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"),

Aquatic Research Organisms, Inc.

is authorized to discharge from the facility located at

One Lafayette Road
Hampton, New Hampshire 03842

to receiving waters named

Taylor River - Channel: (Outfall 002)

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

This permit shall become effective on November 1, 2006.

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

This permit supersedes the permit issued on January 15, 1998.

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

Signed this 14th day of August, 2006

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Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency (EPA)
Region I
Boston, Massachusetts

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall number 002 (culture cooling water and culture flow through water) to the tidal Taylor River. Such discharges shall be limited and monitored by the permittee as specified below. Samples taken in compliance with the monitoring requirements specified below shall be taken at a location that provides a representative analysis of the effluent prior to mixing with any wastestreams authorized to be discharged under NPDES permit number NH0022055.

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow; MGD	0.01	0.015	Continuous	Recorder[1]
TSS; mg/L	Report	50[2]	1/Week[2]	Grab[2]
pH Range[3]; Standard Units	6.5 to 8.0 (**See I.E.1.a.**)		Daily	Grab
Fecal Coliform[3,4,5]; Colonies/100 ml	14	Report	5/Week	Grab
Enterococci bacteria[3,4]; Colonies/100 ml	Report	Report	2/Week	Grab
Total Residual Chlorine[6]; mg/L	0.75	1.0	2/Day (When in use)	Grab
Formaldehyde[7]; mg/l	—	Report	1/Quarter	Grab
Whole Effluent Toxicity				
LC50[8,9,10]; Percent Effluent	—	100	1/Year	24-Hour Composite
Total Recoverable Cadmium[11]; (mg/l)	—	Report	1/Year	24-Hour Composite
Total Recoverable Copper[11]; (mg/l)	—	Report	1/Year	24 Hour Composite
Total Recoverable Lead[11]; (mg/l)	—	Report	1/Year	24 Hour Composite
Total Recoverable Nickel[11]; (mg/l)	—	Report	1/Year	24 Hour Composite
Total Recoverable Zinc[11]; (mg/l)	—	Report	1/Year	24 Hour Composite

See page 3 and 4 for explanation of superscripts

EXPLANATION OF SUPERSCRIPTS TO PARTS I.A.1.on page 2:

(1) The effluent flow shall be continuously measured and recorded using a flow meter and totalizer.

(2) Sampling must be conducted during a culture tank cleaning episode.

(3) State certification requirement.

(4) Fecal coliform and enterococci bacteria shall be sampled concurrently. The average monthly values for fecal coliform and enterococci bacteria shall be determined by calculating the geometric mean. Not more than 10 percent of the fecal coliform samples collected shall exceed a most probable number (MPN) of 43 colonies per 100 ml for a 50tube decimal dilution test. All fecal coliform and enterococci bacteria data collected must be submitted with the Monthly Discharge Monitoring Reports (DMRs).

(5) Fecal coliform testing shall be performed using Method 9221 C or Method 9222 D. Enterococci bacteria testing shall be performed using Method 9230 B or Method 9230 C. These methods are found in Standard Methods for the Examination of Water and Wastewater, 20th Edition.

(6) When in use, Total Residual Chlorine shall be tested in outfall 002 using the Amperometric titration or the DPD spectrophotometric method. The EPA methods are found in Standard Methods for the Examination of Water and Wastewater, 20th Edition, Method 4500-Cl E and Method 4500-Cl G or U.S.E.P.A. Manual of Methods of Analysis of Water and Wastes, Method 330.5.

(7) The monitoring requirement for formaldehyde shall no longer be required if eight (8) consecutive tests result in concentrations less than 1.61 mg/l.

(8) ”LC50" is defined as the concentration of wastewater that causes mortality to 50 percent of the test organisms. The permit limit of 100 percent is defined as a sample composed of 100 percent effluent. This limit is a maximum daily limit.

(9) The permittee shall conduct 48-hour acute toxicity tests using mysid shrimp (Mysidopsis bahia) and inland silverside (Menidia beryllina) (See Attachment). This testing shall be performed in the third quarter of each year (July, August, September) of each year and results submitted by October 15th.

(10) This permit shall be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements, including chemical specific limits, if the results of the toxicity tests indicate the discharge causes an exceedance of any State water quality criterion. Results

from these toxicity tests are considered “New Information” and the permit may be modified as provided in 40 C.F.R §122.62(a)(2).

(11) For each toxicity test, the permittee shall report on the appropriate DMR the concentrations of these five (5) metals (cadmium, copper, lead, nickel, and zinc) found in the 100 percent effluent sample. Also, the permittee should note that all metals results must still be reported with the appropriate toxicity test report.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

2. The permittee shall notify EPA and the State within 24-hours upon the occurrence of a water quality induced mortality of greater than 25 percent in any aquatic species under culture at the facility in accordance with reporting requirements in Part II.D.1.e.

3. The discharges shall not cause a violation of the water quality standards of the receiving water.

4. The permittee shall not discharge into the receiving water any pollutant or combination of pollutants in toxic amounts.

5. The discharges shall be adequately treated if necessary to ensure that the surface water remains free from pollutants in concentrations or combinations that settle to form harmful deposits or float as foam, oil & grease, debris, scum or other visible pollutants. Any necessary treatment shall ensure that the surface waters remain free from pollutants which produce odor, color, taste or turbidity in the receiving water which is not naturally occurring and would render it unsuitable for its designated uses.

6. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe (40 CFR §122.42):

    a. That any activity has occurred or will occur which would result in the discharge 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 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 CFR §122.21(g)(7); or

(4) Any other notification level established by the Director in accordance with
40 CFR §122.44(f) and New Hampshire 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 CFR §122.21(g)(7); or

(4) Any other notification level established by the Director in accordance with 40 CFR §122.44(f) and New Hampshire regulations.

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

7. The permittee must notify EPA-New England and the NHDES-WD when there is a “reportable failure” in (as defined immediately below), or damage to, the structure of an aquatic animal containment system (i.e. culture unit) or its wastewater treatment system that results in an unanticipated material discharge of pollutants to waters of the United States.

A reportable failure applies to any active culture units and ancillary components (pipes, valves, plumbing fixtures or physical barriers that prevent water, sediment or settled solids from spilling.

8. In the event of a spill of drugs, feed or other products that results in a discharge to water of the United States, the permittee must provide an oral report of the spill to EPA-New England and the NHDES-WD within 24 hours of its occurrence and a written report within 5 days to the above Agencies. The report shall contain the identity and quantity of the material spilled.

9. This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable standard or limitation promulgated or approved under sections 301(b)(2)(C) and (d), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

b. Controls any pollutants not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

B. RESIDUALS

The permittee shall comply with all existing federal, state and local laws and regulations that apply to the reuse or disposal of industrial residuals such as those found in the culture tanks. These include but are not necessarily limited to 40 CFR Section 257 and Env-Ws 800.

C. MONITORING AND REPORTING CONDITIONS

Monitoring results shall be summarized for each calendar month and reported on separate DMRs postmarked no later than the 15th day of the month following the completed reporting period.

1. Signed and dated original DMRs and all other reports or notifications required herein or in Part II, shall be submitted to the Director at the following address:

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

2. Duplicate signed copies of all items required in item 1 immediately above shall be submitted to the State at:

New Hampshire Department of Environmental Services
Water Division
Wastewater Engineering Bureau
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095

D. SPECIAL CONDITIONS

1. Effluent diffusers shall be maintained when necessary to ensure proper operation. Proper operation means that the plumes from each port will be balanced relative to each other and that they all have

unobstructed flow. Maintenance may include dredging in the vicinity of the diffuser, clean out of solids in the diffuser header pipe, removal of debris and repair/replacement of riser ports and pinch valves.

2. Any necessary maintenance dredging must be performed only during the marine construction season authorized by the New Hampshire Fish & Game Department and only after receiving all necessary permits from the NHDES Wetlands Bureau, U.S. Coast Guard, U.S. Army Corps of Engineers, etc.

3. To determine if maintenance will be required the permittee shall have a licensed diver or licensed marine contractor inspect and videotape the operation of the diffuser. In order to aid the videotaping of the outfall and to be able to identify effluent coming out of the diffuser, Rhodamine WT dye or similar product shall be added to the effluent during the dive inspection. The inspections and videotaping shall be performed in accordance with the following schedule.

a. Every year if no pinch valves have been installed on the riser ports; or
b. Every two years if pinch valves have been installed on the riser ports.

EPA and the NHDES-WD shall be contacted at least seven (7) days prior to the dive inspection.

4. Copies of a report summarizing the results of each diffuser inspection shall be submitted to EPA and NHDES WD within 60 days of each inspection. Where it is determined that maintenance will be necessary, the permittee shall provide the proposed schedule for the maintenance.

E. STATE PERMIT CONDITIONS

1. The permittee shall comply with the following conditions which are included as State Certification requirements.

a. The pH range of 6.5-8.0 standard units (S.U.) must be achieved in the final effluent unless the permittee can demonstrate to NHDES: (1) that the range should be widened due to naturally occurring conditions in the receiving water or (2) that the naturally occurring source water pH is unaltered by the permittee's operations. The scope of any demonstration project must receive prior approval from NHDES. In no case, shall the above procedure result in pH limits less restrictive than any applicable federal categorical effluent limitation guidelines regulations.

b. Aquatic Research Organisms is responsible for immediately notifying the New Hampshire Department of Environmental Services, Watershed Management Bureau, Shellfish Section of possible high bacteria/virus loading events from its facility. Such

events include:

i. Any lapse or interruption of normal operation of the facility's effluent disinfection system, or other event that results in discharge of effluent that has not undergone full treatment as specified in the NPDES permit; or

ii. Daily flows in excess of the facility's average daily design flow of 0.01 MGD; or

iii. Daily post-disinfection effluent sample results of greater than 14 fecal coliform cts/100ml. Notification shall also be made for instances where NPDES-required bacteria sampling is not completed, or where the results of such sampling are invalid.

Notification to the NHDES Shellfish Program shall be made using the program's 24-hour pager. Upon initial notification of a possible high bacteria/virus loading event, NHDES Shellfish Program staff will determine the most suitable interval for continued notification and updates on an event-by-event basis.

2. This NPDES Discharge Permit is issued by the U.S. Environmental Protection Agency under Federal and State law. Upon final issuance by the EPA, the NHDES may adopt this permit, including all terms and conditions, as a State permit pursuant to RSA 485-A:13.

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 the Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation.