

	Implications of EPA's proposed Clean Water Act 316(b) Regulations on the Power and Manufacturing Industry			
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Overview

- **What is 316(b)?**
- **316(b) History**
- **Current Rules In Place**
- **Proposed Rule for Phase II**
- **Who is affected?**
- **Regulatory Requirements Summary**

What is 316(b)?

- **§316(b) of the Clean Water Act. §316(b) requires that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.**
 - Cooling water intake structures cause **adverse environmental impact** by pulling large numbers of fish and shellfish or their eggs into a power plant's or factory's cooling system. There, the organisms may be killed or injured by heat, physical stress, or by chemicals used to clean the cooling system. Larger organisms may be killed or injured when they are trapped against screens at the front of an intake structure.

316(b) Basics

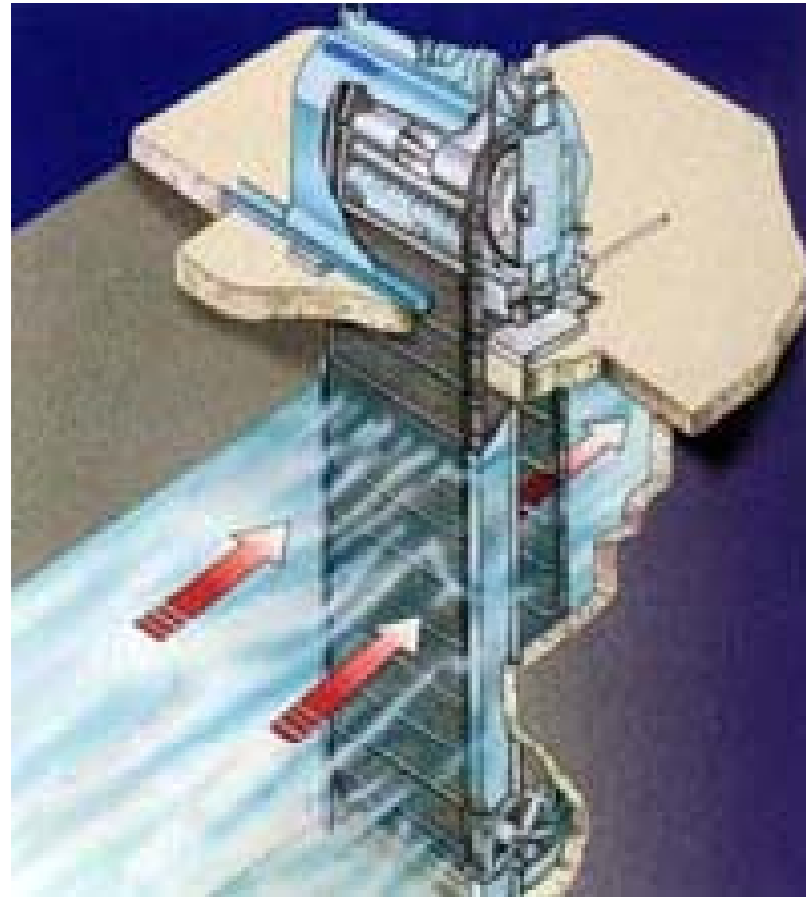
- **Cooling Water Intake Structure (CWIS)**
- **Impingement (IM)**
 - organisms trapped on the CWIS screens
- **Entrainment (E)**
 - organisms (eggs and larvae) that make it through the CWIS screens and are now entrapped in the cooling system

Cooling Water Intake Structure



CWIS Screen Illustration

- **Typical screen used by Power plants**



316(b) History

- **Clean Water Act 1972**
 - Section 301 - discharge of pollutants
 - Section 306 – establish standards
 - Section 316 – design, location, construction and capacity for cooling water intake structures (CWIS)
 - Section 402 – permitting process
- **1976 EPA published first 316(b) regulations**
 - Best Technology Available for CWIS
- **Rule was remanded in 1979**
- **2001 – New Facility Rule (Phase I Rule)**
- **2004 – Larger Flow Existing Power Plants (Phase II Rule)**
- **2006 – Low Flow Existing Power Plants, Existing Manufacturing Facilities and New Offshore Oil and Gas Facilities (Phase III Rule)**
- **2007 – EPA suspended provisions of the Phase II rule**
- **2010 – Remanded Phase III rule for existing facilities (power and industrial)**
- **2011 – Proposed new rules for all existing power facilities and industrial facilities**

Current 316(b) - Rules in Place

- **Phase I – New Facilities (2001)**
 - Applies to facilities that withdraw > 2 MGD and use 25% of the water for cooling purposes
 - Two Tracks for compliance
 - Track I – CWIS is commensurate with closed-cycle, meets 0.5 fps, compliance based on waterbody location
 - Track II – must demonstrate that technologies will reduce AEI

Current 316(b) - Rules in Place

- **Phase II Rule – Large Flow Existing Power Plants(2004)**
 - Design intake flow > 50 MGD and 25% of water use is for cooling purposes
 - Permit Requirements for CWIS are on a case-by-case, best professional judgment (BPJ) basis

Current 316(b) - Rules in Place

- **Phase III Rule – New Offshore Oil and Gas Facilities(2006)**
 - establishes categorical requirements for new offshore oil and gas extraction facilities that have a design intake flow threshold of greater than 2 MGD and that withdraw at least 25 percent of the water exclusively for cooling purposes.
 - Fixed facilities vs non-fixed facilities
 - Different Tracks based on facility type

316(b) Proposed Rule

- **Timeline**

- Proposed Rule issued for comments on March 28, 2011
- Comment period ended August 19, 2011
- July 2012 proposed date for final issuance

Who is affected?

- **Applies to all existing power generating facilities and existing manufacturing and industrial facilities that have a design intake flow of at least 2 MGD from waters of the US and use at least 25% of the water they withdraw exclusively for cooling purposes**

Facilities Impacted

- **EPA has identified the following number of facilities that are in scope with the current proposed rule:**
 - 670 Electric generators
 - 590 Manufacturers

Applicable Requirements

Facility Characteristic	Applicable Requirements
Existing facility with an AIF > 125 MGD	Impingement mortality requirements (125.94(b)) and Entrainment Characterization Study 125.94.(c)
Existing facility with DIF > 2 MGD but AIF not greater than 125 MGD	Impingement mortality requirements
New Unit with a DIF > 2 MGD at an existing facility	Impingement and entrainment mortality requirements 125.94(d)
Other existing facility with a DIF of 2 MGD or smaller or that has an intake structure that withdraws less than 25 % of the water for cooling purposes	Case-by-case, best professional judgement

Requirements in more detail

- **Impingement - 125.94(b)**
 - Achieve mortality standard of 12% annually or 31% monthly
 - Facilities on ocean or tidal waters must reduce shellfish impingement to a level comparable to having a barrier net in place
 - Count fish included in carry over or removed as part of debris
 - Incorporate protective measures on the screens
 - Operator must ensure there is a means for impingeable fish or shellfish to escape cooling water intake structures or be returned to the waterbody
 - Must demonstrate CWIS has maximum intake velocity of 0.5 fps

Requirements in more detail

- **Entrainment – 125.94(c)**
 - BTA Standards will be established on a case-by-case basis by the Director using factors presented in 125.98
 - Permit application
 - Alternate schedule
 - Species of concern
 - Site-specific Impingement Mortality Reduction Plan
 - Site-specific Entrainment Mortality Controls
 - Ongoing permitting proceedings
 - Site-specific entrainment mortality data collection plan and studies
 - Annual Certification Statement
 - Additional information

Application Requirements 40 CFR 122.21

- **Source water physical data**
 - physical water body configuration
- **Cooling water intake structure data**
 - details of CWIS, location, operation, DIF, water balance, flow diagram, etc
- **Source water baseline biological characterization data**
 - biological characterization of the fisheries and aquatic species in the vicinity of the CWIS
- **Cooling water system data**
 - description of the operation of the cooling water system and relationship to CWIS. Provide flow design, water use, withdrawals, processes etc
- **Impingement Mortality Reduction Plan**
 - demonstrate 0.5 fps or impingement studies

Application Requirements 40 CFR 122.21

- **Performance Studies**
 - demonstration studies of survival
- **Operational Status**
- **Entrainment Characterization Study**
 - collection of entrainment data and plan
 - peer review
- **Comprehensive Technical Feasibility and Cost Evaluation Study**
 - evaluate candidate entrainment mortality control technologies
- **Benefits Valuation Study**
 - evaluate magnitude of water quality benefits of the entrainment reduction technologies and operational measures evaluated
- **Non-water Quality and Other Environmental Impacts Study**
 - provide discussion of benefits attributed to each technology and operational measure considered

Application Due Dates

- **6 Months**
 - Source Water Physical Data
 - Cooling Water Intake Structure Data
 - Source Water Baseline Biological Characterization Data
 - Cooling Water System Data
 - Proposed IM Reduction Plan
 - Performance Studies
 - Operational Status
 - Entrainment Characterization Study Plan

Application Due Dates

- **3.5 Years**

- Proposed IM Reduction Plan Results

- **4 years**

- Entrainment Characterization Study Completed

- **5 years**

- Comprehensive Technical Feasibility and Cost Evaluation Study
- Benefits Valuation Study
- Non-water Quality and Other Environmental Impacts Study

What does this mean for industry?

- Potential modifications in their CWIS design to meet the new BTA requirements
 - Adding cooling towers
 - Adding new screens (i.e. fine mesh)
 - Change in operation of screens
- Changes in their existing NPDES permits
- Implementing biological and technical studies

(Continued)

- Compliance monitoring
- Increased O&M costs
 - Costs to complete application and studies range from \$200k to \$1m
- More agency involvement/scrutiny

Current Rule Status

- Comment period ended August 19, 2011
- EPA currently reviewing comments
- Rule is anticipated to change dramatically from current status
- Law suits threatened on both sides
- Rule will be implemented as result of original lawsuits

Closing

- **Questions/Discussion**