Clean Water Act Section 316(b) Existing Facilities Proposed Rule
Qs and As
March 28, 2011

1. **What is this regulation about?**

   EPA is proposing these standards to meet its obligations under Section 316b of the Clean Water Act to issue cooling water intake safeguards. By setting flexible technology standards for these structures, EPA's common sense proposal would greatly reduce damage to ecosystems while accommodating site-specific circumstances and providing cost effective options.

2. **What are impingement and entrainment?**

   Impingement happens when fish and other organisms are trapped against screens when water is drawn into facility's cooling system. The injuries often prove fatal within a few days, because, for example, the fish lose gills and cannot breathe. Young or small fish are most susceptible to being killed by impingement. Entrainment happens when organisms are drawn into the facility. Once inside of the facility, entrained organisms are exposed to pressure and high temperatures, which kill them. Very young organisms, usually at the egg or larvae stage, are most susceptible to death by entrainment.

3. **What is once-through cooling?**

   Once-through cooling is when a facility withdraws water from a waterbody, sends it through the cooling system one time, and then discharges the heated water back to a waterbody.

4. **What is closed-cycle cooling?**

   Closed-cycle cooling is when a facility recycles or re-circulates cooling water within its facility, and thus withdraws only 2% to 5% of the water it would withdraw if it were once-through cooling. Closed cycle cooling is often referred to as cooling towers, or wet cooling, which may be tall, as in hyperbolic, natural draft cooling towers, or may be short and modular, employing fans to produce draft, as in mechanical evaporative cooling towers.

5. **What facilities are affected by this rule?**

   This proposed rule affects existing (as opposed to new) power plants and manufacturing facilities that generate electricity or manufacture other goods and that also withdraw at least 2 million gallons per day of cooling water, which they use

to dissipate waste heat. Other than power plants, the industries most likely to be affected are manufacturers of aluminum, iron, steel, petroleum, paper, chemicals, and food processing.

6. **How many power plants and manufacturing facilities are covered by this rule? How many already comply with the requirements of the rule? How many of each of these are power plants vs. manufacturing facilities?**

This rule covers roughly 1,260 existing facilities that each withdraws at least 2 million gallons per day of cooling water. EPA estimates that approximately 590 of these facilities are manufacturers and the other 670 are power plants. Approximately 740 facilities already employ technologies that are likely to comply with the impingement requirements of the rule.

7. **How many fish and other organisms are killed through impingement and entrainment?**

In order to compare different fish species of different ages from different regions of the U.S., EPA converts the number of eggs, larvae, and adults of varying ages of all species into an equivalent number of 1-year old fish. Based on this approach, EPA estimates that 2.1 billion fish, crabs, and shrimp are killed annually by impingement and entrainment. EPA was not able to estimate the numbers of other aquatic organisms killed by cooling water intakes, many of which comprise the foundation of aquatic food chains.

8. **What are the requirements of this proposed rule?**

There are three components to the proposed regulation. First, most facilities would be subject to an upper limit on how many fish can be killed by the facility through impingement. The facility would determine which technology would be best suited to meeting this limit, including whether to reduce its intake velocity to 0.5 feet per second. At this rate, most of the fish can swim away from the cooling water intake of the facility. Second, facilities that withdraw very large amounts of water--at least 125 million gallons per day--would be required to conduct studies to help their permitting authority determine whether and what site-specific entrainment mortality controls, if any, would be required. This process would include public input. Third, new units at an existing facility that are built to increase the generating capacity of the facility would be required to reduce the intake flow to a level similar to a closed cycle, recirculation system. Closed cycle systems are the most effective at reducing entrainment. This can be done by incorporating a closed-cycle system into the design of the new unit, or by making other design changes equivalent to the reductions associated with closed-cycle cooling.

9. Does the technology required under the rule exist already?

The technologies required under the rule have been in use for several decades and have been implemented at a large number of existing facilities.

10. When will plants have to comply?

All compliance dates are geared to the time EPA issues a final rule. The proposed rule EPA just released is open for public comment. The compliance dates won't be relevant until EPA issues a final rule, which is scheduled for July 2012. When the final rule is effective, technologies to meet the impingement requirements of the rule would have to be implemented as soon as possible but within 8 years at the latest. Larger facilities have to perform some additional studies but that will be determined by their permitting authority. New units would have to comply by the time they begin operations.

11. What is the timing of the final rule, and how can the public comment on the proposed regulation?

EPA is taking public comment on the proposed regulation for 90 days after publication of the proposed regulation in the Federal Register. Comments may be submitted via www.regulations.gov. The proposed regulation is posted at www.epa.gov/waterscience/316b. The final rule must be signed by July 27, 2012 under the terms of a settlement agreement with an environmental organization.

12. How does this proposed rule relate to the willingness to pay survey that EPA plans to conduct?

The willingness to pay survey will enable EPA to better understand the benefits of reducing impingement and entrainment of aquatic organisms by power plants and manufacturing facilities. We expect to launch this survey in the next two months, and issue another Federal Register notice that will contain the results of the survey. That notice will solicit comment from the public before EPA must make decisions on the final rule.

13. What are the built-in flexibilities in the rule?

In meeting the impingement requirement that a limited number of fish be killed by a facility, the facility would determine which technology to employ to meet the impingement limit, including whether to reduce its intake velocity to 0.5 feet per second.

In meeting the requirement to reduce the intake flow to a level similar to a closed cycle, re-circulating system, existing facilities looking to add a new unit to increase the electrical generating capacity of the facility may either incorporate a closed-cycle system into the design of the new unit or make other design changes equivalent to the reductions in fish mortality associated with closed-cycle cooling.

14. What do new facilities need to do to comply with the rule as opposed to existing facilities?

A new facility for purposes of CWA section 316(b) consists of 1 or more brand new electric generation units and is not affected by this rule. New facilities must comply with the 316(b) Phase I rule affecting new facilities, which was issued in 2001. See http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/phase1/index.cfm.

This proposed rule affects existing power plants and manufacturing facilities that generate electricity or manufacture other goods and that also withdraw at least 2 million gallons per day of cooling water.