Chapter NR 218

METHOD AND MANNER OF SAMPLING

NR 218.01 Purpose. The purpose of this chapter is to prescribe the appropriate method and manner of obtaining samples of effluents discharged from point sources in compliance with the monitoring requirements of ch. 147, Stats., and Wisconsin pollutant discharge elimination system (WPDES) permits issued pursuant thereto.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

NR 218.03 Applicability. This chapter is applicable to and provides more explicit specification of the sampling and monitoring provisions of permits issued pursuant to ch. 147, Stats. It is also applicable, unless otherwise specifically indicated by the department, to the monitoring requirements of ch. NR 101 and ss. 144.54 and 147.08, Stats.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

NR 218.04 Definitions. The definitions of ch. NR 205, apply to terms used in this chapter and in WPDES permits not otherwise defined in this section.

(1) "Process waste" means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product, and is likely to contain in solution or suspension various components of such raw materials and products.

(2) "Domestic waste" means the type of waste normally discharged from plumbing facilities in private dwellings and includes, but is not limited to, sanitary, bath, laundry, dishwashing, garbage disposal and cleaning wastes.

(3) "Municipal waste" means the mixture of domestic, process, and other wastes tributary to any given municipal sanitary sewerage or treatment system.

(4) "Cooling water" means water which has been used primarily for cooling but which may be contaminated with process waste or airborne material, such as the discharge from barometric condensers or the blowdown from cooling towers.

(5) "Noncontact cooling water" means wastewater which has not come into contact with any raw material, intermediate or finished product, or waste and has been used in heat exchangers, air or refrigeration compressors or other cooling means where contamination with process waste is not normally expected.

(6) "Storm water" or "storm runoff" means water resulting from melting snow or rainfall, except that defined in sub. (7) below.

(7) "Contaminated storm water" means a point source discharge of storm water which the department has identified as a significant contributor of pollution in accordance with the definition of s. 147.015(8), Stats.

(8) "Continuous effluent" means a discharge which is normally continuous throughout a day or during operating hours in any facility but which may be subject to interruptions or variations in volume.

(9) "Batch effluent" means a discharge which is periodic and of relatively short duration resulting from batch operations, washup operations, or periodic discharges from tanks, ponds, and recycling systems.

(10) "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 2 minute period. Where the term is used in connection with monitoring temperature or pH it means a single measurement.

(11) "Composite sample" means a combination of individual samples of equal volume taken at approximately equal intervals not exceeding one hour over a specified period of time.

(12) "24-hour composite sample" means a combination of individual samples taken at intervals of not more than one hour such that the volumes of each of the individual samples and of the combination are proportional to the volumes of flow during each interval and during the 24-hour period respectively.

(13) "Continuous sample" means a composite of successive individual samples of equal volume taken automatically at equal intervals not exceeding 15 minutes. Where the term is used in connection with monitoring temperature or pH it means continuous in-line recording or monitoring at intervals of not more than 15 minutes.

(14) "Proportional sample" means a composite of successive individual samples taken during operating or discharge hours, whichever is longer, where the individual samples are taken at frequent intervals not exceeding 15 minutes and are either:

(a) Such that the volume of each is proportional to the rate of flow at the time it is taken, or

(b) Are of equal volume and taken at intervals such that there is a constant volume of discharge during each interval.

(15) "Estimated" used to specify the type of sample for flow measurement, means a reasonable approximation of the average daily flow based on water balance, an uncalibrated weir, or any of the methods included in s. NR 218.05(3)(b) disregarding requirements for continuously recording flow.

(16) "Total daily" used to specify the type of sample for flow measurement, means the determination of daily flow from at least one measurement when daily frequency is specified and 3 measurements in any other specified frequency period using methods appropriate to the type of waste flow involved set forth in s. NR 218.05, but disregarding requirements for continuously recording flow.

(17) "Continuous" or "continuously" used to specify the type of sample for flow measurement, means the determination of daily flow at the frequency specified using methods of s. NR 218.05(1), (3)(a), or (4) appropriate to the type of waste flow involved.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

NR 218.05 Methods for measuring flow. (1) For process waste and for municipal waste at a treatment works, including any bypass, methods of flow measurement shall include continuous recording devices, preferably with integrating capabilities, and shall be one of the following:

(a) A magnetic flow meter installed in a section of pipe which is full at all rates of flow,

(b) A Parshall type flume installed in accordance with accepted design practices,

(c) A venturi meter,

(d) A sharp edged horizontal crest weir, either straight or with end contractions, installed in accordance with accepted design practices,

(e) A "V" notch weir installed in accordance with accepted design practices,

(f) Any other method approved by the department for any specific case in response to a written request for approval filed after the effective date of this chapter.

(2) For municipal wastes which are overflow or bypass flows from sewerage systems other than at a treatment works, reasonable estimates of rate of flow and duration are acceptable for short term discharges such as those caused by storm water. The department may require installation of a temporary flume or weir where the discharge is continual pending elimination by corrective construction.

(3) For noncontact cooling waters:

(a) Having a daily heat content above intake equal to or greater than one billion btu, flows are to be measured by;

1. Any of the methods specified in sub. (1),

2. Intake water meter readings where the intake, or a specific portion of it, is used for cooling,

3. Readings of a water meter on the discharge, or

4. Computation from the operating period of one or more calibrated pumps handling the flow;

(b) Having a daily heat content above intake of less than one billion btu, flows are to be measured by;

1. Any of the methods specified in par. (a), or

2. Calculations from the velocity and cross section of the discharge.

(4) Cooling water flows are to be measured using any of the methods specified in sub. (3) (a).

(5) Contaminated storm water flows may be estimated from the duration and head above the crest of an installed weir. Calibration of such weirs is not necessary.

(6) Storm water flows do not require flow measurement.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

NR 218.06 Calibration of flow measuring devices. (1) Devices used for measuring flows by the methods specified in s. NR 218.05(1) shall be calibrated and the calibration rechecked at least annually using one of the following methods:

(a) A method specified by the manufacturer of the device,

(b) Calculation of rate of flow from the dilution of chloride or other ion or substance added to the effluent stream at a fixed rate sufficiently ahead of the sampling point to insure complete mixing,

(c)Measuring the volume withdrawn from or introduced into a tank or container in a known period of time, or

(d) In any specific instance by any other method approved by the department in response to a written request for approval filed after the effective date of this chapter.

(2) Records of calibration data shall be retained for a three-year period, or for a longer period on specific request by the department.

(3) The department shall be advised within 30 days of any change in reported volumes resulting from recalibration whether or not associated with replacement or change of the measuring device.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

NR 218.07 Location of sampling points. The location of sampling points shall be as specified in an applicable permit or, in the absence of such specification, at a point that is representative of the discharge. In the case of process waste effluents samples shall be taken prior to or in the absence of any dilution with cooling or storm water. The department may require relocation of a sampling point if it determines that the existing location does not provide samples representative of the discharge.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

NR 218.08 Size of samples. The samples shall be large enough to allow for the required analysis for pollutant or toxic parameters, other than pH and temperature, using the methods of analysis specified in ch. NR 219, or an alternate method specified in an applicable permit.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

NR 218.09 Storage of samples. (1) Except for samples for biochemical oxygen demand (BOD) analysis, methods for preserving samples for storage prior to analysis and the limits on such storage are set forth in the standard methods specified in ch. NR 219.

(2) Except as provided in sub. (3), samples collected for BOD analysis shall be preserved by refrigeration to between 32 and 40°F within 8 hours of the collection of the first portion of a composite sample and stored in

that temperature range for not more than 48 hours after the composite sample has been collected before commencing analysis.

(3) For a particular discharge, the department may approve alternative preservation procedures or analytical procedures for BOD samples, provided that a written request for such approval is submitted to the department accompanied by sufficient comparative data to be statistically significant.

(a) *Alternative preservation procedures for BOD samples.* The following alternative preservation procedures for BOD samples may be approved by the department;

1. Refrigeration commencing within 24 hours instead of 8 hours as specified in sub. (2),

2. Elimination of refrigeration if analysis is commenced within 3 hours of completion of the collection of a daily sample,

3. Holding the sample for not more than 120 hours in the temperature range of 32-40°F in lieu of the 48 hours specified in sub. (2), or

4. Holding the sample for 120 hours or more using any satisfactory means of preservation such as, for example, acidification with sulfuric acid to a pH of 2.

(b) *Alternative BOD analytical procedure.* The department may approve modifying the incubation period for the BOD analysis procedure from 5 days to either 4 or 6 days using an appropriate conversion factor.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

NR 218.10 Frequency of sampling. Samples shall be taken at the frequencies specified in the WPDES permit authorizing discharge or as specified by the department where no permit has been issued or is required.

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.

NR 218.11 Method of sampling. The method of sampling shall be that specified in the WPDES permit, or by the department where no permit has been issued or is required, as defined in s. NR 218.04(11) through (15).

History: Cr. Register, June, 1976, No. 246, eff. 7-1-76.