

Ministry of the Environment

Assistant Director's Office
Safe Drinking Water Branch
Laboratory Inspection Program

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Ministère de l'Environnement

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October 28, 2008

TO: Managers of Laboratories Licensed to Perform TTHM Analyses in Drinking Water

RE: TTHM Calculation/Reporting Procedure

This memo serves as a reminder to licensed laboratories that the TTHM Calculation/Reporting memorandum attached (dated February 6 2006) remains in effect until further notice.

Recently, our Ministry's TTHM Working Group met to discuss this procedure. A decision was made not to update the procedure at this time due parallel dialogue with external stakeholders regarding a potential TTHM standard change. I would, however, like to clarify a couple of points that may exist, namely:

- If during a specific quarter, the laboratory receives/analyses more than the one regulated TTHM sample, the laboratory must calculate the running annual average (RAA) for each additional sample result obtained during the same quarter and compare it to the Ontario Drinking Water Quality Standard (ODWQS);
- The highest TTHM RAA value obtained in the specific quarter is then the value that should be used in the next quarter's RAA calculation.

Please be assured that all affected licensed laboratories will be notified of any policy changes to the attached document when they become available. In the meantime, it is important that licensed laboratories continue to employ the attached calculation which has been consistently messaged since 2006.

Should you require any further information, please contact your assigned Laboratory Inspector.

A handwritten signature in blue ink, appearing to read "Cammy L. Moodie".

Cammy L. Moodie, Assistant Director (A)

Cc: P. Nieweglowski, T. Barranger, T. Little, D. Urquhart, Lab Inspectors (MOE-SDWB)
D. Toner, P. Levene (MOE-LaSB)
D. Fellowes, P. Cheung (MOE-EMRB)
D. Earl (MOE-IEB)
S. Deshpande (MOE-SDB)

**Ministry of the Environment
Laboratory Services Branch
Quality and Reference Services Section**

Effective Date: **Immediately Upon Receipt**

To: Laboratories Licensed to Perform Total Trihalomethane Testing in Drinking Water
From: Cammy Mack, Supervisor- Regulatory Requirements
Re: Laboratory Inspection Report – Amendment (Calculating/Reporting of TTHM Data)

This document serves as an amendment/addition to the Ministry of the Environment Laboratory Inspection Report recently sent to your attention (winter 2005/2006).

- 1) *Laboratories that are licensed to perform total trihalomethane (TTHM) testing in drinking-water are required to review, incorporate and adhere to the following requirements immediately upon receipt of this Ministry Inspection Report Amendment.*
 - 2) *If applicable, please confirm receipt of this document with your assigned Ministry Laboratory Inspector.*
 - 3) *Unless otherwise requested by a Ministry Inspector, there is no requirement to submit documentation to the Ministry at this time. Documentation will be reviewed at the next Ministry Laboratory Inspection.*
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As per Section 18 (1) and (4) of the *Safe Drinking Water Act*, 2002 and Schedule 16 of O. Reg. 170/03, laboratories licensed to perform total trihalomethane (TTHM) analyses in drinking water must meet certain regulatory requirements with respect to calculating/reporting adverse TTHM test results and reporting TTHM analytical data to the Ministry's Drinking Water Information System (DWIS).

As such, as noted in this Laboratory Inspection Report Amendment, licensed laboratories are required to immediately document and incorporate the following policies in their laboratory documentation in order to meet their regulatory obligations when analyzing drinking-water samples.

Total trihalomethane (TTHM) standard

O. Reg. 169/03 stipulates that the standard for total trihalomethanes is 0.100 mg/L (or 100 µg/L). This standard is expressed as a running annual average of quarterly drinking-water samples.

Sample collection requirements

O. Reg. 170/03 requires that drinking-water system owners/operators providing chlorination or chloramination shall ensure that at least one distribution sample is taken every three months, from a point in the drinking-water system distribution system, or plumbing that is connected to the drinking-water system, that is likely to have an elevated potential for the formation of trihalomethanes.

Licensed laboratories are responsible for advising the drinking-water system owner/operator on how to collect the samples (ie., tilt sample bottle when filling to avoid splashing thereby minimizing volatilization of THMs; fill the sample bottle completely - no bubbles - to prevent volatile organics such as THMs concentrating in the headspace). Samples are preserved with sodium thiosulphate or an equivalent chemical which does not interfere with the analyses for THMs and which stops the further production of THMs in the sample bottle, thus providing a more representative estimation of the trihalomethanes consumed in tap water.

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Tracking TTHM test results

Licensed laboratories are responsible for tracking TTHM results generated for their drinking-water system clients in order that adverse test results are immediately reported as per the legislation. Licensed laboratories that are newly hired by drinking-water systems should make every attempt to obtain at least the three previous quarter's TTHM data in order that the calculation of the TTHM running annual average can be done by the licensed laboratory.

Calculation of TTHM running annual average

1. Starting with the most recent quarterly THM result, list all results obtained within the last three quarters. (The four quarters begin on January 1st, April 1st, July 1st and October 1st of each year).
2. Sum the four quarterly results.
3. Divide the sum by four. The result will be the TTHM running annual average.
4. If there is more than one result in a quarter, use the highest value in that quarter.
5. If there is no result in a quarter, then use the value obtained in the same quarter in the previous year to calculate the TTHM running annual average. This will ensure the calculation maintains the seasonal variation in the TTHM running annual average.
6. Seasonal drinking-water systems are not expected to collect samples during those quarters where the system is closed for the complete quarter. Therefore, all TTHM quarterly results should be summed and divided by the number of quarters the drinking-water system was operating.

NOTE: The Ministry's DWIS is programmed to store TTHM data and calculate the running annual average based on the specific drinking-water system. A Ministry decision was made not to migrate the TTHM data captured in DWISv.1 to DWISv.2. Once four quarters of TTHM data for a drinking-water system has been uploaded to DWISv.2 by a licensed laboratory, the calculation module will activate.