

## WATER SYSTEMS, DISINFECTION BYPRODUCTS, AND THE USE OF MONOCHLORAMINE

### 7) Why are disinfection byproducts a public health concern?

***Drinking water research indicates that certain byproducts of water disinfection have the potential to be harmful.***<sup>1</sup>

- Some research indicates that certain byproducts of water disinfection are linked to increases in cancer incidence, including bladder cancer.
- Some research indicates that certain byproducts of water disinfection can be linked to liver, kidney, central nervous system problems, and reproductive effects.
- Some research indicates that certain byproducts of water disinfection can be linked to anemia.<sup>2</sup>

***Assessments of the risks of water disinfection can be highly uncertain.***

- Scientists from many organizations have conducted research on the effects of disinfection byproducts.
- In some cases research results are contradictory; some studies show links to adverse health effects and others do not.
- Regulatory documents describe the uncertainties in risk assessments of disinfection byproducts.<sup>1</sup>

***The Environmental Protection Agency considers risk and uncertainty in establishing regulations for water disinfection.***

- Regulators weigh the public health benefits of disinfection against the risks of the potentially harmful disinfection byproducts.<sup>3</sup>
- EPA sets limits for certain disinfection byproducts which are linked to health effects such as bladder cancer.<sup>1</sup>
- EPA and other organizations continue to conduct research on disinfection byproducts.

*Additional Supporting Information:*

1. EPA has adopted enforceable regulations to limit occurrence of disinfection byproducts in drinking water for a group of four total trihalomethanes (TTHMs) (chloroform, bromodichloromethane (BDCM), dibromochloromethane (DBCM), and bromoform), a group of five haloacetic acids (HAA5) (monochloroacetic acid (MCA), dichloroacetic acid (DCA), trichloroacetic acid (TCA), monobromoacetic acid (MBA), and dibromoacetic acid (DBA)), and the individual byproducts chlorite and bromate. The maximum contaminant levels for these disinfection byproducts are: TTHMs (0.080 mg/L), HAA5 (0.060 mg/L), chlorite (1.0 mg/L), bromate (0.010 mg/L). See Stage 2 Disinfection Byproducts Rule (71 FR 388, January 4, 2006) for more information on disinfection byproducts and discussion of uncertainties,

<http://www.epa.gov/fedrgstr/EPA-WATER/2006/January/Day-04/w03.pdf>.

2. For more information on anemia and disinfection byproducts visit <http://www.epa.gov/ogwdw/hfacts.html>.

3. See question 8 for additional information on how EPA regulates disinfection byproducts.