

## CRITERIA SUMMARY

Lake Erie Basin			
Tier I HNC ( $\mu\text{g/l}$ )		Tier I HCC ( $\mu\text{g/l}$ )	
Drinking	Nondrinking	Drinking	Nondrinking
350	11,000	56	1,700

## EXPOSURE AND TOXICITY DATA

Human health trophic level 3 bioaccumulation factor ( $\text{BAFH}_{\text{TL3}}$ ) = 2.9 l/kg (MDEQ)  
Human health trophic level 4 bioaccumulation factor ( $\text{BAFH}_{\text{TL4}}$ ) = 4.2 l/kg (MDEQ)  
Acceptable daily exposure (ADE) =  $1.3\text{E-}2$  mg/kg/day (IRIS, last revised 09/01/92)  
Carcinogen assessment: Class B2; probable human carcinogen (IRIS, last revised 03/01/91)  
Cancer slope factor ( $q_1^*$ ) =  $6.1\text{E-}3$  per mg/kg/day (IRIS, last revised 03/01/91)  
Body weight of average human (BW) = 70 kg (OAC 3745-1-38)  
Relative source contribution factor (RSC) = 0.8 (OAC 3745-1-38)  
Per capita water consumption (WC) = 2.0 l/day for drinking water criteria (OAC 3745-1-38)  
= 0.01 l/day for nondrinking water criteria (OAC 3745-1-38)  
Mean consumption of trophic level three fish ( $\text{FC}_{\text{TL3}}$ ) = 0.0036 kg/day (OAC 3745-1-38)  
Mean consumption of trophic level four fish ( $\text{FC}_{\text{TL4}}$ ) = 0.0114 kg/day (OAC 3745-1-38)

Risk associated dose (RAD) = Risk level  $\div$   $q_1^*$   
=  $1\text{E-}5 \div 6.1\text{E-}3$  per mg/kg/day  
=  $1.639\text{E-}3$  mg/kg/day

## REFERENCES

- Integrated Risk Information System. USEPA Office of Research and Development, National Center for Environmental Assessment.
- Michigan Department of Environmental Quality, Surface Water Quality Division. 1997. Bioaccumulation Factor Worksheet for Chloroform. Verification Date: 6/9/97.
- Ohio Administrative Code rule 3745-1-38: Methodologies for Development of Human Health Criteria and Values for the Lake Erie Drainage Basin. Effective 10/31/97.

## CALCULATION OF HUMAN NONCARCINOGENIC CRITERION (HNC)<sup>a</sup>

$$\text{HNC} = \frac{\text{ADE} \times \text{BW} \times \text{RSC}}{\text{WC} + [(\text{FC}_{\text{TL3}} \times \text{BAFH}_{\text{TL3}}) + (\text{FC}_{\text{TL4}} \times \text{BAFH}_{\text{TL4}})]}$$

$$\begin{aligned} \text{Drinking Water HNC} &= \frac{1.3\text{E-}2 \text{ mg/kg/day} \times 70 \text{ kg} \times 0.8}{2.0 \text{ l/day} + [(0.0036 \text{ kg/day} \times 2.9 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 4.2 \text{ l/kg})]} \\ &= 0.35 \text{ mg/l} = 350 \text{ }\mu\text{g/l} \end{aligned}$$

$$\begin{aligned} \text{Nondrinking Water HNC} &= \frac{1.3\text{E-}2 \text{ mg/kg/day} \times 70 \text{ kg} \times 0.8}{0.01 \text{ l/day} + [(0.0036 \text{ kg/day} \times 2.9 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 4.2 \text{ l/kg})]} \\ &= 11 \text{ mg/l} = 11,000 \text{ }\mu\text{g/l} \end{aligned}$$

## CALCULATION OF HUMAN CARCINOGENIC CRITERION (HCC)<sup>a</sup>

$$\text{HCC} = \frac{\text{RAD} \times \text{BW}}{\text{WC} + [(\text{FC}_{\text{TL3}} \times \text{BAFH}_{\text{TL3}}) + (\text{FC}_{\text{TL4}} \times \text{BAFH}_{\text{TL4}})]}$$

$$\begin{aligned} \text{Drinking Water HCC} &= \frac{1.639\text{E-}3 \text{ mg/kg/day} \times 70 \text{ kg}}{2.0 \text{ l/day} + [(0.0036 \text{ kg/day} \times 2.9 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 4.2 \text{ l/kg})]} \\ &= 0.056 \text{ mg/l} = 56 \text{ }\mu\text{g/l} \end{aligned}$$

$$\begin{aligned} \text{Nondrinking Water HCC} &= \frac{1.639\text{E-}3 \text{ mg/kg/day} \times 70 \text{ kg}}{0.01 \text{ l/day} + [(0.0036 \text{ kg/day} \times 2.9 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 4.2 \text{ l/kg})]} \\ &= 1.7 \text{ mg/l} = 1,700 \text{ }\mu\text{g/l} \end{aligned}$$

<sup>a</sup>See Ohio Administrative Code 3745-1-38 effective October 31, 1997.