

## **NONCONTACT COOLING WATER OR CONDENSATE AND BOILER WATER FACT SHEET**

WPDES Permit No. WI-0044938-6  
November 2, 2016  
(July 2017 Typographical Errors Corrected)

### GENERAL PERMIT COVERAGE

General Permits (GP) are designed to cover discharges from a class of facilities or industries that are similar in nature. When a GP is issued, all facilities meeting its requirements are covered by the GP. GP's currently exist for groundwater remediations, nonmetallic mining operations, swimming pools and numerous other types of facilities. For facilities that are eligible for coverage under a GP, the Department sends a cover letter and provides an electronic copy of the permit to the facility. The cover letter includes the Department's determination that a facility's discharge is covered under the GP and may specify alternate requirements outlined in the permit such as modified sampling frequencies for certain parameters or the inclusion of monitoring for parameters in addition to those requiring regular monitoring.

### MORE THAN ONE GP CAN APPLY

A facility may need to be covered under more than one GP depending on the different types of wastestreams that a facility discharges. A facility that manufacture concrete block could also mine gravel on site. The wastewater from the concrete block operation could be discharged in compliance with one GP and the wastewater from the gravel mining operation could be discharged in compliance with a different GP. However, a facility that requires an individual permit for any part of its discharge should have all of its discharges covered under an individual permit. An obvious exception would be for a facility that commences a discharge that is eligible for a GP, after an individual permit has already been issued or reissued for the facility. For example, a facility that currently has an individual permit may begin a process that results in the discharge of noncontact cooling water. The noncontact cooling water discharge can be covered under a GP, as long as it meets the requirements of the GP, until the individual permit can be reissued or modified to include the noncontact cooling water discharge.

### GENERAL DESCRIPTION OF OPERATIONS COVERED UNDER THIS GP

This permit is applicable to discharges of non-contact cooling water and condensates or boiler water (blowdown and bleed-off).

#### A. Noncontact Cooling Water (NCCW)

NCCW includes once through cooling water for processes such as air compressors, welders, etc. A discharge may be covered under this general permit if the discharge contains a small portion of cooling tower blowdown in addition to the NCCW. If biocides other than chlorine need to be added to the blowdown or NCCW discharge to control biological growth, the discharge must seek coverage under an individual WPDES permit or discharge to a POTW This permit does not preclude the discharge from using additives to control scale or corrosion. A preliminary list of additives is included in the

WPDES permit that may be used for these purposes. Other similar additives may be reviewed and approved on a case-by-case basis.

Some permittees covered under this general permit will have rigorous limits and monitoring requirements for temperature, phosphorus, and chlorine, among other parameters. This may be due to the additives within their effluent stream, additives within their water supply, or effluent stream characteristics. It may be advisable for facilities to consider discharging to the sanitary sewer in these cases. Facilities need to obtain authorization from the servicing publicly owned treatment works prior to discharging new wastewater sources to the sanitary sewer.

**B. Boiler Blowdown (BBD) and Bleed-off**

Discharges from boilers remove dissolved and suspended solids from the system. Discharges from boilers can be both intermittent and continuous. All boilers have discharge connections at low points for short duration intermittent removal of settled sludge (blowdown). Frequent blowdown may be necessary to meet the total suspended solids (TSS) limit included in this permit. Many boilers also have discharge connections located just below the water level in the steam release area for continuous removal of dissolved solids (bleed-off). Continuous blowdown and/or bleed-off of a small amount of boiler water can allow for better operation by providing more consistent control of boiler water chemistry and chemical additives. Chemicals are added to boiler water to control scale and corrosion and provide a good quality steam. While most boiler water additives are non-toxic, every additive needs to be reviewed and approved. A list of preapproved additives is available in the WPDES permit (see Table 2.1.2).

**C. Condensates**

Discharges of condensates include air conditioner condensate may be regulated under this general permit if not already authorized under another general permit, and may also include uncontaminated steam tunnel condensate. Steam condensate may contain amines or other additives. All additives need to be reviewed and approved prior to determining if a discharge is covered by this permit. Air compressor condensate may also be discharged under this permit if it is not contaminated with oil and grease.

**D. Reverse Osmosis Permeate**

Discharges of reverse osmosis permeate from the concentration of whey provided the permeate is not combined with any wash water or other process wastewater prior to treatment or discharge unless more restrictive technology-based effluent limitations are needed in which case individual permit coverage is needed.

**E. Other Similar Discharges**

Other similar discharges may be covered by the general permit if expressly approved in writing by the Department. This would include discharges that produce effluent quality similar to NCCW discharges, such as geothermal discharges.

**RATIONALE FOR PERMIT REQUIREMENTS**

## 1. APPLICABILITY CRITERIA

### 1.1 Facilities covered

This permit is applicable to NCCW, noncontact condensates, and boiler blowdown and bleed-off discharges that are discharged directly to surface waters or indirectly to groundwaters via seepage. Discharges of water that contain non-toxic additives are likely candidates for coverage by this permit. The permit contains general applicability criteria to allow coverage of innocuous discharges. This permit requires restrictive limits and monitoring requirements for temperature, phosphorus, and chlorine, among other parameters depending on the additives within their effluent stream, additives within their water supply, and effluent stream characteristics.

### 1.2 Facilities Not Covered

#### Process Wastewater

Discharges of process wastewater from operations occurring at a facility cannot be regulated by this permit. Process wastewaters are those wastewaters that come in contact with or are the result of production operations at a facility. Discharges of reverse osmosis permeate from the concentration of whey may be covered under this permit as these discharges produce a similar effluent quality to NCCW discharges.

#### Boiler Cleaning Operations

Wastewater resulting from boiler cleaning operations contains additives and contaminants that are not appropriately regulated by this permit.

#### Condensate Contaminated with Oil and Grease

Condensate contaminated with oil and grease is not considered a noncontact discharge that is appropriately regulated by this permit.

#### Biocides

Biocides are toxic and require regulation by an individual permit. Facilities discharging wastewater treated with biocides other than chlorine will be in violation of the permit and sections NR106.61(2)(a) and NR106.61(1)(f), Wis. Adm. Code.

#### Reverse Osmosis Permeate

Individual permit coverage is required for discharges of reverse osmosis permeate that are mixed with other process wastewater or where the Department has determined that more restrictive technology-based limitations are applicable.

### Wetlands

Discharges covered under this permit shall meet the wetland protection requirements of ch. NR 103, Wis. Adm. Code, and shall not significantly adversely impact wetlands. For discharges that impact wetlands, a facility will need to submit information that allows the Department to determine if a discharge meets code requirements.

### Outstanding and Exceptional Resource Waters

Discharges to outstanding and exceptional resource waters in ch. NR 102, Wis. Adm. Code, are not authorized by this permit. Regulation of discharges to outstanding and exceptional resource waters requires an individual permit which provides the oversight and discharge limitations necessary to protect these types of receiving waters.

### Surface Water and Groundwater Standards

The discharges from facilities eligible for this permit are not expected to exceed any surface water or groundwater standards. Facilities with discharges that require more oversight to ensure that they do not violate surface water quality standards or groundwater quality standards require coverage under an individual permit.

### Endangered Species

Discharges may not cause or contribute to adverse impacts to endangered and threatened species under the federal Endangered Species Act. Facilities with discharges that require more oversight to ensure that they do not violate the ESA should be covered by an individual permit. This includes incidental take determinations.

### Discharges within Indian Country

The Department lacks the authority to issue wastewater permits in the state delegation agreement with U.S. EPA. In such instances, the Tribe or U.S. EPA regulates the discharge and would issue a permit.

### Surface Water Intakes

According to the Clean Water Act, facilities with NPDES permits are subject to 316(b), which requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact. Federal regulations establish numerous requirements under section 316(b) for facilities that withdraw > 2 million gallons per day (MGD) and use at least 25% of that withdrawn water exclusively for cooling purposes. Facilities that are above these thresholds must be covered by individual permits to address these requirements. Pursuant to 40 CFR 125.98(b)(6), the federal regulations allow the permittee to gather data for a permit term to comply with applicable 316(b) application requirements.

## 2. REQUIREMENTS FOR ALL COVERED FACILITIES

The following requirements apply to all discharges covered by this permit that use a non-biocide additive to the source water. Facilities discharging to either groundwater or surface waters are required to meet the following requirements whenever non-biocide additives are used.

## 2.1 Additives

### Water Treatment Additives

Water treatment additives vary from innocuous to highly toxic. This permit allows the use of non-biocidal compounds, which are much less likely to cause effluent toxicity. Non-biocidal water treatment additives are defined, for the purposes of this permit, as those additives which are used primarily to control corrosion or prevent deposition of scale forming materials and are not expected to exhibit significant residual toxic effects on receiving water organisms. All biocides, excluding chlorine, are prohibited in this permit. Facilities that wish to add chlorine to their effluent, or utilize a municipal water supply containing chlorine, must comply with the requirements of Appendix F of the general permit, and are described later in the factsheet. If the additive is solely a pH adjuster, the additive may be used in accordance with labeled instructions so long as the record requirements in section 2.1.4 are met. Separate Department approval is not required additives that are solely pH adjusters because a pH limitation is included in Section 3 of the permit to control the use of these additives.

### Approval

On April 23<sup>rd</sup>, 2015, the Department released guidance entitled “Water Quality Review Procedures for Additives” (3400-2015-03), which is available at <http://dnr.wi.gov/topic/wastewater/Guidance.html>. This guidance document establishes procedures to calculate secondary values for water-applied additives pursuant to s. NR 105.05, Wis. Adm. Code. Secondary acute values are the concentrations of a pollutant in surface water that protect aquatic life from adverse short-term effects.

The Department reviewed the database of previously approved additives for NCCW general permit holders and calculated Secondary Acute Values for these pollutants based on the ecotoxicity data available at the time of permit reissuance. To be environmentally conservative and to reflect a worst-case scenario, the maximum discharge concentration of the additive must be equal to or less than the Secondary Acute Value. This means that in-stream and storm water dilution was not accounted for when establishing these restrictions. Therefore, the Department finds that the treatment additives listed in Table 2.1.2 may be used so long as the effluent concentration of the additives do not exceed the applicable Secondary Acute Values specified in Table 2.1.2. This is because there is no potential to cause adverse toxicity effects at these levels.

The list of previously approved additives is not meant to be a comprehensive list of all additives that could be used in a NCCW discharge. The Department recognizes that chemical mixtures may have different trademarked names, but

have similar chemical mixtures and toxicity effects. If a facility wishes to use a non-biocidal additive that is not listed in Table 2.1.2 during the permit term, they must provide ecotoxicity data for that additive to the Department. The Department will then use the methods described in the “Water Quality Review Procedures for Additives” guidance document and the procedures specified in ch. NR 105, Wis. Adm. Code, to establish secondary values for that additive. The facility may not begin using the additive until the Department has approved the use of this additive in writing to the permittee and provided a Secondary Acute Value for that additive. The facility may then initiate the use of the additive in accordance with this Secondary Acute Value. This process will ensure that water quality standards are met throughout the permit term pursuant to s. NR 102.04(d), Wis. Adm. Code.

The above methods will be used for all non-biocidal additives not listed in Table 2.1.2, excluding pH adjusters like sulfuric acid or sodium bisulfate. Site-specific approval and use restrictions are not required for additives that are solely used for the purposes of making pH adjustments within the effluent. This is because pH is regulated through a limitation specified in Table 3.1 (s. NR 102.04(4)(c), Wis. Adm. Code) and these additives are not expected to cause toxicity.

#### Additive Monitoring and Reporting

Facilities are required to maintain records of additive use for Department inspection. Recording additive use will provide a check for the facility and the Department to verify that the wastewater is being treated and disposed of in accordance with the permit requirements. Facilities may choose to report quantities of additives used or effluent monitoring results demonstrating concentrations in the effluent.

#### Chlorination

Facilities may add chlorine to their effluent or use a municipal water supply containing chlorine so long as they meet the requirements of Appendix F. These requirements are discussed later in this factsheet.

### 2.2 Monitoring Reporting

Facilities are required to comply with the reporting requirements specified in section 2.2. Reporting may be submitted to the Department annually if authorized in the monitoring and reporting tables specified in the general permit and authorized in writing by the Department.

### 2.3 Exceedance Reporting

Facilities are required to comply with permit limitations regardless of monitoring frequency specified in the monitoring tables of this permit pursuant to ch. NR 205.07, Wis. Adm. Code.

### 2.4 Floating Solids and Foam

The prohibition on floating solids and foam is a Best Professional Judgment (BPJ) condition, in accordance with ch. NR 220, Wis. Adm. Code, dating back to the Refuse Act Permit Program and the Corps of Engineer's River and Harbor Act of 1899. This condition is achievable by application of best practicable control technology.

### 2.5 Surface Water Intakes

Facilities with cooling water intake structures which withdraw  $\leq 2$  MGD from a surface water or use  $\leq 25\%$  of withdrawn water exclusively for cooling may be covered by this general permit, if they meet certain eligibility requirements. These eligibility requirements include having a maximum design or actual intake velocity of 0.5 feet per second and withdrawing  $< 5\%$  of the mean annual river flow or avoiding disruption of the natural thermal stratification of a lake. Facilities can also qualify for this general permit if they operate only for short periods of the year (not during spawning periods) or if they operate a closed cycle system with a minimum of 3 cycles of concentration per day.

For facilities that fall below either of these thresholds ( $< 2$  MGD withdrawn or  $< 25\%$  used for cooling), the Department is required to make BTA determinations using their best professional judgment, according to s. 40 CFR § 125.90(b) of the federal regulation. The Department believes that facilities which fall below these criteria, and that meet the eligibility criteria described above, pose low to no risk for causing an adverse environmental impact; therefore, in the absence of other site-specific factors that cause concern, a determination can be made that BTA is present at these locations. This general permit can cover facilities that have cooling water intake structures that meet these conditions. The Department recognizes that these are conservative assumptions, and that some facilities that meet some, but not all, of these requirements might also pose a low environmental risk. These facilities require additional analyses to confirm their environmental concern on a case-by-case basis and must be covered under an individual WPDES permit.

### 2.6 Discharges to Impaired Waters and TMDL Areas

As previously stated, facilities covered under this general permit have limited potential to violate water quality standards. Although this is generally true, further evaluation of discharges to impaired waters and waters with total maximum daily loads (TMDLs) is necessary to ensure that facilities covered under this general permit do not cause or contribute to an impairment in water quality (s. NR 106.05(1)(b)(2), Wis. Adm. Code). A facility may have the potential to cause or contribute to an impairment in water quality if it discharges the pollutant of concern to an impaired water or upstream of an impaired water. A "pollutant(s) of concern" means a pollutant that is contributing to the impairment of a water body.

#### New and Expanding Discharges to Impaired Waters

New discharges that add or concentrate the pollutant of concern during the treatment process, or contain anthropogenic sources of the pollutant of concern through their water supply, need to seek coverage under an individual permit unless a wasteload allocation is provided for the new discharge in a U.S. EPA

approved TMDL. New discharges refer to discharges that have not previously been authorized to discharge the pollutant of concern to the waterbody in question in an individual or general permit. Existing discharges, those that have been previously authorized to discharge the pollutant of concern in general or individual permit, may continue to be covered under this general permit so long as the facility does not expand its discharge or the expanded discharge is accounted for in a TMDL wasteload allocation. Requests for individual permits should be made to the Department by submitting an individual permit application.

If a facility wishes to initiate a new discharge or expand a discharge for a pollutant of concern in accordance with a wasteload allocation in a U.S. EPA approved TMDL, the facility must notify the Department through the Request for Coverage for this general permit or in writing to the Department. The discharge may not be initiated until the Department has confirmed, in writing, that the discharge is consistent with the approved wasteload allocations for the TMDL in question.

### 2.7 Discharger Specific Requirements

The discharges from facilities eligible for this permit are not expected to exceed any surface water or groundwater standards so long as they comply with the permit requirements included within this general permit. Pollutant-specific requirements are provided in Part 6 of this general permit. A subset of general permit holders will be subject to the requirements of Part 6. The Department will determine which appendices apply to the facility at the time coverage is granted. The pollutant-specific requirements in Part 6 of this general permit apply in addition to the requirements specified elsewhere in the permit.

## 3. MONITORING REQUIREMENTS AND LIMITATIONS FOR ALL SURFACE WATER DISCHARGES

Surface water discharges include discharges to ditches, storm sewers and pipes that convey wastewater to creeks, streams, rivers, lakes, and wetlands in Wisconsin. Discharges to surface waters shall meet the requirements outlined in this section, including the effluent limitations and monitoring requirements specified in Table 3.1. Samples taken in compliance with the monitoring requirements specified in Table 3.1 shall be taken at each outfall following treatment (if applicable) and prior to discharge to surface waters. The samples taken shall be representative of the discharge.

Table 3.1

Parameter <sup>(f)</sup>	Daily Minimum Limit	Daily Maximum Limit	Monthly Average Limit	Sample Frequency	Sample Type <sup>(a,b)</sup>
Flow (Gallons Per Day)	-	-	-	Quarterly <sup>(c,d)</sup>	Estimate
Total Suspended Solids (mg/L) <sup>(f,g,h)</sup>	-	40 mg/L	40 mg/L	Quarterly <sup>(c,d)</sup>	Grab
pH <sup>(g)</sup>	6.0 s.u.	9.0 s.u.	-	Quarterly <sup>(c,d)</sup>	Grab

Total Phosphorus (mg/L) <sup>(f)</sup>	-	-	-	Annually	Grab
Oil and Grease (mg/L)	-	15 mg/L	15 mg/L	Annually <sup>(e)</sup>	Grab
BOD <sub>5</sub> (mg/L)	-	-	-	Annually	Grab
Ammonia Nitrogen (mg/L)	-	-	-	Annually	Grab
Water Treatment Additives	-	-	-	Monthly <sup>(d)</sup>	Record Usage in a Daily Log
Temperature <sup>(f,g)</sup>	-	-	-	Quarterly <sup>(c,d)</sup>	Grab

(a) Estimate means a reasonable approximation of the average daily flow based on a water balance, an uncalibrated weir, calculations from the velocity and cross section of the discharge, intake water meter readings, discharge water meter readings or any other method approved by the Department.

(b) A grab sample means a single sample taken at one moment of time or a combination of several smaller samples of equal volume taken in less than a two-minute period. This sample should represent the highest effluent concentration known or expected to occur under normal operating conditions. If the outfall location is not accessible, the permittee may approximate effluent concentrations based on influent concentrations. This estimation method may only be used for discharges that do not significantly concentrate the pollutant during the treatment process.

(c) Quarterly sample frequency means performing the associated monitoring four times per year; once anytime during each of the four annual quarters (Jan.-Feb.-March, April-May-June, July-Aug.-Sept., Oct.-Nov.-Dec.). If there is no discharge during a quarter, the permittee shall state this on the discharge monitoring report form.

(d) If authorized in writing by the Department, the facility may submit all monitoring data collected during the calendar year in an annual DMR or eDMR submittal to the Department. If a noncompliance event occurs during the calendar year, the permittee must notify the Department in accordance with the standard requirements specified in Section 5 of this permit. Additive usage limitations are included in section 2 of this permit.

(e) The sample frequency for oil & grease shall be annually, except that: (1) the monitoring frequency shall be **once each quarter for 4 calendar quarters** beginning the quarter following receipt of any sample result showing an oil & grease discharge above 7.5 mg/L. A required change in Sample Frequency will be transmitted by letter from the Department to the permittee. An increased monitoring frequency is independent of the Department's enforcement response to permit noncompliance should the result exceed the specified limit. More frequent monitoring or a different sample type may be specified in an order or stipulation resulting from enforcement of permit noncompliance.

(f) Additional temperature, phosphorus, and TSS limits and monitoring requirements are applicable for specific dischargers covered under this permit. See Part 6 of this permit for details.

(g) If no exceedances occur in two years of permit coverage, monitoring for pH, TSS, and temperature may be reduced to annual sampling or suspended if authorized by the Department by letter.

(h) To demonstrate compliance with TSS limits, the facility may gather TSS data in the influent and effluent to demonstrate that the discharge is not significantly increasing the amount of TSS. A permit violation will not occur in these cases.

The following abbreviations are typically used when referring to the concentration of a

substance in a discharge:

mg/L = milligrams per liter  $\cong$  parts per million

$\mu$ g/L = micrograms per liter  $\cong$  parts per billion

### Flow

An estimate of the average daily flow performed quarterly will be sufficient to assure that the facility is aware of the loading to the surface water. An estimate means a reasonable approximation of flow based on any of the following: (a) water balance; (b) an uncalibrated weir; (c) calculations from the velocity and cross section of the discharge; (d) intake water meter readings where the intake, or a specific portion of it, is discharged; (e) discharge water meter readings; and (f) any of the more complex methods listed in section NR 218.05(1), Wis. Adm. Code. The Department may approve additional methods for estimating flow.

### Total Suspended Solids (TSS)

The TSS daily maximum effluent limit is 40 mg/L. The TSS limit is based on the ability of simple settling equipment to easily remove suspended solids from the discharge to concentrations below 40 mg/L. Effluent below 40 mg/L is typically free from objectionable deposits and floating debris. A monthly average TSS limit is also needed in this permit in order to comply with NR 205.065(7), Wis. Adm. Code, and 40 CFR 122.45(d). TSS monitoring is required on a quarterly basis using a grab sample. This monitoring frequency may be reduced to annual monitoring if no permit violations have occurred over a two-year period and approved in writing by the Department. Annual monitoring may be appropriate for some discharges since noncontact cooling water and condensates should not contain significant levels of suspended solids. Monitoring may be suspended if concentrations of TSS in the effluent are negligible compared to applicable permit limits. Additional monitoring requirements may be necessary in TMDL areas and are specified in Appendix E. To demonstrate compliance with this limit, a facility may gather influent TSS data to demonstrate that they are not significantly increasing the amount of TSS compared to the TSS present in the source water. The facility will be considered in compliance with the TSS limitations pursuant to s. NR 205.065(5)(d), Wis. Adm. Code, if the concentration of TSS in the influent is substantially similar to the concentration in the effluent.

### pH

The pH is limited to the range of 6.0 to 9.0 standard units (s.u.). This is consistent with the water quality based pH range for waters classified for fish and aquatic life pursuant to s. NR 102.04(4)(c), Wis. Adm. Code. Monitoring for pH is required on a quarterly basis using a grab sample. This monitoring frequency may be reduced to annual monitoring if no permit violations have occurred over a two-year period and approved in writing by the Department. Annual monitoring is likely appropriate for discharges that solely contain noncontact cooling water and condensate since these discharges are typically in the range of 6.0 to 9.0 s.u. Discharges containing boiler water may continue to need quarterly monitoring as boiler water is typically maintained about 9.0 s.u.

### Total Phosphorus

Many facilities covered under this general permit have no potential to contain anthropogenic sources of phosphorus. For these facilities, annual monitoring is sufficient to confirm that excess phosphorus is not present in the effluent to warrant further monitoring or phosphorus limitations. Facilities that have the potential to contain anthropogenic sources of phosphorus are subject to additional monitoring requirements and phosphorus limitations, which are specified in Appendices D-E, and discussed later in this factsheet.

#### Oil and Grease

Most facilities covered under this general permit have no potential to contain oil and grease. For these facilities annual monitoring is sufficient to confirm that oil and grease is not present in the effluent. However, some blowdown systems covered under this general permit may contain oil and grease. Given this potential, any discharge that contains oil and grease concentrations above 7.5 mg/L will increase their monitoring frequency to quarterly monitoring to provide additional monitoring data to verify that the applicable oil and grease limitations specified in this permit are met throughout the permit term. A required change in Sample Frequency will be transmitted by letter from the Department to the permittee. The oil and grease limitation of 15 mg/L represents the degree of effluent reduction attainable by the application of best practicable control technology currently available. This is based on the best professional judgment at this time and the requirements and preamble of 40 CFR 423.12 were utilized to make this determination. A monthly average is also needed in this permit in order to comply with NR 205.065(7), Wis. Adm. Code, and 40 CFR 122.45(d), and is set equal to the daily maximum limitation.

#### BOD<sub>5</sub> (Biochemical Oxygen Demand) and Ammonia

Facilities covered under this general permit are not anticipated to contain significant levels of BOD<sub>5</sub> and ammonia. However, annual monitoring for these parameters will provide the facility and the Department an indication of possible cross contamination with process wastewaters. Monitoring for these parameters is required for all facilities on an annual basis using a grab sample. Depending on the results of the monitoring, further monitoring for either or both of these parameters may be warranted if cross contamination is identified. Coverage under an individual WPDES permit may be necessary in these cases unless corrective action can be taken to remove this cross contamination.

#### Water Treatment Additives

The facility shall keep a monthly record of the daily maximum and monthly average quantity of each additive used. This will provide the necessary information to the facility and the Department to determine if additive usage is remaining within the acceptable levels as determined by the applicable Secondary Acute Value.

#### Temperature

Noncontact cooling water is used to convey heat from the facility, and, therefore, contains anthropogenic sources of temperature in the effluent. The temperature monitoring requirement specified in Table 3.1 represents the minimum monitoring

frequency for facilities covered under this general permit. Quarterly monitoring throughout the permit term is reasonable to verify that permittees do not have the potential to exceed temperature standards specified in ch. NR 106 Subchapter V, Wis. Adm. Code.

Many facilities covered under this general permit will require temperature limits or additional monitoring requirements beyond the minimum quarterly monitoring requirement specified in Table 3.1, however. Additional temperature requirements are necessary if the Department needs additional information to further evaluate the need for site-specific temperature limitations or if temperature limitations are believed to be necessary at the time this permit is reissued. These requirements are discussed in more detail later in the factsheet.

Typically, facilities that are solely required to comply with the temperature requirements in Table 3-1, and are not subject to additional temperature requirements specified in the subsequent temperature appendices, are discharges to large receiving waters where the stream flow to effluent flow ratio is greater than 30:1 and where the facility has no potential to discharge at temperatures of 120°F or higher. This is appropriate because the only applicable temperature limit in these high-dilution situations is 120°F pursuant to s. NR 106.55(6), Wis. Adm. Code. Facilities that have the potential to discharge at a temperature above 120°F are subject to the requirements of Appendix B of this permit. Facilities that discharge to low-dilution receiving waters are subject to the requirements of Appendices A or C.

#### 4. MONITORING REQUIREMENTS FOR ALL GROUNDWATER DISCHARGES

A discharge to groundwater in Wisconsin includes wastewater infiltration from irrigation, drain fields, and ponds that may impact water beneath the ground surface. Discharges to groundwater shall meet the requirements outlined in this section, including the monitoring requirements specified in Table 4.1. Samples taken in compliance with the monitoring requirements specified in Table 4.1 shall be taken at each outfall following treatment (if applicable) and prior to discharge to groundwaters. The samples taken shall be representative of the discharge.

Table 4.1

Parameter	Daily Maximum Limit	Sample Frequency	Sample Type <sup>(a,b)</sup>
Flow (Gallons Per Day)	-	Annually	Estimate
Oil and Grease (mg/L) <sup>(c)</sup>	-	Annually	Grab
pH <sup>(c)</sup>	-	Annually	Grab
Water Treatment Additives	-	Monthly	Record Usage in a Daily Log
(a) Estimate means a reasonable approximation of the average daily flow based on a water balance, an uncalibrated weir, calculations from the velocity and cross section of the discharge, intake water meter readings, discharge water meter readings or any other method approved by the Department.			
(b) A grab sample means a single sample taken at one moment of time or a combination of several smaller samples of			

equal volume taken in less than a two-minute period. This sample should represent the highest effluent concentration known or expected to occur under normal operating conditions. If the outfall location is not accessible, the permittee may approximate effluent concentrations based on influent concentrations. This estimation method may only be used for discharges that do not significantly concentrate the pollutant during the treatment process.

- (c) After reviewing the results of two years of discharge monitoring, the Department may waive, by letter, monitoring for oil and grease or pH.

#### Flow

An estimate of the average daily flow performed annually will be sufficient to assure that the facility is aware of the loading to the seepage area. An estimate means a reasonable approximation of flow based on any of the following: (a) water balance; (b) an uncalibrated weir; (c) calculations from the velocity and cross section of the discharge; (d) intake water meter readings where the intake, or a specific portion of it, is discharged; (e) discharge water meter readings; and (f) any of the more complex methods listed in section NR 218.05(1), Wis. Adm. Code. The Department may approve additional methods for estimating flow.

#### Oil and Grease

As discussed in Section 3, most facilities covered under this general permit are not anticipated to contain oil and grease. If oil and grease is present, it is likely present in trace amounts that would not trigger exceedances to groundwater standards. Annual monitoring for oil and grease will provide the facility and the Department an indication of possible cross contamination with process wastewaters and the need for potential corrective action. Annual monitoring for oil and grease may be removed after two years of monitoring if it can be clearly demonstrated that there is no potential for oil and grease to be present in the effluent.

#### pH

Monitoring for pH is required on an annual basis using a grab sample. This monitoring frequency may be suspended if pH is not believed to cause environmental concern based on at least two-years of effluent data, and approved in writing by the Department. Changes in groundwater pH can have significant impacts of sediment redox reactions in some cases.

#### Water Treatment Additives

As discussed in Section 3, the facility shall keep a monthly record of the daily maximum and monthly average quantity of each additive used. This will provide the necessary information to the facility and the Department to determine if additive usage is remaining below groundwater standard levels.

### 5. ADDITIONAL REQUIREMENTS FOR SURFACE WATER DISCHARGES

#### Changes from Previous Permit

The standard requirements in permit section 5 have been updated to the extent practical to make the language consistent with individual WPDES permits currently issued by the Department and consistent with other similar general permits. Changes to the previous permit standard requirements are primarily editorial in nature. Two noteworthy changes to the section are the addition of Sections 5.22 and 5.23. Section 5.22 prohibits facilities from discharging at temperatures that would cause unsafe ice conditions pursuant to s. NR 106.61(1)(g), Wis. Adm. Code. Section 5.23 prohibits facilities from exposing aquatic organisms to a rapid decrease in temperature and a sustained exposure to low temperature that induces abnormal behavioral or physiological performance, which may lead to death (s. NR 106.56(10), Wis. Adm. Code). Because facilities covered under this general permit typically add heated effluent to the environment, cold shocking is unlikely in these systems. However, Section 5.23 was added to be environmentally conservative and to assure that this does not occur.

The Department also provided clarification that a request for coverage must be submitted to receive coverage under this permit (Section 5.2), and clarified the process for terminated or transferring permit coverage. The Department also provided clarification that new or existing NCCW discharges must submit a request for coverage and receive a Letter of Determination by the Department before the facility is authorized to discharge under this general permit (Section 5.3).

## 6. DISCHARGER-SPECIFIC REQUIREMENTS FOR SURFACE WATER DISCHARGES

Part 6 of this general permit provides pollutant-specific permitting requirements for subsets of facilities covered under this general permit. Pollutant-specific requirements are broken up into various appendices. Each appendix contains an applicability section to inform the facility if they are subject to the requirements of the appendix and provides specific limits and/or monitoring requirements for the pollutant in question. The Department will also review the applicability criteria for each appendix and inform a facility of the specific appendices that the facility is subject to at the time of permit coverage. If a facility is subject to multiple appendices, the most restrictive appendices will be applicable. All requirements in Part 6 of this permit apply in addition to the requirements found in Sections 1-5 of the permit.

Appendix A. Effluent temperature limits for discharges to limited aquatic life systems  
Facilities covered under this general permit are subject to this appendix if they discharge to a limited aquatic life system and have the potential to produce effluent with temperatures at or above 86°F. Pursuant to s. NR 106.55(2), Wis. Adm. Code, the daily maximum effluent temperature limitation is 86°F for discharges to surface waters classified as limited aquatic life according to s. NR 104.02(3)(b)1, Wis. Adm. Code, and as defined in s. NR 104.02(1), Wis. Adm. Code. This does not include discharges to wetlands or wastewater effluent channels.

If a facility is not able to comply with this temperature limitation when coverage under this GP is granted, the Department may authorize a compliance schedule to provide the

facility with time to come into compliance with the limit. The permittee is required to justify the need for this compliance schedule in the request for coverage. Note that only existing discharges that have previously been authorized to discharge under a general or individual permit may request a compliance schedule pursuant to s. NR 106.62, Wis. Adm. Code. Once sufficient justification is provided to the Department to warrant the need for a compliance schedule, the facility can utilize timeline and requirements specified in Table A.3.1 to come into compliance with their temperature limitation. This compliance schedule requires the facility to comply with the 86°F limitation 36 months after coverage under the permit. This provides time for a facility to develop an action plan, implement the plan, and come into compliance with the final limitation. If a longer compliance schedule is needed, the facility may need to seek coverage under an individual WPDES permit. The Department believes that the duration of the compliance schedule reflects the soonest most facilities covered under this appendix will be able to evaluate their compliance options and come into compliance with the limit given the restrictiveness of the limit in question. This compliance schedule is an enforceable sequence of actions or operations leading to compliance with the effluent temperature limit and does not allow more than one year between interim compliance dates (40 CFR Parts 122.2 and 122.47).

#### Appendix B. Effluent temperature limits for discharges of high heat

Facilities covered under this general permit are subject to this appendix if they have the potential to produce effluent with temperatures at or above 120°F. This limitation is necessary to protect human health and welfare from scalding or other adverse effects pursuant to s. NR 102.04(8)(c), Wis. Adm. Code. This appendix applies to either surface water discharge or groundwater discharges.

If a facility is not able to comply with this temperature limitation when coverage under this permit is granted, the Department may authorize a compliance schedule to provide the facility with time to come into compliance with the limit. The permittee is required to justify the need for this compliance schedule in the request for coverage. Note that only existing discharges that have previously been authorized to discharge under a general or individual permit may request a compliance schedule pursuant to s. NR 106.62, Wis. Adm. Code. Once sufficient justification is provided to the Department to warrant the need for a compliance schedule, the facility can utilize the timeline and requirements specified in Table B.3.1. This compliance schedule requires the facility to comply with the 120°F limitation 36 months after coverage under the permit. This provides time for a facility to develop an action plan, implement the plan, and come into compliance with the final limitation. If a longer compliance schedule is needed, the facility may need to seek coverage under an individual WPDES permit. The Department believes that the duration of the compliance schedule reflects the soonest most facilities covered under this appendix will be able to evaluate their compliance options and come into compliance with the limit given the restrictiveness of the limit in question. This compliance schedule is an enforceable sequence of actions or operations leading to compliance with the effluent temperature limit and does not allow more than one year between interim compliance dates (40 CFR Parts 122.2 and 122.47).

In addition to coming into compliance with the temperature limit, facilities subject to this appendix will need to evaluate their opportunities to implement best management practices to reduce the temperature loading to the surface water or groundwater. Best management practices that need to be considered include modifications to the time/duration of the discharge, alternative discharge locations including sending effluent to the municipal wastewater treatment facility for treatment, and other operational changes. This plan should also include a timetable when suggested actions could be implemented. Best management plans must be submitted to the Department no later than 18 months after the date of coverage of this general permit. Upon Department approval, the facility is responsible for implementing the practices of this plan in accordance with the submitted plan schedule.

#### Appendix C. Temperature requirements for other discharges covered in this general permit

Facilities covered under this appendix require further investigation to determine the need for temperature limitations to protect fish and aquatic life. Only facilities that discharge to surface waters require additional analyses. Specifically, facilities that require additional analysis include:

- *Direct discharges to surface water where the stream flow to effluent flow ( $Q_s:Q_e$ ) ratio is less than 30:1.*

Pursuant to s. NR 106.55(6)(a), Wis. Adm. Code, sub-lethal and/or acute temperature water quality-based effluent limitations may be required if the  $Q_s:Q_e$  ratio is less than 30:1 for discharges to cold water systems. If the  $Q_s:Q_e$  ratio is above 30:1, sufficient dilution is available to preclude the need for fish and aquatic life temperature limitations. Temperature criteria for cold water systems specified in s. NR 102.24, Wis. Adm. Code, are the most restrictive temperature criteria codified at this time. Therefore, this applicability criteria provides a conservative approach to ensure that sufficient data is gathered for all necessary noncontact cooling water facilities covered under this GP. It is noted that the majority of facilities covered under this GP actually discharge to warm water sport fish or warm water forage fish communities.

- *Discharges to inland lakes or harbors to the Great Lake.*  
This applicability criteria provides a conservative approach to ensure that sufficient data is gathered for all necessary noncontact cooling water facilities covered under this general permit. Given the applicable temperature criteria for these systems and the maximum allowable area of a mixing zone specified in s. NR 106.55(7), Wis. Adm. Code, the Department believes it is appropriate to have all discharges to inland lakes and harbors to the Great Lakes collect additional temperature data.

Note: Additional temperature requirements are not believed to be necessary for direct discharges to the Great Lakes. Discharges that are capable of producing high-heat effluents are required to comply with the requirements of Appendix B of this permit. This includes direct discharges to Lake Michigan or Lake Superior. Given the amount of dilution available and the size of the allowable mixing zone

for discharges to the Great Lakes specified in s. NR 106.55(7)(b), Wis. Adm. Code, the Department finds that the requirements of Appendix B are adequately protective of fish and aquatic life in Lake Michigan and Lake Superior. Monitoring requirements specified elsewhere in the permit will be used to verify this determination.

- *Discharges to surface waters lists as impaired for temperature.*  
At the time this general permit was developed, there were no waters listed as impaired for temperature or heat on the 303(d) impaired waters list: <http://dnr.wi.gov/topic/impairedwaters/>. This applicability criterion is designed to help gather additional information about NCCW discharges and their potential impacts to impaired waters should a water become listed for a temperature impairment during the permit term. This information can then be used to make future permitting decisions upon permit reissuance. Additional permit requirements may be required upon permit reissuance to help address this impairment.

The Department implemented an online and mailed-in survey of facilities covered under the noncontact cooling water general permit (WI-0044938-5) on March 12, 2015. This survey gathered additional data to help determine the potential impacts of heated effluent from discharges covered under this general permit to Wisconsin's surface waters. The results of this survey indicated that many NCCW discharges covered under this permit are non-continuous discharges and only discharge heated effluent seasonally or for a few days out of the month. These facilities also tend to send effluent to more thermally tolerant receiving waters like warm water forage fisheries and warm water sport fisheries. Additionally, this survey concluded that most facilities discharge to a storm sewer, storm water conveyance channel, or storm water pond prior to entering a surface water of the state. In the environment, excess heat from effluent can rapidly mix or dissipate if turbulent flow is present or there is heat exchange with the atmosphere or surrounding environment. The amount of heat loss provided by these interactions depends on the distance in the storm sewer, the temperature of the effluent, and the amount of mixing that can occur with other storm water before entering a surface water of the state. Given the above, the Department believes that many discharges covered under this general permit do not have the potential to have deleterious effects on fish and aquatic life caused by their heated effluent.

However, The Department recognizes that there is some potential for specific facilities to need site-specific temperature limitations to protect fish and aquatic life. Facilities that need site-specific temperature limitations will likely need to seek coverage under an individual WPDES permit or an alternative general permit. To determine which facilities may need to seek coverage under a separate permit, this appendix is designed to have facilities gather additional temperature data so that Department staff can calculate site-specific temperature limitations and heat loss values. Providing time to collect reliable temperature data for these facilities will ensure that establishment of water quality-based effluent limitations for temperature are site-specific and no more restrictive than necessary to protect fish and aquatic life.

In addition to an increase in temperature monitoring, all facilities covered under this appendix will be required to evaluate their opportunities to implement best management practices to reduce the temperature loading to the surface water. Best management practices that need to be considered include modifications to the time/duration of the discharge, alternative discharge locations including sending effluent to the municipal wastewater treatment facility for treatment, and other operational changes. This plan should also include a timetable when suggested actions could be implemented. Best management plans must be submitted to the Department for approval no later than 18 months after the date of coverage of this general permit. Upon Department approval, the facility is responsible for implementing the practices of this plan in accordance with the submitted plan schedule. The Department will consider the actions taken in the best management plan when determining the need for a site-specific temperature limitation and the need for coverage under an alternative permit.

#### Appendix D. Phosphorus limits absent a U.S. EPA approved TMDL

Most facilities covered under this general permit are pass-through systems where phosphorus is solely coming from the intake water. In these cases, the need for phosphorus limitations will depend on a facility's water supply source as well as the concentration of phosphorus within their water supply. There are several potential water supplies that were considered when determining the need for phosphorus limitations in this appendix. Each of these water supplies and their respective phosphorus requirements in this general permit are summarized below:

- Ground water supply: For facilities that use groundwater as their water supply, phosphorus concentrations are anticipated to be below the criteria<sup>1</sup>. Therefore, these facilities do not require site-specific phosphorus limitations and are not subject to the requirements of Appendix D.
- Intake structures: Discharges that operate an intake structure receive their source water from surface water. In a letter from the U.S. EPA to the DNR dated April 1, 2015, it was articulated that facilities that do not significantly increase the concentration of phosphorus within their treatment process could receive intake credits, which would preclude their need for phosphorus limitations. Because NCCW discharges are not believed to significantly increase the concentration of phosphorus within their process beyond some marginal increases due to evaporation, the Department finds that these facilities do not require restrictive phosphorus limitations at this time and are not subject to the requirements of Appendix D.
- Municipal water supply: Some facilities covered use municipal water for their cooling water supply. Some of these discharges will be subject to the requirements of Appendix D as many municipal water supplies add polyphosphates to change water quality characteristics within the municipal water. Phosphorus concentrations in these systems can be as high as 2-3 mg/L; NCCW that use these water supplies as a water source and discharge to a surface water have the potential to contribute to a phosphorus impairment and are,

<sup>1</sup> *Average median phosphorus in private wells in Wisconsin. McGinley, Paul. (2012). Phosphorus Concentration Trends in Wisconsin's Groundwater. UW-Stevens Point: Unpublished report.*

therefore, subject to the requirements of this appendix. For NCCW discharges that use a municipal water supply that does not add polyphosphates, restrictive phosphorus limitations are not required because phosphorus concentrations in the water supply are typically lower than the applicable phosphorus criteria.

Given the above, discharges that use municipal water supplies containing polyphosphates require restrictive phosphorus limitations whenever the discharge is to a waterbody that is listed on the 303(d) impaired waters list<sup>2</sup> for a phosphorus impairment. Inclusion of these limitations will ensure that the facilities covered under this general permit do not cause or contribute to a phosphorus impaired water.

Appendix D also provides the Department with the discretion to require specific facilities to comply with the phosphorus limitations and other requirements of Appendix D on a case-by-case basis. Facility-specific circumstances that may justify coverage under this appendix includes: facilities that contribute a significant portion of the phosphorus load to the receiving water; facilities that cannot be granted intake credits because they do not take in water from the same receiving water to which the discharge is made; facilities that utilize groundwater that exceeds the applicable phosphorus criteria as its water supply; and other situations. As previously mentioned, the Department will notify the permittee at the time of permit coverage of the applicable appendices that they must be met.

The phosphorus limitations specified in Appendix D are derived from s. NR 217.13(7), Wis. Adm. Code, which states that a phosphorus water quality-based effluent limitation can be no more restrictive than the applicable phosphorus criterion specified in s. NR 102.06, Wis. Adm. Code. Limitations are typically set equal to criteria in situations where the in-stream phosphorus concentration exceeds the applicable phosphorus criteria specified in s. NR 102.06, Wis. Adm. Code. Therefore, the limitations specified in D.2.1.1-D.2.1.6 vary based on the applicable criteria for the receiving water in question. The Department will notify the permittee of their applicable phosphorus limitations specified in D.2.1.1-D.2.1.6 at the time of permit coverage.

Given the restrictiveness of these limitations, many facilities will require time to comply with these limits. These facilities will need time to gather influent and effluent phosphorus data, develop and implement a phosphorus optimization plan, and go through facility planning to determine the best alternative for achieving compliance with the applicable phosphorus WQBEL. These alternatives include:

- Operational changes to meet a WQBEL
- Construction to meet a WQBEL
- Adaptive management as specified in s. NR 217.18, Wis. Adm. Code
- Water quality trading
- A water quality standards variance under s. NR 217.19, Wis. Adm. Code, or 283.15, Stats.

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<sup>2</sup> Additional information about the impaired waters list as well as listing procedures can be found at <http://dnr.wi.gov/topic/impairedwaters/>.

Given the range and complexity of these compliance alternatives, the Department believes it is appropriate to grant an extended compliance schedule for phosphorus pursuant to s. NR 217.17, Wis. Adm. Code. The permittee is required to justify the need for this compliance schedule in the request for coverage. Note that only existing discharges that have previously been authorized to discharge under a general or individual permit may request a compliance schedule pursuant to s. NR 217.17(4), Wis. Adm. Code. Once sufficient justification is provided to the Department to warrant the need for a compliance schedule, the facility can utilize the timeline and requirements specified in Table D.3.1 to come into compliance with their applicable phosphorus limitation. This compliance schedule will ensure that a facility comes into compliance with the phosphorus limitations no later than 108 months after the date of permit coverage. The Department believes that the duration of the compliance schedule reflects the soonest most facilities covered under this appendix will be able to evaluate their compliance options, and come into compliance with the limit given the restrictiveness of the limit in question and the number and complexity of compliance alternatives available to them. This compliance schedule is an enforceable sequence of actions or operations leading to compliance with the effluent phosphorus limits and does not allow more than one year between interim compliance dates (40 CFR Parts 122.2 and 122.47).

Depending on the compliance alternative selected, a facility may need to seek coverage under an individual WPDES permit. Additionally, a facility must seek coverage under an individual WPDES permit if the discharge is a new discharge or seeks to significantly increase the phosphorus loading to a surface water listed on the 303(d) list for phosphorus impairment.

Appendix E. Phosphorus or TSS limits within U.S. EPA approved TMDL watersheds

As specified in DNR's TMDL Development and Implementation Guidance, Edition 3, dated November 6, 2013, facilities covered under this general permit shall comply with the allocations in any State and Federally Approved TMDL (<http://dnr.wi.gov/topic/wastewater/guidance.html>). At the time this permit was developed, NCCW discharges in the Lake St. Croix Basin, Lower Fox River Basin, Red Cedar River Basin, and Rock River Basin are subject to requirements for phosphorus to ensure compliance with these approved TMDLs. Additionally, NCCW discharges in the Lower Fox River Basin and Rock River Basin must also comply with TSS requirements to conform with those TMDLs. The list of all approved TMDLs is available at <http://dnr.wi.gov/topic/tmdls/tmdlreports.html>. Although other TMDLs have been state and federally approved, these TMDLs do not require additional requirements for NCCW discharges at this time.

In the Lake St. Croix, Lower Fox River, Red Cedar River, and Rock River TMDL reports, NCCW general permit holders were provided an aggregate wasteload allocation for phosphorus and, sometimes, TSS. This is standard practice for TMDL development in Wisconsin and is expected to be the method used to address NCCW GP discharges in the majority of TMDLs developed in the future. However, if future TMDLs include individual wasteload allocations for phosphorus or TSS (or other pollutants) from NCCW

discharges, those discharges would need to be covered by an individual permit or through a separate general permit.

Aggregate wasteload allocations are attained so long as the sum of the individual point sources that contribute phosphorus/TSS do not exceed the total aggregate wasteload allocation specified for the category of discharge in the TMDL reach in question. This means that NCCW general permit holders will comply with their TMDL obligations so long as the combined mass of phosphorus and TSS being discharged from all NCCW discharges in their applicable TMDL reach does not exceed the aggregate allocation. Available data for facilities covered under this permit indicate that the applicable aggregate allocations for phosphorus and TSS are currently being met. Therefore, more restrictive phosphorus and TSS limitations are not necessary at this time. However, appendix E specifies additional monitoring and reporting requirements for phosphorus and TSS; these requirements are necessary to ensure that the Department has sufficient data to evaluate compliance with aggregate allocations and make adjustments in future WPDES permits or revisions to the TMDLs, as necessary and appropriate.

Additionally, this appendix requires that facilities optimize their current treatment processes to reduce their phosphorus and TSS loadings to these impaired surface waters. Best management practices that need to be considered include modifications to the time/duration of the discharge, alternative discharge locations including sending effluent to the municipal wastewater treatment facility for treatment, and other operational changes. This plan should also include a timetable when suggested actions could be implemented. Optimization plans must be submitted to the Department no later than 36 months after the date of coverage of this general permit. Upon Department approval, the facility is responsible for implementing the practices of this plan in accordance with the submitted plan schedule.

Because the TMDL provided an aggregate allocation for NCCW discharges, new or expanding discharges may continue to be covered under this general permit so long as the applicable aggregate allocations continue to be met. A permittee may not initiate a new discharge or expand an existing discharge in a TMDL area until the facility receives written confirmation from the Department that the increase does not cause an exceedance of the applicable aggregate allocations.

#### Appendix F. Chlorine Limitations

Many water utilities chlorinate their water supply to ensure protection of human health from microbial or algal contamination. For NCCW facilities that utilize chlorinated municipal water supplies and discharge to surface water, a chlorine limitation may be required as the concentration of chlorine in municipal water supplies typically exceeds the water quality criteria of 38 µg/L (typically, the concentration of chlorine in water supplies is about 0.2 mg/L or 200 µg/L). Facilities in these situations must be evaluated for their potential to exceed chlorine water quality standards. Facilities that directly add chlorine for the purposes of disinfection within their treatment process must also be evaluated for their potential to exceed chlorine standards.

A unique property of chlorine is that it is highly reactive and rapidly dissipates in the environment. This dissipation will only occur in situations where the effluent is exposed to the atmosphere. Therefore, the chlorine concentration entering a surface water may be significantly lower if the effluent first enters a storm sewer system, pond, or effluent channel prior to entering the surface water in question. A memo entitled “Chlorine Dissipation from NCCW in Storm Drains” (Knutson, 2015) provides a technical approach for quantifying the amount of dissipation that occurs within these systems. This approach determined that if a NCCW facility discharged its effluent to a storm sewer pipe that is at least 1900 feet long (1860 ft, rounded) prior to entering a surface water of the state, there would be no potential for that facility to exceed the chlorine standards. This analysis relied on typical concentrations of chlorine in municipal water systems, standards dimensions of storm sewer pipes, and a NCCW discharge volume of 1.6 MGD. This discharge volume was selected as a conservative effluent discharge rate based on NCCW facilities currently covered under the general permit. It is estimated that 90% of the facilities covered under this general permit will actually be discharging less than 1.6 MGD; however, this threshold was selected as a conservative bound to ensure environmental protection.

Given the above, facilities covered under this general permit are subject to the requirements of Appendix G if they use chlorinated municipal water as their water supply and discharge this water to a surface water of the state directly or to a storm sewer less than 1900 ft from a surface water of the state. The Department may also require other discharges to meet the requirements of this appendix if the Department finds that the specific facility in question has the potential to cause a violation of the chlorine water quality standards. Site-specific coverage under this appendix may be necessary if the facility discharges chlorine at a concentration above 0.2 mg/L or discharges more than 1.6 MGD, for example.

Facilities covered under this general permit are subject to a chlorine limitation of 38 µg/L, expressed as a daily maximum and monthly average limitation, and quarterly monitoring. Given the conservative nature of the assumptions used in this analysis, chlorine monitoring may be reduced to annual monitoring once clear evidence is available to indicate that the effluent concentration will be below the chlorine limitation in question. Chlorine samples may be collected at a storm sewer outfall pipe in addition to at the effluent pipe to support this demonstration. Appendix G also provides specific chlorine reporting requirements. These requirements are necessary because the limit of detection for chlorine tests currently exceeds the water quality standard for chlorine.

If a facility is not able to comply with this chlorine limitation when coverage under this permit is granted, the Department may authorize a compliance schedule to provide the facility with time to come into compliance with the limit. The permittee is required to justify the need for this compliance schedule in the request for coverage. Note that only existing discharges that have previously been authorized to discharge under a general or individual permit may request a compliance schedule pursuant to s. NR 106.117, Wis. Adm. Code. Once sufficient justification is provided to the Department to warrant the

need for a compliance schedule, the facility can utilize timeline and requirements specified in Table G.3.1 to come into compliance with their temperature limitation. This compliance schedule requires the facility to comply with the 38 µg/L limitation 36 months after coverage under the permit. This provides time for a facility to develop an action plan, implement the plan, and come into compliance with the final limitation. If a longer compliance schedule is needed, the facility may need to seek coverage under an individual WPDES permit. The Department believes that the duration of the compliance schedule reflects the soonest most facilities covered under this appendix will be able to evaluate their compliance options and come into compliance with the limit given the restrictiveness of the limit in question. This compliance schedule is an enforceable sequence of actions or operations leading to compliance with the effluent chlorine limit and does not allow more than one year between interim compliance dates (40 CFR Parts 122.2 and 122.47).

#### Appendix G. Arsenic Requirements

Facilities covered under this permit that discharge to Lake Michigan will be required to comply with additional arsenic requirements specified in Appendix G. The applicable human cancer criterion for arsenic in Lake Michigan is 0.2 µg/L to protect public health and welfare and the use of these waters as a public drinking water supply. A preliminary review of available data by the Department and the U.S. EPA indicates that the arsenic criteria of 0.2 µg/L is exceeded in Lake Michigan which, in turn, suggests that there is no assimilative capacity for arsenic discharges with concentrations above 0.2 µg/L. (Note: the arsenic concentrations in Lake Superior are below the criteria, so no additional permit requirements are necessary for NCCW facilities that discharge to Lake Superior).

The Department implemented an online and mailed-in survey of facilities covered under the noncontact cooling water general permit (WI-0044938-5) on March 12, 2015. This survey found that there are approximately 20 facilities that have previously been covered by the general permit that discharge to Lake Michigan. For these facilities, additional arsenic monitoring will be required throughout the permit term. This information will be used to make future permitting decisions regarding arsenic upon permit reissuance. Additionally, this appendix requires that facilities optimize their current treatment processes to reduce their arsenic loadings to Lake Michigan, if possible. Best management practices that need to be considered include modifications to the time/duration of the discharge, alternative discharge locations including sending effluent to the municipal wastewater treatment facility for treatment, and other operational changes. This plan should also include a timetable when suggested actions could be implemented. Optimization must be submitted to the Department no later than 36 months after the date of coverage of this general permit. Upon Department approval, the facility is responsible for implementing the practices of this plan in accordance with the submitted plan schedule.

Respectfully submitted,

Amanda Minks