EPA’s new cooling water intake structure rule—
a closer look

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After an almost two year delay, EPA on Monday May 19 released its “final” Cooling Water Intake Structure (CWIS) regulations for existing facilities under Section 316(b) of the Clean Water Act. The rule covers roughly 1,065 existing facilities that are designed to withdraw at least two million gallons of water per day and use at least 25 percent of that water for cooling. EPA estimates that 521 of these facilities are manufacturing facilities, and the other 544 are power plants. EPA’s prior existing facility CWIS rule was the subject of several lawsuits, including one that made it to the Supreme Court. Because the rule includes multiple pathways for existing facilities to comply, many in the environmental community already are crying “foul” and reportedly preparing their newest challenge to the rules. Industry representatives also are unhappy with some aspects of the new rule. This Alert presents a brief summary of the regulations and the compliance options.

EPA’s 65 page prepublishation copy of the new regulations, was accompanied by almost 500 pages of preamble. It will take several weeks before it is officially published in the Federal Register. The rule, once published, will be effective 60 days later. Assuming a June 15 publication date, the rule could be effective on August 15, 2014. As discussed below, the new rule will be implemented primarily through the S/NPDES permit application process. A key date, in terms of what has to be in applications and/or newly effective permits, occurs 45 months (3 years, 9 months) after the effective date, or approximately May 15, 2018.¹ Rather than repeat EPA’s summary of the new rule, the following sets out more specifics of how the new rule will work.

New and modified key definitions

The new rule contains a few new or modified definitions that are important to understanding the rule, including two different measurements of Intake Flow (40 CFR §§ 125.92(a) and (g)):

- **Actual Intake Flow (AIF)** means the average volume of water withdrawn on an annual basis by the cooling water intake structures over the past three years. After

¹ These dates, of course, will need to be adjusted slightly depending on the actual Federal Register publication date.
Actual Intake Flow means the average volume of water withdrawn on an annual basis by the cooling water intake structures over the previous five years.

Design Intake Flow (DIF) means the value assigned during the cooling water intake structure design to the maximum instantaneous rate of flow of water the cooling water intake system is capable of withdrawing from a source waterbody...

The DIF determines whether a given CWIS is capable of withdrawing two million gallons per day and thus, if 25 percent or more of the water is used for cooling, the intake is covered by the new rules, while the AIF is used to determine if the required entrainment studies need to be done.

Several new/modified definitions may have a major impact when quantifying Impingement and Entrainment (including mortality) (“IM/EM”) rates or choosing between available compliance options:

(i) Entrainment mortality means death as a result of entrainment through the cooling water intake structure, or death as a result of exclusion from the cooling water intake structure by fine mesh screens or other protective devices intended to prevent the passage of entrainable organisms through the cooling water intake structure.

(j) Entrapment means the condition where impingeable fish and shellfish lack the means to escape the cooling water intake. Entrapment includes but is not limited to: organisms caught in the bucket of a traveling screen and unable to reach a fish return; organisms caught in the forebay of a cooling water intake system without any means of being returned to the source waterbody without experiencing mortality; or cooling water intake systems where the velocities in the intake pipes or in any channels leading to the forebay prevent organisms from being able to return to the source waterbody through the intake pipe or channel.

(n) Impingement means the entrapment of any life stages of fish and shellfish on the outer part of an intake structure or against a screening device during periods of intake water withdrawal. For purposes of this subpart, impingement includes those organisms collected or retained on a sieve with maximum distance in the opening of 0.56 inches, and excludes those organisms that pass through the sieve. Examples of sieves meeting this definition include but are not limited to a 3/8 inch square mesh, or a ½ by ¼ inch mesh. This definition is intended to prevent the conversion of entrainable organisms to counts of impingement or impingement mortality...

(m) Fragile species means those species of fish and shellfish that are least likely to survive any form of impingement. For purposes of this subpart, fragile species are defined as those with an impingement survival rate of less than 30 percent, including but not limited to [a list of 16 species of fish].

In a nutshell, impingement has been expanded to include fish and shellfish that become entrapped, among other places, in the forebay, hence potentially increasing the impingement count as compared to the past definition. The new impingement and entrainment mortality definitions also recognize the fact that the use of fine mesh screens in the intake typically results in 100 percent mortality to at least the smaller organisms caught on those screens and dictates whether this mortality must be attributed to impingement or entrainment. Consideration of impingement-related mortality of fragile species can be excluded from the Impingement Mortality Performance Study (discussed below) and the Impingement Technology Performance Optimization Study required for some of the impingement-related compliance options discussed below.
What constitutes BTA

Different BTA standards will continue to apply to Impingement Mortality and Entrainment, with the Entrainment standards being based on the permitting agency’s determination as to the maximum entrainment reduction warranted after consideration of the factors specified in 40 CFR § 125.98 (40 CFR § 125.94(d)). In terms of what constitutes BTA for IM, the new rule authorizes seven alternatives (40 CFR § 125.94(c)). Briefly stated, these are:

1. Closed-cycle recirculating system
2. 0.5 feet per second through-screen design velocity
3. 0.5 feet per second through-screen actual velocity
4. Existing offshore velocity cap
5. Modified traveling screens
6. Systems of technologies including management practices, and operational measures, approved as BTA by the S/NPDES issuing agency
7. Impingement mortality performance standard. A facility must achieve a 12-month impingement mortality performance standard of no more than 24 percent mortality, including latent mortality, for all non-fragile species

Additional measures can be added. The IM standard does not apply to that portion of the cooling water which is derived from process water, gray water, or other reused or reclaimed water. The S/NPDES permitting agency can also determine that the impingement rate is “de minimis,” allowing the agency to conclude that no further impingement controls are warranted. Finally, the permitting agency can determine that less stringent standards apply if a power generating unit qualifies as a low capacity generating unit (the annual capacity utilization rate must be less than 8 percent averaged over a 24 month continuous period). The IM Standards can also be reduced for nuclear facilities after consultation with the NRC, DOE or the Naval Nuclear Propulsion Program. More stringent standards can be set if needed to comply with state or tribal laws or water quality standards. (See generally, 40 CFR § 125.94).

Entrainment-related requirements must be set for those CWISs with AIFs of 125 MGD after an Entrainment Characterization Study and other information on cost, benefits and other impacts is submitted. (40 CFR § 122.21(r) (9-13)). Entrainment mortality must be assumed to be 100 percent, unless the permittee can demonstrate that the mortality of each entrained species is less than 100 percent. (40 CFR § 125.96(d)(3)). Weekly (or more often) visual or remote inspections of the CWIS will be required in order to ensure the identified technologies are working as intended.

Application and permitting requirements

Generally the studies that must be done and submitted with the next S/NPDES renewal application for facilities with existing CWISs have to be done over at least a two year period. Therefore, the regulations differentiate between applications due before and after May 15, 2018. Those applications submitted after this date must have full and complete studies. Those that have to be submitted before may be able to request that the submittal of some of the required studies and information be submitted in accordance with an agreed upon schedule, which may include deadlines after the application due date. They can even be rolled into a compliance schedule included in an S/NPDES permit issued after August 15, 2014. As always, the S/NPDES permitting agency can require additional information to be submitted. (40 CFR § 125.95.) With respect to future S/NPDES permit renewals, if there have not been any significant changes, an S/NPDES
Permittee can request that the application-related requirements be reduced after the first permit issued with CWIS requirements based on the new rule. (40 CFR § 125.95(c)).

Permits issued between the effective date and May 15, 2018 must include “Interim BTA” requirements. (40 CFR § 125.98(b)(5)). All permits issued within this time frame must include impingement-related monitoring (40 CFR § 125.96).

**Endangered Species Act (ESA)**

The bulk of the delays in finalizing the rule over the last year have been due to EPA’s belated consultation with the U.S. Fish & Wildlife Service and the National Marines Fisheries Service. Their influence can be seen throughout the rule. As stated in a “Note” at the end of 40 CFR § 125.90, these two agencies have determined that any impingement or entrainment of a federally listed species constitutes a “taking” under the ESA. A “taking” permit or an Incidental Take Statement, provided through a Service-issued biological opinion as a result of an ESA Section 7 formal consultation, is needed if impingement or entrainment of a listed species is deemed reasonably possible.

**Closing**

The new CWIS rules for existing facilities are complicated. They do provide the S/NPDES permitting agency a fair amount of flexibility while placing some additional burdens on those agencies. If the rule is challenged, it most likely will be on those bases.

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