

Ohio Environmental Protection Agency

Fact Sheet for

National Pollutant Discharge Elimination System (NPDES)

General Permit for Discharges of
Non-Contact Cooling WaterI. Background

The federal Water Pollution Control Act [also referred to as the Clean Water Act (CWA)], which was enacted in 1972, provides that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with a NPDES permit. Many commercial and industrial entities have the need to discharge wastewater characterized as “non-contact cooling water” from the operation of their facilities. Non-contact cooling water is defined as wastewater which does not come into contact with the process operations of a facility, and is used only to convey heat from the facility. U.S. EPA states that non-contact cooling water is used to reduce temperature and does not come into direct contact with any raw material, intermediate product, waste product (other than heat), or finished product. The primary concern regarding the discharge of non-contact cooling water is ensuring that waste heat conveyed to surface waters of the State does not result in violations of Ohio’s water quality standards.

Ohio EPA has elected to renew the existing statewide general permit authorizing the discharge of non-contact cooling water to waters of the State. Dischargers which meet the eligibility requirements may apply for coverage this NPDES general permit, instead of seeking coverage under an individual NPDES permit. The two primary conditions determining eligibility are: 1) the critical low flow in the stream which will receive the discharge; and 2) ensuring that the discharge consists of only non-contact cooling water. Eligibility is discussed in more detail in the next section of this document.

II. Description of General Permit Coverage

The general permit is proposed for a duration of five years. In order to be eligible for coverage under this general permit, the discharge flow volume must be no greater than five (5) percent of the critical low flow in the receiving

stream¹, which results in a dilution ratio of at least 20 to 1. Experience has shown that discharges of non-contact cooling water which meet this criterion, have no significant thermal effect on aquatic life, and Ohio surface water temperature standards will be maintained. Non-contact cooling water must be free from contaminants (other than heat), and must not come into contact with wastewater potentially containing pollutants.

The following types of discharges are not eligible for coverage under this general permit:

- cooling water contaminated with metals, ammonia, organic chemicals, or total dissolved solids;
- storm water mixed with non-contact cooling water;
- cooling tower blowdown, boiler blowdown, and air compressor condensate, each of which may be contaminated with pollutants;
- wastewater discharges associated with non-contact cooling water that the Director has determined to have the reasonable potential to cause or contribute to an exceedance of Ohio Water Quality Standards;
- non-contact cooling water discharges containing chemicals or water treatment additives that have not been approved by Ohio EPA;
- wastewater discharges in which the total concentration of volatile organic compounds is greater than 100 ug/l; and
- wastewater discharges lasting more than two hours per day in which the total residual chlorine concentration is greater than 0.038 mg/l, unless de-chlorination equipment is installed.

III. Application for Coverage

Each facility seeking coverage under this general permit must submit a Notice of Intent application (NOI). Federal regulations found in 40 CFR 122.21(a) exclude persons covered by general permits from requirements to submit an application for an individual permit. NOI requirements are intended to establish a mechanism that can be used to establish a clear accounting of the number of permittees covered by the general permit, the identities, locations, mailing addresses, and nature of discharge. The NOI application form and instructions for completing the form are available on the following internet website by clicking on "Applying for Coverage":

<http://www.epa.ohio.gov/dsw/permits/gpfact.aspx>

¹ The critical low flow is defined as the minimum 7-day average flow, with a recurrence interval of 10 years. Statistically, the 7Q10 flow, or the 7-day 10-year low flow would be expected to occur once every ten years.

Completed NOI applications must be submitted to the following address:

Ohio Environmental Protection Agency
Office of Fiscal Administration
P.O. Box 1049
Columbus, Ohio 43216-1049

Individuals with an existing discharge who intend to obtain coverage for wastewater discharges under this general permit shall submit an NOI form within 45 days of the effective date of this permit. An applicant will not be covered under the general permit until they receive written notification from the Director of Ohio EPA that a discharge is authorized under the general permit. Dischargers who fail to obtain coverage under the general permit and are not otherwise covered by a NPDES permit are in violation of Ohio Revised Code (ORC) 6111.

IV. Significant Changes in the Non-Contact Cooling Water General Permit

A number of significant changes have been made to the general permit for non-contact cooling water, and these changes are discussed below.

Eligibility of New Discharges. The requirements of anti-degradation have been applied to the renewal of this permit in order to allow new discharges (i.e., those discharges not currently covered under an individual or general NPDES permit) to obtain coverage under this general permit. Assuming a 20 to 1 dilution ratio, calculations show that discharges under this permit meet an exclusion in accordance with the anti-degradation rule, and therefore a detailed technical review of alternatives and social and economic issues related to the degradation is not required.

Eligibility of Geothermal Heating and Cooling Systems. Language has been included which explicitly allows geothermal heating and cooling systems to be covered under the permit, providing the requirements for discharge flow rate have also been met.

Discharge Flow. Language has been added to indicate explicitly that the total discharge flow from all outfalls must be used to compare with the critical low flow in determining eligibility under the general permit.

Water Treatment Additives. References to chemicals or water treatment additives have been removed from the permit section which lists the types of discharges which are eligible for coverage under the general permit. Instead, language addressing this issue has been incorporated in two locations: 1) under limitations to coverage, "...non-contact cooling water discharges containing chemicals or water treatment additives that have not been

approved by Ohio EPA” are now explicitly prohibited from coverage. Also, language has been added to Part IV of the permit which provides the steps which must be followed in order to obtain approval for water treatment additives.

Section 316(b) Compliance. Section 316(b) of the Clean Water Act requires that facilities withdrawing water from surface waters for cooling purposes must use the “best technology available” to minimize adverse environmental impact resulting from the operation of the water intake structure. The general permit requires that one of two conditions must be satisfied in order to comply with Section 316(b) requirements:

- the water body where the cooling water is obtained does not include threatened or endangered species in the vicinity of the cooling water intake structure, the design intake flow is less than 5 percent of the mean annual flow of the water body, and the design intake velocity is less than 0.5 feet per second; or
- the facility employs a re-circulating cooling system and re-circulates at least 95 percent of the cooling water.

Volatile Organics. The general permit now requires that the total concentration of volatile organic compounds discharged under this permit must be less than 100 ug/l.

Additional Information Submitted with the NOI. Supplementary information must now be submitted with the NOI to characterize the discharge:

- For applicants who obtain water directly from ground water sources, the results of a priority pollutant scan, including metals and volatile organic compounds;
- If the applicant obtains water from a public water supply source, the results of a metals analysis of the wastewater discharged; and
- For applicants discharging more than two hours per day, monitoring results for total residual chlorine.

Maximum Total Residual Chlorine (TRC) Concentration. The maximum discharge concentration of 0.4 milligrams per liter (mg/l) has been removed. Individual NPDES permits allow a discharge concentration for TRC no greater than 0.038 mg/l for discharges greater than or equal to two hours per day in duration, and the NCCW general permit now requires compliance with this more restrictive limit. If the discharge exceeds this new requirement, coverage under the permit may be granted (with respect to this requirement only) if the applicant agrees to install de-chlorination equipment within six months.

Part III Effluent Tables. The previous non-contact cooling water general permit (permit # OH000003) has one effluent table which applies to all discharges regardless of the discharge flow rate, even though the footnotes to the table instruct the permittee to use three different monitoring frequencies based upon the average flow rate. This renewal of the general permit includes three effluent tables – one for each category of flow rate and associated monitoring frequency. The permittee and Ohio EPA will select the appropriate effluent table to be associated with each facility outfall to be covered under the general permit. This approach should be easier for the permittee (especially those reporting electronically), and will allow Ohio EPA to track permit compliance more effectively.

Monitoring for Total Residual Oxidants (TRO) and TRC. Monitoring for these parameters have been added to the effluents tables in Part III of the permit. TRO and TRC must be monitored only when the facility uses approved water treatment additives which release bromine or chlorine, respectively. This addition is consistent with the approach used for individual NPDES permits when similar types of water treatment additives are included in the discharge.

V. Guidance for Applicability

This section is intended to provide guidance for entities in determining the applicability of their discharge to be covered under the non-contact cooling water general permit. Coverage under this permit requires that the wastewater is uncontaminated, which is further explained below.

Common Contaminants. As explained in the definition of non-contact cooling water in Part VI of the general permit, the permittee must ensure that the cooling water being used is free from metals, ammonia, organics, and total dissolved solids in order to meet the requirement of an uncontaminated discharge. These pollutants are of concern because they may result in toxicity and oxygen demand in the receiving stream. If the applicant is unsure with regard to the presence or concentration of pollutants in the source water or the final discharge, inexpensive tests can be used to make this determination.

Testing for Contaminants. A test for chemical oxygen demand (COD) will show the level of organics and certain inorganics (such as sulfides, sulfites, ferrous iron, chlorides, and nitrites) amenable to chemical oxidation. An organic carbon determination in a total organic carbon (TOC) analysis can also be helpful to identify the level of pollutants in source water. If the cooling water effluent shows a COD value exceeding 50 mg/l and a TOC value exceeding 20 mg/l, it is suggested that entities investigate the source water to reduce the level of contaminants, or apply for coverage under an individual NPDES permit.

Low Flow Rate of Receiving Stream. Eligibility for coverage under this general permit includes the requirement that the total discharge from the facility is less than five percent of the critical low flow (or 7Q10 flow) of the receiving stream. Ohio EPA can provide assistance in determining the 7Q10 flow applicable to a discharge, if necessary. (The 7Q10 flow is further defined on the first page of this factsheet.)

Cooling Tower Blowdown, Boiler Blowdown, and Condensate. While these types of discharges are closely related to non-contact cooling water, they are not covered under this general permit due to the likelihood of contamination. Cooling tower blowdown is routinely mixed with additives which contain pollutants, boiler blowdown often contains high levels of total dissolved solids, and air compressor condensate is frequently contaminated with oil.

A copy of the draft permit is available on the Ohio EPA, Division of Surface Water website:

http://www.epa.ohio.gov/dsw/permits/GP_NonContactCoolingWater.aspx