

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In re: OGC Case No. 20-1541  
STATEWIDE ALTERNATIVE METHOD APPROVAL  
REAGENT-LESS IN-LINE CHLORINE METERS

---

AMENDED FINAL ORDER  
STATEWIDE ALTERNATIVE METHOD APPROVAL  
FOR REAGENT-LESS IN-LINE CHLORINE METERS

Pursuant to Rule 62-160.220, Florida Administrative Code (F.A.C.), this Amended Final Order approves the use of certain reagent-less amperometric meters for continuous in-line residual chlorine measurements to comply with continuous monitoring requirements in Rule 62-600.660 and Chapter 62-610, F.A.C., at domestic wastewater facilities, except where reclaimed water is directly discharged to surface waters of the state or is intentionally used as drinking water supply or to augment a drinking water supply.

The December 8, 2020, Final Order incorrectly restricted the approved alternative meter to amperometric sensors that are immersed in an electrolytic medium and have a permeable membrane; however, amperometric sensors that are not immersed in an electrolytic solution and do not have a membrane represent the same essential technology and are as effective at monitoring chlorine. Therefore, the

order is being amended, as clarified herein, to be inclusive of both varieties of meters.

Rule 62-600.660 and Chapter 62-610, F.A.C., require domestic wastewater facilities to continuously monitor total residual chlorine of reclaimed water, and Chapter 62-160, F.A.C., requires that the meters must conform to the requirements in the Florida Department of Environmental Protection (department) standard operating procedures (SOPs). Department SOP FT 2000 lists the types of meters that are approved for reading chlorine, and the only technology approved for continuous monitoring in domestic wastewater is a titrimetric method using an amperometric detector from Standard Methods 4500-Cl D (FT 2030). Standard Methods requires the use of reagents, even when the titration is performed by a meter and not by hand. Newer instruments can read chlorine directly, without reagents, but they are not yet approved for use in domestic wastewater.

Between 2015 and 2019, the department received alternative method approval requests from five domestic wastewater treatment facilities to allow the limited use of reagent-less amperometric meters. The number of similar requests prompted interest in a statewide alternative method approval. Criteria from DEP SOP FT 1900 and EPA

Method 334.0 were used to determine whether results generated by the reagent-less amperometric in-line chlorine meters were comparable to the results generated by approved N,N-diethyl-p-phenylenediamine (DPD) colorimetric methods. The data analysis showed that the results generated by the reagent-less amperometric in-line chlorine meters and the approved method were comparable.

Based on these results, the department has determined that the reagent-less amperometric in-line meter technology for measuring total residual chlorine is acceptable for reclaimed domestic wastewater except where reclaimed water is directly discharged to surface waters of the state or is intentionally used as drinking water supply or to augment a drinking water supply, as further described in this Final Order.

This approval applies to in-line chlorine meters that contain an amperometric 3-electrode sensor. The sensor must be equipped with an automatic pH and temperature-compensating device.

The only approved matrix for the reagent-less in-line chlorine meters covered by this Order is domestic wastewater, and the application is for monitoring of reclaimed water at domestic wastewater treatment facilities for the portions reused. The approval does not apply to

monitoring of reclaimed water that is directly discharged to surface waters of the state or is intentionally used as a drinking water supply or used to augment a drinking water supply.

The use at individual domestic wastewater treatment facilities of reagent-less amperometric meters for continuous in-line residual chlorine measurements covered by this Order must meet the following minimum specifications of use:

Initial Demonstration of Capability

The initial demonstration of capability (IDC) for the use of an in-line chlorine meter at a given wastewater treatment facility can be demonstrated using historical operating data if the meter demonstrates the following criterion is being met on an on-going basis: in-line chlorine meter result is within  $\pm 0.1$  mg/L or  $\pm 15$  % (whichever is larger) of the grab sample result. Historical data must show that the meter remains in agreement with the grab sample method over two consecutive weeks without meter maintenance or calibration adjustment.

If such historical data are not available, WWTF staff must conduct an IDC by comparing the concentration determined by the in-line chlorine meter with grab sample analyses collected at least daily for 14 days, or 14

consecutive business days. During the 14-day period, grab samples collected should be representative of the range of concentrations expected at the facility.

The meter reading must be within  $\pm 0.1$  mg/L or  $\pm 15$  % (whichever is larger) of the grab sample measurement for each data pair. If this criterion is not met, staff should determine the source of the problem, take corrective action, and continue collecting daily grab samples. Once 14 days of consecutive data pairs meet the comparison criterion, the meter can be put into service for compliance monitoring.

After the IDC, DEP SOP FT 1900 must be followed for ongoing compliance monitoring.

#### Calibration and Verification Requirements

A 2-point initial calibration is required before use of new or refurbished sensors received from the factory, and whenever the sensor is disconnected from power or removed from water for more than 15 minutes. Samplers should check with the manufacturer to determine the details of performing a 2-point calibration for a specific instrument. A comparison grab sample must be taken immediately following initial calibration to verify equipment function. When taking a grab sample, ensure it is

taken near or as near as possible to the same location as the in-line meter as described in FT 1900, section 2.2.

On a daily basis, samplers must measure a grab sample and compare the result to the in-line meter's reading as described in FT 1900, section 2.3. If the in-line meter fails to meet the acceptance criteria, then a 1-point calibration must be conducted. A 1-point calibration should be conducted on at least a monthly basis to ensure the meter's accuracy. Calibration frequency can be extended if it is documented the instrument is stable over a longer period of time.

A permit or program may require more frequent calibration. An instrument should be returned to the manufacturer for maintenance when consecutive or repeated failed verifications show the meter will no longer hold a calibration or a general mechanical failure occurs that cannot be corrected by the operator.

#### Maintenance requirements

Maintenance requirements vary depending on the meter. Check with the manufacturer to determine recommended maintenance for your meter. Examples of potential needed maintenance include, but are not limited to, polishing the electrode, replacing the membrane or membrane cap, and replacing the sensor.

Documentation

Record all relevant information specified in documentation sections of DEP SOPs FT 2000 section 5, FT 1900 section 5, and FD 4100.

THEREFORE, IT IS ORDERED that the December 8, 2020, Final Order is superseded and replaced in its entirety by this Amended Final Order. The use of reagent-less in-line chlorine meters in accordance with the terms of this Amended Order is hereby adopted as a statewide alternative method approval.

NOTICE OF RIGHTS

The department's proposed agency action shall become final unless a timely petition for an administrative proceeding is filed pursuant to the provisions of Sections 120.569 and 120.57 of the Florida Statutes, before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the department's proposed agency action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received in the department's Office of General Counsel,

3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

Petitions must be filed within 21 days of publication of the public notice or within 21 days of receipt of this order, whichever occurs first. Under Section 120.60(3), Florida Statutes, however, any person who asked the department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 of the Florida Statutes, or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the department's action is based must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, any e-mail address, any facsimile number, and telephone number of the petitioner, if the petitioner is not represented by an attorney or a qualified representative; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action;

(f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and

(g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not disputes the material facts on which the department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the department's final action may be different from the position taken by it in this order. Persons whose substantial interests will be affected by any such final decision of the department on the petition have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation is not available for this proceeding.

A party who is adversely affected by this order has the right to seek judicial review under Section 120.68 of the Florida Statutes, by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the department in the Office of the General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The

notice of appeal must be filed within thirty days after  
this order is filed with the clerk of the department.

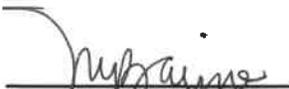
DONE AND ORDERED this 9<sup>th</sup> day of March 2022, in  
Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION



David Whiting  
Deputy Director

FILED ON THIS DATE PURSUANT TO § 120.52,  
FLORIDA STATUTES, WITH THE DESIGNATED  
DEPARTMENT CLERK, RECEIPT OF WHICH IS  
HEREBY ACKNOWLEDGED.

  
CLERK

03/09/2022  
DATE