEM.

(2) *Aircraft and Pavement Deicing Material Usage, Storage, and Collection.* The permittee shall implement practices for the management of aircraft and pavement deicing materials. The practices shall be designed to minimize the discharge of aircraft deicing fluids. Practices should include encouraging airlines to consider minimizing fluids applied to aircraft through improved application methods and innovative deicing technologies. Procedures shall include an evaluation of measures to minimize contact with storm water, to minimize the volumes of glycols used (with due consideration of FAA requirements and safety) as well as measures to prevent releases from accidental leaks and spills of deicing materials. The permittee shall develop an airport deicing management plan. This plan shall establish practices and procedures for collection of aircraft deicing fluids as well as pavement deicers. This plan shall be developed in cooperation with tenants and personnel involved with application and collection of deicing

materials. With due consideration of safety and other regulatory requirements, such as FAA, the goal of the program shall be to minimize the discharge of deicing materials as follows:

i. The permittee shall evaluate ADFs that are new or demonstrate less aquatic toxicity than those currently in use. Annually the permittee must provide information to tenants identifying less toxic ADFs encouraging tenants to utilize the most environmentally sensitive ADFs.

ii. The permittee shall evaluate the feasibility of preventative anti-icing techniques. Annually the permittee shall provide information to tenants identifying various practices and encouraging the tenants to implement techniques as practicable.

iii. The permittee shall evaluate aircraft deicing fluid application practices to identify means to reduce the discharge of aircraft deicing fluid. This shall include an evaluation of technologies such as hot air-low flow application equipment and techniques such as protective enclosures for applicators as well as varying the aircraft deicing fluid concentrations dependent upon ambient conditions. Annually the permittee shall provide information to tenants identifying various practices and encouraging the tenants to implement techniques as practicable.

iv. Implement BMPs for the management of glycol contaminated snow or frozen precipitation with the goal of reducing the amount of glycol discharged to the storm water system from melting snow contaminated with glycol and increasing the amount of glycol collected. Glycol impacted snow from the terminal and cargo areas will be plowed to areas within the drainage area of the terminal area and cargo glycol collection systems. Discharge from the portable snow melter will be routed to the terminal and cargo diversion structures where runoff greater than or equal to 2,950 and 1,000 mg/l of glycol from the terminal area and cargo areas, respectively will be collected. Collected snowmelt above the diversion concentrations shall be stored, treated and discharged to the sanitary sewer system. Snow melt will not be detained to enable dilution below the propylene glycol limits identified above point. Subject to the requirements above, snow melt/runoff concentrations below the concentrations identified may be discharged to the outfall.

v. Provides secondary containment for all aircraft deicing fluid storage facilities. These facilities shall be designed to reduce or eliminate the release of glycol to the storm sewer system.

vi. Implements BMPs for glycol and pavement deicer (i.e. potassium acetate and sodium formate) storage, transfer, and application practices that include a glycol inventory system and glycol handling procedures for all tenants. The inventory program must include daily record keeping of the amount purchased, amount used, a routine monthly reconciliation and routine visual inspection of storage facilities and handling equipment for drips, leaks, and spills. The BMPs must also include Standard Operating Procedures (SOPs) for reporting and responding to spills that includes basic information to be reported to RIAC and DEM (as necessary)

including the amount spilled supported by inventory reconciliation.

vii. Implement an annual pavement sealing program for aircraft deicer application areas in order to enhance capture and conveyance of glycol impacted storm water and reduce potential for vertical migration.

viii. Storm water or non-storm water connections to the terminal drainage system (that is directed to the diversion point or the western oil water separator located in the mid field area) that are not related to the dedicated terminal deicing areas are not authorized. If any such connections are discovered, the ancillary flows will be rerouted such that they do not contribute to the terminal collection system flow.

d. Runway Rubber Removal Procedures. This permit does not authorize the dry weather discharge of chemicals or wastewater associated with pavement and runway de-rubberizing. The permittee shall implement BMPs that include but are not limited to; performing all runway de-rubberizing during dry weather, using environmentally sensitive products, temporarily sealing the collection system, and rinsing/washing the product off the paved surfaces directed to grassy areas that infiltrate, or impervious areas where it shall be collected and disposed of prior to the next precipitation event.

e. Odor and Bacteria Growth Response. The permittee shall implement procedures to identify and respond to occurrences of odors and bacteria growths at outfalls and receiving streams that may be associated with airplane and runway deicing fluids and amend the SWPPP to include these procedures. At a minimum, the procedures shall include routine observations of storm water outfalls and the receiving streams that receive discharges of storm water associated with deicing activities for the presence of odors and bacteria growths and procedures to respond to the identified odors and bacteria growths.

(1) Within twenty-four (24) hours of being notified by DEM that an odor complaint that violates state water quality standards has been received, the permittee shall perform the following:

i. Inspect all outfalls associated with the complaint for dry weather flows and obtain samples of all dry weather discharges and analyze for propylene glycol;

ii. Obtain instream samples at the location of the odor complaint and analyze for propylene glycol;

iii. Inspect all storm water collection system appurtenances and deicing areas associated with the complaint for evidence of residual glycols and clean as appropriate;

iv. Within five (5) days of receipt of laboratory analysis for the abovementioned instream samples, the permittee shall submit a report that describes the following: (a) Dates/times complaints received; (b) Dates/times notified by DEM; (c) Summary of recent deicing activities and collection efforts that includes the climatic conditions, amount of deicing chemicals used and recovered, a description of the glycol management BMPs implemented, locations of observed odors, measured concentrations of glycol in

the discharge and the receiving stream, remedial actions to be taken to mitigate future occurrences and recommend additional investigations, controls and amendments to the SWPPP as necessary.

v. If the odors are evident during a dry weather period or after the deicing season has ended and/or the dry weather discharges from storm water outfalls are found to contain detectable levels of propylene glycol, the recommendations must include a scope of work and implementation schedule to perform additional investigations of the collection system and an investigation of the potential for groundwater to be contaminated with propylene glycol and to what extent it may enter the storm drain system and contribute to the occurrences of nuisance odor conditions. The plan must also identify potential remedies that may be implemented and include an implementation schedule should the investigation indicate that groundwater contaminated with propylene glycol contributes or is responsible for nuisance odor conditions in the outfalls and the receiving waters.

The permittee shall implement a plan to document the occurrence and extent of iron-fixing and/or *Sphaerotilus* spp. bacteria growths at all outfalls that receive discharges of deicing fluids and the downstream receiving waters. The permittee shall perform this investigation annually to determine to what extent the conditions have changed and make recommendations for additional controls and amendments to the SWPPP as necessary should nuisance growths continue to occur. This plan should consider the removal of existing bacteria growth from outfalls and documenting the conditions associated with observed bacteria growths in an effort to understand contributing factors and identify measures to eliminate or reduce bacteria growth.

f. Pesticide Management. The permittee shall implement BMPs for pesticide management with the goal of reducing or eliminating the concentrations and loads of fertilizers and pesticides in storm water discharges to the receiving waters. Mosquito control products shall be employed in accordance with State requirements by qualified personnel.

g. Post-Construction Storm Water Management in New Development and Redevelopment. The permittee shall implement a program to address storm water runoff from new development and redevelopment projects. The plan must address direct discharges of storm water to waters of the State in addition to the discharges to the storm drainage system. The program must ensure that controls are in place to prevent or minimize water quality impacts. The post-construction program must include:

(1) Implementation of strategies which include a combination of structural methods such as detention basins, wet basins, infiltration basins and trenches, dry wells, galleys, vegetated swales and vegetated filter strips and/or non-structural BMPs.

(2) Procedures for site plan review to ensure that design of controls to address post-construction runoff are consistent with the Rhode Island Stormwater Management, Design, and Installation Rules (Stormwater Rules) (250-RICR-150-10-8)

(3) Procedures to ensure adequate and long-term operation and maintenance of

BMPs.

(4) Procedures to implement strategies to reduce runoff volume which may include minimizing impervious areas such as roads, parking, paving or other surfaces, encouraging infiltration of non-contaminated runoff, preventing channelization, encouraging sheet flow, and where appropriate, preserving, enhancing or establishing buffers along surface water bodies and tributaries.

(5) Planned construction activities (such as terminal expansion or future pavement reconstruction/maintenance) to evaluate and if determined necessary for glycol containment, add additional drainage infrastructure to facilitate and/or enhance glycol-impacted storm water capture in the area(s) of construction.

h. Drainage Master Plan. The Drainage Master Plan dated March 2017 **shall be amended and submitted to the DEM within one hundred eighty (180) days of the effective date of this permit** to incorporate the Runway 5-23 extension and any other pertinent development projects since the last permit reissuance The plan shall provide the permittee with a detailed plan of the existing drainage, topography, and land use which will also be used to assess existing conditions and storm water impacts as well as to determine the impact of future development at the facility.

i. Illicit Discharge Detection and Elimination. The permittee shall maintain and continue to implement and enforce a program to detect and eliminate illicit discharges or flows into the Airport's storm drainage system. The program established in the SWPPP shall continue to include the following:

(1) The plan must effectively prohibit non-storm water discharges into the system that are not authorized under this permit or the SWPPP. The plan shall include consideration of policies, contractual agreements, or other mechanisms that include sanctions for non-compliance. Procedures shall include inspections, site visits, audits, and notification for referral to DEM for enforcement action.

(2) The allowable non-storm water discharges listed in Part I.A.16 of the Permit must be addressed if they are identified by the permittee or the Department as being significant contributors of pollutants.

(3) The SWPPP must contain procedures to identify and locate illicit discharges, the source of the discharge, remove illicit discharges, document actions, and evaluate impact on storm water drainage system subsequent to the removal.

(4) The permittee must inform employees, businesses, contractors, and tenants of hazards associated with illegal discharges and improper waste disposal including, but not limited to, vehicle wash water and dry weather discharge of deicing chemicals.

(5) An annual inspection of catch basins and manholes for illicit connections, investigation of complaints, and dry weather field screening for non-storm water flows and field tests of selected parameters as indicators of illicit discharge sources as follows:

i. The permittee must keep records of all inspections and corrective actions required and completed.

ii. Implementation of procedures for dry weather surveys including field screening for non-storm water flows and field tests of selected parameters and bacteria. Dry weather surveys must be conducted no less than 48 hours after the last rain fall of 0.10 inches or more. At a minimum, all dry weather flows observed during the screening from outfalls must be collected and analyzed for temperature, conductivity, pH, propylene glycol and enterococci bacteria. It is recommended that flow measurements be conducted. In addition, visual observations must include but not be limited to the following: odors, sheen, stressed vegetation, coloration/staining, algae growth, sedimentation and/or scouring in the vicinity of the outfalls. If visual observations indicate the presence of illicit discharges additional sampling and analysis for any other parameters that may be useful in the identification of the illicit discharge must be performed as warranted. Dry weather survey results must be summarized in a table and include at a minimum, the following information: location (latitude/longitude), size and type of outfall (e.g. 15" diameter concrete pipe), flow (indicate if flowing or not, include flow rate if determined), sample results, results of other parameters if measured (e.g. temperature, conductivity, and pH), and sample analysis method (e.g. Standard Methods for the Examination of Water and Wastewater). The permittee must perform one (1) survey annually, to be conducted between October 1st – March 31st.

iii. *Annually, no later than April 15th*, the permittee shall provide a report certifying that all discharges have been inspected and tested for the presence of non-storm water discharges. If no flow is observed the report shall include the date of outfall inspection and a certification that no flow was observed. If flow is observed the report must include a description of the results of any test for the presence of non-storm water discharges, the methods used, and the date of any testing. The report shall include a plan and schedule for investigating and removing the source of non-storm water flows.

(6) The Plan must include sanitary waste handling BMPs to reduce the potential that storm water runoff will come in contact with or become contaminated by sanitary wastes associated with handling sanitary wastes from airplanes.

j. Impervious Cover (IC) Reduction Plan. The permittee shall develop a written IC Reduction Plan to address discharges of pollutant(s) causing impairment(s) from the permittee and submit the Plan twelve (12) months following the effective date of the permit. The IC Reduction Plan must contain the following information:

(1) For each waterbody segment, the permittee must provide:

i. Waterbody Name, Waterbody ID (WB ID), the name of the TMDL applicable to the WBID, and all pollutants causing impairment(s);

ii. Map showing:

- The permittee's outfalls discharging to the waterbody, including discharges through interconnections, and
- Delineation of the permittee's catchment area(s) that discharges to the waterbody segment.

iii. A desktop assessment of the initial conditions for each subwatershed, using information about the stormwater infrastructure, such as existing infrastructure maps, catchment delineation, knowledge of existing BMPs, aerial photographs and field verification as necessary. The initial assessment must at a minimum include estimates of the total area of the permittee's stormwater drainage system, the area of Directly Connected Impervious Area (DCIA) for the permittee and the percent of DCIA for the permittee.

Total Area – refers to the total Area of the Subwatershed occupied by the permittee

IC – refers to the total sum of all the permittee's impervious surfaces within a subwatershed

DCIA - refers to the area of permittee's Impervious Cover (IC) that discharges directly or indirectly through other regulated MS4s to surface waterbodies

% DCIA - refers to the percent of the permittee's Total Area occupied by the permittee's DCIA

DCIA = IC – [IC not discharging to surface waters (such as rooftops or parking lots with subsurface discharges, infiltrating devices, vegetated swales, or directed to areas where runoff will infiltrate and have minimal to no potential to discharge) + IC discharging to CSOs]

$$\%\ DCIA = \frac{DCIA \times 100}{Total\ Area}$$

(2) If the %DCIA estimated in Part I.C.5.j(1).iii. of this permit is greater than 10%, for any waterbody segments the IC Reduction Plan must identify areas owned by and discharging to the permittee's stormwater drainage system in those catchments, which can be modified or retrofitted with BMPs designed to reduce pollutant loads in stormwater. The permittee must consider parking lots, buildings, and roads, that could be modified or retrofitted. The permittee's infrastructure to be considered includes existing street right-of-ways, conventional stormwater conveyances and controls (including swales and detention practices) that could be modified or retrofitted to provide reduction of the permittee's DCIA and/or pollutant load reductions. The list must identify the location of these areas, the associated waterbody segment(s) that will receive the discharge(s) of stormwater, and associated outfall(s) or interconnection(s) to other regulated MS4s.

(3) Restoration Implementation. Beginning in the 2nd year following the permit's effective date and annually thereafter until the permittee meets the 10% DCIA goal, the permittee must:

i. Complete construction of projects or retrofits that achieve a 5% reduction per year of DCIA, until the 10% DCIA target is met, unless the Department determines that an alternative proposed schedule is acceptable.

Example calculation of the annual %DCIA reduction and DCIA:

Permittee Total Area (acres) = 1000 acres
Year 4 Initial DCIA (acres) = 280 acres
Year 4 Initial % DCIA = (280 acres/1000 acres) x100 = 28 %
➔ % DCIA > 10%, therefore a 5% reduction is necessary.
5 % Reduction of DCIA (acres) = 280 acres x 0.05 = 14 acres (Year 4 reduction)
Post-Year 4 DCIA (acres) = 280 acres – 14 acres reduction = 266 acres
Year 5 Initial % DCIA = (266 acres/1000 acres) x100 = 26.6 %
➔ % DCIA > 10%, therefore a 5% reduction is necessary.
Year 5 Initial DCIA (acres) = 266 acres
5 % Reduction of DCIA (acres) = 266 acres x 0.05 = 13.3 acres (Year 5 reduction)
Post-Year 5 DCIA (acres) = 266 acres – 13.3 acres reduction = 252.7 acres

ii. Maintain a construction schedule of projects planned within the next five years, that the permittee has prioritized for installation or retrofit of stormwater BMPs to meet the DCIA reductions from Part I.C.5.j(3).i of this permit. At any time DEM may review the construction schedule and notify the permittee that modifications are necessary.

(4) Record-Keeping and Reporting.

i. The permittee must develop and implement a DCIA Tracking and Accounting Tool (Tracking Tool) to document and track changes in DCIA through development and redevelopment projects. The Tracking Tool must be annually updated and submitted by June 15th annually beginning on the third year following the permit's effective date. At a minimum the Tracking Tool must include the following information:

a. List of subwatersheds.

b. For each subwatershed the permittee must maintain a running list of BMPs constructed to meet the 5% DCIA annual reduction from Part I.C.5.j(3).i. of this permit, BMPs installed in new development and redevelopment, and existing BMPs that the permittee has confirmed are properly functioning. The permittee must at a minimum document the following information:

- Waterbody ID and name of the TMDL applicable.
- Initial DCIA for the subwatershed (DCIA) and % DCIA for the subwatershed (% DCIA).
- List of BMPs which includes: BMP ID, type of BMP, a brief narrative description, location of BMP (latitude-longitude), date construction of BMP was completed, and number of acres treated by the BMP (including total acres, pervious acres, and impervious acres).
- For each BMP identify the person responsible for routine

inspections and maintenance and dates of routine inspections and maintenance activities to be kept for a minimum of five (5) years. The database fields for inspection and maintenance need to be completed and show that BMPs are inspected annually and adequately maintained. If the data for the required annual inspection and maintenance is missing or incomplete, then any previously applied DCIA reduction credit associated with the BMP must be deleted.

- Changes in DCIA, % DCIA and pollutant loads.

ii. If the permittee is unable to meet the 5% DCIA reduction target from Part I.C.5.j(3).i., the permittee must provide a narrative of the reasons why the reduction was not met for the year and submit an alternative schedule. The permittee must provide information demonstrating the efforts and extent of progress made toward meeting the required DCIA reductions.

(5) Plan Review. The permittee must review and evaluate the IC Reduction Plan's effectiveness towards meeting the requirements for a 10% DCIA goal a minimum of every 5 years and amend the Plan as necessary.

k. Water Quality Monitoring. The permittee shall conduct instream water quality monitoring in order to evaluate storm water impacts on the receiving water bodies of the outfalls of the Airport's storm water drainage system. The monitoring shall be conducted annually and be coordinated with an outfall monitoring event during the deicing season as specified in Parts I.A.1. and I.A.3. This monitoring will assist in determining the Airport's compliance with state water quality standards. The water quality monitoring plan shall consist of the following conditions:

(1) *Water Quality Monitoring Events and Locations.* Instream monitoring shall be conducted at the following three (3) receiving water locations: 1. The inlet to Warwick Pond at Lake Shore Drive; 2. The outlet to Warwick Pond; and 3. Buckeye Brook at Rufus Road. The monitoring shall be conducted during a frozen precipitation event (i.e. snow, sleet, freezing rain) during the deicing season (October 1 – March 31) at the T.F. Green Airport while aircraft deicing is occurring. This monitoring shall be coordinated with storm water outfall sampling as specified in Part I.A.1. and I.A.3. of the permit.

(2) *Monitoring Parameters, Frequency, and Duration.* Water quality parameters monitored will include pH, temperature, specific conductivity, dissolved oxygen (DO; mg/L), running average DO % saturation over a 24-hour period, BOD_5, COD, and propylene glycol. During the collection of samples a visual observation of the receiving waterbody shall be made to account for any discoloration and/or foaming and an observation to account for the presence of any nuisance odors. The frequency of monitoring will occur every four-(4) hours after the onset of the deicing event. The duration of the monitoring shall be approximately 48 hours after the onset of the storm event. The water quality monitoring schedule is summarized in the following table:

Station Type	Locations	Parameters	Approximate Frequency	Duration
Receiving Waters	Warwick Pond (Inlet) Warwick Pond (Outlet) Buckeye Brook (at Rufus Road)	pH Temperature Specific Conductivity DO (mg/L) DO % saturation BOD_5 COD Propylene Glycol	Every 4 hours	2 days

l. Annual Site Inspection Report. An annual site inspection must be conducted by appropriate personnel named in the SWPPP to verify that the description of potential pollutant sources required under Part I.C.5.a is accurate, that the drainage map has been updated or otherwise modified to reflect current conditions, and controls to reduce pollutants in storm water discharges associated with industrial activity identified in the SWPPP are being implemented and are adequate. If possible, the annual site inspection should be conducted during a period of actual deicing operations. If not practicable during active deicing or the weather is too inclement, conduct the evaluations when deicing operations are likely to occur and the materials and equipment for deicing are in place. The following areas shall be included in all inspections: aircraft and runway deicing areas, the Deicer Management System (Terminal/Cargo Ramp collection areas, associated pump stations, and associated aboveground storage tanks/pretreatment system), storage areas for aircraft/vehicles/equipment awaiting maintenance, fueling area(s), aircraft/vehicle/equipment maintenance areas (both indoors and outdoors), material storage areas, aircraft/vehicle/equipment cleaning areas, loading and unloading areas, and storm water discharge locations and receiving waters. A tracking or follow up procedure must be used to ensure that the appropriate action has been taken in response to the inspection. A copy of the annual site inspection report and records documenting significant observations made during the site inspection must be retained as part of the SWPPP for a minimum of five (5) years.

m. Consistency with Other Plans. Storm water management controls may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under Section 311 of the CWA or Best Management Practices (BMP) Programs otherwise required by a RIPDES permit and may incorporate any part of such plans into the SWPPP by reference.

D. DETECTION LIMITS

All analyses of parameters under this permit must comply with the National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting rule. Only sufficiently sensitive test methods may be used for analyses of parameters under this permit. The permittee shall assure that all testing required by this permit, is performed in conformance with methods listed in 40 CFR 136. In accordance with 40 CFR 136, EPA approved analysis techniques, quality assurance procedures and quality control procedures shall be followed for all reports required to be submitted under the Rhode Island Pollutant Discharge Elimination System (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).

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 submitted along with the monitoring report. 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 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 included as zeros 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 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
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 *	0.013
6B	benzo(a)pyrene *	0.023
7B	3,4-benzofluoranthene *	0.018
8B	benzo(ghi)perylene *	2.0
9B	benzo(k)fluoranthene *	0.017
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 *	0.15
19B	dibenzo (a,h) anthracene *	0.03
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 *	0.043
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)
BOD_5	4.0 mg/l
TSS	2.0 mg/l
Fecal Coliform	2.0 MPN/100 ml
TRC	5.0 mg/l
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
Total Xylenes	0.5
Ethanol	2.0 mg/l

* Polynuclear Aromatic Hydrocarbons
** No Rhode Island Department of Environmental Management (RIDEM) MDL
*** Not a priority pollutant as designated in the 1997 Water Quality Regulations (Table 5)

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.

E. 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).

2. Submittal of DMRs Using NetDMR

For all outfalls except 200A/300A: Monitoring results obtained during the previous three (3) months shall be summarized and reported to DEM in discharge monitoring reports (DMRs) submitted electronically using the NetDMR reporting tool (https://netdmr.epa.gov). When the permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to DEM.

The first report is due for the calendar quarter during which the facility obtained coverage under this permit. Testing shall be reported as follows:

Quarter Testing to be Performed	Report Due	Results Submitted
January 1 – March 31	April 15	March
April 1 – June 30	July 15	June
July 1- September 30	October 15	September
October 1 – December 31	January 15	December

For Outfall 200A/300A: During the 1st and 4th calendar quarters, the permittee shall continue to submit its monthly monitoring data in DMRs to DEM no later than the 15th day of the month electronically using NetDMR. When the permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to DEM.

3. Submittal of Reports as NetDMR Attachments

Unless otherwise specified in this permit, the permittee must submit electronic copies of documents in NetDMR that are directly related to the DMR. These include the following:

- DMR Cover Letters
- Below Detection Limit summary tables
- Storm event information per Part I.E.6 of the permit
- Adverse weather/lack of measurable storm event reporting per Part I.E.7 of the permit
- A copy of the analytical laboratory report(s), specifying analytical methods used.

All other reports should be submitted to DEM as a hard copy via regular US mail (see Part I.E.4 below).

4. Submittal of Requests and Reports to DEM

The following requests, reports, and information described in this permit shall be submitted as hard copy to the DEM.

a. Transfer of Permit notice;
b. Request for changes in sampling location;
c. Request for reduction in testing frequency;
d. Request to add chemicals or "bioremedial agents including microbes" to the collection and treatment system per Part I.A.10 of the permit;
e. Written notifications required under Part II;
f. Notice of unauthorized discharges;
g. Amendments to the SWPPP per Parts I.C.3 and I.C.4 of the permit;
h. Request to modify the AST Fuel Farm treatment system per Part I.A.18.b of the permit;
i. An amended SWPPP to incorporate the Runway 5-23 extension and any other pertinent development projects since the last permit reissuance per Part I.C.1 of the permit;
j. Certification of non-storm water discharges per Part I.C.5.a.(6).i and I.C.5.i.(5) of the permit;
k. GlyCAST calibration data per Part I.C.5.c.(1).i.d of the permit;
l. Seasonal collection program operating schedule per Part I.C.5.c.(1).ii of the permit;
m. Requests to modify the 10-minute Response Period per Part I.C.5.c.(1).viii of the permit;
n. Odor complaint reports per Part I.C.5.e.(1).iv of the permit;
o. An amended Drainage Master Plan per Part I.C.5.h of the permit.
p. A dry weather screening report per Part I.C.5.i.(5).iii of the permit.
q. An Impervious Cover Reduction Plan per Part I.C.5.j of the permit.

r. An Annual DCIA Tracking Tool Report per Part I.C.5.j.(4).i of the permit.

These reports, information, and requests shall be submitted to DEM by hard copy mail to the following address:

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

5. Verbal Reports and Verbal Notifications

Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to the DEM. This includes verbal reports and notifications required under Part II.(I)(5) General Requirements. Verbal reports and verbal notifications shall be made to DEM at (401) 222-4700 or (401) 222-3070 at night.

6. In addition to the required sampling results submitted in accordance with Part I.A.1., and I.A.3. of this permit, the permittee must provide the date and duration (hours) of the storm events sampled, the total depth of rainfall (inches), the total volume of runoff (ft^3),and the time (in days) since the previous measurable storm event For snowmelt monitoring, the permittee must identity the date of the sampling event. This information must be submitted with the Discharge Monitoring Report forms at the frequency specified in Part I.E.2 of this permit.

7. When adverse weather conditions or lack of a measurable storm event prevent the collection of samples during the entire quarterly monitoring period, a substitute sample must be collected during the next qualifying storm event. Adverse conditions are those that are dangerous or create inaccessibility for personnel, such as local flooding, high winds, or electrical storms, or situations that otherwise make sampling impractical, such as drought or extended frozen conditions. Adverse weather does not exempt the permittee from having to file a Discharge Monitoring Report in accordance with Part I.E.2 of the permit. The permittee must report any failure to monitor as specified in Parts I.A.1 and I.A.3 indicating the basis for not sampling during the usual reporting period. The above information is not required if there was no flow from any outfall(s) for the reporting period. This information must be submitted with the Discharge Monitoring Report form for the period in which sampling was not conducted due to adverse weather conditions or lack of a measurable storm event.

8. End of Season Deicing Summary and Management Report. An annual report must be prepared which provides a summary and description of glycol usage, collection and management activities during the previous deicing season. Such report shall be submitted annually, no later than June 15 following the deicing season and must include, at a minimum, the following:

a. Tabular summary of aircraft deicing fluid usage and collection volumes (daily log of volumes of glycol used by each tenant/entity, total glycol used and collected per day that deicing occurs, total glycol used and collected annually, annual % glycol collected, and % glycol collected per storm event);

b. Summary of overall seasonal weather conditions;

c. A summary of all odor complaints received and any investigations and related amendments to the SWPPP and associated BMPs,

d. Recommendations for usage and collection procedures, and equipment to improve collection efficiencies and overall program management, enhanced BMPs and

recommendations to amend the SWPPP. This shall include an assessment of the applicability of source reduction BMPs such as anti-icing techniques and innovative technologies as well as an assessment of practices and procedures employed during the monitoring event to identify necessary improvements for the next deicing season. The recommendations must include a schedule to amend the SWPPP and implement enhanced BMPs subject to the Director's approval.

e. A report summarizing the results of the real time monitoring of concentrations upstream of the cargo and terminal area diversion points which are less than the appropriate diversion limit and are discharged to the outfall after the approved Response Period. The report shall include a frequency distribution of the glycol concentration and volume discharged between the 15-minute TOC measurements. The range of the frequency distribution cells and reporting format shall be established during the start-up and commissioning of the system as described in Part I.C.5.c.(1). The specific format that information is reported under this section may be modified upon written approval from DEM.

9. Wet Weather Deicing Event Specific Deicing Fluid Collection and Management Report. For each wet weather event in which aircraft deicing occurs, an event specific report must be prepared. Such report(s) shall be submitted with the DMR Forms as specified in Part I.E, and must include, at a minimum, the following:

a. Tabular summary of aircraft deicing fluid usage and collection volumes (daily log of volumes of glycol used by each tenant/entity, total glycol used and collected per day that deicing occurs, and % glycol collected per storm event. The report shall identify the amounts used and collected for the terminal and cargo areas and secondary deicing areas;

b. Summary of climatic conditions that includes a discussion of types and timing of storms and resulting effect(s) on collection activities for each individual storm event;

c. A daily log of collection efforts and glycol monitoring that includes the number of employees dedicated to GRV collection efforts, the times and amounts collected from each deicing area, times and locations of collection efforts at each deicing area, efforts made to collect runoff in a timely manner as soon as practical to the time of application and identification of any impediments to timely and efficient collection of concentrated runoff prior to dilution and observations and/or recommendations for improvements.

d. A summary and event specific discussion of outfall and in-stream monitoring results for sampling events conducted under Part I.A.1 and Part I.C.5.k and calibration sampling conducted under Part I.C.5.c.(1).vi;

e. A summary of any odor complaints received during or subsequent to the deicing event and any associated investigations performed by RIAC;

f. Recommendations for usage and collection procedures, equipment to improve collection efficiencies and overall program management, enhanced BMPs and recommendations to amend the SWPPP. This shall include an assessment of the applicability of source reduction BMPs such as anti-icing techniques and innovative technologies as well as an assessment of practices and procedures employed during the monitoring event to identify necessary improvements for the next wet weather deicing event. The permittee shall immediately amend the plan in accordance with Part I.C.3. and submit changes to the plan to the DEM within thirty (30) days of amending the plan.

g. A report summarizing the results of the real time monitoring of concentrations upstream of the cargo and terminal area diversion points which are less than the appropriate diversion limit and are discharged to the outfall after the approved Response Period. The report shall include a frequency distribution of the glycol concentration, volume discharged between the 15-minute TOC measurements and a graph of the flow and concentration values recorded at the 15-minute increments. The range of the frequency distribution cells and reporting format shall be established during the start-up and commissioning of the system as described in Part I.C.5.c.(1). The specific format that information is reported under this section may be modified upon written approval from DEM

10. *Water Quality Monitoring Results.* All results obtained from the instream water quality monitoring in Part I.C.5.k. shall be summarized and reported in a water quality monitoring report postmarked no later than the 15th day of the third month following the end of the winter deicing season. The first report shall be due on June 15, 202_____.

PART II
TABLE OF CONTENTS

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 250-RICR-150-10-1.12 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) 222-4700 or (401) 222-3070 at night.

A written submission shall also be provided within five (5) calendar 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 250-RICR-150-10-1.14(R) 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 250-RICR-150-10-1.14(R) of the RIPDES Regulations; and

(d) The permittee complied with any remedial measures required under 250-RICR-150-10-1.14(E) 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, 235 Promenade Street, Providence, Rhode Island 02908. 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 250-RICR-150-10-1.16 and 250-RICR-150-10-1.24 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 250-RICR-150-10-1.50 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
µg/l	micrograms per liter
lbs/day	pounds per day
kg/day	kilograms per day
Temp. ^oC	temperature in degrees Centigrade
Temp. ^oF	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

Attachment A
PFAS Analyte List

Target Analyte Name	Abbreviation	CAS Number
Perfluoroalkyl carboxylic acids		
Perfluorobutanoic acid	PFBA	375-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUnA	2058-94-8
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluorotridecanoic acid	PFTrDA	72629-94-8
Perfluorotetradecanoic acid	PFTeDA	376-06-7
Perfluoroalkyl sulfonic acids		
Acid Form		
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluoropentansulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1
Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Fluorotelomer sulfonic acids		
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid	4:2FTS	757124-72-4
1H,1H, 2H, 2H-Perfluorooctane sulfonic acid	6:2FTS	27619-97-2
1H,1H, 2H, 2H-Perfluorodecane sulfonic acid	8:2FTS	39108-34-4
Perfluorooctane sulfonamides		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methyl perfluorooctanesulfonamide	NMeFOSA	31506-32-8
N-ethyl perfluorooctanesulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids		
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols		
N-methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2
Per- and Polyfluoroether carboxylic acids		
Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6

Target Analyte Name	Abbreviation	CAS Number
Ether sulfonic acids		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
Fluorotelomer carboxylic acids		
3-Perfluoropropyl propanoic acid	3:3FTCA	356-02-5
2H,2H,3H,3H-Perfluorooctanoic acid	5:3FTCA	914637-49-3
3-Perfluoroheptyl propanoic acid	7:3FTCA	812-70-4

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

FACT SHEET

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

RIPDES PERMIT NO.

RI0021598

NAME AND ADDRESS OF APPLICANT:

Rhode Island Airport Corporation
2000 Post Road
Warwick, Rhode Island

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Rhode Island T. F. Green International Airport
2000 Post Road
Warwick, Rhode Island

RECEIVING WATERS:

Tributaries to Warwick Pond (Water body ID#: RI0007024R-05)
Buckeye Brook and Tributaries (Water body ID#: RI0007024R-01)
Tuscatucket Brook (Water body ID#: RI0007025R-05)

CLASSIFICATIONS:

B (Tributaries to Warwick Pond and Buckeye Brook and Tributaries)
A (Tuscatucket Brook)

Fact Sheet Table of Contents

Attachments

A-1 Summary of DMR Data – Major Outfalls
A-2 Summary of DMR Data – Minor Outfalls
A-3 Summary of DMR Data – Outfall 100A
A-4 Summary of DMR Data – Outfalls 200A/300A
A-5 Site Location Map
A-6 Site Drainage Map
A-7 Deicer Management System Overall Site Plan and Process Flow Diagram
A-8 Summary of Latitude/Longitude for Major/Minor Outfalls
A-9 Sampling Sites from 2021 TMDL
A-10 Dry Weather Background Concentrations at BB00
A-11 Hardness Data for WQBEL Development
A-12 Ammonia Criteria Development
A-13a Calculation of Allowable Acute and Chronic Discharge Limitations: Outfalls 002/003 (BB02 Average Hardness Value)
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A-15 Dry Weather Metals Limits TMDL% Reduction Analysis
A-16 Final Dry Weather Metals Limits for Outfalls 002, 003, 008, and 009

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 obtain permit coverage for stormwater discharges associated with industrial activity into the designated receiving waters. The applicant is engaged in the operation of a major commercial airport serving Rhode Island, southeastern Massachusetts, and Connecticut. The discharges to surface waters are from seventeen (17) perimeter outfalls that receive stormwater flows from the Rhode Island T.F. Green International Airport's ("the Airport's") storm drainage system consisting of storm drains, catch basins, underground piping, and structural stormwater controls. The discharges are to the following receiving waters: Tributaries to Warwick Pond, Buckeye Brook and Tributaries, and Tuscatucket Brook.

II. Description of Discharge

The permit authorizes the discharge from seventeen (17) outfalls to surface waters that are described in Section IV of the Fact Sheet under Site Drainage/Outfalls.

This permit authorizes stormwater and certain allowable non-stormwater discharges from the seventeen (17) outfalls as defined in the Permit to waters of the State from T.F. Green's Storm Sewer System. Stormwater includes rain runoff and snowmelt runoff. There is no limit on the time between the snowfall and snowmelt for the purpose of including a snow melt discharge in the definition of stormwater. All other discharges not included in the definition of stormwater constitute non-stormwater discharges. Allowable non-stormwater discharges are limited to those that are consistent with DEM's 2019 Multi-Sector General Permit. A listing of allowable non-stormwater discharges can be found below in Section IV of the Fact Sheet under Permit Conditions / Prohibited Discharges / Non-stormwater Discharges and must be identified in the facility's Stormwater Pollution Prevention Plan (SWPPP). Any other discharges are not authorized under this permit. The conditions in this permit apply to the permittee and all airport tenants engaged in servicing, repairing, or maintaining aircraft and ground support vehicles, equipment cleaning and maintenance (including vehicle and equipment rehabilitation, mechanical repairs, painting, fueling, lubrication) or deicing/anti-icing operations (facilities generally classified as SIC Code 45).

The permit also includes requirements for three (3) internal outfalls: Outfall 100A, Outfall 200A, and Outfall 300A, as described below.

The discharge from Internal Outfall 100A consists entirely of treated effluent from the Aboveground Storage Tank (AST) fuel farm water treatment system. Outfall 100A is an internal waste stream associated with Outfall 001A and is defined as the effluent of the AST fuel farm water treatment system.

The discharges from Internal Outfalls 200A/300A consist of flows that are bypassed at a location downstream of the diversions points for the terminal area (200A) and cargo area (300A). These internal outfalls associated with the glycol diversion systems are further discussed below in Part IV of the Fact Sheet under Internal Outfall Monitoring/Reporting/Calibration. Outfall 200A is an internal waste stream associated with Outfall 008A and Outfall 300A is an internal waste stream associated with Outfall 002A.

A quantitative description of the discharges from the permitted outfalls based on Discharge Monitoring Report (DMR) Data from October 2012 to December 2021 is shown in Attachments A-1 (major outfalls), A-2 (minor outfalls), A-3 (Outfall 100A), and A-4 (Outfalls 200A/300A). Attachment A-5 includes a site location map and Attachment A-6 includes an overall site drainage map.

Upon review of available effluent data submitted with the most recent permit application and historical Discharge Monitoring Report (DMR) data, the DEM has determined that the facility may not be able to comply with its final permit limits for dry weather monitoring at Outfalls 002A, 003A,

008A, and 009A for Total Cadmium, Total Copper, Total Iron, and Total Lead. The DEM anticipates entering into a Consent Agreement that will establish interim limits and schedules for RIAC to evaluate alternatives and makes the necessary improvements to comply with the dry weather metals limits.

III. Permit Limitations and Conditions

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

IV. Permit Basis and Explanation of Effluent Limitation Derivation

Permit History

The Rhode Island Airport Corporation's ("RIAC"'s) most recent RIPDES permit, authorizing discharges from the above-mentioned facility, was issued on July 30, 2012. This permit became effective on September 1, 2012 and expired on August 31, 2017. The facility submitted an application for permit reissuance to the DEM dated February 27, 2017. On August 29, 2017, the DEM issued an application complete letter to the facility. In accordance with 250-RICR-150-10-1 §13 of the Regulations for the Rhode Island Pollutant Discharge Elimination System, the facility's July 30, 2012 permit remains in effect since a timely and complete permit application was submitted. Once this permit is reissued, it will supersede the July 30, 2012 permit.

Facility Description

The Airport is located in Warwick, RI. Approximate boundaries of the Airport include Airport Road to the north, Lakeshore Drive and various residential streets to the east, Main Avenue, Strawberry Field Road, and Warwick Industrial Drive to the south, and Post Road to the west. The site is approximately 1,100 acres. The Airport is owned by the State of Rhode Island and operated by RIAC. It serves as a major commercial airport in the State and region.

The March 2017 Stormwater Pollution Prevention Plan (SWPPP) submitted by RIAC as part of its February 27, 2017 reapplication describes how stormwater at the airport is managed through a variety of structural controls and management practices that reduce the amount of pollutants discharged from the site. The following stormwater management measures are currently implemented at the airport: airport stormwater drainage system (storm drains, catch basins, underground piping, and outfalls described above); airfield oil/water separators; Vortechs Stormwater Treatment system serving vehicle parking lots and north cargo ramp; airfield detention basins; airfield vegetation areas; infiltration trenches; AST fuel farm containment dike and water treatment system; catch basin valve inserts / glycol mobile collection vehicles during dry weather deicing events / storage of collected fluids associated with dry weather aircraft deicing/anti-icing operations; long-term Deicer Treatment and Management System (see below description); and snow management plans.

RIAC's deicer management system at the airport's terminal and cargo areas, were designed to prevent the discharge of deicing stormwater runoff to surface waters when the concentration immediately downstream of the terminal ramp exceeds 2,950 ppm propylene glycol and when the concentration immediately downstream of the cargo ramp exceeds 1,000 ppm propylene glycol. Based on historical data, the system is designed to collect on average 60% of deicing fluid applied, which achieves or exceeds average collection efficiencies consistent with centralized deicing pads across the country. Stormwater above the previously noted glycol concentrations at the terminal and cargo ramps is diverted from the stormwater drainage system and pumped to the Deicer Treatment Facility for treatment before being discharged to the Warwick Sewer Authority's (WSA's) sanitary sewer system. See the below section for a detailed description of the Deicer Management System.

Long Term Deicer Management System

The Deicer Management System includes gate deicing at the passenger terminal covering 29.4 acres and cargo operations deicing over 6.3 acres of ramp area. Three acres have been eliminated from both the gate deicing area at the terminal and the cargo deicing area. Deicer runoff from the terminal area and the cargo area is monitored and runoff with propylene glycol concentrations greater than or equal to 2,950 ppm and 1,000 ppm, respectively, is collected. Diversion of glycol impacted stormwater is based on real time monitoring of Total Organic Carbon (TOC) as a surrogate for propylene glycol. Deicer runoff collected from the terminal and cargo areas is sent to two enclosed storage tanks with odor control systems. From the storage tanks, deicer runoff is treated at an on-site biological treatment system and effluent from the treatment system is discharged to the WSA sanitary sewer system. Glycol impacted snow is collected and snowmelt is diverted to storage at propylene glycol concentrations greater than 2,950 ppm at the terminal area and concentrations greater than 1,000 ppm at the cargo area. The snow piles are melted with a snow melter and discharged to the deicer collection system. Attachment A-7 includes an overall site plan and process flow diagram of the Deicer Management System. Major components of the Deicer Management System include the following:

- Terminal pump station
- Terminal online monitoring system
- Force main from terminal pump station to storage tanks
- Cargo area pump station
- Cargo area online monitoring system
- Force main from cargo pump station to storage tanks
- Portable snow melter
- Two above ground storage tanks
- Biological treatment system
- Force main from treatment to sanitary sewer

Runoff is monitored, using real-time monitoring of TOC, a surrogate parameter that can be correlated to propylene glycol. TOC analyzers can measure to a much finer resolution than refractometers and TOC concentrations can be correlated to propylene glycol concentrations at a given site. Real time monitoring provides the opportunity to more precisely manage deicer runoff. Real time monitoring also allows the deicer management Supervisory Control and Data Acquisition (SCADA) system to make pre-programmed flow routing decisions based on concentration measurements taken every fifteen (15) minutes, eliminating the time delay associated with manual sampling and analysis. The correlation between TOC measurements from the online meter and the laboratory-based propylene glycol measurements was established and documented in a March 10, 2015 memo from Gresham Smith and Partners to RIAC[1]. This memo also documented the calibration procedures for the TOC monitors. This memo is available upon request to DEM.

Further information regarding the Deicing Management System can be found within the 'Deicer Management System Final Engineering Report, 90% Design Development (June 2012)'[2] and is available upon request to DEM.

Pretreatment Permit for Deicer Treatment Effluent

WSA issued RIAC an Industrial Wastewater Discharge Permit #609, which authorizes RIAC to discharge industrial wastewater associated with the Deicer Treatment Facility located at 50 Warwick Industrial Drive, Warwick into WSA's sewer system. RIAC installed an anaerobic fluidized bed

[1] GS&P, March 10, 2015. *Calibration of Deicer TOC Monitors, Deicer Treatment System, T.F. Green Airport*, GS&P Project No. 29684.00. Gresham Smith and Partners, Columbus, OH.
[2] GS&P, 2012. *Deicer Management System Final Engineering Report, 90% Design Development, June 2012*. Gresham Smith and Partners, Columbus, OH.

reactor (AFBR) technology for pre-treatment of deicer discharges. The current Industrial Wastewater Discharge Permit expires on May 31, 2028.

Dry Weather, Low Activity Wet Weather and Secondary Deicing

The permit requires the operation of mobile collection units and glycol recovery vehicles (GRVs) during 1) dry weather and 2) wet weather deicing events when activity within the terminal and cargo area is conducive to GRV use collection (i.e.," low activity wet weather") in the terminal area, cargo area, and at secondary deicing locations.

During dry weather and low activity wet weather deicing events, catch basin inserts are utilized in the terminal and cargo area collection systems and GRVs collect spent deicing fluid and transfer it to on-site storage tanks for on-site treatment.

Under limited circumstances (e.g. extreme weather) deicing may be required at secondary deicing locations during these events. Catch basin inserts are utilized at these secondary deicing locations and GRVs collect the retained deicing runoff and transfer it to the on-site storage tanks for on-site treatment.

Internal Outfall Monitoring/Reporting/Calibration

In order to measure the effectiveness of the diversion systems, RIAC monitors flow at a location downstream of the diversion points for the terminal area (Outfall 200A) and cargo area (Outfall 300A). All flows that bypass the collection and treatment system are discharged to waters of the State (i.e., not diverted to storage, treatment, and discharge to the sanitary sewer system) are limited and monitored by the permittee. Flow monitoring that occurs downstream of the diversion point, prior to mixing with other flows, represents flow that is discharging toward the outfall. A Bypass Event is defined as a discharge that begins after the approved Response Period when the calculated propylene glycol concentration exceeds 2,950 mg/l at the terminal area or 1,000 mg/l at the cargo area and ends when the calculated propylene glycol is less than 2,950 mg/l at the terminal area or 1,000 mg/l at the cargo area or if flow ceases. The average flow bypassing treatment, the average calculated propylene glycol concentration and the Bypass Volume is recorded for each Bypass Event. The approved Response Period is ten (10) minutes and represents the period between measurement of a calculated propylene glycol concentration greater than 2,950 mg/l at the terminal area and 1,000 mg/l at the cargo area and cessation of flow toward the outfall due to pump start-up, dewatering of the pump wet well and dewatering of the outfall line at the point of flow measurement. The permittee shall maintain a flow log with the monitoring results for any time period where the calculated propylene glycol concentration exceeds the diversion limit of 2,950 mg/l at the terminal area or 1,000 mg/l at the cargo area, which includes the duration of the bypass flow, the time(s) of day when the bypass flow commences and ceases, the calculated propylene glycol concentration and the bypass volume and shall provide a report to DEM.

RIAC shall continue to follow its procedures (outlined in the March 10, 2015 Gresham Smith and Partners memo noted above) for calibration and assessment of the on-line TOC sample collection and analysis system associated with the cargo and terminal area deicer fluid collection systems and for determination of the corresponding propylene glycol concentrations. These procedures include the collection of discrete samples (from both the cargo and terminal area systems) during a deicing event, when flow exists at the downstream sampling location for analysis of TOC and propylene glycol.

Site Drainage/Outfalls

The airport drainage system includes twelve primary outfalls (001A, 002A, 003A, 004A, 006A, 007A, 008A, 009A, 010A, 011A, 012A, and 013A) and five secondary (perimeter) outfalls (006B, 006C, 006D, 007B, and 014B). Twelve primary drainage areas have been delineated for the airport's primary outfalls, five secondary drainage areas, and three overland flow drainage areas.

Outfalls 005A, 004B, and 004C were eliminated during the reconstruction of the east end of Runway 34 in 2014.

Outfalls 001, 002A, 003A, 004A, and 013A discharge to the Tributaries to Warwick Pond; Outfalls 006A, 006B, 006C, 006D, 007A, 007B, 008A, 009A, and 014B discharge to Buckeye Brook and Tributaries downstream of Warwick Pond, and Outfalls 010A, 011A, and 012A discharge to Tuscatucket Brook. Table 1 below provides information on the drainage areas, the receiving water for each outfall, and description of land use. Also, as noted in Section II of the Fact Sheet, Attachments A-5 and A-6 display the location of the below outfalls. Attachment A-8 includes a summary of the latitude and longitude to the nearest 15 seconds for the twelve primary and five secondary outfalls.

Table 1: Summary of Outfalls, Receiving Waterbodies, and Land Use

Drainage Area	Outfall	Receiving Water	Size (Acres)	Land Use
1A	001A	Tributaries to Warwick Pond	5.8	Fuel transfer and storage
2A	002A	Tributaries to Warwick Pond	96.3	Aircraft fueling and deicing, cargo operations, tenant hangars, cargo glycol collection system
3A	003A	Tributaries to Warwick Pond	115.6	Runway, taxiway, glycol transfer and storage
4A	004A	Tributaries to Warwick Pond	28.6	Runway, taxiway
6A	006A	Buckeye Brook and Tributaries	24.9	Runway
6B	006B	Buckeye Brook and Tributaries	0.3	Taxiway
6C	006C	Buckeye Brook and Tributaries	0.8	Taxiway
6D	006D	Buckeye Brook and Tributaries	0.8	Taxiway
7A	007A	Buckeye Brook and Tributaries	7.5	Taxiway
7B	007B	Buckeye Brook and Tributaries	1.3	Taxiway
8A	008A	Buckeye Brook and Tributaries	245.6	Runways, taxiways, aircraft fueling and deicing, vehicle parking, terminal glycol collection area
9A	009A	Buckeye Brook and Tributaries	30.4	Airfield
10A	010A	Tuscatucket Brook	12.6	Airfield, secondary deicing
11A	011A	Tuscatucket Brook	6.1	Airfield (Runway, Taxiway)
12A	012A	Tuscatucket Brook	50.1	Vehicle parking, Airfield
13A	013A	Tributaries to Warwick Pond	26.8	Airfield Maintenance facility
14B	014B	Buckeye Brook and Tributaries	3.3	Deicer Management Facility

Receiving Water Descriptions/Impairments and Approved TMDLs

The Tributaries to Warwick Pond, Buckeye Brook and Tributaries, and Warwick Pond are all classified as Class B, warm water fisheries according to the RI Water Quality Regulations. These

waters are designated 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.

Tuscatucket Brook is classified as a Class A, warm water fishery according to the RI Water Quality Regulations and is designated for primary and secondary contact recreational activities and for fish and wildlife habitat. Class A waters shall be suitable for compatible industrial processes and cooling, hydropower, aquacultural uses, navigation, and irrigation and other agricultural uses and shall have excellent aesthetic value.

The above waterbody segments are included as impaired on DEM's Final 2022 Integrated Report Lists (https://dem.ri.gov/sites/g/files/xkgbur861/files/programs/benviron/water/quality/pdf/irrc22.pdf). A summary of each waterbody, its Class, use attainment status, impairments, and approved TMDLs are listed below in Table 2. Warwick Pond is included in Table 2 because as shown in Table 1, several outfalls receive discharges from RIAC outfalls before the tributary enters Warwick Pond. Table 2 only includes designated uses with at least one impairment. A map of the waterbodies and outfalls is included in Attachment A-5 and a map of the November 2021 TMDL sampling sites is included in Attachment A-9.

Section 303(d) of the Clean Water Act and EPA's Water Quality Planning and Management Regulations (40 CFR Part 130) require States to develop Total Maximum Daily Loads (TMDLs) for waterbodies that are not meeting designated uses. As seen in Table 2, several TMDLs have been approved for the waterbodies receiving discharge from T.F. Green outfalls. In 2007, DEM completed a Phosphorus TMDL for Warwick Pond[3] that did not identify the airport as a major source of phosphorus to Warwick Pond. Implementation of their SWPPP is expected to address the discharge of phosphorus associated with major airport activities, and implementation of the Glycol Management Plan required under the permit is expected to address the airport's contributions to the dissolved oxygen criteria violations. Additionally, the TMDL notes that the permittee may be notified at any time that the SWPPP does not meet one or more of the minimum requirements of the permit the Airport would then be required to update the SWPPP. At this time, DEM is not requiring additional BMPs (Best Management Practices) to control phosphorus.

A TMDL to address bacteria impairments to Tributaries to Warwick Pond and Buckeye Brook and Tributaries[4] was approved in 2008. The TMDL refers to the permit's SWPPP requirement that includes the implementation of BMPs and states that, "implementation of these and other BMPs outlined in the SWPPP are expected to address the discharge of pathogens associated with major airport activities." The 2005 Greenwich Bay TMDL, which included Tuscatucket Brook[5] did not include specific implementation requirements for the airport. Given impairments in the receiving waters, monitoring for enterococci is included for all the outfalls listed in Parts I.A.1-2 of the permit. Enterococci is the current indicator for recreational use of freshwaters in Rhode Island. In 2021, EPA approved a TMDL to address biodiversity and various metals impairments in the Buckeye Brook watershed. This TMDL is described in more detail in the following section.

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[3] Total Maximum Daily Loads for Phosphorus to Address 9 Eutrophic Ponds in Rhode Island (2007). Rhode Island Department of Environmental Management.
http://www.dem.ri.gov/programs/benviron/water/quality/rest/pdfs/eutropnd.pdf

[4] Total Maximum Daily Load Analysis for Buckeye Brook Watershed: Fecal Coliform and Enterococci Bacteria Impairments (2008). Rhode Island Department of Environmental Management.
http://www.dem.ri.gov/programs/benviron/water/quality/rest/pdfs/buckeye.pdf

[5] Total Maximum Daily Load Analysis for Greenwich Bay Waters: Pathogen / Bacteria Impairments (2005). Rhode Island Department of Environmental Management.
http://www.dem.ri.gov/programs/benviron/water/quality/rest/pdfs/gbtmdl.pdf

Table 2: Receiving Water Impairments and Approved TMDLs

Waterbody Name	Class	Impaired Use	Impaired Parameter (TMDL Approval Date)
Buckeye Brook and Tributaries	B	Fish & Wildlife Habitat	Benthic Macroinvertebrates, Dissolved Oxygen, Total Iron, Dissolved Cadmium, Dissolved Copper, and Lead (12/14/21)
		Primary Contact Recreation	Fecal Coliform, Enterococcus (12/23/2008)
		Secondary Contact Recreation	Fecal Coliform, Enterococcus (12/23/2008)
Tributaries to Warwick Pond	B	Fish & Wildlife Habitat	Benthic Macroinvertebrates, Total Iron, Dissolved Cadmium (12/14/21)
		Primary Contact Recreation	Fecal Coliform, Enterococcus (12/23/2008)
		Secondary Contact Recreation	Fecal Coliform, Enterococcus (12/23/2008)
Warwick Pond	B	Fish & Wildlife Habitat	Dissolved Oxygen, Total Phosphorus (9/27/2007)
Tuscatucket Brook	A	Primary Contact Recreation	Fecal Coliform (12/16/2006)
		Secondary Contact Recreation	Fecal Coliform (12/16/2006)

TMDL for Buckeye Brook and Tributaries and Tributaries to Warwick Pond

The 303(d) listings addressed in the above TMDL include the following:

- Buckeye Brook and Tributaries: Benthic-Macroinvertebrate Bioassessments, Dissolved Oxygen, Total Iron, Dissolved Cadmium, Dissolved Copper, and Lead
- Tributaries to Warwick Pond: Benthic-Macroinvertebrate Bioassessments, Total Iron, and Dissolved Cadmium

Introduction/Purpose

EPA approved a TMDL to address biodiversity and various metal impairments to Buckeye Brook and Tributaries and Tributaries to Warwick Pond on December 14, 2021[6]. The TMDL used data from the 2008 benthic macroinvertebrate bioassessments[7] that included assessment of both habitat and biological condition, finding that Buckeye Brook and Tributaries and Tributaries to Warwick Pond do not support aquatic life uses and are considered impaired for fish and wildlife habitat. The

[6] Total Maximum Daily Load Analysis for Buckeye Brook and Tributaries to Warwick Pond: Benthic Macroinvertebrates, Dissolved Oxygen, Total Iron, Dissolved Cadmium, Copper, and Lead (2021). Rhode Island Department of Environmental Management. https://dem.ri.gov/sites/g/files/xkgbur861/files/programs/benviron/water/quality/rest/pdfs/FINAL-Buckeye-Brook-TMDL_11-19-21.pdf

[7] Final Data Quality Report for the Aquatic Life Use Stressor Study for Buckeye Brook Watershed and Tributaries to Warwick Pond https://dem.ri.gov/programs/benviron/water/quality/rest/pdfs/tmdl-buckeye-aquatic-report.pdf .

November 2021 TMDL and July 2021 supporting "Final Data Quality Report for the Aquatic Life Use Stressor Study for: Buckeye Brook Watershed and Tributaries to Warwick Pond" are all available at the following website: http://www.dem.ri.gov/programs/water/quality/restoration-studies/reports.php

TMDL Sampling

DEM conducted a sampling project to characterize the geographic extent and severity of the Buckeye Brook Aquatic Life Use (AQLU) impairment and to identify potential causes and/or pollution sources contributing to the impairment. Water quality and/or benthic biological samples were collected from nine sites in the Buckeye Brook watershed over the course of surveys conducted from July 2008 through February 2011, which consisted of four dry weather and two wet weather surveys, one of which was during a winter deicing event.

Samples were collected for water quality. The water quality samples were analyzed for dissolved Arsenic (As), Copper (Cu), Cadmium (Cd), Manganese (Mn), Lead (Pb) and Zinc (Zn) as well as Total Iron (Fe). Other constituents included Hardness as CaCO3, five-day Biological Oxygen Demand (BOD), Chloride (Cl), Ammonia-Nitrogen (NH3-N), Nitrate+Nitrite-Nitrogen (NO2+NO3-N), Total Kjeldahl Nitrogen (TKN), Total Phosphorus (TP), Total Suspended Solids (TSS), Total Organic Carbon (TOC), pH, and Propylene Glycol. Toxicity samples were collected during dry and wet weather, and biological samples were collected during one survey. A detailed analysis of this sampling data is presented in the abovementioned July 2021 Final Data Quality Report.

Pollutants of Concern

Analysis of the data collected during the field work portion of the biodiversity study identified exceedances of numerous water quality criteria: dissolved oxygen, total iron, dissolved cadmium, dissolved copper, and dissolved lead as assigned to each segment identified above in Table 2. A weight of evidence approach suggests that these pollutants along with hydrologic impacts associated with stormwater runoff from the highly urbanized watershed are contributing to the benthic macroinvertebrate bioassessments impairment.

Potential sources of contaminants include stormwater discharges from Rhode Island T.F. Green International Airport ("the Airport") and Truk-Away landfill as well as runoff from the highly urbanized watershed. Stormwater outfalls from the Airport discharge to the Tributaries of Warwick Pond above Lakeshore Drive and into the tributaries to Buckeye Brook between the exit of Warwick Pond and Warwick Avenue. Historically, during winter de-icing operations RIAC implemented manual practices to collect stormwater contaminated with de-icing and anti-icing chemicals. The stormwater discharging from several outfalls on the airport property contained varying amounts of propylene glycol, the major constituent in aircraft deicing fluid (ADF). Between the 2008 benthic macroinvertebrate study and the 2021 TMDL approval, RIAC constructed the previously described Long-Term Deicing Management System to meet the requirements of the previous RIPDES permit to reduce the quantity of propylene glycol being discharged into the surrounding watershed.

Pollution Sources

Sources of biodiversity impairments in the watersheds were identified using the analytical results from water samples collected during the four dry weather[8] and two wet weather surveys. The results from the biological survey were also utilized in determining the sources of the impairments. The biodiversity TMDL examined the potential sources of metals contamination to the brook and its tributaries. Potential sources were summarized in Table 4.1 of the November 2021 TMDL. The potential sources identified include stormwater runoff from the highly urbanized watersheds, such as the Airport, and historic contamination in groundwater.

[8] One dry weather sampling date was determined to have been influenced by precipitation.

TMDL Analysis

The November 2021 TMDL establishes numeric water quality targets for total iron, dissolved copper, dissolved cadmium, and dissolved lead in Buckeye Brook and Tributaries and total iron and dissolved cadmium numeric water quality targets for the Tributaries to Warwick Pond. The TMDL determined that the water quality criteria for dissolved oxygen will be met through the existing controls of propylene glycol discharges and reductions in total iron levels.

Implementation

Efforts to implement the TMDL must ensure that Buckeye Brook and Tributaries and the Tributaries to Warwick Pond meet water quality criteria for dissolved cadmium, dissolved copper, dissolved lead, total iron, and dissolved oxygen, and the narrative criteria for protection of aquatic life. Dissolved copper and dissolved lead TMDL targets only apply to Buckeye Brook and Tributaries and the TMDL does not assign any reductions for these metals to the Tributaries to Warwick Pond.

Actions to mitigate the cause of the dissolved oxygen impairment and to avoid future violations of the in-stream dissolved oxygen criteria are in place due to RIAC constructing the Long-Term Deicing Management System (glycol treatment and diversion structures that went online in October 2014) and by meeting the TMDL's target values for the discharge of total iron into the affected water bodies.

The TMDL does not establish a separate target to address hydrologic alterations associated with the discharge of uncontrolled runoff from the highly impervious watersheds. Actions to mitigate the uncontrolled discharge of runoff from the Rhode Island Department of Transportation (RIDOT) and the City of Warwick as required by the Buckeye Brook Bacteria TMDL address the associated hydrologic alterations. In addition to the previous permit requirements for stormwater management, the TMDL anticipated that RIAC's new permit will include requirements to manage stormwater to reduce runoff volumes consistent with requirements established for MS4 operators in the six minimum measures.

In addition to permit compliance, the TMDL recommended that implementation activities focus on mitigating metals in groundwater from the Airport and from leachate at the Truk-Away landfill, as well as managing stormwater to reduce runoff volumes and metals concentrations throughout the watersheds. These efforts combined with actions implemented by RIAC to control the discharge of propylene glycol and actions to mitigate the uncontrolled stormwater discharges from the Rhode Island Department of Transportation and the City of Warwick will also lead to improvements in these streams' aquatic life as measured by benthic macroinvertebrate bioassessments.

% Reduction Recommendations

For all metals, a waterbody segment specific percent reduction was calculated for both wet and dry conditions only where an exceedance of criteria occurred. The waterbody segment's average percent reduction for each wet and dry condition was selected as a target reduction value to be used when implementing the TMDL. DEM recognized any management measures to mitigate the release of pollutants implemented after the time samples were collected contribute to the required reductions.

For dry weather, the average hardness by waterbody segment and date was used to calculate the applicable metals water quality criteria. The calculated criteria were then reduced by a 10% Margin of Safety (MOS) to generate a TMDL target in-stream concentration. The observed value by station was then compared to the TMDL target in-stream concentration to calculate the percent reduction and ultimately averaged with all percent reductions by segment to come up with the overall recommended percent reduction.

For wet weather, hardness was average by storm as detailed in the TMDL. The resulting criteria were then averaged for an average waterbody segment criterion. The resulting criterion was further

reduced by the 10% MOS to generate a TMDL concentration. The observed metals concentrations were averaged by storm and compared to the TMDL concentration to calculate the percent reduction for each station and ultimately averaged with all exceedance percent reductions by segment.

Table 3 below summarizes the TMDL's recommended percent reductions for metals:

Table 3: Recommended Percent Reductions for Metals

Waterbody	Dissolved Cd		Dissolved Cu		Dissolved Pb		Total Fe	
	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet
Tributaries to Warwick Pond	42.9	41.2	N/A	N/A	N/A	N/A	39.4	44.5
Buckeye Brook and Tributaries	62.1	30.2	No Reduction	20.0	12.4	32.4	58.8	51.4

Stormwater from Industrial Activity

RIAC is the only facility covered by an individual RIPDES permit (RI0021598) that discharges to the receiving waters addressed by the TMDL. A revised RIPDES Stormwater permit went into effect for the Airport on September 1, 2012 that required RIAC to develop and implement BMPs to promote source reduction and pollution prevention that is protective of water quality criteria in receiving waters, including dissolved oxygen, aquatic toxicity, foaming, nuisance odors and nuisance bacteria growth. The long-term deicing management system became operational in October 2014. It is constructed and sized to collect greater than 99% of all flows above the glycol diversion concentrations of 2,950 mg/L for the terminal area and 1,000 mg/L for the cargo area.

In addition, the revised 2012 RIPDES permit required RIAC to maintain and implement its existing SWPPP. The SWPPP includes required elements and BMPs to mitigate the impacts of the following: aircraft, vehicle, and equipment maintenance, aircraft and pavement deicing/anti-icing fueling and washing, aircraft lavatory service, illicit discharge detection and elimination, pesticide management, building and grounds maintenance, chemical and fuel handling and storage, materials handling, stormwater pollution prevention education, outdoor area and floor wash-down, and water quality monitoring.

Section 4.3 of the TMDL referenced a RIAC contracted study[9] that showed high levels of iron and iron bacteria were present in the outfalls that discharge to the Tributaries to Warwick Pond and Buckeye Brook and Tributaries. The high iron levels are present in the dry weather flows as the TMDL documented that metals concentrations in the channel receiving the discharge from Outfall 008A exceed ambient water quality criteria. Review of outfall sampling data collected by RIAC show that Outfalls 002A, 003A and 008A exceed the freshwater criterion for total iron.

Iron levels in groundwater are contributing to elevated levels of iron in both wet and dry weather flows. The field investigation by the ESS Group (Buckeye Brook Biodiversity Impairment Data Report, 2008, ESS Group. Inc., April 2009) found that smothering of habitat by iron flocculent material was noted within each of the tributaries originating from the airport and/or landfill. Examination of the macroinvertebrates at Stations BB04 and BB02 also showed evidence of impact from the iron flocculent. In excess, this material can smother coarse substrates and clog interstitial areas used as refuge by macroinvertebrates. The report found that the impairment was most readily detected in the biological communities at BB02, BB04, and TA01. Attachment A-9 displays the locations of the November 2021 TMDL sampling stations listed above. It concluded that some degree of improvement could be achieved by addressing the leachate issues at the landfill and

[9] The Louis Berger Group, 2007. *Technical Report Data Analysis Summary for Odor and Iron Bacteria Investigation, T.F. Green Airport, Warwick, RI.* Albany, NY

through implementation of new aircraft/airfield source water contamination prevention measures at the airport.

Conclusion/RIPDES Implementation

This permit includes effluent limits for Total Cadmium, Total Copper, Total Iron, and Total Lead for dry weather flows from Outfalls 002A, 003A, 008A, and 009A. In addition, water quality-based limits were established for Total Aluminum, Total Arsenic and Total Zinc for Outfall 008 and Total Aluminum and Total Zinc for Outfalls 002A/003A based on a reasonable potential analysis of outfall data and data provided in the permit application. The limits were applied to the above outfalls as they discharge to either the Tributaries to Warwick Pond (002/003) or Buckeye Brook and Tributaries (008/009). A further discussion on the development of the water quality-based limits is included in Part IV of the Fact Sheet under Permit Limit Development / Water Quality-Based Limits.

Also, based on the November 2021 TMDL's recommendations (Section 6.0 – Implementation), the permit incorporates requirements for RIAC to manage its stormwater discharges in order to reduce runoff volumes consistent with requirements established for MS4 operators. A further discussion on the permit conditions related to RIAC managing its stormwater runoff towards a watershed target of 10% impervious cover is included in Part IV of the Fact Sheet under Permit Conditions / Impervious Cover Reduction Requirements for Discharges to Water Quality Impaired Waters.

Permit Limit Development

The requirements set forth in this permit are from the State's Water Quality Regulations and the State's Regulations for the Rhode Island Pollutant Discharge Elimination System, both filed pursuant to RIGL Chapter 46-12, as amended. RIDEM's primary authority over the permit comes from EPA's delegation of the program in September 1984 under the Federal Clean Water Act (CWA).

Development of RIPDES permit limitations is a multi-step process consisting of: determining if Federal effluent guidelines apply; calculation of allowable water quality-based discharge levels based on background data and available dilution; assigning appropriate Best Professional Judgement (BPJ) based limits; comparing existing and proposed limits; comparing discharge data to proposed limits; performing an antidegradation/antibacksliding analysis to determine the final permit limits; and developing interim limits as appropriate.

Water quality criteria are comprised of numeric and narrative criteria. Numeric criteria are scientifically derived ambient concentrations developed by EPA or the State 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.

Technology-based Limits

Technology based treatment requirements represent the minimum level of control that must be imposed under Section 402 and 301(b) of the CWA (see 40 CFR 125 Subpart A) to meet Best Practicable Control Technology Currently Available (BPT), Best Conventional Control Technology (BCT) for conventional pollutants, and Best Available Technology Economically Achievable (BAT) for toxic pollutants. EPA has not promulgated National Effluent Guidelines for stormwater discharges from bulk storage petroleum facilities but has promulgated Effluent Guidelines from facilities that operate as primary airports (defined at 49 U.S.C. 47102).

In August 2000, the U.S. EPA reissued the *Preliminary Data Summary-Airport Deicing Operations (Revised)*. The DEM has utilized this document for guidance in reviewing the SWPPP, in addressing toxicity issues with aircraft and pavement deicing/anti-icing agents used, and in verifying the use of the most recent and acceptable BMPs to eliminate pollution from entering the stormwater drainage system. The Preliminary Data Summary provides information about the air transportation industry and the best management practices being employed for aircraft and

airfield deicing operations, as well as for the collection, containment, recovery, and treatment of wastewater containing deicing agents. EPA conducted a study of airport deicing operations to collect engineering, economic, and environmental data for use in determining whether national categorical effluent limitations guidelines and standards should be developed for this category of dischargers. A secondary purpose of this study was to provide information to permit writers, control authorities, airports, and airlines in developing pollutant control strategies for discharges from airport deicing operations.

Following the Preliminary Data Summary, EPA finalized effluent guidelines (ELGs) in May 2012. The EPA issued technology-based effluent limitations guidelines and new source performance standards to control discharges of pollutants from airport deicing operations (40 CFR Part 449) generally apply to wastewater associated with the deicing of airfield pavement at primary airports. The rule also establishes new source performance standards for wastewater discharges associated with aircraft deicing for a subset of new airports.

According to the ELGs, existing and new primary airports with 1,000 or more annual jet departures ("non-propeller aircraft") that generate wastewater associated with airfield pavement deicing are to use non-urea containing deicers, or alternatively, meet a numeric effluent limitation for ammonia. To comply with this condition, any existing point source must certify annually that it does not use airfield deicing products that contain urea or alternatively, airfield pavement discharges at every discharge point must achieve the numeric limitations for ammonia in Table I of the ELG, prior to any dilution or commingling with any non-deicing discharge. Also, new airports with 10,000 annual departures located in certain cold climate zones are required to collect 60 percent of aircraft deicing fluid after deicing. These new airports that discharge the collected aircraft deicing fluid directly to waters of the U.S. must also meet numeric discharge requirements for chemical oxygen demand. The rule does not establish requirements for aircraft deicing discharges at existing airports.

According to statistics from the Federal Aviation Authority (FAA) (https://adip.faa.gov/agis/public/#/airportData/PVD), there was a total of 41,868 departures in the 12 months ending on March 31, 2021 from T.F. Green International Airport. Therefore, T.F. Green meets the applicability threshold of "at least 1,000 annual non-propeller aircraft departures" as an existing facility. However, the airport does not use urea-based deicers pavement deicers as documented in its SWPPP and annual Deicing Management Plan and meets the intent of the ELG guidelines. Also, under the CWA, any source, the construction of which is commenced after promulgation of new source performance standard is a new source (See 33 U.S.C. '1316(a)(2)). T.F. Green International Airport was constructed in the 1930s and would not be considered a "new source" as it was constructed prior to the May 2012 ELGs (https://flyri.com/riac/our-history/). In the absence of technology-based guidelines, DEM is authorized to use Best Professional Judgement (BPJ) to establish effluent limitations, in accordance with Section 402(a)(1) of the CWA.

Under Section 301 (b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Rhode Island Water Quality Regulations (https://risos-apa-production-public.s3.amazonaws.com/DEM/REG_12454_20211228093602.pdf) include a narrative statement that prohibits the discharge of any pollutant or combination of pollutants in quantities that would be adversely affect aquatic life. In addition, the State has adopted numerical criteria for specific toxic pollutants.

The effluent monitoring requirements have been specified in accordance with RIPDES regulations as well as 40 CFR 122.41 (j), 122.44 (i), and 122.48 to yield data representative of the discharge.

BPJ-based Limits

Outfalls Discharging Stormwater Associated with Aircraft Deicing and Anti-icing[10]

The permit contains effluent discharge limitations[11], consisting of narrative/numeric effluent discharge limits based on Technology-based effluent limitations and Water quality-based effluent limitations as well as Special conditions—supplemental controls and Best Management Practices ("BMPs")[12] that may be needed in order to ensure that the goals of the CWA are met.

As part of developing the framework for effluent limits for the discharge of pollutants DEM completed a thorough review of ADF application and recovery operations at the Airport and assessed current reported operations in use and planned at other similarly situated airports for reducing/eliminating contamination to stormwater. DEM also established monitoring and reporting requirements, standard legal and administrative requirements, and BMPs, which are needed to ensure that ADF operations at the Airport satisfy the goals of the CWA .

Incorporating results from the Reviews and utilizing its best professional judgment, (BPJ)[13] DEM established a framework for effluent discharge limits based on the best available technology economically achievable (BAT).[14] The purpose was to determine what constitutes demonstrated and reasonable performance to limit the addition of ADF pollutants to stormwater that discharges to waters of the state, which is economically feasible for RIAC as an Air Transportation-facility. CWA Section 402(a)(1); 33 USCA §1342(a)(1): 40 CFR §125.3(c)(2) and (d);

As permitted by 40 CFR 122.44(k)(2), DEM imposed BMPs, permit conditions, and numeric effluent limitations. The BMPs are flexible requirements that allow RIAC to design site-specific plans to minimize and control pollutants in stormwater discharges associated with their ADF to be used as a substitute for measures designed to reduce contamination to stormwater before discharge from a point source occurs. (40 CFR 111.45(f)(1)) In addition, RIAC's BMPs must use "source control technologies which are the BAT or equivalent of best conventional pollutant control technology ("BCT").

The permit limits are consistent with 40 CFR 122.44(k)(2) and in accordance with the BMP approach as outlined in EPA's August 1, 1996 memorandum entitles "Interim Permitting Approach for Water Quality-Based Effluent Limitations for Stormwater Discharges" in Stormwater Permits; and as allowed in 250-RICR-150-10-1.16 of the RIPDES Regulations (which provides for the adoption of BMPs reasonably necessary to achieve effluent limitations for purposes of

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[10] See Table 1 for a listing of outfalls and their associated activities.
[11] Section 502 of the CWA defines "effluent limitations" as "any restriction established by a State or the Administrator on quantities, rates, and concentrations of…other constituents which are discharged from point sources." Therefore, effluent limitations can include narrative conditions and best management practices.
[12] 250-RICR-150-10-1.4 of the RIPDES Regulations defines BMPs as meaning "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage."
[13] NRDC v. EPA, 859 F.2d 156, 199 (D.C. Cir. 1988) ("BPJ limits constitute case-specific determinations of the appropriate technology-based limitations for a particular point source").
[14] The imposition of BAT limits serves the goal of eliminating discharge of pollutants. In addition, permit writers are afforded "considerable discretion in evaluating the relevant factors and determining the weight to be accorded to each in reaching its ultimate BAT determination." Texas Oil & Gas Ass'n, 161 F.3d 923,929 (5th Cir. 1998), citing NRDC v. EPA, 863 F.2d at 1426. See also Weyerhauser v. Costle, 590 F.2d1011, 1045 (D.C. Cir. 1978) (discussing EPA's discretion in assessing BAT factors, court noted that "[s]o0 long as EPA pays some attention to the congressionally specified factors, the section [304(b)(2)]on its face lets EPA relate the various factors as it deems necessary).

controlling and abating discharges of ADF pollutants as authorized under Section 402(p) of the CWA to control stormwater discharges).

Outfalls Discharging Stormwater associated with Fueling and Fuel Storage

Portions of discharges from perimeter outfalls designated 001A, 002A, and 008A receive treatment from oil/water separators due to the nature of activities taking place in the corresponding drainage/sub-drainage basins (i.e., fueling, fuel storage) and the potential for petroleum products to be present in the respective discharges. These outfalls will be sampled to evaluate the effectiveness of the best management practices and oil/water separators. The effluent limitations for oil and grease are based on American Petroleum Institute (API) oil/ water separator guidelines. The permit limit for oil and grease remains unchanged from the previous permit at 15 mg/L daily maximum.

Outfall 100A is located within Drainage Area 13 of the airport property, which contains the airport's primary fuel farm. The fuel farm consists of aboveground storage tanks (AST) and fueling facility. The fuel farm is designed and operated to fully comply with all SPCC requirements per 40 CFR 112. The AST fuel farm includes six (6) 50,000-gallon Jet A tanks, one 12,000-gallon AVGAS tank, one 12,000-gallon gasoline tank, and one 6,000-gallon diesel tank. The AST's and aboveground piping have appropriate secondary containment. Stormwater that collects in the diked areas drains to a valve sump at the eastern end of the containment dike. The water is tested prior to being discharged through a water treatment system. The treatment system consists of an activated carbon filter and pump station equipped with a flow-activated pump. The treated stormwater discharges through an Oil/Water Separator via Outfall 001A to an existing municipal stormwater drainage system along Airport Road and discharges into an unnamed tributary to Warwick Pond.

The 2012 RIPDES permit for the Airport established limits for pH, benzene, total BTEX, and TPH. The basis for these numeric limits was described in the 2012 Fact Sheet and remains the same as in the previous permit in accordance with antibacksliding provisions. Outfall 100 must also be monitored for toluene, ethylbenzene, total xylenes, MTBE, Total Iron, and sixteen (16) polynuclear aromatic hydrocarbons (PAHs). These pollutants were chosen because they are indicators used to characterize contamination from the petroleum hydrocarbons stored at the site. The permit requires analysis of pH, BTEX, MTBE, Total Iron, TPH, and the PAHs on a once per discharge basis.

The effluent limitations for pH have been established in accordance with §1.10(D) of the R.I. Water Quality Regulations for Class B freshwaters as the treated stormwater is ultimately discharged into an unnamed tributary to Warwick Pond.

Flow

All surface runoff from process or work areas at the facility shall be treated by the existing stormwater Best Management Practices (BMPs) at the facility. The facility utilizes the following stormwater BMPs: Deicer Treatment and Management System, Detention Basins (parking lot, infield area, Airfield Maintenance Facility), Infiltration Basins (cargo collection area, terminal glycol collection area, Deicer Treatment Facility), Underground Detention Systems/Infiltration Trenches/Sand Filters at the eastern end of Runway 34, Infiltration Trenches at the western end of Runway 16, Pervious area infiltration, Modular Stormwater Treatment Systems, Oil/Water separators, etc. Process or work areas are defined for the purpose of this permit as all of those areas subject to spills and leaks of raw materials or products (i.e., secondary containment areas, fuel storage and transfer areas, vehicle and equipment maintenance and/or cleaning areas, material loading or unloading areas, material storage areas, aboveground/undergrounds storage tanks (ASTs/USTs), waste disposal areas, and areas where deicing/anti-icing chemicals are stored and applied to aircraft, etc.). The release of runoff from any secondary containment area, holding basin, or any area noted above shall be controlled so that this discharge alone or in combination with any other sources of wastewater does not exceed the optimum design flow

rates for the applicable BMPs or cause violations of the effluent limitations specified in this permit. Flow must be monitored and reported for the Airport's major (002A, 003A, 008A, and 010A) and minor outfalls (001A, 004A, 006A, 007A, 009A, 011A, 012A, and 013A) to ensure that the design flows for any applicable BMPs are not exceeded.

Water Quality-based Limits

Allowable water quality-based effluent limitations were established on the basis of acute and chronic aquatic life criteria and human health criteria using the following: available instream dilution; an allocation factor; and background concentrations when available and/or appropriate. The aquatic life and human health criteria are specified in the Rhode Island Water Quality Regulations (250-RICR-150-05-1). Aquatic life criteria have been established to ensure the protection and propagation of aquatic life while human health criteria represent the pollutant levels that would not result in a significant risk to public health from ingestion of aquatic organisms. The more stringent of the two criteria was then used in establishing allowable effluent limitations. Details concerning the calculation of potential permit limitations, selection of factors, which influence their calculation, and the selection of final permit limitations are included below or in the attached documents.

DEM has calculated water quality-based limits for Total Iron, Total Cadmium, Total Copper, and Total Lead, for Outfalls 002, 003, 008, and 009. In addition, water quality-based limits were established for Total Aluminum, Total Arsenic, and Total Zinc for Outfall 008 and Total Aluminum and Total Zinc for Outfalls 002A/003A based on a reasonable potential analysis of outfall data and data provided in the permit application. These effluent limits will be applied during dry weather discharges from the above outfalls to meet the recommended percent reductions listed in the TMDL and in Table 3.

Dilution Factors

The Rhode Island Water Quality Regulations at 250-RICR-150-05-1.26 require in-stream concentrations of discharged pollutants to be determined by specific formulas, or other methods which may be found to be acceptable. These formulas require the use of the seven-day, 10-year, low flow (7Q10 flow) of the receiving stream immediately upstream of the discharge to be used in calculating the concentrations of discharged pollutants for the purpose of developing RIPDES permit conditions. This 7Q10 value is protective of water quality standards under critical flow conditions.

Since the base flows of groundwater from Outfalls 002, 003, 008, and 009 form the head waters of the tributaries in question, the DEM has assigned a dilution factor of 1 to establish water quality-based permit limits.

Dry Weather Background Concentrations

In determining the water quality-based limits, dry weather background data for Dissolved Cadmium, Dissolved Copper, Dissolved Lead, Total Iron, Dissolved Arsenic, Dissolved Zinc, and Total Ammonia (as N) was taken from sampling location BB00 from the November 2021 TMDL. The BB00 sampling station is located in the Tributaries to Warwick Pond above Airport Road and was used during the TMDL for background samples of a stream away from the Airport and landfill influence. A site map of the sampling locations is included as Attachment A-9. Based on the dry weather sampling runs conducted on 7/16/08, 9/10/08, 12/9/08, and 2/1/11, average background concentrations for the above parameters from sampling site BB00 were used for metals limits calculations for Outfalls 002, 003, 008, and 009. Attachment A-10 includes a table of the average dry weather background concentrations at BB00.

Hardness

The dry weather hardness values used for WQBEL calculations were determined separately for

Outfalls 002/003 and 008/009 as shown below:

Outfalls 002/003---> Use BB02 average hardness value

Outfalls 008/009---> AP01 hardness value

The sampling stations BB02 and AP01 can be found on the sampling location map included in Attachment A-9. The average dry weather hardness values used in the calculations of metals limits is summarized in Attachment A-11.

Ammonia

The Rhode Island Water Quality Regulations at 250-RICR-150-05 §1.26(L) require freshwater chronic ammonia limits to be calculated on the basis of pH and temperature. For the potential Ammonia limits for Outfalls 002/003, the highest values of Temp and pH from BB00 and BB02 sampling sites were used to determine the acute and chronic criteria. The values were chosen for two seasons, May - October and November - April from Tables 3.6 and 3.7 of the Final November 2021 TMDL. For the potential Ammonia limits for Outfalls 008/009, the highest values of Temp and pH from BB03, BB04, AP01, and BB05A sampling sites were used to determine the acute and chronic criteria. The values were chosen for two seasons, May - October and November - April from Tables 3.6 and 3.7 of the Final November 2021 TMDL. The pH value at BB03 from 7/16/08 sampling event was disqualified from the summer pH maximum and next highest value chosen as the value exceeded the maximum water quality criteria of a pH of 9.0 for a Class B freshwater receiving water and was the only pH value outside of the criteria. As noted above, these criteria were calculated on a seasonal basis, for “Summer” (May – October) and “Winter” (November – April). Water quality classifications (250-RICR-150-05 §1.25) lists the segment of the Tributaries to Warwick Pond and Buckeye Brook and Tributaries that Outfalls 002, 003, 008, and 009 discharge to as a warmwater habitat. Therefore, salmonids are assumed absent, and acute and chronic (for Fish Early Life Stages Present) ammonia criteria from the DEM Ambient Water Quality Criteria and Guidelines for Toxic Pollutants (250-RICR-150-05 §1.26(L)) are used based on that designation. Attachment A-12 includes a summary of the Ammonia criteria used in the Outfall 002/003 and 008/009 calculations. Attachment A-14 is a summary comparison of the allowable discharge levels versus the DMR data, permit application data, and 2021 TMDL sampling (for Outfall 008 only) for Outfalls 002, 003, 008, and 009. Based on this comparison, it was determined that Outfalls 002, 003, 008, and 009 do not have reasonable potential and, therefore, no water quality-based limits were assigned for Ammonia.

Limit Calculation

Based on the above dilution factors and the freshwater aquatic life and non-Class AA human health criteria from the Rhode Island Water Quality Regulations (250-RICR-150-05 §1.26), the allowable water quality-based effluent limitations were established using 80% allocation when no background data was available and 90% allocations when background data was available.

The allowable discharge limits were calculated as follows:

a) Background concentration unknown or available data is impacted by sources that have not yet achieved water quality-based limits.

$$Limit_1 = (DF) * (Criteria) * (80\%)$$

Where: DF = acute or chronic dilution factor, as appropriate
Note: the right side of this formula is divided by the appropriate metals translator when this formula is used to calculate limits for metals

b) Using available background concentration data (See Attachment F)

Limit = (DF) * (Criteria) * 90% - (Background) * (DF – 1)

Where: DF = acute or chronic dilution factor, as appropriate
Note: the right side of this formula is divided by the appropriate metals translator when this formula is used to calculate limits for metals

Because background concentrations were available for Arsenic, Cadmium, Copper, Lead, Iron, Ammonia, and Zinc, 90% of criteria was allocated for these pollutants. All other limits were calculated using 80% allocation, due to a lack of background data. Reference Attachments A-13a and A-13b for calculations of allowable limits based on Aquatic Life and Human Health Criteria.

The formulas and data noted above were applied with the following exceptions:

I. Pollutants that, based on the acute and chronic dilution factors, have a higher allowable chronic limit than allowable acute limit. For this situation, both the "Monthly Average" and "Daily Maximum" limits were set at the allowable acute limit.

II. Pollutants with water quality based monthly average limits in the previous RIPDES permit. The relaxation of monthly average limits from the previous permit was restricted in accordance with the antibacksliding provisions of the Clean Water Act and §1.27 the Implementation of the Antidegradation Provisions of the Rhode Island Water Quality Regulations.

III. Total Residual Chlorine. The limits for total residual chlorine (TRC) were established in accordance with the DEM Effluent Disinfection Policy. The “Monthly Average” and “Daily Maximum” were based on 100% allocation, a zero-background concentration, and the appropriate dilution factor(s). The 100% allocation factor for TRC was used due to the non-conservative nature of chlorine and the improbability of the receiving water having a detectable background TRC concentration.

Dry Weather Metals Limits Methodology

In accordance with 40 CFR Part 122.4(d)(1)(iii), it is only necessary to establish limitations for those pollutants in the discharge which have the reasonable potential to cause or contribute to the exceedance of the in-stream criteria.

In order to evaluate the need for permit limitations, the allowable discharge levels (potential permit limits) were compared to Discharge Monitoring Report (DMR) data collected since the previous permit term (October 2012 – December 2021) and data provided in the permit application for Outfalls 002, 003, 008, and 009. Also, data from Outfall 008 collected during dry weather runs from the DEM TMDL sampling were used for comparison purposes. A complete summary of DMR data from October 2012 thru December 2021 is presented in Attachments A-1 and A-2. Attachments A-13a and A-13b contain a summary of all potential water-quality based permit limits for Outfalls 002/003 and 008/009, respectively. Attachment A-14 is a summary comparison of the allowable discharge levels versus the DMR data, permit application data, and 2021 TMDL sampling (for Outfall 008 only) for Outfalls 002, 003, 008, and 009. Based on this comparison, it was determined that Outfalls 002 and 003 have reasonable potential for Copper, Zinc, Lead, Aluminum, and Iron, and Outfall 008 has reasonable potential for Arsenic, Cadmium, Copper, Lead, Zinc, Aluminum, and Iron. Therefore, water quality-based limits were assigned for these pollutants. These limits are summarized in Attachment A-16.

To determine if the above calculated water quality-base limits will satisfy the TMDL reduction targets, the metals limits displayed in Attachment A-16 were compared to historic outfall data for Cadmium, Copper, Lead, and Iron. The percent reduction was calculated for each metal using the proposed limit and the Airport’s Outfall monthly average data for the Mean of Detected Data.

The equation used to calculate percent reductions is as follows:

% Reduction = (Historic Monthly Ave Data – Water Quality-Based Monthly Ave Limit) / Historic Monthly Ave Data x 100.

Once the percent reductions were calculated, those values were then compared to the TMDL target % reductions (if applicable) to determine if the proposed limits were stringent enough to meet the TMDLs intent. Based on this analysis it was determined that the water quality-based limits would meet the TMDL % reductions where data was available.

A summary of the percent reductions analysis is presented in Attachment A-15.

Based on these comparisons, water quality limitations have been deemed necessary at Outfalls 002, 003, 008, and 009 for Total Cadmium, Total Copper, Total Lead, and Total Iron. In addition, the permit limits displayed in Attachment A-16 were compared to DMR data and dry weather sampling data from the 2021 TMDL and water quality limitations have been deemed necessary at Outfalls 002/003 for Total Aluminum and Total Zinc and at Outfalls 008 for Total Aluminum, Total Arsenic, and Total Zinc. Part I.A.2 of the permit includes dry weather monitoring requirements at Outfalls 002A, 003A, 008A, and 009A. A summary of the final dry weather metals limits is presented in Attachment A-16.

pH

The narrative effluent limitations for pH in Part I.A.7.a of this permit require pH of the effluent not be less than 6.5 standard units nor greater than 9.0 standard units unless these values are exceeded due to natural causes or as a result of the approved treatment processes. This narrative condition is based on water quality criteria established in the State's Water Quality Regulations for freshwater receiving waters. Numeric effluent limits for pH are also applied in Parts I.A.1, I.A.3, and I.A.4 of the permit for the following Outfalls: 001A, 002A, 003A, 006A, 007A, 008A, 009A, 010A, 011A, 012A, 013A, and 100A.

Emerging Contaminants

PFAS are a group of synthetic chemicals that have been in use since the 1940s. They are found in a wide array of consumer and industrial products. Airports can be contributors of PFAS releases into the air, soil, and water. Exposure to some PFAS above certain levels may increase risk of adverse health effects.[15] DEM is collecting information to evaluate the potential impacts that discharges of PFAS from various industrial dischargers may have on downstream uses, which can include drinking water, recreational and aquatic life uses depending on the receiving water.

In 2022, Rhode Island passed a law concerning PFAS in drinking water, groundwater, and surface waters. The Rhode Island law establishes monitoring requirements for public water supplies as well as treatment requirements if the sum of the concentrations of the following six species of PFAS exceed 20 parts per trillion (ppt).

Perfluorohexanesulfonic acid (PFHxS)
Perfluoroheptanoic acid (PFHpA)
Perfluorononanoic acid (PFNA)
Perfluorooctanesulfonic acid (PFOS)
Perfluorooctanoic acid (PFOA)

[15] EPA, *EPA's Per- and Polyfluoroalkyl Substances (PFAS) Strategic Roadmap: EPA's Commitments to Action 2021-2024,* EPA-100-K-21-002, October 2021. https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf

Perfluorodecanoic acid (PFDA)

The 2022 Rhode Island law is consistent with the MassDEP public drinking water standard regarding allowable concentrations and PFAS species. In addition to drinking water requirements, the 2022 Rhode Island law also compels DEM to adopt a groundwater quality standard and a surface water action level by December 31, 2023.

Although the Rhode Island Water Quality Regulations (250-RICR-150-05-1) do not include numeric criteria for PFAS, the RI Water Quality Regulations § 1.10(D)(1) under Chemical Constituents have narrative requirements that prohibits the discharge of pollutants in concentration or combinations that could be harmful to humans or fish and wildlife for the most sensitive and governing water class use.

Since PFAS chemicals are persistent in the environment and may lead to adverse human health and environmental effects, the Permit requires that the facility conduct quarterly sampling at the major outfalls (Outfalls 002A, 003A, 008A, and 010A) and semi-annual sampling at the minor outfalls (Outfalls 001A, 004A, 006A, 007A, 009A, 011A, 012A, and 013A) for PFAS chemicals using draft EPA Method 1633 until a 40 CFR Part 136 approved test method is made available to the public.

The purpose of this monitoring and reporting requirement is to quantify potential discharges of PFAS from this facility and to inform future permitting decisions. DEM is authorized to require this monitoring and reporting by CWA § 308(a), which states:

> "SEC. 308. (a) Whenever required to carry out the objective of this Act, including but not limited to (1) developing or assisting in the development of any effluent limitation, or other limitation, prohibition, or effluent standard, pretreatment standard, or standard of performance under this Act; (2) determining whether any person is in violation of any such effluent limitation, or other limitation, prohibition or effluent standard, pretreatment standard, or standard of performance; (3) any requirement established under this section; or (4) carrying out sections 305, 311, 402, 404 (relating to State permit programs), 405, and 504 of this Act—
>
> > (A) the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods (including where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe), and (v) provide such other information as he may reasonably require…"

Since an EPA method for sampling and analyzing PFAS in wastewater is not currently available, the permit requires that PFAS be analyzed using draft EPA method 1633 until a 40 CFR Part 136 approved test method for wastewater is made available to the public. This approach is consistent with 40 CFR § 122.44(i)(1)(iv)(B) which states that in the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR Part 136 or methods are not otherwise required under 40 CFR chapter I, subchapter N or O, monitoring shall be conducted according to a test procedure specified in the permit for such pollutants or pollutant parameters. After one year of monitoring for the quarterly sampled outfalls or two years of monitoring for the semi-annual sampled outfalls, if all samples are non-detect for all forty PFAS compounds, using draft EPA Method 1633 until a 40 CFR Part 136 approved test method is made available to the public, the permittee may request to remove the requirements for PFAS monitoring.

The reporting requirement for the listed PFAS parameters takes effect following the effective date of the permit. The PFAS Analytes that are required to be reported are listed in Attachment A of the permit.

Antibacksliding

Provided below is a brief introduction to Antibacksliding and Antidegradation; as well as a discussion on how the two policies were used to calculate water quality-based limits.

Antibacksliding restricts the level of relaxation of water quality-based limits from the previous permit. Section 303(d)(4) of the Clean Water Act addresses antibacksliding as the following:

Section 303(d)(4)

1. Standards not attained – For receiving waters that have not attained the applicable water quality standards, limits based on a TMDL or WLA can only be revised if the water quality standards will be met. This may be done by (i) determining that the cumulative effect of all such revised limits would assure the attainment of such water quality standards; or (ii) removing the designated use which is not being attained in accordance with regulations under Section 303.

2. Standards attained – For receiving waters achieving or exceeding applicable water quality standards, limits can be relaxed if the revision is consistent with the State's Antidegradation Policy.

Therefore, in order to determine whether backsliding is permissible, the first question that must be asked is whether or not the receiving water is attaining the water quality standard. The Office has determined the most appropriate evaluation of existing water quality is by calculating pollutant levels, which would result after the consideration of all currently valid RIPDES permit limits or historic discharge data (whichever is greater), background data (when available), and any new information (i.e., dilution factors).

Antidegradation

The DEM's Water Quality Regulations (250-RICR-150-05, Section 1.20) establishes four tiers of water quality protection:

Tier 1. In all surface waters, existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

Tier 2. In waters where the existing water quality criteria exceeds the levels necessary to support the propagation of fish and wildlife and recreation in and on the water, that quality shall be maintained and protected except for insignificant changes in water quality as determined by the Director and in accordance with the Antidegradation Implementation Policy, as amended. In addition, the Director may allow significant degradation, which is determined to be necessary to achieve important economic or social benefits to the State in accordance with the Antidegradation Policy.

Tier 2½. Where high quality waters constitute Special Resource Protection Waters SRPWs[16], there shall be no measurable degradation of the existing water quality necessary to protect the characteristics which cause the waterbody to be designated a SRPW. Notwithstanding that all public drinking water supplies are SRPWs, public drinking water suppliers may undertake temporary and short-term activities within the boundary perimeter of a public drinking water supply impoundment for essential maintenance or to address emergency conditions in order to prevent adverse effect on public health or safety. These activities must comply with the requirements set forth in Tier 1 and Tier 2.

[16] SRPWs are surface waters identified by the Director as having significant recreational or ecological uses. §1.28(B) of the Water Quality Regulations contains a table of identified SRPWs to date

Tier 3. Where high quality waters constitute an Outstanding Natural Resource ONRWs[17], that water quality shall be maintained and protected. The State may allow some limited activities that result in temporary or short-term changes in the water quality of an ONRW. Such activities must not permanently degrade water quality or result in water quality lower than necessary to protect the existing uses in the ONRW.

The formulas previously presented ensure that permit limitations are based upon water quality criteria and methodologies established to ensure that all designated uses will be met.

In terms of the applicability of Tier 2 of the Policy, a water body is assessed as being high quality on a parameter-by-parameter basis. In accordance with Part II of the Policy, "Antidegradation applies to all new or increased projects or activities which may lower water quality or affect existing water uses, including but not limited to all 401 Water Quality Certification reviews and any new, reissued, or modified RIPDES permits." Part VI.A of the Policy indicates that it is not applicable to activities which result in insignificant (i.e., short-term minor) changes in water quality and that significant changes in water quality will only be allowed if it is necessary to accommodate important economic and social development in the area in which the receiving waters are located (important benefits demonstration). Part VI.B.4 of the Policy states that: "Theoretically, any new or increased discharge or activity could lower existing water quality and thus require the important benefits demonstration. However, DEM will: 1) evaluate applications on a case-by-case basis, using BPJ and all pertinent and available facts, including scientific and technical data and calculations as provided by the applicant; and 2) determine whether the incremental loss is significant enough to require the important benefits demonstration described below. [If not then as a general rule DEM will allocate no more than 20%.] Some of the considerations which will be made to determine if an impact is significant in each site-specific decision are: 1) percent change in water quality parameter value and their temporal distribution; 2) quality and value of the resource; 3) cumulative impact of discharges and activities on water quality to date; 4) measurability of the change; 5) visibility of the change; 6) impact on fish and wildlife habitat; and 7) impact on potential and existing uses. As a general guide, any discharge or activity which consumes greater than 20% of the remaining assimilative capacity may be deemed significant and invoke full requirements to demonstrate important economic or social benefits."

In terms of a RIPDES permit, an increased discharge is defined as an increase in any limitation, which would result in an increased mass loading to a receiving water. The baseline for this comparison would be the monthly average mass loading established in the previous permit. It would be inappropriate to use the daily maximum mass loading since the Policy is not applicable to short-term changes in water quality.

For the purposes of ensuring that the revised limit is consistent with the requirements of antidegradation, existing water quality must be defined. As explained earlier, DEM evaluates existing water quality by determining the pollutant levels which would result under the design conditions appropriate for the particular criteria (i.e., background water quality, when available and/or appropriate, non-point source inputs; and existing RIPDES permit limitations or recent historical discharge data, whichever is higher). In general, available data would be used to make this determination.

Use the above-mentioned criteria, the present instream water quality C_p is defined as:

$$C_p = \frac{(DF - 1) \cdot C_B + (1 \cdot C_d)}{DF}$$

where: C_b = background concentration[18]
C_d = discharge data[19]

[17] ONRWs are a special subset of high-quality water bodies, identified by the State as having significant recreational or ecological water uses. At this time, no Rhode Island waters have been designated as ONRWs
[18] Data collected at a location that is unimpacted by significant point source discharges.

DF = dilution factor

In this permit, all monthly average limitations are either the same as or more stringent than the limits in the July 30, 2012 permit. Therefore, the limits contained in this permit are consistent with the Department's anti-degradation policy and were determined to be protective of the receiving waters.

Permit Conditions

Aircraft and Pavement Deicing/Anti-Icing Permit Requirements:

The permit requires a best management practice (BMP) approach for glycol management. A BMP is defined as any program, technology, process, citing criteria, operating method, measure or devices which controls, removes or reduces pollution. As such, the permit requires that RIAC develop and implement a Stormwater Pollution Prevention Plan (SWPPP) that includes BMPs to promote source reduction and pollution prevention and to be protective of water quality standards and criteria in the receiving waters such as dissolved oxygen and percent saturation, aquatic toxicity, foaming, nuisance odors, and nuisance bacteria growths. RIAC's March 2017 SWPPP substantively satisfies the above permit requirements and was updated to include the implementation of the Long-Term Deicing Management System.

The permit includes a condition that RIAC prohibit the use of any ADF more toxic than those currently in use as determined by bioassay testing using the results of an LC50 96-h test on *Pimephales promelas* expressed as Propylene Glycol. The T.F. Green Airport's 2004 and 2012 Fact Sheets discuss the data analysis performed by DEM for ADF products and their bioassay test results.

The permit requires the development of BMPs to minimize the amount of deicing fluids applied to aircraft; minimize contact and dilution of fluid with stormwater; prevent releases from accidental spills or leaks; minimize uncontrolled releases of deicing fluid in snow melt; and the use of available technology and controls that collect and dispose of deicing fluid and prevents the dry weather discharge of deicing fluids.

The permit does not authorize the use of Urea or Glycols for airfield pavement deicing. It further requires RIAC to implement runway and pavement deicing BMPs that include pollution prevention such as choosing environmentally sensitive products and source reduction BMPs such as anti-icing techniques. The proposed BMPs when implemented will meet the narrative criteria of "no toxics in toxic amounts".

The permit requires that the SWPPP include BMPs, as previously discussed, intended to reduce the potential for the creation of nuisance odors. The permit requires the permittee to develop and implement procedures to identify and respond to occurrences of nuisance odors in the discharges and receiving streams associated with aircraft and airfield pavement deicing. The permit also establishes deadlines for the permittee to respond to notification of odor complaints with outfall and in-stream sampling for propylene glycol and to perform inspections of all associated collections system appurtenances for residual glycols. The permit also contains a condition that will require the permittee to investigate groundwater as a potential source of residual propylene glycol if odors are documented during a dry weather period, dry weather discharges from the outfalls are found to contain detectable concentrations of propylene glycol, or if odors persist after the deicing season has ended.

The permit contains a condition that requires that RIAC observe the receiving waters for nuisance bacteria and should nuisance growths of *Sphaerotilus* spp. continue to occur, that other control

[19] Discharge data refers to the maximum of the permit limit or the historic discharge level. The historic discharge level is determined by calculating the upper 95th confidence interval for the monthly average reported data for the past five (5) years. For specific cases, changes in treatment efficiency or pretreatment limitations may support the use of an alternative period of time.

mechanisms will be applied as necessary. The permit requires that within seven (7) days of identifying a nuisance odor condition or being notified by DEM that a nuisance odor condition has occurred, the permittee shall submit a report that describes the climatic conditions, amount of deicing chemicals used and recovered, a description of the glycol management BMPs implemented, locations of observed odors, measured concentrations of glycol in the discharge and the receiving stream, remedial actions to be taken to mitigate future occurrences and recommend additional controls and amendments to the SWPPP as necessary should nuisance growths continue to occur.

The permit requires RIAC to measure surfactants in the outfalls that serve drainage areas where deicing occurs and requires the implementation of BMPs and a Deicing Management Plan that reduces the potential for foaming caused by the discharge of deicing chemicals. The Deicing Management Plan/Seasonal Collection Program Operating Schedule that includes procedures and a schedule to ensure that all collection, handling, and processing equipment is on-site and operational prior to October 15th of each year shall be submitted annually with the 3rd Quarter Discharge Monitoring Report (DMR) forms due by October 15th.

The permit requires RIAC to maintain, implement, and enforce a program to detect and eliminate illicit discharges or flows into the Airport's storm drainage system. The plan must prohibit non-stormwater discharges into the system that are not authorized under this permit or SWPPP. An annual inspection of catch basins and manholes for illicit connections, investigation of complaints, and dry weather filed screening for non-stormwater flow and field tests of selected parameters as indicators of illicit discharges sources must be conducted by RIAC. The dry weather survey including field screening shall be conducted between October 1st – March 31st (winter deicing season). RIAC must submit an annual report due no later than April 15th, that summarizes the above annual inspection requirements and certifies that all discharges have been inspected and tested for the presence of non-stormwater discharges.

The permit requires the implementation of a terminal area and cargo area glycol collection system sized to collect greater than 99% of all flows above the diversion concentrations (2,950 mg/l for the terminal area and 1,000 mg/l for the cargo area) based on simulations of 62 years of historical data. The system will be designed to detect and automatically collect stormwater runoff from cargo and terminal areas where deicing occurs and prohibit the discharge of glycol above specified limits. The system is described further in Section IV of the Fact Sheet under Facility Description / Long Term Deicing Management System.

Water Quality Monitoring

The permittee shall conduct instream water quality monitoring in order to evaluate stormwater impacts on the receiving water bodies of the outfalls of the Airport's stormwater drainage system. The monitoring shall be conducted annually and be coordinated with an outfall monitoring event during the deicing season. Instream monitoring will be conducted at three (3) receiving water locations as specified in the permit and include a sampling frequency of every four (4) hours after the onset of the deicing event for a duration of 48-hours. Sampling parameters will include pH, temperature, specific conductivity, DO (mg/L), DO percent saturation, BOD, COD, and propylene glycol. All results from the instream water quality monitoring shall be summarized and reported in a water quality monitoring report due annually by June 15th (15th day of the third month following the end of the winter deicing season).

Impervious Cover Reduction Requirements for Discharges to Water Quality Impaired Waters

In the November 2021 TMDL implementation section, it was noted that the revised permit would require RIAC to manage stormwater to reduce runoff volumes consistent with requirements established for Small MS4 operators in the six minimum measures.

The study area of the November 2021 TMDL is highly impervious and contains a mix of urban and mixed rural areas. Work done by the Center for Watershed Protection (www.cwp.org) has

shown that several stream quality indicators decrease as impervious cover (IC) percentages increase (Schueler, 2003). The trend becomes more pronounced when IC is >10%.

Results from this TMDL's investigations corroborate these findings. Results of macroinvertebrate sampling conducted as part of these investigations show that the Tributaries to Warwick Pond and Buckeye Brook and Tributaries are moderately to severely impaired for aquatic life use. An analysis of the land use within these watersheds completed as part of the TMDL has shown that the IC for the Tributaries to Warwick Pond average 45% while Buckeye Brook and Tributaries watershed averages 41% IC.

Available literature (EPA/ENSR, 2005) suggests that stormwater management plans for these watersheds should establish a goal of achieving an effective impervious cover of 10% to reduce stormwater-associated pollutants, along with the other stressors to aquatic life such as channel scour and loss of pool/riffle habitat. This is consistent with the requirements of the consent decrees established by EPA and DEM that require Rhode Island Department of Transportation (DOT) and the City of Warwick to apply the Impervious Cover Standard to manage stormwater discharges. The concept behind the approach is that it is desirable for a watershed to be similar, in terms of water quality effects, to a watershed with 10% or less impervious cover overall. Accordingly, the amount of impervious cover that would need to be eliminated or treated to act as if it were eliminated to reach the 10% target is calculated. The target impervious cover condition represents the condition in which all these stressors are reduced to levels compatible with attainment of the aquatic life criteria as indicated by benthic macroinvertebrate metrics. Lowering the IC improves overall watershed health, not just for bacteria, but other pollutants, including the metals pollutants addressed by this TMDL. While no new separate impervious cover targets are established by the 2008 bacteria TMDL, the 2021 TMDL reiterates the need to reduce IC to a target of 10% to meet water quality standards.

The November 2021 TMDL has determined that structural BMPs are necessary in the watersheds of both the Tributaries to Warwick Pond and Buckeye Brook and Tributaries. Based on the above information, the permit requires an Impervious Cover Reduction Plan be developed and implemented by the permittee to address discharges of the pollutants causing impairments from the Airport's permitted outfalls. Within twelve (12) months of the effective date of this permit, RIAC shall submit to the DEM for review and approval a Plan for the waterbody segments listed below in Table 4. The Plan must address all stormwater impaired waters receiving discharges from the permittee (either directly or through an interconnection to any MS4 that discharges to the impaired waterbody segment). RIAC will be required to determine its existing Directly Connected Impervious Cover (DCIA) discharging to each waterbody and, if it exceeds 10%, the permit requires that RIAC meet a 5% DCIA reduction goal beginning the 2nd year following the permit's effective date and annually thereafter. Also, RIAC must develop and implement a DCIA Tracking Accounting Tool to document and track changes in DCIA through development and redevelopment projects. The tracking tool must be annually updated and submitted by June 15th annually beginning on the third year following the permit's effective date.

Table 4: November 2021 TMDL Waterbody Segments of Concern and Impairments

Waterbody ID Number	Waterbody Description	Water Quality Classification	Water Quality Impairment
RI0007024R-01	Buckeye Brook and Tributaries	B	Benthic-Macroinvertebrate Bioassessments, Total Fe, dissolved Cd, Cu, and Pb and Dissolved Oxygen
RI0007024R-05	Tributaries to Warwick Pond	B	Benthic-Macroinvertebrate Bioassessments, dissolved Cd, and total Fe

Drainage Master Plan

The permit requires RIAC to develop and maintain a Drainage Master Plan that will provide a detailed plan of the existing drainage, topography, and land use which will also be used to assess existing conditions and stormwater impacts as well as to determine the impact of future development at the facility. RIAC submitted a revised plan dated March 2017 upon submission of the February 27, 2017 permit renewal documents. The permit requires RIAC to submit an amended plan within one hundred eighty (180) days of the effective date of the permit to incorporate the Runway 5-23 extension and any other pertinent development projects since the 2012 permit issuance.

SWPPP

Pursuant to Section 304(e) of the CWA and 40 CFR§125.103(b), best management practices (BMPs) may be expressly incorporated into a permit on a case-by-case basis where necessary to carry out Section 402(a)(1) of the CWA. The facility stores and handles pollutants listed as toxic under Section 307(a)(1) of the CWA or pollutants listed as hazardous under Section 311 of the CWA and has ancillary operations that could result in significant amounts of these pollutants reaching surface waters. These operations include one or more of the following items from which there is or could be site runoff: materials storage, materials processing and handling, blending operations, intra-facility transfers, and loading/unloading of product. To control these activities/operations, which could contribute pollutants to waters of the United States via stormwater discharges, at this facility; the permit requires this facility to implement a Stormwater Pollution Prevention Plan (SWPPP) containing BMPs appropriate for this specific facility. The BMPs should include processes, procedures, schedule of activities, prohibitions on practices, and other management practices that prevent or reduce the discharge of pollutants in stormwater runoff. The specific SWPPP requirements have been modified in this permit to be consistent with the Stormwater Management Plan (SWMP) requirements from Rhode Island's Multi-Sector General Permit for Stormwater Discharge Associated with Industrial Activity (MSGP) which became effective May 3, 2019. The draft permit requires the permittee to update and implement the SWPPP one hundred eighty (180) days following the effective date of the permit to incorporate the Runway 5-23 extension and any other pertinent development projects since the last permit reissuance.

Certain required elements of the SWPPP are listed below.

- Description of Potential Pollutant Sources
- Stormwater Management Controls
- Deicing Fluid Collection and Management/Source Reduction/Annual Deicing Management Report
- Deicer Management System
- Runway Rubber Removal Procedures
- Odor and Bacteria Growth Response
- Illicit Discharge Detection and Elimination
- Impervious Cover Reduction Requirements
- Pesticide Management
- Post-Construction Stormwater Management in New Development and Redevelopment
- Drainage Master Plan
- Water Quality Monitoring
- Non-Stormwater Discharges
- Site Inspection
- Consistency with Other Plans

Prohibited Discharges

Non-stormwater Discharges: This permit authorizes certain non-stormwater discharges consistent with DEM's 2019 Multi-Sector General Permit. Allowable non-stormwater discharges are limited to discharges from firefighting activities; fire hydrant flushings; routine external building washdown / power wash water that does not use detergents or hazardous cleaning products (such as those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols); lawn watering; uncontaminated groundwater; springs; air conditioning condensate; potable waterline flushings; irrigation drainage; foundation or footing drains where flows are not contaminated with process materials, such as solvents, or contaminated by contact with soils, where spills or leaks of toxic or hazardous materials have occurred; water sprayed for dust control or at a truck load wet-down station; incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but NOT intentional discharges from the cooling tower (e.g., "piped" cooling tower blowdown or drains); uncontaminated utility vault dewatering; dechlorinated water line testing water; hydrostatic test water that does not contain any treatment chemicals and is not contaminated with process chemicals; and discharges from washing of vehicles provided: chemicals, soaps, detergents, hazardous cleaning products (such as those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols), steam, or heated water are not used; cleaning is restricted to the outside of the vehicle (e.g., no engines, transmissions, undercarriages, or truck beds); or washing is not used to remove accumulated industrial materials, paint residues, heavy metals or any other potentially hazardous materials from surfaces. To prevent hydrocarbon and/or particulate entrainment (carry-over) from the treatment system, the permittee shall not add chemicals, soaps, detergents, solvents, emulsifiers, etc. to any fresh water wash down collection and treatment system without prior approval by the DEM.

All other non-stormwater discharges including fire protection foam (either in concentrate form or as a foam diluted with water) not associated with firefighting activities, sludge and/or bottom deposits, discharges from floor drains/trench drains located within building and/or hangars, vehicle/aircraft/equipment washing, rubber removal practices, dry weather discharges of deicing chemicals, and sanitary wastewater are excluded from coverage under this permit. Thus, the permittee is required to obtain a separate RIPDES permit for these non-stormwater discharges or seek the necessary approval(s) from the appropriate local pretreatment authority to discharge to the sanitary sewer system.

Contaminated Groundwater

Infiltration/Inflow of contaminated groundwater into the stormwater collection and treatment system is not authorized by this permit and must be addressed by the permittee pursuant to the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.

Other Conditions

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 management requirements common to all permits.

V. 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. In accordance with Chapter 46-17.4 of Rhode Island General Laws, a public hearing will be held prior to the close of the public comment period, if requested. 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 requested), 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, provided oral testimony, 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 250-RICR-150-10-1.50 of the Regulations for the Rhode Island Pollutant Discharge Elimination System.

VI. 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:

Aaron Mello, Environmental Engineer II
Department of Environmental Management/ Office of Water Resources
235 Promenade Street
Providence, Rhode Island 02908
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Email: aaron.mello@dem.ri.gov

22 July 2024
Date

Heidi Travers
Heidi Travers, P.E.
Environmental Engineer IV
RIPDES Program
Office of Water Resources
Department of Environmental Management

ATTACHMENT A-1

T.F. Green International Airport

Summary of DMR Data – Major Outfalls

DISCHARGE: 002A, 003A, 008A, 010A – Major Storm Water Outfalls

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE:

	OUTFALL							
	002A		003A		008A		010A	
PARAMETER	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**
FLOW (GPD)	348844	894913	605844	2023209	2447999	6684320	1163716	2860338
pH (S.U.)	6.53	7.47	6.53	7.46	6.52	7.29	6.55	7.06
Temperature (deg F)	NA	60.7	NA	59.3	NA	60.5	NA	62.9
Oil & Grease (mg/L)	NA	1.11	NA	1.28	NA	2.07	NA	1.52
TSS (mg/L)	25.4	41	9.44	16.8	15	26.7	22.3	37.8
BOD5 (mg/L)	18.8	50.9	13.6	35.2	40.2	84.9	3.62	10.7
Propylene Glycol (mg/L)	10.1	48.6	3.93	17.9	52.3	203.2	0.294	2.88
COD (mg/L)	47.3	145.9	31.1	85.4	164.3	452.3	17.9	46.9
Potassium (K+) (mg/L)	4.26	7.87	7.84	18.3	4.33	7.94	5.53	17.3
Sodium (Na+) (mg/L)	8.55	252	19.4	35.5	126	416	189	735
Surfactants (ug/L)	57.7	170.4	53.6	174	74.9	216.5	60.3	175
Dissolved Oxygen (mg/L)	8.37	9.42	9.11	9.85	8.66	9.48	7.37	8.16
Total Organic Carbon (mg/L)	13.2	40.8	8.88	23.8	44.3	123.4	2.52	5.76
Fecal Coliform (MPN/100 ml)	780987	3000135	2306819	5250211	3052448	6000190	3433636	6857264
Total Aluminum (ug/L)	64.92	225	76.2	251	152.8	641.6	213	577
Total Chromium (ug/L)	0.216	0.848	0.253	0.999	1.05	2.92	1.13	3.03
Total Copper (ug/L)	0.993	6.96	3.11	12.8	2.38	9.59	2.42	6.64
Total Iron (mg/L)	7.15	15.2	1.49	5.04	2.4	8.05	2.65	5.08
Total Lead (ug/L)	0.913	3.65	0.315	1.86	0.473	2.16	3.23	7.95
Total Zinc (ug/L)	4.63	13.97	7.88	64.7	7.79	34.1	7.33	16.3

[1]Data represents the mean of the monthly average data from October 2012 through December 2021.
[2]Data represents the mean of the daily maximum data from October 2012 through December 2021.
BDL=Below Detection Limit

ATTACHMENT A-2

T.F. Green International Airport

Summary of DMR Data – Minor Outfalls

DISCHARGE: 001A, 004A, 006A, 007A, 009A, 011A, 012A, 013A – Minor Storm Water Outfalls

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE:

	OUTFALL															
	001A		004A		006A		007A		009A		011A		012A		013A	
PARAMETER	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**
FLOW (GPD)	NA	990516	NA	2809909	NA	680390	NA	1760537	NA	11195477	NA	5032970	NA	4457872	NA	13365488
pH (S.U.)	6.81	7.23	6.98	7.43	7.38	8.19	7.8	8.32	6.72	7.04	7.6	7.9	7	7.41	7.75	8.15
Oil & Grease (mg/L)	NA	2.3	NA	1.15	NA	1.35	NA	0.783	NA	2.78	NA	1.5	NA	1	NA	1.1
TSS (mg/L)	51	64	6.21	8.59	4.55	7.43	124.3	369	175	339	65	112	22.9	41	17.3	18.9
BOD5 (mg/L)	10	10.9	16	19.8	6.2	11	8.85	8.85	21.8	25.5	11.5	19	4.05	4.8	14.6	15.8
Fecal Coliform (MPN/100 ml)	8024796	12000062	1846401	3692419	12000021	12000055	160.5	160.5	8021928	24000000	4000545	12000015	1000263	3000260	64	112
Potassium (K+) (mg/L)	189.1	197.6	35.6	43.5	3.79	5.4	1.68	1.68	5.57	7.07	1.77	3.02	3.55	3.75	BDL	BDL
Sodium (Na+) (mg/L)	518	536	2.21	2.37	2.59	4.08	BDL	BDL	2.06	3.61	3.83	9.5	6.64	7.93	BDL	BDL

[1]Data represents the mean of the monthly average data from October 2012 through December 2021.
[2]Data represents the mean of the daily maximum data from October 2012 through December 2021.
BDL=Below Detection Limit

ATTACHMENT A-3

T.F. Green International Airport

Summary of DMR Data – Outfall 100A

DISCHARGE: 100A – Effluent from the AST Fuel Farm Water Treatment System

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE:

	OUTFALL 100A	
PARAMETER	**AVERAGE[1]**	**MAXIMUM[2]**
Flow (GPD)	5902	5902
pH (S.U.)	6.86	6.86
Benzene (ug/L)	BDL	BDL
Toluene (ug/L)	BDL	BDL
Ethylbenzene (ug/L)	BDL	BDL
Total Xylenes (ug/L)	BDL	BDL
Total BTEX (ug/L)	BDL	BDL
MTBE (ug/L)	BDL	BDL
Total Iron (mg/L)	0.063	0.063
Acenaphthene (ug/L)	BDL	BDL
Acenaphthylene (ug/L)	BDL	BDL
Anthracene (ug/L)	BDL	BDL
Benzo (a) Anthracene (ug/L)	BDL	BDL
Benzo (a) Pyrene (ug/L)	BDL	BDL
Benzo (b) Fluoranthene (ug/L)	BDL	BDL
Benzo (ghi) Perylene (ug/L)	BDL	BDL
Benzo (k) Fluoranthene (ug/L)	BDL	BDL
Chrysene (ug/L)	BDL	BDL
Dibenzo (a,h) Anthracene (ug/L)	BDL	BDL
Fluoranthene (ug/L)	BDL	BDL
Fluorene (ug/L)	BDL	BDL
Indeno (1, 2, 3 – cd) Pyrene (ug/L)	BDL	BDL
Naphthalene (ug/L)	BDL	BDL
Phenanthrene (ug/L)	BDL	BDL
Pyrene (ug/L)	BDL	BDL
Total Petroleum Hydrocarbons (mg/L)	0.0463	0.0463

[1]Data represents the mean of the monthly average data from October 2012 through December 2021.
[2]Data represents the mean of the daily maximum data from October 2012 through December 2021.
BDL=Below Detection Limit

ATTACHMENT A-4

T.F. Green International Airport

Summary of DMR Data – Outfalls 200A/300A

DISCHARGE: 200A – Monitoring Point at a location downstream fo the diversion point for the Terminal Area
300A – Monitoring Point at a location downstream fo the diversion point for the Cargo Area

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE:

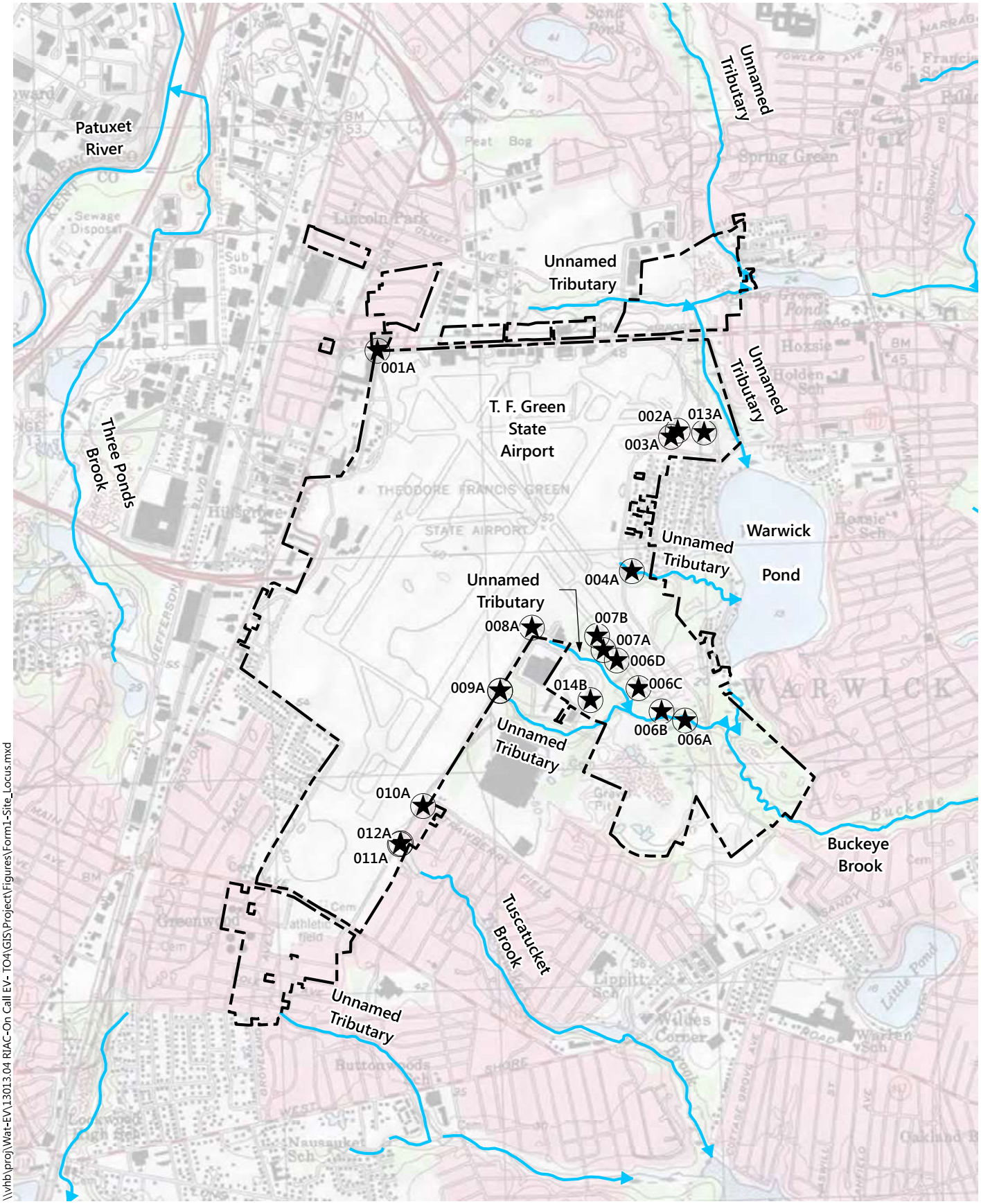
	OUTFALL			
	200A		300A	
PARAMETER	**AVERAGE[1]**	**MAXIMUM[2]**	**AVERAGE[1]**	**MAXIMUM[2]**
FLOW, by-passing treatment (GPD)	352.8	6641	389	718
Bypass Volume (Gallons)	NA	0	NA	4280
Number of Bypass Events	NA	0	NA	0.5
TOC (mg/L)	4.05	19.7	749	945
Propylene Glycol (mg/L)	8.55	40.5	844	1155

[1]Data represents the mean of the monthly average data from October 2012 through December 2021.
[2]Data represents the mean of the daily maximum data from October 2012 through December 2021.
BDL=Below Detection Limit

ATTACHMENT A-5

T.F. Green International Airport

Site Location Map



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Basemap Source Info: USGS Topographic Map

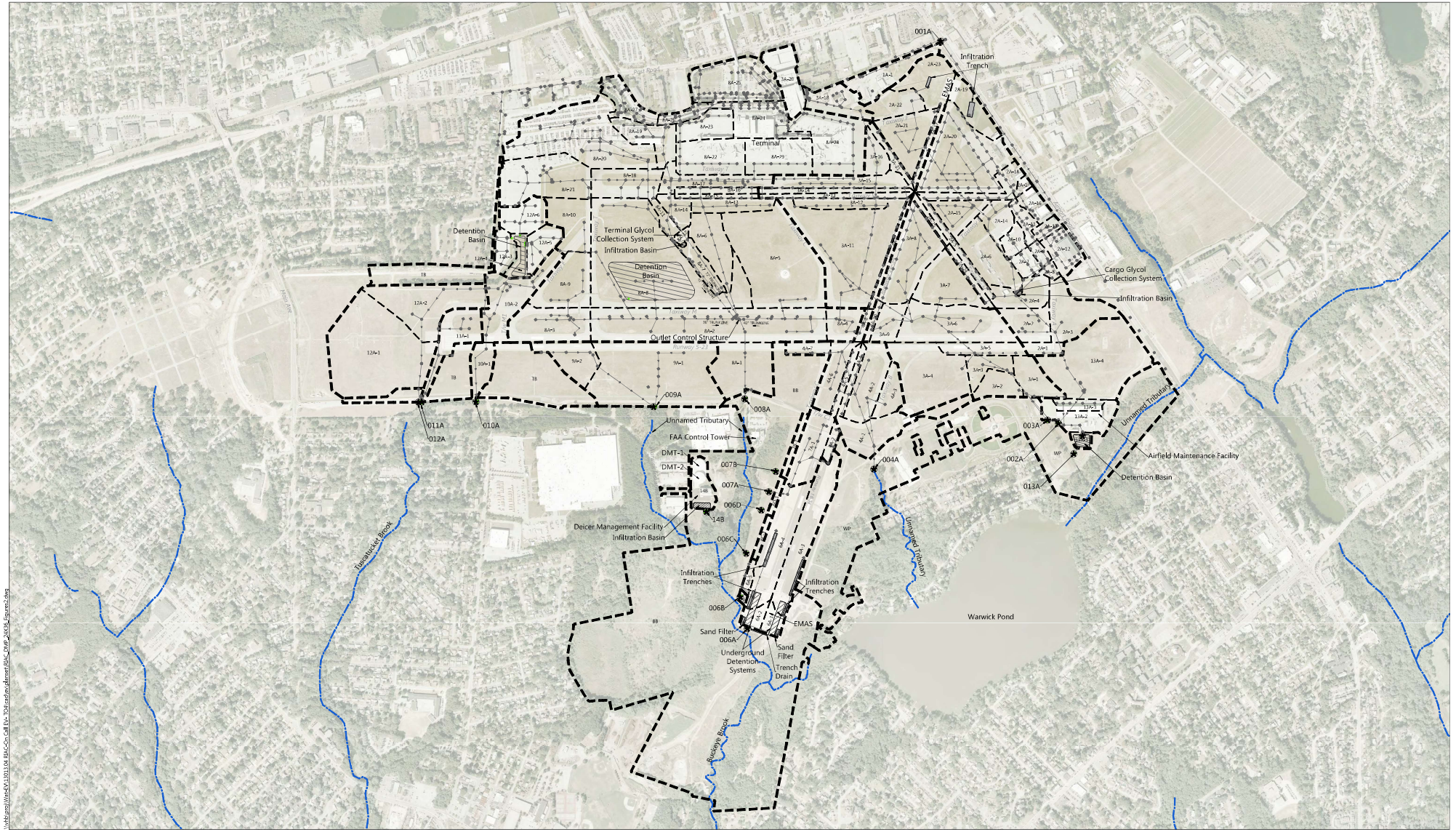
Site Locus Map
T.F. Green Airport (PVD)
Warwick, Rhode Island

Figure 1
March 2017

ATTACHMENT A-6

T.F. Green International Airport

Site Drainage Map



PVD Site Drainage Overall Map

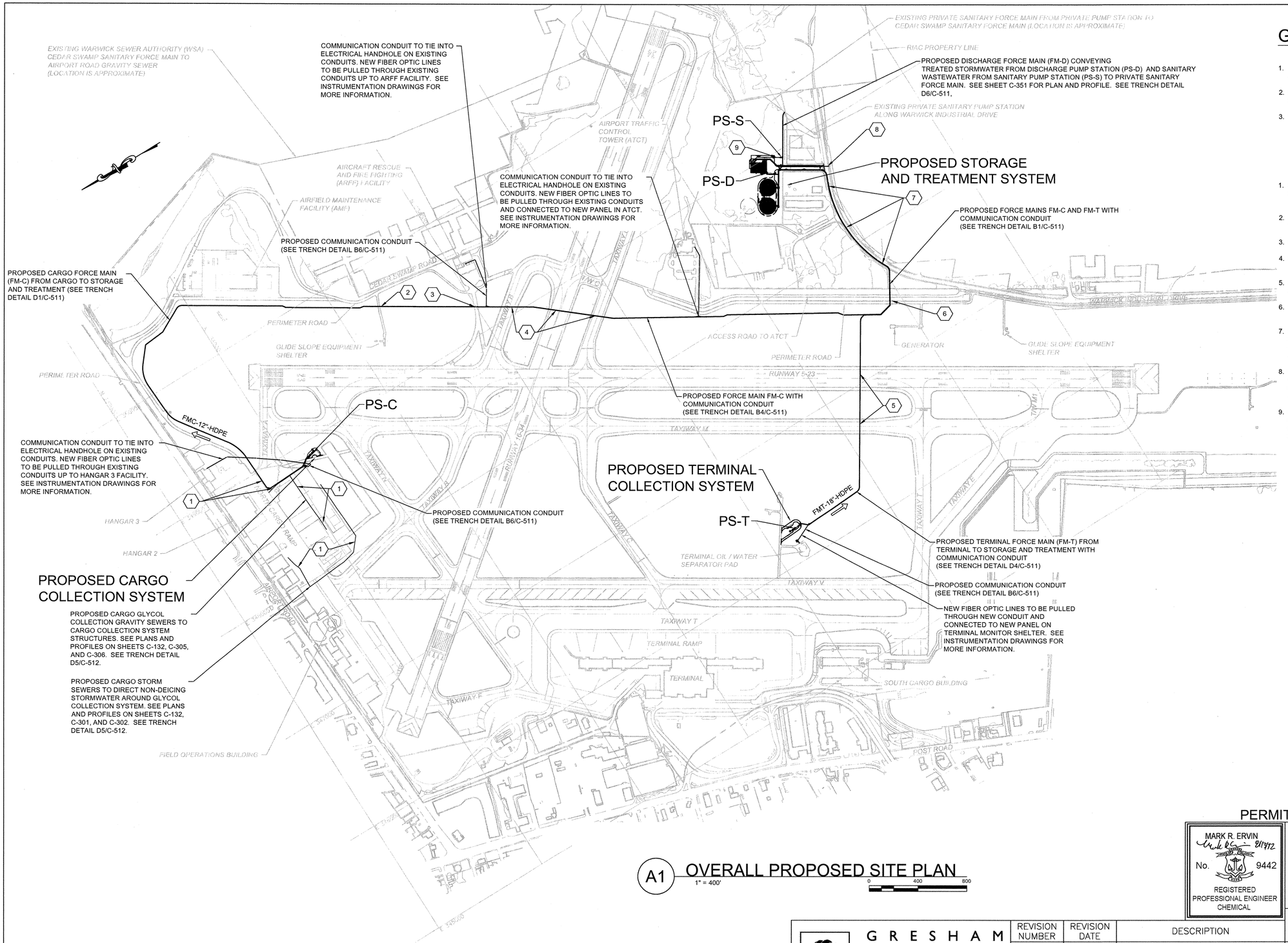
Figure 2

Date: March 2017

ATTACHMENT A-7

T.F. Green International Airport

Deicer Management System Overall Site Plan and Process Flow Diagram



GENERAL NOTES

1. PLAN AND PROFILE SHEET LAYOUTS FOR FORCE MAINS FM-C, FM-D, AND FM-T ARE SHOWN ON SHEET C-320.
2. SEE PIPE TRENCH DETAILS ON SHEETS C-511 AND C-512 FOR PIPE TRENCH CROSS SECTIONS.
3. SEE PAVEMENT REPAIR DETAILS ON SHEET C-521 FOR PAVEMENT CROSSINGS.

SHEET KEYNOTES

1. OPEN CUT OF NORTH CARGO RAMP FOR INSTALLATION OF GLYCOL COLLECTION PIPING AND STORM SEWERS. SEE PAVEMENT REPAIR DETAIL B7/C-521.
2. OPEN CUT OF ACCESS ROAD TO GLIDE SLOPE EQUIPMENT SHELTER, SEE PAVEMENT REPAIR DETAIL A1/C-521.
3. OPEN CUT OF ACCESS ROAD TO ARFF, SEE PAVEMENT REPAIR DETAIL A1/C-521
4. OPEN CUT OF TAXIWAY B, RUNWAY 16-34, AND TAXIWAY C. SEE PAVEMENT REPAIR DETAIL C1/C-521.
5. OPEN CUT OF TAXIWAY M AND RUNWAY 5-23. SEE PAVEMENT REPAIR DETAIL C1/C-521.
6. OPEN CUT OF PERIMETER ROAD AND ACCESS ROAD TO ATCT, SEE PAVEMENT REPAIR DETAIL A1/C-521.
7. OPEN CUT OF NORTH LANE OF WARWICK INDUSTRIAL DRIVE BETWEEN AIRPORT PROPERTY AND PROPOSED STORAGE AND TREATMENT SYSTEM FOR INSTALLATION OF FORCE MAINS AND CONDUITS. SEE PAVEMENT REPAIR DETAIL A1/C-521, AND PLAN/PROFILE SHEETS C-321 AND C-322.
8. PROPOSED UTILITY CONNECTIONS FOR STORAGE AND TREATMENT SITE AT WARWICK INDUSTRIAL DRIVE, INCLUDING NATURAL GAS, POTABLE WATER, FIRE PROTECTION, AND ELECTRIC. SEE PIPING AND UTILITY PLANS ON SHEETS C-113 AND C-116, AND PLAN AND PROFILE SHEETS C-316 THROUGH C-318.
9. PROPOSED SANITARY DISCHARGE FROM TREATMENT BUILDING TO PS-S, WHICH PUMPS INTO FORCE MAIN FM-D TO PRIVATE SANITARY FORCE MAIN CONNECTION. SEE PIPING AND UTILITY PLANS ON SHEETS C-113 AND C-116. SEE SHEET C-315 FOR SANITARY SEWER PLAN AND PROFILE.

A1 OVERALL PROPOSED SITE PLAN
1" = 400'
0 400 800

PERMIT SET - NOT FOR CONSTRUCTION

MARK R. ERVIN
8/14/12
No. 9442
REGISTERED PROFESSIONAL ENGINEER
CHEMICAL

Rhode Island Airport Corporation
T. F. GREEN AIRPORT
WARWICK, RHODE ISLAND

SHEET TITLE
DEICER MANAGEMENT SYSTEM
OVERALL PROPOSED SITE PLAN

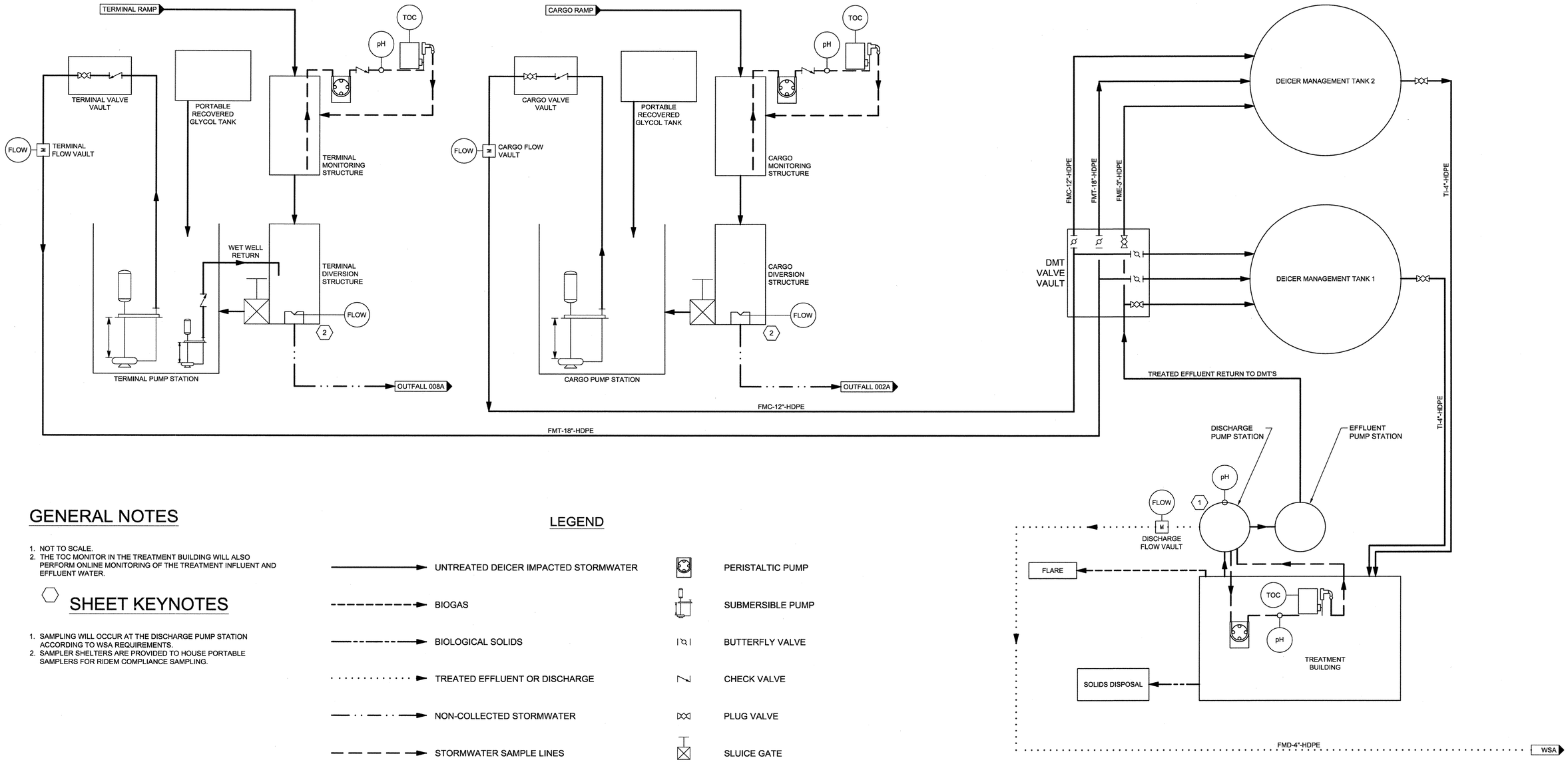
DESIGNED	DRAWN	CHECKED	APPROVED
CRW	CRW	MCK	MRE

GRESHAM, SMITH AND PARTNERS

PROJECT NO. 24327
DATE: AUG, 2012
SHEET G–102

G S & P
GRESHAM SMITH AND PARTNERS

REVISION NUMBER	REVISION DATE	DESCRIPTION



GENERAL NOTES

1. NOT TO SCALE.
2. THE TOC MONITOR IN THE TREATMENT BUILDING WILL ALSO PERFORM ONLINE MONITORING OF THE TREATMENT INFLUENT AND EFFLUENT WATER.

SHEET KEYNOTES

1. SAMPLING WILL OCCUR AT THE DISCHARGE PUMP STATION ACCORDING TO WSA REQUIREMENTS.
2. SAMPLER SHELTERS ARE PROVIDED TO HOUSE PORTABLE SAMPLERS FOR RIDEM COMPLIANCE SAMPLING.

LEGEND

- UNTREATED DEICER IMPACTED STORMWATER
- BIOGAS
- BIOLOGICAL SOLIDS
- TREATED EFFLUENT OR DISCHARGE
- NON-COLLECTED STORMWATER
- STORMWATER SAMPLE LINES
- PERISTALTIC PUMP
- SUBMERSIBLE PUMP
- BUTTERFLY VALVE
- CHECK VALVE
- PLUG VALVE
- SLUICE GATE
- FLOW METER
- pH INSTRUMENT
- TOC MONITOR
- WEIR STRUCTURE

PERMIT SET - NOT FOR CONSTRUCTION

MARK R. ERVIN
No. 9442
REGISTERED PROFESSIONAL ENGINEER CHEMICAL
8/31/12

GRESHAM SMITH AND PARTNERS

REVISION NUMBER	REVISION DATE	DESCRIPTION

Rhode Island Airport Corporation

T. F. GREEN AIRPORT

WARWICK, RHODE ISLAND

SHEET TITLE: DEICER MANAGEMENT SYSTEM

DEICER MANAGEMENT PROCESS FLOW DIAGRAM

DESIGNED	DRAWN	CHECKED	APPROVED
KAM	KAM	JRP	MRE

GRESHAM, SMITH AND PARTNERS

PROJECT NO. 24327

DATE: AUG, 2012

SHEET G-601

ATTACHMENT A-8

T.F. Green International Airport

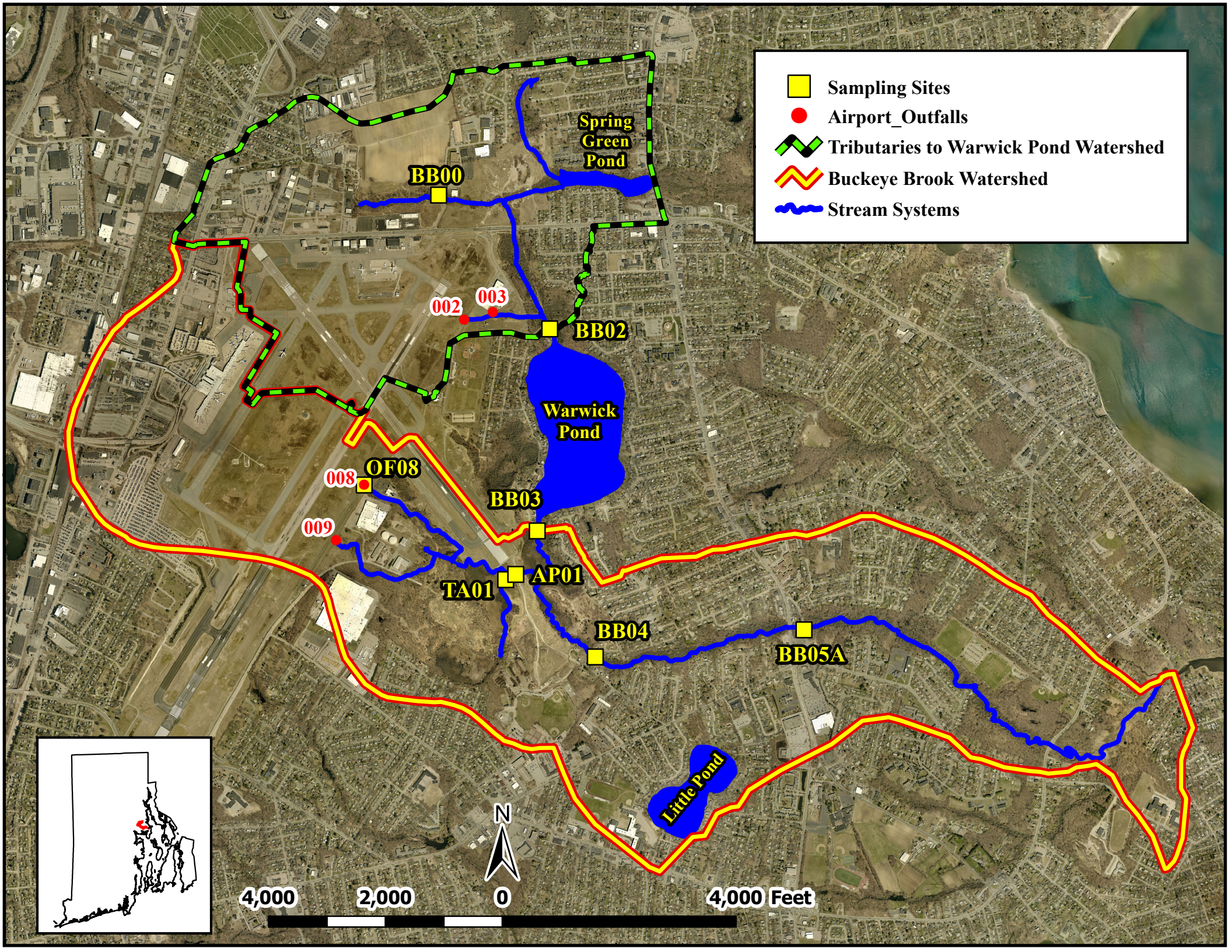
Summary of Latitude/Longitude for Major/Minor Outfalls

Outfall Number	Latitude	Longitude	Receiving Water	Waterbody ID Number
001A	41° 43' 57"N	71° 26' 4"W	Unnamed Tributary to Warwick Pond	RI0007024R-05
002A	41° 43' 45"N	71° 25' 5"W	Unnamed Tributary to Warwick Pond	RI0007024R-05
003A	41° 43' 44"N	71° 25' 6"W	Unnamed Tributary to Warwick Pond	RI0007024R-05
004A	41° 43' 24"N	71° 25' 14"W	Unnamed Tributary to Warwick Pond	RI0007024R-05
006A	41° 43' 2"N	71° 25' 3"W	Unnamed Tributary to Buckeye Brook	RI0007024R-01
006B	41° 43' 3"N	71° 25' 8"W	Unnamed Tributary to Buckeye Brook	RI0007024R-01
006C	41° 43' 7"N	71° 25' 12"W	Unnamed Tributary to Buckeye Brook	RI0007024R-01
006D	41° 43' 11"N	71° 25' 17"W	Unnamed Tributary to Buckeye Brook	RI0007024R-01
007A	41° 43' 13"N	71° 25' 19"W	Unnamed Tributary to Buckeye Brook	RI0007024R-01
007B	41° 43' 15"N	71° 25' 21"W	Unnamed Tributary to Buckeye Brook	RI0007024R-01
008A	41° 43' 16"N	71° 25' 34"W	Unnamed Tributary to Buckeye Brook	RI0007024R-01
009A	41° 43' 7"N	71° 25' 40"W	Unnamed Tributary to Buckeye Brook	RI0007024R-01
010A	41° 42' 49"N	71° 25' 55"W	Tuscatucket Brook	RI0007025R-05
011A	41° 42' 44"N	71° 25' 60"W	Tuscatucket Brook	RI0007025R-05
012A	41° 42' 44"N	71° 25' 60"W	Tuscatucket Brook	RI0007025R-05
013A	41° 43' 45"N	71° 24' 59"W	Unnamed Tributary to Warwick Pond	RI0007024R-05
014B	41° 43' 5"N	71° 25' 22"W	Unnamed Tributary to Buckeye Brook	RI0007024R-01

ATTACHMENT A-9

T.F. Green International Airport

Sampling Sites from 2021 TMDL


Sampling Sites
Airport_Outfalls
Tributaries to Warwick Pond Watershed
Buckeye Brook Watershed
Stream Systems
Spring Green Pond
BB00
002
003
BB02
Warwick Pond
OF08
008
009
BB03
AP01
TA01
BB04
BB05A
Little Pond
N
4,000
2,000
0
4,000 Feet

ATTACHMENT A-10

T.F. Green International Airport

Dry Weather Background Concentrations at BB00

Dry Weather Background Concentrations at BB00 (ug/L except NH3 in mg/L)

Parameter	7/16/2008	9/10/2008	12/9/2008	2/1/2011	Average
Dissolved Cd	R	0.08	0.4	0.26	0.25
Dissolved Cu	R	2.1	1.8	1.33	1.74
Dissolved Pb	R	<0.07	0.27	0.09	0.12
Total Fe	732	522	654	741	662.25
Dissolved As	0.38	0.29	0.5	0.14	0.33
Dissolved Zn	R	28.2	24.9	4.5	19.20
Total Ammonia as N	0.4	0.31	0.26	0.28	0.31

R=Rejected because data did not meet data quality objectives.

ATTACHMENT A-11

T.F. Green International Airport

Hardness Data for WQBEL Development

Dry Weather Hardness as CaCO3 (mg/L)

Outfalls 002/003---> Use BB02 average hardness value

Outfalls 008/009---> Use AP01 hardness value

Dry Weather Hardness at sampling sites BB02 and AP01 (mg/L):

Station	7/16/2008	9/10/2008	12/9/2008	2/1/2011	Average
BB02	R	41	52	49.9	47.63
AP01	NS	43	NS	NS	43.00

R=Rejected because data did not meet data quality objectives.
NS=Not Sampled

ATTACHMENT A-12

T.F. Green International Airport

Ammonia Criteria Development

Ammonia Criteria Determination

Outfall 002/003 Data:

		Winter	Summer
	Temperature, C	4.6	27.8
	pH, SU	7.2	7.7
Ammonia Criteria, mg/L	Chronic	5.39	1.55
	Acute	29.5	14.4

Outfall 008/009 Data:

		Winter	Summer
	Temperature, C	2.8	29.2
	pH, SU	7.8	7.5
Ammonia Criteria, mg/L	Chronic	3.18	1.7
	Acute	12.1	19.9

ATTACHMENT A-13a

T.F. Green International Airport

Calculation of Allowable Acute and Chronic Discharge Limitations
Outfalls 002/003 (BB02 Average Hardness Value)

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY SPECIFIC DATA INPUT SHEET

NOTE: LIMITS BASED ON RI WATER QUALITY CRITERIA DATED JULY 2006

FACILITY NAME: **T.F. Green Airport**

RIPDES PERMIT #: **RI0021598**

	DISSOLVED BACKGROUND DATA (ug/L)	ACUTE METAL TRANSLATOR	CHRONIC METAL TRANSLATOR
ALUMINUM	NA	NA	NA
ARSENIC	0.33	1	1
CADMIUM	0.25	0.975058803	0.940058803
CHROMIUM III	NA	0.316	0.86
CHROMIUM VI	NA	0.982	0.962
COPPER	1.74	0.96	0.96
LEAD	0.12	0.899168913	0.899168913
MERCURY	NA	0.85	0.85
NICKEL	NA	0.998	0.997
SELENIUM	NA	NA	NA
SILVER	NA	0.85	NA
ZINC	19.2	0.978	0.986
AMMONIA (as N)	0.313		

USE NA WHEN NO DATA IS AVAILABLE

NOTE 1: METAL TRANSLATORS FROM RI WATER QUALITY REGS.

pH =	7.0 S.U.
HARDNESS =	47.6 (mg/L as CaCO3)

FLOW DATA		
DESIGN FLOW =	1.000	MGD
=	1.547	CFS
7Q10 FLOW =	0.000	CFS
7Q10 (JUNE-OCT) =	0.000	CFS
7Q10 (NOV-MAY) =	0.000	CFS
30Q5 FLOW =	0.000	CFS
HARMONIC FLOW =	0.000	CFS

DILUTION FACTORS	
ACUTE =	1.000
CHRONIC =	1.000
(MAY-OCT) =	1.000
(NOV-APR) =	1.000
30Q5 FLOW =	1.000
HARMONIC FLOW =	1.000

WATER QUALITY BASED EFFLUENT LIMITS - FRESHWATER

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: T.F. Green Airport RIPDES PERMIT #: RI0021598

Month	pH**	Temp (°C)**	Acute Criteria* mg/L as N	Chronic Criteria* mg/L as N
May	7.7	27.8	14.4	1.55
Jun	7.7	27.8	14.4	1.55
Jul	7.7	27.8	14.4	1.55
Aug	7.7	27.8	14.4	1.55
Sep	7.7	27.8	14.4	1.55
Oct	7.7	27.8	14.4	1.55
Nov	7.2	4.6	29.5	5.39
Dec	7.2	4.6	29.5	5.39
Jan	7.2	4.6	29.5	5.39
Feb	7.2	4.6	29.5	5.39
Mar	7.2	4.6	29.5	5.39
Apr	7.2	4.6	29.5	5.39

NOTE: Criteria from Appendix B of the RI Water Quality Regulations 250-RICR-150-05-1.26

* The receiving water body is a warm water body, therefore it is assumed that salmonids are absent, and those acute criteria for Total Ammonia Nitrogen are used

** pH and Temperature data points based on highest values during dry weather from TMDL sampling sites as follows:

Outfalls 002/003: Sampling runs conducted at BB00 and BB02

Outfalls 008/009: Sampling runs conducted at BB03, BB04, AP01, and BB05A.

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: T.F. Green Airport RIPDES PERMIT #: RI0021598

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:							
TOXIC METALS AND CYANIDE							
ANTIMONY	7440360		450	360	10	640	8
ARSENIC (limits are total recoverable)	7440382	0.33	340	306	150	1.4	1.26
ASBESTOS	1332214			No Criteria			No Criteria
BERYLLIUM	7440417		7.5	6	0.17		0.136
CADMIUM (limits are total recoverable)	7440439	0.25	0.977945131	0.902664142	0.146777117		0.140522491
CHROMIUM III (limits are total recoverable)	16065831	NA	310.2092178	785.339792	40.35184593		37.53660087
CHROMIUM VI (limits are total recoverable)	18540299	NA	16	13.03462322	11		9.147609148
COPPER (limits are total recoverable)	7440508	1.74	6.677469064	6.260127247	4.749163988		4.452341238
CYANIDE	57125		22	17.6	5.2	140	4.16
LEAD (limits are total recoverable)	7439921	0.12	28.53415333	28.56052699	1.111934991		1.112962734
MERCURY (limits are total recoverable)	7439976	NA	1.4	1.317647059	0.77	0.15	0.141176471
NICKEL (limits are total recoverable)	7440020	NA	249.8734309	200.2993434	27.75322382	4600	22.26938721
SELENIUM (limits are total recoverable)	7782492	NA	20	16	5	4200	4
SILVER (limits are total recoverable)	7440224	NA	0.962283108	0.90567822	NA		No Criteria
THALLIUM	7440280		46	36.8	1	0.47	0.376
ZINC (limits are total recoverable)	7440666	19.2	62.47288294	57.49038307	62.98390857	26000	57.49038307
VOLATILE ORGANIC COMPOUNDS							
ACROLEIN	107028		2.9	2.32	0.06	290	0.048
ACRYLONITRILE	107131		378	302.4	8.4	2.5	2
BENZENE	71432		265	212	5.9	510	4.72
BROMOFORM	75252		1465	1172	33	1400	26.4
CARBON TETRACHLORIDE	56235		1365	1092	30	16	12.8
CHLOROBENZENE	108907		795	636	18	1600	14.4
CHLORODIBROMOMETHANE	124481			No Criteria		130	104
CHLOROFORM	67663		1445	1156	32	4700	25.6
DICHLOROBROMOMETHANE	75274			No Criteria		170	136
1,2DICHLOROETHANE	107062		5900	4720	131	370	104.8
1,1DICHLOROETHYLENE	75354		580	464	13	7100	10.4
1,2DICHLOROPROPANE	78875		2625	2100	58	150	46.4
1,3DICHLOROPROPYLENE	542756			No Criteria		21	16.8
ETHYLBENZENE	100414		1600	1280	36	2100	28.8
BROMOMETHANE (methyl bromide)	74839			No Criteria		1500	1200
CHLOROMETHANE (methyl chloride)	74873			No Criteria			No Criteria
METHYLENE CHLORIDE	75092		9650	7720	214	5900	171.2

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: T.F. Green Airport RIPDES PERMIT #: RI0021598

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
1,1,2,2TETRACHLOROETHANE	79345		466	372.8	10	40	8
TETRACHLOROETHYLENE	127184		240	192	5.3	33	4.24
TOLUENE	108883		635	508	14	15000	11.2
1,2TRANSDICHLOROETHYLENE	156605			No Criteria		10000	8000
1,1,1TRICHLOROETHANE	71556			No Criteria			No Criteria
1,1,2TRICHLOROETHANE	79005		900	720	20	160	16
TRICHLOROETHYLENE	79016		1950	1560	43	300	34.4
VINYL CHLORIDE	75014			No Criteria		2.4	1.92
ACID ORGANIC COMPOUNDS							
2CHLOROPHENOL	95578		129	103.2	2.9	150	2.32
2,4DICHLOROPHENOL	120832		101	80.8	2.2	290	1.76
2,4DIMETHYLPHENOL	105679		106	84.8	2.4	850	1.92
4,6DINITRO2METHYL PHENOL	534521			No Criteria		280	224
2,4DINITROPHENOL	51285		31	24.8	0.69	5300	0.552
4NITROPHENOL	88755			No Criteria			No Criteria
PENTACHLOROPHENOL	87865		0.054292982	0.043434386	0.041653899	30	0.033323119
PHENOL	108952		251	200.8	5.6	1700000	4.48
2,4,6TRICHLOROPHENOL	88062		16	12.8	0.36	24	0.288
BASE NEUTRAL COMPUNDS							
ACENAPHTHENE	83329		85	68	1.9	990	1.52
ANTHRACENE	120127			No Criteria		40000	32000
BENZIDINE	92875			No Criteria		0.002	0.0016
POLYCYCLIC AROMATIC HYDROCARBONS				No Criteria		0.18	0.144
BIS(2CHLOROETHYL)ETHER	111444			No Criteria		5.3	4.24
BIS(2CHLOROISOPROPYL)ETHER	108601			No Criteria		65000	52000
BIS(2ETHYLHEXYL)PHTHALATE	117817		555	444	12	22	9.6
BUTYL BENZYL PHTHALATE	85687		85	68	1.9	1900	1.52
2CHLORONAPHTHALENE	91587			No Criteria		1600	1280
1,2DICHLOROBENZENE	95501		79	63.2	1.8	1300	1.44
1,3DICHLOROBENZENE	541731		390	312	8.7	960	6.96
1,4DICHLOROBENZENE	106467		56	44.8	1.2	190	0.96
3,3DICHLOROBENZIDENE	91941			No Criteria		0.28	0.224
DIETHYL PHTHALATE	84662		2605	2084	58	44000	46.4
DIMETHYL PHTHALATE	131113		1650	1320	37	1100000	29.6
DI-n-BUTYL PHTHALATE	84742			No Criteria		4500	3600
2,4DINITROTOLUENE	121142		1550	1240	34	34	27.2

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: T.F. Green Airport RIPDES PERMIT #: RI0021598

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
1,2DIPHENYLHYDRAZINE	122667		14	11.2	0.31	2	0.248
FLUORANTHENE	206440		199	159.2	4.4	140	3.52
FLUORENE	86737			No Criteria		5300	4240
HEXACHLOROBENZENE	118741			No Criteria		0.0029	0.00232
HEXACHLOROBUTADIENE	87683			No Criteria		180	144
HEXACHLOROCYCLOPENTADIENE	77474		0.35	0.28	0.008	1100	0.0064
HEXACHLOROETHANE	67721		49	39.2	1.1	33	0.88
ISOPHORONE	78591		5850	4680	130	9600	104
NAPHTHALENE	91203		115	92	2.6		2.08
NITROBENZENE	98953		1350	1080	30	690	24
N-NITROSODIMETHYLAMINE	62759			No Criteria		30	24
N-NITROSODI-N-PROPYLAMINE	621647			No Criteria		5.1	4.08
N-NITROSODIPHENYLAMINE	86306		293	234.4	6.5	60	5.2
PYRENE	129000			No Criteria		4000	3200
1,2,4trichlorobenzene	120821		75	60	1.7	70	1.36
PESTICIDES/PCBs							
ALDRIN	309002		3	2.4		0.0005	0.0004
Alpha BHC	319846			No Criteria		0.049	0.0392
Beta BHC	319857			No Criteria		0.17	0.136
Gamma BHC (Lindane)	58899		0.95	0.76		1.8	1.44
CHLORDANE	57749		2.4	1.92	0.0043	0.0081	0.00344
4,4DDT	50293		1.1	0.88	0.001	0.0022	0.0008
4,4DDE	72559			No Criteria		0.0022	0.00176
4,4DDD	72548			No Criteria		0.0031	0.00248
DIELDRIN	60571		0.24	0.192	0.056	0.00054	0.000432
ENDOSULFAN (alpha)	959988		0.22	0.176	0.056	89	0.0448
ENDOSULFAN (beta)	33213659		0.22	0.176	0.056	89	0.0448
ENDOSULFAN (sulfate)	1031078			No Criteria		89	71.2
ENDRIN	72208		0.086	0.0688	0.036	0.06	0.0288
ENDRIN ALDEHYDE	7421934			No Criteria		0.3	0.24
HEPTACHLOR	76448		0.52	0.416	0.0038	0.00079	0.000632
HEPTACHLOR EPOXIDE	1024573		0.52	0.416	0.0038	0.00039	0.000312
POLYCHLORINATED BIPHENYLS3	1336363			No Criteria	0.014	0.00064	0.000512
2,3,7,8TCDD (Dioxin)	1746016			No Criteria		0.000000051	4.08E-08
TOXAPHENE	8001352		0.73	0.584	0.0002	0.0028	0.00016
TRIBUTYLTIN			0.46	0.368	0.072		0.0576

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: T.F. Green Airport RIPDES PERMIT #: RI0021598

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
NON PRIORITY POLLUTANTS:							
OTHER SUBSTANCES							
ALUMINUM (limits are total recoverable)	7429905	NA	750	600	87		69.6
AMMONIA as N(winter/summer)	7664417	0.313	29.5 | 14.4	26550 | 12960	5.39 | 1.55		4851 | 1395
4BROMOPHENYL PHENYL ETHER			18	14.4	0.4		0.32
CHLORIDE	16887006		860000	688000	230000		184000
CHLORINE	7782505		19	19	11		11
4CHLORO2METHYLPHENOL			15	12	0.32		0.256
1CHLORONAPHTHALENE			80	64	1.8		1.44
4CHLOROPHENOL	106489		192	153.6	4.3		3.44
2,4DICHLORO6METHYLPHENOL			22	17.6	0.48		0.384
1,1DICHLOROPROPANE			1150	920	26		20.8
1,3DICHLOROPROPANE	142289		303	242.4	6.7		5.36
2,3DINITROTOLUENE			17	13.6	0.37		0.296
2,4DINITRO6METHYL PHENOL			12	9.6	0.26		0.208
IRON	7439896	662		No Criteria	1000		900
pentachlorobenzene	608935		13	10.4	0.28		0.224
PENTACHLOROETHANE			362	289.6	8		6.4
1,2,3,5tetrachlorobenzene			321	256.8	7.1		5.68
1,1,1,2TETRACHLOROETHANE	630206		980	784	22		17.6
2,3,4,6TETRACHLOROPHENOL	58902		7	5.6	0.16		0.128
2,3,5,6TETRACHLOROPHENOL			8.5	6.8	0.19		0.152
2,4,5TRICHLOROPHENOL	95954		23	18.4	0.51		0.408
2,4,6TRINITROPHENOL	88062		4235	3388	94		75.2
XYLENE	1330207		133	106.4	3		2.4

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: RIRRC RIPDES PERMIT #: R0023442

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:			
TOXIC METALS AND CYANIDE			
ANTIMONY	7440360	360.00	8.00
ARSENIC, TOTAL	7440382	306.00	1.26
ASBESTOS	1332214	No Criteria	0.00000
BERYLLIUM	7440417	6.00	0.14
CADMIUM, TOTAL	7440439	0.90	0.14052
CHROMIUM III, TOTAL	16065831	785.34	37.54
CHROMIUM VI, TOTAL	18540299	13.03	9.15
COPPER, TOTAL	7440508	6.26	4.45
CYANIDE	57125	17.60	4.16
LEAD, TOTAL	7439921	28.56	1.11
MERCURY, TOTAL	7439976	1.32	0.14
NICKEL, TOTAL	7440020	200.30	22.27
SELENIUM, TOTAL	7782492	16.00	4.00
SILVER, TOTAL	7440224	0.91	No Criteria
THALLIUM	7440280	36.80	0.38
ZINC, TOTAL	7440666	57.49	57.49
VOLATILE ORGANIC COMPOUNDS			
ACROLEIN	107028	2.32	0.04800
ACRYLONITRILE	107131	302.40	2.00
BENZENE	71432	212.00	4.72
BROMOFORM	75252	1172.00	26.40
CARBON TETRACHLORIDE	56235	1092.00	12.80
CHLOROBENZENE	108907	636.00	14.40
CHLORODIBROMOMETHANE	124481	No Criteria	104.00
CHLOROFORM	67663	1156.00	25.60
DICHLOROBROMOMETHANE	75274	No Criteria	136.00
1,2DICHLOROETHANE	107062	4720.00	104.80
1,1DICHLOROETHYLENE	75354	464.00	10.40
1,2DICHLOROPROPANE	78875	2100.00	46.40
1,3DICHLOROPROPYLENE	542756	No Criteria	16.80
ETHYLBENZENE	100414	1280.00	28.80
BROMOMETHANE (methyl bromide)	74839	No Criteria	1200.00
CHLOROMETHANE (methyl chloride)	74873	No Criteria	0.00000
METHYLENE CHLORIDE	75092	7720.00	171.20
1,1,2,2TETRACHLOROETHANE	79345	372.80	8.00
TETRACHLOROETHYLENE	127184	192.00	4.24
TOLUENE	108883	508.00	11.20
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	8000.00
1,1,1TRICHLOROETHANE	71556	No Criteria	0.00000
1,1,2TRICHLOROETHANE	79005	720.00	16.00
TRICHLOROETHYLENE	79016	1560.00	34.40
VINYL CHLORIDE	75014	No Criteria	1.92
ACID ORGANIC COMPOUNDS			
2CHLOROPHENOL	95578	103.20	2.32
2,4DICHLOROPHENOL	120832	80.80	1.76
2,4DIMETHYLPHENOL	105679	84.80	1.92
4,6DINITRO2METHYL PHENOL	534521	No Criteria	224.00
2,4DINITROPHENOL	51285	24.80	0.55
4NITROPHENOL	88755	No Criteria	0.00000
PENTACHLOROPHENOL	87865	0.04	0.03332
PHENOL	108952	200.80	4.48
2,4,6TRICHLOROPHENOL	88062	12.80	0.29
BASE NEUTRAL COMPUNDS			
ACENAPHTHENE	83329	68.00	1.52
ANTHRACENE	120127	No Criteria	32000.00
BENZIDINE	92875	No Criteria	0.00160
PAHs		No Criteria	0.14
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	4.24
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	52000.00
BIS(2ETHYLHEXYL)PHTHALATE	117817	444.00	9.60
BUTYL BENZYL PHTHALATE	85687	68.00	1.52
2CHLORONAPHTHALENE	91587	No Criteria	1280.00
1,2DICHLOROBENZENE	95501	63.20	1.44
1,3DICHLOROBENZENE	541731	312.00	6.96
1,4DICHLOROBENZENE	106467	44.80	0.96
3,3DICHLOROBENZIDENE	91941	No Criteria	0.22
DIETHYL PHTHALATE	84662	2084.00	46.40
DIMETHYL PHTHALATE	131113	1320.00	29.60
DI-n-BUTYL PHTHALATE	84742	No Criteria	3600.00
2,4DINITROTOLUENE	121142	1240.00	27.20
1,2DIPHENYLHYDRAZINE	122667	11.20	0.25
FLUORANTHENE	206440	159.20	3.52

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: RIRRC RIPDES PERMIT #: R0023442

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
FLUORENE	86737	No Criteria	4240.00
HEXACHLOROBENZENE	118741	No Criteria	0.00232
HEXACHLOROBUTADIENE	87683	No Criteria	144.00
HEXACHLOROCYCLOPENTADIENE	77474	0.28	0.00640
HEXACHLOROETHANE	67721	39.20	0.88
ISOPHORONE	78591	4680.00	104.00
NAPHTHALENE	91203	92.00	2.08
NITROBENZENE	98953	1080.00	24.00
N-NITROSODIMETHYLAMINE	62759	No Criteria	24.00
N-NITROSODI-N-PROPYLAMINE	621647	No Criteria	4.08
N-NITROSODIPHENYLAMINE	86306	234.40	5.20
PYRENE	129000	No Criteria	3200.00
1,2,4trichlorobenzene	120821	60.00	1.36
PESTICIDES/PCBs			
ALDRIN	309002	2.40	0.00040
Alpha BHC	319846	No Criteria	0.04
Beta BHC	319857	No Criteria	0.14
Gamma BHC (Lindane)	58899	0.76	0.76
CHLORDANE	57749	1.92	0.00344
4,4DDT	50293	0.88	0.00080
4,4DDE	72559	No Criteria	0.00176
4,4DDD	72548	No Criteria	0.00248
DIELDRIN	60571	0.19	0.00043
ENDOSULFAN (alpha)	959988	0.18	0.04480
ENDOSULFAN (beta)	33213659	0.18	0.04480
ENDOSULFAN (sulfate)	1031078	No Criteria	71.20
ENDRIN	72208	0.07	0.03
ENDRIN ALDEHYDE	7421934	No Criteria	0.24
HEPTACHLOR	76448	0.42	0.00063
HEPTACHLOR EPOXIDE	1024573	0.42	0.0003
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.0005
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.0000000
TOXAPHENE	8001352	0.58	0.00016
TRIBUTYLTIN		0.37	0.06

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
NON PRIORITY POLLUTANTS:			
OTHER SUBSTANCES			
ALUMINUM, TOTAL	7429905	600.00	69.60
AMMONIA (as N), WINTER (NOV-API	7664417	26550.00	4851.00
AMMONIA (as N), SUMMER (MAY-OC	7664417	12960.00	1395.00
4BROMOPHENYL PHENYL ETHER		14.40	0.32
CHLORIDE	16887006	688000.00	184000.00
CHLORINE	7782505	19.00	11.00
4CHLORO2METHYLPHENOL		12.00	0.26
1CHLORONAPHTHALENE		64.00	1.44
4CHLOROPHENOL	106489	153.60	3.44
2,4DICHLORO6METHYLPHENOL		17.60	0.38
1,1DICHLOROPROPANE		920.00	20.80
1,3DICHLOROPROPANE	142289	242.40	5.36
2,3DINITROTOLUENE		13.60	0.30
2,4DINITRO6METHYL PHENOL		9.60	0.21
IRON	7439896	No Criteria	900.00
pentachlorobenzene	608935	10.40	0.22
PENTACHLOROETHANE		289.60	6.40
1,2,3,5tetrachlorobenzene		256.80	5.68
1,1,1,2TETRACHLOROETHANE	630206	784.00	17.60
2,3,4,6TETRACHLOROPHENOL	58902	5.60	0.13
2,3,5,6TETRACHLOROPHENOL		6.80	0.15
2,4,5TRICHLOROPHENOL	95954	18.40	0.41
2,4,6TRINITROPHENOL	88062	3388.00	75.20
XYLENE	1330207	106.40	2.40

ATTACHMENT A-13b

T.F. Green International Airport

Calculation of Allowable Acute and Chronic Discharge Limitations
Outfalls 008/009 (AP-01 Average Hardness Value)

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY SPECIFIC DATA INPUT SHEET

NOTE: LIMITS BASED ON RI WATER QUALITY CRITERIA DATED JULY 2006

FACILITY NAME: **T.F. Green Airport**

RIPDES PERMIT #: **RI0021598**

	DISSOLVED BACKGROUND DATA (ug/L)	ACUTE METAL TRANSLATOR	CHRONIC METAL TRANSLATOR
ALUMINUM	NA	NA	NA
ARSENIC	0.33	1	1
CADMIUM	0.25	0.97931091	0.94431091
CHROMIUM III	NA	0.316	0.86
CHROMIUM VI	NA	0.982	0.962
COPPER	1.74	0.96	0.96
LEAD	0.12	0.913978009	0.913978009
MERCURY	NA	0.85	0.85
NICKEL	NA	0.998	0.997
SELENIUM	NA	NA	NA
SILVER	NA	0.85	NA
ZINC	19.2	0.978	0.986
AMMONIA (as N)	0.313		

USE NA WHEN NO DATA IS AVAILABLE

NOTE 1: METAL TRANSLATORS FROM RI WATER QUALITY REGS.

pH =	7.0 S.U.
HARDNESS =	43.0 (mg/L as CaCO3)

FLOW DATA		
DESIGN FLOW =	1.000	MGD
=	1.547	CFS
7Q10 FLOW =	0.000	CFS
7Q10 (JUNE-OCT) =	0.000	CFS
7Q10 (NOV-MAY) =	0.000	CFS
30Q5 FLOW =	0.000	CFS
HARMONIC FLOW =	0.000	CFS

DILUTION FACTORS	
ACUTE =	1.000
CHRONIC =	1.000
(MAY-OCT) =	1.000
(NOV-APR) =	1.000
30Q5 FLOW =	1.000
HARMONIC FLOW =	1.000

WATER QUALITY BASED EFFLUENT LIMITS - FRESHWATER

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: T.F. Green Airport RIPDES PERMIT #: RI0021598

Month	pH**	Temp (°C)**	Acute Criteria* mg/L as N	Chronic Criteria* mg/L as N
May	7.5	29.2	19.9	1.7
Jun	7.5	29.2	19.9	1.7
Jul	7.5	29.2	19.9	1.7
Aug	7.5	29.2	19.9	1.7
Sep	7.5	29.2	19.9	1.7
Oct	7.5	29.2	19.9	1.7
Nov	7.8	2.8	12.1	3.18
Dec	7.8	2.8	12.1	3.18
Jan	7.8	2.8	12.1	3.18
Feb	7.8	2.8	12.1	3.18
Mar	7.8	2.8	12.1	3.18
Apr	7.8	2.8	12.1	3.18

NOTE: Criteria from Appendix B of the RI Water Quality Regulations 250-RICR-150-05-1.26

* The receiving water body is a warm water body, therefore it is assumed that salmonids are absent, and those acute criteria for Total Ammonia Nitrogen are used

** pH and Temperature data points based on highest values during dry weather from TMDL sampling sites as follows:

Outfalls 002/003: Sampling runs conducted at BB00 and BB02

Outfalls 008/009: Sampling runs conducted at BB03, BB04, AP01, and BB05A.

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: T.F. Green Airport RIPDES PERMIT #: RI0021598

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:							
TOXIC METALS AND CYANIDE							
ANTIMONY	7440360		450	360	10	640	8
ARSENIC (limits are total recoverable)	7440382	0.33	340	306	150	1.4	1.26
ASBESTOS	1332214			No Criteria			No Criteria
BERYLLIUM	7440417		7.5	6	0.17		0.136
CADMIUM (limits are total recoverable)	7440439	0.25	0.8857947	0.814057336	0.13674647		0.13032977
CHROMIUM III (limits are total recoverable)	16065831	NA	285.4337147	722.6169992	37.12906199		34.53866232
CHROMIUM VI (limits are total recoverable)	18540299	NA	16	13.03462322	11		9.147609148
COPPER (limits are total recoverable)	7440508	1.74	6.06770688	5.6884752	4.354124272		4.081991505
CYANIDE	57125		22	17.6	5.2	140	4.16
LEAD (limits are total recoverable)	7439921	0.12	25.48420833	25.09446319	0.993083012		0.977895204
MERCURY (limits are total recoverable)	7439976	NA	1.4	1.317647059	0.77	0.15	0.141176471
NICKEL (limits are total recoverable)	7440020	NA	229.2867251	183.7969741	25.46667638	4600	20.43464504
SELENIUM (limits are total recoverable)	7782492	NA	20	16	5	4200	4
SILVER (limits are total recoverable)	7440224	NA	0.807950301	0.760423813	NA		No Criteria
THALLIUM	7440280		46	36.8	1	0.47	0.376
ZINC (limits are total recoverable)	7440666	19.2	57.31826014	52.74686516	57.78712117	26000	52.74686516
VOLATILE ORGANIC COMPOUNDS							
ACROLEIN	107028		2.9	2.32	0.06	290	0.048
ACRYLONITRILE	107131		378	302.4	8.4	2.5	2
BENZENE	71432		265	212	5.9	510	4.72
BROMOFORM	75252		1465	1172	33	1400	26.4
CARBON TETRACHLORIDE	56235		1365	1092	30	16	12.8
CHLOROBENZENE	108907		795	636	18	1600	14.4
CHLORODIBROMOMETHANE	124481			No Criteria		130	104
CHLOROFORM	67663		1445	1156	32	4700	25.6
DICHLOROBROMOMETHANE	75274			No Criteria		170	136
1,2DICHLOROETHANE	107062		5900	4720	131	370	104.8
1,1DICHLOROETHYLENE	75354		580	464	13	7100	10.4
1,2DICHLOROPROPANE	78875		2625	2100	58	150	46.4
1,3DICHLOROPROPYLENE	542756			No Criteria		21	16.8
ETHYLBENZENE	100414		1600	1280	36	2100	28.8
BROMOMETHANE (methyl bromide)	74839			No Criteria		1500	1200
CHLOROMETHANE (methyl chloride)	74873			No Criteria			No Criteria
METHYLENE CHLORIDE	75092		9650	7720	214	5900	171.2

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: T.F. Green Airport RIPDES PERMIT #: RI0021598

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
1,1,2,2TETRACHLOROETHANE	79345		466	372.8	10	40	8
TETRACHLOROETHYLENE	127184		240	192	5.3	33	4.24
TOLUENE	108883		635	508	14	15000	11.2
1,2TRANSDICHLOROETHYLENE	156605			No Criteria		10000	8000
1,1,1TRICHLOROETHANE	71556			No Criteria			No Criteria
1,1,2TRICHLOROETHANE	79005		900	720	20	160	16
TRICHLOROETHYLENE	79016		1950	1560	43	300	34.4
VINYL CHLORIDE	75014			No Criteria		2.4	1.92
ACID ORGANIC COMPOUNDS							
2CHLOROPHENOL	95578		129	103.2	2.9	150	2.32
2,4DICHLOROPHENOL	120832		101	80.8	2.2	290	1.76
2,4DIMETHYLPHENOL	105679		106	84.8	2.4	850	1.92
4,6DINITRO2METHYL PHENOL	534521			No Criteria		280	224
2,4DINITROPHENOL	51285		31	24.8	0.69	5300	0.552
4NITROPHENOL	88755			No Criteria			No Criteria
PENTACHLOROPHENOL	87865		0.054292982	0.043434386	0.041653899	30	0.033323119
PHENOL	108952		251	200.8	5.6	1700000	4.48
2,4,6TRICHLOROPHENOL	88062		16	12.8	0.36	24	0.288
BASE NEUTRAL COMPUNDS							
ACENAPHTHENE	83329		85	68	1.9	990	1.52
ANTHRACENE	120127			No Criteria		40000	32000
BENZIDINE	92875			No Criteria		0.002	0.0016
POLYCYCLIC AROMATIC HYDROCARBONS				No Criteria		0.18	0.144
BIS(2CHLOROETHYL)ETHER	111444			No Criteria		5.3	4.24
BIS(2CHLOROISOPROPYL)ETHER	108601			No Criteria		65000	52000
BIS(2ETHYLHEXYL)PHTHALATE	117817		555	444	12	22	9.6
BUTYL BENZYL PHTHALATE	85687		85	68	1.9	1900	1.52
2CHLORONAPHTHALENE	91587			No Criteria		1600	1280
1,2DICHLOROBENZENE	95501		79	63.2	1.8	1300	1.44
1,3DICHLOROBENZENE	541731		390	312	8.7	960	6.96
1,4DICHLOROBENZENE	106467		56	44.8	1.2	190	0.96
3,3DICHLOROBENZIDENE	91941			No Criteria		0.28	0.224
DIETHYL PHTHALATE	84662		2605	2084	58	44000	46.4
DIMETHYL PHTHALATE	131113		1650	1320	37	1100000	29.6
DI-n-BUTYL PHTHALATE	84742			No Criteria		4500	3600
2,4DINITROTOLUENE	121142		1550	1240	34	34	27.2

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: T.F. Green Airport RIPDES PERMIT #: RI0021598

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
1,2DIPHENYLHYDRAZINE	122667		14	11.2	0.31	2	0.248
FLUORANTHENE	206440		199	159.2	4.4	140	3.52
FLUORENE	86737			No Criteria		5300	4240
HEXACHLOROBENZENE	118741			No Criteria		0.0029	0.00232
HEXACHLOROBUTADIENE	87683			No Criteria		180	144
HEXACHLOROCYCLOPENTADIENE	77474		0.35	0.28	0.008	1100	0.0064
HEXACHLOROETHANE	67721		49	39.2	1.1	33	0.88
ISOPHORONE	78591		5850	4680	130	9600	104
NAPHTHALENE	91203		115	92	2.6		2.08
NITROBENZENE	98953		1350	1080	30	690	24
N-NITROSODIMETHYLAMINE	62759			No Criteria		30	24
N-NITROSODI-N-PROPYLAMINE	621647			No Criteria		5.1	4.08
N-NITROSODIPHENYLAMINE	86306		293	234.4	6.5	60	5.2
PYRENE	129000			No Criteria		4000	3200
1,2,4trichlorobenzene	120821		75	60	1.7	70	1.36
PESTICIDES/PCBs							
ALDRIN	309002		3	2.4		0.0005	0.0004
Alpha BHC	319846			No Criteria		0.049	0.0392
Beta BHC	319857			No Criteria		0.17	0.136
Gamma BHC (Lindane)	58899		0.95	0.76		1.8	1.44
CHLORDANE	57749		2.4	1.92	0.0043	0.0081	0.00344
4,4DDT	50293		1.1	0.88	0.001	0.0022	0.0008
4,4DDE	72559			No Criteria		0.0022	0.00176
4,4DDD	72548			No Criteria		0.0031	0.00248
DIELDRIN	60571		0.24	0.192	0.056	0.00054	0.000432
ENDOSULFAN (alpha)	959988		0.22	0.176	0.056	89	0.0448
ENDOSULFAN (beta)	33213659		0.22	0.176	0.056	89	0.0448
ENDOSULFAN (sulfate)	1031078			No Criteria		89	71.2
ENDRIN	72208		0.086	0.0688	0.036	0.06	0.0288
ENDRIN ALDEHYDE	7421934			No Criteria		0.3	0.24
HEPTACHLOR	76448		0.52	0.416	0.0038	0.00079	0.000632
HEPTACHLOR EPOXIDE	1024573		0.52	0.416	0.0038	0.00039	0.000312
POLYCHLORINATED BIPHENYLS3	1336363			No Criteria	0.014	0.00064	0.000512
2,3,7,8TCDD (Dioxin)	1746016			No Criteria		0.000000051	4.08E-08
TOXAPHENE	8001352		0.73	0.584	0.0002	0.0028	0.00016
TRIBUTYLTIN			0.46	0.368	0.072		0.0576

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: T.F. Green Airport RIPDES PERMIT #: RI0021598

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
NON PRIORITY POLLUTANTS:							
OTHER SUBSTANCES							
ALUMINUM (limits are total recoverable)	7429905	NA	750	600	87		69.6
AMMONIA as N(winter/summer)	7664417	0.313	12.1 | 19.9	10890 | 17910	3.18 | 1.7		2862 | 1530
4BROMOPHENYL PHENYL ETHER			18	14.4	0.4		0.32
CHLORIDE	16887006		860000	688000	230000		184000
CHLORINE	7782505		19	19	11		11
4CHLORO2METHYLPHENOL			15	12	0.32		0.256
1CHLORONAPHTHALENE			80	64	1.8		1.44
4CHLOROPHENOL	106489		192	153.6	4.3		3.44
2,4DICHLORO6METHYLPHENOL			22	17.6	0.48		0.384
1,1DICHLOROPROPANE			1150	920	26		20.8
1,3DICHLOROPROPANE	142289		303	242.4	6.7		5.36
2,3DINITROTOLUENE			17	13.6	0.37		0.296
2,4DINITRO6METHYL PHENOL			12	9.6	0.26		0.208
IRON	7439896	662		No Criteria	1000		900
pentachlorobenzene	608935		13	10.4	0.28		0.224
PENTACHLOROETHANE			362	289.6	8		6.4
1,2,3,5tetrachlorobenzene			321	256.8	7.1		5.68
1,1,1,2TETRACHLOROETHANE	630206		980	784	22		17.6
2,3,4,6TETRACHLOROPHENOL	58902		7	5.6	0.16		0.128
2,3,5,6TETRACHLOROPHENOL			8.5	6.8	0.19		0.152
2,4,5TRICHLOROPHENOL	95954		23	18.4	0.51		0.408
2,4,6TRINITROPHENOL	88062		4235	3388	94		75.2
XYLENE	1330207		133	106.4	3		2.4

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: RIRRC RIPDES PERMIT #: R0023442

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:			
TOXIC METALS AND CYANIDE			
ANTIMONY	7440360	360.00	8.00
ARSENIC, TOTAL	7440382	306.00	1.26
ASBESTOS	1332214	No Criteria	0.00000
BERYLLIUM	7440417	6.00	0.14
CADMIUM, TOTAL	7440439	0.81	0.13033
CHROMIUM III, TOTAL	16065831	722.62	34.54
CHROMIUM VI, TOTAL	18540299	13.03	9.15
COPPER, TOTAL	7440508	5.69	4.08
CYANIDE	57125	17.60	4.16
LEAD, TOTAL	7439921	25.09	0.98
MERCURY, TOTAL	7439976	1.32	0.14
NICKEL, TOTAL	7440020	183.80	20.43
SELENIUM, TOTAL	7782492	16.00	4.00
SILVER, TOTAL	7440224	0.76	No Criteria
THALLIUM	7440280	36.80	0.38
ZINC, TOTAL	7440666	52.75	52.75
VOLATILE ORGANIC COMPOUNDS			
ACROLEIN	107028	2.32	0.04800
ACRYLONITRILE	107131	302.40	2.00
BENZENE	71432	212.00	4.72
BROMOFORM	75252	1172.00	26.40
CARBON TETRACHLORIDE	56235	1092.00	12.80
CHLOROBENZENE	108907	636.00	14.40
CHLORODIBROMOMETHANE	124481	No Criteria	104.00
CHLOROFORM	67663	1156.00	25.60
DICHLOROBROMOMETHANE	75274	No Criteria	136.00
1,2DICHLOROETHANE	107062	4720.00	104.80
1,1DICHLOROETHYLENE	75354	464.00	10.40
1,2DICHLOROPROPANE	78875	2100.00	46.40
1,3DICHLOROPROPYLENE	542756	No Criteria	16.80
ETHYLBENZENE	100414	1280.00	28.80
BROMOMETHANE (methyl bromide)	74839	No Criteria	1200.00
CHLOROMETHANE (methyl chloride)	74873	No Criteria	0.00000
METHYLENE CHLORIDE	75092	7720.00	171.20
1,1,2,2TETRACHLOROETHANE	79345	372.80	8.00
TETRACHLOROETHYLENE	127184	192.00	4.24
TOLUENE	108883	508.00	11.20
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	8000.00
1,1,1TRICHLOROETHANE	71556	No Criteria	0.00000
1,1,2TRICHLOROETHANE	79005	720.00	16.00
TRICHLOROETHYLENE	79016	1560.00	34.40
VINYL CHLORIDE	75014	No Criteria	1.92
ACID ORGANIC COMPOUNDS			
2CHLOROPHENOL	95578	103.20	2.32
2,4DICHLOROPHENOL	120832	80.80	1.76
2,4DIMETHYLPHENOL	105679	84.80	1.92
4,6DINITRO2METHYL PHENOL	534521	No Criteria	224.00
2,4DINITROPHENOL	51285	24.80	0.55
4NITROPHENOL	88755	No Criteria	0.00000
PENTACHLOROPHENOL	87865	0.04	0.03332
PHENOL	108952	200.80	4.48
2,4,6TRICHLOROPHENOL	88062	12.80	0.29
BASE NEUTRAL COMPUNDS			
ACENAPHTHENE	83329	68.00	1.52
ANTHRACENE	120127	No Criteria	32000.00
BENZIDINE	92875	No Criteria	0.00160
PAHs		No Criteria	0.14
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	4.24
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	52000.00
BIS(2ETHYLHEXYL)PHTHALATE	117817	444.00	9.60
BUTYL BENZYL PHTHALATE	85687	68.00	1.52
2CHLORONAPHTHALENE	91587	No Criteria	1280.00
1,2DICHLOROBENZENE	95501	63.20	1.44
1,3DICHLOROBENZENE	541731	312.00	6.96
1,4DICHLOROBENZENE	106467	44.80	0.96
3,3DICHLOROBENZIDENE	91941	No Criteria	0.22
DIETHYL PHTHALATE	84662	2084.00	46.40
DIMETHYL PHTHALATE	131113	1320.00	29.60
DI-n-BUTYL PHTHALATE	84742	No Criteria	3600.00
2,4DINITROTOLUENE	121142	1240.00	27.20
1,2DIPHENYLHYDRAZINE	122667	11.20	0.25
FLUORANTHENE	206440	159.20	3.52

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: RIRRC RIPDES PERMIT #: R0023442

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
FLUORENE	86737	No Criteria	4240.00
HEXACHLOROBENZENE	118741	No Criteria	0.00232
HEXACHLOROBUTADIENE	87683	No Criteria	144.00
HEXACHLOROCYCLOPENTADIENE	77474	0.28	0.00640
HEXACHLOROETHANE	67721	39.20	0.88
ISOPHORONE	78591	4680.00	104.00
NAPHTHALENE	91203	92.00	2.08
NITROBENZENE	98953	1080.00	24.00
N-NITROSODIMETHYLAMINE	62759	No Criteria	24.00
N-NITROSODI-N-PROPYLAMINE	621647	No Criteria	4.08
N-NITROSODIPHENYLAMINE	86306	234.40	5.20
PYRENE	129000	No Criteria	3200.00
1,2,4trichlorobenzene	120821	60.00	1.36
PESTICIDES/PCBs			
ALDRIN	309002	2.40	0.00040
Alpha BHC	319846	No Criteria	0.04
Beta BHC	319857	No Criteria	0.14
Gamma BHC (Lindane)	58899	0.76	0.76
CHLORDANE	57749	1.92	0.00344
4,4DDT	50293	0.88	0.00080
4,4DDE	72559	No Criteria	0.00176
4,4DDD	72548	No Criteria	0.00248
DIELDRIN	60571	0.19	0.00043
ENDOSULFAN (alpha)	959988	0.18	0.04480
ENDOSULFAN (beta)	33213659	0.18	0.04480
ENDOSULFAN (sulfate)	1031078	No Criteria	71.20
ENDRIN	72208	0.07	0.03
ENDRIN ALDEHYDE	7421934	No Criteria	0.24
HEPTACHLOR	76448	0.42	0.00063
HEPTACHLOR EPOXIDE	1024573	0.42	0.0003
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.0005
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.0000000
TOXAPHENE	8001352	0.58	0.00016
TRIBUTYLTIN		0.37	0.06

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
NON PRIORITY POLLUTANTS:			
OTHER SUBSTANCES			
ALUMINUM, TOTAL	7429905	600.00	69.60
AMMONIA (as N), WINTER (NOV-API	7664417	10890.00	2862.00
AMMONIA (as N), SUMMER (MAY-OC	7664417	17910.00	1530.00
4BROMOPHENYL PHENYL ETHER		14.40	0.32
CHLORIDE	16887006	688000.00	184000.00
CHLORINE	7782505	19.00	11.00
4CHLORO2METHYLPHENOL		12.00	0.26
1CHLORONAPHTHALENE		64.00	1.44
4CHLOROPHENOL	106489	153.60	3.44
2,4DICHLORO6METHYLPHENOL		17.60	0.38
1,1DICHLOROPROPANE		920.00	20.80
1,3DICHLOROPROPANE	142289	242.40	5.36
2,3DINITROTOLUENE		13.60	0.30
2,4DINITRO6METHYL PHENOL		9.60	0.21
IRON	7439896	No Criteria	900.00
pentachlorobenzene	608935	10.40	0.22
PENTACHLOROETHANE		289.60	6.40
1,2,3,5tetrachlorobenzene		256.80	5.68
1,1,1,2TETRACHLOROETHANE	630206	784.00	17.60
2,3,4,6TETRACHLOROPHENOL	58902	5.60	0.13
2,3,5,6TETRACHLOROPHENOL		6.80	0.15
2,4,5TRICHLOROPHENOL	95954	18.40	0.41
2,4,6TRINITROPHENOL	88062	3388.00	75.20
XYLENE	1330207	106.40	2.40

ATTACHMENT A-14

T.F. Green International Airport

Comparison of Allowable Limits with DMR Data,
Permit Application Data, and 2021 TMDL Sampling for Outfalls 002, 003, 008 and 009

Facility Name: ***T.F. Green Airport***

RIPDES Permit #: ***RI0021598***

Outfall #: ***002A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
PRIORITY POLLUTANTS:											
TOXIC METALS AND CYANIDE											
ANTIMONY	7440360	360.00	8.00	---	---	---	---	---	360.00	8.00	
ARSENIC, TOTAL	7440382	306.00	1.26	---	---	---	---	---	306.00	1.26	
ASBESTOS	1332214	No Criteria	0	---	---	---	---	---	No Criteria	0	
BERYLLIUM	7440417	6.00	0.14	---	---	---	---	---	6.00	0.14	
CADMIUM, TOTAL	7440439	0.90	0.14052	---	---	---	---	---	0.90	0.14052	
CHROMIUM III, TOTAL	16065831	785.34	37.54	---	1.5	0.2	0.848	0.216	785.34	37.54	No
CHROMIUM VI, TOTAL	18540299	13.03	9.15	---	---	---	---	---	13.03	9.15	
COPPER, TOTAL	7440508	6.26	4.45	---	12.2	1.9	6.96	0.993	6.26	4.45	Yes
CYANIDE	57125	17.60	4.16	---	---	---	---	---	17.60	4.16	
LEAD, TOTAL	7439921	28.56	1.11	---	6	1.4	3.65	0.913	28.56	1.11	Yes
MERCURY, TOTAL	7439976	1.32	0.14	---	---	---	---	---	1.32	0.14	
NICKEL, TOTAL	7440020	200.30	22.27	---	---	---	---	---	200.30	22.27	
SELENIUM, TOTAL	7782492	16.00	4.00	---	---	---	---	---	16.00	4.00	
SILVER, TOTAL	7440224	0.91	No Criteria	---	---	---	---	---	0.91	No Criteria	
THALLIUM	7440280	36.80	0.38	---	---	---	---	---	36.80	0.38	
ZINC, TOTAL	7440666	57.49	57.49	---	100	61	13.97	4.63	57.49	57.49	Yes
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN	107028	2.32	0.04800	---	---	---	---	---	2.32	0.04800	
ACRYLONITRILE	107131	302.40	2.00	---	---	---	---	---	302.40	2.00	
BENZENE	71432	212.00	4.72	---	---	---	---	---	212.00	4.72	
BROMOFORM	75252	1172.00	26.40	---	---	---	---	---	1172.00	26.40	
CARBON TETRACHLORIDE	56235	1092.00	12.80	---	---	---	---	---	1092.00	12.80	
CHLOROBENZENE	108907	636.00	14.40	---	---	---	---	---	636.00	14.40	
CHLORODIBROMOMETHANE	124481	No Criteria	104.00	---	---	---	---	---	No Criteria	104.00	
CHLOROFORM	67663	1156.00	25.60	---	---	---	---	---	1156.00	25.60	
DICHLOROBROMOMETHANE	75274	No Criteria	136.00	---	---	---	---	---	No Criteria	136.00	
1,2DICHLOROETHANE	107062	4720.00	104.80	---	---	---	---	---	4720.00	104.80	
1,1DICHLOROETHYLENE	75354	464.00	10.40	---	---	---	---	---	464.00	10.40	
1,2DICHLOROPROPANE	78875	2100.00	46.40	---	---	---	---	---	2100.00	46.40	
1,3DICHLOROPROPYLENE	542756	No Criteria	16.80	---	---	---	---	---	No Criteria	16.80	
ETHYLBENZENE	100414	1280.00	28.80	---	---	---	---	---	1280.00	28.80	
BROMOMETHANE (methyl bromide)	74839	No Criteria	1200.00	---	---	---	---	---	No Criteria	1200.00	
CHLOROMETHANE (methyl chloride)	74873	No Criteria	0.0000000	---	---	---	---	---	No Criteria	0.0000000	
METHYLENE CHLORIDE	75092	7720.00	171.20	---	---	---	---	---	7720.00	171.20	
1,1,2,2TETRACHLOROETHANE	79345	372.80	8.00	---	---	---	---	---	372.80	8.00	
TETRACHLOROETHYLENE	127184	192.00	4.24	---	---	---	---	---	192.00	4.24	
TOLUENE	108883	508.00	11.20000	---	---	---	---	---	508.00	11.20000	
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	8000.00	---	---	---	---	---	No Criteria	8000.00	
1,1,1TRICHLOROETHANE	71556	No Criteria	0.00000	---	---	---	---	---	No Criteria	0.00000	

Facility Name: ***T.F. Green Airport***
RIPDES Permit #: ***RI0021598***
Outfall #: ***002A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
1,1,2TRICHLOROETHANE	79005	720.00	16.00	---	---	---	---	---	720.00	16.00	
TRICHLOROETHYLENE	79016	1560.00	34.40	---	---	---	---	---	1560.00	34.40	
VINYL CHLORIDE	75014	No Criteria	1.92	---	---	---	---	---	No Criteria	1.92	
ACID ORGANIC COMPOUNDS											
2CHLOROPHENOL	95578	103.20	2.32	---	---	---	---	---	103.20	2.32	
2,4DICHLOROPHENOL	120832	80.80	1.76	---	---	---	---	---	80.80	1.76	
2,4DIMETHYLPHENOL	105679	84.80	1.92	---	---	---	---	---	84.80	1.92	
4,6DINITRO2METHYL PHENOL	534521	No Criteria	224.00	---	---	---	---	---	No Criteria	224.00	
2,4DINITROPHENOL	51285	24.80	0.55	---	---	---	---	---	24.80	0.55	
4NITROPHENOL	88755	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
PENTACHLOROPHENOL	87865	0.04	0.03332	---	---	---	---	---	0.04	0.03332	
PHENOL	108952	200.80	4.48	---	---	---	---	---	200.80	4.48	
2,4,6TRICHLOROPHENOL	88062	12.80	0.29	---	---	---	---	---	12.80	0.29	
BASE NEUTRAL COMPUNDS											
ACENAPHTHENE	83329	68.00	1.52000	---	---	---	---	---	68.00	1.52000	
ANTHRACENE	120127	No Criteria	32000.00000	---	---	---	---	---	No Criteria	32000.00000	
BENZIDINE	92875	No Criteria	0.00160	---	---	---	---	---	No Criteria	0.00160	
PAHs		No Criteria	0.14400	---	---	---	---	---	No Criteria	0.14400	
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	4.24000	---	---	---	---	---	No Criteria	4.24000	
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	52000.00000	---	---	---	---	---	No Criteria	52000.00000	
BIS(2ETHYLHEXYL)PHTHALATE	117817	444.00	9.60000	---	---	---	---	---	444.00	9.60000	
BUTYL BENZYL PHTHALATE	85687	68.00	1.52	---	---	---	---	---	68.00	1.52	
2CHLORONAPHTHALENE	91587	No Criteria	1280.00	---	---	---	---	---	No Criteria	1280.00	
1,2DICHLOROBENZENE	95501	63.20	1.44	---	---	---	---	---	63.20	1.44	
1,3DICHLOROBENZENE	541731	312.00	6.9600000	---	---	---	---	---	312.00	6.9600000	
1,4DICHLOROBENZENE	106467	44.80	0.9600000	---	---	---	---	---	44.80	0.9600000	
3,3DICHLOROBENZIDENE	91941	No Criteria	0.2240000	---	---	---	---	---	No Criteria	0.2240000	
DIETHYL PHTHALATE	84662	2084.00	46.4000000	---	---	---	---	---	2084.00	46.4000000	
DIMETHYL PHTHALATE	131113	1320.00	29.6000000	---	---	---	---	---	1320.00	29.6000000	
DI-n-BUTYL PHTHALATE	84742	No Criteria	3600.0000000	---	---	---	---	---	No Criteria	3600.0000000	
2,4DINITROTOLUENE	121142	1240.00	27.2000000	---	---	---	---	---	1240.00	27.2000000	
1,2DIPHENYLHYDRAZINE	122667	11.20	0.2480000	---	---	---	---	---	11.20	0.2480000	
FLUORANTHENE	206440	159.20	3.5200000	---	---	---	---	---	159.20	3.5200000	
FLUORENE	86737	No Criteria	4240.0000000	---	---	---	---	---	No Criteria	4240.0000000	
HEXACHLOROBENZENE	118741	No Criteria	0.00232000	---	---	---	---	---	No Criteria	0.00232000	
HEXACHLOROBUTADIENE	87683	No Criteria	144.000000	---	---	---	---	---	No Criteria	144.000000	
HEXACHLOROCYCLOPENTADIENE	77474	0.28	0.01	---	---	---	---	---	0.28	0.01	
HEXACHLOROETHANE	67721	39.20	0.88	---	---	---	---	---	39.20	0.88	
ISOPHORONE	78591	4680.00	104.00	---	---	---	---	---	4680.00	104.00	
NAPHTHALENE	91203	92.00	2.08	---	---	---	---	---	92.00	2.08	
NITROBENZENE	98953	1080.00	24.00	---	---	---	---	---	1080.00	24.00	

Facility Name: ***T.F. Green Airport***
RIPDES Permit #: ***RI0021598***
Outfall #: ***002A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
N-NITROSODIMETHYLAMINE	62759	No Criteria	24.00	---	---	---	---	---	No Criteria	24.00	
N-NITROSODI-N-PROPYLAMINE	621647	No Criteria	4.08	---	---	---	---	---	No Criteria	4.08	
N-NITROSODIPHENYLAMINE	86306	234.40	5.20	---	---	---	---	---	234.40	5.20	
PYRENE	129000	No Criteria	3200.00	---	---	---	---	---	No Criteria	3200.00	
1,2,4trichlorobenzene	120821	60.00	1.36	---	---	---	---	---	60.00	1.36	
ALDRIN	309002	2.40	0.00	---	---	---	---	---	2.40	0.00	
Alpha BHC	319846	No Criteria	0.04	---	---	---	---	---	No Criteria	0.04	
Beta BHC	319857	No Criteria	0.14	---	---	---	---	---	No Criteria	0.14	
Gamma BHC (Lindane)	58899	0.76	0.76	---	---	---	---	---	0.76	0.76	
CHLORDANE	57749	1.92	0.00	---	---	---	---	---	1.92	0.00	
4,4DDT	50293	0.88	0.00	---		---		---	0.88	0.00	
4,4DDE	72559	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
4,4DDD	72548	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
DIELDRIN	60571	0	0.00	---	---	---	---	---	0	0.00	
ENDOSULFAN (alpha)	959988	0.18	0.04	---	---	---	---	---	0.18	0.04	
ENDOSULFAN (beta)	33213659	0.18	0.04	---	---	---	---	---	0.18	0.04	
ENDOSULFAN (sulfate)	1031078	No Criteria	71.20	---	---	---	---	---	No Criteria	71.20	
ENDRIN	72208	0.07	0.03	---	---	---	---	---	0.07	0.03	
ENDRIN ALDEHYDE	7421934	No Criteria	0.24	---	---	---	---	---	No Criteria	0.24	
HEPTACHLOR	76448	0	0.00	---	---	---	---	---	0	0.00	
HEPTACHLOR EPOXIDE	1024573	0.42	0.00	---	---	---	---	---	0.42	0.00	
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
TOXAPHENE	8001352	1	0.00	---	---	---	---	---	1	0.00	
TRIBUTYLTIN		0.37	0.06	---	---	---	---	---	0.37	0.06	
ALUMINUM, TOTAL	7429905	600.0	69.6	---	342	85	225.2	64.9	600.0	69.6	Yes
AMMONIA (as N), WINTER (NOV-APR)	7664417	26550.00	4851.00	---	---	---	---	---	26550.00	4851.00	
AMMONIA (as N), SUMMER (MAY-OCT)	7664417	12960.00	1395.00	---	---	---	---	---	12960.00	1395.00	
4BROMOPHENYL PHENYL ETHER		14.40	0.32	---	---	---	---	---	14.40	0.32	
CHLORIDE	16887006	688000.00	184000.00	---	---	---	---	---	688000.00	184000.00	
CHLORINE	7782505	19.00	11.00	---	---	---	---	---	19.00	11.00	
4CHLORO2METHYLPHENOL		12.00	0.26	---	---	---	---	---	12.00	0.26	
1CHLORONAPHTHALENE		64	1	---	---	---	---	---	64	1	
4CHLOROPHENOL	106489	154	3	---	---	---	---	---	154	3	
2,4DICHLORO6METHYLPHENOL		18	0	---	---	---	---	---	18	0	
1,1DICHLOROPROPANE		920.00	20.80	---	---	---	---	---	920.00	20.80	
1,3DICHLOROPROPANE	142289	242	5	---	---	---	---	---	242	5	
2,3DINITROTOLUENE		13.60	0.30	---	---	---	---	---	13.60	0.30	

Facility Name: ***T.F. Green Airport***

RIPDES Permit #: ***RI0021598***

Outfall #: ***002A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
2,4DINITRO6METHYL PHENOL		9.60	0.21	---	---	---	---	---	9.60	0.21	
IRON	7439896	No Criteria	900.00	---	19800	8000	14,820	7150	No Criteria	900.00	Yes
pentachlorobenzene	608935	10.40	0.22	---	---	---	---	---	10.40	0.22	
PENTACHLOROETHANE		289.60	6.40	---	---	---	---	---	289.60	6.40	
1,2,3,5tetrachlorobenzene		256.80	5.68	---	---	---	---	---	256.80	5.68	
1,1,1,2TETRACHLOROETHANE	630206	784.00	17.60	---	---	---	---	---	784.00	17.60	
2,3,4,6TETRACHLOROPHENOL	58902	5.60	0.13	---	---	---	---	---	5.60	0.13	
2,3,5,6TETRACHLOROPHENOL		6.80	0.15	---	---	---	---	---	6.80	0.15	
2,4,5TRICHLOROPHENOL	95954	18.40	0.41	---	---	---	---	---	18.40	0.41	
2,4,6TRINITROPHENOL	88062	3388.00	75.20	---	---	---	---	---	3388.00	75.20	
XYLENE	1330207	106.40	2.40	---	---	---	---	---	106.40	2.40	
BOD5 (mg/L)	---	No Criteria	No Criteria	---	150	26	50.9	18.8	No Criteria	No Criteria	N/A
COD (mg/L)	---	No Criteria	No Criteria	---	363	73	145.9	47.3	No Criteria	No Criteria	N/A
TSS (mg/L)	---	No Criteria	No Criteria	---	230	23	41.01	25.4	No Criteria	No Criteria	N/A
pH (max, min)	---	9.00	6.50	---	9.64	6.08	7.47	6.53	9.00	6.50	Yes
Flow (gpd)	---	No Criteria	No Criteria	---	---	---	894912	348844	No Criteria	No Criteria	N/A
Fecal Coliform (MPN/100ml)	---	No Criteria	No Criteria	---	1600	114	3000134	780987	No Criteria	No Criteria	N/A
Oil and Grease (mg/L) (TBEL)	---	15.00	No Criteria	---	2.4	0.6	1.11	---	15.00	No Criteria	No
Temperature (deg F)	---	No Criteria	No Criteria	---	70.4	---	60.7	---	No Criteria	No Criteria	N/A
Propylene Glycol (mg/L)	---	No Criteria	No Criteria	---	147	15	48.56	10.1	No Criteria	No Criteria	N/A
Potassium (K+, mg/L)	---	No Criteria	No Criteria	---	32.5	5	7.87	4.26	No Criteria	No Criteria	N/A
Sodium (Na+, mg/L)	---	No Criteria	No Criteria	---	19.2	5.7	252	8.55	No Criteria	No Criteria	N/A
Total Sodium (mg/L)	---	No Criteria	No Criteria	---	---	---	12647	5669	No Criteria	No Criteria	N/A
Surfactants, MBAS (ug/L)	---	No Criteria	No Criteria	---	271	65	170	57.7	No Criteria	No Criteria	N/A
Dissolved Oxygen (mg/L)	---	No Criteria	No Criteria	---	11.2	8.6	9.42	8.37	No Criteria	No Criteria	N/A
Total Organic Carbon (mg/L)	---	No Criteria	No Criteria	---	114	20	40.84	13.21	No Criteria	No Criteria	N/A

Facility Name: ***T.F. Green Airport***
RIPDES Permit #: ***RI0021598***
Outfall #: ***003A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
PRIORITY POLLUTANTS:											
TOXIC METALS AND CYANIDE											
ANTIMONY	7440360	360.00	8.00	---	---	---	---	---	360.00	8.00	
ARSENIC, TOTAL	7440382	306.00	1.26	---	---	---	---	---	306.00	1.26	
ASBESTOS	1332214	No Criteria	0	---	---	---	---	---	No Criteria	0	
BERYLLIUM	7440417	6.00	0.14	---	---	---	---	---	6.00	0.14	
CADMIUM, TOTAL	7440439	0.90	0.14052	---	---	---	---	---	0.90	0.14052	
CHROMIUM III, TOTAL	16065831	785.34	37.54	---	2.4	0.4	0.999	0.253	785.34	37.54	No
CHROMIUM VI, TOTAL	18540299	13.03	9.15	---	---	---	---	---	13.03	9.15	
COPPER, TOTAL	7440508	6.26	4.45	---	18.3	5.1	12.8	3.11	6.26	4.45	**Yes**
CYANIDE	57125	17.60	4.16	---	---	---	---	---	17.60	4.16	
LEAD, TOTAL	7439921	28.56	1.11	---	3.4	0.5	1.86	0.315	28.56	1.11	**Yes**
MERCURY, TOTAL	7439976	1.32	0.14	---	---	---	---	---	1.32	0.14	
NICKEL, TOTAL	7440020	200.30	22.27	---	---	---	---	---	200.30	22.27	
SELENIUM, TOTAL	7782492	16.00	4.00	---	---	---	---	---	16.00	4.00	
SILVER, TOTAL	7440224	0.91	No Criteria	---	---	---	---	---	0.91	No Criteria	
THALLIUM	7440280	36.80	0.38	---	---	---	---	---	36.80	0.38	
ZINC, TOTAL	7440666	57.49	57.49	---	190	68	64.7	7.88	57.49	57.49	**Yes**
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN	107028	2.32	0.04800	---	---	---	---	---	2.32	0.04800	
ACRYLONITRILE	107131	302.40	2.00	---	---	---	---	---	302.40	2.00	
BENZENE	71432	212.00	4.72	---	---	---	---	---	212.00	4.72	
BROMOFORM	75252	1172.00	26.40	---	---	---	---	---	1172.00	26.40	
CARBON TETRACHLORIDE	56235	1092.00	12.80	---	---	---	---	---	1092.00	12.80	
CHLOROBENZENE	108907	636.00	14.40	---	---	---	---	---	636.00	14.40	
CHLORODIBROMOMETHANE	124481	No Criteria	104.00	---	---	---	---	---	No Criteria	104.00	
CHLOROFORM	67663	1156.00	25.60	---	---	---	---	---	1156.00	25.60	
DICHLOROBROMOMETHANE	75274	No Criteria	136.00	---	---	---	---	---	No Criteria	136.00	
1,2DICHLOROETHANE	107062	4720.00	104.80	---	---	---	---	---	4720.00	104.80	
1,1DICHLOROETHYLENE	75354	464.00	10.40	---	---	---	---	---	464.00	10.40	
1,2DICHLOROPROPANE	78875	2100.00	46.40	---	---	---	---	---	2100.00	46.40	
1,3DICHLOROPROPYLENE	542756	No Criteria	16.80	---	---	---	---	---	No Criteria	16.80	
ETHYLBENZENE	100414	1280.00	28.80	---	---	---	---	---	1280.00	28.80	
BROMOMETHANE (methyl bromide)	74839	No Criteria	1200.00	---	---	---	---	---	No Criteria	1200.00	
CHLOROMETHANE (methyl chloride)	74873	No Criteria	0.0000000	---	---	---	---	---	No Criteria	0.0000000	
METHYLENE CHLORIDE	75092	7720.00	171.20	---	---	---	---	---	7720.00	171.20	
1,1,2,2TETRACHLOROETHANE	79345	372.80	8.00	---	---	---	---	---	372.80	8.00	
TETRACHLOROETHYLENE	127184	192.00	4.24	---	---	---	---	---	192.00	4.24	
TOLUENE	108883	508.00	11.20000	---	---	---	---	---	508.00	11.20000	
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	8000.00	---	---	---	---	---	No Criteria	8000.00	
1,1,1TRICHLOROETHANE	71556	No Criteria	0.00000	---	---	---	---	---	No Criteria	0.00000	
1,1,2TRICHLOROETHANE	79005	720.00	16.00	---	---	---	---	---	720.00	16.00	
TRICHLOROETHYLENE	79016	1560.00	34.40	---	---	---	---	---	1560.00	34.40	
VINYL CHLORIDE	75014	No Criteria	1.92	---	---	---	---	---	No Criteria	1.92	
ACID ORGANIC COMPOUNDS											
2CHLOROPHENOL	95578	103.20	2.32	---	---	---	---	---	103.20	2.32	

Facility Name: ***T.F. Green Airport***

RIPDES Permit #: ***RI0021598***

Outfall #: ***003A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
2,4DICHLOROPHENOL	120832	80.80	1.76	---	---	---	---	---	80.80	1.76	
2,4DIMETHYLPHENOL	105679	84.80	1.92	---	---	---	---	---	84.80	1.92	
4,6DINITRO2METHYL PHENOL	534521	No Criteria	224.00	---	---	---	---	---	No Criteria	224.00	
2,4DINITROPHENOL	51285	24.80	0.55	---	---	---	---	---	24.80	0.55	
4NITROPHENOL	88755	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
PENTACHLOROPHENOL	87865	0.04	0.03332	---	---	---	---	---	0.04	0.03332	
PHENOL	108952	200.80	4.48	---	---	---	---	---	200.80	4.48	
2,4,6TRICHLOROPHENOL	88062	12.80	0.29	---	---	---	---	---	12.80	0.29	
BASE NEUTRAL COMPUNDS					---	---	---	---			
ACENAPHTHENE	83329	68.00	1.52000	---	---	---	---	---	68.00	1.52000	
ANTHRACENE	120127	No Criteria	32000.00000	---	---	---	---	---	No Criteria	32000.00000	
BENZIDINE	92875	No Criteria	0.00160	---	---	---	---	---	No Criteria	0.00160	
PAHs		No Criteria	0.14400	---	---	---	---	---	No Criteria	0.14400	
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	4.24000	---	---	---	---	---	No Criteria	4.24000	
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	52000.00000	---	---	---	---	---	No Criteria	52000.00000	
BIS(2ETHYLHEXYL)PHTHALATE	117817	444.00	9.60000	---	---	---	---	---	444.00	9.60000	
BUTYL BENZYL PHTHALATE	85687	68.00	1.52	---	---	---	---	---	68.00	1.52	
2CHLORONAPHTHALENE	91587	No Criteria	1280.00	---	---	---	---	---	No Criteria	1280.00	
1,2DICHLOROBENZENE	95501	63.20	1.44	---	---	---	---	---	63.20	1.44	
1,3DICHLOROBENZENE	541731	312.00	6.9600000	---	---	---	---	---	312.00	6.9600000	
1,4DICHLOROBENZENE	106467	44.80	0.9600000	---	---	---	---	---	44.80	0.9600000	
3,3DICHLOROBENZIDENE	91941	No Criteria	0.2240000	---	---	---	---	---	No Criteria	0.2240000	
DIETHYL PHTHALATE	84662	2084.00	46.4000000	---	---	---	---	---	2084.00	46.4000000	
DIMETHYL PHTHALATE	131113	1320.00	29.6000000	---	---	---	---	---	1320.00	29.6000000	
DI-n-BUTYL PHTHALATE	84742	No Criteria	3600.0000000	---	---	---	---	---	No Criteria	3600.0000000	
2,4DINITROTOLUENE	121142	1240.00	27.2000000	---	---	---	---	---	1240.00	27.2000000	
1,2DIPHENYLHYDRAZINE	122667	11.20	0.2480000	---	---	---	---	---	11.20	0.2480000	
FLUORANTHENE	206440	159.20	3.5200000	---	---	---	---	---	159.20	3.5200000	
FLUORENE	86737	No Criteria	4240.0000000	---	---	---	---	---	No Criteria	4240.0000000	
HEXACHLOROBENZENE	118741	No Criteria	0.00232000	---	---	---	---	---	No Criteria	0.00232000	
HEXACHLOROBUTADIENE	87683	No Criteria	144.000000	---	---	---	---	---	No Criteria	144.000000	
HEXACHLOROCYCLOPENTADIENE	77474	0.28	0.01	---	---	---	---	---	0.28	0.01	
HEXACHLOROETHANE	67721	39.20	0.88	---	---	---	---	---	39.20	0.88	
ISOPHORONE	78591	4680.00	104.00	---	---	---	---	---	4680.00	104.00	
NAPHTHALENE	91203	92.00	2.08	---	---	---	---	---	92.00	2.08	
NITROBENZENE	98953	1080.00	24.00	---	---	---	---	---	1080.00	24.00	
N-NITROSODIMETHYLAMINE	62759	No Criteria	24.00	---	---	---	---	---	No Criteria	24.00	
N-NITROSODI-N-PROPYLAMINE	621647	No Criteria	4.08	---	---	---	---	---	No Criteria	4.08	
N-NITROSODIPHENYLAMINE	86306	234.40	5.20	---	---	---	---	---	234.40	5.20	
PYRENE	129000	No Criteria	3200.00	---	---	---	---	---	No Criteria	3200.00	
1,2,4trichlorobenzene	120821	60.00	1.36	---	---	---	---	---	60.00	1.36	
PESTICIDES/PCBs											
ALDRIN	309002	2.40	0.00	---	---	---	---	---	2.40	0.00	
Alpha BHC	319846	No Criteria	0.04	---	---	---	---	---	No Criteria	0.04	
Beta BHC	319857	No Criteria	0.14	---	---	---	---	---	No Criteria	0.14	
Gamma BHC (Lindane)	58899	0.76	0.76	---	---	---	---	---	0.76	0.76	

Facility Name: ***T.F. Green Airport***
RIPDES Permit #: ***RI0021598***
Outfall #: ***003A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
CHLORDANE	57749	1.92	0.00	---	---	---	---	---	1.92	0.00	
4,4DDT	50293	0.88	0.00	---	---	---	---	---	0.88	0.00	
4,4DDE	72559	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
4,4DDD	72548	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
DIELDRIN	60571	0	0.00	---	---	---	---	---	0	0.00	
ENDOSULFAN (alpha)	959988	0.18	0.04	---	---	---	---	---	0.18	0.04	
ENDOSULFAN (beta)	33213659	0.18	0.04	---	---	---	---	---	0.18	0.04	
ENDOSULFAN (sulfate)	1031078	No Criteria	71.20	---	---	---	---	---	No Criteria	71.20	
ENDRIN	72208	0.07	0.03	---	---	---	---	---	0.07	0.03	
ENDRIN ALDEHYDE	7421934	No Criteria	0.24	---	---	---	---	---	No Criteria	0.24	
HEPTACHLOR	76448	0	0.00	---	---	---	---	---	0	0.00	
HEPTACHLOR EPOXIDE	1024573	0.42	0.00	---	---	---	---	---	0.42	0.00	
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
TOXAPHENE	8001352	1	0.00	---	---	---	---	---	1	0.00	
TRIBUTYLTIN		0.37	0.06	---	---	---	---	---	0.37	0.06	
NON PRIORITY POLLUTANTS: OTHER SUBSTANCES											
ALUMINUM, TOTAL	7429905	600.0	69.6	---	713	93	250.8	76.2	600.0	69.6	Yes
AMMONIA (as N), WINTER (NOV-APR)	7664417	26550.00	4851.00	---	---	---	---	---	26550.00	4851.00	
AMMONIA (as N), SUMMER (MAY-OCT)	7664417	12960.00	1395.00	---	---	---	---	---	12960.00	1395.00	
4BROMOPHENYL PHENYL ETHER		14.40	0.32	---	---	---	---	---	14.40	0.32	
CHLORIDE	16887006	688000.00	184000.00	---	---	---	---	---	688000.00	184000.00	
CHLORINE	7782505	19.00	11.00	---	---	---	---	---	19.00	11.00	
4CHLORO2METHYLPHENOL		12.00	0.26	---	---	---	---	---	12.00	0.26	
1CHLORONAPHTHALENE		64	1	---	---	---	---	---	64	1	
4CHLOROPHENOL	106489	154	3	---	---	---	---	---	154	3	
2,4DICHLORO6METHYLPHENOL		18	0	---	---	---	---	---	18	0	
1,1DICHLOROPROPANE		920.00	20.80	---	---	---	---	---	920.00	20.80	
1,3DICHLOROPROPANE	142289	242	5	---	---	---	---	---	242	5	
2,3DINITROTOLUENE		13.60	0.30	---	---	---	---	---	13.60	0.30	
2,4DINITRO6METHYL PHENOL		9.60	0.21	---	---	---	---	---	9.60	0.21	
IRON	7439896	No Criteria	900.00	---	3400	1400	5039	1493	No Criteria	900.00	Yes
pentachlorobenzene	608935	10.40	0.22	---	---	---	---	---	10.40	0.22	
PENTACHLOROETHANE		289.60	6.40	---	---	---	---	---	289.60	6.40	
1,2,3,5tetrachlorobenzene		256.80	5.68	---	---	---	---	---	256.80	5.68	
1,1,1,2TETRACHLOROETHANE	630206	784.00	17.60	---	---	---	---	---	784.00	17.60	
2,3,4,6TETRACHLOROPHENOL	58902	5.60	0.13	---	---	---	---	---	5.60	0.13	
2,3,5,6TETRACHLOROPHENOL		6.80	0.15	---	---	---	---	---	6.80	0.15	
2,4,5TRICHLOROPHENOL	95954	18.40	0.41	---	---	---	---	---	18.40	0.41	
2,4,6TRINITROPHENOL	88062	3388.00	75.20	---	---	---	---	---	3388.00	75.20	
XYLENE	1330207	106.40	2.40	---	---	---	---	---	106.40	2.40	
NON WQ BASED PARAMETERS											
BOD5 (mg/L)	---	No Criteria	No Criteria	---	102	16	35.2	13.6	No Criteria	No Criteria	N/A
COD (mg/L)		No Criteria	No Criteria	---	243	43	85.3	31.1	No Criteria	No Criteria	N/A
TSS (mg/L)	---	No Criteria	No Criteria	---	170	10	16.8	9.44	No Criteria	No Criteria	N/A

Facility Name: ***T.F. Green Airport***

RIPDES Permit #: ***RI0021598***

Outfall #: ***003A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
pH (max, min)	---	9.00	6.50	---	9.09	5.89	7.46	6.53	9.00	6.50	Yes
Flow (gpd)	---	No Criteria	No Criteria	---	---	---	2023208	605844	No Criteria	No Criteria	N/A
Fecal Coliform (MPN/100ml)	---	No Criteria	No Criteria	---	1600	289	5250211	2306819	No Criteria	No Criteria	N/A
Oil and Grease (mg/L) (TBEL)	---	15.00	No Criteria	---	4.1	0.7	1.28	---	15.00	No Criteria	No
Temperature (deg F)	---	No Criteria	No Criteria	---	71.2	---	59.3	---	No Criteria	No Criteria	N/A
Propylene Glycol (mg/L)	---	No Criteria	No Criteria	---	34	4	17.9	3.93	No Criteria	No Criteria	N/A
Potassium (K+, mg/L)	---	No Criteria	No Criteria	---	86	9.9	18.3	7.84	No Criteria	No Criteria	N/A
Sodium (Na+, mg/L)	---	No Criteria	No Criteria	---	59.3	14.3	35.5	19.4	No Criteria	No Criteria	N/A
Total Sodium (mg/L)	---	No Criteria	No Criteria	---	---	---	185	31.9	No Criteria	No Criteria	N/A
Surfactants, MBAS (ug/L)	---	No Criteria	No Criteria	---	167	50	174	53.6	No Criteria	No Criteria	N/A
Dissolved Oxygen (mg/L)	---	No Criteria	No Criteria	---	11.5	9.3	9.85	9.11	No Criteria	No Criteria	N/A
Total Organic Carbon (mg/L)	---	No Criteria	No Criteria	---	65	10	23.8	8.88	No Criteria	No Criteria	N/A

Facility Name: ***T.F. Green Airport***

RIPDES Permit #: ***RI0021598***

Outfall #: ***008A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	2021 Final TMDL for B. Brook (Dry Weather)		Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
PRIORITY POLLUTANTS:													
TOXIC METALS AND CYANIDE													
ANTIMONY	7440360	360.00	8.00	---			---	---	---	---	360.00	8.00	
ARSENIC, TOTAL	7440382	306.00	1.26	---	1.36	0.81	---	---	---	---	306.00	1.26	Yes
ASBESTOS	1332214	No Criteria	0	---			---	---	---	---	No Criteria	0	
BERYLLIUM	7440417	6.00	0.14	---			---	---	---	---	6.00	0.14	
CADMIUM, TOTAL	7440439	0.81	0.13033	---	0.17	0.12	---	---	---	---	0.81	0.13033	Yes
CHROMIUM III, TOTAL	16065831	722.62	34.54	---			3.8	1.5	2.92	1.05	722.62	34.54	No
CHROMIUM VI, TOTAL	18540299	13.03	9.15	---			---	---	---	---	13.03	9.15	
COPPER, TOTAL	7440508	5.69	4.08	---	1.03	0.89	13.2	4.1	9.59	2.38	5.69	4.08	Yes
CYANIDE	57125	17.60	4.16	---			---	---	---	---	17.60	4.16	
LEAD, TOTAL	7439921	25.09	0.98	---	0.08	0.04	3.9	0.6	2.16	0.473	25.09	0.98	Yes
MERCURY, TOTAL	7439976	1.32	0.14	---			---	---	---	---	1.32	0.14	
NICKEL, TOTAL	7440020	183.80	20.43	---			---	---	---	---	183.80	20.43	
SELENIUM, TOTAL	7782492	16.00	4.00	---			---	---	---	---	16.00	4.00	
SILVER, TOTAL	7440224	0.76	No Criteria	---			---	---	---	---	0.76	No Criteria	
THALLIUM	7440280	36.80	0.38	---			---	---	---	---	36.80	0.38	
ZINC, TOTAL	7440666	52.75	52.75	---	10.5	6.7	100	62	34.1	7.79	52.75	52.75	Yes
VOLATILE ORGANIC COMPOUNDS													
ACROLEIN	107028	2.32	0.04800	---			---	---	---	---	2.32	0.04800	
ACRYLONITRILE	107131	302.40	2.00	---			---	---	---	---	302.40	2.00	
BENZENE	71432	212.00	4.72	---			---	---	---	---	212.00	4.72	
BROMOFORM	75252	1172.00	26.40	---			---	---	---	---	1172.00	26.40	
CARBON TETRACHLORIDE	56235	1092.00	12.80	---			---	---	---	---	1092.00	12.80	
CHLOROBENZENE	108907	636.00	14.40	---			---	---	---	---	636.00	14.40	
CHLORODIBROMOMETHANE	124481	No Criteria	104.00	---			---	---	---	---	No Criteria	104.00	
CHLOROFORM	67663	1156.00	25.60	---			---	---	---	---	1156.00	25.60	
DICHLOROBROMOMETHANE	75274	No Criteria	136.00	---			---	---	---	---	No Criteria	136.00	
1,2DICHLOROETHANE	107062	4720.00	104.80	---			---	---	---	---	4720.00	104.80	
1,1DICHLOROETHYLENE	75354	464.00	10.40	---			---	---	---	---	464.00	10.40	
1,2DICHLOROPROPANE	78875	2100.00	46.40	---			---	---	---	---	2100.00	46.40	
1,3DICHLOROPROPYLENE	542756	No Criteria	16.80	---			---	---	---	---	No Criteria	16.80	
ETHYLBENZENE	100414	1280.00	28.80	---			---	---	---	---	1280.00	28.80	
BROMOMETHANE (methyl bromide)	74839	No Criteria	1200.00	---			---	---	---	---	No Criteria	1200.00	
CHLOROMETHANE (methyl chloride)	74873	No Criteria	0.0000000	---			---	---	---	---	No Criteria	0.0000000	
METHYLENE CHLORIDE	75092	7720.00	171.20	---			---	---	---	---	7720.00	171.20	
1,1,2,2TETRACHLOROETHANE	79345	372.80	8.00	---			---	---	---	---	372.80	8.00	
TETRACHLOROETHYLENE	127184	192.00	4.24	---			---	---	---	---	192.00	4.24	
TOLUENE	108883	508.00	11.20000	---			---	---	---	---	508.00	11.20000	
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	8000.00	---			---	---	---	---	No Criteria	8000.00	
1,1,1TRICHLOROETHANE	71556	No Criteria	0.00000	---			---	---	---	---	No Criteria	0.00000	
1,1,2TRICHLOROETHANE	79005	720.00	16.00	---			---	---	---	---	720.00	16.00	
TRICHLOROETHYLENE	79016	1560.00	34.40	---			---	---	---	---	1560.00	34.40	
VINYL CHLORIDE	75014	No Criteria	1.92	---			---	---	---	---	No Criteria	1.92	
ACID ORGANIC COMPOUNDS													
2CHLOROPHENOL	95578	103.20	2.32	---			---	---	---	---	103.20	2.32	
2,4DICHLOROPHENOL	120832	80.80	1.76	---			---	---	---	---	80.80	1.76	
2,4DIMETHYLPHENOL	105679	84.80	1.92	---			---	---	---	---	84.80	1.92	
4,6DINITRO2METHYL PHENOL	534521	No Criteria	224.00	---			---	---	---	---	No Criteria	224.00	
2,4DINITROPHENOL	51285	24.80	0.55	---			---	---	---	---	24.80	0.55	
4NITROPHENOL	88755	No Criteria	0.00	---			---	---	---	---	No Criteria	0.00	
PENTACHLOROPHENOL	87865	0.04	0.03332	---			---	---	---	---	0.04	0.03332	
PHENOL	108952	200.80	4.48	---			---	---	---	---	200.80	4.48	
2,4,6TRICHLOROPHENOL	88062	12.80	0.29	---			---	---	---	---	12.80	0.29	

Facility Name: ***T.F. Green Airport***

RIPDES Permit #: ***RI0021598***

Outfall #: ***008A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	2021 Final TMDL for B. Brook (Dry Weather)		Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
BASE NEUTRAL COMPUNDS							---	---	---	---			
ACENAPHTHENE	83329	68.00	1.52000	---			---	---	---	---	68.00	1.52000	
ANTHRACENE	120127	No Criteria	32000.00000	---			---	---	---	---	No Criteria	32000.00000	
BENZIDINE	92875	No Criteria	0.00160	---			---	---	---	---	No Criteria	0.00160	
PAHs		No Criteria	0.14400	---			---	---	---	---	No Criteria	0.14400	
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	4.24000	---			---	---	---	---	No Criteria	4.24000	
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	52000.00000	---			---	---	---	---	No Criteria	52000.00000	
BIS(2ETHYLHEXYL)PHTHALATE	117817	444.00	9.60000	---			---	---	---	---	444.00	9.60000	
BUTYL BENZYL PHTHALATE	85687	68.00	1.52	---			---	---	---	---	68.00	1.52	
2CHLORONAPHTHALENE	91587	No Criteria	1280.00	---			---	---	---	---	No Criteria	1280.00	
1,2DICHLOROBENZENE	95501	63.20	1.44	---			---	---	---	---	63.20	1.44	
1,3DICHLOROBENZENE	541731	312.00	6.9600000	---			---	---	---	---	312.00	6.9600000	
1,4DICHLOROBENZENE	106467	44.80	0.9600000	---			---	---	---	---	44.80	0.9600000	
3,3DICHLOROBENZIDENE	91941	No Criteria	0.2240000	---			---	---	---	---	No Criteria	0.2240000	
DIETHYL PHTHALATE	84662	2084.00	46.4000000	---			---	---	---	---	2084.00	46.4000000	
DIMETHYL PHTHALATE	131113	1320.00	29.6000000	---			---	---	---	---	1320.00	29.6000000	
DI-n-BUTYL PHTHALATE	84742	No Criteria	3600.0000000	---			---	---	---	---	No Criteria	3600.0000000	
2,4DINITROTOLUENE	121142	1240.00	27.2000000	---			---	---	---	---	1240.00	27.2000000	
1,2DIPHENYLHYDRAZINE	122667	11.20	0.2480000	---			---	---	---	---	11.20	0.2480000	
FLUORANTHENE	206440	159.20	3.5200000	---			---	---	---	---	159.20	3.5200000	
FLUORENE	86737	No Criteria	4240.0000000	---			---	---	---	---	No Criteria	4240.0000000	
HEXACHLOROBENZENE	118741	No Criteria	0.00232000	---			---	---	---	---	No Criteria	0.00232000	
HEXACHLOROBUTADIENE	87683	No Criteria	144.000000	---			---	---	---	---	No Criteria	144.000000	
HEXACHLOROCYCLOPENTADIENE	77474	0.28	0.01	---			---	---	---	---	0.28	0.01	
HEXACHLOROETHANE	67721	39.20	0.88	---			---	---	---	---	39.20	0.88	
ISOPHORONE	78591	4680.00	104.00	---			---	---	---	---	4680.00	104.00	
NAPHTHALENE	91203	92.00	2.08	---			---	---	---	---	92.00	2.08	
NITROBENZENE	98953	1080.00	24.00	---			---	---	---	---	1080.00	24.00	
N-NITROSODIMETHYLAMINE	62759	No Criteria	24.00	---			---	---	---	---	No Criteria	24.00	
N-NITROSODI-N-PROPYLAMINE	621647	No Criteria	4.08	---			---	---	---	---	No Criteria	4.08	
N-NITROSODIPHENYLAMINE	86306	234.40	5.20	---			---	---	---	---	234.40	5.20	
PYRENE	129000	No Criteria	3200.00	---			---	---	---	---	No Criteria	3200.00	
1,2,4trichlorobenzene	120821	60.00	1.36	---			---	---	---	---	60.00	1.36	
PESTICIDES/PCBs													
ALDRIN	309002	2.40	0.00	---			---	---	---	---	2.40	0.00	
Alpha BHC	319846	No Criteria	0.04	---			---	---	---	---	No Criteria	0.04	
Beta BHC	319857	No Criteria	0.14	---			---	---	---	---	No Criteria	0.14	
Gamma BHC (Lindane)	58899	0.76	0.76	---			---	---	---	---	0.76	0.76	
CHLORDANE	57749	1.92	0.00	---			---	---	---	---	1.92	0.00	
4,4DDT	50293	0.88	0.00	---			---	---		---	0.88	0.00	
4,4DDE	72559	No Criteria	0.00	---			---	---	---	---	No Criteria	0.00	
4,4DDD	72548	No Criteria	0.00	---			---	---	---	---	No Criteria	0.00	
DIELDRIN	60571	0	0.00	---			---	---	---	---	0	0.00	
ENDOSULFAN (alpha)	959988	0.18	0.04	---			---	---	---	---	0.18	0.04	
ENDOSULFAN (beta)	33213659	0.18	0.04	---			---	---	---	---	0.18	0.04	
ENDOSULFAN (sulfate)	1031078	No Criteria	71.20	---			---	---	---	---	No Criteria	71.20	
ENDRIN	72208	0.07	0.03	---			---	---	---	---	0.07	0.03	
ENDRIN ALDEHYDE	7421934	No Criteria	0.24	---			---	---	---	---	No Criteria	0.24	
HEPTACHLOR	76448	0	0.00	---			---	---	---	---	0	0.00	
HEPTACHLOR EPOXIDE	1024573	0.42	0.00	---			---	---	---	---	0.42	0.00	
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.00	---			---	---	---	---	No Criteria	0.00	
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00	---			---	---	---	---	No Criteria	0.00	
TOXAPHENE	8001352	1	0.00	---			---	---	---	---	1	0.00	
TRIBUTYLTIN		0.37	0.06	---			---	---	---	---	0.37	0.06	

Facility Name: ***T.F. Green Airport***

RIPDES Permit #: ***RI0021598***

Outfall #: ***008A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	2021 Final TMDL for B. Brook (Dry Weather)		Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
NON PRIORITY POLLUTANTS: OTHER SUBSTANCES													
ALUMINUM, TOTAL	7429905	600.0	69.6	---			1122	200	642	153	600.0	69.6	Yes
AMMONIA (as N), WINTER (NOV-APR)	7664417	10890.00	2862.00	---	130	130	---	---	---	---	10890.00	2862.00	No
AMMONIA (as N), SUMMER (MAY-OCT)	7664417	17910.00	1530.00	---	130	130	---	---	---	---	17910.00	1530.00	No
4BROMOPHENYL PHENYL ETHER		14.40	0.32	---			---	---	---	---	14.40	0.32	
CHLORIDE	16887006	688000.00	184000.00	---			---	---	---	---	688000.00	184000.00	
CHLORINE	7782505	19.00	11.00	---			---	---	---	---	19.00	11.00	
4CHLORO2METHYLPHENOL		12.00	0.26	---			---	---	---	---	12.00	0.26	
1CHLORONAPHTHALENE		64	1	---			---	---	---	---	64	1	
4CHLOROPHENOL	106489	154	3	---			---	---	---	---	154	3	
2,4DICHLORO6METHYLPHENOL		18	0	---			---	---	---	---	18	0	
1,1DICHLOROPROPANE		920.00	20.80	---			---	---	---	---	920.00	20.80	
1,3DICHLOROPROPANE	142289	242	5	---			---	---	---	---	242	5	
2,3DINITROTOLUENE		13.60	0.30	---			---	---	---	---	13.60	0.30	
2,4DINITRO6METHYL PHENOL		9.60	0.21	---			---	---	---	---	9.60	0.21	
IRON	7439896	No Criteria	900.00	---	4334	3711	6500	3200	8046	2397	No Criteria	900.00	Yes
pentachlorobenzene	608935	10.40	0.22	---			---	---	---	---	10.40	0.22	
PENTACHLOROETHANE		289.60	6.40	---			---	---	---	---	289.60	6.40	
1,2,3,5tetrachlorobenzene		256.80	5.68	---			---	---	---	---	256.80	5.68	
1,1,1,2TETRACHLOROETHANE	630206	784.00	17.60	---			---	---	---	---	784.00	17.60	
2,3,4,6TETRACHLOROPHENOL	58902	5.60	0.13	---			---	---	---	---	5.60	0.13	
2,3,5,6TETRACHLOROPHENOL		6.80	0.15	---			---	---	---	---	6.80	0.15	
2,4,5TRICHLOROPHENOL	95954	18.40	0.41	---			---	---	---	---	18.40	0.41	
2,4,6TRINITROPHENOL	88062	3388.00	75.20	---			---	---	---	---	3388.00	75.20	
XYLENE	1330207	106.40	2.40	---			---	---			106.40	2.40	
NON WQ BASED PARAMETERS													
BOD5 (mg/L)	---	No Criteria	No Criteria	---	20	9.7	391	65	84.9	40.2	No Criteria	No Criteria	N/A
COD (mg/L)		No Criteria	No Criteria	---			1387	271	452	164	No Criteria	No Criteria	N/A
TSS (mg/L)	---	No Criteria	No Criteria	---	2	0.7	240	21	26.7	15	No Criteria	No Criteria	N/A
pH (max, min)	---	9.00	6.50	---	7.22	7.12	8.7	6	7.29	6.52	9.00	6.50	No
Flow (gpd)	---	No Criteria	No Criteria	---			---	---	6684320	2447998	No Criteria	No Criteria	N/A
Fecal Coliform (MPN/100ml)	---	No Criteria	No Criteria	---			1600	339	6000190	3052447	No Criteria	No Criteria	N/A
Oil and Grease (mg/L) (TBEL)	---	15.00	No Criteria	---			12	1.5	2.07	---	15.00	No Criteria	Yes
Temperature (deg F)	---	No Criteria	No Criteria	---			72	---	60.5	---	No Criteria	No Criteria	N/A
Propylene Glycol (mg/L)	---	No Criteria	No Criteria	---			851	128	203	52.3	No Criteria	No Criteria	N/A
Potassium (K+, mg/L)	---	No Criteria	No Criteria	---			10.2	4.3	7.93	4.33	No Criteria	No Criteria	N/A
Sodium (Na+, mg/L)	---	No Criteria	No Criteria	---			312.1	63.8	416	126	No Criteria	No Criteria	N/A
Total Sodium (mg/L)	---	No Criteria	No Criteria	---			---	---	634	154	No Criteria	No Criteria	N/A
Surfactants, MBAS (ug/L)	---	No Criteria	No Criteria	---			260	84	216	74.9	No Criteria	No Criteria	N/A
Dissolved Oxygen (mg/L)	---	No Criteria	No Criteria	---			11.5	8.9	9.48	8.66	No Criteria	No Criteria	N/A
Total Organic Carbon (mg/L)	---	No Criteria	No Criteria	---			443	76	123	44.3	No Criteria	No Criteria	N/A

Facility Name: ***T.F. Green Airport***

RIPDES Permit #: ***RI0021598***

Outfall #: ***009A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
PRIORITY POLLUTANTS:											
TOXIC METALS AND CYANIDE											
ANTIMONY	7440360	360.00	8.00	---	---	---	---	---	360.00	8.00	
ARSENIC, TOTAL	7440382	306.00	1.26	---	---	---	---	---	306.00	1.26	
ASBESTOS	1332214	No Criteria	0	---	---	---	---	---	No Criteria	0	
BERYLLIUM	7440417	6.00	0.14	---	---	---	---	---	6.00	0.14	
CADMIUM, TOTAL	7440439	0.81	0.13033	---	---	---	---	---	0.81	0.13033	
CHROMIUM III, TOTAL	16065831	722.62	34.54	---	---	---	---	---	722.62	34.54	
CHROMIUM VI, TOTAL	18540299	13.03	9.15	---	---	---	---	---	13.03	9.15	
COPPER, TOTAL	7440508	5.69	4.08	---	---	---	---	---	5.69	4.08	
CYANIDE	57125	17.60	4.16	---	---	---	---	---	17.60	4.16	
LEAD, TOTAL	7439921	25.09	0.98	---	---	---	---	---	25.09	0.98	
MERCURY, TOTAL	7439976	1.32	0.14	---	---	---	---	---	1.32	0.14	
NICKEL, TOTAL	7440020	183.80	20.43	---	---	---	---	---	183.80	20.43	
SELENIUM, TOTAL	7782492	16.00	4.00	---	---	---	---	---	16.00	4.00	
SILVER, TOTAL	7440224	0.76	No Criteria	---	---	---	---	---	0.76	No Criteria	
THALLIUM	7440280	36.80	0.38	---	---	---	---	---	36.80	0.38	
ZINC, TOTAL	7440666	52.75	52.75	---	---	---	---	---	52.75	52.75	
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN	107028	2.32	0.04800	---	---	---	---	---	2.32	0.04800	
ACRYLONITRILE	107131	302.40	2.00	---	---	---	---	---	302.40	2.00	
BENZENE	71432	212.00	4.72	---	---	---	---	---	212.00	4.72	
BROMOFORM	75252	1172.00	26.40	---	---	---	---	---	1172.00	26.40	
CARBON TETRACHLORIDE	56235	1092.00	12.80	---	---	---	---	---	1092.00	12.80	
CHLOROBENZENE	108907	636.00	14.40	---	---	---	---	---	636.00	14.40	
CHLORODIBROMOMETHANE	124481	No Criteria	104.00	---	---	---	---	---	No Criteria	104.00	
CHLOROFORM	67663	1156.00	25.60	---	---	---	---	---	1156.00	25.60	
DICHLOROBROMOMETHANE	75274	No Criteria	136.00	---	---	---	---	---	No Criteria	136.00	
1,2DICHLOROETHANE	107062	4720.00	104.80	---	---	---	---	---	4720.00	104.80	
1,1DICHLOROETHYLENE	75354	464.00	10.40	---	---	---	---	---	464.00	10.40	
1,2DICHLOROPROPANE	78875	2100.00	46.40	---	---	---	---	---	2100.00	46.40	
1,3DICHLOROPROPYLENE	542756	No Criteria	16.80	---	---	---	---	---	No Criteria	16.80	
ETHYLBENZENE	100414	1280.00	28.80	---	---	---	---	---	1280.00	28.80	
BROMOMETHANE (methyl bromide)	74839	No Criteria	1200.00	---	---	---	---	---	No Criteria	1200.00	
CHLOROMETHANE (methyl chloride)	74873	No Criteria	0.0000000	---	---	---	---	---	No Criteria	0.0000000	
METHYLENE CHLORIDE	75092	7720.00	171.20	---	---	---	---	---	7720.00	171.20	
1,1,2,2TETRACHLOROETHANE	79345	372.80	8.00	---	---	---	---	---	372.80	8.00	
TETRACHLOROETHYLENE	127184	192.00	4.24	---	---	---	---	---	192.00	4.24	
TOLUENE	108883	508.00	11.20000	---	---	---	---	---	508.00	11.20000	
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	8000.00	---	---	---	---	---	No Criteria	8000.00	
1,1,1TRICHLOROETHANE	71556	No Criteria	0.00000	---	---	---	---	---	No Criteria	0.00000	
1,1,2TRICHLOROETHANE	79005	720.00	16.00	---	---	---	---	---	720.00	16.00	
TRICHLOROETHYLENE	79016	1560.00	34.40	---	---	---	---	---	1560.00	34.40	
VINYL CHLORIDE	75014	No Criteria	1.92	---	---	---	---	---	No Criteria	1.92	
ACID ORGANIC COMPOUNDS											
2CHLOROPHENOL	95578	103.20	2.32	---	---	---	---	---	103.20	2.32	
2,4DICHLOROPHENOL	120832	80.80	1.76	---	---	---	---	---	80.80	1.76	
2,4DIMETHYLPHENOL	105679	84.80	1.92	---	---	---	---	---	84.80	1.92	
4,6DINITRO2METHYL PHENOL	534521	No Criteria	224.00	---	---	---	---	---	No Criteria	224.00	
2,4DINITROPHENOL	51285	24.80	0.55	---	---	---	---	---	24.80	0.55	
4NITROPHENOL	88755	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	

Facility Name: ***T.F. Green Airport***

RIPDES Permit #: ***RI0021598***

Outfall #: ***009A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
PENTACHLOROPHENOL	87865	0.04	0.03332	---	---	---	---	---	0.04	0.03332	
PHENOL	108952	200.80	4.48	---	---	---	---	---	200.80	4.48	
2,4,6TRICHLOROPHENOL	88062	12.80	0.29	---	---	---	---	---	12.80	0.29	
BASE NEUTRAL COMPUNDS					---	---	---	---			
ACENAPHTHENE	83329	68.00	1.52000	---	---	---	---	---	68.00	1.52000	
ANTHRACENE	120127	No Criteria	32000.00000	---	---	---	---	---	No Criteria	32000.00000	
BENZIDINE	92875	No Criteria	0.00160	---	---	---	---	---	No Criteria	0.00160	
PAHs		No Criteria	0.14400	---	---	---	---	---	No Criteria	0.14400	
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	4.24000	---	---	---	---	---	No Criteria	4.24000	
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	52000.00000	---	---	---	---	---	No Criteria	52000.00000	
BIS(2ETHYLHEXYL)PHTHALATE	117817	444.00	9.60000	---	---	---	---	---	444.00	9.60000	
BUTYL BENZYL PHTHALATE	85687	68.00	1.52	---	---	---	---	---	68.00	1.52	
2CHLORONAPHTHALENE	91587	No Criteria	1280.00	---	---	---	---	---	No Criteria	1280.00	
1,2DICHLOROBENZENE	95501	63.20	1.44	---	---	---	---	---	63.20	1.44	
1,3DICHLOROBENZENE	541731	312.00	6.9600000	---	---	---	---	---	312.00	6.9600000	
1,4DICHLOROBENZENE	106467	44.80	0.9600000	---	---	---	---	---	44.80	0.9600000	
3,3DICHLOROBENZIDENE	91941	No Criteria	0.2240000	---	---	---	---	---	No Criteria	0.2240000	
DIETHYL PHTHALATE	84662	2084.00	46.4000000	---	---	---	---	---	2084.00	46.4000000	
DIMETHYL PHTHALATE	131113	1320.00	29.6000000	---	---	---	---	---	1320.00	29.6000000	
DI-n-BUTYL PHTHALATE	84742	No Criteria	3600.0000000	---	---	---	---	---	No Criteria	3600.0000000	
2,4DINITROTOLUENE	121142	1240.00	27.2000000	---	---	---	---	---	1240.00	27.2000000	
1,2DIPHENYLHYDRAZINE	122667	11.20	0.2480000	---	---	---	---	---	11.20	0.2480000	
FLUORANTHENE	206440	159.20	3.5200000	---	---	---	---	---	159.20	3.5200000	
FLUORENE	86737	No Criteria	4240.0000000	---	---	---	---	---	No Criteria	4240.0000000	
HEXACHLOROBENZENE	118741	No Criteria	0.00232000	---	---	---	---	---	No Criteria	0.00232000	
HEXACHLOROBUTADIENE	87683	No Criteria	144.000000	---	---	---	---	---	No Criteria	144.000000	
HEXACHLOROCYCLOPENTADIENE	77474	0.28	0.01	---	---	---	---	---	0.28	0.01	
HEXACHLOROETHANE	67721	39.20	0.88	---	---	---	---	---	39.20	0.88	
ISOPHORONE	78591	4680.00	104.00	---	---	---	---	---	4680.00	104.00	
NAPHTHALENE	91203	92.00	2.08	---	---	---	---	---	92.00	2.08	
NITROBENZENE	98953	1080.00	24.00	---	---	---	---	---	1080.00	24.00	
N-NITROSODIMETHYLAMINE	62759	No Criteria	24.00	---	---	---	---	---	No Criteria	24.00	
N-NITROSODI-N-PROPYLAMINE	621647	No Criteria	4.08	---	---	---	---	---	No Criteria	4.08	
N-NITROSODIPHENYLAMINE	86306	234.40	5.20	---	---	---	---	---	234.40	5.20	
PYRENE	129000	No Criteria	3200.00	---	---	---	---	---	No Criteria	3200.00	
1,2,4trichlorobenzene	120821	60.00	1.36	---	---	---	---	---	60.00	1.36	
PESTICIDES/PCBs											
ALDRIN	309002	2.40	0.00	---	---	---	---	---	2.40	0.00	
Alpha BHC	319846	No Criteria	0.04	---	---	---	---	---	No Criteria	0.04	
Beta BHC	319857	No Criteria	0.14	---	---	---	---	---	No Criteria	0.14	
Gamma BHC (Lindane)	58899	0.76	0.76	---	---	---	---	---	0.76	0.76	
CHLORDANE	57749	1.92	0.00	---	---	---	---	---	1.92	0.00	
4,4DDT	50293	0.88	0.00	---	---	---		---	0.88	0.00	
4,4DDE	72559	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
4,4DDD	72548	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
DIELDRIN	60571	0	0.00	---	---	---	---	---	0	0.00	
ENDOSULFAN (alpha)	959988	0.18	0.04	---	---	---	---	---	0.18	0.04	
ENDOSULFAN (beta)	33213659	0.18	0.04	---	---	---	---	---	0.18	0.04	
ENDOSULFAN (sulfate)	1031078	No Criteria	71.20	---	---	---	---	---	No Criteria	71.20	
ENDRIN	72208	0.07	0.03	---	---	---	---	---	0.07	0.03	
ENDRIN ALDEHYDE	7421934	No Criteria	0.24	---	---	---	---	---	No Criteria	0.24	
HEPTACHLOR	76448	0	0.00	---	---	---	---	---	0	0.00	

Facility Name: ***T.F. Green Airport***

RIPDES Permit #: ***RI0021598***

Outfall #: ***009A***

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data (ug/L) 2/27/2017		Ave. DMR Data Effluent (ug/L) 10/2012 - 12/2021		Potential WQ Based Permit Limits (ug/L)		Reasonable Potential (Yes/No)
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
HEPTACHLOR EPOXIDE	1024573	0.42	0.00	---	---	---	---	---	0.42	0.00	
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00	---	---	---	---	---	No Criteria	0.00	
TOXAPHENE	8001352	1	0.00	---	---	---	---	---	1	0.00	
TRIBUTYLTIN		0.37	0.06	---	---	---	---	---	0.37	0.06	
NON PRIORITY POLLUTANTS: OTHER SUBSTANCES											
ALUMINUM, TOTAL	7429905	600.0	69.6	---	---	---	---	---	600.0	69.6	
AMMONIA (as N), WINTER (NOV-APR)	7664417	10890.00	2862.00	---	---	---	---	---	10890.00	2862.00	
AMMONIA (as N), SUMMER (MAY-OCT)	7664417	17910.00	1530.00	---	---	---	---	---	17910.00	1530.00	
4BROMOPHENYL PHENYL ETHER		14.40	0.32	---	---	---	---	---	14.40	0.32	
CHLORIDE	16887006	688000.00	184000.00	---	---	---	---	---	688000.00	184000.00	
CHLORINE	7782505	19.00	11.00	---	---	---	---	---	19.00	11.00	
4CHLORO2METHYLPHENOL		12.00	0.26	---	---	---	---	---	12.00	0.26	
1CHLORONAPHTHALENE		64	1	---	---	---	---	---	64	1	
4CHLOROPHENOL	106489	154	3	---	---	---	---	---	154	3	
2,4DICHLORO6METHYLPHENOL		18	0	---	---	---	---	---	18	0	
1,1DICHLOROPROPANE		920.00	20.80	---	---	---	---	---	920.00	20.80	
1,3DICHLOROPROPANE	142289	242	5	---	---	---	---	---	242	5	
2,3DINITROTOLUENE		13.60	0.30	---	---	---	---	---	13.60	0.30	
2,4DINITRO6METHYL PHENOL		9.60	0.21	---	---	---	---	---	9.60	0.21	
IRON	7439896	No Criteria	900.00	---	---	---	---	---	No Criteria	900.00	
pentachlorobenzene	608935	10.40	0.22	---	---	---	---	---	10.40	0.22	
PENTACHLOROETHANE		289.60	6.40	---	---	---	---	---	289.60	6.40	
1,2,3,5tetrachlorobenzene		256.80	5.68	---	---	---	---	---	256.80	5.68	
1,1,1,2TETRACHLOROETHANE	630206	784.00	17.60	---	---	---	---	---	784.00	17.60	
2,3,4,6TETRACHLOROPHENOL	58902	5.60	0.13	---	---	---	---	---	5.60	0.13	
2,3,5,6TETRACHLOROPHENOL		6.80	0.15	---	---	---	---	---	6.80	0.15	
2,4,5TRICHLOROPHENOL	95954	18.40	0.41	---	---	---	---	---	18.40	0.41	
2,4,6TRINITROPHENOL	88062	3388.00	75.20	---	---	---	---	---	3388.00	75.20	
XYLENE	1330207	106.40	2.40	---	---	---	---	---	106.40	2.40	
NON WQ BASED PARAMETERS											
BOD5 (mg/L)	---	No Criteria	No Criteria	---	34	33	25.5	21.8	No Criteria	No Criteria	N/A
COD (mg/L)		No Criteria	No Criteria	---	---	---	---	---	No Criteria	No Criteria	N/A
TSS (mg/L)	---	No Criteria	No Criteria	---	640	193	339	175	No Criteria	No Criteria	N/A
pH (max, min)	---	9.00	6.50	---	7.17	6.48	7.04	6.72	9.00	6.50	Yes
Flow (gpd)	---	No Criteria	No Criteria	---	---	---	11195477	---	No Criteria	No Criteria	N/A
Fecal Coliform (MPN/100ml)	---	No Criteria	No Criteria	---	1600	358	24000000	8021928	No Criteria	No Criteria	N/A
Oil and Grease (mg/L) (TBEL)	---	15.00	No Criteria	---	2.5	1.5	2.78	---	15.00	No Criteria	No
Temperature (deg F)	---	No Criteria	No Criteria	---	---	---	---	---	No Criteria	No Criteria	N/A
Propylene Glycol (mg/L)	---	No Criteria	No Criteria	---	---	---	---	---	No Criteria	No Criteria	N/A
Potassium (K+, mg/L)	---	No Criteria	No Criteria	---	8.2	3.9	7.07	5.57	No Criteria	No Criteria	N/A
Sodium (Na+, mg/L)	---	No Criteria	No Criteria	---	4.1	1.4	3.61	2.06	No Criteria	No Criteria	N/A
Total Sodium (mg/L)	---	No Criteria	No Criteria	---	---	---	---	---	No Criteria	No Criteria	N/A
Surfactants, MBAS (ug/L)	---	No Criteria	No Criteria	---	---	---	---	---	No Criteria	No Criteria	N/A
Dissolved Oxygen (mg/L)	---	No Criteria	No Criteria	---	---	---	---	---	No Criteria	No Criteria	N/A
Total Organic Carbon (mg/L)	---	No Criteria	No Criteria	---	---	---	---	---	No Criteria	No Criteria	N/A

ATTACHMENT A-15

T.F. Green International Airport

Dry Weather Metals Limits TMDL % Reduction Analysis

Dry Weather Metals Limits Percent Reductions Analysis

Outfall 002 % Reductions

	Outfall 002 Proposed Limits BB02 Hardness=47.6 mg/L		Outfall 002 DMR Data Mean of the Detected Data	
Parameter	Monthly Ave	Daily Max	Monthly Ave	Daily Max
Total Cadmium	0.141	0.9	N/A	N/A
Total Copper	4.45	6.26	2.65	18.5
Total Lead	1.11	28.56	1.46	5.84
Total Iron	900	Mon Only	7152	15189

TMDL % Reduction		% Reduction BB02 for Mean
Cadmium	42.9	N/A
Copper	N/A	-67.9245283
Lead	N/A	23.97260274
Iron	39.4	87.41610738

Notes:

Outfall 002 limits would meet the TMDL % reduction.

No outfall data available for Cd at Outfall 002.

Mean, Max, and Mean of Detected data from the reporting period 10/1/12 - 12/31/21.

All effluent limit and DMR data values are in ug/L.

% Reduction determined by the following equation: (Monthly Ave Data - Monthly Ave Limit) / Monthly Ave Data x 100

% Reduction calculated as follows: for Mean using the Monthly Ave of the Mean; for Max using the Monthly Ave of the Max; and for Mean of Detected using the Monthly Ave of the Mean of Detected.

Outfall 003 % Reductions

	Outfall 003 Proposed Limits BB02 Hardness=47.6 mg/L		Outfall 003 DMR Data Mean of the Detected Data	
Parameter	Monthly Ave	Daily Max	Monthly Ave	Daily Max
Total Cadmium	0.141	0.9	N/A	N/A
Total Copper	4.45	6.26	6.21	25.6
Total Lead	1.11	28.56	0.775	4.58
Total Iron	900	Mon Only	1493	5039

TMDL % Reduction		% Reduction BB02 for Mean
Cadmium	42.9	N/A
Copper	N/A	28.34138486
Lead	N/A	-43.22580645
Iron	39.4	39.71868721

Notes:

Outfall 003 limits would meet the TMDL % reduction.

No outfall data available for Cd at Outfall 003.

Mean, Max, and Mean of Detected data from the reporting period 10/1/12 - 12/31/21.

All effluent limit and DMR data values are in ug/L.

% Reduction determined by the following equation: (Monthly Ave Data - Monthly Ave Limit) / Monthly Ave Data x 100

% Reduction calculated as follows: for Mean using the Monthly Ave of the Mean; for Max using the Monthly Ave of the Max; and for Mean of Detected using the Monthly Ave of the Mean of Detected.

Dry Weather Metals Limits Percent Reductions Analysis

Outfall 008 % Reductions

	Outfall 008 Proposed Limits AP01 Hardness=43.0 mg/L		Outfall 008 DMR Data Mean of the Detected Data		Outfall 008 TMDL Data*
Parameter	Monthly Ave	Daily Max	Monthly Ave	Daily Max	Mean of the Data
Total Cadmium	0.13	0.81	N/A	N/A	0.12
Total Copper	4.08	5.69	2.65	18.5	0.89
Total Lead	0.98	25.09	1.46	5.84	0.04
Total Iron	900	Mon Only	7152	15189	3711

TMDL % Reduction		% Reduction AP01 for Mean	% Reduction AP01 for Mean of TMDL
Cadmium	62.1	N/A	-8.333333333
Copper	None	-53.96226415	-358.4269663
Lead	12.4	32.87671233	-2350
Iron	58.8	87.41610738	75.74777688

Notes:

Outfall 008 limits would meet the TMDL % reduction.

No reductions achieved.

No outfall data available for Cd at Outfall 008.

Mean, Max, and Mean of Detected data from the reporting period 10/1/12 - 12/31/21. TMDL data from sampling runs in 2008 and 2011.

All effluent limit and DMR data values are in ug/L.

% Reduction determined by the following equation: (Monthly Ave Data - Monthly Ave Limit) / Monthly Ave Data x 100

% Reduction calculated as follows: for Mean using the Monthly Ave of the Mean; for Max using the Monthly Ave of the Max; for Mean of Detected using the Monthly Ave of the Mean of Detected; and for Mean of TMDL data using the average of all sampling data.

* For the TMDL data, Cd, Cu, and Pb are dissolved metals.

Outfall 009 % Reductions

	Outfall 009 Proposed Limits AP01 Hardness=43.0 mg/L		Outfall 009 DMR Data Mean of the Detected Data	
Parameter	Monthly Ave	Daily Max	Monthly Ave	Daily Max
Total Cadmium	0.13	0.81	N/A	N/A
Total Copper	4.08	5.69	N/A	N/A
Total Lead	0.98	25.09	N/A	N/A
Total Iron	900	Mon Only	N/A	N/A

TMDL % Reduction		% Reduction AP01 for Mean
Cadmium	62.1	N/A
Copper	None	N/A
Lead	12.4	N/A
Iron	58.8	N/A

No outfall data available for Cd, Cu, Pb, and Fe at Outfall 009.

ATTACHMENT A-16

T.F. Green International Airport

Final Dry Weather Metals Limits for Outfalls 002, 003, 008, and 009

Final Dry Weather Metals Limits (ppb)

	Outfalls 002/003		***Outfalls 008/009***	
	BB02 Hardness=47.6 mg/L		AP01 Hardness=43.0 mg/L	
Parameter	Monthly Ave	Daily Max	Monthly Ave	Daily Max
Total Cadmium	0.141	0.9	0.13	0.81
Total Copper	4.45	6.26	4.08	5.69
Total Lead	1.11	28.56	0.98	25.09
Total Iron	900	Mon Only	900	Mon Only
Total Aluminum	69.6	600	69.6	600
Total Arsenic	None	None	1.26	306
Total Zinc	57.49	57.49	52.75	52.75

Total Aluminum, Total Arsenic, and Total Zinc limits apply to Outfall 008A only.