

CRITERIA SUMMARY

Lake Erie Basin			
Tier I HNC ($\mu\text{g/l}$)		Tier I HCC ($\mu\text{g/l}$)	
Drinking	Nondrinking	Drinking	Nondrinking
18,000	1,400,000	ID	ID

EXPOSURE AND TOXICITY DATA

Human health trophic level 3 bioaccumulation factor (BAFH_{TL3}) = 1.0 l/kg (Vanderploeg *et al.* 1975)

Human health trophic level 4 bioaccumulation factor (BAFH_{TL4}) = 1.0 l/kg (Vanderploeg *et al.* 1975)

Acceptable daily exposure (ADE) = 0.63 mg/kg/day (IRIS RfD, last revised 12/01/96)

Carcinogen assessment: Not evaluated (IRIS)

Cancer slope factor (q_1^*) = Not available (IRIS)

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 (FC_{TL3}) = 0.0036 kg/day (OAC 3745-1-38)

Mean consumption of trophic level four fish (FC_{TL4}) = 0.0114 kg/day (OAC 3745-1-38)

REFERENCES

Integrated Risk Information System. USEPA Office of Research and Development, National Center for Environmental Assessment.

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.

Vanderploeg, H.A., D.C. Parzyck, W.H. Wilcox, J.R. Kercher and S.V. Kaye. 1975. Bioaccumulation Factors for Radionuclides in Freshwater Biota. Oak Ridge National Laboratory. ORNL-5002. Environmental Sciences Division Publication No. 783.

CALCULATION OF HUMAN NONCARCINOGENIC CRITERION (HNC)^a

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

$$\begin{aligned} \text{Drinking Water HNC} &= \frac{0.63 \text{ mg/kg/day} \times 70 \text{ kg} \times 0.8}{2.0 \text{ l/day} + [(0.0036 \text{ kg/day} \times 1.0 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 1.0 \text{ l/kg})]} \\ &= 18 \text{ mg/l} = 18,000 \text{ } \mu\text{g/l} \end{aligned}$$

$$\begin{aligned} \text{Nondrinking Water HNC} &= \frac{0.63 \text{ mg/kg/day} \times 70 \text{ kg} \times 0.8}{0.01 \text{ l/day} + [(0.0036 \text{ kg/day} \times 1.0 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 1.0 \text{ l/kg})]} \\ &= 1,400 \text{ mg/l} = 1,400,000 \text{ } \mu\text{g/l} \end{aligned}$$

CALCULATION OF HUMAN CARCINOGENIC CRITERION (HCC)^a

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

Insufficient data (no q_1^*).

^aSee Ohio Administrative Code 3745-1-38 effective October 31, 1997.