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Clean Water Act: EPA's Final Rule for Cooling Water Intake Structures at Utility and Manufacturing Facilities

On May 19, the U.S. Environmental Protection Agency (EPA) concluded nearly 20 years of effort to adopt rules under Section 316(b) of the Clean Water Act governing the use of cooling water at power plants and industrial facilities. The EPA's final regulations establish requirements for cooling water intake structures (CWISs) at existing facilities (the Final Rule).

Section 316(b) requires that the location, design, construction and capacity of CWISs reflect the best technology available (BTA) for minimizing adverse environmental impacts. According to the EPA, the Final Rule will affect approximately 1,065 existing facilities, including 544 electric generators and 509 manufacturers. The Final Rule will be effective 60 days after publication in the Federal Register.

The Final Rule applies to existing facilities that withdraw more than 2 million gallons per day of water from the waters of the United States and that use at least 25 percent of this water exclusively for equipment cooling purposes. The EPA states that the Final Rule addresses site-specific challenges and "establishes a common sense framework, putting a premium on public input and flexibility for facilities to comply." The 559-page Final Rule is accompanied by a 339-page biological opinion from the U.S. Fish and Wildlife Service. The Final Rule's requirements address the potential adverse environmental impacts?- impingement and entrainment?- associated with the use of CWISs at existing facilities.

The Final Rule requires a permittee to select one of seven options to meet BTA for reducing impingement mortality. Impingement mortality occurs as aquatic organisms in cooling water meet a facility's intake screens.??

The Final Rule sets forth a national BTA standard for reducing entrainment. Entrainment occurs when aquatic organisms are drawn through a facility's cooling water system. The national standard is a process for conducting a site-specific determination of entrainment mitigation requirements at existing CWISs. The EPA's assessment is that there is no single technology that is the BTA for entrainment at existing facilities. Instead the site-specific determination process takes into consideration a number of factors. Site-specific decision-making could lead to a determination by the EPA or by a state permitting authority that entrainment reduction requirements should be based on the incorporation of variable speed pumps, water reuse, fine mesh screens, a closed-cycle recirculating system or some combination of technologies that constitutes the BTA for the individual site. Alternatively, the site-specific process could lead to a determination that no additional technologies are required at an existing facility.

The History

In 2004, the EPA issued final regulations setting national performance standards for reduction in impingement mortality and entrainment, which applied to more than 500 existing power plants (the Phase II Rule). Several environmental organizations, along with six states, challenged these regulations.

On January 25, 2007, the U.S. Court of Appeals for the Second Circuit remanded key components of the Phase II Rule. Riverkeeper, Inc. v. U.S. EPA, 475 F. 3d 83 (2d Cir. 2007) (Riverkeeper II). Several industry groups petitioned the U.S.

Supreme Court for review of the Second Circuit's decision. On April 1, 2009, Justice Scalia, writing for the majority, held that the EPA had permissibly relied on cost-benefit analysis. The Supreme Court reasoned that if the EPA's interpretation of the Section 316(b) standard as allowing for consideration of a technology's costs and the relationship between those costs and the environmental benefits produced was reasonable, then that interpretation must stand. Supreme Court precedent grants deference to an agency's interpretation of a statute. See Entergy Corp. v. Riverkeeper, Inc., 129 S.Ct. (2009) (Entergy).

After the Supreme Court's decision in Entergy, the EPA entered into a settlement agreement with several environmental organizations. This settlement established time frames for the EPA's issuance of proposed and final CWIS rules for existing facilities. The EPA agreed to propose standards by March 14, 2011, and issue final rules by July 27, 2012. The parties subsequently agreed to extend the date for the final rule to April 17, 2014. On April 16, 2014, the EPA informed the Court of its intent to sign a final rule by May 16, 2014. When seeking this last extension, the EPA stated that it needed the additional time to complete formal interagency consultations under the Endangered Species Act with the Fish and Wildlife Service and the National Marine Fisheries Service. The EPA issued the Final Rule on May 19, 2014.

EPA's 2014 Final Rule

The Final Rule (i) establishes seven options for meeting impingement reduction at existing facilities; (ii) establishes a process for making BTA determinations on a case-by-case basis using best professional judgment to reduce entrainment; and (iii) requires new units at existing facilities to (a) reduce actual intake flow to a level commensurate with closed-cycle cooling; or (b) demonstrate that the facility's owner/operator has installed and will operate and maintain technological or other control measures meeting prescribed reductions in entrainment mortality of all stages of fish and shellfish passing through a sieve with a maximum opening of 0.56 inches.

Impingement

Existing facilities that have a CWIS design intake flow of greater than 2 million gallons per day and that withdraw at least 25 percent of their water from an adjacent water body for cooling purposes must select from among seven options to meet the impingement reduction standard. These seven options are:

1.?operate a closed-cycle recirculating system;
2.?operate a CWIS that has a maximum through-screen design intake velocity of 0.5 foot per second (fps);
3.?operate a CWIS that has a maximum through-screen intake velocity of 0.5 fps;
4.?before the Effective Date, operate an offshore velocity cap, an open intake designed to change the direction of water withdrawal from vertical to horizontal and located a minimum of 800 feet from the shoreline;
5.?operate a modified traveling screen that the EPA or state permitting authorities determine meets the Final Rule standard and is the BTA for impingement reduction;
6.?implement another combination of technologies, management practices and operation measures that the EPA or state permitting authorities determine is BTA for impingement reduction; or
7.?achieve the specified impingement mortality performance standard set forth in the Final Rule.

The EPA indicates that options 1, 2 and 4 are essentially preapproved technologies, requiring little or no demonstration that the flow reduction and control measures are functioning as envisioned. Options 3, 5 and 6 require that more detailed information be submitted to the permitting authority before that permitting authority accepts that the control measure is the BTA to control impingement mortality. Under Option 7, a facility must achieve a 12-month impingement mortality performance of all life stages of fish and shellfish of no more than 24 percent mortality, including latent mortality, for all nonfragile species that are collected or retained in a sieve.

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Entrainment

Existing facilities that withdraw at least 125 million gallons of water per day must provide detailed information and conduct comprehensive studies to assist the EPA or state permitting authorities in determining what site-specific controls, if any, would be required to reduce entrainment. An applicant must perform, among other studies, a comprehensive technical feasibility study, a cost-evaluation study and a benefits-valuation study. The technical feasibility and benefits-valuation studies must be peer-reviewed prior to submission for review to the EPA or state permitting authorities. Following agency evaluation of this information, the agency determines what BTA entrainment standard to propose and explains in writing the basis for the proposal. The written explanation and the draft permit are available for public comment under the agency's permitting process.

Importantly, any evaluation must also include a full consideration of whether the "social benefits" justify the "social costs" (as those terms are defined under the Final Rule). The Final Rule provides that the permitting authority may reject an otherwise available entrainment technology as BTA (or not require any BTA controls) if the social costs are not justified by the social benefits.

Overall, the Final Rule identified 11 factors that must be given consideration by a permitting authority: 1) numbers and types of organisms entrained; 2) impact of changes in particulate emissions or other pollutants associated with entrainment technology; 3) land availability; 4) remaining useful plant life; 5) quantified and qualitative social benefits and social costs of available entrainment technologies; 6) entrainment impacts on the water body; 7) thermal discharge impacts; 8) credit for certain reductions in flow; 9) impacts on the reliability of energy delivery; 10) impacts on water consumption; and 11) availability of process water, gray water, wastewater, reclaimed water, or other waters of appropriate quantity and quality for reuse as cooling water.

Review by U.S. Fish and Wildlife Service and National Marine Fisheries Service

The Final Rule requires that the EPA or state permitting authority transmit covered permit applications to the appropriate Field Office of the U.S. Fish and Wildlife Service and/or Regional Office of the National Marine Fisheries Service (the Services) for a 60-day review prior to public notice of the draft or proposed permit. In addition, the permitting agency submits the draft permit, the permit application and any fact sheet to the Services, specifying the CWIS requirements and information related to threatened or endangered species and critical habitat in an action area.

Nuclear Facilities

The Final Rule provides, for a nuclear facility, if the owner or operator demonstrates to the EPA or state permitting authority that compliance with the Final Rule will result in a conflict with a safety requirement established by the Nuclear Regulatory Commission (NRC), the Department of Energy (DOE), or the Naval Nuclear Propulsion Program (NNPP), the permitting agency must establish BTA requirements that will not result in a conflict with a NRC, DOE or NNPP safety requirement.

Implementation

The Final Rule is implemented through the National Pollutant Discharge Elimination System permit program as permits under that program are renewed. Facilities will have to comply with the impingement mortality standard as soon as practicable following a determination by the permitting authority of the requirements for entrainment reduction. By synchronizing the compliance timelines for impingement mortality and entrainment requirements, the EPA addressed the concern that facilities would be required to install impingement mortality reduction technologies, only later to determine that entrainment requirements were incompatible with impingement requirements.

Under the Final Rule, the permitting authority establishes a compliance schedule for implementation for existing facilities. New units at existing facilities are required to comply by the time they begin operations.

If you have any questions, please feel free to contact any of the attorneys listed here.