

Ohio Environmental Protection Agency

Fact Sheet For General

National Pollutant Discharge Elimination System (NPDES)

Permit To Discharge Wastewater

From Water Treatment Plants

I. 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.

Wastewaters are generated while producing potable water in water treatment plants. The purpose of issuing NPDES permits to plants discharging wastewaters is to ensure that wastewaters are adequately treated prior to discharge. This treatment will prevent any adverse impact on the surface water quality of the state.

Types of wastewater and pollutants

The common types of wastewaters from water plants and the processes that generate them are (a) clarifier sludge blowdown and particulate filter backwash from plain purification and lime-soda softening process, (b) iron filter backwash wastewater from iron and manganese removal process, (c) wastewater containing dissolved solids from sodium cycle ion-exchange process and reverse osmosis process. The pollutants in the wastewater that need treatment are total suspended solids, pH, total dissolved solids (which contains mostly chlorides and sulfates), halomethane (combination of certain halogenated compounds; see definition in Part VI of general permit), total residual chlorine, suspended iron and manganese.

Plants not covered under general permit and why

Ohio EPA issues individual permits to these plants. However, in order to bring similar type of discharges under one type of permit, Ohio EPA has decided to issue a statewide general permit to cover some of these plants that discharge wastewater while producing potable water. The plants that are proposed to be covered under the general permit are plain purification, lime soda softening and iron & manganese removal. The general permit has incorporated some minor changes compared to the existing individual permits normally issued to these plants (see heading “minor changes in the general permit compared to the existing individual permit”).

The discharges from ion-exchange and reverse osmosis are not covered under this general permit. This is because while “lime soda softening” and “iron and manganese removal” processes are removing suspended solids, ion-exchange and reverse osmosis processes are removing dissolved solids and adding a regeneration liquid in the waste stream. Due to the high level of TDS (total dissolved solids), the characteristics of resulting wastewater from ion-exchange and reverse osmosis are therefore quite different. Individual permits will continue to be written for these plants.

Definitions of different treatment methods

As mentioned above, these plants produce potable water by different treatment methods. Part VI in the general permit provides definitions of different treatment methods. The definitions are important because they explain different treatment processes that are used in Ohio. Based on the treatment description, plants will be able to identify its respective treatment operation. Identification of the treatment operation will help a plant to comply with effluent limitations, monitoring requirements and special conditions appropriate for that specific treatment operation. The general permit imposes effluent limitations, monitoring requirements and special conditions based on Ohio's Water Quality Standards (WQS) and Ohio EPA's experience with water treatment plant operations. The requirements are not based on any particular federal effluent guideline because there is none.

II. Description of General Permit Coverage and Type of Discharge

The general permit covers existing discharges of wastewater from plain purification process, lime-soda softening process, iron & manganese removal process to waters of the state. Existing discharges under this general permit are those sources that were constructed or discharging prior to July 1, 1993, or those sources that have an existing individual NPDES permit for discharge of wastewater from water plants. New water treatment plant discharger will need an individual permit and must go through antidegradation procedure. The permit does not cover discharges of wastewater that the Director of Ohio EPA has determined to be contributing to a potential violation of WQS.

III. Description of Permit Conditions

Notice of Permit Conditions - Operators of facilities with the industrial activities described in Section II of this Fact Sheet must obtain NPDES permits in order to discharge to surface waters of the state. Each individual facility that opts for coverage under the general permit must submit a Notice of Intent application (NOI) to obtain coverage under the general permit. EPA's regulations at 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.

To seek general permit coverage, a discharger need only complete and submit an NOI form that is available from Ohio EPA, along with the appropriate fee, to the following address:

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

Individuals with an existing discharge who intend to obtain coverage for wastewater discharges from water treatment plants under the general permit shall submit an NOI form within 45 days of the effective date of the 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. Minor changes in the general permit compared to the existing individual permit

1. Solids from softening processes: During the Plain Purification Process, few plants discharge solids to the Ohio River that may result in a slight increase in the amount of solids removed from the river. Plants that discharge solids to the Ohio River and may result in more than 5 percent net (measured over a 30-day period) increase in the amount of solids discharged to the river will not be covered by general permit. For those plants, coverage by individual permits will continue.

2. pH: Ohio EPA has been allowing discharges with a pH limit up to 11 S.U. in the mixing zone for discharges from lime-soda softening process with the understanding that a pH of 6.5 to 9.0 shall be achieved outside the mixing zone. However, Ohio EPA's WQS does not allow a pH above 9.0 S.U. Ohio EPA's pH modeling gives a close approximation that shows a minimum dilution ratio 1:3 (effluent flow vs. receiving stream flow) will result in a pH of 9.0 S.U. in the receiving water. Therefore, a 1:3 dilution ratio has been set as the criteria for allowing pH up to 11.0 S.U. Those facilities that fail to have a minimum 1:3 dilution ratio will have to meet pH of 9.0 S.U. at the end of the pipe.

3. Total Residual Chlorine (TRC): Ohio EPA has not always included chlorine limits in individual water plants permits though dischargers are required not to exceed the WQS for chlorine. On random checking it was found some dischargers from water plants had TRC exceeding the WQS of 0.038 mg/l. NPDES permits restrict TRC to 0.019 mg/l as a daily maximum where the discharge flows to a stream with no flow. In cases where at least a dilution ratio of 1:2 is expected in the receiving stream, the maximum discharge of TRC is restricted to 0.038 mg/l. Plants that remove solids without slow and sufficient settling are expected to have greater residual chlorine concerns with their discharge.

Ohio EPA is therefore, setting a limit of 0.019 mg/l of TRC when discharging to a no flow situation and 0.038 mg/l when at least 1:2 (effluent flow vs. receiving stream flow) dilution is expected.

4. Total Residual Chlorine reporting: The parameters listed below have had effluent limitations established that are below the Practical Quantification Level (PQL) for the analytical procedures contained in 40 CFR 136 for those parameters. In accordance with ORC Section 6111.13, if a discharge limit is set below the PQL, any analytical result reported equal to or less than the OEPA PQL shall be considered in compliance with the limit.

Reporting

All analytical results, even those below the OEPA PQL, (listed below), shall be reported. Analytical results are to be reported as follows:

1. Results above the PQL: Report the analytical result for the parameter of concern.
2. Results above the Method Detection Level (MDL), but below the PQL: Report the analytical result, even though it is below the PQL.
3. Results below the MDL: Analytical results below the MDL shall be reported as "below detection" using the reporting code "AA".

The following table will be used to determine compliance with NPDES permit limit:

Parameter	PQL
Total Residual Chlorine	0.050 mg/l

5. Trihalomethane:- In absence of WQ (Water Quality) criteria for Trihalomethane, monitoring for individual compounds namely, bromoform (tribromomethane), bromodichloromethane, methyl bromide (bromomethane), methylene chloride (dichloromethane), dibromochloromethane, methyl chloride and chloroform (trichloromethane) is required. Only yearly monitoring will be required. These compounds are by-products from the halogenation of methane, which may be present in surface waters intakes. Based on Ohio EPA's experience with water treatment plants, there is a low risk of THM formation in the wastewater. Therefore, monitoring once per year for these compounds has been recommended in the permit for plain purification and lime-soda softening processes. These processes usually use surface water as the water source.

V. **Use of Algicide:** Some water plants use reservoir water that has been treated with algicide like copper sulfate to prevent algae problems. This addition of copper sulphate sometimes causes copper levels in wastewater discharges to exceed WQS. Ohio's ambient average water quality criteria for copper can be as low as 9 ug/l. This value is dependent upon ambient water flow and hardness. Entities should ensure its copper discharge level does not violate Ohio's WQS. In order to determine whether their discharge level of copper would violate Ohio's WQS, entities shall monitor for copper and may contact the appropriate Ohio EPA District Office for guidance.

VI. Effluent Limitations and Monitoring Requirements

As stated previously, effluent limitations and monitoring requirements are based on WQS and Ohio EPA's experience with water treatment plant operations. They are not based on any particular industrial federal effluent guideline because there is none.

VII. Notice of Termination

Each individual facility covered under the general permit must submit a Notice of Termination form (NOT) to terminate coverage under this permit once the wastewater discharges from the water plants are eliminated. Failure to submit an NOT form constitutes a violation of the permit and will be in violation of ORC 6111.

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