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: MA0110035

PUBLIC NOTICE START AND END DATES: July 25, 2007 – August 23, 2007

NAME AND MAILING ADDRESS OF APPLICANT:

Dr. Kenneth R. Simmons, Chief of Hatcheries
Division of Fisheries and Wildlife
Commonwealth of Massachusetts
One Rabbit Hill Road
Westborough, MA 01581

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Sunderland State Fish Hatchery
Route 116
Sunderland, MA 01375

RECEIVING WATER: Russellville Brook (Connecticut River Basin, MA-34)

RECEIVING WATER CLASSIFICATION: Massachusetts Class B (Warm Water)

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ATTACHMENTS

1. Proposed Action

The above named applicant has applied to the U. S. Environmental Protection Agency (EPA) for re-issuance of a National Pollutant Discharge Elimination System Permit to discharge fish culture water into the designated receiving water. The previous permit was issued on December 20, 2001 and expired on December 19, 2005. EPA received the application for permit re-issuance on June 15, 2005. Since the application for permit re-issuance was considered timely and complete by EPA, the previous permit has been administratively continued until EPA takes action on the re-issuance.

2. Type of Facility

The facility is a fish hatchery, producing brook trout, brown trout and rainbow trout. The water source is from springs and gravel packed wells. There are six ponds and eight raceways in which the fish are raised at the facility. Annual production is approximately 85,000 pounds of fish, comprised of 40,000 pounds of rainbow trout, 10,000 pounds of brook trout, and 35,000 pounds of brown trout.

3. Discharge Location and Description

The fish culture wastewater, which contains metabolic waste products from the fish, averages 1.17 mgd, with a maximum daily flow of 1.68 mgd. About 75% of the water is from uncontrolled flowing springs, and the remainder is from wells. Floating feed is used which does not carry over into the discharge. Most of the solid wastes from the fish are settled and captured in the raceways and ponds, and periodically removed by a vacuum pump. The solids are disposed of on land at the facility. At the end of the series of raceways and ponds, there is a settling pond to capture solids which escape the ponds and raceways. The final discharge is to Russellville Brook, a tributary to the Connecticut River.

The effluent quality reported on Discharge Monitoring Report (DMR) forms is summarized in **Attachment A**. A map of the facility and discharge location is shown in **Figure 1**.

4. Receiving Water Description

Russellville Brook is designated as a Class B warm water body by the Massachusetts Surface Water Quality Standards (314 CMR 4.06). Class B waters are designated as a habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. Where designated they shall be suitable as a source of public water supply with appropriate treatment. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value. [314 CMR 4.05(3)(b)]

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 (TMDLs). Russellville Brook is not included in the most recently EPA approved Massachusetts list of waters requiring the development of TMDLs (i.e., 303(d) list or Category 5 of the Massachusetts Year 2004 Integrated List of Waters) or on the Proposed 2006 CWA 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 Massachusetts Surface Water Quality Standards (314 CMR 4.00) contain requirements for conventional and toxic pollutants in order to provide protection for designated uses in the receiving waters. Included in these Standards are provisions that EPA criteria for toxic pollutants, established pursuant to Section 304 (a) of the CWA, shall be used unless site-specific criteria are established. 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 Massachusetts Antidegradation Policy is found at Title 314 CMR 4.04. 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 76,000 pounds per year, which falls below the production rate which requires application of those standards. However, 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. Although it is not planned for use at this facility, the permittee has requested that the permit be structured to allow the use of formalin for fish disease control in emergency situations. This has been done, with certain effluent limits applicable only if formalin is being used.

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

The state 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). However, because the receiving water, Russellville Brook, is so small, its 7Q10 is essentially zero. Thus, during drought periods, essentially all of the flow downstream from the Hatchery is from the natural spring water and well water used to raise fish. Thus, there is no dilution of the discharge water, and no dilution has been used in calculating the limits.

The rationale for the permit requirements is as follows:

Flow -- Discharge flows at this facility vary naturally due to the springs which supply fish culture water. Limitations on flow in the current permit were frequently exceeded due to this natural variability. Therefore, the draft permit requires reporting of the discharge flows, but does not include a limitation. This does not affect the pollutant discharge limitations.

BOD_5 and TSS -- -- The proposed maximum daily concentration limits of 10 mg/l in the draft permit 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. These limits are carried forward from the current permit. The maximum daily mass loading limits of 97 lbs/day were calculated using the concentration limits and the monthly average flow value (1.17 mgd) from the current permit.

Maximum Daily BOD_5 and TSS = 1.17 mgd x 10 mg/l x 8.3379 (conversion factor)
Maximum Daily BOD_5 and TSS = 97 lbs/day

The monitoring will take place directly following cleaning operations and is intended to represent conditions when maximum pollutant loading from the facility will most likely occur. Therefore, only maximum daily limits are proposed in the draft permit limits for BOD_5 and TSS.

The facility has performed well at complying with the maximum daily BOD_5 and TSS limits even when influent flows to the facility have exceeded 1.68 mgd (maximum daily flow in current permit). As indicated in Attachment A, the reported maximum daily BOD_5 loadings for the period from March 2003 to June 2006 ranged from 16 to 67 lbs/day with an average of 34 lbs/day. The facility was in compliance with the TSS limits during this period with one exception in December 2005 when the concentration limits and maximum daily loading limits were exceeded. The average of the reported maximum daily TSS loadings for the March 2003 to June 2006 period was 59 lbs/day. Also, the reporting loading values represent worst-case loading conditions from the facility as the monitoring is conducted directly following cleaning operations when conditions for maximum pollutant release occur at the facility.

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. 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, including dissolved oxygen. The State of Connecticut has begun to impose nitrogen

limitations on Connecticut discharges to Long Island Sound and its tributaries. EPA agrees there is a need to determine the loadings of nitrogen from sources in Massachusetts which are tributary to Long Island Sound, and to help determine what limits, if any should be imposed on discharges in Massachusetts. 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 8.3 std units, are based on the state water quality standards. Consistent with the standards, provision is made for pH values outside of the 6.5 to 8.3 range if due to natural causes.

Dissolved Oxygen (DO) -- The draft permit includes a limit for DO based on state water quality standards. A minimum concentration of DO is needed for fish and other aquatic life. The Sunderland Hatchery discharges to Class B waters, warm water fishery, as classified by the Massachusetts Surface Water Quality Standards, and as such it shall have DO levels not less than 5.0 mg/l. The monitoring for dissolved oxygen (DO) shall be conducted during the use of formalin because when present formalin may deplete oxygen in water.

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 state water quality standards. Since there is zero dilution, the two whole effluent toxicity limits are 100%.

The proposed formaldehyde limit is carried forward from the current permit and is based on attaining Massachusetts water quality standards for preventing toxicity in receiving waters. As discussed in more detail in the Fact Sheet for the current permit, MassDEP 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. Similar to the toxicity limits, the formaldehyde limit was calculated using zero (0.0) for available dilution flow (i.e., 7Q10 flow = 0.0 cfs).

Formaldehyde Limitation:

(Target concentration* dilution factor) = (Maximum Daily)
(0.74 mg/l * 1) = 0.74 mg/l

Other Permit Requirements -- In addition to these specific effluent limitations, the 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. Also, other general monitoring conditions are contained in the narrative requirements.

The permit contains a provision which forbids the use of sodium hypochlorite or other chlorination chemicals, which are sometimes used in fish hatcheries to control diseases. Residuals from chlorination can be extremely toxic to aquatic biota if discharged into surface waters. This requirement is used in lieu of monitoring for these chemicals which the permittee did not apply to use or discharge. This is based on the state water quality standards.

Medications and disease control chemicals, other than those already limited and monitored for, are covered by a provision in the permit. This provision 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 permit contains a provision 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, which migrate up the 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:

> This is a re-issuance of an existing permit. The Sunderland Facility, by its very nature as a fish hatchery, discharges fish rearing water which supports fish and fish habitat.
>
> 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. As in the previous permit, 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 Massachusetts Department of Environmental Protection (MassDEP) 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 and State Contacts

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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Worcester, MA 01608
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Date: _____

Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

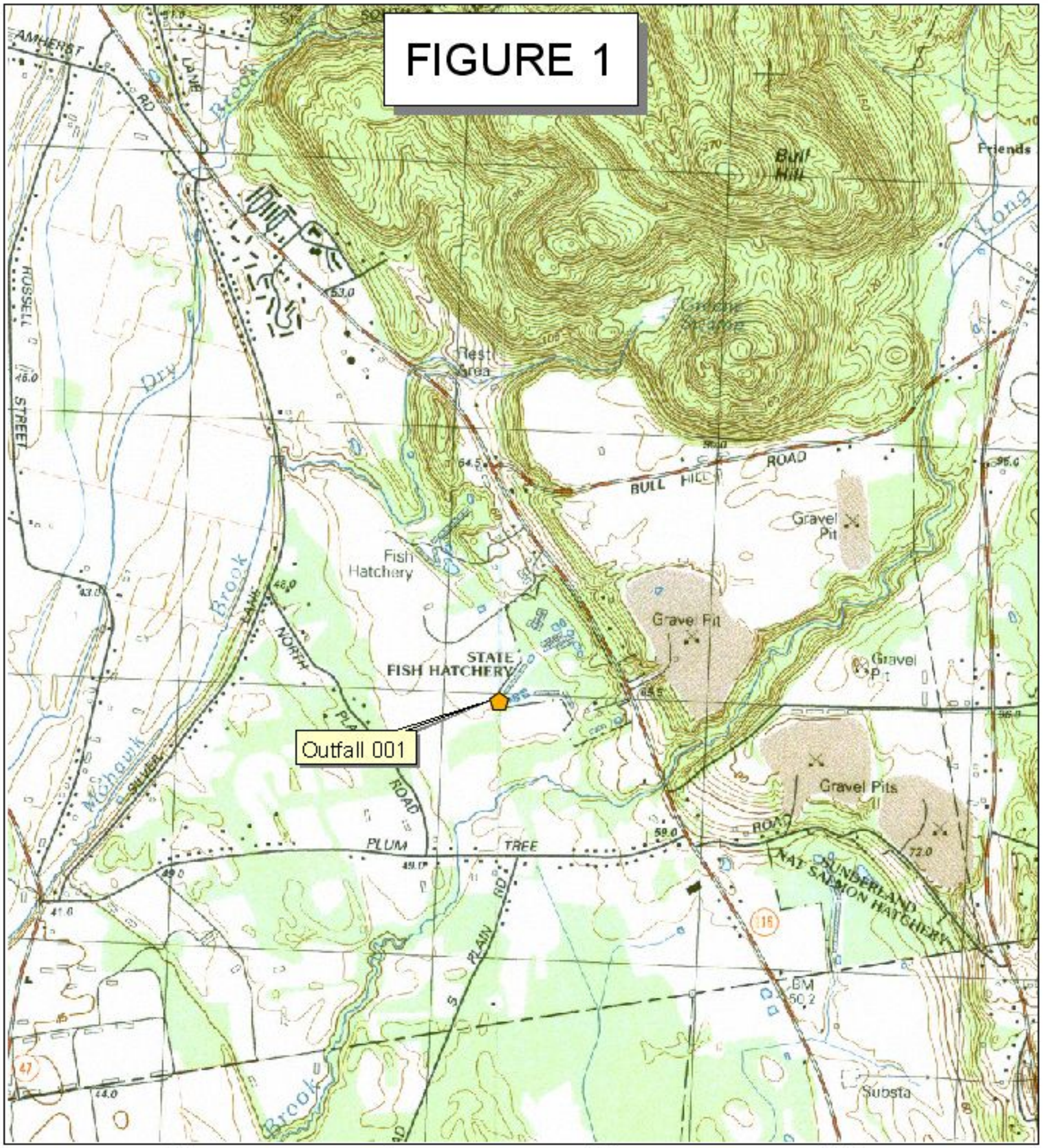
SUNDERLAND STATE FISH HATCHERY
NPDES Permit MA0110035
DMR Summary

Pipe 1: Process Wastewater

Date	# Meas./Month	BOD, 5-DAY (20 DEG. C) Min	BOD, 5-DAY (20 DEG. C) Max	SOLIDS, TOTAL SUSPENDED Min	SOLIDS, TOTAL SUSPENDED Max	PHOSPHORUS, TOTAL (AS P) Max	pH Min	pH Max	FLOW Average	FLOW Max
31-Mar-06		2.41	2.43	2.6	2.8	0.17	7.02	7.18	2.44	2.53
28-Feb-06							7.01	7.08	2.51	2.58
31-Jan-06							6.91	7.04	2.52	3.09
31-Dec-05		2.13	2.17	16.8	17.2	0.14	6.91	7.00	2.54	2.64
30-Nov-05							6.9	7.01	2.52	2.8
31-Oct-05							6.93	6.98	2.13	2.97
30-Sep-05		2.26	2.33	2.6	2.8	0.16	6.89	7.01	1.42	1.69
31-Aug-05							6.96	7.11	1.62	1.94
31-Jul-05							7.01	7.28	1.58	1.73
30-Jun-05		2.07	2.12	3	3.2	0.14	6.98	7.18	1.75	2.18
31-May-05							7.12	7.18	2.18	2.53
30-Apr-05							6.83	7.27	2.14	2.53
31-Mar-05		2.78	2.84	2	2	0.19	7.01	7.28	1.99	2.38
28-Feb-05							6.97	7.18	2.11	2.43
31-Jan-05							6.91	7.07	1.76	2.04
31-Dec-04		2.09	2.11	3	3.2	0.24	6.9	7.1	1.36	1.8
30-Nov-04							6.96	7.07	1.25	1.37
31-Oct-04							6.94	7.12	1.5	1.8
30-Sep-04		2.28	2.41	2.8	3.2	0.2	7.04	7.14	1.63	1.84
31-Aug-04							6.97	7.34	1.54	1.88
31-Jul-04							6.96	7.41	1.1	1.6
30-Jun-04		2.05	2.07	1.4	1.6	0.12	7.25	7.42	0.95	1.04
31-May-04							7.05	7.23	1.81	1.98
30-Apr-04							7.03	7.29	1.85	2.04
31-Mar-04		2.17	2.2	2.2	2.4	0.21	6.66	7.2	1.79	1.86
29-Feb-04							6.98	7.1	1.6	1.77
31-Jan-04							6.91	7.13	1.61	1.64

31-Dec-03		2.28	2.49	1.4	1.6	0.29	6.57	7.06	1.62	1.68
30-Nov-03							6.77	7.03	1.61	1.68
31-Oct-03							6.62	6.96	1.63	2.52
30-Sep-03		2.29	2.52	2.2	2.4	0.31	6.56	6.64	1.64	1.86
31-Aug-03							6.62	6.82	1.68	1.77
31-Jul-03							6.55	6.65	1.8	1.86
30-Jun-03		2.14	21.8	2.2	2.4	0.63	6.65	6.77	1.75	1.94
31-May-03							6.58	6.65	1.82	2.03
30-Apr-03							6.55	6.93	1.85	2.03
31-Mar-03		2.63	2.79	4.2	4.8	0.59	6.55	6.65	1.24	1.68
28-Feb-03							6.58	6.71	0.99	1.3
31-Jan-03							6.56	6.82	0.96	1.13
Min		2.05	-	1.4	-	-	6.55	-	-	-
Average		-	-	-	-	-	-	-	1.74	-
Max		-	21.8	-	17.2	0.63	-	7.42	-	3.09

FIGURE 1



Sunderland State Fish Hatchery
Sunderland, MA
MA0110043

Data from Mass GIS & MA DEP.
All Data Subject to Revision

For Intra-Agency Policy Deliberations

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4/11/07, Massachusetts DEP