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FACT SHEET AND SUPPLEMENTAL INFORMATION

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT TO DISCHARGE NONCONTACT COOLING WATER (NCCW) TO CERTAIN WATERS OF THE COMMONWEALTH OF MASSACHUSETTS AND THE STATE OF NEW HAMPSHIRE

NPDES GENERAL PERMITS: MAG250000 AND NHG250000

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1. Introduction

The Director of the Office of Ecosystem Protection, EPA-New England, is issuing notice of availability of the draft NPDES general permit for facilities that discharge noncontact cooling water (NCCW) to certain waters of the Commonwealth of Massachusetts and the State of New Hampshire. This permit will replace the NCCW General Permit that expired on April 25, 2005 (the "expired" General Permit). Currently, there are approximately 76 facilities covered by the expired General Permit. This draft General Permit includes limits and monitoring requirements for flow, temperature, pH, and other parameters summarized below.

This fact sheet contains a summary of the:

- Differences between the proposed draft General Permit and the expired General Permit;
- Types of discharges that may be covered;
- Proposed effluent limits;
- Proposed requirements for cooling water intake structures;
- Monitoring requirements;

- Instructions for providing public comments or requesting a public hearing; and
- Legal information supporting this General Permit.

2. How is the proposed General Permit different from the expired NCCW General Permit?

EPA is proposing the following changes to the expired NCCW General Permit:

- No coverage for facilities discharging in the State of Maine. Since the expired permit was issued, EPA delegated the National Pollutant Discharge Elimination System (NPDES) program to the State of Maine. Facilities in Maine covered by the expired permit must seek coverage under a permit issued by the State of Maine;
- Specific requirements for the design and operation of cooling water intake structures in order to satisfy Best Technology Available (BTA) under Section 316(b) of the Clean Water Act (CWA);
- The addition of total residual chlorine effluent limits if the facility uses potable water for cooling;
- A modification to the monitoring requirements for facilities in Massachusetts where the minimum dilution is expected to exceed 50. Such facilities are not required to monitor the water body temperature;
- For facilities located in Massachusetts that discharge NCCW on an intermittent basis (discharges that occur sometimes but not regularly), a modification to the reporting requirements for these facilities to maintain coverage under this permit. Such facilities are not required to submit quarterly discharge monitoring reports for periods in which the facility does not discharge but are required to submit an annual "no discharge" report. See General Permit, Sections 6.2.b and 9.4.1.d.4;
- No coverage under the General Permit for facilities located in Massachusetts that discharge greater than 1 MGD;
- If groundwater is used as the source of NCCW, the permit requires that the results of certain sample analysis of the effluent and receiving water be submitted with the applicant's NOI; and,
- Discharge from close loop geothermal heat pumps may be eligible for coverage under this General Permit.

3. What discharges are allowed by this General Permit?

Facilities located in Massachusetts and New Hampshire that are covered by this General Permit will be allowed to discharge up to 1 million gallons per day of NCCW. On a case-by-case basis, for facilities located in New Hampshire, larger volume discharges may be covered by this permit if the State of New Hampshire allows coverage and both EPA and the State approve the discharge. Effluent flow for each facility covered by the permit is limited to the flow reported on the Notice of Intent (NOI).

Noncontact cooling water is water that is used to reduce temperature and that does not come into direct contact with any raw material, intermediate product, waste product

(other than heat), or finished product. This permit allows the NCCW to be commingled with other waste streams as long as the NCCW can be monitored separately for compliance.

The discharge of surface water or groundwater that is used as source water in open loop or closed loop geothermal heat pumps (sometimes described as ground source heat pumps) is allowed under the NCCW General Permit if the source water does not contain or come in direct contact with any pollutants other than heat and if all other requirements of the General Permit are met. If groundwater is the source of the cooling water, in whole or in part, the NOI sample analysis requirements described in Section 5.4 of the General Permit apply.

4. Who is excluded from coverage under this permit?

The draft General Permit excludes specific discharges from coverage under the permit including:

- Facilities whose discharge(s) could cause or contribute to adverse water quality impacts;
- Facilities that add chemicals to their discharge other than non-toxic chemicals used to adjust pH or for dechlorination;
- Facilities whose discharge(s) may adversely affect threatened or endangered species or its critical habitat;
- Any new or increased discharge to any outstanding national resource water or the territorial seas or ocean sanctuaries or designated Wild and Scenic Rivers;
- Any new or increased discharge to other waters unless the discharge is shown to be consistent with the state's anti-degradation policies or the New Hampshire Water Conservation Rules (Env-Ws 390, or as amended);
- Discharges to Class A waters in New Hampshire;
- Discharges to Areas of Critical Environmental Concern in Massachusetts unless both EPA New England and MassDEP review and approve the discharge.
- Facilities that require an individual permit based on the Director's consideration of the following factors (See also Question 5 below):

    - Variability of the pollutants or pollutant parameters in the effluent (based on chemical-specific information and the type of treatment facility);
    - Receiving stream characteristics, including possible or known water quality impairment;
    - The discharge from the facility, when combined with other dischargers in the watershed, may represent a cumulative adverse environmental impact to the receiving water;
    - Recommendation from the state;
    - Other consideration (including but not limited to consultation with the state, a history of toxic impact or compliance problems at the facility) which the Director determines could cause or contribute to adverse water quality impacts;

- Stream flows are not maintained at levels to protect existing and designated uses as established in the state's water quality standards;
- Metal concentrations in the effluent (from a facility that uses groundwater as the source of NCCW) cause or contribute to adverse water quality impacts after consideration of the dilution available and other factors; or
- Facilities that are designated as "new sources" as explained below.

This General Permit will not be available to "New Source" dischargers as defined in 40 CFR Section 122.2 due to the site specific nature of the environmental review required by the National Environmental Policy Act of 1969 (NEPA), 33 U.S.C. 4321 et seq. for those facilities. "New Sources" must comply with New Source Performance Standards (NSPS) and are subject to the NEPA process in 40 CFR Section 6.600. Consequently EPA has determined that it would be more appropriate to address "New Sources" through the individual permit process.

This General Permit will not be available to new facilities (including new offshore oil and gas extraction facilities), as defined in 40 CFR Section 125.83, that have a design intake flow greater than two (2) million gallons per day and at least one cooling water intake structure that uses at least 25 percent of the water it withdraws for cooling purposes. This is because these new facilities have cooling water intakes structures (CWIS) that are regulated under the Phase I and/or Phase III regulations for CWIS. (See 40 C.F.R. Section 125, Subpart I.) This is further explained below. Consequently, for such a facility that is otherwise eligible for coverage under this General Permit, EPA has determined that it would be more appropriate to authorize discharges and select the best technology available for the CWIS with an individual permit.

5. When may dischargers be covered by an individual permit?

Any owner or operator of a facility covered by this General Permit may request to be excluded from coverage under the General Permit by applying for an individual permit. This request may be made by submitting a NPDES permit application along with the reasons for requesting coverage under an individual permit to EPA-New England and the appropriate state agency.

The Director may require any person authorized by a general permit to apply for and obtain an individual permit. Any interested person may petition the Director to take this action. The Director may consider the issuance of individual permits when:

- The discharger is not in compliance with the terms and conditions of the General Permit;
- A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source;
- Effluent limitations guidelines are subsequently promulgated for the point sources covered by the general NPDES permit;
- A Water Quality Management Plan or Total Maximum Daily Load (TMDL) containing requirements applicable to such point sources is approved;

- Circumstances have changed since the time of the request to be covered so that the discharge is no longer appropriately controlled under the General Permit, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary; or,
- The discharge(s) is a significant contributor of pollution.

5a. When may the MassDEP allow a facility coverage under the General Permit in lieu of requiring coverage under an individual permit?

As provided in 314 CMR 3.06(8), in lieu of requiring a discharger covered under a general permit to obtain an individual permit, MassDEP may direct such discharger to undertake additional control measures, best management practices (BMPs), or other actions to ensure compliance with the general permit, water quality standards, and/or to protect public health and the environment. MassDEP may exercise its authority to require the discharger to take these actions by imposing a condition in the general permit to that effect, or by taking an enforcement action against the discharger, or by any other means.

6. What is the legal basis for this General Permit?

Section 301(a) of the Clean Water Act (the Act) provides that the discharge of pollutants is unlawful except in accordance with a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the Act. Although such permits are often issued to individual discharges, EPA's regulations authorize the issuance of "general permits" to categories of discharges (see 40 CFR Section 122.28). Violations of a condition of a general permit constitute a violation of the Clean Water Act and subject the discharger to the penalties in Section 309 of the Act.

The Director of an NPDES permit program is authorized to issue a general permit if there are a number of point sources operating in a geographic area that:

- Involve the same or substantially similar types of operations;
- Discharge the same types of wastes;
- Require the same effluent limitations or operating conditions;
- Require the same or similar monitoring requirements; and
- In the opinion of the Director, are more appropriately controlled under a general permit than under individual permits.

Since NCCW does not come into contact with any products, EPA believes that discharges from various sources are similar in composition (i.e., they contain only thermal pollution) and they require similar controls. Therefore, EPA believes that sources that discharge only NCCW warrant coverage under a general permit

7. What are the effluent limits in this permit and what are they based on?

EPA is primarily concerned with the impacts of temperature (heat) and pH on the receiving water due to the discharge of NCCW from facilities covered by this permit. However, total residual chlorine (TRC) is also a concern. Although facilities that add water treatment chemicals (other than non-toxic chemicals for pH adjustment and/or dechlorination) to the NCCW are not eligible for coverage, many facilities use potable water, to which chlorine has been previously added, for cooling. Therefore, this permit contains limits for TRC for such facilities, in addition to limits on temperature and pH. Note that if after submitting its NOI, a facility uses potable water as an alternate source of NCCW, the facility must contact EPA and the State Agency prior to using this alternate source to obtain a TRC effluent limit and related reporting requirements. See Sections 1.2.5 and 2.1.1 of the General Permit

pH

The effluent limits for pH in the proposed permit are unchanged from the expired permit. The limits were established to be consistent with water quality standards in New Hampshire and Massachusetts. MassDEP, with EPA concurrence, may expand the pH range to the federal standard 6.0-9.0 s.u., on a case-by-case basis when conditions warrant it. Non-toxic chemicals may be used for pH neutralization and/or dechlorination.

Temperature

The effluent limits for temperature remain unchanged in the proposed permit. The temperature limits were established to be consistent with water-quality standards in New Hampshire and Massachusetts.

EPA has not developed National Effluent Guidelines solely for NCCW. In the absence of published effluent guidelines, permit writers are authorized to develop technology-based limits using best professional judgment (BPJ) on a case-by-case basis. In the case of this General Permit, it is impracticable for EPA to develop technology-based limits for every discharge. However, EPA reserves the right to require facilities to apply for individual permits in the case where EPA believes technology-based limits are appropriate. It should be noted that facilities seeking alternative limits from the water-quality based limits (i.e., a Section 316(a) variance) in this permit may be required to apply for an individual permit. Therefore, EPA has established effluent limits that meet water quality standards for this General Permit.

EPA is proposing modification of the monitoring requirements for facilities located in Massachusetts. In the expired permit all dischargers must monitor the temperature of the water body into which they are discharging both upstream and downstream of the discharge. The proposed modification will eliminate this monitoring requirement in situations where the permittee can demonstrate, either through engineering calculations or an acceptable water quality model, that its discharge will not contribute to any water quality violations. A successful demonstration will allow permittees to eliminate ambient water temperature monitoring. Effluent temperature monitoring will still be required.

Total Residual Chlorine

The proposed permit has new discharge limitations for total residual chlorine. In the expired permit, permittees located in Massachusetts were required to monitor for total residual chlorine if they use potable water for cooling water. This permit will extend the monitoring requirement to permittees located in both Massachusetts and New Hampshire and will limit the allowable discharge concentration of total residual chlorine.

This change was made to ensure that discharges comply with water-quality standards for chlorine. Potable water sources typically are chlorinated to minimize or eliminate pathogens. 40 CFR Section 141.72 requires that a public water system's residual disinfection concentration cannot be less than 0.2 mg/l for more than 4 hours. The discharge of potable water from public water supplies has the potential to exceed water-quality standards for chlorine. Therefore, EPA is proposing limits on the concentrations of chlorine in discharges from facilities utilizing potable water supplies for cooling water. EPA does not believe that discharges from facilities using other water sources are likely to contain chlorine in concentrations sufficient to exceed water-quality standards.

Massachusetts and New Hampshire have narrative criteria in their water-quality regulations that prohibit toxic discharges in toxic amounts (Massachusetts 314 CMR 4.03(3)(a) and New Hampshire Part Env-Ws 1703.21(a)). This permit does not allow the discharge of any chemicals except for non-toxic chemicals used for pH neutralization and/or dechlorination. The use of additives to control biological growth, corrosion, and/or scale in cooling water is prohibited. Therefore, the effluent should not produce a toxic effect to any aquatic life. The proposed limits on chlorine will ensure that chlorine is not discharged in toxic amounts.

The State of New Hampshire's water-quality standards for chlorine, found at Chapter 1700, Surface Water Quality Regulations, Part Env-Ws 1703.21(b), is the same as the recommended federal water-quality criteria. The Commonwealth of Massachusetts' surface water-quality standards require the use of federal water-quality criteria where a specific pollutant could reasonably be expected to adversely effect existing or designated uses (314 CMR 4.05 (5)(e)). The Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters, dated February 23, 1990, states that waters shall be protected from unnecessary discharges of excess chlorine. The maximum effluent concentration of chlorine shall not exceed 1.0 mg/l TRC.

Based on these water-quality standards, EPA is proposing that the effluent limit for chlorine be based on the federal water-quality criteria, which are listed below.

- Freshwater acute – 19 ug/l (0.019 mg/l)
- Freshwater chronic – 11 ug/l (0.011 mg/l)
- Marine acute – 13 ug/l (0.013 mg/l)
- Marine chronic – 7.5 ug/l (0.0075 mg/l)

In this proposed draft permit, the maximum daily and average monthly concentration allowed in the effluent are based on the appropriate water-quality criterion and the

available dilution in the receiving water. The permittee's total residual chlorine limits will be based on the following equation:

Effluent Limit = (Dilution Factor) x (Water-Quality Criterion)

The dilution factor and applicable chlorine limits will be approved by EPA and the appropriate state agency during review of the facilities' notice of intent (NOI). The permittee will be provided with these limits when notified of permit coverage.

8. When is a toxicity test necessary and what are the requirements?

In some instances, upon review of a facility's NOI or its discharge monitoring data, EPA and/or the State may request that an applicant conduct chronic (and modified acute) toxicity test(s) of its NCCW discharge. The purpose of the test is to ensure that the discharge complies with the water quality standard and that all surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. These tests are usually required when the receiving water has a dilution ratio of 10:1 or less, or when other conditions warrant. The protocol for these tests can be found at http://www.epa.gov/region1/npdes/epa_attach.html#epa.

9. How do I determine the Dilution Factor for my facility?

The dilution factor is used to compute the effluent limits for total residual chlorine and also may be used to determine whether in-stream temperature monitoring is required. The available dilution at a specified critical flow condition in the receiving water and the treatment plant's design flow are used in computing the dilution factor.

For discharges to freshwater, the water quality standards for each state establish the lowest flow condition in the rivers and streams to meet the water-quality criteria as the 7Q10 low flow. This flow condition is found at 314 CMR 4.03(3)(a) in the Massachusetts Standards and at Part Env-Ws 1705.02 in the New Hampshire regulations. Because 10 percent of the river's assimilative capacity is held for future needs in New Hampshire, in accordance with Env-Ws 1705.01, the dilution factor is multiplied by 0.9 prior to use in permit limit calculations.

For marine waters in Massachusetts, the critical hydrologic condition at which water-quality must be met is established on a case-by case basis. Existing uses are to be protected and the selected hydrologic condition is not to interfere with the attainment of designated uses (314 CMR 4.03(3)(c)). For discharges to tidal waters in New Hampshire, the low flow condition shall be equivalent to the conditions that result in a dilution that is exceeded 99 percent of the time (see Part Env-Ws 1705.02). Dilution factors are calculated by mixing zone modeling in accordance with the NHDES Mixing Zone Policy.

The equations used to calculate the dilution factor are provided in Attachment B of the General Permit. For the convenience of Massachusetts facilities that were granted coverage under the expired NCCW, the 7Q10 estimates for those permits are posted at

www.epa.gov.to be developed before final issuance and can be used by those applicants when re-applying for coverage under this General Permit. EPA and the State will confirm/approve/disapprove the limits submitted in the applicant's NOI in the letter of notification of coverage mailed to the applicant.

Please note that the State permitting authority must be contacted, via email at the addresses listed in Appendix 4.3, to confirm the annual 7Q10 low flow, design flow, and dilution factor for the facility prior to completing the NOI requirements for the permit. Prior to contacting the state permitting authority, new applicants may wish to view the 7Q10 data posted at the USGS StreamStats website at http://water.usgs.gov/osw/streamstats/index.html.

10. Part 5.4 of the General Permit requires that if groundwater is used as source water for NCCW that the effluent must be tested for certain total recoverable metals and inorganic anions and that the results must be submitted with the NOI. Why is this required?

Many metals and inorganic anions can be found in the ground and surface water in Massachusetts and New Hampshire. Concentrations of these metals and inorganic anions vary widely depending on the geology and types of activities that occurred on the site. Metals, such as arsenic and iron, frequently build up in groundwater by leaching out of naturally occurring deposits under reducing conditions in surrounding bedrock or soils. Thus, metals can be naturally occurring constituents of ground water; or contributed to the NCCW from piping, at times in concentrations that could violate surface water quality standards. Similarly, anions such as chloride can be a groundwater constituent as a result of salt water intrusion or other hydrogeologic conditions. Since these metals and inorganic anions are likely not removed from the groundwater during its use as NCCW, their concentrations are not likely to be lowered prior to discharge, although there may be a change in characteristics due to oxidation or other processes.

In some cases, the content of certain metals and inorganic anions in the discharge may have a reasonable potential to violate surface water quality standards. Metals and inorganic anions can be toxic to marine and freshwater organisms, as well as contaminating other plant and animal species. Often, water organisms are even more sensitive than humans to metals found in the water. Ultimately, metals can become concentrated in the human food chain. For instance, because of contaminated water, food sources such as vegetables, grains, fruits, fish and shellfish can become contaminated by accumulating metals from the soil and water used to grow them. Also, in the case of high iron content, when the discharge is oxidized after ground water extraction, it can contribute to other violations of color or aesthetic standards.

EPA has selected the most appropriate metals and anions for analysis to characterize the most prevalent naturally occurring metals and anions in Massachusetts and New Hampshire ground water and the metals that could most reasonably be added to the waste water by piping, such that the concentrations may have a reasonable potential to violate surface water quality standards. The following total recoverable metals and inorganic

anions have been selected as parameters to be analyzed for in groundwater used a source of cooling water for this general permit:

Antimony	Lead	Chloride
Arsenic	Mercury	
Cadmium	Nickel	
Chromium (Total)	Silver	
Chromium (VI)	Zinc	
Copper	Iron	

While most groundwater is not expected to exhibit levels of metals or anions of concern, as a precaution, if a facility uses groundwater for NCCW, the facility is required to test for these metals and inorganic anions in the effluent, and to submit the results of these analyses with its NOI for evaluation by EPA or the State. If an NOI for discharge under this permit indicates unusual circumstances where the effluent metal concentrations may be problematic after consideration of the dilution available and other factors, EPA may require an individual permit.

11. Why is EPA requiring a receiving water analysis of hardness if groundwater is the source of NCCW?

The results of the metal analyses required in the NOI will be considered by EPA and the State in a manner similar to the way that EPA sets water quality-based metals limits in many individual permits. With such discharges, as well as other discharges where a water quality based limit is needed, EPA uses its Recommended Criteria values for freshwater, adjusted for hardness (where hardness dependent) and converts them to "Total Recoverable Metals" limits.

Generally, national freshwater quality based criteria and effluent limits for metals are expressed at a hardness (H) value of 100 mg/L as calcium carbonate (CaCO3) in the receiving water. While such a value may be appropriate for setting national criteria and limits, when comparing to more localized appreciable criteria, the hardness value should be adjusted to reflect regional, local or actual conditions. In determining the hardness dependent levels of metals in ground water to evaluate NOIs for this NCCW general permit, EPA intends to use actual hardness values of the receiving surface water. Therefore, laboratory analyses of hardness representative of the receiving surface water are required in the NOI.

12. Why are pH sampling results required in this NOI if ground water is my source water?

The pH analysis of the effluent is required to assess the potential for the water to increase its concentration of metals as it comes in contact with piping or other metallic material.

13. What is the basis for the requirements for cooling water intake structures?

The basis for the requirements for cooling water intake structures (CWIS) is found in the Clean Water Act (CWA) in Section 316(b), 33 U.S.C. Section 1326(b). Section 316(b) governs requirements related to CWIS and requires "that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." The operation of CWIS can cause or contribute to a variety of adverse environmental effects, such as killing or injuring fish larvae and eggs by entraining them in the water withdrawn from a water body and sending them through the facility's cooling system, or by killing or injuring fish and other organisms by impinging them against the intake structure's screens. Often, but not always, facilities that discharge NCCW also operate one or more CWIS and, in these cases, they are subject to Section 316(b).

If a facility seeking coverage under the NCCW general permit does not withdraw surface water to use as cooling water, EPA has determined that the facility need not comply with the CWIS requirements of this permit. If, on the other hand, all or a portion of any surface water withdrawn is used for cooling water, the facility needs to comply with the CWIS requirements of this General Permit.

14. Which CWIS regulations apply to facilities covered by the NCCW General Permit?

In the absence of applicable regulations, for many years EPA has made Section 316(b) determinations on a case-by-case basis based on best professional judgment (BPJ), for both new and existing facilities with regulated CWIS. In December 2001, EPA promulgated new final Section 316(b) regulations that provide specific technology-based requirements for *new* power plants and other types of *new* facilities with CWIS. 66 Fed. Reg. 65255 (Dec. 18, 2001) (Phase I rule or Phase I regulations). These regulations apply to *new* facilities. Facilities subject to the Phase I regulations have been excluded from coverage under this General Permit. Specifically, this General Permit is not available to new facilities, as defined in 40 CFR Section 125.83, that have a design intake flow greater than two (2) million gallons per day and at least one cooling water intake structure that uses at least 25 percent of the water it withdraws for cooling purposes. These new facilities are regulated under the Phase I regulations and require an individual permit.

In July 2004, EPA also published final regulations that apply Section 316(b) to large, *existing* power plants (Phase II rule or Phase II regulations). EPA's final Section 316(b) Phase II rule for existing facilities was published in the Federal Register on July 9, 2004, and became effective on September 7, 2004. See 69 Fed. Reg. 41576; (July 9, 2004) codified at 40 CFR Part 125, Subpart J. The compliance standards of the Phase II rule applied to an existing Phase II facility if, among other things, it has CWIS with a total design intake flow of 50 million gallons per day (MGD) or more. On January 25, 2007 the United States Court of Appeals for the Second Circuit remanded several aspects of the Phase II Rule to EPA. As a result of the remand, on March 20, 2007 EPA suspended

the Phase II Rule. While the ultimate result of the remand is yet to be determined, the 50 MGD total design intake flow threshold is likely to be unaffected. The maximum NCCW discharge allowed under this General Permit is 1.0 MGD[1]. It is reasonable to assume that a facility discharging 1.0 MGD or less of NCCW does not have a total design intake flow of 50 MGD or more. Thus, because of the Phase II Rule suspension, as well as the applicability criteria of the Phase II Rule, the compliance standards of the Phase II Rule are not applicable to facilities seeking coverage under this General Permit.

On June 16, 2006, EPA published the Phase III Rule under Section 316(b) of the Clean Water Act as the third and final part of regulations designed to minimize harmful impacts on aquatic life caused by cooling water intake structures. The Phase III rule establishes categorical requirements under Section 316(b) of the Clean Water Act for new offshore oil and gas extraction facilities that have a design intake flow threshold of greater than 2 million gallons per day (MGD) and that withdraw at least 25 percent of the water exclusively for cooling purposes. These facilities are excluded from eligibility from the NCCW General Permit and require an individual permit. Therefore, the compliance standards of the Phase III Rule do not apply to facilities seeking coverage under this NCCW General Permit.

In the absence of applicable compliance standards, Section 316(b) permit requirements for smaller, existing facilities, such as those facilities with CWIS seeking NCCW general permit coverage, continue to be established on a best professional judgment (BPJ) basis.

15. What must a facility with a CWIS do to satisfy Section 316(b) Best Technology Available (BTA) requirements under this NCCW General Permit?

To satisfy the Section 316(b) BTA requirements of this General Permit, a facility must meet two types of requirements:

- general requirements listed in the permit; and
- facility-specific BTA requirements which the applicant describes in the NOI.

16. What are the general BTA requirements?

There are three general BTA requirements and one BTA-related requirement that are applicable to all facilities with one or more CWIS.

Cease or Reduce the intake of cooling water: The first general BTA requirement is to cease or reduce the intake of cooling water whenever withdrawal of source water is not necessary. Depending on the facility, times when it is necessary to withdraw cooling water can include equipment testing or maintenance activities. When water is not being withdrawn into the CWIS, the resulting through-screen velocity associated with the structure is reduced to zero. This allows juvenile and adult fish to swim in the vicinity of

[1]Both EPA and the State of New Hampshire would consider the facility's overall design intake flow when evaluating a request from a New Hampshire facility for approval of a larger volume discharge to be covered by this permit.

the CWIS without the potential for impingement. Another major environmental impact of CWIS is that smaller aquatic organisms that are free floating in the water could be pulled into the intake structure. A reduction or periodic termination of the volume of water withdrawn also will reduce the number of aquatic organisms withdrawn or entrained into the CWIS.

Return all observed live impinged fish to the source water: The second general BTA requirement is returning all observed live fish impinged on or in the CWIS to the source water to the extent practicable in a manner that maximizes their chance of survival. The "extent practicable" is expected to depend, in part, on facility specific features and is not a requirement for a particular technology, such as a mandate for traveling screens or automated fish return systems at all CWIS.

Fish that congregate near intake screens, once impinged, can be removed from the CWIS by one of a variety of fish return means in a timely manner. Systems can be designed to transport impinged fish to open water away from the CWIS, thus reducing impingement mortality by allowing the fish to survive the initial impingement and diminishing the chances of subsequent repeated impingement. For example, at the Salem Nuclear Generating Station in Delaware Bay, an upgrade to the facility's fish return system resulted in a 51% reduction in losses of impinged weakfish. See 65 FR 49105, Section XB, footnote 68, August 10, 2000.

Do not spray impinged fish or invertebrates with chlorinated water: The third general BTA requirement is ensuring that no chlorinated water is sprayed on impinged fish or invertebrates if water is sprayed to remove impinged fish or invertebrates from the CWIS. It has been shown that chlorine in water, even at extremely low levels, can be toxic to aquatic life. Fish that are impinged and transported by well designed and operated fish return system are still subjected to stress. The exposure of these impinged organisms to chlorinated water would further elevate the potential for stress and could lead to mortality. Using only non-chlorinated water to remove impinged fish is required to maximize the survival of organisms that are removed by water spray and returned to the open water.

Conduct and document a program to monitor for impinged fish and invertebrates: Due to the variability in CWIS designs, CWIS locations, and the operations of different facilities, there is not one single program or monitoring frequency applicable to all facilities to fulfill the general permit requirement for a program to regularly monitor for impinged fish and impinged invertebrates. Rather, each permittee covered by the General Permit must design, conduct and document an impingement monitoring program based on site-specific factors at its facility. These site specific factors include, but are not limited to, access to each CWIS; ability to observe potential impingement events; the intermittent or continuous nature of CWIS withdrawals; the timing of operational shifts; the nature of the facility's fish return systems; the facility's fish return procedures; the abundance of fish in the source water body; and the documentation of past impingement monitoring.

In cases where EPA has required an impingement monitoring program, one representative approach has been to document the number of fish and invertebrates impinged during three eight hour periods (total of 24 hours of monitoring per week) spaced over the course of a week (for example: Monday morning, Wednesday afternoon and Friday evening). This frequency may be appropriate where the permittee has reasonable access to the CWIS at these times during the operational shifts when cooling water is being withdrawn and is able to visually observe any accumulated impinged fish or invertebrates over discrete time periods during continuous operation and is able to remove and return live organisms to the surface water. As provided in Part 4.3.a. of the General Permit, EPA may require an applicant or permittee to explain in writing why its program to regularly monitor for impinged fish and impinged invertebrates is appropriate for its particular CWIS and situation.

17. What components must be included in the facility-specific BTA description?

In selecting, describing and implementing facility-specific BTA components, the facility chooses a combination of design and operational measures to reduce the adverse environmental effects of the CWIS in a facility-specific BTA description. Facilities covered by this permit operate under a wide variety of environmental and operational constraints. EPA is providing flexibility in allowing each facility to propose and implement, upon EPA's authorization, the type of facility-specific BTA component or components that best satisfies the requirements of Section 316(b) of the CWA.

Each facility covered under this General Permit must submit a facility-specific BTA description that consists of one or a combination of:

- Attributes of the current CWIS. This is a description of the intake structure and its location;
- Design measures. Information relating to the design of the CWIS that reduces impingement mortality and/or entrainment;
- Operational measures. Actions taken at the facility while the CWIS is withdrawing water which will reduce impingement and/or entrainment.

18. In addition to a facility-specific BTA description, what additional CWIS related information is required in the NOI?

The following information is required in order to characterize the CWIS and assess common indicators of the potential for impingement and entrainment and/or the effectiveness of the location, design, construction, and capacity features of the CWIS for minimizing adverse environmental impact.

a. A characterization of the source water body's fish habitat in the vicinity of each CWIS during the seasons when the CWIS may be in use.

The documented characterization of site-specific biological features of the source water body in the vicinity of the facility's CWIS during the seasons when the CWIS may be in

use is necessary for EPA to evaluate the potential for and minimization of impingement mortality and entrainment based on the location, design, construction and capacity of each CWIS. In certain cases, an assessment of fish abundance, density and entrainment and impingement potential may require sampling of the sources water for eggs and larvae and/or such sampling may be a condition of the NOI approval.

b. The design capacity of CWIS in million gallons per day (mgd).

After location, the flow or capacity of a CWIS is the primary factor affecting the entrainment of organisms, all other factors being equal. (See 65 FR 49078, August 10, 2000.) A facility that withdraws more water is likely to have a greater potential for impingement and entrainment. Information regarding the design capacity will assist EPA in its review of the impingement and entrainment potential of a facility and the adequacy of a facility-specific BTA description. "Design capacity" is used here synonymously with "design intake flow", which is defined in Section 4.1 of the General Permit.

c. The maximum monthly average intake of the CWIS in mgd during the previous five years and the month in which this flow occurred.

This value is calculated as the sum of the daily average flows for each day of a month, divided by the number of days in that month. In many cases, a facility withdrawing water does not approach the design capacity for the CWIS under normal operation. In certain cases, the maximum monthly average intake may be a better description of the water withdrawn from the facility compared with the design capacity. Since water withdrawal is related to the potential for impingement and entrainment, this information is useful.

d. Whether the facility withdraws cooling water at a rate commensurate with a closed-cycle cooling system. If so, a demonstration of this shall be included in the NOI.

The use of a closed-cycle cooling water system will greatly decrease the volume of intake water withdrawn by a facility when compared with the same facility using a once-through cooling water system. As stated previously, a reduction in the withdrawal of water from a CWIS reduces the potential for environmental impacts related to impingement and entrainment.

e. The source water's water body type, as defined in Section 4.1 of the General Permit (estuary, freshwater river or stream, lake or reservoir, ocean, or tidal river).

The location of a CWIS can influence markedly the potential for entrainment and impingement depending on the water body type of the source water. Different water body types have different potential for adverse environmental impacts. This is seen as a primary factor when assessing the potential for adverse environmental impact from a CWIS and is an essential piece of information used by EPA when reviewing site-specific BTA. For example, estuaries and tidal rivers generally have the highest potential for adverse impact because they contain essential habitat and nursery areas for many species. In contrast, some lakes have low productive areas such as the deep water hypolimnion,

which would have low potential for adverse environmental impacts. See 65 Federal Register, Volume 65, No.155, 49078, August 10, 2000.

f. The maximum through-screen design intake velocity in feet per second (fps).

The velocity of water entering a cooling water intake structure exerts a direct physical force against which fish and other organisms must act to avoid impingement or entrainment. As velocity increases at a CWIS, so does the potential for impingement and entrainment. EPA considers velocity to be one of the more important factors that can be controlled to minimize adverse environmental impacts at CWIS. See 65 FR 49087, August 10, 2000. For example, in most cases a velocity threshold of 0.5 fps has been identified as protective of most species of fish. This determination is discussed at 65 FR 49088, August 10, 2000.

g. The source water's annual mean flow if the CWIS is located on a freshwater river or stream, in cubic feet per second (cfs).

This value is necessary to calculate the proportion of river water used by the facility for cooling. When United States Geological Survey (USGS) river gauge information for the source water is available, the annual mean flow calculated by USGS for all available years of record of the gauge shall be used. This information can be found in the USGS Water Resource Data, Water Year 2005 Publication, located on the USGS website at http://web10capp.er.usgs.gov/adr_lookup/wdr-ma-05/.

h. The design intake flow as a percent of the source water's annual mean flow if the CWIS is located on a freshwater river or stream.

This calculation is needed to evaluate the proportion of river water used by the facility for cooling on an annual basis. One protective measure used by EPA for new facilities limits the withdrawal of the CWIS to no more than 5 percent of the river's mean annual flow. (See 40 CFR Section 125.84(b)(3)(i).) A facility that withdraws a greater percentage of a river's flow is likely to impinge or entrain a greater percentage of the river's aquatic life.

i. The source water's 7Q10 if the CWIS is located on a freshwater river or stream, in cubic feet per second (cfs).

This value is necessary to calculate the proportion of river water used by the facility for cooling under low river flow conditions. See Attachment B of the General Permit for information on how to determine the 7Q10 of the source water.

j. The design intake flow as a percent of the source water's 7Q10 if the CWIS is located on a freshwater river or stream

This calculation is needed to evaluate the proportion of river water used by the facility for cooling under low river flow conditions. See Attachment B of the General Permit for information on how to determine the 7Q10 of the source water.

k. A discussion of the historical occurrence of impinged fish on or in the CWIS.

If impingement has been observed, the following information shall be submitted for each impingement episode in the last five (5) years, to the extent the information is available: duration of each event; the number, by species, of fish impinged; length of each impinged fish; condition of each fish (dead or alive); and actions taken (e.g. fish returned to river, fish collected, cooling water intake flow reduced, etc.).

This information is needed to evaluate the history of the CWIS and assess the performance of impingement mortality reduction measures used by the facility in the past. It is limited to the information available for the five (5) years previous to the date of the applicant's NOI. These data can influence the components of site-specific design, operational technology and monitoring necessary in the future to satisfy a facility-specific BTA description.

19. What features of the CWIS location can be included in the facility-specific BTA description?

The following features of the CWIS location can be among the components of a facility-specific BTA description:

- Locate the CWIS in, or relocate it to, an area where impingement mortality and/or entrainment will be minimized;
- Use alternative sources of cooling water to the maximum extent practical.

20. What features of the CWIS design and construction can be components of a facility-specific BTA description?

The following features of the CWIS design and construction can be among the components of a facility-specific BTA description;

- Ensure that fish impinged upon intake structures will be removed and transported with minimal stress and returned to the source water;

- Use low pressure spray rather than high pressure spray to remove impinged organisms from screens;

- Maintain CWIS bottom sills or dredge to minimize the influence of the intake velocity on impingement or entrainment of benthic or near benthic organisms;

- Maintain screens, nets, fabric curtains or fish exclusion devices such as louvers or other modification of the CWIS to reduce impingement and/or entrainment;

- Maintain a maximum through-screen design intake velocity at the CWIS of 0.5 feet per second or less;

- Take steps to minimize intake velocity.

21. What features of the CWIS capacity can be components of a facility-specific BTA description?

The following features of the CWIS capacity can be among the components of a facility-specific BTA description:

- Operation of variable speed pumps to minimize the amount of cooling water withdrawn, to the extent practical;

- Use of a closed-cycle cooling system or withdrawing cooling water at a rate commensurate with a closed-cycle cooling system;

- Schedule maintenance or other facility activities to reduce or eliminate intake water use during expected periods of elevated impingement or entrainment potential (e.g., spring spawning);

- Implement steps to minimize cooling water use when operating.

22. Are the suggested BTA components listed in Attachment C of the General Permit required components?

No, they are suggestions that may be appropriate to your CWIS. The suggestions are provided as examples of components that may be included in a facility-specific BTA description to attain BTA and EPA's authorization to discharge under the General Permit. Since facilities covered by this permit operate under a wide variety of environmental and operational constraints, EPA is providing flexibility in allowing each applicant to propose the type of facility-specific BTA component or components that best satisfies the requirements of the General Permit. The potential for a CWIS to cause adverse environmental impact and the specific technologies that would best minimize such impacts often are dependent on site-specific factors.

23. What are the advantages of this approach of regulating CWISs?

The permit requirements discussed above represent the best technology available for reducing the environmental impact of cooling water intake structures for sources eligible for coverage under this General Permit. Thus, these requirements provide a means to comply with the provisions of Section 316(b) of the CWA. Further, EPA believes that this approach provides significant flexibility for compliance. Flexibility is important because this General Permit applies to a range of facilities operating with varying sources of cooling water locations and CWIS configurations.

24. How is monitoring data to be submitted to EPA and the state agencies?

Operators of facilities that discharge NCCW under the authority of the final General Permit will be required to submit, to both EPA-New England and the appropriate state authority, a Discharge Monitoring Report (DMR) containing effluent data. The frequency of reporting is determined in accordance with each state's provisions as described at Part 6 (Monitoring, Reporting and Recordkeeping Requirements) of the General Permit. The monitoring requirements have been established to yield data representative of the discharge under authority of Section 308(a) of the Act and 40 CFR Sections 122.41(j), 122.44(i) and 122.48, and as certified by the State.

For facilities located in Massachusetts, EPA and MassDEP are proposing that facilities that do not discharge NCCW during normal operations be excluded from the requirement to submit DMRs for periods when there is no discharge. However, these facilities will be required to submit an annual report that verifies that no discharge occurred during the previous calendar year. This exclusion is intended to eliminate unnecessary reporting by operators of facilities that do not discharge on a routine basis but maintain coverage under this permit to cover potential discharges during non-standard or emergency conditions.

If facilities that do not discharge NCCW during normal operations commence to discharge NCCW, then the operator must submit written notification of the discharge to EPA and MassDEP within five (5) days of the start of the discharge and begin submitting DMRs as required in the General Permit. This requirement will ensure that all discharges are adequately monitored and reported.

25. What requirements in this General Permit protect endangered species?

The Endangered Species Act (ESA) of 1973 requires federal agencies such as EPA to ensure, in consultation with the U.S. Fish and Wildlife Service (FWS) and the National Oceanic & Atmospheric Administration Fisheries Service (NOAA Fisheries), also known collectively as "the Services", that any actions authorized, funded, or carried out by the EPA (e.g., EPA issued NPDES permits authorizing discharges to waters of the United States) are not likely to jeopardize the continued existence of any Federally-listed endangered or threatened species or adversely modify or destroy critical habitat of such species (see 16 U.S.C. 1536(a)(2), 50 CFR Section 402 and 40 CFR Section 122.49(c)).

a. Consultation - Section 7 of the ESA provides for formal and informal consultation with the Services. For NPDES permits issued in Massachusetts and New Hampshire where EPA is the permit issuing agency, draft NPDES permits and Fact Sheets are routinely submitted to the Services for informal consultation prior to issuance. EPA will initiate an informal consultation with the Services during the General Permit's public comment period. Based on EPA's working experience with the Services on numerous prior permits and identification of certain endangered species, general geographic areas of concern in the States and the potentially affected waters, including critical habitats, EPA has prepared this draft General Permit to insure adequate protection under the ESA.

Noncontact cooling water (NCCW) is water used for cooling that does not come into direct contact with any raw material, intermediate product, waste product (other than heat), or finished product. The General Permit specifically excludes coverage to facilities whose discharge(s) are likely to jeopardize the continued existence of listed threatened or endangered species or the critical habitat of such species. The proposed permit limits are sufficiently stringent to assure that water quality standards protect both aquatic life and human health. The effluent limitations established in these permits ensure protection of aquatic life and maintenance of the receiving water as an aquatic habitat. Further, facilities that add water treatment chemicals to the NCCW are not eligible for coverage under this permit. The requirements in this General Permit are consistent with information previously provided by the Services to EPA during the development of other recently issued general permits. Therefore, the Region finds that adoption of this General Permit is not likely to adversely affect any threatened or endangered species or its critical habitat.

In addition to the informal consultation process entered into by EPA for the issuance of this General Permit, an optional type of informal consultation consists of the designation of a non-Federal representative (NFR) to determine whether a Federal action is likely to have an adverse impact on listed species or critical habitat. The ESA regulations provide for permit applicants, where designated, to carry out informal consultations as an NFR, which enables them to work directly with the Services (See 50 CFR Section 402.08). EPA is hereby designating applicants for this general discharge permit as NFR's for the purposes of carrying out informal consultation. Therefore, EPA expects that the applicants will contact the Services to determine whether additional consultation is needed. See Appendix 2, Endangered Species Act Review and Requirements, of the General Permit for additional guidance on consultations.

Discharges that are located in areas in which listed endangered or threatened species may be present are not automatically covered under this General Permit. Appendix 2.1 of the General Permit lists a number of locations where endangered or threatened species have been identified. Applicants with discharges to those locations must contact the Services to determine whether or not additional consultation with the Services is needed.

Similarly, NOAA Fisheries has requested that it review and comment on all discharges that may adversely affect the federally-listed endangered shortnose sturgeon (Acipenser brevirostrum). Discharges into certain sections of the Merrimack and Connecticut Rivers in Massachusetts have the potential to affect the federally-listed endangered shortnose sturgeon, including: the Merrimack River, from the Essex Dam in Lawrence, Massachusetts to the mouth of the Merrimack River (Essex County); and the Connecticut River, from the Massachusetts border with Connecticut to Turners Falls, Massachusetts (Hampshire, Hampden, and Franklin Counties).

When discharge activities would occur along these listed waterways, permit coverage is available only if the permit applicant contacts the Services to determine (1) if listed species are present in the vicinity of the project area; and, (2) whether the applicant's

discharges and discharge related activities are likely to affect listed species and/or critical habitats.

Coverage under the General Permit is available only if the applicant contacts the Services under Section 7 of the Endangered Species Act, when appropriate, and it is confirmed that the applicant's discharges are not likely to affect listed species, or the communication results in a written concurrence by the Service(s) on a finding that the applicant's discharges are not likely to adversely affect listed species.

Applicants with discharges that would occur along or into the waterways subject to ESA requirements must initiate contact with the Services as a non-Federal representative and must notify both EPA-New England and the appropriate state office of the determination in writing. The applicant must indicate in the space provided on the Notice of Intent (NOI) form used for applying for coverage (see Appendix 4 and 4.1 of the General Permit) what level of contact with the Services is necessary and that they are eligible for coverage. Applicants must submit a copy of any communication from the Services with the NOI as directed. Applicants who cannot certify compliance with the ESA requirements on the NOI form must contact EPA to determine if eligibility for an individual NPDES permit is possible or to discuss other possible options for the proposed discharge.

b. Contact Information for FWS and NOAA Fisheries:

US Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
Tel. No. (603) 223-2541

NOAA Fisheries Service
Northeast Regional Office
Protected Resources Division
One Blackburn Drive
Gloucester, MA 01930-2298
Tel. No. (978) 281-9112

26. What requirements in this permit protect essential fish habitat?

Background: Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. Sections 1801 et. Seq. (1996), EPA is required to consult with the NOAA Fisheries Service if EPA's actions or proposed actions that it funds, permits or undertakes, "may adversely impact any essential fish habitat." See 16 U.S.C. Section 1855(b). The amendments broadly define "essential fish habitat" (EFH) as "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." See 16 U.S.C. Section 1802(10). Adverse impact means any impact which reduces the quality and or quantity of essential fish

habitat (see 50 CFR Section 600.910(a)). Adverse effects may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in fecundity), site-specific, or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions.

An EFH designation is only available where a Federal Fisheries Management Plan exists (see 16 U.S.C. Section 1855(b)(1)(A)). EFH designations for New England were approved by the US Department of Commerce on March 3, 1999. In a letter to EPA-New England dated October 10, 2000, NOAA Fisheries Service agreed that for NPDES permit actions, EFH notification for purposes of consultation can be accomplished in the EFH section of the permit's Fact Sheet or Federal Register Notice.

Proposed Action: EPA is reissuing the National Pollutant Discharge Elimination System (NPDES) General Permit for the discharge of noncontact cooling water (NCCW). EPA is proposing a variety of changes to the expired NCCW General Permit. Please refer to Question 2 of this Fact Sheet for a more detailed explanation of the proposed changes to the expired General Permit.

Resources: Part 3.3 of the General Permit lists specific discharges excluded from coverage, including discharges to ocean sanctuaries, discharges to wild and scenic rivers, and discharges to designated areas under the Essential Fish Habitat Act unless the requirements specified in this General Permit are fulfilled. The General Permit includes effluent limitations and monitoring requirements for facilities that discharge into both freshwater and tidal waters of Massachusetts and New Hampshire, with the exception of those waters listed in Part 3.3 of the General Permit. Therefore, EPA's assessment considers all 40 federally managed species with designated EFH in the coastal and inland waters of Massachusetts and New Hampshire.

EPA has identified 76 facilities as likely candidates for coverage under this General Permit. Four of these facilities discharge into ocean or estuarine water and 72 facilities discharge into fresh water. Although this General Permit is available to additional facilities, this assessment considers these 76 representative facilities, the majority of which were covered under the expired General Permit.

Marine Discharges: EPA has identified four potential applicants that would discharge into marine waters in Massachusetts: two facilities that discharge directly into Boston Harbor, one facility that discharges to Plymouth Harbor, and one facility that discharges to Mount Hope Bay. At least one facility, the largest discharger into Boston Harbor, will not be eligible for coverage under this General Permit because its discharge flow is greater than 1.0 MGD

The following is a list of the EFH species and applicable lifestage(s) for the area that includes Massachusetts, New Hampshire and the adjacent marine waters.

Species	Eggs	Larvae	Juveniles	Adults
Atlantic salmon *(Salmo salar)*			X	X
Atlantic cod *(Gadus morhua)*	X	X	X	X
Haddock *(Melanogrammus aeglefinus)*			X	X
pollock *(Pollachius virens)*				
whiting *(Merluccius bilinearis)*	X	X	X	X
offshore hake *(Merluccius albidus)*				
red hake *(Urophycis chuss)*	X	X	X	X
white hake *(Urophycis tenuis)*				
redfish *(Sebastes fasciatus)*	n/a	X	X	X
witch flounder *(Glyptocephalus cynoglossus)*				
winter flounder *(Pleuronectes americanus)*	X	X	X	X
yellowtail flounder *(Pleuronectes ferruginea)*				X
windowpane flounder *(Scopthalmus aquosus)*				X
American plaice *(Hippoglossoides platessoides)*				X
ocean pout *(Macrozoarces americanus)*	X	X	X	X
Atlantic halibut *(Hippoglossus hippoglossus)*	X	X	X	X
Atlantic sea scallop *(Placopecten magellanicus)*	X	X	X	X

Atlantic sea herring *(Clupea harengus)*			X	X
monkfish *(Lophius americanus)*	X	X		X
bluefish *(Pomatomus saltatrix)*				X
long finned squid *(Loligo pealei)*	n/a	n/a	X	X
short finned squid *(Illex illecebrosus)*	n/a	n/a	X	X
Atlantic butterfish *(Peprilus triacanthus)*	X	X	X	X
Atlantic mackerel *(Scomber scombrus)*	X	X	X	X
summer flounder *(Paralicthys dentatus)*	X	X	X	X
scup *(Stenotomus chrysops)*	n/a	n/a	X	X
black sea bass *(Centropristus striata)*	n/a	X	X	X
surf clam *(Spisula solidissima)*	n/a	n/a	X	X
ocean quahog *(Artica islandica)*	n/a	n/a		
spiny dogfish *(Squalus acanthias)*	n/a	n/a	X	X
tilefish *(Lopholatilus chamaeleonticeps)*				
king mackerel *(Scomberomorus cavalla)*	X	X	X	X
Spanish mackerel *(Scomberomorus maculatus)*	X	X	X	X
cobia *(Rachycentron canadum)*	X	X	X	X
sand tiger shark *(Odontaspis taurus)*		X		

blue shark (*Prionace glauca)*		X		X
dusky shark *(Charcharinus obscurus)*			X	
shortfin mako shark *(Isurus oxyrhyncus)*			X	
sandbar shark *(Charcharinus plumbeus)*			X	X
bluefin tuna *(Thunnus thynnus)*				X

Source: NOAA Fisheries Service http://www.nero.noaa.gov

Freshwater: The Merrimack and Connecticut Rivers, and certain tributaries to these rivers, are designated EFH for Atlantic salmon (Salmo salar). There are a number of facilities located within the Connecticut and Merrimack River basins that discharge NCCW, including eleven facilities covered under the expired General Permit that discharge directly into the Connecticut or Merrimack Rivers.

Analysis of Effects and EPA's Opinion of Potential Impacts: EPA has identified three potential sources of impact to aquatic species associated with the discharge of NCCW: the cooling water intake structure; discharge of heated effluent; and effluent toxicity.

A. Cooling Water Intake Structures (CWIS): Cooling water may be drawn from groundwater, municipal or surface water sources. Intake structures are used by facilities that draw cooling water from an adjacent surface water. Adverse environmental impacts associated with the use of CWIS result from both the entrainment and the impingement of aquatic organisms. According to Section 316(b) of the Clean Water Act, any point source that uses a CWIS must ensure that its location, design, construction, and capacity reflects the best technology available (BTA) to minimize these adverse environmental impacts.

Facilities with CWIS that are eligible for coverage under the proposed NCCW General Permit must comply with the permit's general BTA requirements, facility-specific BTA requirements and suggested BTA components that address reducing impingement and entrainment of aquatic life through a CWIS. The impacts to aquatic life from CWIS and the BTA requirements for facilities covered under this General Permit are discussed more fully in Part 4 of the General Permit and Questions 13-23 of the Fact Sheet.

Entrainment: The potential to impact aquatic organisms by entrainment largely depends on the presence and abundance of organisms that are vulnerable to entrainment and the water flow required for cooling. The primary means of reducing entrainment of aquatic life through a CWIS is to reduce the volume of the water withdrawal. Under the permit's general BTA requirements, a facility must cease or reduce the intake of cooling water whenever withdrawal of source water is not necessary.

Other considerations to minimize entrainment include the location and design of the intake structure. Under the permit's facility-specific BTA requirement, each facility submits to the permitting authority a facility-specific BTA description that consists of the CWIS attributes and the design and operational measures that reduce the entrainment of shellfish and fish. The description must contain measures such as reducing the intake flow of a facility commensurate with a closed-cycle recirculating system to achieve a proportional reduction in entrainment of aquatic organisms; locating CWIS in an area where entrainment will be minimized; and/or the use of fine screen mesh or exclusion devices to reduce entrainment.

The potential exists for a number of EFH species and forage species to be present, as eggs or larvae, in proximity to the CWIS. However, for some species, including Atlantic salmon, it is unlikely that a significant numbers of eggs would be free floating in the proximity of the CWIS, given the negative buoyancy of the eggs and their demersal nature. In addition, a majority of species covered under EFH spawn and complete their lifecycle in estuarine or marine environments, while the majority of CWIS covered under this General Permit are expected to be located in freshwater. Entrainment will be further minimized by the flow limitation, flow reduction and entrainment reduction requirements included in the proposed permit. Based on the CWIS requirements of the proposed General Permit and the relatively low volumes of water withdrawn, EPA believes the threat of entrainment of EFH species and their forage species is minimal.

Impingement: Organisms that are too large to pass through intake traveling screens are still vulnerable to being impinged on these screens. CWIS intake location and design, as well as the cooling water flow requirements, are major factors in assessing impingement potential. Juvenile lifestages are particularly vulnerable to impingement, but adults of certain species are also at risk. EPA believes the impingement of EFH species and forage species at the existing facilities covered under these General Permits to be minimal due to the relatively low volumes of water withdrawn.

The General Permit requires that all facilities comply with both the general and the facility-specific BTA requirements to reduce impingement mortality of aquatic life and to minimize the potential for impingement. The four general BTA requirements are: to cease or reduce the intake of cooling water whenever withdrawal of source water is not necessary; to return all observed live impinged fish to the source water in a manner that maximizes their chance of survival; to ensure that chlorinated water is not sprayed on impinged fish or invertebrates; and conduct and document a program tailored to the facility's CWIS to regularly monitor for impinged fish and invertebrates and make the results of the program available to the permitting authority.

Based on the intake reduction requirements of the proposed permit and the relatively low volumes of water withdrawn, EPA believes the threat of impingement of EFH species and their forage species is minimal.

B. Discharge of Heated Effluent: Thermal impacts associated with the discharge are affected by the dilution capacity of the receiving water, the rate of discharge, and the change in temperature of the effluent compared to the ambient water temperatures. The discharge of heated effluent is common to all facilities covered under the General Permit.

Each State has developed thermal limits for various water bodies that are designed to be protective of the aquatic environment of that water body. The effluent limits for temperature in the permit remain unchanged from the expired permit. Massachusetts and New Hampshire will continue to use the same thermal limits for designated cold (68˚F/20˚C) and warm water (83˚F/28.3˚C) fisheries. Massachusetts further distinguishes between fresh and salt water sources, and limits temperatures in SA and SB waters to 85˚F/29.4˚C. Massachusetts also limits the ΔT (change in the temperature of the receiving water body as a result of the discharge) depending on the classification of the water body and its predominant fishery. (See General Permit Attachment A). The monitoring requirements for facilities located in both States require that temperature samples be taken from the effluent stream before it is commingled with other discharges or the receiving water.

Because the discharges are limited and are required to attain thermal water quality standards, EPA believes that the heated effluent will continue to have minimal impacts on aquatic resources, including EFH species and EFH forage species. This evaluation is based on the thermal limitations in the General Permit, the flow limitations in the General Permit and the requirement that the temperatures must meet state water quality standards.

C. Effluent Toxicity: Noncontact cooling water does not come into contact with any raw material, intermediate product, waste product, or finished product. NCCW should not contain pollutants in toxic amounts. For facilities that use potable water as their cooling water source water, the permit establishes Total Residual Chlorine (TRC) limits that are adequate to protect aquatic-life criteria for chlorine based on the States' water quality standards. The General Permit prohibits the addition of toxic materials or chemicals to NCCW and prohibits the discharge of pollutants in amounts that would be toxic to aquatic life. It also prohibits any discharge that violates State or Federal water quality standards. Further, EPA may require that a facility conduct toxicity testing where needed to verify that the discharge is not having toxic impacts on sensitive species.

EPA's Opinion of all Potential Impacts: EPA believes that the discharges authorized under the General Permit will have minimal adverse effects to EFH for a number of reasons, including:

- The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as an aquatic habitat;
- This is a re-issuance of an existing permit. The design flow of the facilities is low for most receiving waters;
- The proposed limits in the permit are sufficiently stringent to ensure that state water quality standards will be met and the permit prohibits violation of these standards; and,
- The permit includes technology based limits for cooling water intake structures that are more fully defined and protective of aquatic organisms than those previously assigned to facilities.

EPA concludes that the effluent limitations, conditions, and monitoring requirements contained in the proposed General Permit minimize adverse effects to aquatic organisms, including EFH species, as well as their habitat and forage species. With this draft permit, EPA is contacting NOAA Fisheries under Section 305(b)(2) of the Magnuson-Stevens

Act regarding this assessment and requests any additional recommendations that NOAA Fisheries may have to protect EFH.

Proposed Mitigation: Mitigation for unavoidable impacts associated with re-issuance of the permit is not warranted at this time because it is EPA's opinion that impacts will be negligible if permit conditions are followed. If adverse impacts to EFH do occur, either as a result of non-compliance or from unanticipated effects from this activity, authorization to discharge under the General Permit can be revoked. Additionally, if such an incident occurs, or if new information becomes available that changes the basis for our determination, then consultation with NOAA Fisheries under the appropriate statute(s) will be reinitiated.

27. What requirements protect properties listed or eligible for listing in the National Registry of Historic Places?

Facilities which adversely affect properties listed or eligible for listing in the National Registry of Historic Places under the National Historic Preservation Act of 1966 (NHPA), 16 USC Sections 470 et seq. are **not** authorized to discharge under this permit. Applicants must determine whether the discharge, and the construction of any treatment devices or structures housing them, authorized under this General Permit, has the potential to affect a property that is either listed or eligible for listing on the National Register of Historic Places. The applicant must indicate in the space provided on the Notice of Intent (NOI) form used for applying for coverage (see Appendix 4 of the General Permit) their compliance with the NHPA requirements and certify that they are eligible for coverage under this General Permit.

Electronic listings of National and State Registers of Historic Places are maintained by the National Park Service (www.cr.nps.gov/nr), the Massachusetts Historical Commission (www.state.ma.us/sec/mhc) and the New Hampshire Historical Commission (www.state.nh.us/nhdhr). For additional information regarding the requirements pertaining to historic places, see Appendix 3 of the General Permit.

Applicants also must comply with applicable State, Tribal and local laws concerning the protection of historic properties and places and applicants are required to coordinate with the State Historic Preservation Officer and/or Tribal Historic Preservation Officer and others regarding effects of any discharges covered by this permit on historic properties.

Addresses for MA State Historic Preservation Officers and Tribal Historic Preservation Officer are:

MA State Historic Preservation Officer
MA Historical Commission
220 Morrissey Blvd.
Boston, MA 02125
Tel No. (617) 727-8470
Fax No. (617) 727-5128;

Tribal Historic Preservation Officer
Wampanoag Tribe of Gay Head (Aquinnah)
20 Black Brook Road
Aquinnah, MA 02535-9701
Tel No. (508) 645-9265
Fax No. (508) 645-3790

and for New Hampshire:

State Historic Preservation Officer
NH Division of Historic Resources
P.O. Box 2043
Concord, NH 03302-2043
Tel. No. (603) 271-6435
Fax No. (603) 271-3433

28. How can I provide comments or request a public hearing?

All persons who believe any condition of the draft General 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: Ms. Austine Frawley, Industrial Permits Branch, Office of Ecosystem Protection, U.S. Environmental Protection Agency, 1 Congress Street, Suite 1100 (CIP), Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a written request to EPA-New England for a public hearing to consider the draft General Permit. Such requests shall state the nature of the issue 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. Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will respond to all significant comments made on the draft General Permit and will make the response to comments available to the public at EPA's Boston Office and available at the EPA-New England web site http://www.epa.gov/ne/npdes/. The Regional Administrator will issue a final decision and publish the notice of the final permit decision in the Federal Register and forward a copy of the final decision to each person who has submitted written comments or requested a copy of the final General Permit.

29. Do standard conditions apply to this permit?

Requirements which must be included in all NPDES permits are found at 40 CFR Sections 122.41 and 122.42. Parts 3 through 9 of the General Permit include these requirements.

30. What are the additional legal requirements for issuing NPDES permits?

A. Antidegradation Provisions: The conditions of the General Permit reflect the goal of

the CWA and EPA to achieve and maintain water quality standards. The environmental regulations pertaining to the State antidegradation policies which protect the States' surface waters from degradation of water quality are found in the following provisions: Massachusetts Water Quality Standards 314 CMR 4.04 Antidegradation Provisions and New Hampshire RSA 485-A:8, VI Part Env-Ws 1708 "Antidegradation".

This General Permit does not apply to any new or increased discharge to receiving waters unless the discharge is shown to be consistent with the States' antidegradation policies. This determination shall be made in accordance with the appropriate State antidegradation implementation procedures for this General Permit. EPA will not authorize discharges under the General Permit until it receives a favorable antidegradation determination and certification of this General Permit from the States.

B. State Section 401 Certification: Section 401 of the CWA provides that no federal license or permit, including NPDES permits, to conduct any activity that may result in any discharge into navigable waters shall be granted until the state in which the discharge originates certifies that the discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307. The Section 401 certification process is being implemented in Massachusetts and New Hampshire. EPA expects both states to certify this General Permit. In addition, EPA and the Commonwealth of Massachusetts jointly issue the final permit.

For lands held by federally-recognized tribes in Massachusetts, EPA will provide the necessary certification. Currently, the only federally recognized tribe is the Wampanoag Tribe of Gay Head (Aquinnah) on the Island of Martha's Vineyard.

C. Coastal Zone Management Act: The Coastal Zone Management Act (CZMA), l6 U.S.C. 145l et seq., and its implementing regulations (15 CFR Part 930) require a determination that any federally licensed activity affecting the coastal zone with an approved Coastal Zone Management Program (CZMP) is consistent with the CZMP. In the case of general permits, EPA has the responsibility for making the consistency certification and submitting it to the state for concurrence. EPA will request that both the Executive Office of Environmental Affairs, MA CZM, Project Review Coordinator, 251 Causeway Street, Suite 800, Boston, MA 02114; and the Federal Consistency Officer, New Hampshire Coastal Program, 50 International Drive, Suite 200, Portsmouth, NH 03801, provide a consistency concurrence that the proposed General Permit is consistent with the MA and NH Coastal Zone Management Programs.

D. Environmental Impact Statement Requirements: The permits do not authorize discharges from any new sources as defined in 40 CFR Section 122.2, therefore, the National Environmental Policy Act, 33 U.S.C. 4321 et seq., does not apply to the issuance of these general NPDES permits.

E. Executive Order 12866: EPA has determined that this General Permit is not a "significant regulatory action" under the terms of Executive Order 12866 and is therefore not subject to OMB review.

F. Paperwork Reduction Act: The information collection requirements of this permit were previously approved by the Office of Management and Budget under the provisions of the Paperwork Reduction Act. 44 U.S.C. 3501 et seq., and assigned OMB control number 2040-0086 (NPDES permit application) and 2040-0004 (Discharge Monitoring Reports).

G. Regulatory Flexibility Act: The Regulatory Flexibility Act (RFA), 5 U.S.C. 601 et seq., requires that EPA prepare a regulatory flexibility analysis for rules subject to the requirements of 5 U.S.C. 553(b) that have a significant impact on a substantial number of small entities. The permit issued today, however, is not a "rule" subject to the requirements of 5 U.S.C. 553(b) and is therefore not subject to the Regulatory Flexibility Act.

H. Unfunded Mandate Reform Act: Section 201 of the Unfunded Mandates Reform Act (UMRA), Public Law 104-4, generally requires Federal agencies to assess the effects of their "regulatory actions" (defined to be the same as "rules" subject to the RFA) on tribal, state and local governments and the private sector. The permit issued today, however, is not a "rule" subject to the RFA and is therefore not subject to the requirements of UMRA.

Dated: June 26, 2007
Robert W. Varney
Regional Administrator,
EPA Region I-New England