

Ministry of the Environment

Safe Drinking Water Branch

Laboratory Licensing and Compliance Program

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Ministère de l'Environnement

Direction du contrôle de la qualité de l'eau potable

Programme de délivrance des permis et de conformité des laboratoires

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To: Licensed/Eligible Laboratory Managers

From: Cammy Moodie, Assistant Director
Safe Drinking Water Branch

RE: Revised TTHM Calculation Procedure Relating to Re-samples

As per Section 18(1) and (4) of the *Safe Drinking Water Act, 2002* and Schedule 16 of O. Reg. 170/03, laboratories licensed/eligible 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).

TTHMs are defined as the sum of chloroform, bromoform, dichlorobromomethane, and dibromochloromethane. According to O. Reg. 169/03, the standard for TTHM is expressed in Running Annual Average (RAA), where RAA is defined as the quarterly average of TTHM results for a drinking water system. The four quarters begin on January 1st, April 1st, July 1st and October 1st of each year.

As such, laboratories must document how they calculate total TTHMs, and what values are used in the calculation even if the result is less than (<) detection limit for one or more of the parameters.

Since the O. Reg. 169/03 standard is based on the RAA, the laboratories must calculate the RAA for each sample analyzed for TTHMs in order to comply with the *SDWA*, section 18 requirement to immediate report adverse water quality incidents.

Licensed/eligible 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. Laboratories are also responsible for uploading all TTHM results and not the RAA value to DWIS. Licensed/eligible laboratories that are newly hired by drinking water systems shall 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.

TTHM re-samples taken specifically for corrective action purposes do not require the RAA to be calculated on them and, therefore, do not need to be reported as exceedances. Also, TTHM re-samples do not contribute to the quarterly data used to determine routine compliance to the standard.

Re-samples are taken for the purposes of the SDWA, and therefore they must be uploaded to DWIS. When uploading to DWIS the lab must ensure that the sample is identified as a re-sample in the appropriate field.

Example Calculation: All compliance samples (no re-samples)

Report	TTHM Q1 µg/L	TTHM Q2 µg/L	TTHM Q3 µg/L	TTHM Q4 µg/L	RAA µg/L	Q4* µg/L
Highest value in quarter	70	80	90			200
Not adverse				80	80	
Not adverse				100	85	
ADVERSE				200	110	
Not adverse				120	90	
ADVERSE				190	108	

For example the last row calculation is $(70+80+90+190)/4=108$ µg/L

- All TTHM results in a quarter are uploaded to DWIS (ie. 5 results for Q4);
- The TTHM value is uploaded, not the RAA;
- The Q4* result of 200 µg/L is to be used for the next iteration of calculation (ie. the highest result in the quarter);
- January 1st a new sample comes in: this is the first sample for a new quarter and if the result is 43 µg/L, then:
 $(80+90+200+43)/4=103$ µg/L and is adverse
- Each time a DWS submits samples to the laboratory for analysis of TTHM under the SDWA, this calculation must be done in order to assess compliance with the O. Reg. 169/03 standard of 100 µg/L. This is the case regardless of the number of sample locations, date, or number of samples taken.

If there is no result in a quarter, then use the value obtained in the same quarter in the previous year to calculate the running annual average. This will ensure the calculation maintains the seasonal variation in the running annual average.

Seasonal drinking-water systems are not expected to collect samples during those quarters where the system is closed for the complete quarter. In this case, all total THM quarterly results should be summed and divided by the number of quarters the system was operating.

The following documents are rescinded:

- Licensed Laboratories Performing Total THM Analyses in Drinking-Water, issued September 30, 2005.
 - Laboratory Inspection Report – Amendment (Calculating/Reporting of TTHM Data), issued February 6, 2006
 - TTHM Calculation/ Reporting Procedure, issued October 28, 2008
 - **THM Reporting, issued December 6, 2010**
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Should you require any additional information, please contact:
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