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# COOLING WATER INTAKE STRUCTURES & THE BEST TECHNOLOGY AVAILABLE

[Natural Resource \(/full-blog/category/Natural+Resource\)](#)

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Cooling water intake structures (CWISs) are used to dispel waste heat generated by power plants and manufacturing facilities.<sup>[i]</sup> In doing so, these CWISs extract large volumes of water from nearby water sources.<sup>[ii]</sup> The force of the water can “trap, or ‘impinge,’ larger aquatic organisms against the structures and draw, or ‘entrain,’ smaller aquatic organisms into a facility’s cooling system.”<sup>[iii]</sup> The heat, physical stress, or chemicals used to clean the cooling system may cause organisms to be killed or injured.<sup>[iv]</sup> When trapped against screens at the front of an intake structure, larger organisms may also be killed or injured.<sup>[v]</sup> The Clean Water Act (CWA) requires the Environmental Protection Agency (EPA) to establish regulations on the location, design, construction, and capacity of CWISs that “reflect the best technology available for minimizing adverse environmental impact.”<sup>[vi]</sup>

The harm caused by a CWIS directly relates to the amount of water the structure draws, which depends on the type of cooling system in use.<sup>[vii]</sup> “Once-through” cooling systems draw cold water and return heated water to the body of water in a continuous flow, whereas “closed-cycle” systems largely recirculate the same cooling water by using towers or reservoirs to dispel heat.<sup>[viii]</sup> Closed-cycle cooling draws in roughly 95 percent less water than once-through cooling.<sup>[ix]</sup>

In 2014, the EPA issued a final rule on CWISs. Under the final regulations, existing facilities withdrawing more than 2 million gallons per day with at least 25 percent of their water from adjacent water sources exclusively for cooling purposes are required to reduce fish impingement.<sup>[x]</sup> The owner or operator of the facility can choose one of seven options to meet the new requirements for reducing impingement.<sup>[xi]</sup> New units that add electrical generation capacity at an existing facility are required to add technology that achieves a reduction in actual intake flow to a level equivalent to that which can be attained by the use of a closed-cycle recirculating system or achieves a prescribed reduction in entrainment mortality of all stages of fish and shellfish that pass through a sieve with a maximum opening dimension of 0.56 inches.<sup>[xii]</sup> Several petitions for review were filed, but this post focuses on the CWA-based challenges from the “Environmental Petitioners.” The Environmental Petitioners allege that the Rule’s entrainment and impingement requirements violate section 316(b) of the CWA.<sup>[xiii]</sup>





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Regarding entrainment requirements, the Environmental Petitioners argue that section 316(b) requires the EPA to establish a one national entrainment standard, and the Rule does not adequately define “best technology available,” leaving Directors with ‘unfettered discretion’ to establish entrainment requirements at individual facilities.”[xiv] However, the Court had already held in *Riverkeeper, Inc. v. E.P.A.*, 358 F.3d 174 (2d Cir. 2004), that section 316(b) of the CWA “merely directs” the EPA to require that the CWISs reflect the ‘best technology available, but it does not require the EPA to regulate either by one overarching regulation or on a case-by-case basis” [xv] While the Environmental Petitioners acknowledges that the Rule provides factors a director must consider when establishing a site-specific entrainment standard, they maintain that because the Rule provides no guidance on the weight, there is unfettered decision making.[xvi] Yet, as the Court explains, the directors consider the factors, limiting discretion, and must explain to the EPA in writing why any better-performing technologies were rejected.[xvii] At that point, the EPA may review and reject the director’s explanation at to the best available technology.[xviii]

Regarding impingement requirements, the Environmental Petitioners argue that closed-cycle cooling – rather than modified traveling screens – is the best technology available for minimizing impingement mortality.[xix] Even if the EPA’s best technology available determination were lawful, the Environmental Petitioners contend that the Rule violates the CWA by failing to ensure that regulated facilities meet the 76 percent survival rate standard set forth in 40 C.F.R. § 125.94(c)(7). [xx] Specifically, two of the seven options for reducing impingement mortality allow a facility to avoid complying with the 76 percent standard, which imposes no standard at all.[xxi] Analyzing the entrainment requirement, the Court already decided that it was not arbitrary for the EPA to decide that closed-cycle cooling was not the best available technology. One of the two options mentioned allows a facility to operate in the system that the director determines is the best available technology for impingement reduction at that site. To choose this option, a facility must submit an “ ‘impingement technology performance optimization study’ that includes at least two years of biological data and describes the technologies that will be used to reduce impingement mortality.”[xxii] The directors will then make an informed determination by comparing the results to the 76 percent standard.[xxiii] Because overall impingement reduction at a specific facility cannot always be measured strictly by utilizing survival or mortality percentages, the Court found that the EPA acted rationally in its decision to allow directors some discretion in determining the adequacy of their facility’s impingement reduction.[xxiv]

While closed-cycle cooling may be more appealing for the preservation of aquatic organisms, studies show that it is not feasible for many facilities. Almost 25 percent of facilities have land availability restrictions, such as limited physical space, restrictive zoning, etc., which prevent retrofitting.[xxv] Retrofitting would increase the emission of pollutants at facilities.[xxvi] Furthermore, some of these facilities are nearing the end of their use, and it would not be cost effective to retrofit them.[xxvii] Declaring closed-cycles the best available technology without feasibility for many facilities would be inefficient.

[i] *Cooling Water Intake Structure Coal. v. EPA*, No. 14-4645, 2018 WL 3520398, at \*1 (2nd Cir. July 23, 2018).

[ii] *Id.*

[iii] *Id.*

[iv] Env'tl. Prot. Agency, *Cooling Water Intakes*, (Aug. 13, 2018), <https://www.epa.gov/cooling-water-intakes>.

[v] *Id.*

[vi] 33 U.S.C.A. § 1326 (West).

[vii] *Cooling Water Intake Structure Coal. v. EPA*, No. 14-4645, 2018 WL 3520398, at \*7 (2nd Cir. July 23, 2018).

[viii] *Id.*

[ix] *Id.*

[x] Env'tl. Prot. Agency, *Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities*, (Aug. 13, 2018), [https://www.epa.gov/sites/production/files/2015-04/documents/final-regulations-cooling-water-intake-structures-at-existing-facilities\\_fact-sheet\\_may-2014.pdf](https://www.epa.gov/sites/production/files/2015-04/documents/final-regulations-cooling-water-intake-structures-at-existing-facilities_fact-sheet_may-2014.pdf).

[xi] *Id.*

[xii] *Id.*

[xiii] *Cooling Water Intake Structure Coal. v. EPA*, No. 14-4645, 2018 WL 3520398, at \*5 (2nd Cir. July 23, 2018).

[xiv] *Id.* at \*8..

[xv] *Id.* at \*7.

[xvi] *Id.* at \*8.

[xvii] *Id.*

[xviii] *Id.*

[xix] *Id.* at \*9.

[xx] *Id.*

[xxi] *Id.*

[xxii] *Id.*

[xxiii] *Id.*

[xxiv] *Id.*

[xxv] *Id.* at \*8.

[xxvi] *Id.*

[xxvii] *Id.*

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