



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street, Providence, Rhode Island 02908

July 10, 2017

CERTIFIED MAIL

Mr. David Mixer
Fox Island LLC c/o Rex Capital Advisors
50 Park Row West, Suite 113
Providence, RI 02903

RE: Fox Island LLC Final Permit
RIPDES Application No. RI0023736

Dear Mr. Mixer:

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

Also enclosed is information relative to hearing requests and stays of RIPDES Permits. Please note, other than DMR cover letters and a summary of total flow and operation and maintenance activities, Part I.B.3 of the permit requires that "All other reports should be submitted to DEM as a hard copy (See Part I.B.5 below)." This part incorrectly referenced Part I.B.5 of the permit. In accordance with Rule 25 of the RIPDES Regulations, the DEM has made a minor modification by correcting the above statement to read "(See Part I.B.4 below)".

We appreciate your cooperation throughout the development of this permit. Should you have any questions concerning this permit, feel free to contact Aaron Mello of the State Permits Staff at (401) 222-4700, extension 7405.

Sincerely,

Joseph B. Haberek, P.E.
Supervising Sanitary Engineer

JBH:am

Enclosures

cc: David Turin, EPA Region 1 (Electronic Copy)
Crystal Charbonneau, DEM/OWR (Electronic Copy)
Laura Ernst, Land and Coastal Services LLC (Electronic Copy)
Carolyn Torrey, Rex Capital Advisors (Electronic Copy)

RESPONSE TO COMMENTS

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

HEARING REQUESTS

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

Bonnie Stewart, Clerk
Office of Administrative Adjudication
One Capitol Hill, Second Floor
Providence, RI 02903

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

STAYS OF RIPDES PERMITS

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

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

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

AUTHORIZATION TO DISCHARGE UNDER THE
RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of Chapter 46-12 of the Rhode Island General Laws, as amended,

Fox Island LLC
50 Park Row West, Suite 113
Providence, RI 02903

is authorized to discharge from a facility located at

Fox Island
North Kingstown, RI

to receiving waters named

West Passage of Narragansett Bay

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

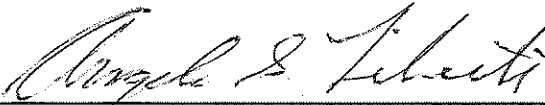
This permit shall become effective on September 1, 2017.

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

This permit supersedes the permit issued on December 22, 2010.

This permit consists of 5 pages in Part I including effluent limitations, monitoring requirements, etc. and 10 pages in Part II including General Conditions.

Signed this 10th day of July 2017.



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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number(s) 001A.

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

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>					<u>Monitoring Requirement</u>	
	<u>Quantity - lbs./day</u>		<u>Concentration - specify units</u>			<u>Measurement Frequency</u>	<u>Sample Type</u>
	<u>Average</u>	<u>Maximum</u>	<u>Average</u>	<u>Average</u>	<u>Maximum</u>		
	<u>Monthly</u>	<u>Daily</u>	<u>Monthly</u>	<u>Weekly</u>	<u>Daily</u>		
			*(<u>Minimum</u>)	*(<u>Average</u>)	*(<u>Maximum</u>)		
Flow	6240 GPD					1/Quarter	Recorder ¹

¹Flow shall be determined by taking an initial flow totalizer reading on the first day of the quarter and a final totalizer reading on the last day of the quarter, using the difference between these two readings as the total flow over the quarter, and dividing the total flow by the total number of calendar days during the quarter. This final value will be the average flow per day. The totalizer must be installed on the discharge line.

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

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: Outfall 001A (the brine discharge from the Newport 1000 Water Maker).

2. Reverse Osmosis (RO) Desalination System:
 - a. The permittee shall maintain a logbook to document RO system operation and maintenance activities in accordance with Part II(j) of the permit. The flow log shall include the volume of concentrated brine discharged in each calendar quarter in accordance with Footnote 1 in Part I.A.1 of the permit. In addition, during maintenance activities the flow log shall include the duration of the flow including the time(s) of day when flow commences and ceases. A summary of total flow and any operations and maintenance activities performed during the calendar year must be submitted with the Discharge Monitoring Reports required under Part I.B of the permit.
 - b. The permittee shall implement the Standard Operating Procedures for the RO system annual winterization process and other maintenance activities as detailed in the March 2017 document entitled "Fox Island LLC Reverse Osmosis Desalinization System Standard Operating Procedures; RIPDES Permit No. RI0023736".
3.
 - a. The discharge shall not cause visible discoloration of the receiving waters.
 - b. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.
4. 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.
5. The permittee is not authorized to use any chemical additive(s)/cleaner(s) in the operation of the desalination system. The permittee shall obtain Department approval prior to using any additive(s)/cleaner(s).
6. This permit serves as the State's Water Quality Certificate for the discharges described herein.

B. 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

The permittee shall submit its annual monitoring data for each calendar year in discharge monitoring reports (DMRs) to DEM no later than January 15th of the following year 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
- A summary of the total flow and any operations and maintenance activities performed during the calendar year per Part I.A.2.a of the permit

All other reports should be submitted to DEM as a hard copy (See Part I.B.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.

- Transfer of Permit notice
- Request to use any chemical additive(s)/cleaner(s) in the operation of the desalination system
- Written notifications required under Part II
- Notice of unauthorized discharges

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, Rhode Island 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 which require reporting within 24 hours. (See Part II(l)(5) General Requirements for 24-hour reporting) Verbal reports and verbal notifications shall be made to DEM at (401) 222-4700 or (401) 222-3070 at night.

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

STATEMENT OF BASIS

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

RIPDES PERMIT NO.

RI0023736

NAME AND ADDRESS OF APPLICANT:

Fox Island LLC
50 Park Row West, Suite 113
Providence, RI 02903

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Fox Island
North Kingstown, RI 02852

RECEIVING WATER:

West Passage of Narragansett Bay

CLASSIFICATION:

SA
(Waterbody ID# RI0007027E-03A)

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

The above named applicant has applied to the Rhode Island Department of Environmental Management for reissuance of a RIPDES Permit to discharge into the designated receiving water. The applicant's discharge consists of brine from a reverse osmosis desalination system, used to provide potable water to an individual residence and catering building.

II. Limitations and Conditions

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

III. Permit Basis and Explanation of Effluent Limitation Derivation

The applicant has installed a package desalination system at a residential home located on Fox Island with the sole purpose of providing potable water for the main residence and catering building to supplement water from the existing shallow fresh water well. The desalination unit is owned and operated by the applicant, who is also the homeowner, and is located at Fox Island off the coast of

North Kingstown, Rhode Island. The discharge to the West Passage of Narragansett Bay consists of brine that has been concentrated by the reverse osmosis desalination system.

Outfall 001 discharges to the West Passage of Narragansett Bay in the segment defined as water body ID number RI0007027E-03A. This segment is described as West Passage waters south of a line from the eastern extremity of Sandy Point on Potowomut Neck, East Greenwich, to the flagpole located at the Warwick Country Club on Warwick Neck; south of a line from the southernmost extremity of Warwick Point on Warwick Neck, to the northernmost point on Prudence Island (Providence Point); west of a line from the southernmost point on Prudence Island to the northernmost point on Jamestown, and north of a line from Cormorant Point at the mouth of Pettaquamscutt River, Narragansett to Beavertail, Jamestown, excluding the West Passage waters, Allen's Harbor and Wickford Harbor waters described below located in Warwick, East Greenwich, Portsmouth, North Kingstown, Jamestown, and Narragansett. This segment is located in North Kingstown and is classified as a Class SA water body according to the RI Water Quality Regulations. Class SA waters are designated for shellfishing harvesting for direct human consumption, primary and secondary contact recreational activities, and fish and wildlife habitat. They shall be suitable for aquacultural uses, navigation, and industrial cooling. These waters shall have good aesthetic value. Currently, this water body is not listed as being impaired

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 discharge levels based on background data and available dilution; comparing existing and proposed limits; comparing discharge data to proposed limits; and developing interim limits as appropriate. A description of these steps is presented below.

Water Quality Based Permit Limitations

Mixing Zones and Dilution Factors:

In order to evaluate the need for water quality based limits, it is necessary to determine the mixing which occurs in the immediate vicinity of the discharge (initial dilution). It has been determined that mixing zones and corresponding dilution factors are acceptable for the proposed desalination system.

The size of the acute mixing zone was determined using the EPA's recommended criteria from the "Technical Support Document for Water Quality-based Toxics Control" (TSD). EPA's TSD indicates that the most stringent of the following criteria should be used:

- a) The CMC must be met within 10% of the distance from the edge of the outfall to the edge of the regulatory mixing zone. This is dependent upon the size of the regulatory (chronic) mixing zone. Since the EPA has not provided specific guidance regarding the sizing of chronic mixing zones, this criteria was not considered when evaluating the size of the acute mixing zone.
- b) The CMC must be met within a distance of fifty times (50x) the discharge length scale in any spatial direction. The discharge length scale equals the square root of the cross-sectional area of the discharge outlet. For a 1" diameter outfall pipe:

$$\text{Radius} = 50 * \sqrt{\left(\frac{\pi}{4}\right) \left(1'' * \frac{.3048 \text{ m}}{12''}\right)^2} = 1.13 \text{ meters}$$

This criteria yields an acute mixing zone radius of 1.13 meters.

- c) The CMC must be met within a distance of five times (5x) the local water depth in any horizontal direction. Using a local water depth of 9.84 feet (3 meters):

$$\text{Radius} = 5 * 9.84 \text{ ft} * \left(\frac{.3048 \text{ m}}{1 \text{ ft}}\right) = 15 \text{ meters}$$

This criteria gives an acute mixing zone radius of 15 meters.

The most stringent of the above criteria would be condition b, an acute mixing zone radius of 1.13 meters.

By using the CORMIX mixing zone model to model the dilution that would be achieved at a distance of 1.13 meters from the discharge, it was determined that a dilution of 6.5:1 would be realized. Due to the fact that the reverse osmosis unit operates on the principal of osmotic pressure to allow water to pass through the reverse osmosis membrane and will only concentrate any background "contaminants" (e.g., salts, minerals, and other ions, etc.) in the brine discharge, it does not add any new pollutants to the discharge. Therefore, to determine the resulting increase in instream pollutant concentrations that could be expected at the edge of the acute mixing zone, a mass balance calculation was used. Assuming a background concentration of 31.0 parts per thousand (ppt) and using a dilution factor of 6.5:1, it was determined that there would be a 2.06% increase in background concentration at the edge of the acute mixing zone.

Rule 8.D.1.g, of the Rhode Island Water Quality Regulations, identifies four minimum narrative criteria which must be met by all non-thermal mixing zones. At a minimum, when evaluating the size of chronic mixing zones, DEM policy has been to follow the thermal mixing zone requirement of a zone of safe passage greater than or equal to three-quarters (3/4) of the width of the river, stream or estuary. This would result in a mixing zone width of 750 meters, based on a total width of 3000 meters. However, criteria a, noted above, limits the chronic mixing zone to being 10x that of the acute mixing zone. Therefore, the DEM evaluated dilutions achieved within a chronic mixing zone limited to 10x the radius of the acute mixing zone or 11.3 meters.

By using the CORMIX mixing zone model to model the dilution that would be achieved at a distance of 11.3 meters from the discharge, it was determined that a dilution of 191.9:1 would be realized. Again, to determine the resulting increase in instream pollutant concentrations that could be expected at the edge of the chronic mixing zone, a mass balance calculation was used. Assuming a background concentration of 31.0 ppt and using a dilution factor of 191.9:1, it was determined that there would be a 0.08% increase in background concentration at the edge of the chronic mixing zone.

It should be noted that the calculated percent increase in background concentrations were conservative. The following elements of conservatism were built into the calculations: 1) It was assumed that the desalination unit would reject 100% of the background contaminants; 2) It was assumed that the desalination unit would have to produce 960 gallons per day, when in actuality average household water usage is estimated to be 300 gallons per day; and 3) Conservative settings (e.g., wind speed, receiving water velocity, etc.) were used in the CORMIX model. All of these conservative assumptions have the effect of limiting dilution and increasing the calculated percent increase in instream concentrations. Therefore, the calculated percent increases are considered to be "worst case" values. Appendix A includes the calculations used to determine the

percent increases in background concentrations.

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. As a result of the low calculated percent increases in background concentrations and the high degree of conservatism, it has been determined that water quality-based permit limits are not necessary for this discharge since it will not have the reasonable potential to cause an exceedance of the in-stream criteria.

The permittee shall maintain a logbook to document RO system operation and maintenance activities in accordance with Part II(j) of the General Conditions applicable to all RIPDES Permits. The flow log shall include the volume of concentrated brine discharged in each calendar quarter in accordance with Footnote 1 in Part I.A.1 of the permit. In addition, during maintenance activities the flow log shall include the duration of the flow including the time(s) of day when flow commences and ceases. A summary of total flow and any operations and maintenance activities performed during the calendar year must be submitted with the Discharge Monitoring Reports required under Part I.B of the permit.

The permittee shall implement the Standard Operating Procedures for the RO system annual winterization process and other maintenance activities as detailed in the March 2017 document entitled "Fox Island LLC Reverse Osmosis Desalinization System Standard Operating Procedures; RIPDES Permit No. RI0023736".

The permit prohibits the use of chemical additives (used for cleaning, preservation, or any other purposes) without prior written approval from the Department per Part I.A.4.

Part I.B (Monitoring and Reporting) was revised to reflect the electronic submission of DMRs by Fox Island LLC using the EPA reporting tool NetDMR in order to comply with the NPDES Electronic Reporting Rule (E Rule). The E Rule requires NPDES regulated entities to begin submitting DMRs electronically by December 21, 2016.

Antidegradation

The RIDEM document entitled "Policy on the Implementation of the Antidegradation Provisions of the Rhode Island Water Quality Regulations August 6, 1997" (the Policy) 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 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 (i.e.: short-term minor changes) in water quality as determined by the Director and in accordance with the Antidegradation Policy. In addition, the Director may allow significant degradation, which is determined to be necessary to achieve important economic or social benefits to the State (important benefits demonstration) in accordance with the Antidegradation Policy.

Tier 2½. Where high quality waters constitute Special Resource Protection Waters SRPWs¹, 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. The new or increased

¹SRPWs are surface waters identified by the Director as having significant recreational or ecological uses.

discharge or activity will not be allowed unless the applicant can provide adequate evidence that specific pollution controls and/or other mitigation measures will completely eliminate any measurable impacts to the water quality necessary to protect the characteristics that 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 fourth in Tier 1 and Tier 2.

Tier 3. Where high quality waters constitute an Outstanding Natural Resource ONRWs², that water quality shall be maintained and protected. The State may allow some limited activities that result in temporary and 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.

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, RIDEM 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 RIDEM 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 (See Section VI.B.2) will be considered a significant impact and will be required to demonstrate important economic or social benefits to justify the activity (See Section VI.C. below). However, on a case-by-case basis, any proposed percent consumption of the remaining assimilative capacity may be deemed significant and invoke full requirements to demonstrate important economic or social benefits."

Based on the analysis presented above, calculating the percent increase in background concentration as being much less than 20%, the RIDEM has determined that the quality of the receiving water shall be maintained and protected. Therefore, it has been determined that all permit limitations are consistent with the Rhode Island Antidegradation policy.

There are currently no technology-based limits for this discharge. 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. The remaining general and specific conditions of the permit are based on the RIPDES regulations as well as 40 CFR Parts 122 through

²ONRWs are a special subset of high quality water bodies, identified by the State as having significant recreational or ecological water uses.

125 and consist primarily of management requirements common to all permits.

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

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the Rhode Island Department of Environmental Management, Office of Water Resources, 235 Promenade Street, Providence, Rhode Island, 02908-5767. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to the Rhode Island Department of Environmental Management. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty (30) days public notice whenever the Director finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Director will respond to all significant comments and make these responses available to the public at DEM's Providence Office.

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

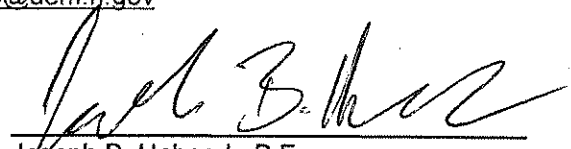
V. DEM Contact

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

Aaron Mello
RIPDES Program
Office of Water Resources
Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908
Telephone: (401) 222-4700x7405
Email: aaron.mello@dem.ri.gov

Date

5/19/17


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

Attachment A

Fox Island LLC - Desalination Discharge

Mass Balance Calculations

Initial Condition Assumption:

Assume inlet concentration = 31000.00 ppm

From Application:

Intake Flow =	5	gpm	=	7200	gpd
Discharge Flow =	4.33	gpm	=	6235.2	gpd
Clean Water Used =	0.67	gpm	=	964.8	gpd

Assume 100% Rejection:

Discharge Concentration = 35796.77 ppm

Acute Mixing Zone*From EPA Technical Support Document:*

Acute Mixing Zone (AMZ) = 5 * Local Water Depth or 50 * Discharge Length Scale

Discharge Length Scale = $(3.174 * \text{Discharge Pipe's Radius}^2)^{.5}$

Local Water Depth =	9.843	feet	=	3	meters
Discharge Pipe's Radius =	0.5	inches	=	0.0126994	meters
AMZ =	15	meters	or	1.13	meters
Most Stringent AMZ =	1.13	meters			

From CORMIX Mixing Zone Model

At a AMZ of 1.13 meters, Dilution = 6.5 : 1

Instream Concentration at the Edge of the AMZ = 31639.569 ppm

Expected Increase in Concentration at Edge of AMZ

Background Concentration =	31000	ppm
AMZ Concentration =	31639.569	ppm
Percent Increase =	2.06	%

Chronic Mixing Zone*From EPA Technical Support Document:*

Chronic Mixing Zone (CMZ) = 1/4 * Estuary Width or 10 * Acute Mixing Zone

Local Water Width =	1.864205	miles	=	3000	meters
Acute Mixing Zone =	1.13	meters			
CMZ =	750	meters	or	11.31	meters
Most Stringent CMZ =	11.3	meters			

From CORMIX Mixing Zone Model

At a CMZ of 11.3 meters, Dilution = 191.9 : 1

Instream Concentration at the Edge of the CMZ = 31024.867 ppm

Expected Increase in Concentration at Edge of CMZ

Background Concentration =	31000.00	ppm
CMZ Concentration =	31024.867	ppm
Percent Increase =	0.08	%

PART II
TABLE OF CONTENTS

GENERAL REQUIREMENTS

- (a) Duty to Comply
- (b) Duty to Reapply
- (c) Need to Halt or Reduce Not a Defense
- (d) Duty to Mitigate
- (e) Proper Operation and Maintenance
- (f) Permit Actions
- (g) Property Rights
- (h) Duty to Provide Information
- (i) Inspection and Entry
- (j) Monitoring and Records
- (k) Signatory Requirements
- (l) Reporting Requirements
- (m) Bypass
- (n) Upset
- (o) Change in Discharge
- (p) Removed Substances
- (q) Power Failures
- (r) Availability of Reports
- (s) State Laws
- (t) Other Laws
- (u) Severability
- (v) Reopener Clause
- (w) Confidentiality of Information
- (x) Best Management Practices
- (y) Right of Appeal

DEFINITIONS

GENERAL REQUIREMENTS

(a) Duty to Comply

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

- (1) The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
- (2) The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307 or 308 of the Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment of not more than 1 year, or both.
- (3) Chapter 46-12 of the Rhode Island General Laws provides that any person who violates a permit condition is subject to a civil penalty of not more than \$5,000 per day of such violation. Any person who willfully or negligently violates a permit condition is subject to a criminal penalty of not more than \$10,000 per day of such violation and imprisonment for not more than 30 days, or both. Any person who knowingly makes any false statement in connection with the permit is subject to a criminal penalty of not more than \$5,000 for each instance of violation or by imprisonment for not more than 30 days, or both.

(b) Duty to Reapply

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

(c) Need to Halt or Reduce Not a Defense

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

(d) Duty to Mitigate

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

(e) Proper Operation and Maintenance

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

(f) Permit Actions

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

(g) Property Rights

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

(h) Duty to Provide Information

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

(i) Inspection and Entry

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

- (1) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- (2) Have access to and copy, at reasonable times any records that must be kept under the conditions of this permit;
- (3) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

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

(j) Monitoring and Records

- (1) Samples and measurements taken for the purpose of monitoring shall be representative of the volume and nature of the discharge over the sampling and reporting period.
- (2) The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings from continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 5 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.
- (3) Records of monitoring information shall include:
 - (i) The date, exact place, and time of sampling or measurements;
 - (ii) The individual(s) who performed the sampling or measurements;
 - (iii) The date(s) analyses were performed;
 - (iv) The individual(s) who performed the analyses;
 - (v) The analytical techniques or methods used; and
 - (vi) The results of such analyses.
- (4) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136 and applicable Rhode Island regulations, unless other test procedures have been specified in this permit.
- (5) The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall upon conviction, be punished by a fine of not more than \$10,000 per violation or by imprisonment for not more than 6 months per violation or by both. Chapter 46-12 of the Rhode Island General Laws also provides that such acts are subject to a fine of not more than \$5,000 per violation, or by imprisonment for not more than 30 days per violation, or by both.
- (6) Monitoring results must be reported on a Discharge Monitoring Report (DMR).
- (7) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136, applicable State regulations, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

(k) Signatory Requirement

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

(l) Reporting Requirements

- (1) Planned changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.
- (2) Anticipated noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with the permit requirements.
- (3) Transfers. This permit is not transferable to any person except after written notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under State and Federal law.
- (4) Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.
- (5) Twenty-four hour reporting. The permittee shall immediately report any noncompliance which may endanger health or the environment by calling DEM at (401) 222-4700 or (401) 222-3070 at night.

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

The following information must be reported immediately:

- (i) Any unanticipated bypass which causes a violation of any effluent limitation in the permit; or
- (ii) Any upset which causes a violation of any effluent limitation in the permit; or
- (iii) Any violation of a maximum daily discharge limitation for any of the pollutants specifically listed by the Director in the permit.

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

- (6) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (1), (2), and (5), of this section, at the time monitoring reports are submitted. The reports shall contain the information required in paragraph (1)(5) of the section.
- (7) Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, they shall promptly submit such facts or information.

(m) Bypass

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

- (1) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (2) and (3) of this section.
- (2) Notice.
 - (i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of the bypass.
 - (ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Rule 14.18 of the RIPDES Regulations.
- (3) Prohibition of bypass.
 - (i) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
 - (A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, where "severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production;
 - (B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (C) The permittee submitted notices as required under paragraph (2) of this section.

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

(n) Upset

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

- (1) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph (2) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- (2) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (a) An upset occurred and that the permittee can identify the cause(s) of the upset;
 - (b) The permitted facility was at the time being properly operated;
 - (c) The permittee submitted notice of the upset as required in Rule 14.18 of the RIPDES Regulations; and
 - (d) The permittee complied with any remedial measures required under Rule 14.05 of the RIPDES Regulations.
- (3) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

(o) Change in Discharge

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

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

(p) Removed Substances

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

(q) Power Failures

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

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

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

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

(r) Availability of Reports

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

(s) State Laws

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

(t) Other Laws

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

(u) Severability

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

(v) Reopener Clause

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

(w) Confidentiality of Information

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

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

- (i) The name and address of any permit applicant or permittee;
- (ii) Permit applications, permits and any attachments thereto; and
- (iii) NPDES effluent data.

(x) Best Management Practices

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

(y) Right of Appeal

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

DEFINITIONS

1. For purposes of this permit, those definitions contained in the RIPDES Regulations and the Rhode Island Pretreatment Regulations shall apply.
2. The following abbreviations, when used, are defined below.

cu. M/day or M ³ /day	cubic meters per day
mg/l	milligrams per liter
ug/l	micrograms per liter
lbs/day	pounds per day
kg/day	kilograms per day
Temp. °C	temperature in degrees Centigrade
Temp. °F	temperature in degrees Fahrenheit
Turb.	turbidity measured by the Nephelometric Method (NTU)
TNFR or TSS	total nonfilterable residue or total suspended solids
DO	dissolved oxygen
BOD	five-day biochemical oxygen demand unless otherwise specified
TKN	total Kjeldahl nitrogen as nitrogen
Total N	total nitrogen
NH ₃ -N	ammonia nitrogen as nitrogen
Total P	total phosphorus
COD	chemical oxygen demand
TOC	total organic carbon
Surfactant	surface-active agent
pH	a measure of the hydrogen ion concentration
PCB	polychlorinated biphenyl
CFS	cubic feet per second
MGD	million gallons per day
Oil & Grease	Freon extractable material
Total Coliform	total coliform bacteria
Fecal Coliform	total fecal coliform bacteria
ml/l	milliliter(s) per liter
NO ₃ -N	nitrate nitrogen as nitrogen
NO ₂ -N	nitrite nitrogen as nitrogen
NO ₃ -NO ₂	combined nitrate and nitrite nitrogen as nitrogen
Cl ₂	total residual chlorine