CWA Section 316(b)

Statutory Language

Any standard established pursuant to section 301 or section 306 of this Act and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. (33 U.S.C. 1326)

Practical Language

If you have a NPDES permit and use cooling water withdrawn from a surface water of the US, you have to comply with Section 316(b).

Applicable Regulations

2001 - New Facility Rule – 125.80 - 125.89

- Meets definition of new source or new discharger
- Is a greenfield or stand-alone facility
- Commences construction after January 17, 2002
- Uses a newly constructed intake structure or an expanded existing intake structure

2006 - New Offshore Oil and Gas Extraction Facilities 125.130-125.139

- Any facility that meets definition of new facility and is regulated by the Offshore or Coastal Subcategories of the Oil and Gas Extraction Point Source Category ELG.
- Date for construction commencement is July 17, 2006.

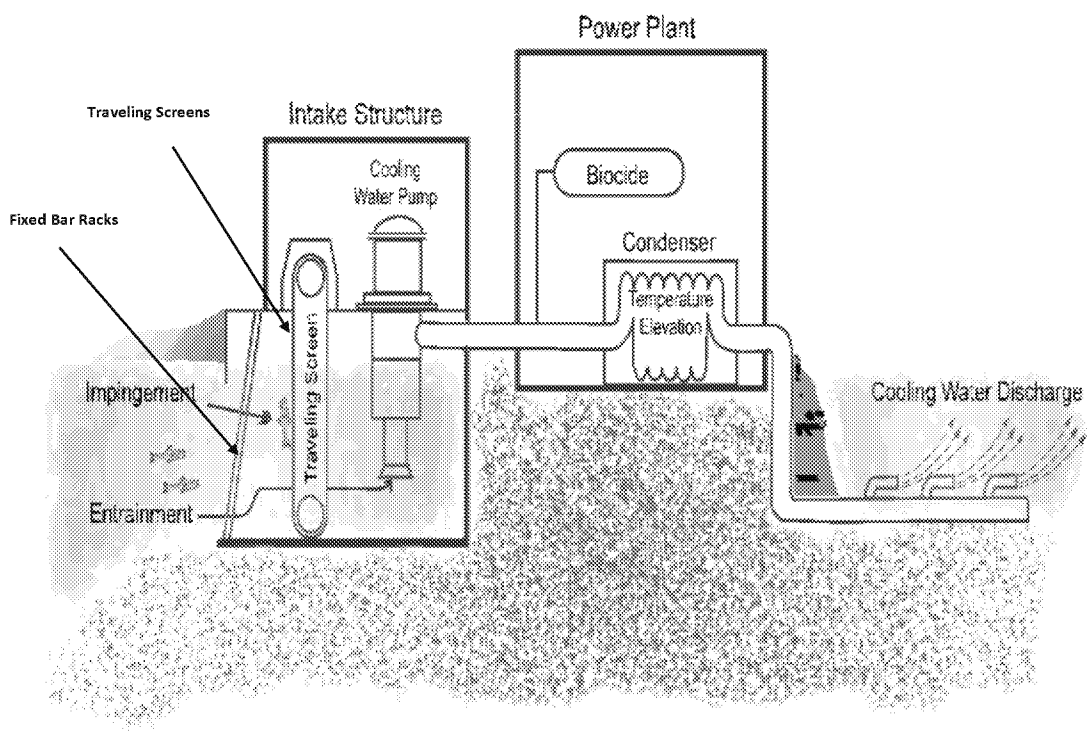
2014 - Existing Facility rule – 125.90 – 125.98

- Not a new facility
- The Existing Facility Rule encompasses two other rules that were remanded by the courts; the 2004 Phase II and 2006 Phase III rulemakings.

2014 – BPJ Authority– 125.90(b)

- Specifies that any facility not subject to one of the above rules is subject to 316(b) under a Best Professional Judgment basis.
- Facilities that withdraw less than 2 MGD or use less than 25% for cooling.

Typical Steam Electric Facility



Study Plans

Section	Study Name	Study Contents
(r)(2)	Source water physical data	Water body description, hydrology, chemistry, area of influence of the intake structure
(r)(3)	Cooling water intake structure data	Configuration of intake, flows, water balance diagram, typical operations
(r)(4)	Source water baseline biological characterization data	Species present, susceptibility to impingement and entrainment, spawning periods, seasonal patterns; Threatened and Endangered species documentation
(r)(5)	Cooling water system data	Configuration of cooling water system, water reuse
(r)(6)	Intended method of compliance with impingement mortality standard	Select impingement mortality compliance path, option-specific info (e.g., monitoring plan for BTA, documentation of velocity); Performance Optimization Study
(r)(7)	Existing entrainment performance studies	Previous studies on technology efficacy, studies from other facilities, other entrainment studies
(r)(8)	Operational status	Age, utilization, past upgrades
(r)(9)	Entrainment characterization study	Entrainment data collection plan
(r)(10)	Comprehensive technical feasibility and cost evaluation study	Evaluate feasibility of all technologies, engineering/social cost estimates
(r)(11)	Benefits valuation study	Monetized losses from impingement and entrainment, other benefit categories
(r)(12)	Non-water quality and other environmental impacts study	Energy penalty, thermal, air emissions, safety, reliability, etc.
(r)(13)	Peer Review of (r)(10), (11), and (12)	External peer review of Feasibility, Costs, Benefits, and Environmental Impacts Studies; Must notify Director of reviewers; Director may disapprove and/or require additional reviewers

Impingement Mortality: Compliance Alternatives

Compliance alternative	Technology basis	% intakes expected to use this alternative*
Pre-approved technology; no biological compliance monitoring	Closed-cycle	18%
	Design intake velocity < 0.5 fps	21%
	Existing offshore velocity cap	1%
Streamlined compliance alternative	Actual intake velocity < 0.5 fps	13%
	Modified traveling screens	29%
	System of Technologies (ex. intake location, behavioral deterrents)	17%
12 month performance standard of no more than 24% mortality	As demonstrated through biological monitoring	< 1%
Total		100%

BTA Entrainment Determination

- Best Professional Judgment Determination
- Rule requires Director to specifically describe why any entrainment control technologies have been rejected (40 CFR 125.98(f)(1).
  - Facilities should be prepared to provide information regarding closed cycle systems even when not required by the rule to make the administrative record as strong as possible.
- Director <u>must</u> consider:
  - Number and type of organisms affected
  - Changes in air emissions
  - Land availability
  - Remaining useful plant life
  - Social benefits and costs
- Director <u>may</u> consider:
  - Entrainment impacts on the waterbody
  - Thermal impacts
  - Unit retirements
  - Local energy reliability
  - Water consumption
  - Availability of gray water and other waters for reuse
- The <u>weight</u> given to each factor is within the Director's discretion.
- For nuclear facilities, the Director must consider any safety requirement established by NRC, DOE or NNPP in meeting impingement standards and setting BTA for entrainment.

ESA Review

- Rule ensures the Services have an early review of permit applications, an opportunity to recommend measures to include in the permit, and an opportunity to review draft permits.
  - 60-day period of review of application before a draft permit can be issued.
  - May only recommend reasonable and prudent measures – cannot alter the basic design, location, scope duration or timing and may involve only minor changes.
  - When Services find a proposed State permit is likely to jeopardize a listed species, they may request a written response from EPA to their finding.
- Services may recommend measures to: minimize incidental take, reduce or remove more than minor detrimental effects, avoid jeopardizing Federally-listed species or adversely modifying designated critical habitat.
  - Rule requires monitoring and reporting associated with those measures.
  - Annual report of those additional measures, monitoring, and reporting established by the Director.

Additional Considerations

- Rule requires BTA based upon rule requirements to be established in every permit after the effective date of the rule (October 14, 2014).
- 316(b) conditions can be granted compliance schedules that meet the requirements of 40 CFR 122.47.
- The Director may consider factors such as normally scheduled outages and grid reliability in determining the compliance schedule requirements.
- The Existing Facility Rule does contain a de minimis alternative.
  - Anticipated to be used minimally, no further controls warranted based upon a low rate of impingement (few fish per month)

Hydroelectric Facilities

- Hydroelectric Generation Water is not subject to the NPDES program as there is no addition of pollutants and it maintains status as a WOTUS.
  - National Wildlife Foundation v Gorsuch, 693 F.2d 156 (D.C. Cir. 1982);
  - National Wildlife Foundation v Consumers Power 862 F.2d 580 (6th Cir. 1988)

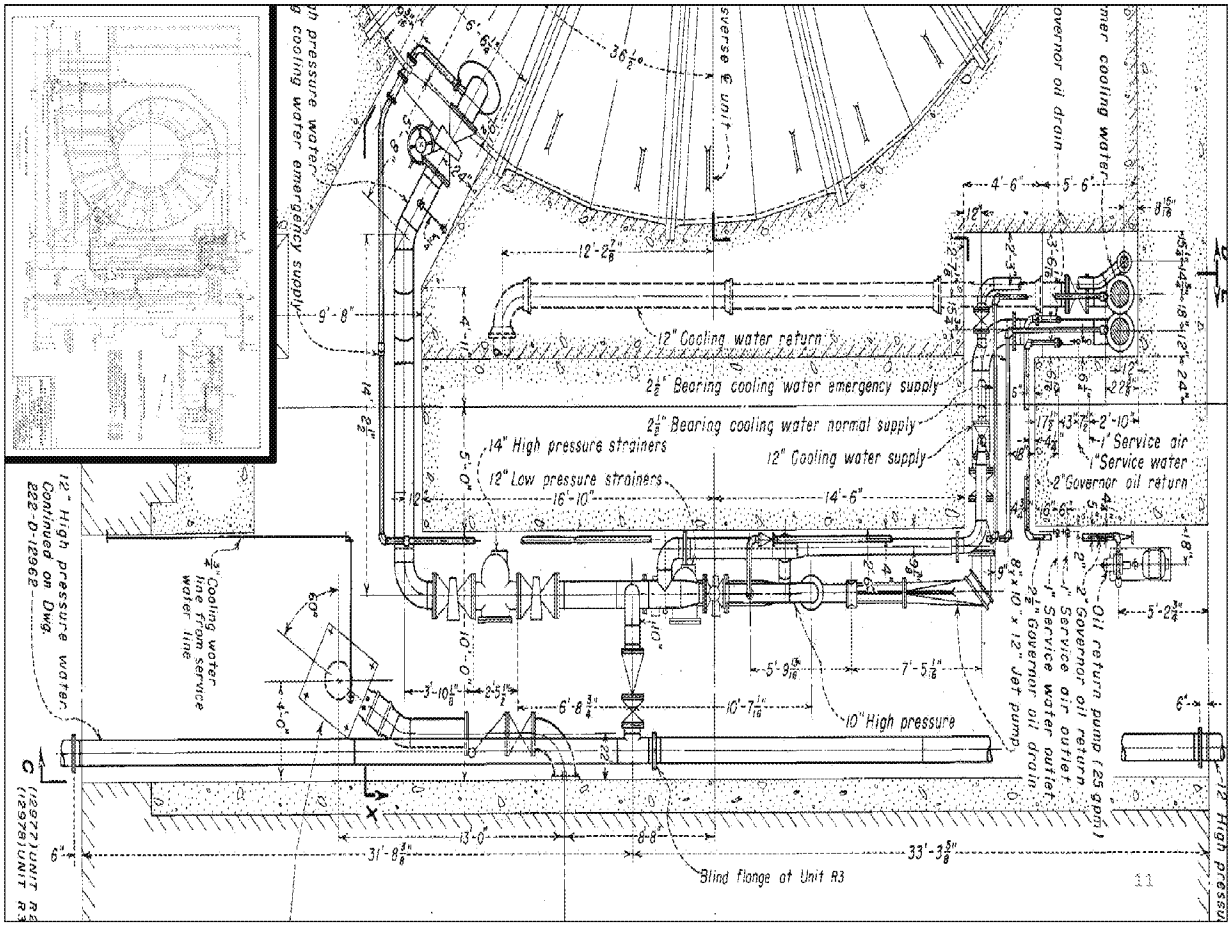
- The Consumers Power case acknowledges the distinction between hydroelectric generation water and operational wastewater discharges such as noncontact cooling water, oil separator water, and turbine pit dewatering water, etc.

> "Dams, under certain circumstances, may "add" pollutants from the outside world, such as when they discharge grease into water passing through the outlet works. ...EPA's Sec. 402 treatment of the Ludington facility's wastewater, far from evincing irrational or arbitrary agency behavior, represents a reasonable distinction between those pollutants already in the water moved and transformed by the essential operation of a hydroelectric power dam and those waste products "added" to the water by tangential processes in generating electricity. "

- COLUMBIA RIVERKEEPER v. United States Army Corps of Engineers, Dist. Court, ED Washington 2014
  - Requires Dams to apply for NPDES permits under a settlement agreement that will address 316(b).

Hydroelectric Facilities

- If the facility has a NPDES permit and uses cooling water withdrawn from a surface water (WOTUS), then 316(b) applies.
- Any form of withdrawal, whether pumped or gravity flow constitutes use of an intake structure.
- EPA expects that most hydroelectric facilities will use less than 2 MGD and thus are not subject to the specific rules, but BPJ.
- EPA does expect, however, that almost all the water withdrawn by the facility will be for cooling purposes.
- For those facilities subject to the specific rules, EPA anticipates that existing facilities will comply with the system of technologies approach for impingement.
- EPA is willing to work with the hydroelectric facility on implementation of the rule requirements as there may be some unique aspects of operation that effect submissions and compliance.


12" Cooling water return
2½" Bearing cooling water emergency supply
2½" Bearing cooling water normal supply
12" Cooling water supply
14" High pressure strainers
12" Low pressure strainers
10" High pressure
Blind flange at Unit R3
1" Service air
1" Service water
2" Governor oil return
2" Governor oil return
1" Service air outlet
1" Service water outlet
2½" Governor oil drain
8" x 10" x 12" Jet pump
Oil return pump (25 gpm)
12" High pressure water
Continued on Dwg.
222-D-12962
4" Cooling water line from service water line
(12972) UNIT R2
(12978) UNIT R3
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