The Pipeline

Drinking Water Laboratory
Policy & Procedures Update

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Water Plant Security

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Following the tragic terrorist attacks many news organizations carried stories concerning security alerts from the FBI. One of these alerts specifically mentioned security at public water supplies. We recommend reviewing security at plant intakes, wells, tanks and pump stations, etc. Control access to all facilities by locking doors, fencing, gates, access hatches, etc. Ensure all barriers are in good repair to prevent intrusion and restrict public access. Secure and protect water treatment chemical containers, particularly chlorine. Investigate reports of fire hydrant tampering and frequently inspect the entire water system. Aggressively monitor for changes in water quality (such as color, pH or chlorine levels) at the treatment facility and in the storage and distribution system. Changes in disinfectant demand might indicate contamination. Reduced disinfectant residuals in storage or distribution systems should be immediately investigated. Brief local fire and police departments of potential threats to water systems, and establish lines of communication with your county Emergency Management Agency. Most of all, be prepared. Review and update existing emergency preparedness plans. Ensure that they include emergency contacts and numbers, redundancies, public notification, chain of command, media response, emergency water supply, and a checklist to determine what type of notice to issue.

Calibration of Reference Thermometers

Several laboratories have reported difficulties in checking the calibration of their certified thermometer(s) as described on page 21 of the *Laboratory Manual for the Microbiological Analysis of Public Drinking Water, 2001*. The calibration must be done at a known reference point. For standard laboratory practices this is 0°C or the "ice point". The majority of the difficulties have been with the ice water bath. The container must be filled predominately with crushed ice, then cold (refrigerated) water is added to just cover the ice and fill the void so there are no air pockets. Too much, or too warm, water in relation to the volume of ice will keep the solution above 0°C.Be sure and check your certificate to verify the thermometer does not have a significant correction factor listed for 0°C. If it does, and the value is readable on the thermometer scale, then apply the correction to the reading in the ice bath to get the true value.If your certified thermometer(s) does not have 0°C on their scale, or a marked "ice point" you will need to provide one that does. This thermometer can then be used to check the calibration of the other thermometers on an annual basis.

Secondary Turbidity Standards

Many laboratories use the Hach 2100 N/AN turbidimeters. When you use these turbidimeters, you must use two secondary standards each shift to verify the calibration of the instrument. Results must also be recorded once daily using two secondary standards (0-2 and 0-20 NTU ranges). Generally gel type secondary standards are used. Once each quarter, all turbidimeters (not only Hach meters) must be calibrated and the secondary standard values must be reestablished. For all quarterly calibrations, including the step to reassign values to the secondary standards, primary standards must be used. Primary standards can be manufactured standards prepared specifically for your instrument, such as AMCO standards or Hach StablCal standards. You can also use the less desirable method of preparing dilutions of formazin. Whichever method is chosen, it is important to remember that the primary standard is meant to be measured into the test cell and used once, then discarded. Primary standards may only be used once. If you have purchased any type of liquid primary standards that are received as a single volume of standard already in a test cell from the manufacturer, it may only be used for calibration one time. New standards must be obtained for the next scheduled calibration. It is obviously more cost effective to purchase primary standards in bulk, then measure out a small volume for calibration, discarding the small volume after use. Some manufacturers are selling glass test cells containing primary standard as an 'EPA approved' primary turbidity standard. Technically, this is true, however, these types of standards are only good for one use.

PT Reminder

All microbiological and applicable chemistry laboratories must complete a PT sample study in the fall quarter. Suppliers are shipping these samples September through November this year. If you have not already ordered your samples, time is running out.

Chemistry Proficiency Testing (PT) Suppliers

We have just received notification that Ultra Scientific, Inc. is no longer providing drinking water chemistry PT samples. If you have used Ultra Scientific in the past, please refer to your January 18, 2001 PT program schedule memo for a listing of accredited chemistry PT providers.

Application Reminder

About one quarter prior to the expiration of a laboratory's certificates of approval for chemistry, the Ohio EPA attempts to notify each laboratory concerning the impending expiration. A blank application is sent with the notification. However, this is done only as a courtesy. It is the laboratory's responsibility to submit the completed application to the Ohio EPA. Occasionally, letters will be lost or delayed in the mail or we may have an erroneous entry in our tracking data base. In these and all cases it is still the laboratory's responsibility to obtain and submit the application for certification. The application must be received by the Ohio EPA at least 30 days prior to the expiration of your certificates of approval. If it is not received at least 30 days prior to the expiration of your current certificates your certificates of approval may be allowed to expire until a survey can be scheduled. This requirement also applies to microbiological certificates of approval. All applications can be obtained online at: http://www.epa.state.oh.us/ddagw/labcert.html

Completed applications must be sent to:
James Evans
Ohio EPA
DES/LC
1571 Perry Street
Columbus, OH 43201

Sending Emails to the Ohio EPA

This is just a reminder that email is an excellent way to communicate with the laboratory certification staff. They are almost always on the road, but can access their email from any location with web access. All persons using this method of communication must be aware that the Ohio EPA email system is to be used only for official Ohio EPA business. Emails containing items such as jokes, solicitations or any other non-business related material must not be sent to the Ohio EPA.

Sample Holding Time

There have been some questions regarding sample holding times. Holding times start at the time of collection. The time, location, preservation and person who collected the sample must be recorded for all samples which are not analyzed immediately after collection. For data to be valid, proper collection and preservation of compliance samples is imperative. Sample preservation must be maintained from time of collection through the time of analysis. It is the responsibility of the sample collector to store the sample in a manner that maintains proper sample preservation conditions until the sample is received in the laboratory. Sample preservation includes all treatment of the sample (dechlorination, acidification, refrigeration, etc), that is required for the specific type of analysis. For samples that must be maintained at 4° C, it is recommended that ice is used for cooling and shipping. Blue ice normally cannot maintain the required temperature throughout the shipping time. Samples must be shipped to the laboratories as soon as practical. Samples should not be stored by the sample collector for an extended period of time.

Reporting Limits for Secondary & Other Contaminants

The reporting limits for results of contaminants which have not been previously published or are not part of the National Primary Drinking Water Regulation are varying between laboratories more than we would like to see.

The reporting limits the Ohio EPA recommends are:

Iron - 0.080 mg/L
Manganese - 0.030 mg/L
TOC/DOC - 1.0 mg/L
UV 254 - 0.044 cm^{-1}

All other reporting limits should be at least a factor of 10 below the National Secondary Drinking Water Regulation guidelines. The reporting of contaminants without published limits generally should be at the laboratory's established practical quantitation limit (PQL) which should be significantly above their method detection limits (MDL). The reporting of analysis below the reporting limit must be formatted as >xx.xx mg/L. An analytical result must never be reported as "0.0".

Keep in mind that a calibration standard or a reporting limit check (RLC) must be run at the parameter's reporting limit concentration.

Bob Taft, Governor of Ohio
Christopher Jones, Director of Ohio EPA

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