

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.); the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

INIMA USA CO
Taunton River Desalination Plant

is authorized to discharge from the facility located at

455 Somerset Avenue
Dighton, Massachusetts 02564

to receiving water named

Taunton River
Taunton River Watershed (62)

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

This permit and the authorization to discharge expire at midnight, five (5) years from the last day of the month preceding the effective date. The effective date of the permit is the start-up date of the reverse osmosis system.

This permit consists of 8 pages in Part I including effluent limitations, monitoring requirements, Attachment A and 27 pages in Part II including General Conditions and Definitions.

Signed this 30th day of November, 2006

/s/ SIGNATURE ON FILE

Linda M. Murphy, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

Director
Division of Watershed Management
Bureau of Resource Protection
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge reverse osmosis reject water from outfall serial number 001 to the designated receiving water, the Taunton River. The permit requirements are in effect whenever there is a discharge to the receiving water from the reverse osmosis units. The discharge shall be limited and monitored by the permittee as specified below.

<u>Effluent Characteristic</u>	<u>Units</u>	<u>Discharge Limitation</u>			<u>Monitoring Requirement</u>	
		<u>Average Monthly</u>	<u>Average Weekly</u>	<u>Maximum Daily</u>	<u>Measurement Frequency</u>	<u>Sample Type²</u>
Flow ^{1,3}	MGD	5.4	*****	Report	Continuous	Recorder
TSS ³	mg/l	20	30	Report	2/Week	Composite ⁴
TDS ³	mg/l	Report	*****	Report	1/Week	Grab
pH	S.U.	(See Condition I.A.1.b. on Page 6)			1/Day	Grab
Dissolved Oxygen ^{3,5}	mg/l	(See Footnote 5)			1/Day	Grab
Chlorides ²	mg/l	Report	*****	Report	1/Week	Grab
Salinity ^{3,7}	ppt	(See Footnote 3, 7)			Continuous	Recorder
Total Residual Chlorine ⁶	ug/l	*****	*****	13	1/Day	Grab
Copper, Total ^{3,8}	ug/l	(See Footnote 8)			3/Week	Composite ⁴
Lead, Total ⁹	ug/l	Report	*****	Report	1/Month	Composite ⁴

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Arsenic ⁹	ug/l	Report	*****	Report	1/Month	Composite ⁴
Ammonia-Nitrogen	mg/l	Report	*****	Report	1/Week	Composite ⁴
Total Kjeldahl Nitrogen	mg/l	Report	*****	Report	1/Month	Composite ⁴
Nitrite/Nitrate	mg/l	Report	*****	Report	1/Month	Composite ⁴
C-NOEC ^{11,13}	%	Report	*****	*****	2/Year ¹⁰	Composite ⁴
LC ₅₀ ^{12,13}	%	≥ 100	*****	*****	2/Year ¹⁰	Composite ⁴

Footnotes:

1. For flow, report maximum and minimum daily rates and total flow for each operating date. This is a monthly average limit.

The permittee shall also report the intake flow volume for each intake event. This data shall be attached to the monthly monitoring report.

2. Effluent samples taken in compliance with monitoring requirements specified in this permit shall be taken at a representative point prior to mixing with the receiving water. Effluent samples shall be representative of the brine effluent that is discharged through the outfall to the Taunton River when the facility is in desalination mode. The effluent samples for average monthly and average weekly TSS samples shall be taken of the brine concentrate prior to blending the brine concentrate with the stored intake water. Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP.

All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. Samples shall be flow proportional composites unless specified as a grab sample in 40 CFR §136.

3. Sampling required for intake and effluent. Intake samples for copper shall be composite samples consisting of at least one grab sample per hour taken during one intake cycle. Intake samples for dissolved oxygen and salinity shall be grab samples taken within thirty minutes of the end of an intake cycle. Effluent samples shall be composite samples collected from the discharge following the sampled intake cycle.
4. A flow proportional composite sample will consist of one grab sample per hour taken during the discharge cycle.
5. The dissolved oxygen level of the final effluent shall be greater than or equal to the dissolved oxygen level in the receiving water.

The permittee shall report the minimum daily intake and effluent concentrations on its pre-printed discharge monitoring report, and record the number of times the effluent limit was violated during the month (i.e. the number of times the effluent concentration was less than the intake concentration) in the "No.Ex" column of the row containing the effluent sampling data. The permittee shall attach a summary including all of the intake and effluent data collected during the month to the pre-printed discharge monitoring report form.

6. Samples for Total Residual Chlorine shall be taken when the reverse osmosis reject water is discharged into the receiving water. This is a State certification requirement.
7. The salinity level of the final effluent that is discharged into the receiving water, shall be within +/- 2 parts per thousands (ppt) the salinity level of the receiving water.

The permittee shall report the average ambient salinity and effluent salinity concentrations on its pre-printed discharge monitoring report, record the number of times the effluent limit was violated during the month (i.e. the number of times the effluent concentration was more than 2 parts per thousand greater or less than the average ambient salinity concentrations during each discharge cycle) in the "No. Ex" column of the row containing the effluent sampling data. The permittee shall attach a summary of the average ambient salinity levels for each discharge cycle and the effluent salinity data collected during the month to the pre-printed discharge monitoring report form.

8. The concentration of copper measured in the effluent shall not exceed the copper concentration of the intake sample taken prior to the discharge.

The permittee shall report the maximum daily intake and effluent concentrations on its pre-printed discharge monitoring report, and record the number of times the effluent limit was violated during the month (i.e. the number of times the effluent concentration was greater than the intake concentration) in the "No. Ex" column of the row containing the effluent sampling data. The permittee shall attach a summary including all of the intake and effluent data collected during the month to the pre-printed discharge monitoring report form.

The permittee may request a reduction in the sampling requirements for copper after submitting a **minimum** of one year worth of data. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the sampling requirement has been changed.

9. The permittee may request a reduction in the sampling requirement, if after submitting a **minimum** of one years worth of data, all data demonstrate levels that meet water quality criteria. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the sampling requirement has been changed.
10. The permittee shall conduct chronic (modified acute) toxicity tests two times per year. The chronic test may be used to calculate the acute LC₅₀ at the 48 hour exposure interval. The permittee shall test the sea urchin *Arbacia punctulata* and inland silverside *Menidia beryllina* using synthetic sea water. Toxicity test samples shall be collected during the second week in the months of August, and November. The test results shall be submitted by the last day of the month following the completion of the test. The results are due September 30, and December 31, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.

Test Dates Second Week in	Submit Results By:	Test Species	Acute Limit LC ₅₀	Chronic Limit C-NOEC
August November	September 30 th December 31 st	<i>Arbacia punctulata</i> (sea urchin) <i>Menidia beryllina</i> (silverside) See Attachment A	≥ 100 %	Report

After submitting a **minimum** of four consecutive sets of WET test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction in the number of species used in the WET testing requirements. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the WET testing requirement has been changed.

11. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse

effect on growth, survival, or reproduction at a specific time of observation as determined from hypothesis testing where the test results exhibit a linear dose-response relationship.

However, where the test results do not exhibit a linear dose-response relationship, the permittee must report the lowest concentration where there is no observable effect.

12. The LC₅₀ is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.
13. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in **Attachment A Section IV., DILUTION WATER** in order to obtain permission to use an alternate dilution water. In lieu of individual approvals for alternate dilution water required in **Attachment A**, EPA-New England has developed a Self-Implementing Alternative Dilution Water Guidance document (called "Guidance Document") which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. If this Guidance document is revoked, the permittee shall revert to obtaining approval as outlined in **Attachment A**. The "Guidance Document" has been sent to all permittees with their annual set of DMRs and Revised Updated Instructions for Completing EPA's Pre-Printed NPDES Discharge Monitoring Report (DMR) Form 3320-1 and is not intended as a direct attachment to this permit. Any modification or revocation to this "Guidance Document" will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

Part I.A.1. (Continued)

- a. The discharge shall not cause a violation of the water quality standards in the receiving waters.
 - b. The pH of the effluent shall not be less than 6.5 nor greater than 8.5 or the pH of the effluent shall be equivalent to natural pH river conditions. There shall be no change from background conditions that would impair any use assigned to this class.
 - c. The discharge shall not cause objectionable discoloration or turbidity of the receiving waters.
 - d. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.
 - e. Chemicals used to flush the pipelines and/or clean the membranes (e.g., these may include but are not limited to, sodium compounds, hydrochloric acids, citric acid, alkalines, copper sulfate, polyphosphate, biocides) shall not be discharged to the receiving water. Any cleaning solution used to clean the RO membranes shall be diverted to a tank for off-site disposal.
 - f. The results of sampling for any parameter above its required frequency must also be reported as an attachment to the monthly discharge monitoring report.
2. Toxics Control
- a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.
 - b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon

promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

3. Numerical Effluent Limitations for Toxicants

EPA or MassDEP may use the results of the toxicity tests and chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including but not limited to those pollutants listed in Appendix D of 40 CFR Part 122.

B. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfall listed in Part I. A.1. of this permit. Discharges of wastewater from any other point sources, are not authorized by this permit and shall be reported in accordance with Section D.1.e (1) of the General Requirements of this permit (twenty-four hour reporting).

C. PERMIT REOPENER

Revisions may be made to the permit pursuant to, the Reopener Clause, on page 2 of 27, in Part II. General Permit Conditions.

D. OPERATION AND MAINTENANCE OF THE DESALINATION PLANT

Operation and maintenance of the system shall be in compliance with the General Requirements of Part II and the following terms and conditions.

1. Maintenance Staff

The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit.

2. Preventative Maintenance Program

The permittee shall maintain an ongoing preventative maintenance program to prevent malfunctions or failures of the system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges.

E. MONITORING AND REPORTING

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

Signed and dated originals of these, and all other reports required herein, shall be submitted to the Director and the State at the following addresses:

Environmental Protection Agency
Water Technical Unit (SEW)
P.O. Box 8127
Boston, Massachusetts 02114

The State Agency is:

Massachusetts Department of Environmental Protection
Bureau of Waste Protection
Southeast Regional Office
20 Riverside Drive
Lakeville, MA 02347

Signed and dated Discharge Monitoring Report Forms and toxicity test reports required by this permit shall also be submitted to the State at:

Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

F. STATE PERMIT CONDITIONS

This discharge permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MassDEP pursuant to M.G.L. Chap. 21, §43.

Each Agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared, invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as an NPDES permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of Federal law, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.