

## CRITERIA SUMMARY

Lake Erie Basin			
Tier I HNC ( $\mu\text{g/l}$ )		Tier I HCC ( $\mu\text{g/l}$ )	
Drinking	Nondrinking	Drinking	Nondrinking
14	730	ID	ID

## EXPOSURE AND TOXICITY DATA

Human health trophic level 3 bioaccumulation factor ( $\text{BAFH}_{\text{TL}3}$ ) = 5.06 l/kg (MDEQ)  
Human health trophic level 4 bioaccumulation factor ( $\text{BAFH}_{\text{TL}4}$ ) = 0.88 l/kg (MDEQ)  
Acceptable daily exposure (ADE) =  $5\text{E-}4$  mg/kg/day (IRIS RfD, last revised 02/01/94)  
Carcinogen assessment: Class B1; probable human carcinogen (IRIS, last revised 06/01/92)  
Cancer slope factor ( $q_1^*$ ) = Not available (IRIS, last revised 06/01/92)  
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 ( $\text{FC}_{\text{TL}3}$ ) = 0.0036 kg/day (OAC 3745-1-38)  
Mean consumption of trophic level four fish ( $\text{FC}_{\text{TL}4}$ ) = 0.0114 kg/day (OAC 3745-1-38)

## 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 Cadmium. Verification Date: 6/20/97.
- 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>

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

$$\begin{aligned} \text{Drinking Water HNC} &= \frac{5\text{E-}4 \text{ mg/kg/day} \times 70 \text{ kg} \times 0.8}{2.0 \text{ l/day} + [(0.0036 \text{ kg/day} \times 5.06 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 0.88 \text{ l/kg})]} \\ &= 0.014 \text{ mg/l} = 14 \text{ }\mu\text{g/l} \end{aligned}$$

$$\begin{aligned} \text{Nondrinking Water HNC} &= \frac{5\text{E-}4 \text{ mg/kg/day} \times 70 \text{ kg} \times 0.8}{0.01 \text{ l/day} + [(0.0036 \text{ kg/day} \times 5.06 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 0.88 \text{ l/kg})]} \\ &= 0.73 \text{ mg/l} = 730 \text{ }\mu\text{g/l} \end{aligned}$$

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

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

Insufficient data (no  $q_1^*$ ).

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