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Agenda Item #13
REPORT #RWSC 2009 - 20

**REPORT TO THE REGIONAL WATER SUPPLY COMMISSION
MEETING OF WEDNESDAY, 16 SEPTEMBER 2009**

SUBJECT 2008 ANNUAL DISINFECTION BY-PRODUCTS SUMMARY OF GREATER VICTORIA'S
DRINKING WATER

PURPOSE

To provide detailed disinfection by-products and disinfectant concentration data on the distribution systems for the seven Water Suppliers in the Greater Victoria Drinking Water System in 2008.

BACKGROUND

The *2008 Annual Disinfection By-Products Summary of Greater Victoria's Drinking Water* is the third report in the Water Quality Division's 2008 annual water quality report series. It extends the disinfection by-products information provided in the *2008 Annual Overview of Greater Victoria's Drinking Water Quality* and details the disinfection by-products and disinfectant concentration results.

Water Quality Division staff post the annual reports and water quality data tables at the following CRD website locations:

- <http://www.crd.bc.ca/water/waterquality/annualreports.htm>
- <http://www.crd.bc.ca/water/waterquality/datatables.htm>

Please find the executive summary and selected charts from the *2008 Annual Disinfection By-Products Summary of Greater Victoria's Drinking Water* attached. The full report is posted on the CRD website listed above.

RECOMMENDATION

That the Regional Water Supply Commission receive the staff report for information.

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2008 Annual Disinfection By-Products Summary of Greater Victoria's Drinking Water

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April 30, 2009

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Executive Summary

The 2008 Annual Disinfection By-Products Summary of Greater Victoria's Drinking Water is the third report in the Water Quality Division's 2008 annual report series. It extends the disinfectant and disinfection by-products information provided in the 2008 Annual Overview of Greater Victoria's Drinking Water Quality and details the disinfection by-products results across the Greater Victoria Drinking Water System.

The primary observations and conclusions contained in this report are listed below:

1. **Overall Summary.** In general, while some disinfection by-products continue to be detected, all of the values were well within the Guidelines and the quality of the drinking water in Greater Victoria in 2008 continued to be very good.
2. **Trihalomethanes.** In 2008, the average concentration of trihalomethanes (THMs) for the entire Greater Victoria Distribution System was 16.6 µg/L. This is well below the limit of 100 µg/L in the *Guidelines for Canadian Drinking Water Quality* and also below the USEPA maximum contaminant level (MCL) of 80 µg/L (**Figure 2**). Chloroform was the predominant type of THM detected.

The first customer sampling location just below the Japan Gulch Treatment Plant had relatively low THMs concentrations that ranged from 7.8 to 26.4 µg/L. As expected, during the period of time since the rechlorination ceased at the Deep Cove Pumpstation in North Saanich in 2007, the levels of THMs have dropped quite significantly (**Figures 4 and 5**) without any significant increase in bacterial numbers.

3. **Haloacetic Acids.** In 2008, the levels of HAAs were well below both the USEPA maximum contaminant level (MCL) of 60 µg/L and the newly established limit of 80 µg/L (set in July 2008) in the *Guidelines for Canadian Drinking Water Quality* (**Figure 6**). (As expected, stopping rechlorination at the Deep Cove Pumpstation in North Saanich caused dramatic and significant decreases in the levels of HAAs (**Figures 8 and 9**).
4. **Chloramine Species.** Ideally, the majority of the chloramine species in a chloraminated drinking water system should be monochloramine. However, over the past several years, the dichloramine concentration has, a times, exceeded the target of less than 20%. This has the potential to produce a stronger chlorinous taste and odour in the water.

RECOMMENDATIONS

1. Continue to operate the Deep Cove Pumpstation without rechlorination. This should achieve the lowest possible THM and HAA concentrations without compromising the effectiveness of the water disinfection.
2. It is recommended that the current process used at the Japan Gulch Plant to chloramine the water be reviewed and corrected to reduce dichloramine production.

Figure 2. 2008 Trihalomethanes in Greater Victoria Distribution System

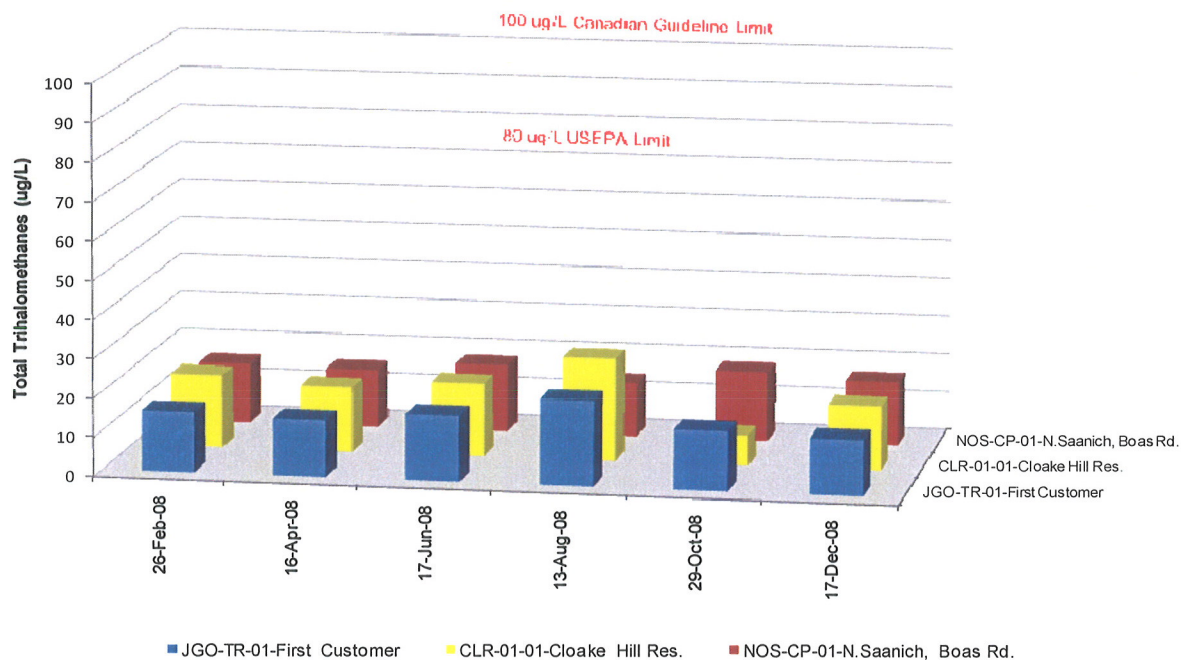


Figure 4. Cloake Hill Reservoir, Trihalomethanes 2003-2008

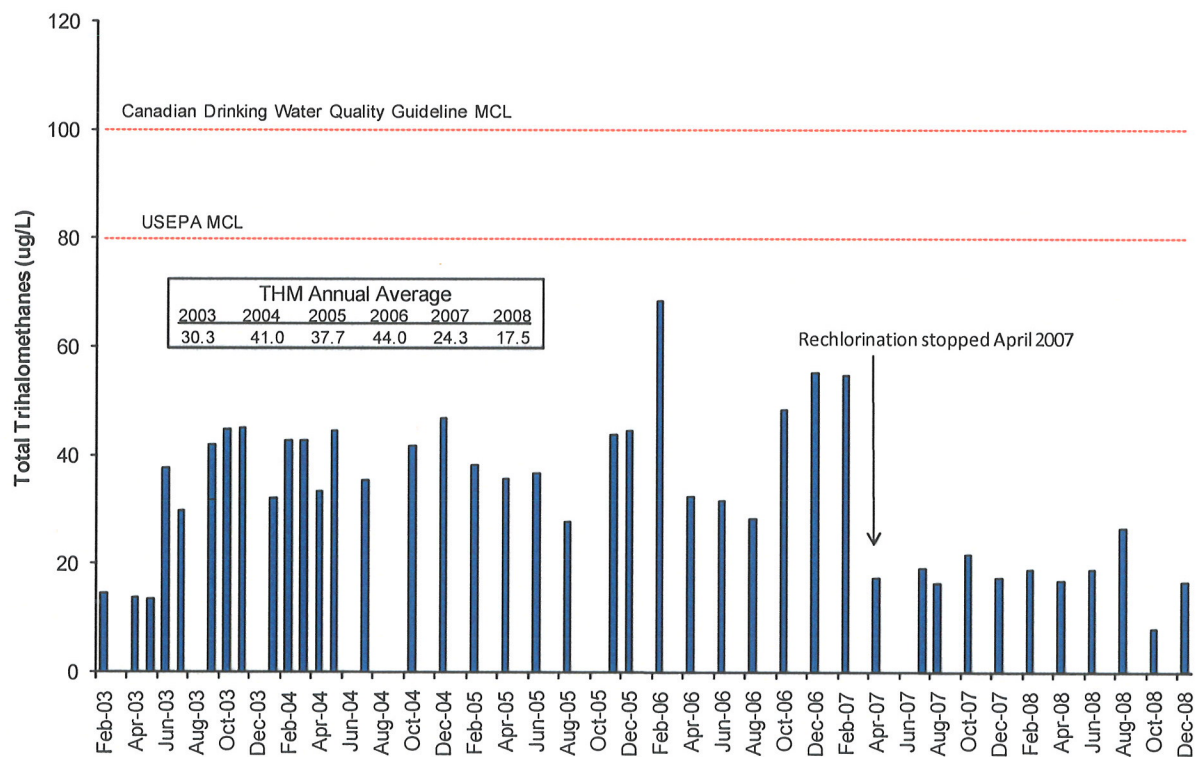


Figure 5. North Saanich, Boas Rd, Trihalomethanes, 2003-2008

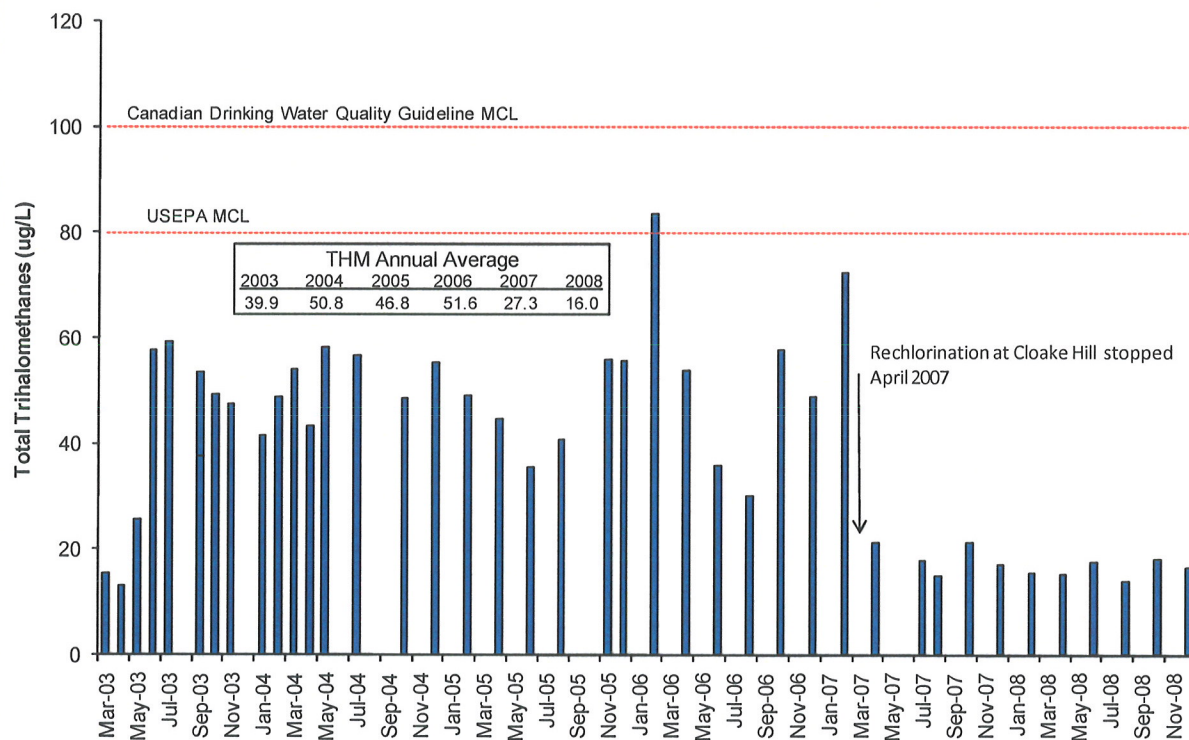


Figure 6. 2008 Haloacetic Acids in Greater Victoria Distribution System

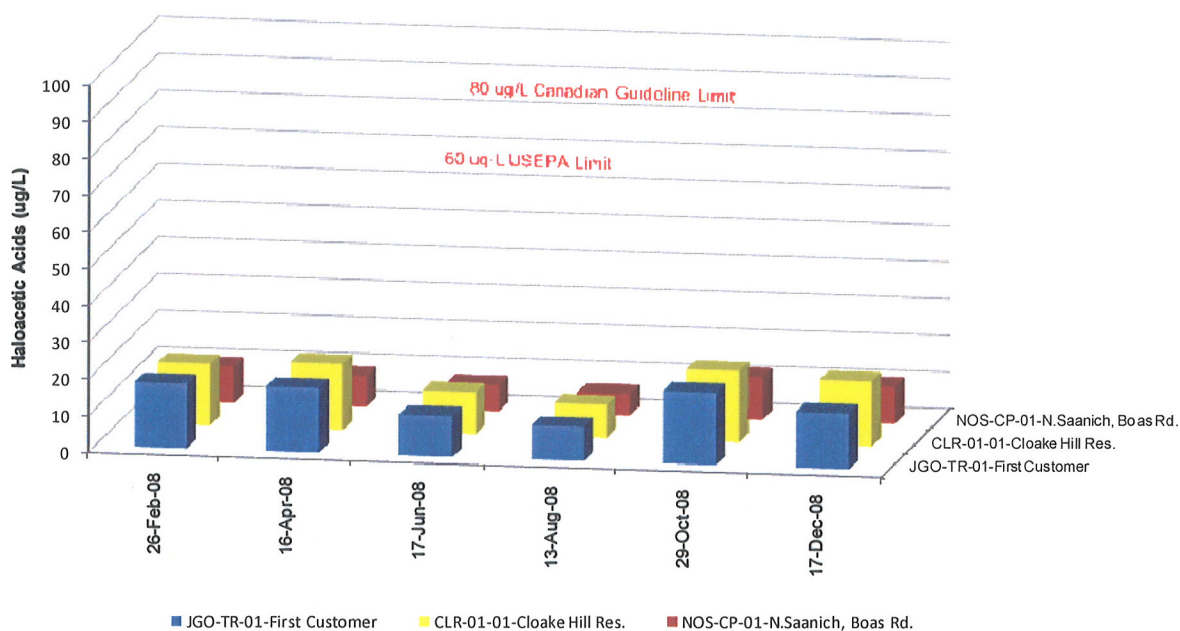


Figure 8. Cloake Hill Reservoir, Haloacetic Acids, 2003-2006

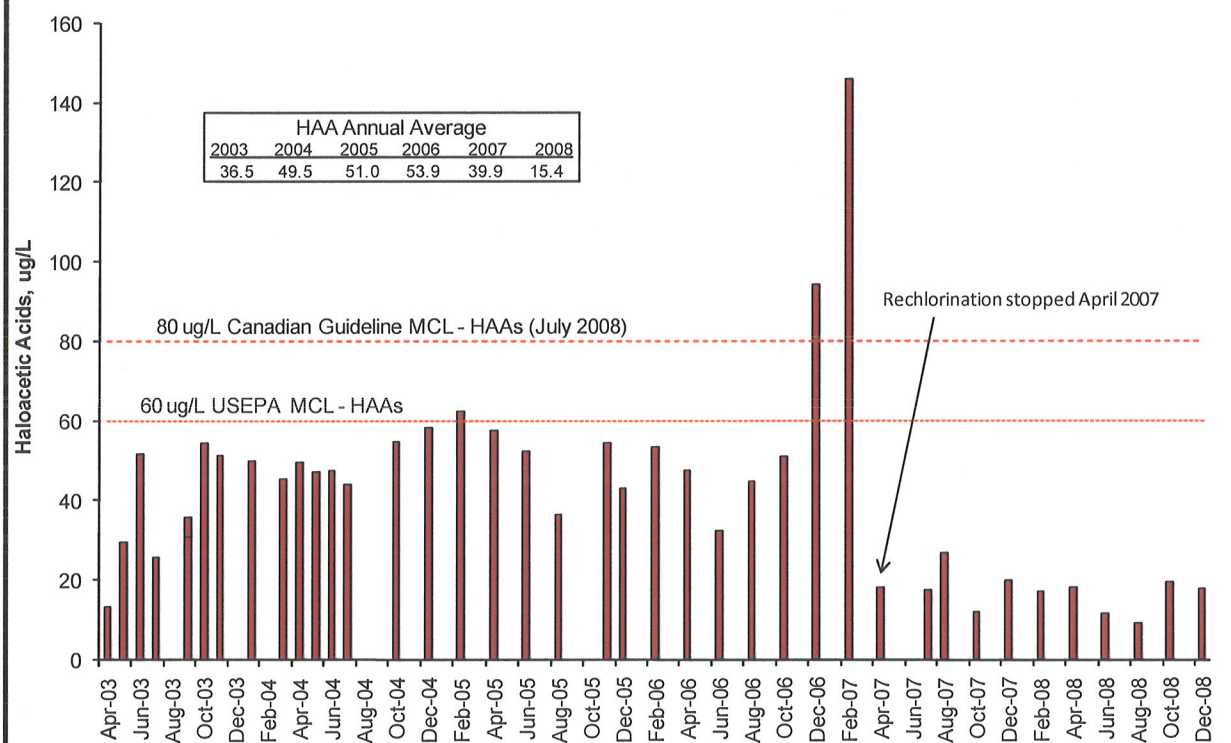


Figure 9. North Saanich Boas Rd, Haloacetic Acids, 2003-2008

