

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-2211

FACT SHEET

**DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES**

PUBLIC NOTICE START AND END DATES: APRIL 24, 2006 TO MAY 23, 2006

PUBLIC NOTICE NUMBER: NH-008-06

CONTENTS: 11 pages including (3) Attachments (A) through (C)

NPDES PERMIT NO.: NH0022985

NAME AND ADDRESS OF APPLICANT:

Aquatic Research Organisms, Inc.
P.O. Box 1271
Hampton, New Hampshire 03843-1271

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Aquatic Research Organisms, Inc.
1 Lafayette Road
Hampton, New Hampshire 03842

RECEIVING WATERS:

Taylor River - Channel (Hydrologic Unit Code: 01060003)

CLASSIFICATION: B

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

Aquatic Research Organisms, Inc. cultures marine and freshwater aquatic invertebrate species and fish used in environmental and biological testing. The discharge to the Taylor River is through an outfall diffuser. The discharge (approximate average flow of 6,000 gallons per day) to the Taylor River consists of culture cooling water and culture water from the saltwater/groundwater intake. The culture water consists of flow through water, water from cleaning the culture systems, and water spilled while collecting the various species for shipment. A private well serves as the source of fresh water and the Taylor River as the salt water. ARO first filters the intake waters and then disinfects using ultraviolet light (UV) prior to pumping to storage tanks and subsequent use in the culture systems. Filtering for freshwater consists of a sand filter, and ion exchange unit, and an activated carbon filter. Filtering of salt water consists of a high volume sand filter and an activated carbon filter. The combined salt and fresh water flows through this facility are disinfected using UV prior to discharge.

The previous permit was issued on January 15, 1998, and expired on May 13, 2003. The expired permit (hereafter referred to as the "existing permit") has been administratively extended as the applicant filed a complete application for permit reissuance as per 40 Code of Federal Regulations (CFR) §122.6. The existing permit authorizes discharge from Outfall 001A (now called 002). Outfall 002 is shared with EnviroSystems, Inc. (ESI) located adjacent to ARO; though the outfall is shared, each facility has a separate NPDES permit.

The location of the facility, Outfall 002 and the receiving water are shown in Attachment A.

II. Description of Discharge.

A quantitative description of significant effluent parameters were based on reapplication data and discharge monitoring data (January 2003 through December 2004) are shown in Attachment B.

III. Limitations and Conditions.

This draft permit contains limitations for flow, total suspended solids, pH, fecal coliform, total residual chlorine (when in use), and formaldehyde. In addition a reporting only requirement for enterococci bacteria has been included. The effluent limitations and monitoring requirements are found in Part I of the draft NPDES permit. The basis for each limit and condition is discussed in section IV of this Fact Sheet.

IV. Permit Basis and Explanation of Effluent Limitations Derivation

A. Background

The Clean Water Act (Act) prohibits the discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the Act. The NPDES permit is the mechanism used to implement technology and water-quality based effluent limitations and other requirements including monitoring and reporting. The draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the Act and any applicable State administrative rules. The regulations governing EPA's NPDES permit program are generally found in 40 CFR Parts 122, 124, 125 and 136. Many of these regulations consist primarily of management requirements common to all permits.

EPA is required to consider technology and water quality-based requirements as well as all requirements/limitations in the existing permit when developing permit limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the Act (See 40 CFR §125 Subpart A) to meet Best Practicable Control Technology Currently Available (BPT) for conventional pollutants and some metals, Best Conventional Pollution Control Technology (BCT) for conventional pollutants, and Best Available Technology Economically Achievable (BAT) for non-conventional and toxic pollutants. Technology guidelines (effluent limitations) for various industrial categories are found in 40 CFR §400-471, Subchapter N, Effluent Guidelines and Standards.

In the absence of published technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1)(B) of the Act to establish effluent limitations on a case-by-case basis using Best Professional Judgement (BPJ).

In general, all statutory deadlines for meeting various technology-based guidelines (effluent limitations) established pursuant to the Act have expired. For instance, compliance with publicly owned treatment works (POTW) technology-based effluent limitations is, effectively, from date of permit issuance (40 CFR §125.3(a)(1)). Those for non-POTW technology-based effluent limitations must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989 (40 CFR §125.3(a)(2)). Compliance schedules and deadlines not in accordance with the statutory provisions of the Act cannot be authorized by a NPDES permit.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water-quality standards. A water-quality standard consists of three elements: (1) beneficial designated use or uses for a waterbody or a segment of a waterbody; (2) a numeric or narrative water-quality criteria sufficient to protect the assigned designated use(s); and (3) an antidegradation requirement to ensure that once a use is attained it will not be eroded. Receiving water requirements are established according to numerical and narrative standards in the state's water quality standards adopted under state law for each stream classification.

The proposed draft permit attempts to limit any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water-quality criterion. An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion outside of a mixing zone.

In determining reasonable potential, EPA considers: (1) existing controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from permittee's reissuance application, Monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the species to toxicity testing; (4) known water-quality impacts of processes on wastewaters; (5) statistical approach outlined in **Technical Support Document for Water Quality-based Toxics Control, March 1991, EPA/505/2-90-002** in Section 3; and, where appropriate, (6) dilution of the effluent in the receiving water. In accordance with State statutes and administrative rules [50 RSA 485-A:8, and Env-Ws 1705.02], available dilution for discharges to freshwater receiving waters is based on an estimated value of the 7 consecutive-day mean low flow at the 10-year recurrence interval (7Q10) for aquatic life or the mean annual flow for human health (carcinogens only) in the receiving water at the point of discharge. For discharges to marine/estuarine waters the available dilution is determined using hydrodynamic mixing zone modelling.

The draft permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those conditions in the previous permit unless in compliance with the anti-backsliding requirement of the Act [See Sections 402(o) and 303(d)(4) of the Act and 40 CFR §122.44(l)(1 and 2)]. EPA's antibacksliding provisions prohibit the relaxation of permit limits, standards, and conditions unless certain conditions are met. Therefore, unless those conditions are met the limits in the reissued permit must be at least as stringent as those in the previous permit.

In addition, the draft permit must conform to the conditions established pursuant to a State Certification under Section 401 of the Act that meet the requirements of 40 CFR §124.53 and §124.55. EPA regulations pertaining to permit limits based upon water-quality standards and state requirements are contained in 40 CFR §122.44(d).

The conditions of the draft permit reflect the goal of the Act and EPA to achieve and then to maintain water quality standards. To protect the existing quality of the State's receiving waters, the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) adopted Antidegradation requirements (Env-Ws 1708) in their NH Standards.

ARO is not considered a concentrated aquatic animal production facility according to the definition given in 40 CFR 122.24. No national effluent limitation guidelines have been promulgated that cover a discharge of this type.

B. Flow and Conventional Pollutants

Flow

The current flow limits on this discharge are 10,000 gpd for Average Monthly and 15,000 gpd for Maximum Daily. These values were established using information provided by the applicant in 1997. These flow limits are established to represent the current and future operations at this facility and are based on best professional judgement (BPJ) authority pursuant to Section 402(a)(1)(B) of the Act. Flow limits are necessary since water quality based permit limits are based on the assumption that the discharge will have a certain flow. Flow must be measured with a flow meter and recorded continuously.

ARO and EnviroSystems, Inc. (ESI) historically were two divisions under Millipore of New Hampshire. After Millipore's sale of the divisions, ARO and ESI were established as individual companies and EPA-New England issued permits NH0022055 to ESI and NH0022985 to ARO. These permits reflect each applicant's discharge, even though these two facilities share a common outfall pipe (002).

The combined salt and fresh water flows through this facility are shown in Attachment B. The existing permit indicates that provisions are available for disinfection of the culture water (outfall 002) with chlorine. The draft permit contains average monthly and maximum daily limits of 0.75 and 1.0 milligrams per liter when chlorine is in use at the facility.

Total Suspended Solids (TSS)

The existing permit includes a maximum daily TSS limit of 50 mg/l and requires weekly monitoring. Over the 2 year period of January 2003 - December 2004 of the existing permit, TSS concentrations have ranged from 12 mg/l to 64 mg/l with an average of 27.2 mg/l (see Attachment C). Weekly monitoring and maximum daily limit of a 50 mg/l has been retained in the draft permit. The limit and is based on BPJ authority as discussed above and the existing permit. This maximum daily limit is intended to protect the Taylor River from TSS concentrations that could form objectionable benthic deposits in the vicinity of the discharge. TSS concentrations are expected to be at their highest during the cleaning of the culture tanks therefore a grab sample during cleaning activity is acceptable.

Bacteria

New Hampshire State statute N.H. RSA 485-A:8,V. specifies that the bacteria standard shall be "...as recommended under the National Shellfish Program Manual of Operation, United States Department of Food and Drug Administration." This standard applies to facilities which discharge into tidal waters used for growing or taking of shellfish for human consumption, and therefore applies to ARO. The recommended criteria for fecal coliform bacteria is 14 colonies per 100 milliliters of fecal coliform bacteria and includes a condition that "...not more than 10 percent of the collected samples to exceed a Most Probable Number (MPN) of 43 per 100 milliliters for a 5-tube decimal dilution test."

N.H. RSA 485-A:8,V. also requires enterococci bacteria limits for discharges to “tidal waters utilized for swimming purposes.” The recommended criteria for enterococci bacteria is that the water should contain “... not more than either a geometric mean based on at least 3 samples obtained over a 60-day period of 35 colonies per 100 milliliters in any one sample unless naturally occurring.”

The draft permit includes compliance monitoring frequency for fecal coliform five times per week (5/week), and two times per week (2/week) for enterococci bacteria. Historic data (1993) collected of the facility’s influent and subsequent effluent showed that concentrations of enterococci bacteria increased somewhat from influent to effluent. Therefore there is reason to believe that enterococci are present in the facility’s effluent and this draft permit includes a reduced monitoring frequency and only a reporting requirement in lieu of limits since there is no obvious swimming area at the outfall or immediately downstream from the outfall.

The draft permit also contains a state permit condition to notify the New Hampshire Department of Environmental Services, Watershed Management Bureau, Shellfish Section whenever there is an upset or bypass of the disinfection system.

pH

NHDES requires that pH limits be satisfied at end-of-pipe with no allowance for dilution. The limit for pH is based upon State Certification Requirements and RSA 485-A:8.I. which requires that Class B waters maintain a pH range of 6.5 to 8.0, except when due to natural causes. The draft permit limits for pH are the same as the limits in the existing permit. If the applicant can demonstrate (see Part I.D.1.a. of the draft Permit) to the satisfaction of NHDES that the in-stream standard will be protected when the discharge is outside of the permitted range, then they or NHDES-WD may request (in writing) that the permit limits be modified by EPA to incorporate the results of the demonstration. EPA will notify the permittee and the NHDES-WD if it concurs with the results.

The compliance monitoring frequency for pH is daily, the same as in the existing permit. This frequency conforms to the EPA/NHDES Effluent Monitoring Guidance described above. The analytical method for pH requires that the sample type be a grab.

C. Available Dilution and Nonconventional and Toxic Pollutants

Water quality based limits for specific pollutants such as chlorine or metals are determined from chemical specific numeric criteria derived from extensive scientific studies. The specific toxic pollutants and their associated toxicity criteria are known as the “Gold Book Criteria” which EPA published in **Quality Criteria for Water, 1986, (EPA 440/5-86-001 as amended)**. The State of New Hampshire adopted these “Gold Book Criteria” with certain exceptions, and included them as part of the NH Standards. EPA uses these pollutant specific criteria and available dilution in the receiving water to determine a specific pollutant’s draft permit limit.

Available Dilution

Available dilution in the receiving water for outfall 002, as discussed in the existing permit, was determined to be:

- 97.9 (maximum daily flow); and
- 100 (monthly average flow).

Outfall 002 is a multiport diffuser located on the river bottom near the middle of the tidal Taylor River. The diffuser was designed using the Cornell Mixing Zone Expert System (CORMIX), to account for re-entrainment of a previously discharged plume such as that which occurs in tidally reversing rivers.

The worst case acute and chronic dilutions predicted by CORMIX occurred 15 minutes after the spring low tide. The multiport diffuser outfall supports both ARO and the discharge permitted under NPDES permit number NH0021172 (EnviroSystems, Inc. (ESI)). A flow of 14,000 gallons/day, the combined flow of ARO and ESI, was used for the modelling.

At maximum daily combined flows from ARO and ESI, the centerline of the plume was shown to be 26.2 feet (7.99 meters) downstream from the outfall. The plume width was shown to be 40 feet (12.2 meters) and had not contacted the shore. The plume thickness was shown to be 0.98 feet (0.30 meters).

At the monthly average combined flows from ARO and ESI, the centerline of the plume was shown to be 30.4 feet (9.26 meters) downstream from the diffuser outfall. The plume width was shown to be 40 feet (12.2 meters) and had not contacted the shore. The plume thickness was shown to be 0.98 feet (0.30 meters). The dilution factor was shown to be 128.7, but because the NHDES policy allows mixing zones only up to a maximum dilution of 100, the dilution factor becomes 100.

Outfall diffusers are mechanical structures that will require periodic maintenance. If they are not working as designed, the available dilution upon which permit limitations are based may not be achieved. Further, the reasonable potential calculations that are used to determine if a permit limit is necessary may be in error. Either of these situations could lead to violations of the NH standards. Accordingly, NHDES and EPA-New England have included a permit condition that requires periodic inspections and any necessary maintenance of the diffuser pursuant to 40CFR122.41(3), "*Proper operation and maintenance*".

Total Residual Chlorine

ARO uses an ultraviolet (UV) disinfection system for all of its process water and effluent. In the event of a malfunction of the UV unit, ARO may use chlorine as an alternative disinfection method. Therefore, total residual chlorine (TRC) is limited in outfall 002. Since it is not normally used, however, the draft permit requires monitoring twice daily only when chlorine is being used. This frequency is consistent with the EPA/NHDES Effluent Monitoring Guidance described above. The monthly average numeric limitation included in the draft permit was derived using the monthly average dilution factor of 100 and the chronic marine water quality standard for chlorine. The maximum daily limitation of 1.0 is the same as in the existing permit and was derived using Best Professional Judgement (BPJ) under the authority granted in Section 402(a)(1) of the Act and 40 CFR 125.3. This is consistent with antibacksliding regulations.

Hydrogen Sulfide

A hydrogen sulfide monitoring requirement was included in the existing permit to determine if there was reasonable potential that the chronic marine water quality standard would be violated. Facility data show that hydrogen sulfide concentrations in the effluent were consistently below detection limits. Therefore, the monitoring requirement for hydrogen sulfide has not been carried forward into this draft permit.

Formaldehyde

ARO uses a formalin product (such as Paracide-F, Formalin-F or Parasite-S) which contains approximately 37% by weight formaldehyde gas. The formalin product is used for the therapeutic

treatment of fungal infections on the eggs of finfish and to control certain external protozoa and monogenetic trematodes of all finfish species. This means that Formalin is more toxic to the invertebrate species than to vertebrates, for it is formulated to selectively kill certain attached organisms, but not the finfish themselves when properly applied. Therefore, when setting the necessary permit limits to protect the receiving water's aquatic environment from the effects of Formalin in a discharge, it is more important to develop limits to protect invertebrates species over the vertebrates species, for the former are more sensitive to the effects of Formalin's active ingredient (formaldehyde).

Formalin use should be consistent with U.S. Food and Drug Administration (FDA) labeling instructions as per 21 CFR Section 529.1030. Existing toxicity data indicates that formalin is toxic to aquatic organisms at concentrations below FDA labeling guidelines. Currently there are no acute and chronic aquatic life criteria for either formalin or formaldehyde in the NH Standards. However, New Hampshire law states that, "all surface waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life;..." (N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, PART Env-Ws 1703.21(a)(1)). Therefore, in the absence of specific formalin or formaldehyde aquatic life and chronic criteria in the NH Standards, EPA-New England has decided to impose formaldehyde limits in the draft permit based on acute and chronic aquatic life criteria taken from the Derivation of Ambient Water Quality Criteria for Formaldehyde (Hohreiter, D.W. and Rigg, D.K., *Journal of Science for Environmental Technology in Chemosphere*, Vol. 45, Issues 4-5, November 2001, pgs 471-486). EPA-New England believes that since these criteria were developed in accordance with the United States Environmental Protection Agency's (U.S. EPA's) *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* they are appropriate for use in limit setting purposes. From that publication, the acute (maximum daily) and chronic (average monthly) aquatic-life criteria for formaldehyde are 4.58 and 1.61 mg/l, respectively. Because available dilution in the Taylor River is 97.9 and 100 for the acute and chronic aquatic-life criteria respectively, the limits in the draft permit would be 448 mg/L and 161 mg/L respectively.

The permittee sampled its effluent on October 18th and 19th of 2005 and tested the effluent for formaldehyde. The results of these two samples were 140 and 45 ug/l (micrograms per liter). Because these results are well below both acute and chronic formaldehyde criteria, no limit has been included in the draft permit. However, to ensure that formaldehyde levels remain at this level the draft permit requires formaldehyde monitoring once per quarter.

For this permit, the minimum quantification level (ML) for formaldehyde is established in Method 1667, Revision A is 0.050 mg/l or 50 µg/l. In accordance with EPA's *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991, page 111, EPA New England is defining the compliance level in the permit as the minimum quantification level (ML). Any value below the ML shall be reported as zero until written notice is received by certified mail from EPA-New England indicating some value other than zero is to be reported for a given ML (i.e., between zero and the ML).

D. Whole Effluent Toxicity

EPA's recently published **Technical Support Document for Water Quality-based Toxics Control**, EPA/505/2-90-001, March 1991, recommends using an "integrated strategy" containing both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges from entering the nation's waterways. EPA New England adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance. These approaches are designed to protect aquatic life and human health. Pollutant

specific approaches such as those in the Gold Book and State regulations address individual chemicals, whereas, whole effluent toxicity (WET) approaches evaluate interactions between pollutants thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, WET measures the "Additivity" and/or "Antagonistic" effects of individual chemical pollutants which pollutant specific approaches do not, thus the need for both approaches. In addition, the presence of an unknown toxic pollutant can be discovered and addressed through this process.

Section 101(a)(3) of the Act specifically prohibits the discharge of toxic pollutants in toxic amounts and State law N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, PART Env-Ws 1700 states that, "all classes of waters shall be free from toxic pollutants or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life;". NPDES regulations under 40 CFR §122.44(d)(1)(v) require WET limits in a permit when a discharge has a "reasonable potential" to cause or contribute to an excursion above the State's narrative criterion for toxicity.

In the existing permit, EPA-New England believed there was "reasonable potential" to cause an excursion of the no toxics provision in the State's regulations based on data from the permit application and the fact that the discharge and the intake water contained several toxic pollutants.

The existing permit was conditioned for ARO to conduct a one-time pass/fail toxicity test, and if the pass/fail test was unsuccessful, quarterly acute toxicity testing was required. As a special condition of the existing permit, the frequency of testing could be reduced by a certified letter from EPA-New England upon written request by the permittee. Accordingly, the existing permit was modified in March 2001 to reduce toxicity testing to one time per year. The requirement for once per year toxicity testing has been carried forward to the draft permit.

E. Essential Fish Habitat and Endangered Species

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104267), established a new requirement to describe and identify (designate) "essential fish habitat" (EFH) in each federal fishery management plan. Only species managed under a federal fishery management plan are covered. Fishery Management Councils determine which areas will be designated as EFH. The Councils have prepared written descriptions and maps of EFH, and include them in fishery management plans or their amendments. EFH designations for New England were approved by the Secretary of Commerce on March 3, 1999.

The 1996 Sustainable Fisheries Act broadly defined essential fish habitat as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Waters include aquatic areas and their associated physical, chemical, and biological properties. Substrate includes sediment, hard bottom, and structures underlying the waters. Necessary means the habitat required to support a sustainable fishery and the managed species contribution to a healthy ecosystem. Spawning, breeding, feeding, or growth to maturity covers all habitat types utilized by a species throughout its life cycle. Adversely affect means any impact which reduces the quality and/or quantity of EFH. Adverse effects may include direct (i.e. contamination, physical disruption), indirect (i.e. loss of prey), site specific or habitat wide impacts including individual, cumulative, or synergistic consequences of actions.

According to the Guide to Essential Fish Habitat Designations in the Northeastern United States: Volume 1: Maine and New Hampshire (March 1999), EFH has been designated for the following species associated with the Taylor River.

Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod (<i>Gadus morhua</i>)	X	X	X	X
haddock (<i>Melanogrammus aeglefinus</i>)			X	
pollack (<i>Pollachius virens</i>)			X	
whiting (<i>Merluccius bilinearis</i>)	X	X	X	X
red hake (<i>Urophycis chuss</i>)	X	X	X	X
redfish (<i>Sebastes fasciatus</i>)	n/a	X	X	X
winter flounder (<i>Pleuronectes americanus</i>)	X	X	X	X
yellowtail flounder (<i>Pleuronectes ferruginea</i>)			X	X
windowpane flounder (<i>Scophthalmus aquosus</i>)			X	X
American plaice (<i>Hippoglossoides platessoides</i>)			X	X
ocean pout (<i>Macrozoarces americanus</i>)	X	X	X	X
Atlantic halibut (<i>Hippoglossus hippoglossus</i>)	X	X	X	X
Atlantic sea scallop (<i>Placopecten magellanicus</i>)	X	X	X	X
Atlantic sea herring (<i>Clupea harengus</i>)			X	X
monkfish (<i>Lophius americanus</i>)	X	X	X	X
long finned squid (<i>Loligo pealei</i>)	n/a	n/a	X	X
short finned squid (<i>Illex illecebrosus</i>)	n/a	n/a	X	X
Atlantic butterfish (<i>Peprilus triacanthus</i>)	X	X	X	X
Atlantic mackerel (<i>Scomber scombrus</i>)	X	X	X	X
summer flounder (<i>Paralichthys dentatus</i>)				X
scup (<i>Stenotomus chrysops</i>)	n/a	n/a	X	X
black sea bass (<i>Centropristus striata</i>)	n/a			
surf clam (<i>Spisula solidissima</i>)	n/a	n/a	X	X
ocean quahog (<i>Artica islandica</i>)	n/a	n/a		
spiny dogfish (<i>Squalus acanthias</i>)	n/a	n/a		
bluefin tuna (<i>Thunnus thynnus</i>)				X

The notation "n/a" indicates some of the species either have not data available on the designated lifestages, or those lifestages are not present in the species' reproductive cycle.

The conditions, limitations, and monitoring requirements contained in this draft permit are designed to be protective of all aquatic species in the Taylor River. Accordingly, it is EPA's

opinion that adverse impacts to EFH for the species listed above have been minimized to the extent that they are negligible and that no additional mitigation is warranted. If adverse effects to EFH do occur as a result of this permit action, or if new information changes the basis for this conclusion, then NMFS will be notified and consultation will be reinitiated.

Endangered Species

The Endangered Species Act (16 U.S.C. 1451 et seq.), Section 7, requires the EPA to ensure, in consultation with the U.S. Fish and Wildlife Service (USFWS) and/or NMFS, as appropriate, that any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species, or adversely affect its critical habitat.

USFWS and NMFS were both contacted to determine whether or not endangered or threatened species are present in the Taylor River. Both services stated that there are no listed species present.

E. Additional Requirements and Conditions

The effluent monitoring requirements in the draft permit have been established to yield data representative of the discharge under the authority of Section 308(a) of the Act in accordance with 40 CFR §122.41(j), §122.44(i) and §122.48.

The remaining conditions of the permit are based on the NPDES regulations 40 CFR, Parts 122 through 125, and consist primarily of management requirements common to all permits.

V. Antidegradation

This draft permit is being reissued with an allowable wasteload nearly identical to the existing permit. The parameter coverage has changed slightly to include a limit on formaldehyde. Since the State of New Hampshire has indicated there will be no lowering of water quality and no loss of existing uses, no additional antidegradation review is warranted.

VI. State Certification Requirements.

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards or waives its right to certify as set forth in 40 CFR §124.53. The only exception to this is that sludge conditions/requirements are not part of the Section 401 State Certification. The staff of the New Hampshire Department of Environmental Services, Water Division (certifying authority), has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State and expects that the draft permit will be certified. Regulations governing state certification are set forth in 40 CFR §124.53 and §124.55.

VII. 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 U.S. EPA, Office of Ecosystem Protection, New Hampshire State Program Unit, Mail Code CNH, J.F.K. Federal Building,

Boston, Massachusetts 02203-0001. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. 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 Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator 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 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 40 CFR §124.74.

VIII. EPA/State Contacts.

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m. (8:00 a.m. and 4:00 p.m. for the state), Monday through Friday, excluding holidays from:

Dan Arsenault.
U.S. Environmental Protection Agency
Suite 1100 (Mail Code: CMP)
One Congress Street
Boston, Massachusetts 02114-2023
Telephone No.: (617) 918-1562
FAX No.: (617) 918-1505

or

Susan A. Willoughby, P.E.
New Hampshire Department of Environmental Services
Water Division
Wastewater Engineering Bureau
P.O. Box 95, 29 Hazen Drive
Concord, New Hampshire 03302-0095
Telephone No.: (603) 271-3307
FAX No.: (603) 271-4128

April 11, 2006
Date

Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

ATTACHMENT A

OUTFALL LOCATION MAP



Photo taken 4/11/98 and obtained through www.terraserver.microsoft.com.

ATTACHMENT B

CONCENTRATIONS OF EFFLUENT CHARACTERISTICS AT OUTFALL 002

The following effluent characteristics were derived from analysis of discharge-monitoring data collected from Outfall 002 during the 24-month period, January 2003 through December 2004. All these data were extracted from the monthly Discharge Monitoring Reports submitted by Aquatic Research Organisms, Inc. These effluent values characterize culture flow through effluent discharged from this facility.

Effluent Characteristic	Average of Average Monthly	Range of Average Monthly	Range of Maximum Daily
Flow (MGD)	0.0022	0.0014 - 0.0037	0.0015 - 0.005
TSS (mg/l)	15.65	8.5 - 22.67	12.0 - 64.0
pH (S.U.)	-----	-----	7.55 - 8.06
Total Residual Chlorine	None used	None used	None used
Hydrogen Sulfide	-----	-----	<0.10 - <0.10
Fecal Coliform (#/100 mL)	0.58	0 - 2.19	0 - 200

Whole Effluent Toxicity (LC50 in % Effluent) (Acute)	
	Range of LC50
<i>Americamysis bahia</i>	100% - 100%
<i>Menidia beryllina</i>	100% - 100%

ATTACHMENT C
CALCULATIONS OF MASS-BASED LIMITS

Equation used to calculate monthly average and maximum daily Total Residual Chlorine limit:

$$\text{Chlorine Limit} = \text{Dilution Factor} \times \text{water quality standard}$$

where:

Marine water quality standards for chlorine are

- 0.0075 mg/l (Chronic)
- 0.013 mg/L (Acute)

Dilution factors are 97.9 for Acute and 100 for Chronic.