



**BUREAU OF WATERSHED MANAGEMENT
PROGRAM GUIDANCE
WASTEWATER POLICY MANAGEMENT TEAM**

**Guidance for Evaluating
Intake Structures
Using Best Professional Judgment (BPJ)**

[Implementing Section 316(b) of the Clean Water Act and Section 283.31(6) of Wisconsin Statutes.]

February 2, 2009

[3400-2008-04]

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Introduction

Section 316(b) of the Clean Water Act requires, and Section 283.31(6), Wis. Stats., allows the Department to require that the location, design, construction, and capacity of intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact. The Department's authority to regulate intake structures is tied to the issuance of Wisconsin Pollutant Discharge Elimination System (WPDES) permits and is found in s. 283.31(6), Wis. Stats:

“Any permit issued by the department under this chapter which by its terms limits the discharge of one or more pollutants into the waters of the state may require that the location, design, construction and capacity of water intake structures reflect the best technology available for minimizing adverse environmental impact.”

For many years, federal regulations have been implemented without specific standards in place, on a resource-intensive, site-by-site basis. Following settlement of a lawsuit in the mid-1990's, USEPA began developing national standards in three phases for regulating cooling water intake structures: Phase I for new facilities, Phase II for existing power plants that withdraw ≥ 50 MGD for cooling, and Phase III for all other facilities using an intake structure.

Phase I (November 9, 2001): **New facilities.**

The USEPA established location, design, construction and capacity standards for cooling water intake structures at new facilities (power plants and manufacturing facilities). **This rule applies to all new facilities that withdraw > 2 MGD, if they use $\geq 25\%$ of their intake water for cooling.** New facilities with smaller cooling water intakes are to be regulated on a site-by-site best professional judgment (BPJ) basis. Phase I provides 2 paths for compliance. The first requires compliance using default technologies that address intake capacity, such as cooling towers (as opposed to a once-through system). The second track would utilize a site-specific study to determine suitable controls that would achieve comparable performance to the first track.

<http://www.epa.gov/waterscience/316b/phase1/>

Phase II (July 9, 2004): **Existing Power Plants > 50 MGD.**

Phase II addresses large existing power plants that are designed to withdraw ≥ 50 MGD and that use $\geq 25\%$ of their withdrawn water for cooling. The final rule required protection against environmental losses. For example, requirements call for the number of organisms harmed when pinned against parts of an intake structure (i.e., “impingement mortality”) to be reduced by 80 to 95 percent from uncontrolled levels. Requirements also call for the number of aquatic organisms drawn into the cooling system (“entrainment”) to be reduced by 60 to 90 percent from uncontrolled levels. The rule provides several compliance alternatives, such as using existing technologies, selecting additional fish protection technologies (such as screens with fish return systems), using restoration measures, and others.

The Phase II rule was challenged by a number of parties and the 2nd Circuit Court of Appeals issued a decision in January 2007 (Riverkeeper vs. EPA, No. 04-6692, 2d Cir. Jan. 25, 2007). The court's decision remanded several provisions of the Rule on various grounds. The provisions remanded include:

- EPA's determination of the Best Technology Available under section 316(b);
- The Rule's performance standard ranges;
- The cost-cost and cost-benefit compliance alternatives;
- The Technology Installation and Operation Plan (TIOP) provision;
- The restoration provisions; and
- The "independent supplier" provision.

With so many provisions of the Phase II rule affected by the decision, USEPA decided to suspend the entire rule. USEPA has stated that it intends to re-write the Phase II rule to address all of the issues identified by the court and that, in the meantime, **all permits for Phase II facilities must address 316(b) requirements on a BPJ basis.**

<http://www.epa.gov/waterscience/316b/phase2/>

Phase III (June 16, 2006): **All other existing facilities (power plants & manufacturing).**

The final "Phase III" rule established categorical requirements for new offshore oil and gas extraction facilities. **USEPA did not include uniform national standards for non-Phase II existing facilities.** Instead, they said they "will continue to rely on [the NPDES] program, which **implements section 316(b) for these facilities on a case-by-case, best professional judgment basis.**"

<http://www.epa.gov/waterscience/316b/phase3/>

The federal rules described above spell out 316(b) requirements for new facilities (Phase I rules), large, existing power plants (Phase II rules), and offshore oil and gas extraction facilities (Phase III rules), and states that implementation must take place through the issuance of NPDES permits. However, there are a number of facilities that are not specifically addressed by these rules, including:

- New facilities that withdraw < 2 MGD;
- Existing power plants that withdraw < 50 MGD;
- Existing manufacturing facilities with a surface water intake.

USEPA has recently emphasized that all facilities, including those not specifically addressed in the rules, must be evaluated for 316(b) compliance. For those facilities not addressed in Phase I, II, or III rules, states are required to make a BTA determination using best professional judgment (BPJ).

Section 283.31(6), Wis. Stats., specifies that the Department may require that the location, design, construction, and capacity of a water intake structure reflect the best technology available for minimizing adverse environmental impact for holders of a WPDES discharge permit. This statute has been used in the past to review new intake structures and to address intake structures with known adverse environmental impacts. This statute gives the Department the authority to regulate any intake structure of a WPDES permit holder when there is an adverse environmental impact known or suspected, whether cooling water is present or not.

Previous 316(b) guidance was provided in "Guidance for Evaluating Cooling Water Intake Structures" (February 22, 2005). (See http://dnr.wi.gov/org/water/wm/wqs/316b/316bGuidance2_22_05FinalWC.pdf) More detailed definitions and descriptions of the USEPA regulations, staff responsibilities, and other topics are discussed in that document and are not repeated here. The guidance that follows is in addition to and an update of that earlier document. Additional guidance was needed to address BPJ decision-making, because of challenges which have resulted in the suspension of some parts of the 316(b) regulations and the application of BTA to other (non-Phase I, II & III) facilities with intake structures.

What is Best Professional Judgment?

According to the USEPA NPDES Permit Writers' Manual (EPA-833-B-96-003, 12/96), Best Professional Judgment (BPJ)-based limits are technology-based limits derived on a case-by-case basis for non-municipal (industrial) facilities. BPJ limits are established whenever effluent limit guidelines are not available for the pollutant in question. BPJ is defined as "the highest quality technical opinion developed by a regulator after consideration of all reasonably available and pertinent information". The authority for BPJ is contained in Section 402(a)(1) of the Clean Water Act (CWA), which authorizes the regulator to issue a permit containing "such conditions as the Administrator determines are necessary to carry out the provisions of this Act." This is further discussed at 40 CFR 125.3(c)(2). (See Attachment 1 for more detailed regulatory language.)

Because it is broad in scope, BPJ allows considerable flexibility in establishing permit conditions. However, lack of specificity also places a burden on staff to show that the BPJ decision is reasonable and based on a thorough review of available information. Therefore, it is important to provide thorough documentation of the basis for the BPJ decision. Staff should include a detailed description of the intake and the cooling water system (where applicable) in the fact sheet

to document the current situation. Also, the permit should include language like that shown below which specifies (at a minimum) that the permittee will continue to operate the intake and notify the Department prior to making any changes.

In addition to technology-based BPJ evaluations applicable to permittees based on their industrial category, it is also important that Department staff evaluate whether site-specific water quality impacts are occurring because of the location, design, or operation of the intake. These evaluations are important, as they could determine whether a more detailed BPJ review is necessary and/or the need for new or improved technologies. Regional staff, knowledgeable about local aquatic life and water quality conditions, should evaluate the receiving water in the area under the influence of the intake structure to determine whether impacts are occurring prior to permit reissuance.

It seems reasonable that a detailed evaluation of intake fish rejection technologies should be done when a new intake is installed to make sure that the best and newest technologies are implemented. Department staff should perform a detailed and thorough evaluation of all proposed new intakes. For existing intakes, Department staff will need to determine when the intake was installed, whether the intake technologies chosen were appropriate at the time of construction, and whether those technologies continue to minimize adverse environmental impact (impingement/entrainment) at the current location.

Regulations at 40 CFR 125.3 state that permits developed on a case-by case basis under s. 402(a)(1) of the CWA must consider (i) The appropriate technology for the category of point sources of which the applicant is a member, based upon available information; and (ii) Any unique factors relating to the applicant. The USEPA NPDES Permit Writers' Manual provides factors that should be considered when developing BPJ conditions, including: 1) the total cost of application of technology in relation to effluent reduction benefits, 2) the age of equipment and facilities, 3) the process employed, 4) engineering aspects of the application of various types of control techniques, 5) process changes, and 6) non-water quality environmental impacts. Staff should consider each of these factors when establishing BPJ-based conditions in permits.

When is a Best Professional Judgment Decision Necessary?

USEPA staff, both in Washington and Region 5, have been clear: if a facility has a cooling water intake structure, we must address potential 316(b) issues during the permitting process. This must be done by applying one of the "Phase" categories described above (if they apply) or by using BPJ. USEPA is taking the position that there is no low level percentage of cooling water that would eliminate the Federal legal requirement that a BTA determination be made. Facilities that are "bumped out" of Phase I or Phase II compliance due to de minimis cutoffs (< 25% used for cooling water, < 50 MGD, etc.) would result in the need for a permitting authority BPJ decision.

The Phase I rule (p. 65259 of the FR notice, Section I) addresses the general applicability of the regulations. *"If a new facility has or requires an NPDES permit but does not meet the 2 MGD intake flow or the twenty-five percent cooling water use threshold, it is not subject to permit conditions based on today's rule; rather, it is subject to permit conditions implementing section 316(b) of the CWA set by the permit director on a case-by-case basis, using best professional judgment."* (125.80(c)). Phase II also contains language at §125.90(b) which requires BPJ for existing facilities not covered by Phase II or any subpart of Part 125 (this section was not suspended by the court decision mentioned above).

Gathering and Documenting Information

As of this date, the WPDES permit application only asks for information regarding the presence/absence and the average volume of a permittee's intake. In order to gather enough information to make decisions regarding compliance with 316(b) and s. 283.31(6), Wis. Stats, the permit application will be updated to include more detailed questions for facilities that use a surface water intake structure. Until the electronic application is modified, we will need to request intake information from the permittee in other formats (i.e., via letter, email, etc.). A list of suggested questions is given below (see "Information Needed To Make A Decision" below). This information should be readily available to the permittee and should not represent a significant burden to submit with the application.

General permits do not currently require that information about intake structures be submitted to the Department. In order to gather information about intake structures from these facilities, central office staff sent a letter to holders of the non-

contact cooling water general permit in September 2008. Since withdrawal information is also needed to implement the Great Lakes Compact, staff combined efforts in order to avoid separate data gathering exercises.

Once staff have the information needed to make a BPJ decision, a detailed description of the intake and cooling water system should be included in the fact sheet to document the current situation. The fact sheet should contain discussion of the BTA determination, specifically why the intake and installed technologies represent BTA (see an example discussion in Attachment 2). Department staff have discussed adding a condition to the influent section of the permit that would require that the permittee continue to operate the existing intake screening equipment and that the permittee be required to notify the Department (in accordance with the "planned changes" standard requirement) prior to modifying the intake's location, capacity or screening equipment. USEPA staff have been clear that they will object in situations where the permit does not specify (at a minimum) that the permittee shall continue to operate the intake with BTA and that they shall notify the Department prior to making any changes. Example standard permit language is shown below.

In order to gather data regarding the types of cooling water intake structure equipment being used across the region and within industrial categories, Region 5 has requested that the Department share intake structure information with USEPA staff. Staff should send a copy of the fact sheet to Sean Ramach at ramach.sean@epa.gov or USEPA Region 5, 77 West Jackson Boulevard, Mail Code: WN-16J, Chicago, IL 60604-3507.

Since there is no low level percentage of cooling water that would eliminate the Federal legal requirement that a BTA determination be made, and since Wis. Stats requirements are not limited to cooling water, all intake structures must be evaluated regardless whether the discharge is covered by a general or individual WPDES permit. In situations where the discharge is currently covered by a general permit, it should not be necessary to issue an individual permit to address BPJ for the intake. Instead, the general permit or cover letter should contain language addressing BTA compliance.

Example permit language:

Intake Structure Evaluation

Based on the Department's review of available information regarding the location, design, operation, and capacity of the intake structure and a lack of any known adverse environmental impacts caused or contributed to by this structure, the Department believes the intake meets the requirements of s. 283.31(6), Wis. Stats. The permittee shall at all times properly operate and maintain all intake equipment. The permittee shall give advance notice to the Department of any planned changes in the location, design, operation, or capacity of the intake structure.

If we feel there is not enough data to make a definitive decision:

The permit contains a requirement that by [date], the permittee shall submit for Department review an intake structure evaluation that includes the information specified in part [section] of the permit. The Department will utilize information from this evaluation to re-evaluate whether the intake meets best technology available.

If staff decide that the existing intake does not represent BTA, they will need to work with the permittee to develop a compliance schedule for making the necessary changes to meet BTA. There are a number of options which might be available to the permittee, including reducing intake flow velocity or flow, installing better screens or barrier nets, or modifying operations to reduce impingement and entrainment during critical time periods such as spawning.

Information Needed To Make A Decision

The following list of questions will need to be asked of the permittee in order to gather enough information to make appropriate 316(b) decisions:

1. Do you have a surface water intake? (If "No", stop. If "Yes" continue to the next question. If more than one intake, provide information for each intake separately.)
2. Is any water withdrawn from the source water used for cooling? (If "No", go to question 5. If "Yes" continue.)
3. Approximately what percentage of water withdrawn is used for cooling water? *
4. Is the cooling water used in a once-through or closed cycle cooling system?

5. When was the intake installed? (Please provide dates for all major construction/installation of intake components, including screens.)
6. What is the location and configuration of the intake pipe in the source water? (e.g., source water name, onshore/offshore, at what depth, location in relation to bottom, etc.)
7. What is the maximum design intake volume? (maximum pumping capacity in gallons per day)
8. What is the average intake volume? (average intake pump rate in gallons per day average in any 30-day period)
9. How is the intake operated? (e.g., continuously, intermittently, batch)
10. What is the mesh size of the screen on your intake?
11. What is the intake screen flow-through area?
12. What is the mechanism for cleaning the screen? (e.g., does it rotate for cleaning?)
13. Do you have any additional fish detraction technology on your intake?
14. Have there been any studies to determine the impact of the intake on aquatic organisms? (If so, please attach.)
15. Attach a site map showing the location of the water intake in relation to the facility, shoreline, water depth, etc.

*Definition of "cooling water" from 316(b): "Cooling water means water used for contact or noncontact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content. The intended use of the cooling water is to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility's premises." The Phase I rule (p. 65259 of the FR notice, Section I.B) goes further: "In addition, for the final rule USEPA has amended the definition of cooling water to ensure that the rule does not discourage the reuse of cooling water as process water. As such, heated cooling water that is subsequently used in a manufacturing process is considered process water for the purposes of calculating the percentage of a new facility's intake flow that is used for cooling purposes". The Phase II rule also clarifies that it can be used for cooling either before or after use as process water (FR 41580).

Making a Best Technology Available (BTA) Determination - Existing Facilities

For existing facilities not covered by the Phase II or III rules, staff will need to make a determination of BTA for the facility using BPJ at permit reissuance. One of the following will be decided:

1. Available information adequately characterizes the intake for purposes of making a BTA determination and the intake is in compliance; or
2. The intake appears to be in compliance with BTA, but data is limited and more detailed information will be collected during the permit term; or
3. The intake is not in compliance with BTA. The reissued permit will require a compliance schedule to collect more detailed information and/or to install technology to attain compliance.

In most cases, a finding of noncompliance as described under #3 above will be made only if there is evidence that adverse environmental impacts are occurring that are partly or solely caused by the intake.

In order for staff to make a determination of BTA for the facility using BPJ, they will need to evaluate site-specific information for the given facility. In some cases, the decision may be more clear-cut (for example, a small intake on a large river has less potential for adverse impact); in others, it may be more complex. Due to variability in factors such as size, location, and operations of individual intakes, different factors may be important in deciding whether each intake meets BTA requirements. However, in most cases it should be appropriate to determine that the existing (or proposed) intake represents BTA if two or more of the following scenarios are met:

- If the intake design flow velocity is < 0.5 fps;
- If the facility's intake structure includes a wedge-wire screen;
- If the intake design flow is < 5% of the mean annual flow of the source water;
- If the facility uses a closed-cycle cooling system for $\geq 95\%$ of their cooling needs or has reduced intake flow $\geq 95\%$ compared to once-through cooling;
- If the facility has data that shows impingement mortality (and entrainment, if applicable) has been/will be reduced 80-95% (60-90% for entrainment) compared to a once-through cooling system with 3/8" traveling screens;

- If there is biological data demonstrating that: 1) the source water body does not include threatened or endangered species in the vicinity of the intake, and 2) there are no known aquatic life and water quality problems partly or solely due to the presence or operation of the intake structure.

It is likely there could be other scenarios in which it will be possible to make a clear determination that the existing (or proposed) intake is BTA. However, there may also be situations which are not easily decided, and in these cases staff will have to do the best they can with the information available. If more information is needed to make a final BTA decision, permits should require that data be collected during the permit term. Compliance schedules which allow for the collection of additional information should be as short as reasonably possible.

Making a Best Technology Available (BTA) Determination – New Facilities < 2 MGD

For new facilities not covered by the Phase I rules, staff will need to make a determination of BTA for the facility using BPJ at issuance. In order to avoid adverse environmental impacts new intakes should be designed to minimize impingement mortality and entrainment, including a maximum intake design velocity < 0.5 fps. If for some reason the intake cannot be designed to meet a maximum velocity < 0.5 fps, it may be necessary to request additional information needed to make a BTA determination, including the characterization of fish and shellfish populations within the source water likely to be impacted by the intake structure. In general, staff should obtain the information they believe is needed to evaluate the intake prior to issuing the WPDES permit (see the list of questions given earlier in this document). The permit may require follow-up impingement mortality/entrainment monitoring or other detailed information to determine the overall effectiveness of the intake.

No Formal Plan Approval Needed for Intake Structures

The plan approval process laid out in Chapter NR 108, Wis. Adm. Code, does not apply to intake structures. However, Department staff will need to review proposals for new or modified intakes and determine whether the changes will meet BTA requirements. New structures that extend below the ordinary high-water mark of a waterway will also require a state permit according to chapter 30, Wis. Stats. BTA determinations in these situations should be coordinated with Department waterway permitting staff. The Department's formal BTA determination should be made at the time of permit reissuance whenever possible and any compliance schedules needed for construction included in the permit.

Evaluation of Best Technology Available at the Next Reissuance

Each time a permit is reissued, all available information should be used to re-evaluate the facility's intake structure to determine if it continues to meet BTA. If no changes have been made to the intake structure since the last reissuance and no known adverse environmental impacts are occurring, no additional analysis will be needed in most cases. Staff should state in the fact sheet whether the intake continues to meet BTA, referencing previous evaluations where necessary. If changes have occurred since the last reissuance, staff should re-evaluate the intake using the guidance found in this document. Referring to fact sheets and permits issued by others which have incorporated a BTA determination may also be helpful.

Additional Guidance

This document is intended as guidance to assist staff in making BTA decisions based on their BPJ in most situations. This guidance may need to be updated as program needs change and/or as staff learn more about the evaluation of intake structures. It is possible that BPJ evaluations and/or permit language may need to be revised as staff gain experience making BTA determinations. Staff in the Bureau of Watershed Management's Wastewater Section have some experience evaluating intake structures and may be the best resource for regional staff who need assistance.

Attachment 1: Applicable Best Professional Judgment (BPJ) Regulations

Clean Water Act

SEC. 402. (a)(1) Except as provided in sections 318 and 404 of this Act, the Administrator may, after opportunity for public hearing, issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding section 301(a), upon condition that such discharge will meet either (A) all applicable requirements under sections 301, 302, 306, 307, 308, and 403 of this Act, or (B) prior to the taking of necessary implementing actions relating to all such requirements, **such conditions as the Administrator determines are necessary to carry out the provisions of this Act.**

40 CFR 125.3(c)(2)

(c) *Methods of imposing technology-based treatment requirements in permits.* Technology-based treatment requirements may be imposed through one of the following three methods:

(1) Application of EPA-promulgated effluent limitations developed under section 304 of the Act to dischargers by category or subcategory. These effluent limitations are not applicable to the extent that they have been remanded or withdrawn. However, in the case of a court remand, determinations underlying effluent limitations shall be binding in permit issuance proceedings where those determinations are not required to be reexamined by a court remanding the regulations. In addition, dischargers may seek fundamentally different factors variances from these effluent limitations under §122.21 and subpart D of this part.

(2) **On a case-by-case basis under section 402(a)(1) of the Act, to the extent that EPA-promulgated effluent limitations are inapplicable. The permit writer shall apply the appropriate factors listed in §125.3(d) and shall consider:**

(i) **The appropriate technology for the category or class of point sources of which the applicant is a member, based upon all available information; and**

(ii) **Any unique factors relating to the applicant.**

(3) Through a combination of the methods in paragraphs (d) (1) and (2) of this section. Where promulgated effluent limitations guidelines only apply to certain aspects of the discharger's operation, or to certain pollutants, other aspects or activities are subject to regulation on a case-by-case basis in order to carry out the provisions of the Act.

(4) Limitations developed under paragraph (d)(2) of this section may be expressed, where appropriate, in terms of toxicity (e.g., "the LC₅₀ for fat head minnow of the effluent from outfall 001 shall be greater than 25%"). *Provided*, That is shown that the limits reflect the appropriate requirements (for example, technology-based or water-quality-based standards) of the Act.

(d) In setting case-by-case limitations pursuant to §125.3(c), the permit writer must consider the following factors:

(1) *For BPT requirements:* (i) The total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application;

(ii) The age of equipment and facilities involved;

(iii) The process employed;

(iv) The engineering aspects of the application of various types of control techniques;

(v) Process changes; and

(vi) Non-water quality environmental impact (including energy requirements).

(2) *For BCT requirements:* (i) The reasonableness of the relationship between the costs of attaining a reduction in effluent and the effluent reduction benefits derived;

(ii) The comparison of the cost and level of reduction of such pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources;

(iii) The age of equipment and facilities involved;

(iv) The process employed;

(v) The engineering aspects of the application of various types of control techniques;

(vi) Process changes; and

(vii) Non-water quality environmental impact (including energy requirements).

(3) *For BAT requirements:* (i) The age of equipment and facilities involved;

(ii) The process employed;

(iii) The engineering aspects of the application of various types of control techniques;

(iv) Process changes;

(v) The cost of achieving such effluent reduction; and

(vi) Non-water quality environmental impact (including energy requirements).

(e) Technology-based treatment requirements are applied prior to or at the point of discharge.

(f) Technology-based treatment requirements cannot be satisfied through the use of "non-treatment" techniques such as flow augmentation and in-stream mechanical aerators. However, these techniques may be considered as a method of achieving water quality standards on a case-by-case basis when:

(1) The technology-based treatment requirements applicable to the discharge are not sufficient to achieve the standards;

(2) The discharger agrees to waive any opportunity to request a variance under section 301 (c), (g) or (h) of the Act; and

Attachment 1: Applicable Best Professional Judgment (BPJ) Regulations

- (3) The discharger demonstrates that such a technique is the preferred environmental and economic method to achieve the standards after consideration of alternatives such as advanced waste treatment, recycle and reuse, land disposal, changes in operating methods, and other available methods.
- (g) Technology-based effluent limitations shall be established under this subpart for solids, sludges, filter backwash, and other pollutants removed in the course of treatment or control of wastewaters in the same manner as for other pollutants.
- (h)(1) The Director may set a permit limit for a conventional pollutant at a level more stringent than the best conventional pollution control technology (BCT), or a limit for a nonconventional pollutant which shall not be subject to modification under section 301 (c) or (g) of the Act where:
- (i) Effluent limitations guidelines specify the pollutant as an indicator for a toxic pollutant, or
 - (ii)(A) The limitation reflects BAT-level control of discharges of one or more toxic pollutants which are present in the waste stream, and a specific BAT limitation upon the toxic pollutant(s) is not feasible for economic or technical reasons;
 - (B) The permit identifies which toxic pollutants are intended to be controlled by use of the limitation; and
 - (C) The fact sheet required by §124.56 sets forth the basis for the limitation, including a finding that compliance with the limitation will result in BAT-level control of the toxic pollutant discharges identified in paragraph (h)(1)(ii)(B) of this section, and a finding that it would be economically or technically infeasible to directly limit the toxic pollutant(s).
- (2) The Director may set a permit limit for a conventional pollutant at a level more stringent than BCT when:
- (i) Effluent limitations guidelines specify the pollutant as an indicator for a hazardous substance, or
 - (ii)(A) The limitation reflects BAT-level control of discharges (or an appropriate level determined under section 301(c) or (g) of the Act) of one or more hazardous substance(s) which are present in the waste stream, and a specific BAT (or other appropriate) limitation upon the hazardous substance(s) is not feasible for economic or technical reasons;
 - (B) The permit identifies which hazardous substances are intended to be controlled by use of the limitation; and
 - (C) The fact sheet required by §124.56 sets forth the basis for the limitation, including a finding that compliance with the limitations will result in BAT-level (or other appropriate level) control of the hazardous substances discharges identified in paragraph (h)(2)(ii)(B) of this section, and a finding that it would be economically or technically infeasible to directly limit the hazardous substance(s).
 - (iii) Hazardous substances which are also toxic pollutants are subject to paragraph (h)(1) of this section.
- (3) The Director may not set a more stringent limit under the preceding paragraphs if the method of treatment required to comply with the limit differs from that which would be required if the toxic pollutant(s) or hazardous substance(s) controlled by the limit were limited directly.
- (4) Toxic pollutants identified under paragraph (h)(1) of this section remain subject to the requirements of §122.42(a)(1) (notification of increased discharges of toxic pollutants above levels reported in the application form).

Chapter NR 220, Wis. Adm. Code

Subchapter III — Effluent Limitations for Uncategorized Point Sources

NR 220.20 Purpose. The purpose of this subchapter is to provide for the application of effluent limitations in permits for discharges from point sources which are not subject to the effluent limitations in chs. NR 221 to 299 inclusive.

NR 220.21 Application of effluent limitations.

(1) The department may specify effluent limitations applicable in permits for the discharge from point sources:

- (a) Which do not include the classes or categories of point sources identified in ch. NR 220, subch. I,
- (b) Which belong to classes or categories of point sources for which effluent limitations have not been adopted in chs. NR 221 to 299 inclusive, or
- (c) Which belong to classes or categories of point sources excluded from, or not specifically included in, the applicability provisions

Attachment 2: Example Best Technology Available (BTA) Evaluation

Wolf River Intake Structure Evaluation

Introduction

Pursuant to s. 283.31(6), Wis. Stats., any WPDES discharge permit that limits the discharge of one or more pollutants may require that the location, design, construction and capacity of the permitted facility's surface water intake structure reflect the best technology available (BTA) for minimizing adverse environmental impacts. Section 316(b) of the Clean Water Act is similar, but emphasizes cooling water intakes. To implement s. 316(b), the U.S. USEPA promulgated cooling water intake standards for new power plants and manufacturing facilities that withdraw greater than 2 MGD, for existing power plants that withdraw greater than 50 MGD, and for new offshore oil and gas extraction facilities. While USEPA later suspended the existing power plant rules, it has taken the position that all facilities with cooling water intakes must be evaluated for compliance with 316(b). For facilities not covered by promulgated regulations, USEPA requires delegated permitting authorities to make BTA evaluations using best professional judgement for any discharger that has a surface water intake regardless of how little intake water is used for cooling.

Since the Shawano Specialty Papers mill holds a WPDES permit that limits the discharge of several pollutants, withdraws water from the Wolf River, and utilizes a portion of the withdrawn water exclusively for cooling, a BTA evaluation is required. Since the Shawano mill's surface water intake structure is not covered by a promulgated federal regulation, the Department will perform the BTA evaluation using best professional judgement.

Intake Water Structure Description

The Shawano Specialty Papers mill withdraws an average of 5.3 MGD of water from the Wolf River, returns by gravity approximately 3.6 MGD unused, and pumps the remaining 1.7 MGD to paper production processes including 87,000 gpd used exclusively for cooling. The Shawano mill's river water intake consists of a concrete structure located approximately 6 feet off the west bank of the Wolf River and 100 feet upstream from the Shawano Dam. The intake structure is approximately 4 feet wide on each side and 6 feet high, and rests on the bottom of the River in approximately 5 feet of water.

The intake structure's rectangular inlet is 4 feet wide and 6 feet high. The inlet extends from the bottom of the River to above the water's surface. The intake inlet faces the Wolf River channel and runs parallel to the River's bank. A screen consisting of vertical bars on centers leaving 1 inch between bars covers the inlet. Subtracting the total width of the bars, the remaining open width of the intake equals 41 inches. Mill personnel manually inspect the bar screen daily and remove debris when necessary. Removed debris is composted on mill property with other yard waste.

From the concrete intake structure, water withdrawn from the Wolf River flows by gravity through a 30-inch diameter pipe to a diverter box. From the diverter box water either flows by gravity through a 24-inch diameter pipe to the forebay of a pump system that supplies water for production processes, or flows by gravity by way of a 30-inch diameter pipe to the Shawano mill's pulp warehouse, through a river water pit, and back to the Wolf River via Outfall 001. Mill personnel have never observed fish in the river water pit.

Shawano Specialty Papers' process water pump system consists of a forebay, a traveling screen, and two, 2500 gpm pumps. The traveling screen is constructed of panels 23.5 inches wide by 21.5 inches high. Each panel consist of a 10 mesh screen backed by 3/8th inch opening screen. At the normal operating water depth of 4 feet, two panels and a blind area between the panels are submerged. Debris cleaned from the screen is collected and composted with yard waste. Screen shower water is returned to the forebay.

Intake Evaluation

The through-screen velocity of the Shawano mill's concrete intake structure equals 0.47 fps at average intake flows and the normal depth of submergence of 62 inches. ($5.3 \text{ MGD} \times 1.55 \text{ cfs/MGD} \div (41 \text{ in} \times 62 \text{ in} \div 144 \text{ sqin/sqft})$).

The Shawano mill withdraws 2.6 percent of Wolf River's $Q_{7,10}$ flow at an average intake rate of 5.3 MGD ($5.3 \text{ MGD} \div (310 \text{ cfs} \times 0.646 \text{ MGD/cfs}) \times 100$). Since the Shawano mill returns an average of 3.6 MGD to the Wolf River unused, the water withdrawal represents less than 1 percent of the Wolf River's $Q_{7,10}$. Note that the returned water does not pass

Attachment 2: Example Best Technology Available (BTA) Evaluation

through a pump, is not treated, and is not used for production processes including cooling. Noncontact cooling water combines with the unused water, 0.087 MGD vs. 3.6 MGD, prior to return to the Wolf River, however.

The through-screen velocity of the Shawano mill's process water pump system equals 1.6 fps when one pump is operating and 3.2 fps when both pumps are operating assuming a open screen area of 50% ($2500 \text{ gpm} \times 0.00223 \text{ cfs/gpm} \div (23.5 \text{ in} \times 21.5 \text{ in} \div 144 \text{ sqin/sqft} \times 2 \times 0.5)$). Mill personnel report that fish are rarely, if ever, encountered at the traveling screen.

Al Nieber, the Department's fish biologist stationed at Shawano, reports no known adverse impacts to the fishery of the Wolf River caused by the Shawano mill's intake.

Conclusion and Permit Conditions

Based on the low through-screen velocity at the Shawano Specialty Papers' Wolf River intake, low percentage of Wolf River water withdrawal, and lack of any currently known significant impacts of the Shawano mill's intake on the aquatic life of the Wolf River, the Department believes the intake meets the requirements of s. 283.31(6), Wis. Stats. The propose permit reissuance contains a requirement that Shawano Specialty Papers properly operate and maintain all intake equipment and give advance notice of any planned changes to the location, design, operation or capacity of the intake system.

