Surface Water Cleanup Levels
WAC 173-340-730

Equations and Default Values
for calculating
Concentrations Protective of Human Health

Fish Consumption
Pathway

Noncarcinogens: Equation 730-1

$$Surface\ Water\ Cleanup\ Level\ (ug/l) = \frac{RfD_o \times ABW \times UCF1 \times UCF2 \times HQ \times AT}{BCF \times FCR \times FDF \times ED}$$

Parameter		Default Value		Units
		Method B	Method C	
Risk				
• Hazard Quotient	HQ	1	1	unitless
Toxicological Parameters				
• Oral Reference Dose	RfD_o	chemical-specific	chemical-specific	mg/kg-day
• Bioconcentration Factor	BCF	chemical-specific	chemical-specific	L/kg
Exposure Parameters				
• Average Body Weight	ABW	70	70	kg
• Averaging Time	AT	30	30	years
• Exposure Duration	ED	30	30	years
• Fish Consumption Rate	FCR	54	54	grams/day
• Fish Diet Fraction	FDF	0.5	0.2	unitless
Unit Conversion Factors				
• Unit Conversion Factor 1	UCF1	1,000	1,000	µg/mg
• Unit Conversion Factor 2	UCF2	1,000	1,000	grams/kg

NOTE: Default values highlighted in green differ for Method B and Method C.

Carcinogens: Equation 730-2

$$Surface\ Water\ Cleanup\ Level\ (ug/l) = \frac{RISK \times ABW \times AT \times UCF1 \times UCF2}{CPF_o \times BCF \times FCR \times FDF \times ED}$$

Parameter		Default Value		Units
		Method B	Method C	
Risk				
• Carcinogenic Risk	RISK	1×10^{-6}	1×10^{-5}	unitless
Toxicological Parameters				
• Oral Cancer Potency Factor	CPF_o	chemical-specific	chemical-specific	kg-day/mg
• Bioconcentration Factor	BCF	chemical-specific	chemical-specific	L/kg
Exposure Parameters				
• Average Body Weight	ABW	70	70	kg
• Averaging Time	AT	75	75	years
• Exposure Duration	ED	30	30	years
• Fish Consumption Rate	FCR	54	54	grams/day
• Fish Diet Fraction	FDF	0.5	0.2	unitless
Unit Conversion Factors				
• Unit Conversion Factor 1	UCF1	1,000	1,000	µg/mg
• Unit Conversion Factor 2	UCF2	1,000	1,000	grams/kg

NOTE: Default values highlighted in green differ for Method B and Method C.

Surface Water Cleanup Levels

Summary of Default Values for calculating Concentrations Protective of Human Health

Parameter		Default Value				Modifiable?	
		Method B		Method C			
		Noncarcinogen	Carcinogen	Noncarcinogen	Carcinogen	Cleanup Level	Remediation Level
Risk – Noncarcinogens							
Hazard Quotient (Single)	HQ	1 (unitless)	–	1 (unitless)	–		
Hazard Index (Total)	HI	1 (unitless)	–	1 (unitless)	–		
Risk – Carcinogens							
Carcinogenic Risk (Single)	RISK	–	1×10^{-6} (unitless)	–	1×10^{-5} (unitless)		
Carcinogenic Risk (Total)	–	–	1×10^{-5} (unitless)	–	1×10^{-5} (unitless)		
Toxicological Parameters							
Oral Reference Dose	RfD_o	Chemical-specific	–	Chemical-specific	–	x	x
Oral Cancer Potency Factor	CPF_o	–	Chemical-specific	–	Chemical-specific	x	x
Bioconcentration Factor	BCF	Chemical-specific	Chemical-specific	Chemical-specific	Chemical-specific	x	x
Exposure Parameters							
Average Body Weight	ABW	70 kg	70 kg	70 kg	70 kg		x
Averaging Time	AT	30 years	75 years	30 years	75 years		x
Exposure Duration	ED	30 years	30 years	30 years	30 years		x
Fish Consumption Rate	FCR	54 grams/day	54 grams/day	54 grams/day	54 grams/day		x
Fish Diet Fraction	FDF	0.5(unitless)	0.5 (unitless)	0.2 (unitless)	0.2 (unitless)		x
Unit Conversion Factors							
Unit Conversion Factor 1	UCF1	1,000 µg/mg	1,000 µg/mg	1,000 µg/mg	1,000 µg/mg		
Unit Conversion Factor 2	UCF2	1,000 grams/kg	1,000 grams/kg	1,000 grams/kg	1,000 grams/kg		

NOTE: Default values highlighted in green differ for Method B and Method C.