

Risk Levels Used in Human Health Criteria

*A Compilation of Human Health Risk Levels used to Calculate Surface Water Quality Criteria for Carcinogenic Chemicals**

Risk Level Terminology

Numeric	How to say it...	What it means, under specified exposure assumptions*
10⁻⁶	Ten-to- the-minus-sixth	...risk of <i>one</i> additional occurrence of cancer, <i>in one million people...</i>
10⁻⁵	Ten-to- the-minus-fifth	...risk of <i>one</i> additional occurrence of cancer, <i>in one hundred thousand people...</i>
10⁻⁴	Ten-to- the-minus-fourth	...risk of <i>one</i> additional occurrence of cancer, <i>in ten thousand people...</i>
<p><i>*What are the exposure assumptions that are included in Washington's current human health-based criteria (the 1992 National Toxics Rule criteria)?</i></p> <p>70 years of daily exposure to 6.5 g/day of fish and shellfish, and 2 liters/day of untreated surface waters, by a 154 lb. person.</p>		

Human Health Risk Levels used by Assorted States and Tribes

** data compiled from information provided to Ecology by the Environmental Protection Agency, Region 10, in January 2013.*

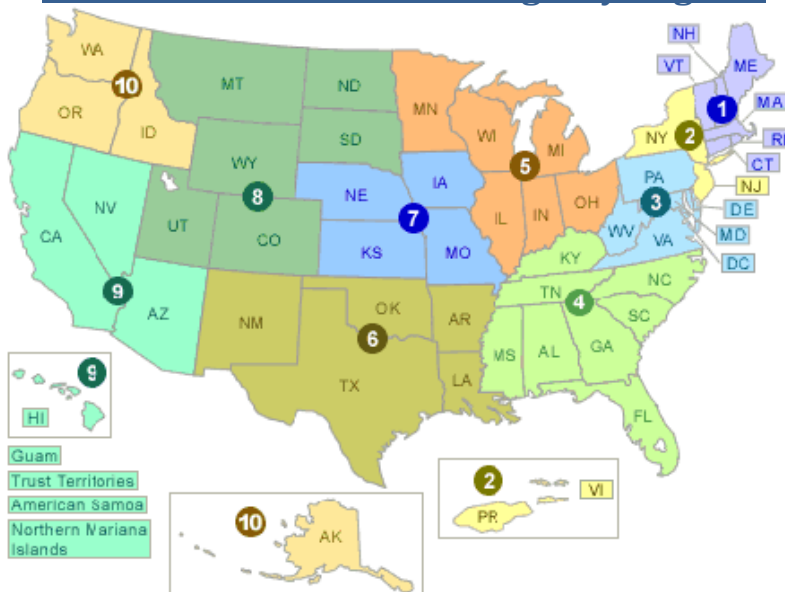
EPA Region	Entity	Risk Level for Carcinogens	Additional Risk Level Information
1	Connecticut	10⁻⁶	
1	Maine	10⁻⁶	Maine recently adopted new arsenic criteria based on a 10 ⁻⁴ cancer risk level.
1	Massachusetts	10⁻⁶	
1	New Hampshire	10⁻⁶	
1	Rhode Island	10⁻⁶	
1	Vermont	10⁻⁶	
2	New Jersey	10⁻⁶	
2	New York	10⁻⁶	
2	Saint Regis Mohawk Tribe	10⁻⁶	
3	Delaware	10⁻⁶	
3	District of Columbia	10⁻⁶	
3	Maryland	10⁻⁵	
3	Pennsylvania	10⁻⁶	
3	Virginia	10⁻⁵	
3	West Virginia	10⁻⁶	

EPA Region	Entity	Risk Level for Carcinogens	Additional Risk Level Information
4	Miccosukee Tribe Indians of Florida	10^{-6}	
4	Alabama	10^{-6}	Except for Arsenic which uses 10^{-5}
4	Florida	10^{-6}	
4	Georgia	10^{-6}	
4	Kentucky	10^{-6}	
4	Mississippi	10^{-6}	
4	North Carolina	10^{-6}	
4	South Carolina	10^{-6}	
4	Tennessee	10^{-6}	
5	Bad River Band of Lake Superior Tribe of Chippewa Indians of the Bad River Reservation (WI)	None Listed	
5	Grand Portage Band of the Minnesota Chippewa Tribe	10^{-6}	Concentrations of carcinogenic chemicals from point or non-point sources, singly or in mixtures, must not exceed risk levels of one chance in 1,000,000 in surface waters.
5	Lac du Flambeau Band of Lake Superior Chippewa Indians of the Lac du Flambeau Reservation	10^{-6}	
5	Mole Lake Band of the Lake Superior Tribe of the Chippewa Indians, Sokaogon Chippewa Community	None Listed	
5	The Fond du Lac Band of the Minnesota Chippewa Tribe	None Listed	
5	Illinois	10^{-5}	Great Lakes Initiative (http://water.epa.gov/lawsregs/lawsguidance/cwa/criteria/gli/index.cfm)
5	Indiana	10^{-5}	Great Lakes Initiative (http://water.epa.gov/lawsregs/lawsguidance/cwa/criteria/gli/index.cfm)
5	Michigan	10^{-5}	Great Lakes Initiative (http://water.epa.gov/lawsregs/lawsguidance/cwa/criteria/gli/index.cfm)

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5	Minnesota	10^{-5}	Great Lakes Initiative (http://water.epa.gov/lawsregs/lawsguidance/cwa/criteria/gli/index.cfm)
5	Ohio	10^{-5}	Great Lakes Initiative (http://water.epa.gov/lawsregs/lawsguidance/cwa/criteria/gli/index.cfm)
5	Wisconsin	10^{-5}	Great Lakes Initiative (http://water.epa.gov/lawsregs/lawsguidance/cwa/criteria/gli/index.cfm)
6	Arkansas	10^{-5}	
6	Louisiana	10^{-6}	Except for 2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) and hexachlorocyclohexane (lindane, gamma BHC), in which case 10^{-5} is used.
6	New Mexico	10^{-5} and 10^{-6}	
6	Oklahoma	10^{-5}	
6	Texas	10^{-5}	
7	Iowa	10^{-5}	
7	Kansas	10^{-6}	
7	Missouri	10^{-6}	
7	Nebraska	10^{-6}	
8	Confederated Salish and Kootenai Tribes of the Flathead Indian Reservation	10^{-6}	
8	Colorado	10^{-6}	
8	Montana	10^{-6}	
8	North Dakota	10^{-6}	
8	South Dakota	10^{-6}	
8	Utah	10^{-6}	
8	Wyoming	10^{-6}	
9	Arizona	10^{-6}	
9	California	10^{-6}	
9	Hawaii	10^{-6}	
9	Nevada	10^{-5}	
10	Confederated Tribes of the Chehalis Reservation	10^{-6}	
10	Confederated Tribes of the Colville Reservation	None Listed	

EPA Region	Entity	Risk Level for Carcinogens	Additional Risk Level Information
10	Confederated Tribes of the Umatilla Indian Reservation of Oregon	10^{-6}	
10	Confederated Tribes of the Warm Springs Indian Reservation of Oregon	10^{-6}	
10	Coeur d'Alene Tribe	10^{-6}	
10	Kalispel Indian Community of the Kalispel Reservation	10^{-6}	
10	Lummi Nation	10^{-6}	
10	Makah Tribe	10^{-6}	
10	Port Gamble S'Klallam Tribe	10^{-6}	
10	Puyallup Tribe of Indians	10^{-6}	
10	Spokane Tribe of Indians	10^{-6}	
10	Alaska	10^{-5}	
10	Idaho	10^{-6}	
10	Oregon	10^{-6}	Except for arsenic which uses 10^{-5} for organism only and 10^{-4} for water + organism
10	Washington	10^{-6}	

Environmental Protection Agency Regions



(Map Source: <http://www.epa.gov/oust/images/us-regions.gif>)