**Drinking water**

<table>
<thead>
<tr>
<th>Carcinogen Group</th>
<th>Oral Slope Factor</th>
<th>Oral Reference Dose</th>
<th>Basis: FEDERAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mg/kg/day)^{-1}</td>
<td>(mg/kg/day)</td>
<td></td>
</tr>
</tbody>
</table>

**Ground water**

<table>
<thead>
<tr>
<th>Carcinogen Group</th>
<th>Oral Slope Factor</th>
<th>Oral Reference Dose</th>
<th>Basis:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mg/kg/day)^{-1}</td>
<td>(mg/kg/day)</td>
<td></td>
</tr>
</tbody>
</table>

**Surface water**

<table>
<thead>
<tr>
<th>Carcinogen Group</th>
<th>Oral Slope Factor</th>
<th>Oral Reference Dose</th>
<th>Basis:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mg/kg/day)^{-1}</td>
<td>(mg/kg/day)</td>
<td></td>
</tr>
</tbody>
</table>

**Soil**

<table>
<thead>
<tr>
<th>Oral</th>
<th>Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcinogen Group</td>
<td>Carcinogen Group:</td>
</tr>
<tr>
<td>Slope Factor:</td>
<td>Unit Risk Factor:</td>
</tr>
<tr>
<td>(mg/kg/day)^{-1}</td>
<td>(ug/m^3)^{-1}</td>
</tr>
<tr>
<td>Reference Dose:</td>
<td>Reference Concentration:</td>
</tr>
<tr>
<td>(mg/kg/day)</td>
<td>(ug/m)^3</td>
</tr>
<tr>
<td>Basis:</td>
<td>Basis:</td>
</tr>
</tbody>
</table>

* Reference Doses for Group C chemicals are shown with uncertainty factor of 10 for possible carcinogenicity included. These are the Reference Doses used to derive criteria for all media. In the Basis and Background documents for these criteria, these Reference Doses may or may not be shown with this uncertainty factor incorporated.
Soil - Footnotes
1. Carcinogen Classification - All classifications are based on IRIS unless stated otherwise.
1999 Cancer Draft Guidelines:
- KNOWN - Known carcinogen
- CANTDET - Can not determine carcinogenic classification
- LIK - Likely to be a human carcinogen
- NLIK - Not likely to be a carcinogen
- INAD - Inadequate data
- ORL - Oral exposure route
- INHL - Inhalation exposure route
1986 Cancer Guidelines:
- Group A - Human carcinogen
- Group B - Probable human carcinogen
- Group B2 - Sufficient evidence from animal studies and inadequate or no data from epidemiologic studies
- Group C - Possible human carcinogen
- Group D - Not classifiable as to human carcinogenicity
- Group E - Evidence on non-carcinogenicity for humans
2. References:
- IRIS - Integrated Risk Information System
- HEAST- Health Effects Assessment Summary Tables
- NCEA - National Center for Environmental Assessment/EPA Provisional Value
- DEP- NJ Department of Environmental Protection
- NR02- EPA National Recommended Water Quality Criteria 2002

Ground Water - Footnotes
b = existing drinking water Maximum Contaminant Level Goal (MCLG) (CFR Part 141 - National Primary Drinking Water Regulations). For beryllium see Section IV-d of the Basis and Background.
c = developed by the Department for calculating ISCs. For details on developing specific RfD, slope factor, or carcinogen class equivalent to USEPA categorization, see support document available by request to the Department.
d = Slope factor and carcinogen group of arsenic are those listed in IRIS under arsenic (inorganic); RfDs of chromium, mercury, and nickel are those listed in IRIS under chromium (VI), mercuric chloride, and nickel (soluble salts), respectively. The RfD for thallium was developed by the Department based on the RfD of thallium(I) sulfate in IRIS.
e = derived by multiplying the IRIS slope factor of B(a)P of 7.3 (mg/kg-day)-1 with the *estimated order of potential potency* for the individual Group B2 PAHs recommended in USEPA "Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons", Office of Research and Development, EPA/600/R-93/089. The relative potencies based on that of benzo(a)pyrene as 1.0 are as follows: benz(a)anthracene, 0.1; benzo(b)fluoranthene, 0.1; benzo(k)fluoranthene, 0.01; chrysene, 0.001; dibenz(a,h)anthracene, 1.0; indeno(1,2,3-cdp)pyrene, 0.1.
f = Group D categorization of mercury based on USEPA National Primary Drinking Water Regulations; Final Rule. 56 FR 3537, Jan 30, 1991. For detailed discussion on Group D categorization of mercury, see Section IV-o in this Basis and Background.
** = The carcinogen group assigned to acrolein in IRIS is the descriptor, "data are inadequate for an assessment of human carcinogenic potential" which is equivalent to Group D.

Surface Water - Footnotes
^ The carcinogen group assigned to acrolein in IRIS is the descriptor, "data are inadequate for an assessment of human carcinogenic potential" which is equivalent to Group D.
+ See text on cadmium. For RfD for cadmium, "(w)" stands for water. "(f)"stands for food.
* The criterion for lead remains unchanged. The criteria for nickel are based on data from 2002 Calculation Matrix updated by the current fish consumption rate of 17.5 g/day.

Soil - Footnotes
1. Carcinogen Classification - All classifications are based on IRIS unless stated otherwise
1999 Cancer Draft Guidelines:
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