UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: VT0020711

PUBLIC NOTICE START AND END DATES: August 21, 2008 – September 19, 2008

NAME AND MAILING ADDRESS OF APPLICANT:

U.S. Department of the Interior
Fish and Wildlife Service
White River National Fish Hatchery
RR#2, Box 140
Bethel, VT 05032

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

White River National Fish Hatchery
RR#2, Route 107
Bethel, VT 05032

RECEIVING WATER: White River, Tributary to the Connecticut River

RECEIVING WATER CLASSIFICATION: Vermont Class B (Cold Water)

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ATTACHMENTS

Attachment A. Facility Location and Aerial Photograph of White River NFH

1. Proposed Action

On March 28, 2007, the above named applicant applied to the U. S. Environmental Protection Agency (EPA) for issuance of a National Pollutant Discharge Elimination System Permit to discharge fish culture water into the designated receiving water. Discharges from this facility are authorized by a wastewater discharge permit issued under authority of the State of Vermont. In response to the application, EPA is proposing to issue the permit which is discussed below.

2. Type of Facility

The facility is a fish hatchery, engaged in raising Atlantic salmon fry and smolt in indoor circular tanks, outdoor circular tanks, and raceways. The large indoor hatch house is used for hatching fish eggs. The 56 circular outdoor tanks and 12 outdoor raceways are used for rearing fish and egg production. The water sources are wells and the White River. Annual production is approximately 109,000 pounds of fish, comprised of 28,000 pounds of Atlantic salmon broodstock, 2,000 pounds of Atlantic salmon fry, 39,000 pounds of landlocked Atlantic salmon smolts, and 40,000 pounds of lake trout.

3. Discharge Location and Description

The fish culture wastewater, which contains metabolic wastes from the fish reared at the facility. During the application process with the State of Vermont Agency of Natural Resources, which also issues a discharge permit to this facility, the permittee requested an average monthly flow of 6.62 mgd (10.24 cfs) and a maximum daily flow of 7.05 mgd (10.91 cfs). All discharged wastewater from the facility enters a large settling basin approximately eight feet deep, with one aerator unit located in the center of the basin. The aerator is not routinely used unless the effluent limits of the State permit cannot be achieved. This basin then discharges to the White River, a tributary to the Connecticut River.

A map of the facility and discharge location is shown in **Figure 1**.

4. Receiving Water Description

The White River at the point of discharge is designated as a Class B, Cold Water Fish Habitat water body by the Vermont Water Quality Standards. Class B waters are to be managed to achieve and maintain the following designated uses: aquatic biota, wildlife, and aquatic habitat; aesthetics; public water supply; irrigation of crops and other agricultural uses; swimming and other primary contact recreation; and boating, fishing and other recreational uses.

Section 303(d) of the Federal Clean Water Act (CWA) requires states to identify those water-bodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such require the development of total maximum daily loads (TMDL). The White River in the vicinity of the discharge is

not listed on the Vermont 303(d) List.

5. Permit Basis: Statutory and Regulatory Authority

The Clean Water Act (CWA) 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 CWA. The NPDES permit is the mechanism used to implement effluent limitations and other requirements, including monitoring and reporting, in accordance with various statutory and regulatory requirements established pursuant to the CWA and applicable State statutes and regulations. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136.

When establishing NPDES permit requirements, EPA is required to consider, and include limitations in the permit, based on the most stringent of the following concepts: (a) technology-based requirements, (b) water quality-based requirements, (c) anti-backsliding from the limitations and requirements in the current/existing permit, and (d) antidegradation requirements.

Technology-based requirements represent the minimum level of control that must be imposed under Sections 402 and 301 (b) of the CWA and implementing regulations at 40 CFR 125, 133, and 405 through 471. For publicly-owned treatment works (POTWs), technology-based requirements are effluent limitations based on secondary treatment requirements of Section 301(b)(1)(B) of the CWA as defined in 40 CFR 133.102. In situations where promulgated technology-based requirements are not applicable, Section 402(a)(1)(B) of the CWA provides that such limits be based on EPA's judgment. Such limits are referred to as "best professional judgment" (BPJ) limits, and are referenced in 40 CFR 125.3.

Water quality-based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal or state water quality standards. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on federal or state water quality standards. The Vermont Water Quality Standards contain requirements for conventional and toxic pollutants in order to provide protection for designated uses in the receiving waters. The state will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained, or attained.

Anti-backsliding as defined in Section 402(o) of the CWA and implementing regulations at 40 CFR §122.44(l) require reissued permits to contain limitations as stringent or more stringent than those of the previous permit unless the circumstances allow application of one of the defined exceptions to this regulation.

In accordance with regulations found at 40 CFR Section 131.12, each state must adopt a statewide antidegradation policy to maintain and protect existing in-stream water quality. The Vermont Antidegradation Policy is found in Section 1-03 of the Vermont Water

Quality Standards. No lowering of water quality is allowed, except in accordance with the antidegradation policy. This applies in situations where a lowering of water quality is being proposed, such as a new discharge or an increased discharge of pollutants at a facility with an existing permit.

6. Effluent Limitations and Monitoring Requirements in the Permit

There are promulgated standards for technology-based effluent limits at "concentrated aquatic animal production facilities" which produce 100,000 pounds or more of aquatic animals per year (40 CFR 451). This facility's annual production is 109,000 pounds per year, which requires application of those standards. The terms and conditions of this permit are consistent with 40 CFR 451, which requires reporting on usage of fish-treatment drugs and damages to the fish containment system, along with development and implementation of a "best management practices (BMP) plan" for solids control, materials storage, structural maintenance, recordkeeping, and training. Effluent limits are based on EPA's best professional judgment (BPJ) of appropriate technology, state water quality standards, and anti-backsliding from the previous permit.

The biocide formalin, which contains approximately 37% of the toxic chemical formaldehyde, is often used at fish hatcheries to control certain fish diseases and parasites. The permit has been structured to require that certain effluent limits and monitoring requirements are applicable only when formalin is being used.

Sampling for BOD_5, TSS, Ammonia, Total Nitrogen, and Total Phosphorus is required when cleaning operations are being carried out in order to measure the "worst case" discharge of these pollutants, as well as during normal operations.

The Vermont Water Quality Standards are required to be met in the receiving waters. Those standards allow the use of dilution by the receiving waters for certain types of effluent parameters, using the seven-day, once in ten year, drought flow (7Q10). The 7Q10 of the White River at the point of discharge is 30.5 cfs.

The rationale for the permit requirements is as follows:

Flow – The draft permit proposes a monthly average flow limit of 6.6 mgd and a daily maximum limit of 7.05 mgd. These flow limits are consistent with the flow limitations in the permit (#3-1142) for this facility issued by the State of Vermont Department of Environmental Conservation.

BOD_5 and TSS -- The concentration limits of 10 mg/l, measured as daily maximum values, are technology-based, using EPA's BPJ of what can be achieved by well operated fish hatcheries during worst-case situations when cleaning operations are being carried out. The loading limits of 588 lbs/day, also daily maximum values, were calculated using the concentration limits and the maximum daily flow value (7.05 mgd) .

Maximum Daily BOD_5 and TSS = 7.05 mgd x 10 mg/l x 8.3379 (conversion factor)

Maximum Daily BOD_5 and TSS = 588 lbs/day

Quarterly monitoring is required both during cleaning operations and during normal operations to allow comparison of the effect cleaning has on the effluent quality. Since the monitoring frequency is quarterly and daily maximum limits are imposed, average monthly and average weekly limits are not needed.

Total Ammonia -- High concentrations of ammonia can be toxic to aquatic life and could potentially violate the state water quality standards. The concentrations of ammonia measured previously in this discharge have generally been low (maximum concentration of 0.06 mg/l). However, because ammonia is contained in the metabolic wastes of fish, a daily maximum limit and quarterly monitoring requirements are proposed. The monthly average limit of 5.0 mg/l is consistent with the water quality based ammonia limit included in the facility's final permit (#3-1142) issued by the State of Vermont. Similar to the monitoring requirements for BOD and TSS, monitoring during cleaning operations and normal operations are both required.

Calculation of the ammonia limitation:

Chronic Ammonia Water Quality Criterion = 1.32 mg/l (pH = 8, Temp.= 24°C)
7Q10 Flow (Q_{7Q10}) = 30.5 cfs
Effluent Flow ($Q_{discharge}$) = 10.9 cfs
Dilution Factor = ($Q_{7Q10} + Q_{discharge}$)/ $Q_{discharge}$
= (30.5 cfs + 10.9 cfs)/10.9 cfs
= 3.8
Ammonia Limit = Water Quality Criteria x Dilution Factor
Ammonia Limit = 1.32 mg/l x 3.8
Ammonia Limit = 5.0 mg/l

Total Nitrogen and Total Phosphorus -- Quarterly reporting (no limit) is required in order to obtain information as to the amount of these nutrients being added to the watershed. Monitoring during cleaning operations and normal operations are both required. This information, when combined with nutrient information from other sources, will help determine total nutrient loadings to the watershed, and possible corrective measures where nutrient enrichment is a problem under the state water quality standards. If such corrective measures are needed, a permit modification would be required.

Specifically for Total Nitrogen, water quality modeling has demonstrated that excessive nitrogen loadings are causing significant water quality problems in Long Island Sound (LIS), including dissolved oxygen. EPA agrees there is a need to determine the loadings of nitrogen from all sources which are tributary to the greater LIS watershed, and to help determine what limits, if any should be imposed on these discharges. In its approval of the LIS TMDL, EPA has agreed to implement the results of the TMDL (currently being reassessed). As part of this effort, establishing an accurate baseline for loads delivered to

the Sound is necessary. Therefore, based on Section 308 of the Clean Water Act, the quarterly requirement for total nitrogen testing is included in the draft permit.

pH -- The limits, within the range of 6.5 through 8.5 standard units, are based on the Vermont Water Quality Standards.

Dissolved Oxygen (DO) – The draft permit proposes a DO limit of not less than 7.0 mg/l which is consistent with Vermont's adopted DO criterion of 7.0 mg/l for streams that are designated as cold water fish habitats. The limit is included in the draft permit because the use of formalin can potentially deplete the oxygen content of water. Therefore, the draft permit proposes that DO monitoring for dissolved oxygen (DO) shall be conducted only during the use of formalin.

Formaldehyde, Acute Toxicity, and Chronic Toxicity -- These parameters are included to provide assurance that there is no unacceptable toxicity in the discharge during periods when formalin, a toxic chemical used to protect the hatchery fish from diseases, is being used. Toxicity is regulated under the Vermont Water Quality Standards. Based on the relatively small dilution available in the receiving water, the draft permit proposes an acute limit LC_{50} of 100% and a chronic toxicity limit C-NOEC of 25%. The chronic limit is based on the calculated available dilution for the facility using the monthly average flow as follows:

$$\text{C-NOEC} = (Q_{discharge}/(Q_{7Q10} + Q_{discharge})) \times 100$$
$$\text{C-NOEC} = (10.2 \text{ cfs}/(30.5 \text{ cfs} + 10.2 \text{ cfs}) \times 100$$
$$\text{C-NOEC} = 25\%$$

The formaldehyde limit of 0.74 mg/l is proposed for preventing toxicity in receiving waters. EPA has reviewed available aquatic life toxicity information pertaining to formaldehyde and determined that a concentration of 0.74 mg/l would protect receiving waters from toxicity.

Total Residual Chlorine – The draft permit proposes a daily maximum total residual chlorine limit of 0.04 mg/l. The chlorine limit is needed to avoid toxicity in the receiving waters which would cause excursions of the state water quality standards. Residuals from chlorination can be extremely toxic to aquatic biota if discharged into surface waters at high levels. The limit is consistent with the water quality based total residual chlorine limit included in the facility's final permit (#3-1142) issued by the State of Vermont. The limit is calculated based on available dilution.

Calculation of the total residual chlorine limitation:

Chronic Chlorine Water Quality Criterion = 0.011 mg/l
7Q10 Flow (Q_{7Q10}) = 30.5 cfs
Effluent Flow ($Q_{discharge}$) = 10.9 cfs
Dilution Factor = $(Q_{7Q10} + Q_{discharge})/ Q_{discharge}$
= (30.5 cfs + 10.9 cfs)/10.9 cfs

= 3.8
Chlorine Limit = Water Quality Criteria x Dilution Factor
Chlorine Limit = 0.011 mg/l x 3.8
Chlorine Limit = 0.04 mg/l

Other Permit Requirements -- In addition to these specific effluent limitations, the draft permit contains general limitations to comply with state water quality standards on such things as color, oil sheen, foam, floating or settleable solids, and non-specific toxic chemicals.

"Medications and disease control chemicals," other than those already limited and monitored for, are covered by a condition in the permit. This condition contains requirements to prevent improper usage and possible discharge of such substances, which may have toxic properties which could violate state water quality standards.

The draft permit also contains a condition containing detailed requirements for preparing, submitting to EPA, and carrying out "Best Management Practices" to prevent pollution from the fish hatchery. This is a key component of the permit to insure compliance with both technology and water quality requirements.

7. Essential Fish Habitat

Under the 1996 Amendments to the Magnuson-Stevens Fishery Conservation and Management Act, EPA is required to consult with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) if EPA proposes a permit action that may adversely impact any essential fish habitat (EFH). The Amendments broadly define EFH as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". "Adversely impact" means any impact which reduces the quality and/or quantity of EFH.

EFH is only designated for species for which federal Fisheries Management Plans exist. A NOAA Fisheries website (See http://www.nero.noaa.gov/hcd/webintro.html) contains maps of designated EFH. In some cases, a narrative identifies rivers and other waterways that should be considered EFH due to present or historic use by federally managed species such as Atlantic salmon.

The discharge is to a tributary to the Connecticut River, and therefore is designated by NOAA Fisheries as EFH for Atlantic salmon. Atlantic salmon migrate up the Connecticut River and its tributaries to spawn.

EPA has concluded that the limits and conditions contained in this draft permit minimize adverse effects to EFH for the following reasons:

The permit contains requirements to protect the receiving waters from toxic chemicals or medications which might be used in the hatcheries to treat for fish diseases. Whole effluent toxicity testing and water quality based effluent

limitations to avoid toxicity are required if and when formalin is used in the hatchery.

The permit requires development and implementation of best management practices to address issues which are difficult to express as effluent limits, including non-native species, proper operations, and proper use of medications. These factors are designed to be protective of aquatic life, including those with EFH designations.

The permit will prohibit violations of the state water quality standards.

EPA believes that the draft permit limits and requirements adequately protect EFH for the managed species, and therefore additional mitigation is not warranted. If adverse impacts to EFH are detected as a result of this permit action, or if new information is received that changes the basis for our conclusion, NMFS will be notified and an EFH consultation will be reinitiated.

8. Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species, where as the National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine species and anadromous fish.

As the federal agency charged with authorizing the discharge from this facility, EPA has reviewed available habitat information developed by the Services to see if one or more of the federal endangered or threatened species of fish, wildlife, or plants may be present within the influence of the discharge EPA has concluded that no federally-listed or proposed, threatened or endangered species or critical habitat, under the jurisdiction of the USFWS or NMFS, are known to occur in the in the receiving waters identified in this permit. EPA is seeking concurrence with this opinion from the Services. A copy of the Draft Permit and Fact Sheet has been provided to both USFWS and NMFS for review and comment.

9. State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters 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. The staff of the Vermont Department of Environmental Conservation has reviewed the draft permit. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

10. 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 Mark Voorhees, U.S. EPA, Office of Ecosystem Protection**,** 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023. 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 meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA 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 any public hearings, if such hearings are held, the EPA 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 petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19.

11. EPA Contact

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

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Stephen S. Perkins, Director Date: _____
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