

## **Recent developments under the Clean Water Act: Proposed rule modifies cooling-water intake unit requirements**

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**By Jessica John Bowman**

The Environmental Protection Agency has recently proposed a new rule under section 316(b) of the Clean Water Act. Section 316 governs the design, construction and use of cooling water intake structures, requiring that the “location, design, construction, and capacity” of such structures “reflect the best technology available for minimizing adverse environmental impact.” The proposed rule is designed to mitigate the impact of cooling water intake structures on fish and wildlife populations. In the ordinary course of operations, cooling water intake structures present a risk to fish, shellfish, and other wildlife; specifically, the cooling intake unit may impinge or entrain such organisms, causing fatalities and adversely affecting the ecological makeup of the body of water from which the water is drawn.



### **Facilities Subject to the Proposed Rule**

The new rule will apply to existing facilities if:

- The facility is a point source that uses or proposes to use cooling water from one or more intake structures (whether it does so directly or through an independent supplier that provides cooling water to the facility pursuant to a contract or other arrangement);
- The total design intake flow of the cooling water intake structure or structures is greater than 2 MGD; and
- The cooling water intake structure withdraws cooling water from the waters of the United States and at least 25 percent of the water withdrawn is used exclusively for cooling purposes.

As these conditions suggest, many power-production and manufacturing facilities will be subject to the new rule. A significant number of existing power-production and manufacturing facilities are point-source dischargers that draw more than 2 MGD through a cooling water intake structure. Of these, the EPA estimates that 93 percent of power-generating facilities

will satisfy the 25 percent cooling-water-use requirement, as most powerproduction facilities use water exclusively for cooling purposes. By contrast, the EPA projects that only 68 percent of manufacturing facilities meeting the aforementioned requirements will be subject to the rule, as a larger number of manufacturing facilities draw water for purposes other than cooling.

## New Reporting Requirements under the Proposed Rule

Under the proposed rule, those facilities with a design impact flow (“DIF”) of more than 2 MGD must submit additional information not currently required under NPDES permitting regulations, including proposed impingement mortality reduction plans, relevant biological survival studies, and the operational status of each water-intake unit. Facilities with an actual intake flow (“AIF”) of more than 125 MGD face additional reporting requirements, as discussed below.



## New Impingement- and Entrapment-Control Requirements under the Proposed Rule

The proposed rule implements new impingement and entrapment control standards for all existing facilities that meet the aforementioned eligibility criteria. Although the impingement-control requirements will apply uniformly to all facilities, the EPA has elected to vary the approach to entrapment-mortality controls on a facility-by-facility basis.

## Impingement-Mortality Controls

With respect to impingement-mortality controls, all existing facilities subject to the rule must meet either a design standard or a performance standard for impingement mortality. In other words, the facility must show that the number of impingement-related deaths falls within a prescribed upper limit. The facility may accomplish this by utilizing the best-available technology recognized by the EPA: traveling screens incorporating fish buckets, a low-pressure spray wash, and a dedicated fish return line. The EPA does not specify a particular screen configuration, mesh size or screen operations that must be used in the traveling screens; so long as a facility can demonstrate that its screen configuration can satisfy the impingement mortality limits, the facility may choose among several available options for these and other elements.

The EPA recognizes that a reduction in through-screen intake velocity to 0.5 feet per second may be a more effective means of reducing impingement mortality than the use of the traveling screens, but acknowledges that this option is not feasible for all existing facilities.

Accordingly, facilities may elect to comply with the impingement-mortality standards by demonstrating that the through-screen design velocity or the actual average intake velocity does not exceed 0.5 feet per second, rather than utilizing traveling screen technology. However, facilities that elect to use this alternative may be required to employ certain protective measures, such as a fish handling and return system, or otherwise demonstrate that species of concern are adequately protected by the reduced intake velocity.

## **Entrainment Controls**

Under the proposed rule, entrainment-mortality controls will be established on a case-by-case basis by the permitting authority. For all facilities with an intake of greater than 2 MGD DIF, a site-specific analysis of the effectiveness and feasibility of a number of candidate entrainment-control technologies will be conducted to determine whether it is appropriate to require additional controls. In some cases, it may be found that no additional controls beyond the already-established impingement controls would be justified.

Facilities with a cooling-water intake of greater than 125 MGD AIF will be subject to additional entrainment requirements. Such facilities would be required to submit an entrainment characterization study to be used by the director in determining the technology that should be incorporated at the particular site. In conducting the study, the facility must prepare an entrainment mortality data collection plan, which must include, among other things, a description of entrainment monitoring methods, taxonomic identification, latent mortality identification, and quality assurance and control procedures for data sampling and data analysis. The data collection must be submitted to the director for review and comment, and must be peer-reviewed by individuals selected in consultation with the director. In addition to the data collection plan, the facility will be required to provide site-specific information concerning the feasibility and associated incremental cost of implementing certain entrainment-control technologies, the revenue-impact of such technologies and the means of mitigating any such impact, and a discussion of water-quality and non-water-quality benefits and burdens associated with the technology, including data concerning increases in energy consumption, thermal discharges, air emissions, water consumption, noise, and risk to human safety. The director will consider these and other factors when determining the best technology available for use at each particular facility.

## **Additional Requirements for New Units**

New cooling-water intake units at existing facilities will be subject to additional requirements similar to those required at new facilities. Specifically, new units will be required to reduce intake flow to a level commensurate with that of a closed-cycle cooling unit. This may be accomplished by either incorporating a closed-cycle unit into the new unit design. Alternatively, a facility may demonstrate compliance by establishing that the new unit is roughly equivalent to a closed-cycle unit, reducing entrainment mortality by 90 percent of the reductions that would be obtained using a closed-cycle cooling system.

## LINKS

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