DEPARTMENT OF ENVIRONMENTAL QUALITY

REMEDIATION AND REDEVELOPMENT DIVISION

ENVIRONMENTAL CONTAMINATION RESPONSE ACTIVITY

Filed with the Secretary of State on

These rules become effective immediately upon filing with the Secretary of State unless adopted under Section 33, 44, or 45a(6) of 1969 PA 306. Rules adopted under these subsections become effective 7 days after filing with the Secretary of State.

(By authority conferred on the director of the Department of Environmental Quality by sections 20104(1) and 20120a(~~18~~**17**) of 1994 PA 451, MCL 324.20104(1) and 324.20120a(~~18~~**17**).

R 299.1, R 299.2, R 299.3, R 299.4, R 299.6, R 299.8, R 299.9, R 299.10, R 299.18, R 299.20, R 299.22, R 299.26, R 299.30, R 299.34, R 299.36, R 299.38, R 299.46, R 299.49, and R 299.50 of the Michigan Administrative Code are amended, and R 299.7, R 299.16 and R 299.27 are added to the Code, and R 299.14, R 299.24, R 299.40, R 299.44, and R 299.48 of the Code are rescinded, as follows:

CLEANUP CRITERIA REQUIREMENTS FOR RESPONSE ACTIVITY

R 299.1 Definitions; A to I.

Rule 1. As used in ~~this part~~**these rules**:

(a) "Act" means 1994 PA 451, MCL 324.101 to 324.90106, known as the Natural Resources and Environmental Protection Act.

(b) "Acute toxicity" means the ability of a hazardous substance to cause a debilitating or injurious effect in an organism as a result of a single or short-term exposure.

(c) **"Additivity" means the combined effect of 2 or more hazardous substances estimated directly from the summing of effects, responses, or scaled exposure levels.**

(d) "Ambient air" means the atmosphere outside of buildings.

~~(d) "Applicable criterion" means a cleanup criterion for a relevant pathway. A criterion is not an applicable criterion if the exposure pathway is not a relevant pathway at the facility or if the exposure it addresses is reliably restricted by a restrictive covenant or institutional control or other mechanism allowed for under part 201 of the act and these rules.~~

(e) "Aquifer" means a geological formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs.

(f) "Best available information" means, when used in relation to a risk assessment or the development of cleanup criteria, the most scientifically credible and relevant data available ~~about~~ **for** a particular hazardous substance**, exposure assumptions, or the methodology for characterizing dose-response or risk**. Such information may include, but is not limited to, any of the following:

(i) The peer reviewed scientific literature.

(ii) ~~Information sources recognized by the risk assessment community, such as the integrated risk information system database~~**Risk assessment guidance and databases** maintained by the United States environmental protection agency**.** ~~or other scientifically reliable databases.~~

(iii) Other peer reviewed risk assessment guidance, databases, and other information sources recognized by the risk assessment community as scientifically reliable.

(~~iii~~**iv)** Other scientific studies that are acceptable to the department.

(g) "Cancer slope factor" means ~~a plausible upper bound estimate of the probability of a response per unit dose of a hazardous substance over a lifetime. The cancer slope factor is used to estimate an upper bound probability of an individual developing cancer as a result of a lifetime exposure to a particular level of a potential carcinogen.~~ **an upper bound, approximating a 95% confidence limit, on the increased cancer risk from a lifetime exposure to a hazardous substance.**

(h) "Carcinogen" means a hazardous substance which, based on the weight of evidence, causes an increased incidence of benign or malignant neoplasms in animals or humans or that substantially decreases the time in which neoplasms develop in animals or humans.

(i) "Chronic toxicity" means the ability of a hazardous substance to cause an ~~injurious or debilitating~~**adverse** effect ~~in an organism that results from repeated exposure to the hazardous substance for a time period representing a substantial portion of the natural life expectancy of the organism.~~ **that occurs as a result of repeated or long-term (chronic) exposure.**

(j) "C_{sat}" means the concentration **of a single hazardous substance** in soil at which the solubility limits of the soil pore water, the vapor phase limits of the soil pore air, and the absorptive limits of the soil particles have been reached. As used in these rules, C_{sat} is a theoretical threshold above which a ~~free-phase liquid~~ ~~(non-aqueous phase liquid)~~**NAPL** hazardous substance may exist.

(k) "Direct contact" means exposure to hazardous substances through ingestion or dermal contact.

(l) "Facility-specific" means department-approved generic input values that when representative of conditions at the facility may be used as input for the calculated health-based values. The generic input values include the following:

(i) Environmental conditions that allow the resulting criterion to represent unrestricted generic residential categorical criteria that do not depend upon any land use or resource use restriction to ensure protection pursuant to section 20120a(1)(a) of the act.

(ii) Land use or building conditions that when used pursuant to R 299.27 allow the resulting volatilization to indoor air criteria to represent restricted categorical criteria pursuant to section 20120a(1)(b) to (d) of the act.

(~~l~~**m**) "Generic residential" means the cleanup criteria established by the department under section 20120a(1)(a) of the act and these rules.

(~~m~~**n**) "Groundwater" means water below the land surface in a zone of saturation.

(~~n~~**o**) "Increased cancer risk of 1 in 100,000" means the 95% upper bound on the calculated risk of 1 additional cancer above the background cancer rate per 100,000 individuals continuously exposed to a carcinogen at a given average daily dose for a ~~70-year~~ lifetime.

(~~o~~**p**) "Inhalation unit risk factor" means the additional lifetime cancer risk occurring in a population in which all individuals are exposed continuously for life to a concentration of 1 microgram per cubic meter of the hazardous substance in the air they breathe. ~~The inhalation~~

~~unit risk factor shall be calculated under the provisions of part 55 of the act and the rules promulgated under that part.~~

~~(p) "Initial threshold screening level" means a concentration in air of a toxic air contaminant which is used to evaluate noncarcinogenic health effects and is calculated under part 55 of the act and the rules promulgated under that part.~~

~~(q) "Institutional control" means a measure which is approved by the department, which takes a form other than a restrictive covenant, and which limits or prohibits certain activities that may interfere with the integrity or effectiveness of a remedial action or result in exposure to hazardous substances at a facility, or which provides notice about the presence of a hazardous substance at a facility in concentrations that exceed only an aesthetic-based cleanup criterion.~~

(~~r~~**q**) "Ionizing organic hazardous substance" means an organic hazardous substance that has functional chemical groups that become ions when exposed to varying pH conditions.

R 299.2 Definitions; L to V.

Rule 2. As used in ~~this part~~**these rules**:

(a) "Land or resource use restrictions" means the provisions of any of the following measures that are used to ~~limit~~ **reduce** or **restrict exposure to hazardous substances, to eliminate an exposure pathway, to assure the effectiveness and integrity of containment or exposure barriers, to otherwise assure the effectiveness and integrity of response actions at a property** ~~prohibit activities that may interfere with the integrity or effectiveness of a response activity, or to limit or prohibit activities that may result in exposure to hazardous substances at a facility~~, or to provide notice about the presence of a hazardous substance at a ~~facility~~**property** in concentrations that exceed only an aesthetic-based cleanup criterion:

(i) A restrictive covenant.

(ii) ~~A notice of approved environmental remediation.~~ **A conservation easement.**

(iii) **A court order or judicially approved settlement.**

(iv) An institutional control, which may be a local ordinance or ~~any form of preapproved institutional control, such as a notice of aesthetic impact.~~**state law and regulation that limits or prohibits the use of contaminated groundwater, prohibits the raising of livestock, prohibits development in certain locations, or restricts property to certain uses, such as a zoning ordinance.**

(v) An alternate instrument approved by the department which may be a license and license agreement, contract with local, state, or federal unit of government, health code or regulation, or government permitting requirement.

(vi) Any form of land or resource use restriction preapproved by the department, such as a notice of aesthetic impact.

(b) "Leachate" means liquid, including any suspended components in the liquid, that has percolated through or drained from a hazardous substance or soil contaminated with a hazardous substance.

(c) "Linearized multistage model" means a ~~dose-response model which assumes that there are a number of distinct biological stages or changes that must occur for a normal cell to be transformed into a tumor and which assumes the dose-response relationship to be linear at low doses.~~**modification of the multistage dose-response model, used for estimating carcinogenic risk, that incorporates a linear upper bound on extra risk for exposures below the experimental range.**

(d) "Notice of aesthetic impact" means a document that describes conditions at a facility that result from the presence of hazardous substances at concentrations which exceed only cleanup criteria that are based on aesthetic impacts.

(e) "Reference concentration" or "RfC" means an estimate of the continuous inhalation exposure to the human population, including sensitive subgroups and lifestages, that is likely to be without appreciable risk of adverse effect during a lifetime. The reference concentration is expressed in units of micrograms of hazardous substance per cubic meter of air.

(~~e~~**f**) "Reference dose" or "RfD" means a**n** ~~conservative~~ estimate of the daily ~~intake~~ **oral exposure to** ~~of~~ the human population, including sensitive subgroups **and lifestages**, that is likely to be without appreciable risk of ~~deleterious~~ **adverse** effect during a lifetime. The reference dose is expressed in units of milligrams **hazardous substance** per kilogram **of** body weight per day.

(~~f~~**g**) "Relative source contribution factor" or "RSC" means ~~that portion of a person's total daily intake of a noncarcinogenic hazardous substance that comes from the medium being addressed by the cleanup criterion~~ **the portion of the total daily exposure to a noncarcinogenic hazardous substance that is attributed or allocated to the environmental medium being addressed by the cleanup criterion**.

(~~g~~**h**) "Relevant pathway" means an exposure pathway that ~~is~~**has a** reasonable ~~and relevant because there is a reasonable potential for exposure to a hazardous substance to occur to a human or nonhuman receptor.~~ **potential to occur at a facility including potential future uses.** The components of an exposure pathway are a source or release of a hazardous substance, an exposure point, and, if the exposure point is not the source or point of release, a transport medium. **These components are expected to be present such that human or nonhuman receptors have a reasonable potential to be exposed to a hazardous substance from a source or release.** The existence of a municipal water supply, exposure barrier, or other similar feature does not automatically make an exposure pathway irrelevant.

(~~h~~**i**) "Risk assessment" means the analytical process used to ~~determine~~ **estimate** the risk to the public health, safety, or welfare or to the environment associated with a release or threat of release of a hazardous substance at a facility.

~~(i) "Secondary maximum contaminant level" means the United States environmental protection agency's secondary maximum contaminant level for protection of the public welfare for substances that may adversely affect the taste, odor, color, appearance, or any aesthetic quality of drinking water, as set forth in 40 C.F.R. part 143 (revised as of July 1, 2012), which is adopted by reference in these rules and which is available for inspection at the Lansing office of the department, 525 West Allegan Street, Lansing, Michigan. Copies of the provisions may be purchased, at a cost as of the time of adoption of these rules of $55.00, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (Stock Number 869-044-00152-7), or from the Department of Environmental Quality, Remediation and Redevelopment Division, 525 West Allegan Street, Lansing, Michigan 48933, at cost.~~

(j) "Toxicological interaction" means simultaneous exposure to 2 or more hazardous substances ~~which~~**that** will produce a toxicological response that is greater or less than their ~~individual responses~~**additivity**.

(k) "Volatile" means a hazardous substance that exhibits a Henry's law constant equal to or greater than 0.00001 atmosphere-cubic meter per mole at standard temperature and pressure.

(~~k~~**l**) "Weight of evidence" ~~a term of art used in risk assessment,~~ means an evaluation of the relevant scientific data conducted to determine the likelihood that a hazardous substance is a human carcinogen or causes noncancer adverse health effects, or both. The evaluation may include**, but is not limited to,** any of the following information in addition to toxicological bioassays:

(i) Structure-activity relationships.

(ii) ~~c~~**C**hemical-physical properties.

(iii) Short-term test findings.

(iv) Results of appropriate physiological, biological, and toxicological observations.

(v) Comparative metabolism and pharmacokinetic studies.

~~(l) "Volatile" means any compound that exhibits a Henry's law constant equal to or greater than 0.00001 atmosphere-cubic meter per mole at standard temperature and pressure.~~

(m) A term defined in the act has the same meaning when used in these rules.

R 299.3 Response activit~~ies~~**y**; protection of public health, safety, welfare, and environment required; rules applicable to interim response ~~actions~~**activity** ~~designed to meet cleanup criteria~~; degree of cleanup; modification of cleanup category; aquifers~~; unacceptability of response activity plan~~.

Rule 3. (1) All response activit~~ies~~**y** shall be protective of the public health, safety, and welfare and the environment. Applicable generic cleanup criteria established by the department pursuant to section 20120a(1) and site specific cleanup criteria approved by the department under section 20120a(2) and 20120b of the act and these rules reflect the department's judgment, at the time the criteria are established or approved by the department, about the numerical criteria required to meet this protectiveness requirement, subject to the provisions of ~~R 299.4(3),~~ R 299.28 and R 299.34~~(2)~~. **The absence of a chemical, substance, or water quality characteristic from the list of part 201 criteria means the department has not conducted an evaluation for that substance; it does not mean the department has determined the chemical is not a hazardous substance. The inclusion of a hazardous substance in the list with a "not available" in place of a value or a criterion means an evaluation was conducted and data were not available for the value or criterion to be developed.**

(2) All of the following are hazardous substances for which response activity is required:

(a) Those hazardous substances determined to have been released at the facility.

(b) A hazardous substance that is known to be a metabolite or breakdown product of a hazardous substance released at a facility.

(c) A hazardous substance that has resulted from a reaction or any other physical or chemical change associated with the release.

(~~2~~3) The**se** rules ~~in this part~~ apply to interim response activit~~ies~~**y.** ~~that are designed to meet cleanup criteria~~. ~~References in this part to response activity also include those interim response activities.~~

~~(3) The category of land use-based remedial action under section 20120a(1) of the act or the site-specific cleanup criteria identified under sections 20120a(2) and 20120b of the act may be modified by the person proposing to conduct the response activity that will result in modification during implementation or after completion of a remedial action, if appropriate to the facility and if that modification is accomplished in a manner that is consistent with the act and these rules.~~

(4) If a revised land use-based remedial action includes characteristics that are required to be approved by the department, then the person implementing the change shall seek department approval as required by part 201 of the act and these rules.

(5) The horizontal and vertical extent of hazardous substance concentrations in an aquifer above the higher of either the concentration allowed by section 20120a(1)(a) or (10) of the act, as applicable, shall not increase after the initiation of remedial actions to address an aquifer, except as approved by the ~~director~~**department** as provided in section 20118(~~5~~**4**) and (~~6~~**5**) of the act.

(6) All remedial actions that address the remediation of an aquifer shall provide for removal of the hazardous substance or substances from the aquifer, either through active remediation or as a result of naturally occurring biological or chemical processes which can be documented to occur at the facility, except as provided in section 20118(~~5~~**4**) and (~~6~~**5**) of the act.

R 299.4 General requirements for application of **generic** cleanup criteria.

Rule 4. (1) All cleanup criteria used in response activity undertaken under part 201 of the act and these rules shall be based on best available information **and weight of evidence.**

(2) The generic cleanup criteria developed by the department using the algorithms presented in these rules are derived primarily from data that reflect chronic toxicity endpoints. If a hazardous substance has a more sensitive toxic effect than those associated with the chronic toxicity data used to calculate a generic criterion, then a criterion shall be developed to address the most sensitive effect. The generic cleanup criteria established by the department shall be ~~accepted as~~ protective of the most sensitive toxic effect in a given exposure pathway for the hazardous substance in question.

(3) ~~If the department has not calculated a criterion for a hazardous substance for a given exposure pathway, then the person proposing or implementing the response activity shall supply the necessary data for the department to calculate a criterion or establish a criterion under subrule (4) of this rule, unless the department determines that a numerical criterion is not required to assure that a given response activity will be protective.~~**When a hazardous substance in addition to the exposure accounted for with generic criterion poses acute or short-term toxicity to humans, the department may develop immediate response screening levels for the purpose of evaluating the acute or short-term exposure.**

(4) A generic or site-specific cleanup criterion may be established by the department based on best professional judgment instead of a calculation based on minimum toxicity data for a specific hazardous substance when the minimum toxicity data are not available for that hazardous substance, but data of sufficient quality are available to show that the hazardous substance in question can be adequately assessed by comparison to the toxicity of another hazardous substance for which sufficient data are available. A criterion may be established by the department in this manner when the hazardous substances are expected by the department to have similar fate and toxicity.

(5) If the department has evidence that a generic cleanup criterion developed under section 20120a(1)(a) to (d) of the act is not protective at a given facility because of conditions specific to the facility, then the department may establish additional requirements for response activities to address those conditions, pursuant to R 299.28.

(6) A person implementing a response activity without department approval shall undertake a reasonable inquiry to determine if there are any conditions specific to a facility, including those described in R 299.28, that result in a generic cleanup criterion not

being protective. If the inquiry shows that such a condition exists, then the person shall modify the response activity to account for that condition.

(7) A person implementing a response activity shall confirm that the expected activity patterns at a facility are consistent with the exposure assumptions used by the department to calculate the applicable generic cleanup criteria.

(8) For the application of cleanup criteria environmental data shall reliably represent conditions of the environmental media. Environmental data shall include quality assurance and quality control processes that ensures data is representative and of sufficient quality.

(9) If a generic soil cleanup criterion developed under R 299.20 to R 299.27 is greater than the C_{sat} concentration for that hazardous substance as shown in the generic soil cleanup criteria tables of R 299.46, then the generic soil criterion may not apply in all cases. If the release is a mixture of hazardous substances, then comparison to C_{sat} is not appropriate. All of the following apply:

(a) A person proposing or implementing response activity shall evaluate whether additional response activity is required to control NAPL or to protect against risks associated with NAPL that are not accounted for in development of the generic soil criteria.

(b) A site-specific risk evaluation may be conducted for each relevant exposure pathway when NAPL is present.

(c) Corrective action for a petroleum release regulated under part 213 of this act shall evaluate NAPL pursuant to part 213 of this act.

(10) If the concentration of a hazardous substance in groundwater is greater than the flammability and explosivity screening levels shown in the generic groundwater cleanup criteria table in R 299.46, then the person proposing or implementing response activity shall document whether additional response activity is required to protect against an acute hazard.

(11) The department may identify specific isomers of hazardous substances which must be added together and the sum compared to an identified chemical compound-specific or class-specific cleanup criterion for a given environmental medium. If analytical data detects a single isomer, additional analytical evaluation for the total of the isomers is necessary for comparison to the identified criterion.

(12) Hazardous substances that exhibit the characteristics as defined under part 111 of the act by R 299.9212 of ignitability, reactivity, corrosivity, or toxicity are footnoted in the criteria tables in R 299.46.

R 299.6 **Establishment of** ~~G~~**g**eneric cleanup criteria; toxicological and chemical-physical properties; ~~use of~~ generic cleanup criteria **known** as risk-based screening levels; procedure for developing additional generic criteria.

Rule 6. (1) ~~Except as provided in subrules (9), (10) and (11) of this rule, generic groundwater cleanup criteria for the residential and nonresidential categories shall be the values shown in table 1 of R 299.44. If a generic groundwater cleanup criterion is higher than the flammability and explosivity screening level shown in table 1 of R 299.44, then the person proposing or implementing response activity shall document whether additional response activity is required to protect against the acute hazard.~~ **Generic groundwater, soil, and volatilization to indoor air cleanup criteria for the residential and nonresidential categories are established pursuant to the subrules of this rule and are shown in the generic cleanup criteria tables in R 299.46**.

(2) ~~Except as provided in subrules (9), (10), and (11) of this rule, generic soil cleanup criteria for the residential category shall be the values shown in table 2 of R 299.46. If soil concentrations are greater than C_{sat}, then the person proposing or implementing response activity shall evaluate whether additional response activity is required to control free-phase liquids or to protect against risks associated with free-phase liquids that are not accounted for in development of the generic criteria.~~ G**roundwater, soil, and volatilization to indoor air cleanup values for the residential and nonresidential categories are derived from the equations in R 299.10 and R 299.20 to R 299.27. The minimum value calculated for carcinogenic, noncarcinogenic, mutagenic, or developmental effects represents the calculated health-based value.**

(3) ~~Except as provided in subrules (9), (10), and (11) of this rule, generic soil cleanup criteria for the nonresidential category shall be the values shown in table 3 of R 299.48.~~ **Except as provided in the footnotes of the generic cleanup criteria tables in R 299.49, the toxicological, chemical-specific, and chemical-physical input values used by the department to derive generic cleanup criteria with the equations and generic input values provided in R 299.10 and R 299.20 to R 299.27 are shown in the tables of R 299.50.**

(4) ~~The generic cleanup criteria shown in R 299.44, R 299.46, and R 299.48 and identified under subrule (12) of this rule may be used and known as risk-based screening levels for corrective actions required under part 213 of the act.~~ **When the calculated health-based value derived from R 299.10 for a hazardous substance differs from the state drinking water standard, the criterion shall be the state drinking water standard pursuant to section 20120a(5) of the act. Criteria to which this subrule applies are designated with a footnote in the generic groundwater cleanup criteria table in R 299.46.**

(5) ~~Generic cleanup criteria under R 299.44, R 299.46, and R 299.48 are based on the target detection limit or background concentration in the following cases:~~

~~(a) If a calculated cleanup criterion is less than the target detection limit for that hazardous substance in a given medium, then the target detection limit is the cleanup criterion. Criteria to which this subdivision applies are designated with a footnote in the criteria tables.~~

~~(b) A background concentration may be substituted for a generic cleanup criterion when the background concentration is higher than a criterion shown in R 299.44, R 299.46, or R 299.48.~~**If a hazardous substance imparts adverse aesthetic characteristics to groundwater pursuant to R 299.9 at a concentration less than the state drinking water standard from subrule (2) of this rule or the calculated health-based value derived from R 299.10, then the aesthetic-based criterion derived under R 299.9 is shown as the drinking water criterion in the table of the generic groundwater cleanup criteria table in R 299.46 and designated with a footnote.**

(6) ~~If a hazardous substance imparts adverse aesthetic characteristics to groundwater at a concentration less than the health-based criterion for that hazardous substance, then the aesthetic-based criterion derived under R 299.9 is shown as the drinking water criterion in the table of generic cleanup criteria in R 299.44 and designated with a footnote.~~ **Except as provided in subrule (2) of this rule, if the calculated health-based value is greater than the solubility limit of the hazardous substance in water at 25 degrees Celsius, then the solubility limit shall be the generic groundwater cleanup criterion. Criteria to which this subrule applies are designated with a footnote in the generic groundwater cleanup criteria table in R 299.46.**

(7) ~~Except as provided in section 20120a(9) of the act, R 299.49(1)(l), and R 299.49(1)(o), the toxicological, and physical-chemical, input values used by the department to derive generic cleanup criteria with the equations and default assumptions provided in R 299.10, R 299.14, R 299.20, R 299.22, R 299.24, and R 299.26 are shown in tables 4 of R 299.50.~~ **The maximum ceiling concentration for soil health-based criteria shall be 10% by dry weight, or 1.0E+8 parts per billion. Except for ambient air soil criteria derived from R 299.26, criteria to which this subrule applies are designated with a footnote in the generic soil cleanup criteria tables in R 299.46. Ambient air soil criteria as shown in the soil criteria tables represent a ½ acre source size and may require source size adjustment prior to application of this subrule. If soil criteria established under this subrule exceed the chemical-specific C_{sat}, then additional response activity may be necessary pursuant to subrule (9) of R 299.4.**

(8) ~~Toxicological, and chemical-physical data in tables 4 of R 299.50, if available, shall be used in conjunction with the equations and default assumptions that appear in these rules for the development of generic cleanup criteria under subrules (9) or (10) of this rule, except as provided in section 20120a(9) of the act, R 299.49(1)(l), and R 299.49(1)(o).~~ **Generic cleanup criteria shown in the criteria tables in R 299.46 are based on the target detection limit or background concentration in the following cases:**

(a) If a calculated health-based value is less than the target detection limit for that hazardous substance in a given medium, then the target detection limit is the cleanup criterion. Criteria to which this subdivision applies are designated with a footnote in the criteria tables in R 299.46.

(b) A background concentration may be substituted for a generic cleanup criterion when the background concentration is higher than a criterion shown in the tables in R 299.46.

(9) ~~For a substance that is not listed in the cleanup criteria tables in R 299.44, R 299.46, or R 299.48, the department may determine if the substance is a hazardous substance using best available information about the toxicological and physical-chemical properties of that substance and use that information to develop a generic or site-specific cleanup criterion.~~**When the department has determined cleanup criteria are necessary pursuant to R 299.28, that criterion shall be shown in the criteria tables in R 299.46 and designated with a footnote.**

(10) ~~For a substance that is listed in the cleanup criteria tables in R 299.44, R 299.46, or R 299.48, if the department obtains sufficient information to support calculation of a cleanup criterion which is designated in the cleanup criteria tables or tables 4 of R 299.50 with a footnote "ID" or "NA," the department shall use best available information to calculate a cleanup criterion for the hazardous substance.~~**Groundwater-surface water interface generic cleanup criteria shown in the groundwater cleanup criteria table in R 299.46 represent the minimum of the water quality standards for surface water developed for toxic substances or otherwise applicable water quality standards for surface water, developed pursuant to part 31 of the act.**

(11) ~~If a new state drinking water standard is established or a state drinking water standard is changed after the effective date of this rule, the drinking water standard in effect under section 5 of 1976 PA 399, MCL 325.1005, shall become the generic residential cleanup criterion under R 299.44, as provided in section 20120a(5) of the act.~~**The generic cleanup criteria shown in R 299.46 and identified under subrule (18) of this rule are the risk-based screening levels for corrective actions required under part 213 of the act.**

(12) ~~If a generic cleanup criterion is developed under subrules (9) or (10) of this rule, or modified under subrules (11) of this rule, the department shall make the new toxicological and~~

~~physical-chemical data and criterion available by announcing it on the department's internet web site, and by publishing notice of the change in the department calendar, or by such other means that effectively notifies interested persons. The new criterion shall take effect when published and announced by the department as required in this rule. The new data and resulting cleanup criterion shall remain effective and be used as required under these rules until the department promulgates revised data and criteria pursuant to administrative procedures act, 1969 PA 306, MCL 24.201 to 24.328.~~**Toxicological, chemical-specific, and chemical-physical data, if available, in tables of R 299.50 shall be used in conjunction with the equations and generic input values that appear in these rules for the development of generic cleanup criteria under subrule (13) or (14) of this rule, except as provided in the generic cleanup criteria table footnotes in R 299.49.**

(13) For a substance that is not listed in the cleanup criteria tables in R 299.46, the department may determine if the substance is a hazardous substance using best available information about the toxicological, chemical-specific, and chemical-physical properties of that substance and use that information to develop a generic or site-specific cleanup criterion.

(14) For a substance that is listed in the cleanup criteria tables in R 299.46, if the department obtains sufficient information to support calculation of a cleanup criterion which is designated in the cleanup criteria tables or tables of R 299.50 with a footnote "NA," the department shall use best available information to calculate a cleanup criterion for the hazardous substance.

(15) If a new state drinking water standard is established or a state drinking water standard is changed after the effective date of this rule, the state drinking water standard in effect under section 5 of 1976 PA 399, MCL 325.1005, shall become the generic cleanup criterion under R 299.46, as provided in section 20120a(5) of the act.

(16) If a new water quality standard for surface waters is established or a water quality standard for surface waters is changed after the effective date of this rule, the water quality standard in effect under part 31 of the act shall become the generic groundwater surface water interface cleanup criteria under R 299.46 as provided in section 20120e(1)(a) of the act.

(17) When a new or revised state drinking water standard or state surface water quality standard becomes generic criteria under subrule (15) or (16) the soil criterion protective of groundwater for the resulting criterion is developed pursuant to R 299.22 and established pursuant to this rule.

(18) If a target detection limit used to establish a cleanup criterion under subrule (8) of this rule is revised pursuant to section 20101(1)(bbb) of the act such that a calculated health-based value is no longer less than the target detection limit for that hazardous substance in the given medium, then the calculated health-based value is compared to the provisions of this rule to establish the cleanup criterion.

(19) If a generic cleanup criterion is developed under subrule (13) or (14) of this rule, or modified under subrule (15), (16), or (17) of this rule, the department shall make the new toxicological, chemical-specific, and chemical-physical data and criterion available by announcing it on the department's internet web site, and by publishing notice of the change in the department calendar, or by such other means that effectively notifies interested persons. The new criterion shall take effect when published and announced by the department as required in this rule. The new data and resulting cleanup criterion shall

remain effective and be used as required under these rules until the department promulgates revised data and criteria pursuant to administrative procedures act, 1969 PA 306, MCL 24.201 to 24.328.

R 299.7 Generic soil type and soil temperature value, facility-specific soil type and soil temperature value, site-specific soil type and soil temperature values.

Rule 7. (1) The generic soil type input values used to develop $C_{sat,}$ soil-water partitioning, soil volatilization to ambient air, and volatilization to indoor air are based on the soil-type sand as classified by the Natural Resources Conservation Services of the United States Department of Agriculture.

(2) Soil information specific to a facility may allow revisions to the generic soil type values identified in R 299.18, and R 299.22 to R 299.27. When facility-specific soil information is used to revise the generic soil type and soil temperature values pursuant to these rules, the resulting generic criterion allows the facility to satisfy the categorical criteria in section 20120a(1)(a) to (d) of the act.

(3) The department-approved generic input values by soil type are identified in table 2 of this rule. Facility-specific soil type shall be based on representative characterization. Documentation of all facility-specific input values shall be provided in the response activity plan, no further action report, or other response activity documentation. Facility-specific values are allowed as follows:

(i) When soil has been visually observed and documented sufficient to characterize a soil type as sand, sandy loam, loamy sand, or loam, the facility-specific soil input values shall be as identified in table 2 of this rule for those soil types. When visual characterization of the site soil indicates the soil is not readily identifiable as sand, sandy loam, loamy sand or loam, table 1 of this rule identifies the appropriate selection of a soil type.

(ii) When soil information has been confirmed through department-approved laboratory methods and the information is sufficient to determine the use of a specific soil type pursuant to figure 1 of this rule, the input values shall be based on the generic input values in table 2 of this rule for soil types identified by the United States Department of Agriculture.

(iii) When heterogeneous soils are present, a sensitivity analysis shall be performed, and the soil type selected shall be the soil type that generates the most restrictive criterion.

(iv) When non-native material consistent with materials defined as beneficial use by-products pursuant to part 115 of the act is present, the generic input values for sand in table 2 of this rule may be used. A site-specific evaluation shall be conducted for other non-native materials.

(v) All applicable soil type generic input values shall be substituted to revise the criteria for any relevant soil exposure pathway.

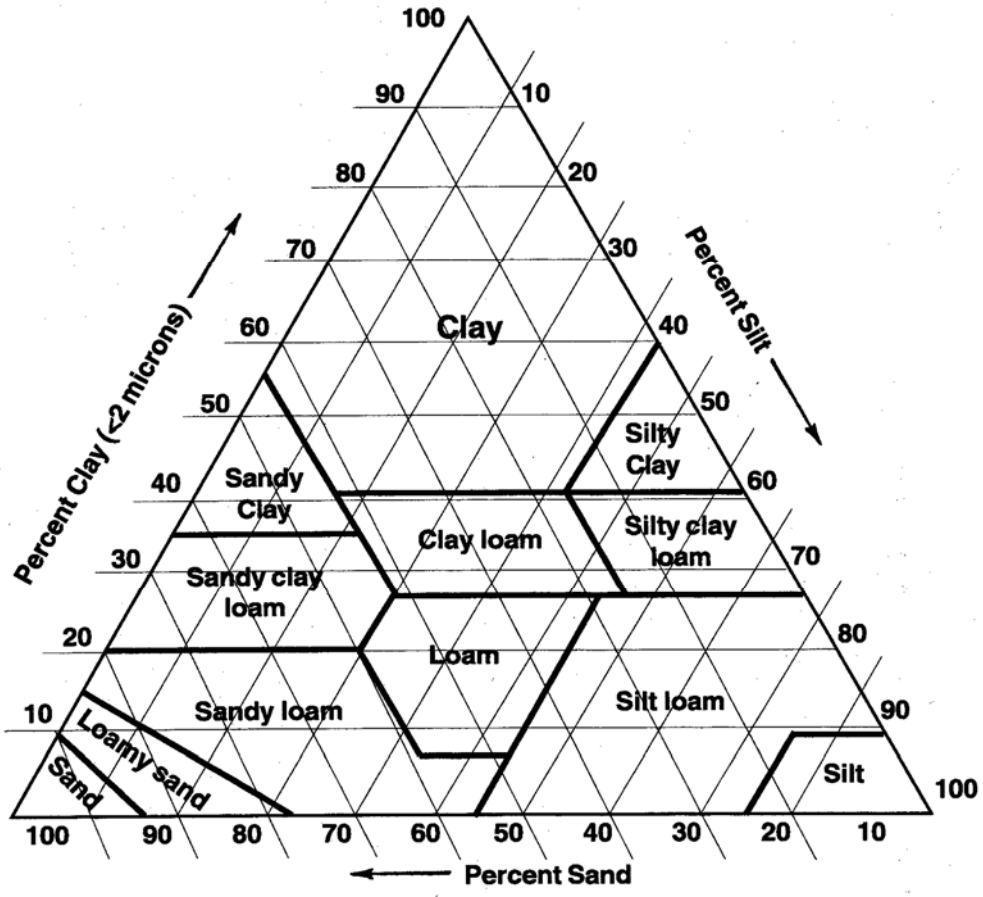
(4) The generic soil temperature value is 10 degrees Celsius or 283.15 Kelvin. When using facility-specific or site-specific soil type assumptions, the generic soil temperature assumption shall be adjusted to the department-approved county-specific soil temperature values identified in table 3 of this rule.

(5) Site-specific soil type and soil temperature values may be used to generate a site-specific criterion under sections 20120a(2) and 20120b of the act. Site-specific values shall be based upon representative characterization. All applicable soil type input values shall be

determined and used to develop the criterion. A revision to generic residential criterion using only site-specific soil input values may allow department approval for unrestricted residential use.

(6) Figure 1 of this rule is as follows:

FIGURE 1.



(7) Tables 1 to 3 of this rule read as follows:

TABLE 1.
Appropriate Selection of Soil Type

Boring log indicates that the following materials are the predominant soil types:	Appropriate texture classification:
Sand or gravel or sand and gravel, with less than approximately 12% fines, where "fines" are smaller than 0.075 mm in size.	Sand

Sand or silty sand, with approximately 12% to 25% fines	**Loamy sand**
Silty sand, with approximately 20% to 50% fines	**Sandy loam**
Silt and sand or silty sand or clay, silty sand or sandy silt or clay, sandy silt, with approximately 45% to 75% fines; sandy silt, silt, clay, and soils with greater than 50% fines	**Loam**
Soil types not otherwise listed or non-native materials pursuant to subrule (3)(iv) of this rule	**Sand**
Bedrock	**Requires a site-specific evaluation**

TABLE 2.
Generic Input Values for USDA Soil Conservation Service Soil Textural Classifications

Soil Texture (USDA)	Soil Texture Abbreviation (USDA)	Soil Total Porosity[A,B] n (cm^3/cm^3)	Saturated Water Content[A,C] θ_s (cm^3/cm^3)	Residual Water Content[A,B] θ_r (cm^3/cm^3)	Soil Water-Filled Porosity[A] θ_w (cm^3/cm^3)	Soil Air-Filled Porosity[A,D] θ_a (cm^3/cm^3)	van Genuchten parameters[A,B]			Mean Particle Diameter[A,E] (cm)	Dry Bulk Density[A,E] ρ_b (g/cm^3)	Saturated Hydraulic Conductivity[A] K_s (cm/h)
							α_1 (1/cm)	N	M			
Clay	C	0.459	0.459	0.098	0.215	0.244	0.01496	1.253	0.2019	0.0092	1.43	0.61
Clay loam	CL	0.442	0.442	0.079	0.168	0.274	0.01581	1.416	0.2938	0.016	1.48	0.34
Loam	L	0.399	0.399	0.061	0.148	0.251	0.01112	1.472	0.3207	0.02	1.59	0.5
Loamy sand	LS	0.39	0.39	0.049	0.076	0.314	0.03475	1.746	0.4273	0.04	1.62	4.38
Silt	SI	0.489	0.489	0.05	0.167	0.322	0.00658	1.679	0.4044	0.0046	1.35	1.82
Silty loam	SIL	0.439	0.439	0.065	0.18	0.259	0.00506	1.663	0.3987	0.011	1.49	0.76
Silty clay	SIC	0.481	0.481	0.111	0.216	0.265	0.01622	1.321	0.243	0.0039	1.38	0.4
Silty clay loam	SICL	0.482	0.482	0.09	0.198	0.284	0.00839	1.521	0.3425	0.0056	1.63	0.46
Sand	S	0.375	0.375	0.053	0.054	0.321	0.03524	3.177	0.6852	0.044	1.66	26.78
Sandy clay	SC	0.385	0.385	0.117	0.197	0.188	0.03342	1.208	0.1722	0.025	1.63	0.47
Sandy clay loam	SCL	0.384	0.384	0.063	0.146	0.238	0.02109	1.33	0.2481	0.029	1.63	0.55
Sandy loam	SL	0.387	0.387	0.039	0.103	0.284	0.02667	1.449	0.3099	0.03	1.62	1.6

A - From USEPA, 2004. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. United States Environmental Protection Agency, Office of Emergency and Remedial Response. February 22, 2004.

B - Hers, I. June 3, 2002 Technical Memorandum to Debbie Newberry, USEPA OSW. Input Parameters for OSWER Wide Guidance for Vapor Intrusion Pathway.

C - Saturated water content is assumed to be equal to the water soil total porosity because the saturated water between drainage and wetting conditions varies but is always less than the fully saturated water content which is equal to the soil total porosity.

D - The air-filled porosity is calculated as the total porosity minus soil water-filled porosity.

E - Nielson, K. K., and V. C. Rogers. 1990. Radon transport properties of soil classes for estimating indoor radon entry. In: F. T. Cross (ed), Proceedings of the 29th Hanford Symposium of Health and the Environment. Indoor Radon and Lung Cancer: Reality or Myth? Part 1. Battelle Press, Richland, Washington.

TABLE 3.
Facility-specific Soil Temperatures by County (degrees Celsius)

COUNTY	TEMP	COUNTY	TEMP	COUNTY	TEMP	COUNTY	TEMP
Alcona	9	Dickinson	9	Lake	11.5	Oceana	12
Alger	8.5	Eaton	12	Lapeer	11	Ogemaw	9.5
Allegan	11.5	Emmet	9.5	Leelanau	11	Ontonagon	8
Alpena	9	Genesee	10.5	Lenawee	11.5	Osceola	11
Antrim	10	Gladwin	10	Livingston	11	Oscoda	9.5
Arenac	9.5	Gogebic	8	Luce	8.5	Otsego	9.5
Baraga	8.5	Grand Traverse	11	Mackinac	8.5	Ottawa	11
Barry	12	Gratiot	11	Macomb	11	Presque Isle	9
Bay	10	Hillsdale	12.5	Manistee	11.5	Roscommon	10
Benzie	11	Houghton	8	Marquette	8.5	Saginaw	10.5
Berrien	13	Huron	11	Mason	12	Sanilac	11
Branch	12.5	Ingham	11.5	Mecosta	11	Schoolcraft	8.5
Calhoun	13	Ionia	11	Menominee	9.5	Shiawassee	11
Cass	12.5	Iosco	9.5	Midland	10.5	St. Clair	11
Charlevoix	9.5	Iron	8.5	Missaukee	10	St. Joseph	12
Cheboygan	9	Isabella	10.5	Monroe	11	Tuscola	10
Chippewa	8.5	Jackson	12.5	Montcalm	11	Van Buren	12
Clare	10.5	Kalamazoo	12	Montmorency	9	Washtenaw	11.5
Clinton	11	Kalkaska	10	Muskegon	12	Wayne	11
Crawford	9.5	Kent	11	Newaygo	12	Wexford	11
Delta	9	Keweenaw	8	Oakland	11		

R 299.8 Groundwater cleanup criteria generally.

Rule 8. (1) ~~Except as provided in subrule (2) of this rule, t~~**T**he generic groundwater cleanup criteria applicable at a ~~given~~ facility shall be the ~~most restrictive of the~~ criteria ~~developed under R 299.9, R 299.10, or R 299.14~~**, established pursuant to R 299.6** considering th~~ose~~ **relevant** pathways ~~that are reasonable and relevant to~~**at** the facility and the category of cleanup criteria being proposed or implemented.

(2) ~~If a generic groundwater cleanup criterion developed under R299.9, R299.10, or R299.14 is greater than the solubility limit of that hazardous substance in water at 25° Celsius, then the solubility limit shall be the generic criteria for that pathway.~~ **For the purposes of groundwater cleanup criteria developed under R 299.9 and R 299.10, the point of exposure shall be presumed to be any point in an affected aquifer.**

R 299.9 Calculation of generic cleanup criteria for groundwater in **an** aquifer based on adverse aesthetic impacts.

Rule 9. ~~(1)~~ If a hazardous substance, singly or in combination with other hazardous substances present at the facility, imparts adverse aesthetic characteristics to groundwater in an aquifer, then the cleanup criterion shall be the **national** secondary ~~maximum~~

~~contaminant level~~**drinking water regulation**, or, if there is no **national** secondary ~~maximum~~ ~~contaminant level~~**drinking water regulation**, then the concentration that is documented as the taste or odor threshold concentration or the concentration below which appearance or other aesthetic characteristics are not adversely affected. The criteria of this subrule shall apply only when the level required by this subrule is less than the level required by section 20120a(4) of the act. A taste or odor threshold concentration or a concentration adversely affecting appearance shall be determined ~~according~~ **pursuant** to methods approved by the United States ~~e~~**E**nvironmental ~~p~~**P**rotection ~~a~~**A**gency.

~~(2) For the purposes of this rule, the point of exposure shall be presumed to be any point in the affected aquifer.~~

R 299.10 Generic ~~cleanup~~ **drinking water** criteria **based on ingestion of** ~~for~~ groundwater in **an** aquifer ~~based on ingestion of groundwater for drinking water~~.

Rule 10. (1) Exposure to groundwater by ingestion shall be considered a relevant pathway for groundwater that satisfies either of the following conditions:

(a) The groundwater is in an aquifer.

(b) The groundwater is not in an aquifer, but can reasonably be expected to transport a hazardous substance into an aquifer in a concentration that exceeds the generic residential criteria developed under subrule (2) of this rule.

(2) The **generic drinking water** criteria ~~developed pursuant to~~ ~~R 299.9 and R 299.10~~ are not applicable if ingestion of the groundwater is, or as part of the response activity will be, reliably restricted by a ~~restrictive covenant, a notice of approved environmental remediation, or an institutional control that is allowed for under these rules~~ **land or resource use restriction as required by the act** and approved by the department, if approval is required.

(3) ~~Cleanup criteria for groundwater based on ingestion of groundwater for~~**The health-based** drinking water **value** shall be calculated ~~according~~**pursuant** to the following ~~algorithms~~**equations**, except as provided for in R 299.34. ~~Criteria calculated under this subrule shall be the generic cleanup criterion, unless a state drinking water standard is available or, if a criterion protective of adverse aesthetic characteristics is more restrictive, as provided for in section 20120a(5) of the act.~~

(4) The residential drinking water value shall be the minimum of the drinking water health-based values calculated pursuant to equations 1 to 5 of this rule. The nonresidential drinking water value shall be the minimum of the health-based drinking water values calculated pursuant to equations 8 to 10 of this rule.

(5) Toxicological, chemical-specific, and chemical-physical generic input values are provided in R 299.50.

(6) The generic drinking water equations are as follows:

RESIDENTIAL:

1. EQUATION FOR CARCINOGENIC EFFECTS:

$$DWV_{ca} = \frac{TR \times AT_{ca} \times CF}{SF \times EF_{res} \times IF_{dw}}$$

where,

DWV_{ca}	**(Drinking water value)**	=	**chemical-specific, µg/L or ppb**
TR	**(Target risk level)**	=	**10^{-5}**
AT_{ca}	**(Averaging time)**	=	**28,470 days**
CF	**(Conversion factor)**	=	**1,000 µg/mg**
SF	**(Oral cancer slope factor)**	=	**chemical-specific, $(mg/kg\text{-}day)^{-1}$**
EF_{res}	**(Exposure frequency)**	=	**350 days/year**
IF_{dw}	**(Age-adjusted drinking water ingestion factor)**	=	**1.1 L-year/kg-day**

2. EQUATION FOR CARCINOGENS WITH MUTAGENIC EFFECTS:

$$DWV_{mut} = \frac{TR \times AT_{ca} \times CF}{SF \times EF_{res} \times IF_{dw,mut}}$$

where,

DWV_{mut}	**(Drinking water value)**	=	**chemical-specific, µg/L or ppb**
TR	**(Target risk level)**	=	**10^{-5}**
AT_{ca}	**(Averaging time)**	=	**28,470 days**
CF	**(Conversion factor)**	=	**1,000 µg/mg**
SF	**(Oral cancer slope factor)**	=	**chemical-specific, $(mg/kg\text{-}day)^{-1}$**
EF_{res}	**(Exposure frequency)**	=	**350 days/year**
$IF_{dw,mut}$	**(Age-adjusted drinking water ingestion factor)**	=	**3.6 L-year/kg-day**

3. EQUATION FOR NONCARCINOGENIC EFFECTS:

$$DWV_{nc} = \frac{THQ \times AT_{res} \times RfD \times RSC_{w} \times CF}{EF_{res} \times IF_{dw}}$$

where,

DWV_{nc}	**(Drinking water value)**	=	**chemical-specific, µg/L or ppb**
THQ	**(Target hazard quotient)**	=	**1**
AT_{res}	**(Averaging time)**	=	**11,680 days**
RfD	**(Oral reference dose)**	=	**chemical-specific, mg/kg-day**
RSC_{w}	**(Relative source contribution)**	=	**chemical-specific or 0.2**
CF	**(Conversion factor)**	=	**1,000 µg/mg**
EF_{res}	**(Exposure frequency)**	=	**350 days/year**
IF_{dw}	**(Age-adjusted drinking water ingestion factor)**	=	**1.1 L-year/kg-day**

4. EQUATION FOR DEVELOPMENTAL EFFECTS - CHILD:

$$DWV_{dev} = \frac{THQ \times AT_{child} \times RfD_{dev} \times BW_{child} \times RSC_{w} \times CF}{ED_{child} \times EF_{res} \times IR_{dw,child}}$$

where,

DWV_{dev}	**(Drinking water value)**	=	**chemical-specific, µg/L or ppb**

THQ	**(Target hazard quotient)**	**=**	**1**
AT_{child}	**(Averaging time)**	**=**	**2,190 days**
RfD_{dev}	**(Oral reference dose)**	**=**	**chemical-specific, mg/kg-day**
BW_{child}	**(Body weight)**	**=**	**15 kg**
RSC_w	**(Relative source contribution)**	**=**	**0.2 or chemical-specific**
CF	**(Conversion factor)**	**=**	**1,000 µg/mg**
ED_{child}	**(Exposure duration)**	**=**	**6 years**
EF_{res}	**(Exposure frequency)**	**=**	**350 days/year**
$IR_{dw,\ child}$	**(Drinking water ingestion rate)**	**=**	**0.78 L/day**

5. EQUATION FOR DEVELOPMENTAL EFFECTS – PREGNANT RESIDENT:

$$DWV_{dev} = \frac{THQ \times AT_{preg} \times RfD_{dev} \times BW_{preg} \times RSC_w \times CF}{ED_{preg} \times EF_{res} \times IR_{dw,preg}}$$

where,

DWV_{dev}	**(Drinking water value)**	**=**	**chemical-specific, µg/L or ppb**
THQ	**(Target hazard quotient)**	**=**	**1**
$AT_{preg,FT}$	**(Averaging time, full-term pregnancy)**	**=**	**280 days or chemical-specific**
$AT_{preg,SE}$	**(Averaging time, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
RfD_{dev}	**(Oral reference dose)**	**=**	**chemical-specific, mg/kg-day**
BW_{preg}	**(Body weight, pregnant resident)**	**=**	**75 kg**
RSC_w	**(Relative source contribution)**	**=**	**0.2 or chemical-specific**
CF	**(Conversion factor)**	**=**	**1,000 µg/mg**
$ED_{preg,FT}$	**(Exposure duration, full-term pregnancy)**	**=**	**0.767 year or chemical-specific**
$ED_{preg,SE}$	**(Exposure duration, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
$EF_{preg,FT}$	**(Exposure frequency, full-term pregnancy)**	**=**	**268.5 days/year or chemical-specific**
$EF_{preg,SE}$	**(Exposure frequency, single event exposure during pregnancy)**	**=**	**1 day/day or chemical-specific**
$IR_{dw,\ preg}$	**(Drinking water ingestion rate, pregnant resident)**	**=**	**1.8 L/day**

The age-adjusted drinking water ingestion factors shall be calculated pursuant to equations 6 and 7 of this rule.

6. IF_{dw} for carcinogens (Equation 1) and noncarcinogens (Equation 3):

$$IF_{dw} = \left(\frac{IR_{dw,age<1-6} \times ED_{age<1-6}}{BW_{age<1-6}}\right) + \left(\frac{IR_{dw,adult} \times ED_{adult}}{BW_{adult}}\right)$$

where,

IF_{dw}	**(Age-adjusted drinking water ingestion factor)**	=	**1.1 L-year/kg-day**
$IR_{dw,age<1-6}$	**(Drinking water ingestion rate, child)**	=	**0.78 L/day**
$ED_{age<1-6}$	**(Exposure duration, child)**	=	**6 years**
$BW_{age<1-6}$	**(Body weight, child)**	=	**15 kg**
$IR_{dw,adult}$	**(Drinking water ingestion rate, adult)**	=	**2.5 L/day**
ED_{adult}	**(Exposure duration, adult)**	=	**26 years**
BW_{adult}	**(Body weight, adult)**	=	**80 kg**

7. $IF_{dw,mut}$ for carcinogens with mutagenic effects (Equation 2):

$$IF_{dw,mut} = \left(\frac{IR_{<2} \times ED_{<2} \times ADAF_{<2}}{BW_{<2}}\right) + \left(\frac{IR_{2-6} \times ED_{2-6} \times ADAF_{2-6}}{BW_{2-6}}\right) +$$

$$\left(\frac{IR_{6-16} \times ED_{6-16} \times ADAF_{6-16}}{BW_{6-16}}\right) + \left(\frac{IR_{16-32} \times ED_{16-32} \times ADAF_{16-32}}{BW_{16-32}}\right)$$

where,

$IF_{dw,mut}$	**(Age-adjusted drinking water ingestion factor)**	=	**3.6 L-year/kg-day**
$IR_{dw,age<2}$	**(Drinking water ingestion rate, age <2 years)**	=	**0.82 L/day**
$ED_{age<2}$	**(Exposure duration)**	=	**2 years**
$BW_{age<2}$	**(Body weight, age <2 years)**	=	**9.6 kg**
$ADAF_{<2}$	**(Age-dependent adjustment factor for cancer potency, age <2 years)**	=	**10, unitless**
$IR_{dw,age\ 2-6}$	**(Drinking water ingestion rate, age 2-6 years)**	=	**0.76 L/day**
$ED_{age\ 2-6}$	**(Exposure duration, age 2-6 years)**	=	**4 years**
$BW_{age\ 2-6}$	**(Body weight, age 2-6 years)**	=	**17 kg**
$ADAF_{2-6}$	**(Age-dependent adjustment factor for cancer potency, age 2-6 years)**	=	**3, unitless**
$IR_{dw,age\ 6-16}$	**(Drinking water ingestion rate, age 6-16 years)**	=	**1.3 L/day**
$ED_{age\ 6-16}$	**(Exposure duration, age 6-16 years)**	=	**10 years**
$BW_{age\ 6-16}$	**(Body weight, age 6-16 years)**	=	**44 kg**
$ADAF_{6-16}$	**(Age-dependent adjustment**	=	**3, unitless**

	factor for cancer potency, age 6-16 years)		
IR_{16-32}	**(Drinking water ingestion rate, age 16-32 years)**	**=**	**2.3 L/day**
ED_{16-32}	**(Exposure duration, age 16-32 years)**	**=**	**16 years**
BW_{16-32}	**(Body weight, age 16-32 years)**	**=**	**77 kg**
$ADAF_{16-32}$	**(Age-dependent adjustment factor for cancer potency, age 16-32 years)**	**=**	**1, unitless**

NONRESIDENTIAL:

8. EQUATION FOR CARCINOGENIC EFFECTS:

$$DWV_{ca} = \frac{TR \times AT_{ca} \times BW_{adult} \times CF}{SF \times ED_{nr} \times EF_{nr} \times IR_{dw,nr}}$$

where,

DWV_{ca}	**(Drinking water value)**	**=**	**chemical-specific, µg/L or ppb**
TR	**(Target risk level)**	**=**	**10^{-5}**
AT_{ca}	**(Averaging time)**	**=**	**28,470 days**
BW_{adult}	**(Body weight, adult)**	**=**	**80 kg**
CF	**(Conversion factor)**	**=**	**1,000 µg/mg**
SF	**(Oral cancer slope factor)**	**=**	**chemical-specific $(mg/kg\text{-}day)^{-1}$**
ED_{nr}	**(Exposure duration)**	**=**	**20 years**
EF_{nr}	**(Exposure frequency)**	**=**	**238 days/year**
$IR_{dw,nr}$	**(Drinking water ingestion rate)**	**=**	**1.3 L/day**

9. EQUATION FOR NONCARCINOGENIC EFFECTS:

$$DWV_{nc} = \frac{THQ \times AT_{nr} \times RfD \times BW_{adult} \times RSC_{w} \times CF}{ED_{nr} \times EF_{nr} \times IR_{dw,nr}}$$

where,

DWV_{nc}	**(Drinking water value)**	**=**	**chemical-specific, µg/L or ppb**
THQ	**(Target hazard quotient)**	**=**	**1**
AT_{nr}	**(Averaging time)**	**=**	**7,300 days**
RfD	**(Oral reference dose)**	**=**	**chemical-specific, mg/kg-day**
BW_{adult}	**(Body weight, adult)**	**=**	**80 kg**
RSC_{w}	**(Relative source contribution)**	**=**	**0.2 or chemical-specific**
CF	**(Conversion factor)**	**=**	**1,000 µg/mg**
ED_{nr}	**(Exposure duration)**	**=**	**20 years**
EF_{nr}	**(Exposure frequency)**	**=**	**238 days/year**
$IR_{dw,\ nr}$	**(Drinking water ingestion rate)**	**=**	**1.3 L/day**

10. EQUATION FOR DEVELOPMENTAL EFFECTS – PREGNANT WORKER:

$$DWV_{dev} = \frac{THQ \times AT_{dev} \times RfD \times BW_{dev} \times RSC_w \times CF}{ED_{dev} \times EF_{dev} \times IR_{dw,dev}}$$

where,

DWV_{dev}	**(Drinking water value)**	**=**	**chemical-specific, µg/L or ppb**
THQ	**(Target hazard quotient)**	**=**	**1**
$AT_{dev,FT}$	**(Averaging time, pregnant worker, full-term pregnancy)**	**=**	**280 days or chemical-specific**
$AT_{dev,SE}$	**(Averaging time, pregnant worker, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
RfD	**(Oral reference dose)**	**=**	**chemical-specific, mg/kg-day**
BW_{dev}	**(Body weight, pregnant worker)**	**=**	**75 kg**
RSC_w	**(Relative source contribution)**	**=**	**0.2 or chemical-specific**
CF	**(Conversion factor)**	**=**	**1,000 µg/mg**
$ED_{dev,FT}$	**(Exposure duration, pregnant worker, full-term pregnancy)**	**=**	**0.767 year or chemical-specific**
$ED_{dev,SE}$	**(Exposure duration, pregnant worker, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
$EF_{dev,FT}$	**(Exposure frequency, pregnant worker, full-term)**	**=**	**183 days/year or chemical-specific**
$EF_{dev,SE}$	**(Exposure frequency, pregnant worker, single event exposure during pregnancy)**	**=**	**1 day/day or chemical-specific**
$IR_{dw,\ dev}$	**(Drinking water ingestion rate)**	**=**	**0.9 L/day**

~~EQUATION FOR CARCINOGENIC EFFECTS:~~

~~$$DWC = \frac{TR \times BW \times AT \times CF}{SF \times EF \times ED \times IR_{dw}}$$~~

~~where,~~

~~DWC~~	~~(Drinking water criterion)~~	~~=~~	~~chemical-specific (ug/L or ppb)~~
~~TR~~	~~(Target risk level)~~	~~=~~	~~10^{-5}~~
~~BW~~	~~(Body weight)~~	~~=~~	~~70 kg~~
~~AT~~	~~(Averaging time in days)~~	~~=~~	~~25,550 days (70 years x 365 days/year)~~
~~CF~~	~~(Conversion factor)~~	~~=~~	~~1000 ug/mg~~
~~SF~~	~~(Oral cancer slope factor)~~	~~=~~	~~chemical-specific (mg/kg-day)$^{-1}$~~
~~EF~~	~~(Exposure frequency)~~	~~=~~	~~350 days/year (residential)~~
		~~=~~	~~245 days/year (nonresidential)~~
~~ED~~	~~(Exposure duration)~~	~~=~~	~~30 years (residential)~~
		~~=~~	~~21 years (nonresidential)~~

~~IR_{dw}~~	~~(Drinking water ingestion rate)~~	=	~~2 liters/day (residential)~~
		=	~~1 liter/day (nonresidential)~~

~~EQUATION FOR NONCARCINOGENS:~~

$$\text{~~DWC} = \frac{\text{THQ} \times \text{RfD} \times \text{BW} \times \text{AT} \times \text{RSC} \times \text{CF}}{\text{EF} \times \text{ED} \times \text{IR}_{dw}}$$

~~where,~~

~~DWC~~	~~(Drinking water criterion)~~	=	~~chemical-specific (ug/L or ppb)~~
~~THQ~~	~~(Target hazard quotient)~~	=	~~1~~
~~RfD~~	~~(Oral reference dose)~~	=	~~chemical-specific (mg/kg-day)~~
~~BW~~	~~(Body weight)~~	=	~~70 kg~~
~~AT~~	~~(Averaging time)~~	=	~~10,950 days (30 years x 365 days/year - residential)~~ ~~7,665 days (21 years x 365 days/year - nonresidential)~~
~~RSC~~	~~(Relative source contribution)~~	=	~~chemical-specific or 0.2 if chemical-specific data are not available~~
~~CF~~	~~(Conversion factor)~~	=	~~1000 ug/mg~~
~~EF~~	~~(Exposure frequency)~~	=	~~350 days/year (residential)~~ ~~245 days/year (nonresidential)~~
~~ED~~	~~(Exposure duration)~~	=	~~30 years (residential)~~ ~~21 years (nonresidential)~~
~~IR_{dw}~~	~~(Drinking water ingestion rate)~~	=	~~2 liters/day (residential)~~ ~~1 liter/day (nonresidential)~~

~~(4) For the purposes of this rule, the point of exposure shall be presumed to be any point in the affected aquifer.~~

R 299.14 **Rescinded.** ~~Generic cleanup criteria for groundwater based on hazardous substance vapors emanating from groundwater to indoor air.~~

~~Rule 14. (1) Inhalation of hazardous substance vapors volatilizing from groundwater to indoor air shall be considered a reasonable and relevant exposure pathway for hazardous substances in groundwater that have a Henry's law constant greater than or equal to 0.00001 atm-m^3/mole.~~

~~(2) Except as provided in subrule (1) of this rule, if any of the following conditions exist, the generic criteria developed pursuant to this rule shall not apply and a site-specific evaluation of indoor inhalation risks shall be conducted:~~

~~(a) There is a structure present or planned to be constructed at the facility which does not have a concrete block or poured concrete floor and walls.~~

~~(b) The highest water table elevation of a contaminated saturated zone at the facility, considering seasonal variation, is within 3 meters of the ground surface.~~

~~(c) There is a sump present that is not completely isolated from the surrounding soil by its materials of construction, or there is other direct entry of contaminated groundwater into the basement.~~

~~(3) Groundwater cleanup criteria based on inhalation of hazardous substance vapors volatilizing from groundwater to indoor air shall be called groundwater volatilization indoor air inhalation criteria ("GVIIC"). The GVIIC is determined by the following series of calculations, except as provided in R 299.34(3):~~

~~EQUATION FOR CARCINOGENIC EFFECTS:~~

$$\text{GVIIC} = \frac{TR \times AT \times AIR}{IURF \times EF \times ED \times CR_{building}}$$

~~where,~~

~~GVIIC~~	~~(Groundwater volatilization indoor air inhalation criteria)~~	~~= chemical-specific, ug/L~~
~~TR~~	~~(Target risk level)~~	~~= 10^{-5}~~
~~AT~~	~~(Averaging time)~~	~~= 25,550 days (70 x 365)~~
~~AIR~~	~~(Adjusted inhalation rate)~~	~~= 1 (residential)~~ ~~= 2 (nonresidential)~~
~~IURF~~	~~(Inhalation unit risk factor)~~	~~= chemical-specific, $(ug/m^3)^{-1}$~~
~~EF~~	~~(Exposure frequency)~~	~~= 350 days/year (residential)~~ ~~= 245 days/year (nonresidential)~~
~~ED~~	~~(Exposure duration)~~	~~= 30 years (residential)~~ ~~= 21 years (nonresidential)~~
~~$CR_{building}$~~	~~(Ratio of indoor air concentration to groundwater concentration)~~	~~= chemical-specific, $(ug/m^3)/(ug/L)$~~

~~EQUATION FOR NONCARCINOGENIC EFFECTS:~~

$$\text{GVIIC} = \frac{THQ \times AT}{(1/ITSL) \times EF \times ED \times CR_{building}}$$

~~where,~~

~~GVIIC~~	~~(Groundwater volatilization indoor air inhalation criteria)~~	~~= chemical-specific, ug/L~~
~~THQ~~	~~(Target hazard quotient)~~	~~= 1~~
~~AT~~	~~(Averaging time)~~	~~= 10,950 days (residential)~~ ~~= 7,665 days (nonresidential)~~
~~EF~~	~~(Exposure frequency)~~	~~= 350 days/year (residential)~~ ~~= 245 days/year (nonresidential)~~
~~ED~~	~~(Exposure duration)~~	~~= 30 years (residential)~~ ~~= 21 years (nonresidential)~~
~~ITSL~~	~~(Initial threshold screening level)~~	~~= chemical-specific, ug/m^3~~
~~$CR_{building}$~~	~~(Ratio of indoor air concentration to groundwater concentration)~~	~~= chemical-specific, $(ug/m^3)/(ug/L)$~~

~~The ratio of the indoor air concentration to the groundwater concentration is calculated as:~~

$$CR_{building} = CR^{gw}_{source} \times \alpha$$

~~where,~~

$CR_{building}$	(Ratio of indoor air concentration to groundwater concentration)	= chemical-specific, $(ug/m^3)/(ug/L)$
α	(Attenuation coefficient)	= chemical-specific, unitless
CR^{gw}_{source}	(Ratio of soil vapor concentration to groundwater/source concentration)	= chemical-specific, $(ug/m^3)/(ug/L)$

~~The soil vapor-phase concentration generated from a hazardous substance in groundwater is assumed to be in equilibrium with the aqueous phase concentration (C_w) of that substance as related by the dimensionless Henry's law constant (H') such that:~~

$$CR^{gw}_{source} = H' \text{ x } TAF \times C_w \times 10^3 \, L/m^3$$

~~where,~~

CR^{gw}_{source}	(Ratio of soil vapor concentration to groundwater/source concentration)	= chemical-specific, $(ug/m^3)/(ug/L)$
H'	(Dimensionless Henry's law constant, where H' = HLC x 41)	= chemical-specific, unitless
HLC	(Henry's law constant at 25 degrees Celsius)	= chemical-specific, $(atm\text{-}m^3/mol)$
TAF	(Temperature adjustment factor)	= 0.5, unitless
C_w	(Uniform unit groundwater concentration)	= 1 ug/L

~~The intrusion rate of hazardous substance vapors into buildings is predicted using an analytical solution which couples both diffusive and convective transport of vapors emanating from groundwater into enclosed spaces. An attenuation coefficient (α) is calculated that is expressed as the ratio of building indoor air concentration to the vapor-phase concentration at the source. Values of α are calculated assuming infinite source conditions. For infinite source conditions α is written as follows:~~

$$\alpha = \frac{\left[\left[\frac{D_T^{eff} A_b}{Q_{building} L_T}\right] \times \exp\left(\frac{Q_{soil} L_{crack}}{D^{crack} A_{crack}}\right)\right]}{\left[\exp\left(\frac{Q_{soil} L_{crack}}{D^{crack} A_{crack}}\right) + \left[\frac{D_T^{eff} A_b}{Q_{building} L_T}\right] + \left[\frac{D_T^{eff} A_b}{Q_{soil} L_T}\right]\left[\exp\left(\frac{Q_{soil} L_{crack}}{D^{crack} A_{crack}}\right) - 1\right]\right]}$$

where,

α	(Attenuation coefficient)	= unitless
D_T^{eff}	(Total effective diffusion coefficient)	= chemical-specific, cm^2/s
D^{crack}	(Effective diffusion coefficient through crack)	= cm^2/s, ($D^{crack} = D_v^{eff}$; see equation for D_v^{eff} below)
A_b	(Area of enclosed space below grade)	= 1.96E+6 cm^2 (residential) = 3.83E+6 cm^2 (nonresidential)
$Q_{building}$	(Building ventilation rate)	= 1.51E+5 cm^3/s (residential) = 5.04E+5 cm^3/s (nonresidential)
L_{crack}	(Building foundation thickness)	= 15 cm
L_T	(Source-building separation distance)	= 115 cm (residential) = 300 cm (nonresidential)
Q_{soil}	(Volumetric flow rate of soil vapor into the building)	= 0.81 cm^3/s (residential) = 2.10 cm^3/s (nonresidential)
A_{crack}	(Total area of cracks below grade)	= 196 cm^2 (residential) = 383 cm^2 (nonresidential)
exp(p)	(The base of the natural logarithm raised to power p)	= e^p

To characterize contaminant diffusion from groundwater into buildings a total effective diffusion coefficient (D_T^{eff}) is calculated to account for both liquid phase diffusion of the contaminant through the capillary fringe, (D_{cf}^{eff}), and vapor phase diffusion through the vadose zone, (D_v^{eff}). The calculation is as follows:

$$D_T^{eff} = \frac{L_T}{\left[\left(h_v + L_{crack}\right)/D_v^{eff}\right] + \left(h_{cf}/D_{cf}^{eff}\right)}$$

where,

D_T^{eff}	(Total effective diffusion coefficient)	= chemical-specific, cm^2/s
L_T	(Source-building separation distance)	= 115 cm (residential) = 300 cm (nonresidential)
h_v	(Thickness of vadose zone below enclosed space floor)	= 75 cm (residential) = 260 cm (nonresidential)
L_{crack}	(Building foundation thickness)	= 15 cm
D_v^{eff}	(Effective diffusion coefficient through vadose zone)	= chemical-specific, cm^2/s
h_{cf}	(Thickness of capillary fringe)	= 25 cm
D_{cf}^{eff}	(Effective diffusion coefficient through capillary fringe)	= chemical-specific, cm^2/s

~~The effective diffusion coefficient calculation for the vadose zone (D_v^{eff}) is written as:~~

$$D_v^{eff} = \left[D_a\left(\theta_a^{3.33}/n^2\right)\right] + \left[\frac{D_w}{H' \times TAF}\left(\theta_w^{3.33}/n^2\right)\right]$$

~~where,~~

D_v^{eff}	(Effective diffusion coefficient through vadose zone)	= chemical-specific, cm^2/s
D_a	(Diffusivity in air)	= chemical-specific, cm^2/s
θ_a	(Soil air-filled porosity)	= 0.13 cm^3/cm^3
N	(Total soil porosity)	= 0.43 cm^3/cm^3
D_w	(Diffusivity in water)	= chemical-specific, cm^2/s
H'	(Dimensionless Henry's law constant, where H' = HLC x 41)	= chemical-specific, unitless
HLC	(Henry's law constant	= chemical-specific, (atm-m^3/mol)
TAF	(Temperature adjustment factor)	= 0.5
θ_w	(Soil water-filled porosity)	= 0.3 cm^3/cm^3

~~The effective diffusion coefficient calculation for the capillary fringe (D_{cf}^{eff}) is written as:~~

$$D_{cf}^{eff} = \left[D_a\left(\theta_{a,cf}^{3.33}/n^2\right)\right] + \left[\frac{D_w}{H' \times TAF}\left(\theta_{w,cf}^{3.33}/n^2\right)\right]$$

~~where,~~

D_{cf}^{eff}	(Effective diffusion coefficient through capillary fringe)	= chemical-specific, cm^2/s
D_a	(Diffusivity in air)	= chemical-specific, cm^2/s
$\theta_{a,cf}$	(Soil air-filled porosity in capillary fringe)	= 0.078 cm^3/cm^3
D_w	(Diffusivity in water)	= chemical-specific, cm^2/s
H'	(Dimensionless Henry's law constant, where H' = HLC x 41)	= chemical-specific, unitless
HLC	(Henry's law constant)	= chemical-specific, (atm-m^3/mol)
TAF	(Temperature adjustment factor)	= 0.5
$\theta_{w,cf}$	(Soil water-filled porosity in capillary fringe)	= 0.352 cm^3/cm^3
N	(Total soil porosity)	= 0.43 cm^3/cm^3

~~(4) Facility-specific measurements of the following parameters may be substituted individually for the generic assumptions and still allow the facility to satisfy the generic categorical criteria under section 20120a(1)(a) to (e) of the act:~~

~~(a) Dry soil bulk density.~~

~~(b) Fraction of organic carbon in soil.~~
~~(c) Soil vapor permeability.~~
~~(d) Temperature adjustment factor for Henry's law constant.~~
~~(e) Source-building foundation separation distance.~~
~~(f) Vertical thickness of capillary fringe.~~
~~Facility-specific measurements shall be based on representative characterization. Documentation of all facility-specific values shall be provided in the response activity plan, no further action report, or other response activity documentation.~~
~~(5) The department may approve methods to demonstrate compliance with criteria for the exposure pathway if those methods are more representative of in-situ conditions at the facility. Methods acceptable to the department may include, but are not limited to, use of representative soil gas concentrations.~~

R 299.16 Generic flammability and explosivity screening level for hazardous substances in groundwater.

Rule 16. The flammability and explosivity screening level (FESL) shall be calculated using chemical-specific and chemical-physical generic input values provided in R 299.50 pursuant to the following equation:

EQUATION FOR FESL:

$$FESL = \frac{LEL \times 0.2 \times MW \times P \times CF_1}{HLC \times TAF \times CF_2}$$

where,

FESL	**(Flammability/explosivity screening level)**	**=**	**chemical-specific, µg/L**
LEL	**(Lower explosive limit)**	**=**	**chemical-specific, %**
MW	**(Molecular weight)**	**=**	**chemical-specific, g/mol**
P	**(Atmospheric pressure)**	**=**	**1 atm**
CF_1	**(Conversion factor for % to µg/L)**	**=**	**10^6 µg/g**
HLC	**(Henry's law constant)**	**=**	**chemical-specific atm-m^3/mol**
TAF	**(Temperature adjustment factor)**	**=**	**0.5, unitless**
CF_2	**(Conversion factor for volume)**	**=**	**10^3 L/m^3**

R 299.18 Cleanup criteria for soil generally.

Rule 18. (1) The generic cleanup criteria for soil at a facility shall be the ~~most restrictive of the~~ applicable criteria ~~developed under R 299.20 to R 299.28~~**established pursuant to R 299.6**, considering th~~ose~~ **relevant** pathways ~~that are reasonable and relevant~~ at the facility and the category **of cleanup criteria** being proposed or implemented.

(2) ~~If a generic soil cleanup criterion developed under R 299.20 to R 299.26 is greater than the C_{sat} concentration for that hazardous substance, then the generic criteria may not apply. A site specific risk evaluation may be conducted for each relevant exposure~~

~~pathway where free-phase liquids or non-aqueous phase liquids (NAPL) are present.~~**The C_{sat} shall be calculated for a single hazardous substance using the chemical-specific and chemical-physical generic input values provided in R 299.50 pursuant to the following equation:**

$$C_{sat} = \frac{S}{\rho_b} \times \left[(K_d \times \rho_b) + \theta_w + (H' \times TAF \times \theta_a) \right]$$

where,

C_{sat}	**(Soil saturation concentration)**	**=**	**chemical-specific, µg/kg**
S	**(Solubility in water)**	**=**	**chemical-specific, µg/L**
K_d	**(Soil-water partition coefficient for organic compounds: $K_d = K_{oc} \times f_{oc}$)**	**=**	**chemical-specific, cm^3/g or L/kg**
K_{oc}	**(Soil organic carbon partition coefficient)**	**=**	**chemical-specific, cm^3/g**
f_{oc}	**(Organic carbon content of soil)**	**=**	**0.002 g/g**
ρ_b	**(Dry soil bulk density)**	**=**	**1.66 g/cm^3**
θ_w	**(Soil water-filled porosity)**	**=**	**0.054 L_{water}/L_{soil}**
θ_a	**(Soil air-filled porosity)**	**=**	**0.375L_{air}/L_{soil}**
H′	**(Dimensionless Henry's law constant)**	**=**	**chemical-specific, unitless**
TAF	**(Temperature adjustment factor)**	**=**	**0.5, unitless**

Department-approved facility-specific inputs to the C_{sat} equation are allowed pursuant to R 299.7.

(3) The department may develop values to represent saturated total petroleum hydrocarbon conditions at facilities where petroleum releases have occurred.

(4) The generic soil criteria are applicable at all soil depths.

(5) The department may develop and publish statewide default soil background levels for hazardous substances that occur naturally in soil.

R 299.20 Generic cleanup criteria for soil based on direct contact.

Rule 20. **(1) Direct contact with soil shall be considered a relevant pathway for all facilities.**

(2) The health-based direct contact value shall be calculated pursuant to the following equations, except as provided for in R 299.34.

(3) Toxicological, chemical-specific, and chemical-physical generic input values are provided in R 299.50. Both of the following apply:

(a) Chemical-specific absorption data shall be used in this rule if determined by the department to be the best available information.

(b) If chemical-specific absorption data are not available, then the following generic absorption efficiencies shall be used:

(i) Ingestion adsorption efficiency (AE_i) shall be 50% for organic hazardous substances that exhibit a log octanol water partitioning coefficient greater than 5 and a molecular weight greater than 200 grams per mole or that are not ionizing organic compounds, and 100% for all other organic hazardous substances.

(ii) AE_i shall be 50% for inorganic hazardous substances.

(iii) Dermal absorption efficiency (AE_d) shall be assumed to be 10% for organic hazardous substances.

(iv) AE_d shall be assumed to be 1% for inorganic hazardous substances.

(v) Gastrointestinal absorption efficiency (ABS_{gi}) shall be assumed to be 100% for all hazardous substances.

(4) The residential soil direct contact value shall be the minimum of the health-based values calculated pursuant to equations 1 to 5 of this rule. The nonresidential soil direct contact value shall be the minimum of the health-based values calculated pursuant to equations 11 to 13 of this rule.

(5) The generic soil direct contact equations are as follows:

RESIDENTIAL:

1. EQUATION FOR CARCINOGENIC EFFECTS:

$$DCV_{ca} = \frac{TR \times AT_{ca} \times CF}{(SF_o \times EF_{i,res} \times IF_s \times AE_i) + (SF_d \times EF_{d,res} \times DF \times AE_d)}$$

where,

DCV_{ca}	**(Direct contact value)**	=	**chemical-specific, µg/kg**
TR	**(Target risk level)**	=	**10^{-5}**
AT_{ca}	**(Averaging time)**	=	**28,470 days**
CF	**(Conversion factor)**	=	**1E+9 µg/kg**
SF_o	**(Oral cancer slope factor)**	=	**chemical-specific, $(mg/kg\text{-}day)^{-1}$**
$EF_{i,res}$	**(Ingestion exposure frequency)**	=	**350 days/year**
IF_s	**(Age-adjusted soil ingestion factor)**	=	**100.5 mg-year/kg-day**
AE_i	**(Ingestion absorption efficiency)**	=	**chemical-specific or as specified in subrule (3)(b) of this rule**
SF_d	**(Dermal cancer slope factor)**	=	**chemical-specific, $(mg/kg\text{-}day)^{-1}$**
$EF_{d,res}$	**(Dermal exposure frequency)**	=	**275 days/year**
DF	**(Age-adjusted soil dermal factor)**	=	**424.5 mg-year/kg-day**
AE_d	**(Dermal absorption efficiency)**	=	**chemical-specific or as specified in subrule (3)(b) of this rule**

2. EQUATION FOR CARCINOGEN WITH MUTAGENIC EFFECTS:

$$DCV_{mut} = \frac{TR \times AT_{ca} \times CF}{(SF_o \times EF_{i,res} \times IF_{s,mut} \times AE_i) + (SF_d \times EF_{d,res} \times DF_{mut} \times AE_d)}$$

where,

DCV_{mut}	**(Direct contact value)**	=	**chemical-specific, µg/kg or ppb**
TR	**(Target risk level)**	=	**10^{-5}**
AT_{ca}	**(Averaging time)**	=	**28,470 days**

CF	**(Conversion factor)**	**=**	**1E+9 µg/kg**
SF_o	**(Oral cancer slope factor)**	**=**	**chemical-specific, $(mg/kg\text{-}day)^{-1}$**
$EF_{i,res}$	**(Ingestion exposure frequency)**	**=**	**350 days/year**
$IF_{s,mut}$	**(Age-adjusted soil ingestion factor)**	**=**	**578.4 mg-year/kg-day**
AE_i	**(Ingestion absorption efficiency)**	**=**	**chemical-specific or as specified in subrule (3)(b) of this rule**
SF_d	**(Dermal cancer slope factor)**	**=**	**chemical-specific, $(mg/kg\text{-}day)^{-1}$**
$EF_{d,res}$	**(Dermal exposure frequency)**	**=**	**275 days/year**
DF_{mut}	**(Age-adjusted soil dermal factor)**	**=**	**2,060 mg-year/kg-day**
AE_d	**(Dermal absorption efficiency)**	**=**	**chemical-specific or as specified in subrule (3)(b) of this rule**

3. EQUATION FOR NONCARCINOGENIC EFFECTS:

$$DCV_{nc} = \frac{THQ \times AT_{res} \times RSC_s \times CF}{(\frac{1}{RfD_o} \times EF_{i,res} \times IF_s \times AE_i) + (\frac{1}{RfD_d} \times EF_{d,res} \times DF \times AE_d)}$$

where,

DCV_{nc}	**(Direct contact value)**	**=**	**chemical-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	**=**	**1**
AT_{res}	**(Averaging time)**	**=**	**11,680 days**
RSC_s	**(Relative source contribution for soil)**	**=**	**1 or chemical-specific**
CF	**(Conversion factor)**	**=**	**1E+9 µg/kg**
RfD_o	**(Oral reference dose)**	**=**	**chemical-specific, mg/kg-day**
$EF_{i,res}$	**(Ingestion exposure frequency)**	**=**	**350 days/year**
IF_s	**(Age-adjusted soil ingestion factor)**	**=**	**100.5 mg-year/kg-day**
AE_i	**(Ingestion absorption efficiency)**	**=**	**chemical-specific or as specified in subrule (3)(b) of this rule**
RfD_d	**(Dermal reference dose)**	**=**	**chemical-specific, mg/kg-day**
$EF_{d,res}$	**(Dermal exposure frequency)**	**=**	**275 days/year**
DF	**(Age-adjusted soil dermal factor)**	**=**	**424.5 mg-year/kg-day**
AE_d	**(Dermal absorption efficiency)**	**=**	**chemical-specific or as specified in subrule (3)(b)**

4. EQUATION FOR DEVELOPMENTAL EFFECTS - CHILD:

$$DCV_{dev} = \frac{THQ \times AT_{child} \times BW_{child} \times RSC_s \times CF}{ED_{child} \times [(\frac{1}{RfD_{o,dev}} \times EF_{i,res} \times IR_{s,child} \times AE_i) + (\frac{1}{RfD_{d,dev}} \times EF_{d,res} \times SA_{child} \times EV \times AF_{child} \times AE_d)]}$$

where,

DCV_{dev}	**(Direct contact value)**	=	**chemical-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	=	**1**
AT_{child}	**(Averaging time)**	=	**2,190 days**
BW_{child}	**(Body Weight)**	=	**15 kg**
RSC_s	**(Relative source contribution for soil)**	=	**1 or chemical-specific**
CF	**(Conversion factor)**	=	**1E+9 µg/kg**
ED_{child}	**(Exposure duration)**	=	**6 years**
$RfD_{o,dev}$	**(Oral reference dose)**	=	**chemical-specific, mg/kg-day**
$EF_{i,res}$	**(Ingestion exposure frequency)**	=	**350 days/year**
$IR_{s,child}$	**(Soil ingestion rate)**	=	**179 mg/day**
AE_i	**(Ingestion absorption efficiency)**	=	**chemical-specific or as specified in subrule(3)(b) of this rule**
$RfD_{d,dev}$	**(Dermal reference dose)**	=	**chemical-specific, mg/kg-day**
$EF_{d,res}$	**(Dermal exposure frequency)**	=	**275 days/year**
SA_{child}	**(Skin surface area)**	=	**2,400 cm^2**
EV	**(Event frequency)**	=	**1 event/day**
AF_{child}	**(Soil adherence factor)**	=	**0.3 mg/cm^2-event**
AE_d	**(Dermal absorption efficiency)**	=	**chemical-specific or as specified in subrule (3)(b) of this rule**

5. EQUATION FOR DEVELOPMENTAL EFFECTS – PREGNANT RESIDENT:

$$DCV_{dev} = \frac{THQ \times AT_{preg} \times BW_{preg} \times RSC_s \times CF}{ED_{preg} \times [(\frac{1}{RfD_{o,dev}} \times EF_{i,preg} \times IR_{s,preg} \times AE_i) + (\frac{1}{RfD_{d,dev}} \times EF_{d,preg} \times SA_{preg} \times EV \times AF_{preg} \times AE_d)]}$$

where,

DCV_{dev}	**(Direct contact value)**	=	**chemical-specific, µg/kg or ppb)**
THQ	**(Target hazard quotient)**	=	**1**
$AT_{preg,FT}$	**(Averaging time, full-term pregnancy)**	=	**280 days or chemical-specific**
$AT_{preg,SE}$	**(Averaging time, single event exposure during pregnancy)**	=	**1 day or chemical-specific**
BW_{preg}	**(Body weight, pregnant resident)**	=	**75 kg**
RSC_s	**(Relative source contribution for soil)**	=	**1 or chemical-specific**

CF	**(Conversion factor)**	**=**	**1E+9 µg/kg**
$ED_{preg,FT}$	**(Exposure duration, full-term pregnancy)**	**=**	**0.767 year or chemical-specific**
$ED_{preg,SE}$	**(Exposure duration, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
$RfD_{o,dev}$	**(Oral reference dose)**	**=**	**chemical-specific, mg/kg-day**
$EF_{i,preg,FT}$	**(Ingestion exposure frequency, full-term pregnancy)**	**=**	**268.5 days/year or chemical-specific**
$EF_{i,preg,SE}$	**(Ingestion exposure frequency, single event exposure during pregnancy)**	**=**	**1 day/day or chemical-specific**
$IR_{s,preg}$	**(Soil ingestion rate)**	**=**	**89 mg/day**
AE_i	**(Ingestion absorption efficiency)**	**=**	**chemical-specific or as specified in subrule (3)(b) of this rule**
$RfD_{d,dev}$	**(Dermal reference dose)**	**=**	**chemical-specific, mg/kg-day**
$EF_{d,preg,FT}$	**(Dermal exposure frequency, full-term pregnancy)**	**=**	**268.5 days/year or chemical-specific**
$EF_{d,preg,SE}$	**(Dermal exposure frequency, single event exposure during pregnancy)**	**=**	**1 day/day or chemical-specific**
SA_{preg}	**(Skin surface area, pregnant resident)**	**=**	**5,500 cm^2**
EV	**(Event frequency)**	**=**	**1 event/day**
AF_{preg}	**(Soil adherence factor)**	**=**	**0.07 mg/cm^2-event**
AE_d	**(Dermal absorption efficiency)**	**=**	**chemical-specific or as specified in subrule (3)(b) of this rule**

The dermal slope factors and dermal reference dose shall be extrapolated from the oral toxicity values pursuant to the following equations, except when dermal toxicity endpoints are available.

6. Dermal slope factor and dermal reference dose:

$$SF_d = \frac{SF_o}{ABS_{gi}}$$

$$RfD_d = RfD_o \times ABS_{gi}$$

where,

SF_d	**(Dermal cancer slope factor)**	**=**	**chemical-specific, $(mg/kg\text{-}day)^{-1}$**
SF_o	**(Oral cancer slope factor)**	**=**	**chemical-specific, $(mg/kg\text{-}day)^{-1}$**
ABS_{gi}	**(Gastrointestinal absorption factor)**	**=**	**1 or chemical-specific**
RfD_d	**(Dermal reference dose)**	**=**	**chemical-specific, mg/kg-day**
RfD_o	**(Oral reference dose)**	**=**	**chemical-specific, mg/kg-day**

The age-adjusted soil ingestion factors (IF_s) shall be calculated pursuant to equations 7 and 8 of this rule.

7. IF_s for carcinogens (Equation 1) and noncarcinogens (Equation 3):

$$IF_s = \left(\frac{IR_{s,<1-6} \times ED_{<1-6}}{BW_{<1-6}}\right) + \left(\frac{IR_{s,adult} \times ED_{adult}}{BW_{adult}}\right)$$

where,

IF_s	(Age-adjusted soil ingestion factor)	=	100.5 mg-year/kg-day
$IR_{s,age\ <1-6}$	(Soil ingestion rate)	=	179 mg/day
$ED_{age\ <1-6}$	(Exposure duration)	=	6 years
$BW_{age\ <1-6}$	(Body weight)	=	15 kg
$IR_{s,adult}$	(Soil ingestion rate)	=	89 mg/day
ED_{adult}	(Exposure duration)	=	26 years
BW_{adult}	(Body weight)	=	80 kg

8. IF_s for carcinogens with mutagenic effects (Equation 2):

$$IF_{s,mut} = \left(\frac{IR_{s,<2} \times ED_{<2} \times ADAF_{<2}}{BW_{<2}}\right) + \left(\frac{IR_{s,2-6} \times ED_{2-6} \times ADAF_{2-6}}{BW_{2-6}}\right) +$$

$$\left(\frac{IR_{s,6-16} \times ED_{6-16} \times ADAF_{6-16}}{BW_{6-16}}\right) + \left(\frac{IR_{s,16-32} \times ED_{16-32} \times ADAF_{16-32}}{BW_{16-32}}\right)$$

where,

$IF_{s,mut}$	(Soil ingestion factor for mutagens)	=	578.4 mg-year/kg-day
$IR_{s,\ <2}$	(Soil ingestion rate, age <2 years)	=	179 mg/day
$ED_{<2}$	(Exposure duration, age <2 years)	=	2 years
$BW_{<2}$	(Body weight, age <2 years)	=	9.6 kg
$ADAF_{<2}$	(Age-dependent adjustment factor for cancer potency, age <2 years)	=	10, unitless
$IR_{s,\ 2-6}$	(Soil ingestion rate, age 2-6 years)	=	179 mg/day
ED_{2-6}	(Exposure duration, age 2-6 years)	=	4 years
BW_{2-6}	(Body weight, age 2-6 years)	=	17 kg
$ADAF_{2-6}$	(Age-dependent adjustment factor for cancer potency, age 2-6 years)	=	3, unitless
$IR_{s,\ 6-16}$	(Soil ingestion rate, age 6-16	=	89 mg/day

	years)		
ED_{6-16}	**(Exposure duration, age 6-16 years)**	**=**	**10 years**
BW_{6-16}	**(Body weight, age 6-16 years)**	**=**	**44 kg**
$ADAF_{6-16}$	**(Age-dependent adjustment factor for cancer potency, age 6-16 years)**	**=**	**3, unitless**
$IR_{s,16-32}$	**(Soil ingestion rate, age 16-32 years)**	**=**	**89 mg/day**
ED_{16-32}	**(Exposure duration, age 16-32 years)**	**=**	**16 years**
BW_{16-32}	**(Body weight, age 16-32 years)**	**=**	**77 kg**
$ADAF_{16-32}$	**(Age-dependent adjustment factor for cancer potency, age 16-32 years)**	**=**	**1, unitless**

The age-adjusted soil dermal factors shall be calculated pursuant to equations 9 and 10 of this rule.

Age-adjusted soil dermal factor (DF):

9. DF for carcinogens (Equation 1) and noncarcinogens (Equation 3):

$$DF = \left(\frac{SA_{<1-6} \times EV \times AF_{<1-6} \times ED_{<1-6}}{BW_{<1-6}} \right) + \left(\frac{SA_{adult} \times EV \times AF_{adult} \times ED_{adult}}{BW_{adult}} \right)$$

where,

DF	**(Age-adjusted soil dermal factor)**	**=**	**424.5 mg-year/kg-day**
$SA_{<1-6}$	**(Skin surface area)**	**=**	**2,400 cm^2**
EV	**(Event frequency)**	**=**	**1 event/day**
$AF_{<1-6}$	**(Soil adherence factor)**	**=**	**0.3 mg/cm^2-event**
$ED_{<1-6}$	**(Exposure duration)**	**=**	**6 years**
$BW_{<1-6}$	**(Body weight)**	**=**	**15 kg**
SA_{adult}	**(Skin surface area)**	**=**	**6,000 cm^2**
AF_{adult}	**(Soil adherence factor)**	**=**	**0.07 mg/cm^2-event**
ED_{adult}	**(Exposure duration)**	**=**	**26 years**
BW_{adult}	**(Body weight)**	**=**	**80 kg**

10. DF for carcinogens with mutagenic effects (Equation 2):

$$DF_{mut} = \left(\frac{SA_{<2} \times EV \times AF_{<2} \times ED_{<2} \times ADAF_{<2}}{BW_{<2}} \right) + \left(\frac{SA_{2-6} \times EV \times AF_{2-6} \times ED_{2-6} \times ADAF_{2-6}}{BW_{2-6}} \right) +$$

$$\left(\frac{SA_{6-16} \times EV \times AF_{6-16} \times ED_{6-16} \times ADAF_{6-16}}{BW_{6-16}}\right)+\left(\frac{SA_{16\text{-}32} \times EV \times AF_{16\text{-}32} \times ED_{16\text{-}32} \times ADAF_{16\text{-}32}}{BW_{16\text{-}32}}\right)$$

where,

DF_{mut}	**(Soil dermal factor for mutagens)**	**=**	**2,060 mg-year/kg-day**
$SA_{<2}$	**(Skin surface area, age <2 years)**	**=**	**2,000 cm^2**
EV	**(Event frequency)**	**=**	**1 event/day**
$AF_{<2}$	**(Skin adherence factor, age <2 years)**	**=**	**0.3 mg/cm^2-event**
$ED_{<2}$	**(Exposure duration, age <2 years)**	**=**	**2 years**
$BW_{<2}$	**(Body weight, age <2 years)**	**=**	**9.6 kg**
$ADAF_{<2}$	**(Age-dependent adjustment factor for cancer potency, age <2 years)**	**=**	**10, unitless**
$SA_{, 2\text{-}6}$	**(Skin surface area, age 2-6 years)**	**=**	**2,600 cm^2**
$AF_{2\text{-}6}$	**(Skin adherence factor, age 2-6 years)**	**=**	**0.3 mg/cm^2-event**
$ED_{2\text{-}6}$	**(Exposure duration, age 2-6 years)**	**=**	**4 years**
$BW_{2\text{-}6}$	**(Body weight, age 2-6 years)**	**=**	**17 kg**
$ADAF_{2\text{-}6}$	**(Age-dependent adjustment factor for cancer potency, age 2-6 years)**	**=**	**3, unitless**
$SA_{6\text{-}16}$	**(Skin surface area, age 6-16 years)**	**=**	**3,700 cm^2**
$AF_{6\text{-}16}$	**(Skin adherence factor, age 6-16 years)**	**=**	**0.07 mg/cm^2-event**
$ED_{6\text{-}16}$	**(Exposure duration, age 6-16 years)**	**=**	**10 years**
$BW_{6\text{-}16}$	**(Body weight, age 6-16 years)**	**=**	**44 kg**
$ADAF_{6\text{-}16}$	**(Age-dependent adjustment factor for cancer potency, age 6-16 years)**	**=**	**3, unitless**
$SA_{16\text{-}32}$	**(Skin surface area, age 16-32 years)**	**=**	**5,700 cm^2**
$AF_{16\text{-}32}$	**(Skin adherence factor, age 16-32 years)**	**=**	**0.07 mg/cm^2-event**
$ED_{16\text{-}32}$	**(Exposure duration, age 16-32 years)**	**=**	**16 years**
$BW_{16\text{-}32}$	**(Body weight, age 16-32 years)**	**=**	**77 kg**
$ADAF_{16\text{-}32}$	**(Age-dependent adjustment**	**=**	**1, unitless**

factor for cancer potency, age 16-32 years)

NONRESIDENTIAL:

11. EQUATION FOR CARCINOGENIC EFFECTS:

$$DCV_{ca,nr} = \frac{TR \times AT_{ca} \times BW_{adult} \times CF}{ED_{nr} \times \left[\left(SF_o \times EF_{i,nr} \times IR_{s,nr} \times AE_i\right) + \left(SF_d \times EF_{d,nr} \times SA_{nr} \times EV \times AF_{nr} \times AE_d\right)\right]}$$

where,

$DCV_{ca,nr}$	**(Direct contact value)**	=	**chemical-specific, µg/kg or ppb**
TR	**(Target risk level)**	=	10^{-5}
AT_{ca}	**(Averaging time)**	=	**28,470 days**
BW_{adult}	**(Body weight, adult)**	=	**80 kg**
CF	**(Conversion factor)**	=	**1E+9 µg/kg**
ED_{nr}	**(Exposure duration)**	=	**20 years**
SF_o	**(Oral cancer slope factor)**	=	**chemical-specific, (mg/kg-day)$^{-1}$**
$EF_{i,nr}$	**(Ingestion exposure frequency)**	=	**238 days/year**
$IR_{s,nr}$	**(Soil ingestion rate)**	=	**89 mg/day**
AE_i	**(Ingestion absorption efficiency)**	=	**chemical-specific or as specified in subrule (3)(b) of this rule**
SF_d	**(Derived dermal cancer slope factor)**	=	**chemical-specific, (mg/kg-day)$^{-1}$**
$EF_{d,nr}$	**(Dermal exposure frequency)**	=	**188 days/year**
SA_{nr}	**(Skin surface area, adult)**	=	**3,500 cm^2**
EV	**(Event frequency)**	=	**1 event/day**
AF_{nr}	**(Soil adherence factor)**	=	**0.2 mg/cm^2-event**
AE_d	**(Dermal absorption efficiency)**	=	**chemical-specific or as specified in subrule (3)(b) of this rule**

12. EQUATION FOR NONCARCINOGENIC EFFECTS:

$$DCV_{nc} = \frac{THQ \times AT_{nr} \times BW_{adult} \times RSC_s \times CF}{ED_{nr} \times \left[\left(\frac{1}{RfD_o} \times EF_{i,nr} \times IR_{s,nr} \times AE_i\right) + \left(\frac{1}{RfD_d} \times EF_{d,nr} \times SA_{nr} \times EV \times AF_{nr} \times AE_d\right)\right]}$$

where,

DCV_{nc}	**(Direct contact value)**	=	**chemical-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	=	**1**
AT_{nr}	**(Averaging time)**	=	**7,300 days**
BW_{adult}	**(Body weight)**	=	**80 kg**
RSC_s	**(Relative source contribution)**	=	**1 or chemical-specific**

CF	**(Conversion factor)**	**=**	**1E+9 µg/kg**
ED_{nr}	**(Exposure duration)**	**=**	**20 years**
RfD_o	**(Oral reference dose)**	**=**	**chemical-specific, mg/kg-day**
$EF_{i,nr}$	**(Ingestion exposure frequency)**	**=**	**238 days/year**
$IR_{s,nr}$	**(Soil ingestion rate)**	**=**	**89 mg/day**
AE_i	**(Ingestion absorption efficiency)**	**=**	**chemical-specific or as specified in subrule (3)(b) of this rule**
RfD_d	**(Derived dermal reference dose)**	**=**	**chemical-specific, mg/kg-day**
$EF_{d,nr}$	**(Dermal exposure frequency)**	**=**	**188 days/year**
SA_{nr}	**(Skin surface area, adult)**	**=**	**3,500 cm^2**
EV	**(Event frequency)**	**=**	**1 event/day**
AF_{nr}	**(Soil adherence factor, worker)**	**=**	**0.2 mg/cm^2-event**
AE_d	**(Dermal absorption efficiency)**	**=**	**chemical-specific or as specified in subrule (3)(b) of this rule**

13. EQUATION FOR DEVELOPMENTAL EFFECTS – PREGNANT WORKER:

$$DCV_{nc} = \frac{THQ \times AT_{dev} \times BW_{dev} \times RSC_s \times CF}{ED_{dev} \times \left[\left(\frac{1}{RfD_{o,dev}} \times EF_{i,dev} \times IR_{s,dev} \times AE_i \right) + \left(\frac{1}{RfD_{d,dev}} \times EF_{d,dev} \times SA_{dev} \times EV \times AF_{dev} \times AE_d \right) \right]}$$

where,

DCV_{dev}	**(Direct contact value)**	**=**	**chemical-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	**=**	**1**
$AT_{dev,FT}$	**(Averaging time, pregnant worker, full-term pregnancy)**	**=**	**280 days or chemical-specific**
$AT_{dev,SE}$	**(Averaging time, pregnant worker, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
BW_{dev}	**(Body weight, pregnant worker)**	**=**	**75 kg**
RSC_s	**(Relative source contribution)**	**=**	**1 or chemical-specific**
CF	**(Conversion factor)**	**=**	**1E+9 µg/kg**
$ED_{dev,FT}$	**(Exposure duration, pregnant worker, full-term pregnancy)**	**=**	**0.767 year or chemical-specific**
$ED_{dev,SE}$	**(Exposure duration, pregnant worker, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
$RfD_{o,\ dev}$	**(Oral reference dose)**	**=**	**chemical-specific, mg/kg-day**
$EF_{i,dev,FT}$	**(Ingestion exposure frequency, pregnant worker, full-term pregnancy)**	**=**	**183 days/year or chemical-specific**
$EF_{i,dev,SE}$	**(Ingestion exposure frequency, pregnant worker, single event**	**=**	**1 day/day or chemical-specific**

	exposure during pregnancy)		
$IR_{s,dev}$	**(Soil ingestion rate, pregnant worker)**	**=**	**89 mg/day**
AE_i	**(Ingestion absorption efficiency)**	**=**	**chemical-specific or as specified in subrule (3)(b) of this rule**
$RfD_{d,\ dev}$	**(Dermal reference dose)**	**=**	**chemical-specific, mg/kg-day**
$EF_{d,dev,FT}$	**(Ingestion exposure frequency, pregnant worker, full-term pregnancy)**	**=**	**183 days/year or chemical-specific**
$EF_{d,dev,SE}$	**(Dermal exposure frequency, pregnant worker)**	**=**	**1 day/day**
SA_{dev}	**(Skin surface area, pregnant worker)**	**=**	**3,100 cm^2**
EV	**(Event frequency)**	**=**	**1 event/day**
AF_{dev}	**(Soil adherence factor, pregnant worker)**	**=**	**0.2 mg/cm^2 -event**
AE_d	**(Dermal absorption efficiency)**	**=**	**chemical-specific or as specified in subrule (3)(b) of this rule**

~~(1) Cleanup criteria for soil based on direct contact shall be calculated for the generic residential category according to the following algorithms, except as provided in R 299.34(3):~~

~~EQUATION FOR CARCINOGENS:~~

$$\text{~~DCC} = \frac{TR \times AT \times CF}{SF \times [(EF_i \times IF \times AE_i) + (EF_d \times DF \times AE_d)]}$$

~~where,~~

~~DCC~~	~~(Direct contact criterion)~~	~~=~~	~~chemical-specific, ug/kg or ppb~~
~~TR~~	~~(Target risk level)~~	~~=~~	~~10^{-5}~~
~~AT~~	~~(Averaging time)~~	~~=~~	~~25,550 days (70 years x 365 days/year)~~
~~CF~~	~~(Conversion factor)~~	~~=~~	~~1E+9 ug/kg~~
~~SF~~	~~(Oral cancer slope factor)~~	~~=~~	~~chemical-specific (mg/kg-day)$^{-1}$~~
~~EF_i~~	~~(Ingestion exposure frequency)~~	~~=~~	~~350 days/year~~
~~IF~~	~~(Age-adjusted soil ingestion factor)~~	~~=~~	~~114 mg-year/kg-day*~~
~~AE_i~~	~~(Ingestion absorption efficiency)~~	~~=~~	~~chemical-specific or default specified at R 299.20(3)~~
~~EF_d~~	~~(Dermal exposure frequency)~~	~~=~~	~~245 days/year~~
~~DF~~	~~(Age-adjusted soil dermal factor)~~	~~=~~	~~353 mg-year/kg-day**~~
~~AE_d~~	~~(Dermal absorption efficiency)~~	~~=~~	~~chemical-specific or default specified at R 299.20(3)~~

EQUATIONS FOR NONCARCINOGENS:

$$DCC = \frac{THQ \times RfD \times AT \times CF \times RSC}{[(EF_i \times IF \times AE_i) + (EF_d \times DF \times AE_d)]}$$

where,

DCC	(Direct contact criterion)	=	chemical-specific (ug/kg or ppb)
THQ	(Target hazard quotient)	=	1
RfD	(Oral reference dose)	=	chemical-specific mg/kg-/day
AT	(Averaging time)	=	10,950 days (30 years x 365 days/year)
CF	(Conversion factor)	=	1E+9 ug/kg
RSC	(Relative source contribution)	=	1
EF_i	(Ingestion exposure frequency)	=	350 days/year
IF	(Age-adjusted soil ingestion factor)	=	114 mg-year/kg-day*
AE_i	(Ingestion absorption efficiency)	=	chemical-specific or default specified at R 299.20(3)
EF_d	(Dermal exposure frequency)	=	245 days/year
DF	(Age-adjusted soil dermal factor)	=	353 mg-year/kg-day**
AE_d	(Dermal absorption efficiency)	=	chemical-specific or default specified at R 299.20(3)

and,

$$*IF = \left(\frac{IR_{age\ 1-6} \times ED_{age\ 1-6}}{BW_{age\ 1-6}}\right) + \left(\frac{IR_{adult} \times ED_{adult}}{BW_{adult}}\right)$$

where,

$IR_{soil/age\ 1-6}$	(Soil ingestion rate)	=	200 mg/day
$ED_{age\ 1-6}$	(Exposure duration)	=	6 years
$BW_{age\ 1-6}$	(Body weight)	=	15 kg
IR_{adult}	(Soil ingestion rate)	=	100 mg/day
ED_{adult}	(Exposure duration)	=	24 years
BW_{adult}	(Body weight)	=	70 kg

and,

$$**DF = \left(\frac{SA_{age\ 1-6} \times EV \times AF_{age\ 1-6} \times ED_{age\ 1-6}}{BW_{age\ 1-6}}\right) + \left(\frac{SA_{adult} \times EV \times AF_{adult} \times ED_{adult}}{BW_{adult}}\right)$$

where,

$SA_{age\ 1-6}$	(Skin surface area)	=	2,670 cm^2/dayevent
EV	(Event frequency)	=	1 event/day
$AF_{age\ 1-6}$	(Soil adherence factor)	=	0.2 mg/cm^2
$ED_{age\ 1-6}$	(Exposure duration)	=	6 years
$BW_{age\ 1-6}$	(Body weight)	=	15 kg
SA_{adult}	(Skin surface area)	=	5,800 cm^2/dayevent
AF_{adult}	(Soil adherence factor)	=	0.07 mg/cm^2
ED_{adult}	(Exposure duration)	=	24 years
BW_{adult}	(Body weight)	=	70 kg

(2) Cleanup criteria for soil based on direct contact shall be calculated for the generic nonresidential category according to the following algorithms, except as provided in R 299.34(3):

EQUATION FOR CARCINOGENS:

$$DCC = \frac{TR \times BW \times AT \times CF}{SF \times ED \times [(EF_i \times IR_s \times AE_i) + (EF_d \times SA \times EV \times AF \times AE_d)]}$$

where,

DCC	(Direct contact criterion)	=	chemical-specific, ug/kg or ppb
TR	(Target risk level)	=	10^{-5}
BW	(Body weight)	=	70 kg
AT	(Averaging time)	=	25,550 days (70 years x 365 days/year)
CF	(Conversion factor)	=	1E+9 ug/kg
SF	(Oral cancer slope factor)	=	chemical-specific $(mg/kg\text{-}day)^{-1}$
ED	(Exposure duration)	=	21 years
EF_i	(Ingestion exposure frequency)	=	245 days/year
IR_s	(Soil ingestion rate)	=	100 mg/day (residential)
AE_i	(Ingestion absorption efficiency)	=	chemical-specific or default specified at R 299.20(3)
EF_d	(Dermal exposure frequency)	=	160 days/year
SA	(Skin surface area)	=	3,300 cm^2/day event
EV	(Event frequency)	=	1 event/day
AF	(Soil adherence factor)	=	0.2 mg/cm^2 (nonresidential)
AE_d	(Dermal absorption efficiency)	=	chemical-specific or default specified at R 299.20(3)

EQUATION FOR NONCARCINOGENS:

$$DCC = \frac{THQ \times RfD \times BW \times AT \times CF \times RSC}{ED \times [(EF_i \times IR_s \times AE_i) + (EF_d \times SA \times EV \times AF \times AE_d)]}$$

where,

DCC	(Direct contact criterion)	=	chemical-specific, ug/kg or ppb
THQ	(Target hazard quotient)	=	1
RfD	(Oral reference dose)	=	chemical-specific, mg/kg -/day
BW	(Body weight)	=	70 kg
AT	(Averaging time)	=	7,665 days (21 years x 365 days/year)
CF	(Conversion factor)	=	1E+9 ug/kg
RSC	(Relative source contribution)	=	1
ED	(Exposure duration)	=	21 years
EF_i	(Ingestion exposure frequency)	=	245 days/year
IR_s	(Soil ingestion rate)	=	100 mg/day
AE_i	(Ingestion absorption efficiency)	=	chemical-specific or default specified at R 299.20(3)
EF_d	(Dermal exposure frequency)	=	160 days/year
SA	(Skin surface area)	=	3,300 cm^2/day event
EV	(Event frequency)	=	1 event/day
AF	(Soil adherence factor)	=	0.2 mg/cm^2 (nonresidential)
AE_d	(Dermal absorption efficiency)	=	chemical-specific or default specified at R 299.20(3)

(3) Absorption efficiencies used to calculate generic direct contact criteria are as follows:

(a) Chemical-specific data may be submitted to the department to support development of a new generic criterion under R 299.6(9) or (10) and shall be used in this rule if determined by the department to be the best available information.

(b) If chemical-specific data are not available, then the following default absorption efficiencies shall be used:

(i) AE_i shall be 50% for organic hazardous substances which exhibit a log octanol water partitioning coefficient greater than 5 and a molecular weight greater than 200 grams per mole or which are not ionizing organic compounds, and 100% for all other organic hazardous substances.

(ii) AE_i shall be 50% for inorganic hazardous substances.

(iii) AE_d shall be assumed to be 10% for organic hazardous substances.

(iv) AE_d shall be assumed to be 1% for inorganic hazardous substances.

(4) To demonstrate compliance with generic direct contact criteria, the criteria shall be applied without regard to the depth of contaminated soil.

R 299.22 Generic cleanup criteria for soil based on leaching of hazardous substances into groundwater.

Rule 22. (1) To assure that soils do not pose a threat of aquifer contamination, the concentration of the hazardous substance in soil shall ~~be below that which produces a concentration in leachate that is equal to the least restrictive of the applicable groundwater criteria specified in subdivisions (a) to (c) of this subrule, or below a criterion based on the soil-water partitioning characteristics of a hazardous substance as provided in subrule (4) of this rule, whichever is higher. The selection of the following least restrictive value, and comparison to the soil-water partitioning value, shall be done separately for each pathway that is relevant at the facility:~~

~~(a) The groundwater criteria developed under R 299.8 to 299.14.~~

~~(b) The leachate concentration generated by background soil.~~

~~(c) The groundwater concentration allowed by target detection limit, if it is higher than a risk-based criterion that would otherwise be the most restrictive.~~ **meet either of the following:**

(a) The total soil concentration groundwater protection criteria as described in subrule (2) of this rule.

(b) The groundwater criteria in soil leachate as described in subrule (2) of this rule.

(2) ~~Leachate testing is not required to demonstrate compliance with subrule (1) of this rule if the total concentration of a hazardous substance in soil does not exceed 20 times the lowest groundwater cleanup criterion that is applicable at the facility or does not exceed the soil-water partitioning value established under subrule (4) of this rule, whichever is higher.~~**The soil concentration protective of groundwater shall be the higher of the values derived as follows:**

(a) Soil-water partition value, if sufficient information is available to derive the value for the hazardous substance.

(b) The groundwater criterion multiplied by 20.

(3) When sufficient information is available, the soil-water partition value shall be calculated using the toxicological, chemical-specific, and chemical-physical generic input values provided in R 299.50 pursuant to equations 1 and 2 of this rule:

1. EQUATION FOR SOIL-WATER PARTITION VALUE (SWPV):

$$SWPV = Cw\left[K_d + \left(\frac{\theta_w + (H' \times TAF \times \theta_a)}{\rho_b} \right) \right]$$

where,

SWPV	**(Soil-water partition value)**	**=**	**chemical-specific, µg/kg or ppb**
C_w	**(Target soil leachate concentration; applicable groundwater criterion x 16)**	**=**	**chemical-specific, µg/L or ppb**
K_d	**(Soil-water partition coefficient; Kd for organics: $K_d = K_{oc} \times f_{oc}$)**	**=**	**chemical-specific, cm^3/g or L/kg**
K_{oc}	**(Soil organic carbon partition coefficient)**	**=**	**chemical-specific, cm^3/g**
f_{oc}	**(Fraction of organic carbon content of soil)**	**=**	**0.002 g/g**
η	**(Total soil porosity)**	**=**	**0.375 L_{pore}/L_{soil}**
θ_w	**(Soil water-filled porosity)**	**=**	**0.054 L_{water}/L_{soil}**

θ_a	**(Soil air-filled porosity)**	**=**	**0.321 L_{air}/ L_{soil}**
H'	**(Dimensionless Henry's law constant) Note: for calculation of the SWPV for inorganic hazardous substances, H' equals zero.**	**=**	**chemical-specific, unitless**
TAF	**(Temperature adjustment factor)**	**=**	**0.5, unitless**
ρ_b	**(Dry soil bulk density)**	**=**	**1.66 g/cm^3**

Department-approved facility-specific inputs are allowed pursuant to R 299.7.

2. EQUATION FOR DIMENSIONLESS HENRY'S LAW CONSTANT (H′):

$$H' = \frac{HLC \times CF}{R \times T}$$

where,

H′	**(Dimensionless Henry's law constant)**	**=**	**chemical-specific, unitless**
HLC	**(Henry's law constant at 25° C)**	**=**	**chemical-specific, atm-m^3/mol**
R	**(Ideal gas constant)**	**=**	**8.206E-2 atm-L/mol-K**
T	**(Temperature at 25°C)**	**=**	**298.15 K**
CF	**(Conversion factor)**	**=**	**1,000 L/m^3**

(4) Soil leach testing is not required to demonstrate compliance with subrule (1) of this rule if the total concentration of a hazardous substance in soil does not exceed the soil criterion developed under subrule (2) of this rule.

(~~3~~**5**) **Soil leachate shall meet the lowest applicable groundwater criterion. Soil** leachate concentrations shall be determined by a method that best represents in-situ conditions. For the purposes of this rule, the following test methods are acceptable:

(a) The United States ~~e~~**E**nvironmental ~~p~~**P**rotection ~~a~~**Agency's** toxicity characteristic leaching procedure**, method 1311,**~~ (TCLP) (~~revised as of July 1992~~)~~ or the synthetic precipitation leachate procedure**, method 1312,** ~~(SPLP) (~~revised as of September 1994~~)~~ as set forth in SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, ~~(~~revised to include Update I**V**~~II~~, ~~June 13, 1997)~~**dated August 2015**, published by the United States Environmental Protection Agency, which are adopted by reference in these rules and which are available for inspection at the Lansing office of the ~~d~~**D**epartment **of Environmental Quality**, 525 West Allegan Street, Lansing, Michigan. Copies of the provisions may be purchased ~~at a cost as of the time of adoption of these rules of $239.00~~ from the National Technical Information Service, United States Department of Commerce, **Alexandria**~~5285 Port Royal Road, Springfield~~, Virginia ~~22161~~**22312 product code PB2002105723** ~~(publication number PB97-156111GEI), or from the Department of Environmental Quality, Remediation and Redevelopment Division, 525 West Allegan, Lansing, Michigan 48909, at cost~~.

(b) Other methods accepted by the department to more accurately simulate conditions at the site than the test methods specified in subdivision (a) of this subrule.

(4) The department may, if adequate data are available, establish acceptable soil concentrations based on soil-water partitioning characteristics of a hazardous substance.

R 299.24 **Rescinded.** Generic cleanup criteria for soil based on indoor inhalation of hazardous substance vapors volatilized from soil.

Rule 24. (1) Indoor inhalation of hazardous substance vapors volatilizing to indoor air from soil shall be considered a reasonable and relevant exposure pathway only for hazardous substances that have a Henry's law constant greater than or equal to 0.00001 atm-m^3/mole.

(2) Except as provided in subrule (1) of this rule, if any of the following conditions exist, the generic criteria developed pursuant to this rule shall not apply and a site-specific evaluation of indoor inhalation risks shall be conducted:

(a) There is a structure present or planned to be constructed at the facility which does not have a concrete block or poured concrete floor and walls.

(b) There is a sump present that is not completely isolated from the surrounding soil by its materials of construction.

(3) Soil cleanup criteria based on indoor inhalation of volatile emissions from hazardous substances in soil shall be called soil volatilization indoor air inhalation criteria ("SVIIC"). The SVIIC is determined by the following series of calculations, except as provided in R 299.34(3):

EQUATION FOR CARCINOGENIC EFFECTS:

$$SVIIC = \frac{TR \times AT \times AIR}{IURF \times EF \times ED \times CR_{building}}$$

where,

SVIIC	(Soil volatilization indoor air inhalation criterion)	= chemical-specific, ug/kg
TR	(Target risk level)	= 10^{-5}
AT	(Averaging time)	= 25,550 days (70 years x 365 days/year)
AIR	(Adjusted inhalation rate)	= 1 (residential) = 2 (nonresidential)
IURF	(Inhalation unit risk factor)	= chemical-specific, $(ug/m^3)^{-1}$
EF	(Exposure frequency)	= 350 days/year (residential) = 245 days/year (nonresidential)
ED	(Exposure duration)	= 30 years (residential) = 21 years (nonresidential)
$CR_{building}$	(Ratio of indoor air concentration to soil concentration)	= chemical-specific, $(ug/m^3)/(ug/kg)$

EQUATION FOR NONCARCINOGENIC EFFECTS:

$$SVIIC = \frac{THQ \times AT}{(1/ITSL) \times EF \times ED \times CR_{building}}$$

where,

SVIIC	(Soil volatilization indoor air inhalation criterion)	= chemical-specific, ug/kg
THQ	(Target hazard quotient)	= 1
AT	(Averaging time)	= 10,950 days (residential) = 7,665 days (nonresidential)
EF	(Exposure frequency)	= 350 days/year (residential) = 245 days/year (nonresidential)
ED	(Exposure duration)	= 30 years (residential) = 21 years (nonresidential)
ITSL	(Initial threshold screening level)	= chemical-specific, ug/m^3
$CR_{building}$	(Ratio of indoor air concentration to soil concentration)	= chemical-specific, (ug/m^3)/(ug/kg)

The contaminant vapor concentration in the building indoor air is written as:

$$CR_{building} = CR_{source}^{soil} \times \alpha$$

where,

$CR_{building}$	(Ratio of indoor air concentration to soil concentration)	= chemical-specific, (ug/m^3)/(ug/kg)
α	(Attenuation coefficient)	= chemical-specific, Unitless
CR_{source}^{soil}	(Ratio of soil vapor concentration to soil/source concentration)	= chemical-specific, (ug/m^3)/(ug/kg)

The vapor-phase contaminant concentration at the source for soil is written as:

$$CR_{source}^{soil} = \frac{H' \times TAF \times C_s \times \rho_b \times 10^{-3}\ kg/g \times 10^6\ cm^3/m^3}{\theta_w + (k_d \times \rho_b) + (H' \times TAF \times \theta_a)}$$

where,

CR_{source}^{soil}	(Ratio of soil vapor concentration to soil/source concentration)	= chemical-specific, (ug/m^3)/(ug/kg)
H’	(Dimensionless Henry’s law constant, where H’ = HLC x 41)	= chemical-specific, unitless
HLC	(Henry’s law constant at 25 degrees Celsius)	= chemical-specific, (atm-m^3/mol)

~~TAF~~	~~(Temperature adjustment factor)~~	~~= 0.5, unitless~~
~~C_s~~	~~(Uniform concentration in soil)~~	~~= 1 ug/kg~~
~~ρ_b~~	~~(Dry soil bulk density)~~	~~= 1.5 g/cm^3~~
~~θ_w~~	~~(Soil water-filled porosity)~~	~~= 0.3 cm^3/cm^3~~
~~k_d~~	~~(Soil-water partition coefficient)~~	~~= chemical-specific, cm^3/g (equivalent to L/kg)~~
	~~For organic compounds~~	~~= K_{oc} (cm^3/g) x f_{oc} (g/g)~~
	~~For inorganic compounds~~	~~= chemical-specific, cm^3/g~~
~~K_{oc}~~	~~(Soil organic carbon partition coefficient)~~	~~= chemical-specific, cm^3/g~~
~~f_{oc}~~	~~(Fraction of organic carbon content of soil)~~	~~= 0.002 g/g (0.2%)~~
~~θ_a~~	~~(Soil air-filled porosity)~~	~~= 0.13 cm^3/cm^3~~

~~The intrusion rate of hazardous substance vapors into buildings is predicted using an analytical solution which couples both diffusive and convective transport of vapors emanating from subsurface soil into enclosed spaces. An attenuation coefficient (α) is calculated that is expressed as the ratio of building indoor air concentration to the vapor-phase concentration at the source. Values of α are calculated assuming infinite source conditions. For infinite source conditions α is written as follows:~~

$$\alpha = \frac{\left[\left[\frac{D_v^{eff} A_b}{Q_{building} L_T}\right] \times \exp\left(\frac{Q_{soil} L_{crack}}{D^{crack} A_{crack}}\right)\right]}{\left[\exp\left(\frac{Q_{soil} L_{crack}}{D^{crack} A_{crack}}\right) + \left[\frac{D_v^{eff} A_b}{Q_{building} L_T}\right] + \left[\frac{D_v^{eff} A_b}{Q_{soil} L_T}\right]\left[\exp\left(\frac{Q_{soil} L_{crack}}{D^{crack} A_{crack}}\right) - 1\right]\right]}$$

~~where,~~

~~α~~	~~(Attenuation coefficient)~~	~~= unitless~~
~~D_v^{eff}~~	~~(Effective diffusion coefficient through vadose zone)~~	~~= chemical-specific, cm^2/s~~
~~D^{crack}~~	~~(Effective diffusion coefficient through crack)~~	~~= cm^2/s, ($D^{crack} = D_v^{eff}$, see equation for D_v^{eff} below)~~
~~A_b~~	~~(Area of enclosed space below grade)~~	~~= 1.96E+6 cm^2 (residential)~~ ~~= 3.83E+6 cm^2 (nonresidential)~~
~~$Q_{building}$~~	~~(Building ventilation rate)~~	~~= 1.51E+5 cm^3/s (residential)~~ ~~= 5.04E+5 cm^3/s (nonresidential)~~
~~L_{crack}~~	~~(Building foundation thickness)~~	~~= 15 cm~~
~~L_T~~	~~(Source-building separation distance)~~	~~= 15 cm (All land use categories)~~
~~Q_{soil}~~	~~(Volumetric flow rate of soil vapor into the building)~~	~~= 0.81 cm^3/s (residential)~~ ~~= 2.10 cm^3/s (nonresidential)~~

A_{crack}	(Total area of cracks below grade)	= 196 cm^2 (residential) = 383 cm^2 (nonresidential)
exp(p)	(The base of the natural logarithm raised to power p)	= e^p

The effective diffusion coefficient calculation for the vadose zone (D_v^{eff}) is written as:

$$D_v^{eff} = \left[D_a\left(\theta_a^{3.33}/n^2\right)\right] + \left[\frac{D_w}{H' \times TAF}\left(\theta_w^{3.33}/n^2\right)\right]$$

where,

D_v^{eff}	(Effective diffusion coefficient through vadose zone)	= chemical-specific, cm^2/s
D_a	(Diffusivity in air)	= chemical-specific, cm^2/s
θ_a	(Soil air-filled porosity)	= 0.13 cm^3/cm^3
n	(Total soil porosity)	= 0.43 cm^3/cm^3
D_w	(Diffusivity in water)	= chemical-specific, cm^2/s
H'	(Dimensionless Henry's law constant, where H' = HLC x 41)	= chemical-specific, unitless
HLC	(Henry's law constant	= chemical-specific, (atm-m^3/mol)
θ_w	(Soil water-filled porosity)	= 0.3 cm^3/cm^3

(4) Facility-specific measurements of the following parameters may be substituted individually for the generic assumptions and still allow the facility to satisfy the categorical criteria in section 20120a(1)(a) to (e) of the act:
(a) Dry soil bulk density.
(b) Fraction of organic carbon in soil.
(c) Soil vapor permeability.
(d) Temperature adjustment factor for Henry's law constant.
Facility-specific measurements shall be based on representative characterization. Documentation of all facility specific values shall be provided in the response activity plan or no further action report.
(5) The department may approve methods to demonstrate compliance with criteria for this exposure pathway if those methods are more representative of in-situ conditions at the facility. Methods acceptable to the department may include, but are not limited to, evaluation of representative soil gas concentrations.

R 299.26 Generic cleanup criteria for soil based on inhalation of hazardous substances in ambient air.

Rule 26. (1) Inhalation of hazardous substance emissions in ambient air from soil shall be considered a reasonable and relevant pathway for all facilities.

(2) Generic cleanup criteria for soil based on inhalation of volatile hazardous substance emission to ambient air shall be called volatile soil inhalation criteria (VSIC). ~~Generic cleanup criteria for soil based on inhalation of particulate hazardous substance emission to ambient air shall be called particulate soil inhalation criteria (PSIC). The generic residential VSIC and PSIC are calculated as follows, except as provided in R 299.34(3):~~

The department may develop a screening level or criterion for a hazardous substance when available information indicates the hazardous substance is or may become volatile. All of the following apply:

(a) The VSIC shall be calculated for infinite and finite sources.

(b) If the vertical extent of the hazardous substance source has not been characterized, then the infinite source criterion shall be used.

(c) If the vertical extent of the hazardous substance source has been adequately characterized throughout the facility, then the criterion based on the finite 2 meter or the 5 meter source thickness may be used. The finite source thickness assumes no cover layer of clean soil.

(3) Generic cleanup criteria for soil based on inhalation of particulate hazardous substance emission to ambient air shall be called particulate soil inhalation criteria (PSIC).

(4) Toxicological, chemical-specific, and chemical-physical generic input values are provided in R 299.50 and soil type-specific inputs pursuant to R 299.7.

(5) The health-based soil inhalation values shall be calculated pursuant to the equations of this rule, except as provided in R 299.34.

(6) The residential volatile soil inhalation values shall be the minimum of the health-based values calculated pursuant to equations 1 to 5 of this rule. The generic nonresidential volatile soil inhalation value shall be the minimum of the health-based values pursuant to equations 6 to 8 of this rule.

(7) The residential particulate soil inhalation values shall be the minimum of the health-based values calculated pursuant to equations 11 to 15 of this rule. The generic nonresidential particulate soil inhalation value shall be the minimum of the health-based values pursuant to equations 16 to 18 of this rule.

(8) The health-based soil inhalation values for volatiles and particulates are calculated using a dispersion factor (Q/C) value for a source area contamination size of ½ acre. The VSIC and PSIC presented in the generic soil cleanup criteria tables in R 299.46 shall be adjusted for other contamination source area sizes appropriate for the site to derive the generic VSIC and PSIC for the property by multiplying the ½ acre VSIC and PSIC by the modifiers given in the following table.

(9) Where the actual source area size falls between the sizes given in this subrule, the ½ acre generic VSIC and PSIC shall be multiplied by the modifier for the next larger source size.

Table of Dispersion Factor (Q/C) Values

Contamination Source Area Size (ft^2 or acres)	Dispersion Factor (Q/C) (g/m^2-s per kg/m^3)	Modifier for deriving final VSIC/PSIC
100 ft^2	295.82	6.97
400 ft^2	129.34	3.05
1000 ft^2	91.05	2.14
2000 ft^2	73.72	1.74

Contamination Source Area Size (ft^2 or acres)	Dispersion Factor (Q/C) (g/m^2-s per kg/m^3)	Modifier for deriving final VSIC/PSIC
½ acre	42.45	1.00
1 acre	37.24	0.88
2 acres	32.81	0.77
5 acres	28.02	0.66
10 acres	25.02	0.59
20 acres	22.27	0.52
30 acres	20.89	0.49
50 acres	19.24	0.45
75 acres	18.06	0.43
100 acres	17.21	0.41
150 acres	16.17	0.38
200 acres	15.43	0.36
300 acres	14.50	0.34
400 acres	13.88	0.33
500 acres	13.38	0.32
1000 acres	12.02	0.28
1500 acres	11.25	0.26

(10) The generic volatile soil inhalation values and particulate soil inhalation values equations are as follows:

RESIDENTIAL:

1. EQUATION FOR CARCINOGENIC EFFECTS:

$$VSIV_{ca} = \frac{TR \times AT_{ca}}{IURF \times ED_{res} \times EF_{res} \times \left(\frac{1}{VF_{res}}\right)}$$

where,

$VSIV_{ca}$	(Volatile soil inhalation value for infinite or finite source)	=	chemical and source size-specific, µg/kg or ppb
TR	(Target risk level)	=	10^{-5}
AT_{ca}	(Averaging time)	=	28,470 days
$IURF$	(Inhalation unit risk factor)	=	chemical-specific $(\mu g/m^3)^{-1}$
ED_{res}	(Exposure duration)	=	32 years
EF_{res}	(Exposure frequency)	=	350 days/year
VF_{res}	(Volatilization factor for infinite or finite source)	=	chemical and source size-specific, m^3/kg

2. EQUATION FOR CARCINOGENS WITH MUTAGENIC EFFECTS:

$$VSIV_{mut} = \frac{TR \times AT_{ca}}{IURF \times EF_{res} \times \left[\left(ED_{<2} \times ADAF_{<2}\right) + \left(ED_{2-6} \times ADAF_{2-6}\right) + \left(ED_{6-16} \times ADAF_{6-16}\right) + \left(ED_{16-32} \times ADAF_{16-32}\right)\right] \times \left(\frac{1}{VF_{res}}\right)}$$

where,

$VSIV_{mut}$	(Volatile soil inhalation value for infinite or finite source)	=	chemical and source size-specific, µg/kg or ppb
TR	(Target risk level)	=	10^{-5}

AT_{ca}	(Averaging time)	=	28,470 days
IURF	(Inhalation unit risk factor)	=	chemical-specific, $(\mu g/m^3)^{-1}$
EF_{res}	(Exposure frequency)	=	350 days/year
$ED_{<2}$	(Exposure duration, age <2)	=	2 years
$ADAF_{<2}$	(Age-dependent adjustment factor for cancer potency)	=	10, unitless
ED_{2-6}	(Exposure duration, age 2-6 years)	=	4 years
$ADAF_{2-6}$	(Age-dependent adjustment factor for cancer potency, age 2-6 years)	=	3, unitless
ED_{6-16}	(Exposure duration, age 6-16 years)	=	10 years
$ADAF_{6-16}$	(Age-dependent adjustment factor for cancer potency, age 6-16 years)	=	3, unitless
ED_{16-32}	(Exposure duration, age 16-32 years)	=	16 years
$ADAF_{16-32}$	(Age-dependent adjustment factor for cancer potency, age 16-32 years)	=	1, unitless
VF_{res}	(Volatilization factor for infinite or finite source)	=	chemical and source size-specific, m^3/kg

3. EQUATION FOR NONCARCINOGENIC EFFECTS:

$$VSIV_{nc} = \frac{THQ \times AT_{res} \times RfC \times RSC}{ED_{res} \times EF_{res} \times \left(\frac{1}{VF_{res}}\right)}$$

where,

$VSIV_{nc}$	(Volatile soil inhalation value for infinite or finite source)	=	chemical and source size-specific, µg/kg or ppb
THQ	(Target hazard quotient)	=	1
AT_{res}	(Averaging time)	=	11,680 days
RfC	(Reference concentration)	=	chemical-specific, $\mu g/m^3$
RSC	(Relative source contribution)	=	1 or chemical-specific
ED_{res}	(Exposure duration)	=	32 years
EF_{res}	(Exposure frequency)	=	350 days/year
VF_{res}	(Volatilization factor for infinite or finite source)	=	chemical and source size-specific, m^3/kg

4. EQUATION FOR DEVELOPMENTAL EFFECTS - CHILD:

$$VSIV_{dev} = \frac{THQ \times AT_{child} \times RfC_{dev} \times RSC}{ED_{child} \times EF_{res} \times \left(\frac{1}{VF_{res}}\right)}$$

where,

$VSIV_{dev}$	(Volatile soil inhalation value for infinite or finite source)	=	chemical and source size-specific, µg/kg or ppb
THQ	(Target hazard quotient)	=	1

AT_{child}	**(Averaging time)**	**= 2,190 days**
RfC_{dev}	**(Reference concentration)**	**= chemical-specific, µg/m^3**
RSC	**(Relative source contribution)**	**= 1 or chemical-specific**
ED_{child}	**(Exposure duration)**	**= 6 years**
EF_{res}	**(Exposure frequency)**	**= 350 days/year**
VF_{res}	**(Volatilization factor for infinite or finite source)**	**= chemical and source size-specific, m^3/kg**

5. EQUATION FOR DEVELOPMENTAL EFFECTS – PREGNANT RESIDENT:

$$VSIV_{dev} = \frac{THQ \times AT_{preg} \times RfC_{dev} \times RSC}{ED_{preg} \times EF_{preg} \times \left(\frac{1}{VF_{res}}\right)}$$

where,

$VSIV_{dev}$	**(Volatile soil inhalation value for infinite or finite source)**	**= chemical and source size-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	**= 1**
$AT_{preg,FT}$	**(Averaging time, full-term pregnancy)**	**= 280 days or chemical-specific**
$AT_{preg,SE}$	**(Averaging time, single event exposure during pregnancy)**	**= 1 day or chemical-specific**
RfC_{dev}	**(Reference concentration)**	**= chemical-specific, µg/m^3**
RSC	**(Relative source contribution)**	**= 1 or chemical-specific**
$ED_{preg,FT}$	**(Exposure duration, full-term pregnancy)**	**= 0.767 year or chemical-specific**
$ED_{preg,SE}$	**(Exposure duration, single event exposure during pregnancy)**	**= 1 day or chemical-specific**
$EF_{preg,FT}$	**(Exposure frequency, full-term pregnancy)**	**= 268.5 days/year or chemical-specific**
$EF_{preg,SE}$	**(Exposure frequency, single event exposure during pregnancy)**	**= 1 day/day or chemical-specific**
VF_{res}	**(Volatilization factor for infinite or finite source)**	**= chemical and source size-specific, m^3/kg**

NONRESIDENTIAL:

6. EQUATION FOR CARCINOGENIC EFFECTS:

$$VSIV_{ca} = \frac{TR \times AT_{ca}}{IURF \times ED_{nr} \times EF_{nr} \times \left(\frac{1}{VF_{nr}}\right)}$$

where,

$VSIV_{ca}$	**(Volatile soil inhalation value for infinite or finite source)**	**=**	**chemical and source size-specific, µg/kg or ppb**
TR	**(Target risk level)**	**=**	**10^{-5}**
AT_{ca}	**(Averaging time)**	**=**	**28,470 days**
IURF	**(Inhalation unit risk factor)**	**=**	**chemical-specific $(\mu g/m^3)^{-1}$**
ED_{nr}	**(Exposure duration)**	**=**	**20 years**
EF_{nr}	**(Exposure frequency)**	**=**	**238 days/year**
VF_{nr}	**(Volatilization factor for infinite or finite source)**	**=**	**chemical and source size-specific, m^3/kg**

7. EQUATION FOR NONCARCINOGENIC EFFECTS:

$$VSIV_{nc} = \frac{THQ \times AT_{nr} \times RfC \times RSC}{ED_{nr} \times EF_{nr} \times \left(\frac{1}{VF_{nr}}\right)}$$

where,

$VSIV_{nc}$	**(Volatile soil inhalation value for infinite or finite source)**	**=**	**chemical- and source size-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	**=**	**1**
AT_{nr}	**(Averaging time)**	**=**	**7,300 days**
RfC	**(Reference concentration)**	**=**	**chemical-specific, $\mu g/m^3$**
RSC	**(Relative source contribution)**	**=**	**chemical-specific or 1**
ED_{nr}	**(Exposure duration)**	**=**	**20 years**
EF_{nr}	**(Exposure frequency)**	**=**	**238 days/year**
VF_{nr}	**(Volatilization factor for infinite or finite source)**	**=**	**chemical- and source size-specific, m^3/kg**

8. EQUATION FOR DEVELOPMENTAL EFFECTS – PREGNANT WORKER:

$$VSIV_{dev} = \frac{THQ \times AT_{dev} \times RfC_{dev} \times RSC}{ED_{dev} \times EF_{dev} \times (1/VF_{dev})}$$

where,

$VSIV_{dev}$	**(Volatile soil inhalation value for infinite or finite source)**	**=**	**chemical and source size-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	**=**	**1**
$AT_{dev,FT}$	**(Averaging time, pregnant worker, full-term pregnancy)**	**=**	**280 days or chemical-specific**
$AT_{dev,SE}$	**(Averaging time, pregnant worker, single exposure event during pregnancy)**	**=**	**1 day or chemical-specific**

RfC_{dev}	**(Reference concentration)**	**=**	**chemical-specific, µg/m³**
RSC	**(Relative source contribution)**	**=**	**1 or chemical-specific**
$ED_{dev,FT}$	**(Exposure duration, pregnant worker, full-term pregnancy)**	**=**	**0.767 year or chemical-specific**
$ED_{dev,SE}$	**(Exposure duration, single exposure event during pregnancy)**	**=**	**1 day or chemical-specific**
$EF_{dev,FT}$	**(Exposure frequency, pregnant worker, full-term pregnancy)**	**=**	**183 days/year or chemical-specific**
$EF_{dev,SE}$	**(Exposure frequency, pregnant worker, single exposure event during pregnancy)**	**=**	**1 day/day or chemical-specific**
VF_{dev}	**(Volatilization factor for infinite or finite source, pregnant worker)**	**=**	**chemical and source size-specific, m³/kg**

The soil to air volatilization factors (VF) shall be calculated for infinite and finite sources pursuant to equations 9 and 10 of this rule, respectively.

The average flux for the finite sources may be derived using the United States Environmental Protection Agency Exposure Model for Soil-Organic Fate and Transport (EMSOFT) model or a modeling method approved by the department.

Soil to air volatilization factor (VF):

9. VF for infinite source equations:

(a) $$VF_{inf} = (Q/C) \times \left(\frac{1}{J_{s,inf}^{ave}} \right)$$

(b) $$J_{s,inf}^{ave} = \rho_b (4D_A/\pi t)^{1/2} \times 10^4 \, cm^2/m^2$$

(c) $$D_A = \frac{[(\theta_a^{3.33} D_a (H' \times TAF) + \theta_w^{3.33} D_w)/n^2]}{\rho_b K_d + \theta_w + \theta_a (H' \times TAF)}$$

where,

VF_{inf}	**(Volatilization factor for infinite source)**	**=**	**chemical and source size-specific, m³/kg**
Q/C	**(Dispersion factor for 1/2 acre)**	**=**	**42.45 g/m²-sec per kg/m³**
$J_{s,inf}^{ave}$	**(Normalized average flux for infinite source in soil)**	**=**	**chemical-specific, g/m²-sec**
ρ_b	**(Dry soil bulk density)**	**=**	**1.66 g/cm³**
D_A	**(Apparent diffusivity)**	**=**	**chemical-specific, cm²/sec**
π	**(Pi)**	**=**	**3.14159, unitless**
t	**(Exposure time:**		
	32 years x 3.1536E+7 sec/year	**=**	**1.01E+09 sec (residential)**
	20 years x 3.1536E+7 sec/year)	**=**	**6.31E+08 sec (nonresidential)**

η	**(Total soil porosity)**	=	**0.375 L_{pore}/L_{soil}**
θ_w	**(Soil water-filled porosity)**	=	**0.054 L_{water}/L_{soil}**
θ_a	**(Soil air-filled porosity)**	=	**0.321 L_{air}/L_{soil}**
D_a	**(Diffusivity in air)**	=	**chemical-specific, cm^2/sec**
D_w	**(Diffusivity in water)**	=	**chemical-specific, cm^2/sec**
H'	**(Dimensionless Henry's law constant)**	=	**chemical-specific, unitless**
TAF	**(Temperature adjustment factor)**	=	**0.5, unitless**
K_d	**(Soil-water partition coefficient)**	=	**chemical-specific, cm^3/g**
	For organic compounds	=	**K_{oc} (cm^3/g) x f_{oc} (g/g)**
	For inorganic compounds	=	**chemical-specific, cm^3/g**
K_{oc}	**(Soil organic carbon partition coefficient)**	=	**chemical-specific, cm^3/g**
f_{oc}	**(Organic carbon content of soil)**	=	**0.002 g/g**

10. VF for finite source (2 or 5 meter depth) equation:

$$VF_{fin} = (Q/C) \times \left(\frac{1}{J_{s,fin}^{ave}} \right)$$

where,

VF_{fin}	**(Volatilization factor for finite source)**	=	**chemical and source size-specific, m^3/kg**
Q/C	**(Dispersion factor for 1/2 acre)**	=	**42.45 g/m^2-sec per kg/m^3**
$J_{s,fin}^{ave}$	**(Normalized average flux for 2- or 5-meter finite source derived using EMSOFT model)**	=	**chemical-specific, g/m^2-sec**

RESIDENTIAL:

11. EQUATION FOR CARCINOGENIC EFFECTS:

$$PSIV_{ca} = \frac{TR \times AT_{ca}}{IURF \times ED_{res} \times EF_{res} \times \left(\frac{1}{PEF_{res}} \right)}$$

where,

$PSIV_{ca}$	**(Particulate soil inhalation value)**	=	**chemical and source size-specific, µg/kg or ppb**
TR	**(Target risk level)**	=	**10^{-5}**
AT_{ca}	**(Averaging time)**	=	**28,470 days**
IURF	**(Inhalation unit risk factor)**	=	**chemical-specific, $(\mu g/m^3)^{-1}$**
ED_{res}	**(Exposure duration)**	=	**32 years**
EF_{res}	**(Exposure frequency)**	=	**350 days/year**
PEF_{res}	**(Particulate emission factor)**	=	**source size-specific, m^3/kg**

12. EQUATION FOR CARCINOGENS WITH MUTAGENIC EFFECTS:

$$PSIV_{mut} = \frac{TR \times AT_{ca}}{IURF \times EF_{res} \times \left[\left(ED_{<2} \times ADAF_{<2}\right) + \left(ED_{2-6} \times ADAF_{2-6}\right) + \left(ED_{6-16} \times ADAF_{6-16}\right) + \left(ED_{16-32} \times ADAF_{16-32}\right)\right] \times \left(\frac{1}{PEF_{res}}\right)}$$

where,

$PSIV_{mut}$	**(Particulate soil inhalation value)**	**=**	**chemical and source size-specific, µg/kg or ppb**
TR	**(Target risk level)**	**=**	**10^{-5}**
AT_{ca}	**(Averaging time)**	**=**	**28,470 days**
IURF	**(Inhalation unit risk factor)**	**=**	**chemical-specific, $(\mu g/m^3)^{-1}$**
EF_{res}	**(Exposure frequency)**	**=**	**350 days/year**
$ED_{<2}$	**(Exposure duration, age <2 years)**	**=**	**2 years**
$ADAF_{<2}$	**(Age-dependent adjustment factor for cancer potency, age <2 years)**	**=**	**10, unitless**
ED_{2-6}	**(Exposure duration, age 2-6 years)**	**=**	**4 years**
$ADAF_{2-6}$	**(Age-dependent adjustment factor for cancer potency, age 2-6 years)**	**=**	**3, unitless**
ED_{6-16}	**(Exposure duration, age 6-16 years)**	**=**	**10 years**
$ADAF_{6-16}$	**(Age-dependent adjustment factor for cancer potency, age 6-16 years)**	**=**	**3, unitless**
ED_{16-32}	**(Exposure duration, age 16-32 years)**	**=**	**16 years**
$ADAF_{16-32}$	**(Age-dependent adjustment factor for cancer potency, age 16-32 years)**	**=**	**1, unitless**
PEF_{res}	**(Particulate emission factor)**	**=**	**source size-specific, m^3/kg**

13. EQUATION FOR NONCARCINOGENIC EFFECTS:

$$PSIV_{nc} = \frac{THQ \times AT_{res} \times RfC \times RSC}{ED_{res} \times EF_{res} \times \left(\frac{1}{PEF_{res}}\right)}$$

where,

$PSIV_{nc}$	**(Particulate soil inhalation value)**	**=**	**chemical and source size-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	**=**	**1**
AT_{res}	**(Averaging time)**	**=**	**11,680 days**
RfC	**(Reference concentration)**	**=**	**chemical-specific, $\mu g/m^3$**
RSC	**(Relative source contribution)**	**=**	**chemical-specific or 1**
ED_{res}	**(Exposure duration)**	**=**	**32 years**
EF_{res}	**(Exposure frequency)**	**=**	**350 days/year**
PEF_{res}	**(Particulate emission factor)**	**=**	**source size-specific, m^3/kg**

14. EQUATION FOR DEVELOPMENTAL EFFECTS - CHILD:

$$PSIV_{dev} = \frac{THQ \times AT_{child} \times RfC_{dev} \times RSC}{ED_{child} \times EF_{res} \times \left(\frac{1}{PEF_{dev}}\right)}$$

where,

$PSIV_{dev}$	**(Particulate soil inhalation value)**	**= chemical and source size-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	**= 1**
AT_{child}	**(Averaging time)**	**= 2,190 days**
RfC_{dev}	**(Reference concentration)**	**= chemical-specific, µg/m^3**
RSC	**(Relative source contribution)**	**= 1 or chemical-specific**
ED_{child}	**(Exposure duration)**	**= 6 years**
EF_{res}	**(Exposure frequency)**	**= 350 days/year**
PEF_{dev}	**(Particulate emission factor)**	**= source size-specific, m^3/kg**

15. EQUATION FOR DEVELOPMENTAL EFFECTS - PREGNANT RESIDENT

$$PSIV_{dev} = \frac{THQ \times AT_{preg} \times RfC_{dev} \times RSC}{ED_{preg} \times EF_{preg} \times \left(\frac{1}{PEF_{dev}}\right)}$$

where,

$PSIV_{dev}$	**(Particulate soil inhalation value)**	**= chemical and source size-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	**= 1**
$AT_{preg,FT}$	**(Averaging time, full-term pregnancy)**	**= 280 days or chemical-specific**
$AT_{preg,FT}$	**(Averaging time, single event exposure during pregnancy)**	**= 1 day or chemical-specific**
RfC_{dev}	**(Reference concentration)**	**= chemical-specific, µg/m^3**
RSC	**(Relative source contribution)**	**= 1 or chemical-specific**
$ED_{preg,FT}$	**(Exposure duration, full-term pregnancy)**	**= 0.767 year or chemical-specific**
$ED_{preg,SE}$	**(Exposure duration, single event exposure during pregnancy)**	**= 1 day or chemical-specific**
$EF_{preg,FT}$	**(Exposure frequency, full-term pregnancy)**	**= 268.5 days/year or chemical specific**
$EF_{preg,SE}$	**(Exposure frequency, single event exposure during pregnancy)**	**= 1 day/day or chemical specific**
PEF_{dev}	**(Particulate emission factor)**	**= source size-specific, m^3/kg**

NONRESIDENTIAL:

16. EQUATION FOR CARCINOGENIC EFFECTS:

$$PSIV_{ca} = \frac{TR \times AT_{ca}}{IURF \times EF_{nr} \times ED_{nr} \times \left(\frac{1}{PEF_{nr}}\right)}$$

where,

$PSIV_{ca}$	**(Particulate soil inhalation value)**	=	**chemical and source size-specific, µg/kg**
TR	**(Target risk level)**	=	10^{-5}
AT_{ca}	**(Averaging time)**	=	**28,470 days**
$IURF$	**(Inhalation unit risk factor)**	=	**chemical-specific, $(\mu g/m^3)^{-1}$**
EF_{nr}	**(Exposure frequency)**	=	**238 days/year**
ED_{nr}	**(Exposure duration)**	=	**20 years**
PEF_{nr}	**(Particulate emission factor)**	=	**source size-specific, m^3/kg**

17. EQUATIONS FOR NONCARCINOGENIC EFFECTS:

$$PSIV_{nc} = \frac{THQ \times AT_{nr} \times RfC \times RSC}{ED_{nr} \times EF_{nr} \times \left(\frac{1}{PEF_{nr}}\right)}$$

where,

$PSIV_{nc}$	**(Particulate soil inhalation value)**	=	**chemical and source size-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	=	**1**
AT_{nr}	**(Averaging time)**	=	**7,300 days**
RfC	**(Reference concentration)**	=	**chemical-specific, $\mu g/m^3$**
RSC	**(Relative source contribution)**	=	**1 or chemical-specific**
ED_{nr}	**(Exposure duration)**	=	**20 years**
EF_{nr}	**(Exposure frequency)**	=	**238 days/year**
PEF_{nr}	**(Particulate emission factor)**	=	**source size-specific, m^3/kg**

18. EQUATION FOR DEVELOPMENTAL EFFECTS – PREGNANT WORKER:

$$PSIV_{dev} = \frac{THQ \times AT_{dev} \times RfC_{dev} \times RSC}{ED_{dev} \times EF_{dev} \times \left(\frac{1}{PEF_{dev}}\right)}$$

where,

$PSIV_{dev}$	**(Particulate soil inhalation value)**	=	**chemical and source size-specific, µg/kg or ppb**
THQ	**(Target hazard quotient)**	=	**1**
$AT_{dev,FT}$	**(Averaging time, pregnant worker, full-term pregnancy)**	=	**280 days or chemical specific**
$AT_{dev,SE}$	**(Averaging time, pregnant worker, single event exposure**	=	**1 day or chemical specific**

	during pregnancy)		
RfC_{dev}	**(Reference concentration)**	**=**	**chemical-specific, µg/m^3**
RSC	**(Relative source contribution)**	**=**	**1 or chemical-specific**
$ED_{dev,FT}$	**(Exposure duration, pregnant worker, full-term pregnancy)**	**=**	**0.767 year or chemical-specific**
$ED_{dev,SE}$	**(Exposure duration, pregnant worker, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
$EF_{dev,FT}$	**(Exposure frequency, pregnant worker, full-term pregnancy)**	**=**	**183 days/year or chemical-specific**
$EF_{dev,SE}$	**(Exposure frequency, pregnant worker, single event exposure during pregnancy)**	**=**	**1 day/day or chemical-specific**
PEF_{dev}	**(Particulate emission factor, pregnant worker)**	**=**	**source size-specific, m^3/kg**

The particulate emission factors (PEF) shall be calculated pursuant to equation 19 of this rule.

RESIDENTIAL AND NONRESIDENTIAL:

19. EQUATION FOR PEF:

$$PEF = (Q/C) \times \frac{1}{[Ew + Ev]}$$

where,

PEF	**(Particulate emission factor)**	**=**	**4.91E+7 for residential ½ acre source size, or source size-specific, m^3/kg**
		=	**4.8E+7 for nonresidential ½ source size, or source size-specific, m^3/kg**
Q/C	**(Dispersion factor for 1/2 acre)**	**=**	**42.45, g/m^2-sec per kg/m^3**
Ew	**(Emission due to wind erosion)**	**=**	**8.466E-07 g/m^2 per sec (residential)**
		=	**8.466E-07 g/m^2 per sec (nonresidential)**
Ev	**(Emission due to vehicle traffic on unpaved road for ½ acre source size)**	**=**	**1.871E-08 g/m^2 per sec (residential)**
		=	**4.192E-08 g/m^2 per sec (nonresidential)**

The emissions due to wind erosion (Ew) shall be calculated pursuant to equation 20 of this rule:

RESIDENTIAL AND NONRESIDENTIAL:

20. EQUATIONS FOR EMISSION DUE TO WIND EROSION (Ew):

(a) $$Ew = \frac{0.036 g/m^2\ hr \times (1 - V) \times \left(\frac{U_{mz}}{U_{adj}}\right)^3 \times F(x)}{3{,}600\ sec/hr}$$

where,

Ew	**(Emission due to wind erosion)**	**=**	**8.466E-07 g/m^2 per sec (residential)**
		=	**8.466E-07 g/m^2 per sec (nonresidential)**
V	**(Vegetative cover)**	**=**	**0.5, unitless (residential)**
		=	**0.5, unitless (nonresidential)**
U_{mz}	**(Michigan annual wind speed adjusted to 7.0 meters)**	**=**	**6.56 m/sec**
Ut_{adj}	**(Equivalent threshold friction value**	**=**	**11.319 m/sec (residential)**
	of wind speed at 7.0 m)	**=**	**11.319 m/sec (nonresidential)**
F(x)	**(Function of x based on Cowherd, 1985)**	**=**	**0.87, unitless (residential)**
		=	**0.87, unitless (nonresidential)**

(b) $$U_{mz} = U_m \times \left(\frac{z}{h}\right)^{0.15}$$

where,

U_{mz}	**(Michigan annual wind speed adjusted to 7.0 meters)**	**=**	**6.56 m/sec**
U_m	**(Michigan annual wind speed at measurement height h)**	**=**	**6.92 m/sec**
h	**(Michigan wind speed measurement height)**	**=**	**10 m**
z	**(Height above test surface)**	**=**	**7 m**

(c) $$Ut_{adj} = \left(\frac{Ut}{0.4}\right) \times \ln\left(\frac{z}{z_0}\right) \times Cf$$

where,

Ut_{adj}	**(Equivalent threshold friction value of wind speed at 7.0 m)**	**=**	**11.319 m/sec (residential)**
		=	**11.319 m/sec (nonresidential)**
Ut	**(Threshold friction value of wind speed for a residential soil aggregate size of 0.5 mm**	**=**	**0.5 m/sec (residential)**
	For a nonresidential soil aggregate size of 0.5 mm	**=**	**0.5 m/sec (nonresidential)**
Cf	**(Correction factor for non-erodible elements)**	**=**	**1.25, unitless or default**

z	**(Height above test surface)**	**=**	**7 m**
z_0	**(Roughness height)**	**=**	**0.005 m**

(d) $$x = 0.886 \times \left(\frac{Ut_{adj}}{U_{mz}} \right)$$

where,

x	**Cowherd derived x**	**=**	**1.529, unitless (residential)**
		=	**1.529, unitless (nonresidential)**
Ut_{adj}	**(Equivalent threshold friction value of wind speed at 7.0 m)**	**=**	**11.3 m/sec (residential)**
		=	**11.3 m/sec (nonresidential)**
U_{mz}	**(Michigan annual wind speed adjusted to 7.0 meters)**	**=**	**6.56 m/sec (residential)**
		=	**6.56 m/sec (nonresidential)**

The emissions due to vehicle traffic on unpaved roads (Ev) shall be calculated pursuant to equations 21 and 22 of this rule:

RESIDENTIAL AND NONRESIDENTIAL:

21. EQUATIONS FOR EMISSION DUE TO VEHICLE TRAFFIC ON UNPAVED ROADS:

(a) $$Ev = E \times \left(\frac{1}{A} \right) \times \left(\frac{1}{CF} \right)$$

where,

Ev	**(Annual average vehicle emissions on unpaved road)**	**=**	**1.871E-08 g/m^2-s (residential)**
		=	**4.192E-08 g/m^2-s (nonresidential)**
E	**(Annual PM_{10} vehicle emissions)**	**=**	**1,112 g/year (residential)**
		=	**1,694 g/year (nonresidential)**
A	**(Area of a ½ acre site excluding house/building area)**	**=**	**1,965 m^2 (residential)**
		=	**1,965 m^2 (nonresidential)**
	(Area of house)	**=**	**58.06 m^2 (residential)**
	(Area of building)	**=**	**58.06 m^2 (nonresidential)**
CF	**(Conversion factor)**	**=**	**3.02E+7 sec/year (residential)**
		=	**2.05E+7 sec/year (nonresidential)**

(b) $$E = E_{10} \times L \times Ve \times F$$

where,

E	**(Annual PM_{10} vehicle emissions on unpaved road)**	**=**	**1,112 g/year (residential)**
		=	**1,694 g/year (nonresidential)**
E_{10}	**(PM_{10} emission per vehicle-kilometer**	**=**	**7.94 g/VeKT (residential)**

	traveled (VeKT))		**3.163 g/VeKT (nonresidential)**
L	**(Length of unpaved driveway or road or kilometer traveled**	**=**	**0.02 Km traveled (residential) 0.045 Km traveled (nonresidential)**
Ve	**(One-way trips or vehicles/day)**	**=**	**20 vehicles/day (residential) 50 vehicles/day(nonresidential)**
F	**(Frequency of travel)**	**=**	**350 days/year (residential)**
		=	**238 days/year (nonresidential)**

22. EQUATIONS FOR UNPAVED ROAD PM_{10} EMISSION FACTORS (E_{10})

RESIDENTIAL:

(a) $$E_{10} = \left[\frac{\left(k \times \left(\frac{s}{12} \right)^{a} \times \left(\frac{S}{30} \right)^{d} \times \left(\frac{365 - p}{365} \right) \right)}{\left(\frac{M}{0.5} \right)^{c}} - C \right] \times CF$$

where,

E_{10}	**(PM_{10} emission factor for residential unpaved road)**	**=**	**7.94 g/VeKT**
k	**(Particle size multiplier for unpaved road, PM_{10} in pounds/vehicle-miles traveled (VeMT))**	**=**	**1.8 lb/VeMT**
s	**(Surface material silt content)**	**=**	**11 %**
S	**(Mean vehicle speed)**	**=**	**25 miles/hour**
a	**(Constant for PM_{10})**	**=**	**1, unitless**
c	**(Constant for PM_{10})**	**=**	**0.2, unitless**
d	**(Constant for PM_{10})**	**=**	**0.5, unitless**
p	**(Mean number of days with at least 0.01 inch of precipitation)**	**=**	**135 days**
M	**(Surface material moisture content)**	**=**	**0.2 %**
C	**(Emission factor for 1980's vehicle fleet exhaust, brake wear and tire tear)**	**=**	**4.7E-4 lb/VeMT**
CF	**(Conversion factor [g/vehicle-km traveled per lb/vehicle-miles traveled])**	**=**	**281.9 (g/VeKT)/(lb/VeMT)**

NONRESIDENTIAL:

(b) $$E_{10} = k \times \left(\frac{s}{12} \right)^{a} \times \left(\frac{W}{3} \right)^{b} \times \left(\frac{365 - p}{365} \right) \times CF$$

where,

E_{10}	**(PM_{10} emission factor for nonresidential unpaved road)**	**=**	**3.16 g/VeKT**
k	**(Particle size multiplier for unpaved road, PM_{10} in pounds/vehicle-miles traveled (VeMT))**	**=**	**1.5 lb/VeMT**
s	**(Surface material silt content)**	**=**	**8.3 %**

W	**(Mean vehicle weight)**	**=**	**3.3 tons**
a	**(Constant for PM_{10})**	**=**	**0.9, unitless**
b	**(Constant for PM_{10})**	**=**	**0.45, unitless**
p	**(Mean number of days with at least 0.01 inch of precipitation)**	**=**	**135 days**
CF	**(Conversion factor [g/vehicle-km traveled per lb/vehicle-miles traveled])**	**=**	**281.9 (g/VeKT)/(lb/VeMT)**

(11) Facility-specific values of the following input values may be substituted for the generic input values pursuant to R 299.7:

(a) Dry soil bulk density (ρ_b).

(b) Soil water-filled porosity (θ_w).

(c) Soil air-filled porosity (θ_a).

(12) Site-specific values of the following input values may be substituted for the generic residential criterion input values for department approval as unrestricted residential use:

(a) Fraction of organic carbon in soil (foc).

(b) Dispersion factor (Q/C).

(c) Wind speed (Ew).

(d) Surface material silt content (s).

(e) Mean number of days with at least 0.01 inch of precipitation (p).

~~EQUATIONS FOR CARCINOGENS:~~

$$\text{~~VSIC~~} = \frac{TR \times AT}{IURF \times EF \times ED \times (1/VF)}$$

~~where,~~

~~VSIC~~	~~(Volatile soil inhalation criterion)~~	=	~~chemical-specific, ug/kg or ppb~~
~~TR~~	~~(Target risk level)~~	=	~~10^{-5}~~
~~AT~~	~~(Averaging time)~~	=	~~25,550 days (70 years x 365 days/year)~~
~~IURF~~	~~(Inhalation unit risk factor)~~	=	~~chemical-specific $(ug/m^3)^{-1}$~~
~~EF~~	~~(Exposure frequency)~~	=	~~350 days/year~~
~~ED~~	~~(Exposure duration)~~	=	~~30 years~~
~~VF~~	~~(Volatilization factor)~~	=	~~chemical-specific, m^3/kg~~

~~and,~~

$$\text{~~PSIC~~} = \frac{TR \times AT}{IURF \times EF \times ED \times (1/PEF)}$$

~~where,~~

~~PSIC~~	~~(Particulate soil inhalation criterion)~~	=	~~chemical-specific, ug/kg or ppb~~

TR	(Target risk level)	=	10^{-5}
AT	(Averaging time)	=	25,550 days (70 years x 365 days/year)
IURF	(Inhalation unit risk factor)	=	chemical-specific $(ug/m^3)^{-1}$
EF	(Exposure frequency)	=	350 days/year
ED	(Exposure duration)	=	30 years
PEF	(Particulate emission factor)	=	chemical-specific, m^3/kg

EQUATIONS FOR NONCARCINOGENS:

$$VSIC = \frac{THQ \times AT}{EF \times ED \times (1/ITSL \times 1/VF)}$$

where,

VSIC	(Volatile soil inhalation criterion)	=	chemical-specific, ug/kg or ppb
THQ	(Target hazard quotient)	=	1
AT	(Averaging time)	=	10,950 days (30 years x 365 days/year)
EF	(Exposure frequency)	=	350 days/year
ED	(Exposure duration)	=	30 years
ITSL	(Initial threshold screening level)	=	chemical-specific, ug/m^3
VF	(Volatilization factor)	=	chemical-specific, m^3/kg

and,

$$PSIC = \frac{THQ \times AT}{EF \times ED \times (1/ITSL \times 1/PEF)}$$

where,

PSIC	(Particulate soil inhalation criterion)	=	chemical-specific, ug/kg or ppb
THQ	(Target hazard quotient)	=	1
AT	(Averaging time)	=	10,950 days (30 years x 365 days/year)
EF	(Exposure frequency)	=	350 days/year
ED	(Exposure duration)	=	30 years
ITSL	(Initial threshold screening level)	=	chemical-specific, ug/m^3
PEF	(Particulate emission factor)	=	chemical-specific, m^3/kg

(3) The soil to air volatilization factor (VF) relates the concentration of a contaminant in the soil to the concentration of volatilized contaminant in the ambient air. If the vertical extent of the contaminant source has not been characterized, then the VF shall be calculated based on the infinite equation presented in subdivision (a) of this subrule. If

~~the vertical extent of the contaminant source has been adequately characterized throughout the facility, then the VF shall be calculated either by the finite source equation presented in subdivision (b) of this subrule or the mass balance equation presented in subdivision (c) of this subrule, whichever yields the highest VSIC.~~

~~(a) $VF = (Q/C) \times (1/J_s^{ave})$~~

~~J_s^{ave}, using the infinite source model shall be calculated as follows:~~

$$J_s^{ave} = \rho_b (4D_A/\pi t)^{1/2} \times 10^4 \, cm^2/m^2$$

~~and D_A shall be calculated as:~~

$$D_A = \frac{[(\theta_a^{3.33} D_a (H' \times TAF) + \theta_w^{3.33} D_w)/n^2]}{\rho_b K_d + \theta_w + \theta_a (H' \times TAF)}$$

~~where,~~

~~VF~~	~~(Volatilization factor)~~	=	~~chemical-specific, m^3/kg~~
~~J_s^{ave}~~	~~(Normalized average flux from soil)~~	=	~~chemical-specific, g/m^2-second~~
~~D_A~~	~~(Apparent diffusivity)~~	=	~~chemical-specific, cm^2/second~~
~~Q/C~~	~~(Dispersion factor for 1/2 acre)~~	=	~~82.33, g/m^2-second per kg/m^3~~
~~T~~	~~(Exposure time)~~	=	~~seconds (ED x 3.1536E+7 seconds/yr)~~
~~θ_a~~	~~(Soil air-filled porosity)~~	=	~~0.28 L_{air}/L_{soil}~~
~~N~~	~~(Total soil porosity)~~	=	~~0.43 L_{pore}/L_{soil}~~
~~θ_w~~	~~(Soil water-filled porosity)~~	=	~~0.15 L_{water}/L_{soil}~~
~~ρ_b~~	~~(Dry soil bulk density)~~	=	~~1.5 g/cm^3~~
~~D_a~~	~~(Diffusivity in air)~~	=	~~chemical-specific, cm^2/second~~
~~D_w~~	~~(Diffusivity in water)~~	=	~~chemical-specific, cm^2/second~~
~~H′~~	~~(Dimensionless Henry's law constant, where H′ = HLC x 41)~~	=	~~chemical-specific, unitless~~
~~HLC~~	~~(Henry's law constant at 25^0 C)~~	=	~~chemical-specific, atm-m^3/mol~~
~~TAF~~	~~(Temperature adjustment factor)~~	=	~~0.5~~
~~K_d~~	~~(Soil-water partition coefficient)~~	=	~~chemical-specific, cm^3/g~~
	~~For organic compounds~~	=	~~K_{oc} (cm^3/g) x f_{oc} (g/g)~~
	~~For inorganic compounds~~	=	~~chemical-specific, cm^3/g~~
~~K_{oc}~~	~~(Soil organic carbon partition coefficient)~~	=	~~chemical-specific, cm^3/g~~
~~f_{oc}~~	~~(Organic carbon content of soil)~~	=	~~0.006 g/g (0.6%)~~

~~(b) The simplified finite source model equation for VF shall be calculated as follows:~~

$$VF = (Q/C) \times (C_0 / \rho_b) \times (1 / J_s^{ave})$$

~~and,~~

$$J_s = C_o (D_A / \pi t)^{1/2} \left[1 - \exp\left(-d_s^2 / 4 D_A t\right)\right]$$

~~where,~~

~~VF~~	~~(Volatilization factor)~~	=	~~chemical-specific, m^3/kg~~
~~Q/C~~	~~(Dispersion factor for 1/2 acre)~~	=	~~82.33, g/m^2-second per kg/m^3~~
~~C_0~~	~~(Uniform contaminant concentration at t=0)~~	=	~~1.5 E-6 g/cm^3~~
~~ρ_b~~	~~(Dry soil bulk density)~~	=	~~1.5 g/cm^3~~
~~J_s^{ave}~~	~~(Normalized average flux from soil)~~	=	~~chemical-specific, g/m^2-second~~
~~J_s~~	~~(Instantaneous flux from soil at time t)~~	=	~~chemical-specific, g/m^2-second~~
~~D_A~~	~~(Apparent diffusivity - see equation above)~~	=	~~chemical-specific, cm^2/second~~
~~T~~	~~(Time)~~	=	~~seconds~~
~~d_s~~	~~(Thickness of source)~~	=	~~site-specific, meters~~
~~exp(p)~~	~~(The base of the natural logarithm raised to power (p))~~	=	~~e^p~~

~~(c) Mass balance VF shall be calculated as follows:~~

$$VF = (Q/C) \times \frac{AT \times (3.15 \times 10^{-7}\ \text{seconds/year})}{\rho_b \times d_s \times 10^6\ \text{g/Mg}}$$

~~where,~~

~~VF~~	~~(Volatilization factor)~~	=	~~chemical-specific, m^3/kg~~
~~Q/C~~	~~(Dispersion factor for 1/2 acre)~~	=	~~82.33, g/m^2-second per kg/m^3~~
~~AT~~	~~(Exposure period)~~	=	~~scenario-specific, years~~
~~ρ_b~~	~~(Dry soil bulk density)~~	=	~~1.5 mg/m^3~~
~~d_s~~	~~(Average source depth)~~	=	~~site-specific, meters~~

~~(4) The particulate emission factor shall be calculated as follows:~~

$$PEF = (Q/C) \times 1 / \left[(Ew \times (1 - V)) + Ev\right]$$

~~where,~~

PEF	(Particulate emission factor)	=	chemical-specific, m^3/kg
Q/C	(Dispersion factor for 1/2 acre)	=	82.33, g/m^2-second per kg/m^3
Ew	(Emission due to wind)	=	g/m^2 per second
Ev	(Emission due to vehicle traffic)	=	g/m^2 per second
V	(Vegetative cover)	=	0.5 (50%), unitless

(5) VSIC and PSIC for nonresidential facilities shall be calculated as follows, except as provided in R 299.34(3):

EQUATIONS FOR CARCINOGENS:

$$VSIC = \frac{TR \times AT \times AIR}{IURF \times EF \times ED \times (1/VF)}$$

where,

VSIC	(Volatile soil inhalation criterion)	=	chemical-specific, ug/kg or ppb
TR	(Target risk level)	=	10^{-5}
AT	(Averaging time)	=	25,550 days (70 years x 365 days/year)
AIR	(Adjusted inhalation rate)	=	$(20\ m^3/day)/(10\ m^3/day)$
IURF	(Inhalation unit risk factor)	=	chemical-specific $(ug/m^3)^{-1}$
EF	(Exposure frequency)	=	245 days/year
ED	(Exposure duration)	=	21 years
VF	(Volatilization factor)	=	chemical-specific, m^3/kg

and,

$$PSIC = \frac{TR \times AT \times AIR}{IURF \times EF \times ED \times (1/PEF)}$$

where,

PSIC	(Particulate soil inhalation criterion)	=	chemical-specific, ug/kg or ppb
TR	(Target risk level)	=	10^{-5}
AT	(Averaging time)	=	25,550 days (70 years x 365 days/year)
AIR	(Adjusted inhalation rate)	=	$(20\ m^3/day)/(10\ m^3/day)$
IURF	(Inhalation unit risk factor)	=	chemical-specific $(ug/m^3)^{-1}$
EF	(Exposure frequency)	=	245 days/year
ED	(Exposure duration)	=	21 years

PEF (Particulate emission factor) = chemical-specific, m^3/kg

EQUATIONS FOR NONCARCINOGENS:

$$VSIC = \frac{THQ \times AT}{EF \times ED \times (1/ITSL \times 1/VF)}$$

where,

VSIC	(Volatile soil inhalation criterion)	=	chemical-specific, ug/kg or ppb
THQ	(Target hazard quotient)	=	1
AT	(Averaging time)	=	7,665 days (21 years x 365 days/year)
EF	(Exposure frequency)	=	245 days/year
ED	(Exposure duration)	=	21 years
ITSL	(Initial threshold screening level)	=	chemical-specific, ug/m^3
VF	(Volatilization factor)	=	chemical-specific, m^3/kg

and,

$$PSIC = \frac{THQ \times AT}{EF \times ED \times (1/ITSL \times 1/PEF)}$$

where,

PSIC	(Particulate soil inhalation criterion)	=	chemical-specific, ug/kg or ppb
THQ	(Target hazard quotient)	=	1
AT	(Averaging time)	=	7,665 days (21 years x 365 days/year)
EF	(Exposure frequency)	=	245 days/year
ED	(Exposure duration)	=	21 years
ITSL	(Initial threshold screening level)	=	chemical-specific, ug/m^3
PEF	(Particulate emission factor)	=	chemical-specific, m^3/kg

(6) The generic SIC are calculated for a source area size of 1/2 acre. The generic SIC shall be adjusted for other source area sizes by multiplying the generic SIC by the modifiers given in the following table. Where the actual source area size falls between the sizes given in this subrule, generic SIC shall be multiplied by the modifier for the next largest source size.

Modifiers		
Source Size (ft^2 or acres)	Q/C (g/m^2-s per kg/m^3)	Modifier

~~400 ft^2~~	~~261.26~~	~~3.17~~
~~1000 ft^2~~	~~180.76~~	~~2.2~~
~~2000 ft^2~~	~~144.91~~	~~1.76~~
~~¼ acre~~	~~94.56~~	~~1.15~~
~~½ acre~~	~~82.33~~	~~1~~
~~1 acre~~	~~71.74~~	~~0.87~~
~~2 acres~~	~~63.51~~	~~0.77~~
~~5 acres~~	~~54.62~~	~~0.66~~
~~10 acres~~	~~49.13~~	~~0.6~~
~~32 acres~~	~~41.55~~	~~0.5~~
~~100 acres~~	~~35.66~~	~~0.43~~

~~(7) Facility-specific measurements of the following parameters may be substituted for the generic assumptions and still allow the facility to satisfy the categorical criteria in section 20120a(1)(a) to (e) of the act:~~

~~(a) Dry soil bulk density (ρ_b).~~

~~(b) Soil water-filled porosity (θ_w).~~

~~(c) Soil air-filled porosity (θ_a).~~

~~(d) Fraction of organic carbon in soil (f_{oc}).~~

~~(e) Emission due to wind (Ew).~~

~~(f) Dispersion factor (Q/C).~~

~~Facility-specific measurements shall be based on representative characterization. Documentation of all facility-specific values shall be provided in the response activity plan, no further action report, or other response activity documentation.~~

~~(8) A person who is implementing response activity may demonstrate compliance with the generic criteria developed under this rule through the collection and analysis of ambient air samples within the facility boundaries, if the hazardous substance concentration in surficial soil is representative of facility conditions.~~

R 299.27 Volatilization to Indoor Air Screening Levels and Criteria

Rule 27. (1). As used in this rule:

(a) "Air exchange rate" means the rate of air infiltration into a building through a window, doorway, intake, and exhaust, or other adventitious opening, plus natural and mechanical ventilation.

(b) "Acceptable air concentration" or "AAC" means the concentration of a volatile hazardous substance in indoor air that represents an acceptable risk to human health.

(c) "Capillary zone" means the zone immediately above the water table within which the water is drawn by capillary forces and the fluid is under tension.

(d) "Conceptual site model" or "CSM" means a written or illustrative representation, or both, of the surface and subsurface conditions. The CSM includes the physical, chemical, and biological processes that control the transport,

migration, and potential impacts of contamination to a human or ecological receptor, or both.

(e) "Lateral inclusion zone" means the horizontal distance beyond a vapor source that may make a property or structure vulnerable to the migration of vapors. It is identified as the following:

(i) One hundred feet from the extent of a chlorinated vapor source or other vapor source.

(ii) Thirty feet from the extent of a petroleum vapor source.

(iii) Distances could be greater than those identified in paragraphs (i) and (ii) of this subdivision and shall be evaluated when the concentration of a hazardous substance in any media exceeds the unrestricted generic residential criterion within those distances.

(f) "Vapor cloud" means a hazardous substance in the soil vapor with no colocated contamination in the soil or groundwater.

(g) "Vapor intrusion" means a process by which a hazardous substance from a vapor source has migrated or has the potential to migrate through the subsurface or preferential pathways, or both, into overlying buildings.

(h) "Volatilization to indoor air Tier 1 screening level" or "VI Tier 1 screening level" means the initial screening levels used to identify a release of a hazardous substance as a vapor source.

(i) "Volatilization to indoor air Tier 2 generic criterion" or "VI Tier 2 generic criterion" means the VI Tier 1 screening level that incorporates facility-specific geological and physical site conditions that establish the generic cleanup criteria for unrestricted residential use.

(j) "Volatilization to indoor air Tier 3A generic criterion" or "VI Tier 3A generic criterion" means the VI Tier 2 generic criterion that also incorporates the use of facility-specific land use or building information, or both, that require a land or resource use restriction.

(k) "Volatilization to indoor air Tier 3B site-specific criterion" or "VI Tier 3B site-specific criterion" means a criterion developed using an alternate method or model approved by the department.

(l) "Vapor source" means a release of a hazardous substance that may form vapors that have the potential to migrate.

(m) "Vertical separation distance" means the vertical distance from a vapor source to a building foundation.

(2) The generic cleanup criteria based on inhalation of hazardous substance vapors volatilizing from a vapor source to indoor air shall be called volatilization to indoor air criteria ("VIAC") and the pathway shall be referred to as the volatilization to indoor air pathway ("VIAP"). All of the following apply:

(a) Indoor inhalation of hazardous substance vapors volatilizing to indoor air from a vapor source shall be considered a relevant pathway for volatile hazardous substances. The department may develop a screening level or criterion for a hazardous substance when available information indicates the hazardous substance is or may become volatile.

(b) VIAP is relevant for properties within the lateral inclusion zone.

(c) The process to assess the VIAP is the VI Tier process shown in figure 1 of this rule. The process is presented as a sequential step-by-step approach; parties may skip tiers as appropriate to the conditions at a facility or the circumstances of an investigation.

(d) The VIAP shall be evaluated using soil, groundwater, and vapor samples to satisfy criteria for each media pursuant to the VI Tier process and shall be based upon the following:

(i) The CSM represents the VIAP.

(ii) The sample collected is aligned with the location of the vapor source and is appropriate for evaluating the VIAP.

(iii) A vapor source may be present and represent a risk to human health when the concentration of a hazardous substance in soil or groundwater does not exceed the criteria that are based on the target detection limit.

(iv) A vapor sample may be used as the best available information to represent in-situ conditions at the facility for evaluating a vapor source and the ability to migrate when comparing samples that are colocated or are similarly located.

(3) The development of the generic VIAC assumes all of the following:

(a) Any structure present or planned to be constructed at the facility has a concrete block or poured concrete walls and concrete floor.

(b) Groundwater is in contact with a structure when the vertical separation distance is less than or equal to 0 cm. The vertical separation distance shall consider seasonal variations of the first encountered groundwater and shall be the lesser of the following:

(i) The distance between the top of the capillary zone of the first encountered groundwater and the bottom of the structure.

(ii) The distance between the first encountered groundwater and the bottom of the foundation and subsurface utilities that may be present beneath the structure.

(c) When a vapor source is within 1 meter vertically of the foundation, an attenuation factor of 0.03 is used to calculate the acceptable vapor concentration.

(d) Soil is considered to be homogeneous and isotropic.

(4) When a hazardous substance does not have sufficient toxicological, chemical-specific, or chemical-physical generic input values available in the tables of R 299.50 to allow the development of a generic criterion using the equations of this rule, the VIAC may be developed using the following:

(a) If the department cannot develop a generic criterion for groundwater not in contact, the generic criterion for groundwater in contact may be used to evaluate the potential for vapor intrusion. Alternatively, a person may evaluate the VIAP using VI Tier 3B site-specific criteria.

(b) If the department cannot develop a generic criterion for vapor using the equations of this rule, and the hazardous substance has sufficient input values to develop an AAC, an attenuation factor of 0.03 shall be used. Alternatively, a person may evaluate the VIAP using VI Tier 3B site-specific criteria.

(5) The VIAP is evaluated using VI Tier 1 screening levels. VI Tier 1 screening levels identify concentrations that may represent a vapor source or a vapor cloud without any site-specific geological or physical-specific information. All of the following apply:

(a) The VI Tier 1 screening values are based on generic input values that represent the following:

(i) Groundwater being in contact with a structure for groundwater and vapor values.

(ii) A structure foundation of slab-on-grade for soil values.

(iii) A soil type of sand pursuant to R 299.7 and the generic input values in table 1 of this rule.

(b) A person may use the screening level as the criterion to evaluate the potential for vapor intrusion to occur when no further facility data is available.

(c) If concentrations in environmental media exceed VI Tier 1 screening levels then the person proposing or implementing response activity shall evaluate whether additional response activity is required to assess the vapor source for vapor intrusion potential pursuant to this rule.

(6) If the concentration of a hazardous substance in environmental media exceeds VI Tier 1 screening level, the VIAP may be evaluated using VI Tier 2 generic unrestricted residential criteria. The VI Tier 2 generic unrestricted residential criteria identify a vapor source and the potential for vapor intrusion and are based on the following:

(a) Department-approved soil and soil temperature facility-specific input values are allowed pursuant to R 299.7. When no soil information has been obtained during an investigation the facility-specific input values shall be those listed for sand in table 2 of R 299.7.

(b) The generic input value for the depth to groundwater is 3 meters and is assumed to be in contact with the structure. A depth to groundwater greater than 3 meters can be established using the shallowest depth of the first encountered groundwater considering seasonal variations based on data specific to the facility and department-approved methodology.

(c) The generic input values for soil criteria assume a residential structure foundation of slab-on grade. The calculated value is considered protective of a residential structure with a basement.

(d) Department-approved input values provided in table 1 of this rule identify additional generic input values to develop the VI Tier 2 generic criteria.

(e) The calculated value for a hazardous substance based upon groundwater in contact with the structure is considered protective when it is greater than the calculated value of groundwater not in contact with the structure.

(7) If the concentration of a hazardous substance in environmental media exceeds VI Tier 1 screening levels, VI Tier 2 generic unrestricted residential criteria, or both, the VIAP may be evaluated using VI Tier 3A generic criteria. VI Tier 3A generic criteria represent restricted categorical criteria and are based on the following:

(a) The environmental input values specific to the facility from subrule (6)(a) and (b) of this rule.

(b) Department-approved facility-specific input values for land use and building information as identified in table 1 of this rule.

(8) The VIAP may be evaluated with VI Tier 3B site-specific criterion pursuant to sections 20120a(2) and 20120b of the act, using any of the following:

(a) The equations in subrules (10) and (11) of this rule and associated input values, with data collected from the facility that is demonstrated to be representative of site-specific conditions and has undergone a sensitivity and validation analysis that will determine and evaluate all of the following:

(i) The parameters that require additional information to reduce output uncertainty.

(ii) The inputs that contribute most to output variability.

(iii) The parameters that are most highly correlated with the output.

(iv) The change in the output that results from changing a given input parameter.

(v) The expected reliability of the identified parameters.

(b) The actual building parameters including air exchange rate, enclosed-space floor thickness, enclosed-space floor length, enclosed-space floor width, and enclosed-space height, with an analysis that includes all of the following:

(i) An evaluation of the smaller areas contained within the structure.

(ii) An evaluation of how the footings, walls, and air exchange patterns impact the data.

(iii) An evaluation of whether the inputs used are representative of the actual site conditions.

(c) Different models or methods may be reviewed and approved by the department to determine that the model or method is appropriate to evaluate vapor intrusion risks based on an analysis as identified in subdivisions (a) and (b) of this subrule. VIAP models or methods are available to evaluate the following conditions:

(i) Heterogeneous or multilayer soil present at a property.

(ii) A vapor source that consists solely of dissolved phase petroleum.

(iii) A NAPL vapor source.

(iv) A finite vapor source in unsaturated soil for circumstances where the vertical and horizontal extent of a vapor source throughout the facility has been defined based upon all applicable VI Tier 2 generic criteria.

(9) The department may establish a vertical separation distance for petroleum vapor intrusion that represents the minimum distance between a petroleum vapor source and a structure needed to effectively biodegrade hydrocarbons below a level of concern for a current or planned structure. Meeting a vertical separation distance may not remove the need for land or resource use restrictions to prevent future exposure.

(10) The volatilization to indoor air values are determined by the following series of equations, except as provided in R 299.34. The toxicological, chemical-specific, and chemical-physical generic input values are provided in R 299.50. The soil type-specific values and other inputs for a VI Tier 2 and VI Tier 3A generic criteria are identified in table 1 of this rule and table 1 and 2 of R 299.7.

(a) The volatilization to indoor air value where groundwater is not in contact with a structure is determined by the following equations:

1. **EQUATION FOR CALCULATION OF THE GROUNDWATER HEALTH-BASED CONCENTRATION WHERE GROUNDWATER IS NOT IN CONTACT WITH THE STRUCTURE:**

$$VI_{GW} = \frac{AAC}{H'_{TS} \times \alpha \times \left(\frac{1{,}000\,L}{m^3}\right)}$$

where,

VI_{GW}	**(Volatilization to indoor air concentration for groundwater)**	**=**	**chemical-specific, µg/L**
AAC	**(Acceptable air concentration)**	**=**	**chemical-specific, µg/m³-v**
α	**(Steady-state attenuation coefficient)**	**=**	**unitless (Equation 6 and Table 1 of this rule)**
H'_{TS}	**(Henry's law constant at the system (groundwater) temperature)**	**=**	**chemical-specific, dimensionless (Equation 4)**

2. THE RELATIONSHIP OF THE ATTENUATION COEFFICIENT TO THE STEADY-STATE VAPOR PHASE CONCENTRATION OF THE HAZARDOUS SUBSTANCE IN THE BUILDING:

$$C_{building} = \alpha \times C_{source}$$

where,

$C_{building}$	**(Vapor concentration in building using the AAC)**	**=**	**chemical-specific (subrule 11of this rule), µg/m³-v**
C_{source}	**(Vapor concentration at the vapor source)**	**=**	**µg/m³-v (Equation 3)**
α	**(Steady-state attenuation coefficient)**	**=**	**unitless (Equation 6 and Table 1 of this rule)**

3. THE RELATIONSHIP OF THE GROUNDWATER VAPOR SOURCE CONCENTRATION TO THE GROUNDWATER CONCENTRATION:

$$C_{source} = H'_{TS} \times C_w$$

where,

C_{source}	**(Vapor concentration at the vapor source)**	**=**	**µg/m³-v**
H'_{TS}	**(Henry's law constant at the system (groundwater) temperature)**	**=**	**chemical-specific, dimensionless (Equation 4)**
C_w	**(Groundwater concentration using the VI_{GW} × (1,000 L/m³) conversion)**	**=**	**µg/m³-w**

4. EQUATION FOR THE DIMENSIONLESS FORM OF THE HENRY'S LAW CONSTANT AT THE SYSTEM TEMPERATURE:

$$H'_{TS} = \frac{\exp\left[-\frac{\Delta H_{V,TS}}{R_c}\left(\frac{1}{T_S}-\frac{1}{T_R}\right)\right]\times HLC}{R\times T_S}$$

where,

H'_{TS}	**(Henry's law constant at the system temperature)**	=	**chemical-specific, dimensionless**
$\Delta H_{v,TS}$	**(Enthalpy of vaporization at the system temperature)**	=	**chemical-specific, cal/mol (Equation 5)**
T_S	**(System temperature)**	=	**283.15 K or facility-specific**
T_R	**(Henry's law constant reference temperature)**	=	**298.15 K**
HLC	**(Henry's law constant at the reference temperature)**	=	**chemical-specific, atm-m^3/mol**
R_C	**(Gas constant)**	=	**1.9872 cal/mol-K**
R	**(Gas constant)**	=	**8.206E-05 atm-m^3/mol-K**

5. EQUATION FOR ENTHALPY OF VAPORIZATION:

$$\Delta H_{v,TS} = \Delta H_{v,b}\times\left[\frac{1-T_S/T_C}{1-T_B/T_C}\right]^Y$$

where,

$\Delta H_{v,TS}$	**(Enthalpy of vaporization at the system temperature)**	=	**chemical-specific, cal/mol**
$\Delta H_{v,b}$	**(Enthalpy of vaporization at the normal boiling point)**	=	**chemical-specific, cal/mol**
T_S	**(System temperature)**	=	**283.15 K or facility-specific**
T_C	**(Critical Temperature)**	=	**chemical-specific, K**
T_B	**(Standard boiling point)**	=	**chemical-specific, K**
Y	**(Constant)**	=	**unitless**

Y (constant) is established as a function of the ratio T_B/T_C such that: if $T_B/T_C < 0.57$, Y is 0.30; if T_B/T_C is between 0.57 and 0.71, Y is established as $0.74(T_B/T_C) - 0.116$; and if $T_B/T_C > 0.71$, Y is 0.41.

6. EQUATION FOR AN INFINITE VAPOR SOURCE ASSUMING STEADY STATE MASS TRANSFER:

$$\alpha = \frac{\left[\left(\frac{D_T^{eff}\times A_B}{Q_{building}\times L_T}\right)\times\exp\left(\frac{Q_{soil}\times L_{crack}}{D_{crack}\times A_{crack}}\right)\right]}{\left[\exp\left(\frac{Q_{soil}\times L_{crack}}{D_{crack}\times A_{crack}}\right)+\left(\frac{D_T^{eff}\times A_B}{Q_{building}\times L_T}\right)+\left(\frac{D_T^{eff}\times A_B}{Q_{soil}\times L_T}\right)\left[\exp\left(\frac{Q_{soil}\times L_{crack}}{D_{crack}\times A_{crack}}\right)-1\right]\right]}$$

where,

α	**(Steady-state attenuation coefficient)**	=	**unitless**
D_T^{eff}	**(Total overall effective diffusion coefficient)**	=	**cm^2/sec (Equation 7)**
A_B	**(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)**	=	**cm^2 (L_B, W_B, and L_F in Table 1 of this rule)**
$Q_{building}$	**(Building ventilation rate)**	=	**cm^3/sec (Equation 14)**
L_T	**(Vapor source-building separation)**	=	**cm (Table 1 of this rule)**
Q_{soil}	**(Volumetric flow rate of soil gas into the enclosed space)**	=	**cm^3/sec (Equation 15)**
L_{crack}	**(Enclosed space foundation or slab thickness)**	=	**cm (Table 1 of this rule)**
A_{crack}	**(Area of total cracks: A_{crack} = $2w(L_B + W_B)$)**	=	**cm^2 (L_B & W_B in Table 1 of this rule)**
D_{crack}	**(Effective diffusion coefficient through the cracks)**	=	**cm^2/sec (assumed equivalent to D_v^{eff}, Equation 8)**

Equation 6 contains the exponent of the following dimensionless group:

$$\left(\frac{Q_{soil} \times L_{crack}}{D_{crack} \times A_{crack}}\right)$$

where,

Q_{soil}	**(Volumetric flow rate of soil gas entering the enclosed space of a building)**	=	**cm^3/sec (Equation 15)**
L_{crack}	**(Enclosed space foundation or slab thickness)**	=	**cm (Table 1 of this rule)**
D_{crack}	**(Effective diffusion coefficient through the cracks)**	=	**cm^2/sec (assumed equivalent to D_v^{eff}, Equation 8)**
A_{crack}	**(Area of total cracks: A_{crack} = $2w(L_B + W_B)$)**	=	**cm^2 (LB & WB in Table 1 of this rule)**

This dimensionless group represents the equivalent Peclet number for transport through the building foundation. As the dimensionless group approaches infinity and if the exponent of the equation identified above is too great to be calculated then the attenuation factor is established as:

$$\alpha \rightarrow \frac{\left(\frac{D_T^{eff} \times L_{crack}}{D_{crack} \times A_{crack}}\right)}{\left(\frac{D_T^{eff} \times A_B}{Q_{soil} \times L_T}\right) + 1}$$

where,

α	**(Steady-state attenuation coefficient)**	=	**unitless**
D_T^{eff}	**(Total overall effective diffusion coefficient)**	=	**chemical-specific, cm^2/sec (as established in Equation 7)**
A_B	**(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)**	=	**cm^2 (L_B, W_B, and L_F in Table 1 of this rule)**
$Q_{building}$	**(Building ventilation rate)**	=	**cm^3/sec (Equation 14)**
Q_{soil}	**(Volumetric flow rate of soil gas into the enclosed space)**	=	**cm^3/sec (Equation 15)**
L_T	**(Vapor source-building separation)**	=	**cm (Table 1 of this rule)**

7. EQUATION FOR THE OVERALL EFFECTIVE DIFFUSION COEFFICIENT OF THE SOIL SYSTEM:

$$D_T^{eff} = \frac{L_T}{\left(\frac{L_{WT} - L_{cz} - L_F}{D_V^{eff}}\right) + \left(\frac{L_{cz}}{D_{cz}^{eff}}\right)}$$

where,

D_T^{eff}	**(Total overall effective diffusion coefficient)**	=	**chemical-specific, cm^2/sec**
D_V^{eff}	**(Effective diffusion coefficient across vadose zone)**	=	**chemical-specific, cm^2/sec (Equation 8)**
D_{cz}^{eff}	**(Effective diffusion coefficient across capillary zone)**	=	**chemical-specific, cm^2/sec (Equation 9)**
L_T	**(Vapor source-building separation)**	=	**cm (Table 1 of this rule)**
L_{WT}	**(Depth below grade to water table)**	=	**cm (Table 1 of this rule)**
L_{CZ}	**(thickness of capillary zone)**	=	**cm (Equation 13)**
L_F	**(Depth below grade of enclosed space)**	=	**cm (Table 1 of this rule)**

8. EQUATION FOR THE EFFECTIVE DIFFUSION COEFFICIENT WITHIN THE VADOSE ZONE:

$$D_V^{eff} = D_a \times \left(\theta_a^{3.33}/n^2\right) + \left(D_w/H'_{TS}\right)\left(\theta_w^{3.33}/n^2\right)$$

where,

D_V^{eff}	**(Effective diffusion coefficient across vadose zone)**	=	**chemical-specific, cm^2/sec**
D_a	**(Diffusivity in air)**	=	**chemical-specific, cm^2/sec**
θ_a	**(Soil air-filled porosity)**	=	**0.321 cm^3/cm^3 or soil type-**

			specific
n	(Soil total porosity)	=	0.375 cm^3/cm^3 or soil type-specific
D_w	(Diffusivity in water)	=	chemical-specific, cm^2/sec
θ_w	(Soil water-filled porosity)	=	0.054 cm^3/cm^3 or soil type-specific
H'_{TS}	(Henry's law constant at the system temperature)	=	chemical-specific, dimensionless (Equation 4)

9. EQUATION FOR THE EFFECTIVE DIFFUSION COEFFICIENT ACROSS THE CAPILLARY ZONE:

$$D_{cz}^{eff} = D_a \times \left(\theta_{a,cz}^{3.33} / n_{cz}^2\right) + \left(D_w / H'_{TS}\right)\left(\theta_{w,cz}^{3.33} / n_{cz}^2\right)$$

where,

D_{cz}^{eff}	(Effective diffusion coefficient across the capillary zone)	=	chemical-specific, cm^2/sec
D_a	(Diffusivity in air)	=	chemical-specific, cm^2/sec
$\theta_{a,cz}$	(Soil air-filled porosity in the capillary zone: $\theta_{a,cz} = n - \theta_{w,cz}$)	=	cm^3/cm^3
n_{cz}	(Soil total porosity in the capillary zone)	=	0.375 cm^3/cm^3 or soil type-specific
D_w	(Diffusivity in water)	=	chemical-specific, cm^2/sec
H'_{TS}	(Henry's law constant at the system temperature)	=	chemical-specific, dimensionless (Equation 4)
$\theta_{w,cz}$	(Soil water-filled porosity in the capillary zone)	=	cm^3/cm^3 (Equation 10)

For calculating soil type-specific n_{cz}, use the information associated with the soil total porosity (n) in Table 2 of R 299.7.

10. EQUATION FOR WATER-FILLED POROSITY IN THE CAPILLARY ZONE:

$$\theta_{w,cz} = \theta_r + \frac{\theta_s - \theta_r}{\left[1 + (\alpha_1 \times h)^N\right]^M}$$

where,

$\theta_{w,cz}$	(Water-filled porosity in the capillary zone)	=	cm^3/cm^3
θ_r	(Residual soil water content)	=	0.053 cm^3/cm^3 or soil type-specific
θ_s	(Saturated soil water content)	=	0.375 cm^3/cm^3 or soil type-specific
α_1	(Point of inflection in the water retention curve where $d\theta_w/dh$ is maximal)	=	0.03524 cm^{-1} or soil type-specific

h	**(Air-entry pressure head: h= $1/\alpha_1$ and assumed to be positive)**	**=**	**cm**
N	**(van Genuchten curve shape parameter)**	**=**	**3.177, dimensionless or soil type-specific**
M	**(1-(1/N))**	**=**	**0.6852 dimensionless or soil type-specific**

11. EQUATION FOR THE MEAN RISE OF THE CAPILLARY ZONE:

$$L_{cz} = \frac{2 \times \alpha_2 \times \cos\lambda}{\rho_w \times g \times R}$$

where,

L_{cz}	**(Thickness (mean rise) of capillary zone)**	**=**	**cm**
α_2	**(Surface tension of water)**	**=**	**73 g/sec^2**
λ	**(Angle of the water meniscus with respect to the capillary tube)**	**=**	**degrees (assumed to be zero)**
ρ_w	**(Density of water)**	**=**	**0.999 g/cm^3**
g	**(Acceleration due to gravity)**	**=**	**980.665 cm/sec^2**
R	**(Mean interparticle pore radius)**	**=**	**cm (Equation 12)**

12. EQUATION FOR THE MEAN INTERPARTICLE PORE RADIUS:

$$R = 0.2 \times D$$

where,

R	**(Mean interparticle pore radius)**	**=**	**cm**
D	**(Mean particle diameter)**	**=**	**0.044 cm or soil type-specific**

13. EQUATIONS 11 AND 12 ARE REDUCED TO:

$$L_{cz} = \frac{0.15}{R}$$

where,

L_{cz}	**(Mean rise of capillary zone)**	**=**	**cm**
R	**(Mean interparticle pore radius)**	**=**	**cm (Equation 12)**

14. EQUATION FOR THE BUILDING VENTILATION RATE:

$$Q_{building} = (L_B \times W_B \times H_B \times ER) \times \left(\frac{1\,hr}{3{,}600\,sec}\right)$$

where,

$Q_{building}$	**(Building ventilation rate)**	**=**	**cm^3/sec**

L_B	(Length of building)	=	cm (Table 1 of this rule)
W_B	(Width of building)	=	cm (Table 1 of this rule)
H_B	(Height of building)	=	cm (Table 1 of this rule)
ER	(Air exchange rate)	=	hr^{-1} (Table 1 of this rule)

15. EQUATION FOR THE VOLUMETRIC FLOW RATE OF SOIL GAS ENTERING THE BUILDING:

$$Q_{soil} = \frac{2 \times \pi \times \Delta P \times k_v \times X_{crack}}{\mu \times \ln\left(2Z_{crack}/r_{crack}\right)}$$

where,

Q_{soil}	(Volumetric flow rate of soil gas entering the enclosed space of a building)	=	cm^3/sec
π	(Constant)	=	3.14159
ΔP	(Pressure differential between the soil surface and the enclosed space)	=	40 $g/cm\text{-}sec^2$ (Table 1 of this rule)
k_v	(Soil vapor permeability: $k_v = k_i \times k_{rg}$)	=	cm^2 (Equations 16 and 17)
X_{crack}	(Floor-wall seam perimeter: $X_{crack} = 2(L_B + W_B)$)	=	cm (L_B & W_B in Table 1 of this rule)
μ	(Viscosity of air: μ = 0.00018*((TS)/298.15)^0.5)	=	g/cm-sec
Z_{crack}	(Crack depth below grade)	=	cm (Table 1 of this rule)
r_{crack}	(Equivalent crack radius)	=	cm (Equation 19)

16. EQUATION FOR THE SOIL INTRINSIC PERMEABILITY:

$$k_i = \frac{K_s \times \left(\frac{1\,hr}{3{,}600\,sec}\right) \times \mu_w}{\rho_w \times g}$$

where,

k_i	(Soil intrinsic permeability)	=	cm^2
K_s	(Soil saturated hydraulic conductivity)	=	26.78 cm/hr or soil type-specific
μ_w	(Dynamic viscosity of water)	=	0.01307 g/cm-sec @ 10°C
ρ_w	(Density of water)	=	0.999 g/cm^3
g	(Acceleration due to gravity)	=	980.665 cm/sec^2

17. EQUATION FOR RELATIVE AIR PERMEABILITY:

$$k_{rg} = \left(1 - S_{te}\right)^{1/2} \times \left(1 - S_{te}^{1/M}\right)^{2M}$$

where,

k_{rg}	**(Relative air permeability)**	=	**unitless ($0 \leq k_{rg} \leq 1$)**
S_{te}	**(Effective total fluid saturation)**	=	**unitless (Equation 18)**
M	**(van Genuchten shape parameter)**	=	**0.6852 unitless or soil type-specific**

18. EQUATION FOR EFFECTIVE TOTAL FLUID SATURATION:

$$S_{te} = \frac{(\theta_w - \theta_r)}{(n - \theta_r)}$$

where,

S_{te}	**(Effective total fluid saturation)**	=	**unitless**
θ_w	**(Vadose zone soil water-filled porosity)**	=	**0.054 cm^3/cm^3 or soil type-specific**
θ_r	**(Residual soil-water content)**	=	**0.053 cm^3/cm^3or soil type-specific**
n	**(Soil total porosity)**	=	**0.375 cm^3/cm^3 or soil type-specific**

19. EQUATION FOR THE EQUIVALENT RADIUS OF THE FLOOR-WALL SEAM CRACK:

$$r_{crack} = \eta \times (A_B / X_{crack})$$

where,

r_{crack}	**(Equivalent crack radius)**	=	**cm**
A_B	**(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)**	=	**cm^2 (L_B, W_B, and L_F in Table 1 of this rule)**
η	**(Crack to enclosed floor area ratio: A_{crack}/A_B)**	=	**unitless ($0 \leq \eta \leq 1$) (Equation 20)**
X_{crack}	**(Floor-wall seam perimeter: $X_{crack} = 2(L_B + W_B)$)**	=	**cm (L_B & W_B in Table 1 of this rule)**

20. EQUATION FOR THE RATIO OF THE CRACK AREA TO ENCLOSED FLOOR AREA IS ESTABLISHED AS:

$$\eta = \frac{2w \times (L_B + W_B)}{A_B}$$

where,

η	**(Crack to enclosed floor area ratio: A_{crack}/A_B)**	=	**unitless**
w	**(Floor-wall seam crack width)**	=	**cm (Table 1 of this rule)**
W_B	**(Enclosed space floor width)**	=	**cm (Table 1 of this rule)**
L_B	**(Enclosed space floor length)**	=	**cm (Table 1 of this rule)**
A_B	**(Area of the enclosed space**	=	**cm^2 (L_B, W_B, and L_F in Table 1**

below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$) **of this rule)**

(b) The volatilization to indoor air value where groundwater is in contact with a structure is determined by the following equations:

1. **EQUATION FOR CALCULATION OF THE GROUNDWATER HEALTH-BASED CONCENTRATION FOR WHERE THE GROUNDWATER IS IN CONTACT WITH THE STRUCTURE:**

$$VI_{GWIC} = \frac{AAC}{VF_{GWIC}}$$

where,

VI_{GWIC}	**(Volatilization to indoor air concentration for groundwater in contact)**	=	**chemical-specific, µg/L**
AAC	**(Acceptable air concentration)**	=	**chemical-specific, µg/m^3-v**
VF_{GWIC}	**(Volatilization factor)**	=	**chemical-specific, L/m^3 (Equation 2)**

2. **EQUATION FOR THE VOLITIZATION FACTOR FOR WHEN GROUNDWATER IS IN CONTACT WITH A STRUCTURE:**

$$VF_{GWIC} = \frac{10^3 \frac{L}{m^3}}{\left(\frac{1}{H'}\right) + \left(\frac{f_R V_B}{K_{overall} A_{GWIC}}\right)}$$

where,

VF_{GWIC}	**(Volatilization factor)**	=	**chemical-specific, L/ m^3**
H'	**(Dimensionless Henry's law constant, where H' = HLC x 41)**	=	**chemical-specific, dimensionless**
f_R	**(Frequency of renovation of air)**	=	**ER converted to sec^{-1}**
V_B	**(Room volume $V_B = H_B \times L_B \times W_B$)**	=	**m^3 (H_B, L_B & W_B in Table 1 of this rule)**
$K_{overall}$	**(Overall mass-transfer coefficient)**	=	**m/sec (Equation 3)**
A_{GWIC}	**(Surface area of contaminated water within the structure)**	=	**100 m^2**

3. **EQUATION FOR THE MASS TRANSFER COEFFICIENT:**

$$K_{Overall} = \frac{1}{\left(\frac{1}{K_L}\right) + \left(\frac{1}{K_G \, x \, H'}\right)}$$

where,

$K_{Overall}$	**(Overall mass transfer coefficient)**	**=**	**chemical-specific, m/sec**
K_L	**(Mass transfer coefficient for water)**	**=**	**chemical-specific, m/sec (Equation 4)**
K_G	**(Mass transfer coefficient for air)**	**=**	**chemical-specific, m/sec (Equation 5)**
H'	**(Dimensionless Henry's law constant, where H' = HLC x 41)**	**=**	**chemical-specific, dimensionless**

4. EQUATION FOR THE MASS TRANSFER COEFFICIENT FOR WATER:

$$K_L = 6.5 \, x \, 10^{-6} \left[\frac{D_W}{1.488 \, x \, 10^{-9}} \right]^{0.67}$$

where,

K_L	**(Mass transfer coefficient for water)**	**=**	**chemical-specific, m/sec**
D_W	**(Diffusivity in water)**	**=**	**chemical-specific, m^2/sec**

5. EQUATION FOR THE MASS TRANSFER COEFFICIENT FOR AIR:

$$K_G = K_{G,H20} \left[\frac{D_a}{2.6 \, x \, 10^{-5}} \right]^{0.67}$$

where,

K_G	**(Mass transfer coefficient for air)**	**=**	**chemical-specific, m/sec**
$K_{G,H20}$	**(Evaporation rate in air)**	**=**	**3×10^{-3} m/sec**
D_a	**(Diffusivity in air)**	**=**	**chemical-specific, m^2/sec**

(c) The volatilization to indoor air value for soil are determined by the following equations:

1. EQUATION FOR CALCULATION OF A RISK BASED MEDIA CONCENTRATION FOR SOIL:

$$VI_{soil} = \frac{AAC \times \left(\theta_w + K_d \times \rho_b + H'_{TS} \times \theta_a\right)}{H'_{TS} \times \alpha \times \rho_b \times \left(\frac{1{,}000 \text{ cm}^3 \text{ kg}}{\text{m}^3 \text{ g}}\right)}$$

where,

VI_{soil}	**(Volatilization to indoor air**	**=**	**µg/kg**

	concentration for soil)		
AAC	(Acceptable air concentration)	=	chemical-specific, µg/m^3-v
H'_{TS}	(Henry's law constant at the system (soil) temperature)	=	chemical-specific, dimensionless (Equation 4)
ρ_b	(Soil dry bulk density)	=	1.66 g/cm^3 or soil type-specific
α	(Steady-state attenuation coefficient)	=	unitless (Equation 6 and Table 1 of this rule)
θ_w	(Soil water-filled porosity)	=	0.054 cm^3/cm^3 or soil type-specific
K_d	(Soil-water partition coefficient for organics compounds: $K_d = K_{oc} \times f_{oc}$)	=	chemical-specific, cm^3/g

2. THE RELATIONSHIP OF THE ATTENUATION COEFFICIENT TO THE STEADY-STATE VAPOR PHASE CONCENTRATION OF THE HAZARDOUS SUBSTANCE IN THE BUILDING:

$$C_{building} = \alpha \times C_{source2}$$

where,

$C_{building}$	(Vapor concentration in building using the AAC)	=	chemical-specific, µg/m^3-v
$C_{source2}$	(Vapor concentration at the vapor source using $C_{source3} \times$ 1E+6 µg/g × 1E+6 cm^3/m^3)	=	µg/m^3-v (Equation 3)
α	(Steady-state attenuation coefficient)	=	unitless (Equation 6 and Table 1 of this rule)

3. THE RELATIONSHIP OF THE VAPOR CONCENTRATION AT THE SOURCE TO THE CONCENTRATION OF THE HAZARDOUS SUBSTANCE IN SOIL:

$$C_{source3} = \frac{H'_{TS} \times C_R \times \rho_b}{\theta_w + K_d \times \rho_b + H'_{TS} \times \theta_a}$$

where,

$C_{source3}$	(Vapor concentration at the vapor source)	=	g/cm^3-v
H'_{TS}	(Henry's law constant at the system (soil) temperature)	=	chemical-specific, dimensionless (Equation 4)
C_R	(Initial soil concentration using $VI_{soil} \times$ g/1E+6µg × 0.001 kg/g)	=	g/g
ρ_b	(Soil dry bulk density)	=	1.66 g/cm^3 or soil type-specific
θ_w	(Soil water-filled porosity)	=	0.054 cm^3/cm^3 or soil type-specific
K_d	(Soil-water partition coefficient	=	chemical-specific, cm^3/g

	for organics compounds: $K_d = K_{oc} \times f_{oc}$)		
θ_a	**(Soil air-filled porosity)**	=	**0.321 cm^3/cm^3 or soil type-specific**
K_{oc}	**(Soil organic carbon partition coefficient)**	=	**chemical-specific, cm^3/g**
f_{oc}	**(Soil organic carbon weight fraction)**	=	**0.002 unitless**

4. EQUATION FOR THE DIMENSIONLESS FORM OF THE HENRY'S LAW CONSTANT AT THE SYSTEM TEMPERATURE:

$$H'_{TS} = \frac{\exp\left[-\frac{\Delta H_{v,TS}}{R_c}\left(\frac{1}{T_S}-\frac{1}{T_R}\right)\right] \times HLC}{RT_s}$$

where,

H'_{TS}	**(Henry's law constant at the system temperature)**	=	**chemical-specific, dimensionless**
$\Delta H_{v,TS}$	**(Enthalpy of vaporization at the system temperature)**	=	**chemical-specific, cal/mol (Equation 5)**
T_S	**(System temperature)**	=	**283.15 K or facility-specific**
T_R	**(Henry's law constant reference temperature)**	=	**298.15 K**
HLC	**(Henry's law constant at the reference temperature)**	=	**chemical-specific, atm-m^3/mol**
R_C	**(Gas constant)**	=	**1.9872 cal/mol-K**
R	**(Gas constant)**	=	**8.206E-05 atm-m^3/mol-K**

5. EQUATION FOR ENTHALPY OF VAPORIZATION:

$$\Delta H_{v,TS} = \Delta H_{v,b} \times \left[\frac{1-T_S/T_C}{1-T_B/T_C}\right]^Y$$

where,

$\Delta H_{v,TS}$	**(Enthalpy of vaporization at the system temperature)**	=	**chemical-specific, cal/mol**
$\Delta H_{v,b}$	**(Enthalpy of vaporization at the normal boiling point)**	=	**chemical-specific, cal/mol**
T_S	**(System temperature)**	=	**283.15 K or facility-specific**
T_C	**(Critical Temperature)**	=	**chemical-specific, K**
T_B	**(Standard boiling point)**	=	**chemical-specific, K**
Y	**(Constant)**	=	**unitless**

Y (constant) is established as a function of the ratio T_B/T_C such that: if $T_B/T_C < 0.57$, Y is 0.30; if T_B/T_C is between 0.57 and 0.71, Y is established as $0.74(T_B/T_C) - 0.116$; and if $T_B/T_C > 0.71$, Y is 0.41.

6. EQUATION FOR AN INFINITE VAPOR SOURCE ASSUMING STEADY STATE MASS TRANSFER THE ATTENUATION COEFFICIENT:

$$\alpha = \frac{\left[\left(\frac{D_v^{eff} \times A_B}{Q_{building} \times L_T}\right) \times \exp\left(\frac{Q_{soil} \times L_{crack}}{D_{crack} \times A_{crack}}\right)\right]}{\left[\exp\left(\frac{Q_{soil} \times L_{crack}}{D_{crack} \times A_{crack}}\right) + \left(\frac{D_v^{eff} \times A_B}{Q_{building} \times L_T}\right) + \left(\frac{D_v^{eff} \times A_B}{Q_{soil} \times L_T}\right)\left[\exp\left(\frac{Q_{soil} \times L_{crack}}{D_{crack} \times A_{crack}}\right) - 1\right]\right]}$$

where,

α	**(Steady-state attenuation coefficient)**	=	**unitless**
D_v^{eff}	**(Total overall effective diffusion coefficient)**	=	**cm^2/sec (Equation 7)**
A_B	**(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)**	=	**cm^2 (L_B, W_B, and L_F in Table 1 of this rule)**
$Q_{building}$	**(Building ventilation rate)**	=	**cm^3/sec (Equation 8)**
L_T	**(Vapor source-building separation)**	=	**cm (Table 1 of this rule)**
Q_{soil}	**(Volumetric flow rate of soil gas into the enclosed space)**	=	**cm^3/sec (Equation 9)**
L_{crack}	**(Enclosed space foundation or slab thickness)**	=	**cm (Table 1 of this rule)**
A_{crack}	**(Area of total cracks: $A_{crack} = 2w(L_B + W_B)$)**	=	**cm^2 (L_B & W_B-Table 1 of this rule)**
D_{crack}	**(Effective diffusion coefficient through the cracks)**	=	**cm^2/sec (assumed equivalent to D_v^{eff} of Equation 7)**

Equation 6 contains the exponent of the following dimensionless group:

$$\left(\frac{Q_{soil} \times L_{crack}}{D_{crack} \times A_{crack}}\right)$$

where,

Q_{soil}	**(Volumetric flow rate of soil gas entering the enclosed space of a building)**	=	**cm^3/sec (Equation 9)**
L_{crack}	**(Enclosed space foundation or slab thickness)**	=	**cm (Table 1 of this rule)**
D_{crack}	**(Effective diffusion coefficient through the cracks)**	=	**cm^2/sec (assumed equivalent to D_v^{eff} of Equation 7)**

A_{crack}	(Area of total cracks: A_{crack} = $2w(L_B + W_B)$)	=	cm^2 (L_B & W_B in Table 1 of this rule)

This dimensionless group represents the equivalent Peclet number for transport through the Building Foundation. As the dimensionless group approaches infinity and if the exponent of the equation identified above is too great to be calculated then the attenuation factor is established as:

$$\alpha \rightarrow \frac{\left(\frac{D_v^{eff} \times L_{crack}}{D_{crack} \times A_{crack}}\right)}{\left(\frac{D_v^{eff} \times A_B}{Q_{soil} \times L_T}\right)+1}$$

where,

α	(Steady-state attenuation coefficient)	=	unitless
D_v^{eff}	(Total overall effective diffusion coefficient)	=	cm^2/sec (Equation 7)
A_B	(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)	=	cm^2 (L_B, W_B, and L_F in Table 1 of this rule)
$Q_{building}$	(Building ventilation rate)	=	cm^3/sec (Equation 8)
Q_{soil}	(Volumetric flow rate of soil gas into the enclosed space)	=	cm^3/sec (Equation 9)
L_T	(Vapor source-building separation)	=	cm (Table 1 of this rule)

7. EQUATION FOR THE EFFECTIVE DIFFUSION COEFFICIENT WITHIN THE UNSATURATED ZONE:

$$D_v^{eff} = D_a \times \left(\theta_a^{3.33}/n^2\right) + \left(D_w/H'_{TS}\right)\left(\theta_w^{3.33}/n^2\right)$$

where,

D_v^{eff}	(Effective diffusion coefficient across soil layer)	=	chemical-specific, cm^2/sec
D_a	(Diffusivity in air)	=	chemical-specific, cm^2/sec
θ_a	(Soil air-filled porosity)	=	0.321 cm^3/cm^3 or soil type-specific
n	(Soil total porosity)	=	0.375 cm^3/cm^3 or soil type-specific
D_w	(Diffusivity in water)	=	chemical-specific, cm^2/sec
θ_w	(Soil water-filled porosity)	=	0.054 cm^3/cm^3 or soil type-specific
H'_{TS}	(Henry's law constant at the system temperature)	=	dimensionless (Equation 4)

8. EQUATION FOR THE BUILDING VENTILATION RATE:

$$Q_{building} = (L_B \times W_B \times H_B \times ER) \times \left(\frac{1hr}{3{,}600\,sec} \right)$$

where,

$Q_{building}$	**(Building ventilation rate)**	=	**cm^3/sec**
L_B	**(Length of building)**	=	**cm (Table 1 of this rule)**
W_B	**(Width of building)**	=	**cm (Table 1 of this rule)**
H_B	**(Height of building)**	=	**cm (Table 1 of this rule)**
ER	**(Air exchange rate)**	=	**hr^{-1} (Table 1 of this rule)**

9. EQUATION FOR THE VOLUMETRIC FLOW RATE OF SOIL GAS ENTERING THE BUILDING:

$$Q_{soil} = \frac{2 \times \pi \times \Delta P \times k_v \times X_{crack}}{\mu \times \ln\left(2Z_{crack}/r_{crack}\right)}$$

where,

Q_{soil}	**(Volumetric flow rate of soil gas entering the enclosed space of a building)**	=	**cm^3/sec**
π	**(Constant)**	=	**3.14159**
ΔP	**(Pressure differential between the soil surface and the enclosed space)**	=	**40 g/(cm-sec^2) (Table 1 of this rule)**
k_v	**(Soil vapor permeability: $k_v = k_i \times k_{rg}$)**	=	**cm^2 (Equations 10 and 11)**
X_{crack}	**(Floor-wall seam perimeter: $X_{crack} = 2(L_B + W_B)$)**	=	**cm (L_B & W_B in Table 1 of this rule)**
μ	**(Viscosity of air: μ = 0.00018*((TS)/298.15)^0.5)**	=	**g/(cm-sec)**
Z_{crack}	**(Crack depth below grade)**	=	**cm (Table 1 of this rule)**
r_{crack}	**(Equivalent crack radius)**	=	**cm (Equation 13)**

10. EQUATION FOR THE SOIL INTRINSIC PERMEABILITY:

$$k_i = \frac{K_s \times \left(\frac{1hr}{3{,}600\,sec} \right) \times \mu_w}{\rho_w \times g}$$

where,

k_i	**(Soil intrinsic permeability)**	=	**cm^2**
K_s	**(Soil saturated hydraulic conductivity)**	=	**26.78 cm/hr or soil type-specific**
μ_w	**(Dynamic viscosity of water)**	=	**0.01307 g/cm·sec @ 10°C**
ρ_w	**(Density of water)**	=	**0.999 g/cm^3**
g	**(Acceleration due to gravity)**	=	**980.665 cm/sec^2**

11. EQUATION FOR RELATIVE AIR PERMEABILITY:

$$k_{rg} = (1 - S_{te})^{1/2} \times \left(1 - S_{te}^{1/M}\right)^{2M}$$

where,

k_{rg}	**(Relative air permeability)**	=	**unitless ($0 \le k_{rg} \le 1$)**
S_{te}	**(Effective total fluid saturation)**	=	**unitless (Equation 12)**
M	**(van Genuchten shape parameter)**	=	**0.6852 unitless or soil type-specific**

12. EQUATION FOR EFFECTIVE TOTAL FLUID SATURATION:

$$S_{te} = \frac{(\theta_w - \theta_r)}{(n - \theta_r)}$$

where,

S_{te}	**(Effective total fluid saturation)**	=	**unitless**
θ_w	**(Soil water-filled porosity)**	=	**0.054 cm^3/cm^3 or soil type-specific**
θ_r	**(Residual soil-water content)**	=	**0.053 cm^3/cm^3or soil type-specific**
n	**(Soil total porosity)**	=	**0.375 cm^3/cm^3 or soil type-specific**

The effective air permeability (k_v) is the product of the intrinsic permeability (k_i) and the relative air permeability (k_{rg}) at the soil water-filled porosity θ_w.

13. EQUATION FOR THE EQUIVALENT RADIUS OF THE FLOOR-WALL SEAM CRACK:

$$r_{crack} = \eta \times (A_B / X_{crack})$$

where,

r_{crack}	**(Equivalent crack radius)**	=	**cm**
A_B	**(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)**	=	**cm^2 (L_B, W_B, and L_F in Table 1 of this rule)**
η	**(A_{crack}/A_B)**	=	**unitless ($0 \le \eta \le 1$) (Equation 14)**
X_{crack}	**(Floor-wall seam perimeter: $X_{crack} = 2(L_B + W_B)$)**	=	**cm (L_B & W_B in Table 1 of this rule)**

14. EQUATION FOR THE RATIO OF THE CRACK AREA TO ENCLOSED FLOOR AREA IS ESTABLISHED AS:

$$\eta = \frac{2w \times (L_B + W_B)}{A_B}$$

where,

η	**(Crack to enclosed floor area ratio)**	**=**	**unitless**
w	**(Floor-wall seam crack width)**	**=**	**cm (Table 1 of this rule)**
W_B	**(Enclosed space floor width)**	**=**	**cm (Table 1 of this rule)**
L_B	**(Enclosed space floor length)**	**=**	**cm (Table 1 of this rule)**
A_B	**(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)**	**=**	**cm^2 (L_B, W_B, and L_F in Table 1 of this rule)**

(d) The volatilization to indoor air values for vapor are determined by the following equations:

1. EQUATION FOR CALCULATION OF A RISK BASED MEDIA CONCENTRATION FOR VAPOR:

$$VI_{sg} = \frac{AAC}{\alpha}$$

where,

VI_{sg}	**(Volatilization to indoor air concentration for vapor)**	**=**	**$\mu g/m^3$**
AAC	**(Acceptable air concentration)**	**=**	**chemical-specific, $\mu g/m^3$-v**
α	**(Steady-state attenuation coefficient)**	**=**	**unitless (Equation 2 or Table 1 of this rule)**

For developing VI Tier 2 and VI Tier 3A criteria for a vapor source within 1 meter of a structure use a steady-state attenuation coefficient of 0.03. For developing VI Tier 3A criteria for a vapor source greater than 1 meter from a structure, use the calculated steady-state attenuation coefficient in Equation 2 of this subrule with a vapor source-building separation of 1 meter.

2. EQUATION FOR THE ATTENUATION COEFFICIENT OF AN INFINITE VAPOR SOURCE ASSUMING STEADY STATE MASS TRANSFER:

$$\alpha = \frac{\left[\left(\frac{D_v^{eff} \times A_B}{Q_{building} \times L_T}\right) \times \exp\left(\frac{Q_{soil} \times L_{crack}}{D_{crack} \times A_{crack}}\right)\right]}{\left[\exp\left(\frac{Q_{soil} \times L_{crack}}{D_{crack} \times A_{crack}}\right) + \left(\frac{D_v^{eff} \times A_B}{Q_{building} \times L_T}\right) + \left(\frac{D_v^{eff} \times A_B}{Q_{soil} \times L_T}\right)\left[\exp\left(\frac{Q_{soil} \times L_{crack}}{D_{crack} \times A_{crack}}\right) - 1\right]\right]}$$

where,

α	**(Steady-state attenuation coefficient)**	**=**	**unitless**
D_v^{eff}	**(Total overall effective diffusion coefficient)**	**=**	**cm^2/sec (Equation 3)**

A_B	(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)	=	cm^2 (L_B, W_B, and L_F in Table 1 of this rule)
$Q_{building}$	(Building ventilation rate)	=	cm^3/sec (Equation 6)
L_T	(Vapor source-building separation)	=	cm (Table 1 of this rule)
Q_{soil}	(Volumetric flow rate of soil gas into the enclosed space)	=	cm^3/sec (Equation 7)
L_{crack}	(Enclosed space foundation or slab thickness)	=	cm (Table 1 of this rule)
A_{crack}	(Area of total cracks: $A_{crack} = 2w(L_B + W_B)$)	=	cm^2 (L_B & W_B-Table 1 of this rule)
D_{crack}	(Effective diffusion coefficient through the cracks)	=	cm^2/sec (assumed equivalent to D_v^{eff} of Equation 3)

Equation 2 contains the exponent of the following dimensionless group:

$$\left(\frac{Q_{soil} \times L_{crack}}{D_{crack} \times A_{crack}}\right)$$

where,

Q_{soil}	(Volumetric flow rate of soil gas entering the enclosed space of a building)	=	cm^3/sec (Equation 7)
L_{crack}	(Enclosed space foundation or slab thickness)	=	cm (Table 1 of this rule)
D_{crack}	(Effective diffusion coefficient through the cracks)	=	cm^2/sec (assumed equivalent to D_v^{eff} of Equation 3)
A_{crack}	(Area of total cracks: $A_{crack} = 2w(L_B + W_B)$)	=	cm^2 (L_B & W_B in Table 1 of this rule)

This dimensionless group represents the equivalent Peclet number for transport through the building foundation. As the dimensionless group approaches infinity and if the exponent of the equation identified above is too great to be calculated then the attenuation factor is established as:

$$\alpha \rightarrow \frac{\left(\frac{D_v^{eff} \times L_{crack}}{D_{crack} \times A_{crack}}\right)}{\left(\frac{D_v^{eff} \times A_B}{Q_{soil} \times L_T}\right) + 1}$$

where,

α	(Steady-state attenuation coefficient)	=	unitless
D_v^{eff}	(Total overall effective diffusion coefficient)	=	cm^2/sec (Equation 3)

A_B	(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)	=	cm^2 (L_B, W_B, and L_F in Table 1 of this rule)
$Q_{building}$	(Building ventilation rate)	=	cm^3/sec (Equation 6)
Q_{soil}	(Volumetric flow rate of soil gas into the enclosed space)	=	cm^3/sec (Equation 7)
L_T	(Vapor source-building separation)	=	cm (Table 1 of this rule)

3. EQUATION FOR THE EFFECTIVE DIFFUSION COEFFICIENT WITHIN THE UNSATURATED ZONE:

$$D_v^{eff} = D_a \times \left(\theta_a^{3.33}/n^2\right) + \left(D_w/H'_{TS}\right)\left(\theta_w^{3.33}/n^2\right)$$

where,

D_v^{eff}	(Effective diffusion coefficient across soil layer)	=	chemical-specific, cm^2/sec
D_a	(Diffusivity in air)	=	chemical-specific, cm^2/sec
θ_a	(Soil air-filled porosity)	=	0.321 cm^3/cm^3 or soil type-specific
n	(Soil total porosity)	=	0.375 cm^3/cm^3 or soil type-specific
D_w	(Diffusivity in water)	=	chemical-specific, cm^2/sec
θ_w	(Soil water-filled porosity)	=	0.054 cm^3/cm^3 or soil type-specific
H'_{TS}	(Henry's law constant at the system temperature)	=	dimensionless (Equation 4)

4. EQUATION FOR THE DIMENSIONLESS FORM OF THE HENRY'S LAW CONSTANT AT THE SYSTEM TEMPERATURE:

$$H'_{TS} = \frac{\exp\left[-\frac{\Delta H_{v,TS}}{R_c}\left(\frac{1}{T_S} - \frac{1}{T_R}\right)\right] \times HLC}{R \times T_s}$$

where,

H'_{TS}	(Henry's law constant at the system temperature)	=	chemical-specific, dimensionless
$\Delta H_{v,TS}$	(Enthalpy of vaporization at the system temperature)	=	chemical-specific, cal/mol (Equation 5)
T_S	(System temperature)	=	283.15 K or facility-specific
T_R	(Henry's law constant reference temperature)	=	298.15 K
HLC	(Henry's law constant at the reference temperature)	=	chemical-specific, atm-m^3/mol
R_C	(Gas constant)	=	1.9872 cal/mol-K
R	(Gas constant)	=	8.206E-05 atm-m^3/mol-K

5. EQUATION FOR ENTHALPY OF VAPORIZATION:

$$\Delta H_{v,TS} = \Delta H_{v,b} \times \left[\frac{1 - T_S/T_C}{1 - T_B/T_C} \right]^Y$$

where,

$\Delta H_{v,TS}$	**(Enthalpy of vaporization at the system temperature)**	=	**chemical-specific, cal/mol**
$\Delta H_{v,b}$	**(Enthalpy of vaporization at the normal boiling point)**	=	**chemical-specific, cal/mol**
T_S	**(System temperature)**	=	**283.15 K or facility-specific**
T_C	**(Critical Temperature)**	=	**chemical-specific, K**
T_B	**(Standard boiling point)**	=	**chemical-specific, K**
Y	**(Constant)**	=	**unitless**

Y (constant) is established as a function of the ratio T_B/T_C such that: if $T_B/T_C < 0.57$, Y is 0.30; if T_B/T_C is between 0.57 and 0.71, Y is established as $0.74(T_B/T_C) - 0.116$; and if $T_B/T_C > 0.71$, Y is 0.41.

6. EQUATION FOR THE BUILDING VENTILATION RATE:

$$Q_{building} = (L_B \times W_B \times H_B \times ER) \times \left(\frac{1\,hr}{3{,}600\,sec} \right)$$

where,

$Q_{building}$	**(Building ventilation rate)**	=	**cm^3/sec**
L_B	**(Length of building)**	=	**cm (Table 1 of this rule)**
W_B	**(Width of building)**	=	**cm (Table 1 of this rule)**
H_B	**(Height of building)**	=	**cm (Table 1 of this rule)**
ER	**(Air exchange rate)**	=	**hr^{-1} (Table 1 of this rule)**

7. EQUATION FOR THE VOLUMETRIC FLOW RATE OF SOIL GAS ENTERING THE BUILDING:

$$Q_{soil} = \frac{2 \times \pi \times \Delta P \times k_v \times X_{crack}}{\mu \times \ln(2Z_{crack}/r_{crack})}$$

where,

Q_{soil}	**(Volumetric flow rate of soil gas entering the enclosed space of a building)**	=	**cm^3/sec**
π	**(Constant)**	=	**3.14159**
ΔP	**(Pressure differential between the soil surface and the enclosed space)**	=	**40 g/(cm-sec^2) (Table 1 of this rule)**
k_v	**(Soil vapor permeability: $k_v = k_i$**	=	**cm^2 (Equations 8 and 9)**

	× k_{rg})		
X_{crack}	**(Floor-wall seam perimeter: $X_{crack} = 2(L_B + W_B)$)**	**=**	**cm (L_B & W_B in Table 1 of this rule)**
μ	**(Viscosity of air: μ = 0.00018*((T_S)/298.15)^0.5)**	**=**	**g/(cm-sec)**
Z_{crack}	**(Crack depth below grade)**	**=**	**cm (Table 1 of this rule)**
r_{crack}	**(Equivalent crack radius)**	**=**	**cm (Equation 11)**

8. EQUATION FOR THE SOIL INTRINSIC PERMEABILITY:

$$k_i = \frac{K_s \times \left(\frac{1\,\text{hr}}{3{,}600\,\text{sec}}\right) \times \mu_w}{\rho_w \times g}$$

where,

k_i	**(Soil intrinsic permeability)**	**=**	**cm^2**
K_s	**(Soil saturated hydraulic conductivity)**	**=**	**26.78 cm/hr or soil type-specific**
μ_w	**(Dynamic viscosity of water)**	**=**	**0.01307 g/cm·sec @ 10°C**
ρ_w	**(Density of water)**	**=**	**0.999 g/cm^3**
g	**(Acceleration due to gravity)**	**=**	**980.665 cm/sec^2**

9. EQUATION FOR RELATIVE AIR PERMEABILITY:

$$k_{rg} = \left(1 - S_{te}\right)^{1/2} \times \left(1 - S_{te}^{1/M}\right)^{2M}$$

where,

k_{rg}	**(Relative air permeability)**	**=**	**unitless ($0 \le k_{rg} \le 1$)**
S_{te}	**(Effective total fluid saturation)**	**=**	**unitless (Equation 10)**
M	**(van Genuchten shape parameter)**	**=**	**0.6852 unitless or soil type-specific**

10. EQUATION FOR EFFECTIVE TOTAL FLUID SATURATION:

$$S_{te} = \frac{\left(\theta_w - \theta_r\right)}{\left(n - \theta_r\right)}$$

where,

S_{te}	**(Effective total fluid saturation)**	**=**	**unitless**
θ_w	**(Vadose zone soil water-filled porosity)**	**=**	**0.054 cm^3/cm^3 or soil type-specific**
θ_r	**(Residual soil-water content)**	**=**	**0.053 cm^3/cm^3or soil type-specific**
n	**(Soil total porosity)**	**=**	**0.375 cm^3/cm^3 or soil type-specific**

11. EQUATION FOR THE EQUIVALENT RADIUS OF THE FLOOR-WALL SEAM CRACK:

$$r_{crack} = \eta \times (A_B / X_{crack})$$

where,

r_{crack}	(Equivalent crack radius)	=	cm
A_B	(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)	=	cm^2 (L_B, W_B, and L_F in Table 1 of this rule)
η	(A_{crack}/A_B)	=	unitless ($0 \leq \eta \leq 1$) (Equation 11)
X_{crack}	(Floor-wall seam perimeter: $X_{crack} = 2(L_B + W_B)$)	=	cm (L_B & W_B in Table 1 of this rule)

12. EQUATION FOR THE RATIO OF THE CRACK AREA TO ENCLOSED FLOOR AREA IS ESTABLISHED AS:

$$\eta = \frac{2w \times (L_B + W_B)}{A_B}$$

where,

η	(Crack to enclosed floor area ratio)	=	unitless
w	(Floor-wall seam crack width)	=	cm (Table 1 of this rule)
W_B	(Enclosed space floor width)	=	cm (Table 1 of this rule)
L_B	(Enclosed space floor length)	=	cm (Table 1 of this rule)
A_B	(Area of the enclosed space below grade: $A_B = [(L_B \times W_B) + 2(L_F \times L_B) + 2(L_F \times W_B)]$)	=	cm^2 (L_B, W_B, and L_F in Table 1 of this rule)

(11) The residential AAC shall be the minimum of the health risk-based acceptable air values calculated according to equations 1 to 5 of this subrule. The nonresidential AAC shall be the minimum of the health risk-based acceptable air values calculated according to equations 6 to 8 of this subrule.

RESIDENTIAL:

1. EQUATION FOR CARCINOGENIC EFFECTS:

$$AAV_{ca} = \frac{TR \times AT_{ca}}{IURF \times ED_{res} \times EF_{res}}$$

where,

AAV_{ca}	(Acceptable air value)	=	chemical-specific, $\mu g/m^3$
TR	(Target risk level)	=	10^{-5}
AT_{ca}	(Averaging time)	=	28,470 days
$IURF$	(Inhalation unit risk factor)	=	chemical-specific, $(\mu g/m^3)^{-1}$
ED_{res}	(Exposure duration)	=	32 years
EF_{res}	(Exposure frequency)	=	350 days/year

2. EQUATION FOR CARCINOGENS WITH MUTAGENIC EFFECTS:

$$AAV_{mut} = \frac{TR \times AT_{ca}}{IURF \times EF_{res} \times \left[\left(ED_{<2} \times ADAF_{<2}\right) + \left(ED_{2-6} \times ADAF_{2-6}\right) + \left(ED_{6-16} \times ADAF_{6-16}\right) + \left(ED_{16-32} \times ADAF_{16-32}\right)\right]}$$

where,

AAV_{mut}	**(Acceptable air value)**	**=**	**chemical-specific, µg/m^3**
TR	**(Target risk level)**	**=**	**10^{-5}**
AT_{ca}	**(Averaging time)**	**=**	**28,470 days**
IURF	**(Inhalation unit risk factor)**	**=**	**chemical-specific, (µg/m^3)$^{-1}$**
EF_{res}	**(Exposure frequency)**	**=**	**350 days/year**
$ED_{age\ <2}$	**(Exposure duration, age <2 years)**	**=**	**2 years**
$ADAF_{<2}$	**(Age-dependent adjustment factor for cancer potency, age <2 years)**	**=**	**10**
$ED_{age\ 2-6}$	**(Exposure duration, age 2-6 years)**	**=**	**4 years**
$ADAF_{2-6}$	**(Age-dependent adjustment factor for cancer potency, age 2-6 years)**	**=**	**3**
$ED_{age\ 6-16}$	**(Exposure duration, age 6-16 years)**	**=**	**10 years**
$ADAF_{6-16}$	**(Age-dependent adjustment factor for cancer potency, age 6-16 years)**	**=**	**3**
$ED_{age\ 16-32}$	**(Exposure duration, age 16-32 years)**	**=**	**16 years**
$ADAF_{16-32}$	**(Age-dependent adjustment factor for cancer potency, age 16-32 years)**	**=**	**1**

3. EQUATION FOR NONCARCINOGENIC EFFECTS:

$$AAV_{nc} = \frac{THQ \times AT_{res} \times RfC \times RSC}{ED_{res} \times EF_{res}}$$

where,

AAV_{nc}	**(Acceptable air value)**	**=**	**chemical-specific, µg/m^3**
THQ	**(Target hazard quotient)**	**=**	**1**
AT_{res}	**(Averaging time)**	**=**	**11,680 days**
RfC	**(Reference concentration)**	**=**	**chemical-specific, µg/m^3**
RSC	**(Relative source contribution)**	**=**	**1 or chemical-specific**
ED_{res}	**(Exposure duration)**	**=**	**32 years**
EF_{res}	**(Exposure frequency)**	**=**	**350 days/year**

4. EQUATION FOR DEVELOPMENTAL EFFECTS - CHILD:

$$AAV_{dev} = \frac{THQ \times AT_{child} \times RfC_{dev} \times RSC}{ED_{child} \times EF_{child}}$$

where,

AAV_{dev}	**(Acceptable air value)**	**=**	**chemical-specific, µg/m^3**
THQ	**(Target hazard quotient)**	**=**	**1**

AT_{child}	**(Averaging time)**	**=**	**2,190 days**
RfC_{dev}	**(Reference concentration, developmental)**	**=**	**chemical-specific, µg/m^3**
RSC	**(Relative source contribution)**	**=**	**1 or chemical-specific**
ED_{child}	**(Exposure duration)**	**=**	**6 years**
EF_{child}	**(Exposure frequency)**	**=**	**350 days/year**

5. EQUATION FOR DEVELOPMENTAL EFFECTS – PREGNANT RESIDENT:

$$AAV_{dev} = \frac{THQ \times AT_{preg} \times RfC_{dev} \times RSC}{ED_{preg} \times EF_{preg}}$$

where,

AAV_{dev}	**(Acceptable air value)**	**=**	**chemical-specific, µg/m^3**
THQ	**(Target hazard quotient)**	**=**	**1**
$AT_{preg,FT}$	**(Averaging time, full-term pregnancy)**	**=**	**280 days or chemical-specific**
$AT_{preg,SE}$	**(Averaging time, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
RfC_{dev}	**(Reference concentration, developmental)**	**=**	**chemical-specific, µg/m^3**
RSC	**(Relative source contribution)**	**=**	**chemical-specific or 1**
$ED_{preg,FT}$	**(Exposure duration, full-term pregnancy)**	**=**	**0.767 year or chemical-specific**
$ED_{preg,SE}$	**(Exposure duration, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
$EF_{preg,FT}$	**(Exposure frequency, full-term pregnancy)**	**=**	**268.5 days/year or chemical-specific**
$EF_{preg,SE}$	**(Exposure frequency, single event exposure during pregnancy)**	**=**	**1 day/day or chemical-specific**

NONRESIDENTIAL:

6. EQUATION FOR CARCINOGENIC EFFECTS:

$$AAV_{ca} = \frac{TR \times AT_{ca}}{IURF \times ED_{nr} \times EF_{nr}}$$

where,

AAV_{ca}	**(Acceptable air value)**	**=**	**chemical-specific, µg/m^3**
TR	**(Target risk level)**	**=**	**10^{-5}**
AT_{ca}	**(Averaging time)**	**=**	**28,470 days**
IURF	**(Inhalation unit risk factor)**	**=**	**chemical-specific, (µg/m^3)$^{-1}$**
ED_{nr}	**(Exposure duration)**	**=**	**20 years**
EF_{nr}	**(Exposure frequency)**	**=**	**238 days/year**

7. EQUATION FOR NONCARCINOGENIC EFFECTS:

$$AAV_{nc} = \frac{THQ \times AT_{nr} \times RfC \times RSC}{EF_{nr} \times ED_{nr}}$$

where,

AAV_{nc}	**(Acceptable air value)**	**=**	**chemical-specific, µg/m^3**
THQ	**(Target hazard quotient)**	**=**	**1**
AT_{nr}	**(Averaging time)**	**=**	**7,300 days**
RfC	**(Reference concentration)**	**=**	**chemical-specific, µg/m^3**
RSC	**(Relative source contribution)**	**=**	**1 or chemical-specific**
EF_{nr}	**(Exposure frequency)**	**=**	**238 days/year**
ED_{nr}	**(Exposure duration)**	**=**	**20 years**

8. EQUATION FOR DEVELOPMENTAL EFFECTS – PREGNANT WORKER:

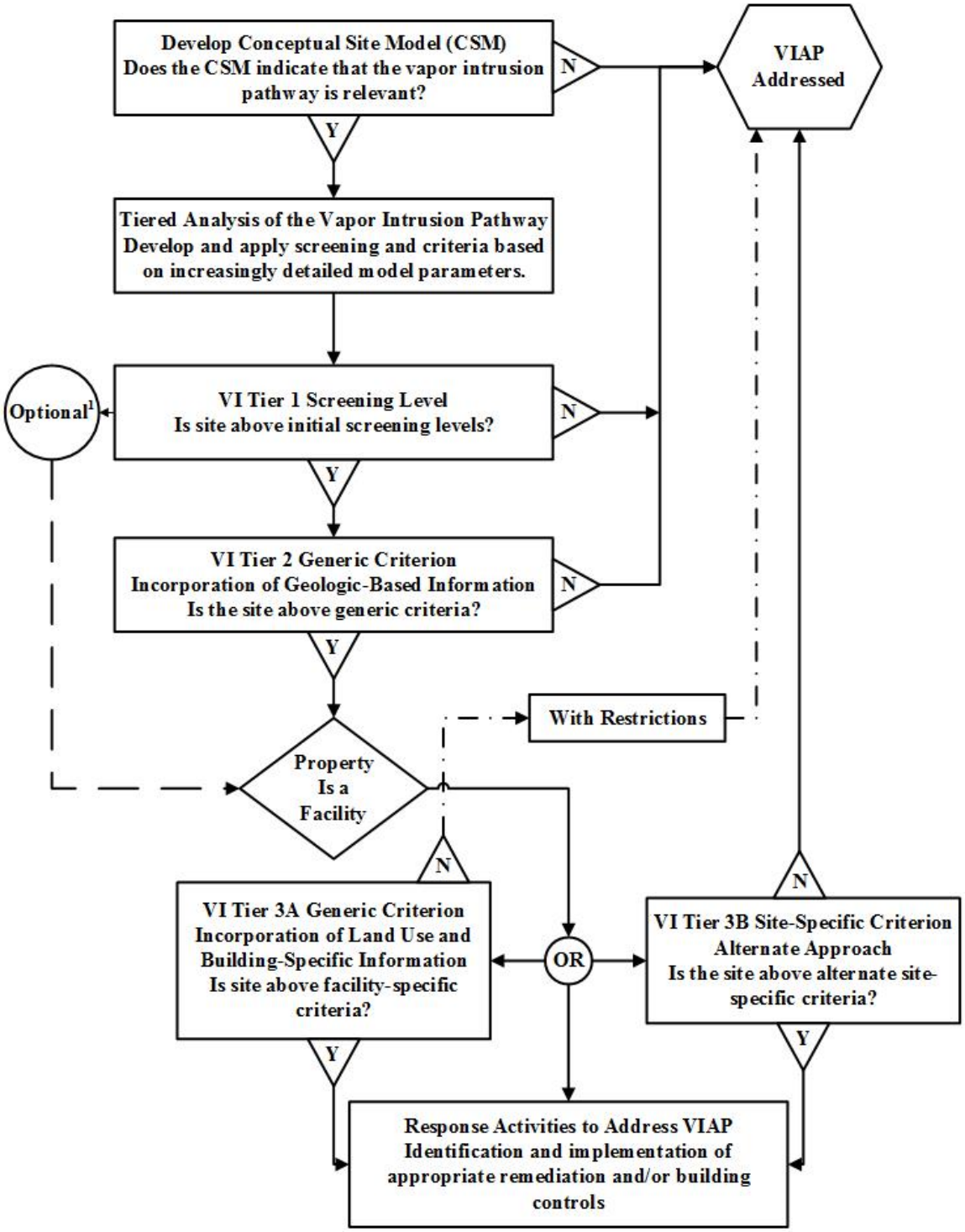
$$AAV_{dev} = \frac{THQ \times AT_{dev} \times RfC_{dev} \times RSC}{ED_{dev} \times EF_{dev}}$$

where,

AAV_{dev}	**(Acceptable air value)**	**=**	**chemical-specific, µg/m^3**
THQ	**(Target hazard quotient)**	**=**	**1**
$AT_{dev,FT}$	**(Averaging time, pregnant worker, full-term pregnancy)**	**=**	**280 days or chemical-specific**
$AT_{dev,SE}$	**(Averaging time, pregnant worker, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
RfC_{dev}	**(Reference concentration)**	**=**	**chemical-specific, µg/m^3**
RSC	**(Relative source contribution)**	**=**	**chemical-specific or 1**
$ED_{dev,FT}$	**(Exposure duration, pregnant worker, full-term pregnancy)**	**=**	**0.767 year or chemical-specific**
$ED_{dev,SE}$	**(Exposure duration, pregnant worker, single event exposure during pregnancy)**	**=**	**1 day or chemical-specific**
$EF_{dev,FT}$	**(Exposure frequency, pregnant worker, full-term pregnancy)**	**=**	**183 days/year or chemical-specific**
$EF_{dev,SE}$	**(Exposure frequency, pregnant worker, single event exposure during pregnancy)**	**=**	**1 day/day or chemical-specific**

(12) Figure 1 of this rule reads as follows:

FIGURE 1:
VI Tier Process



1. R 299.27(3)(a)(i)

(13) Table 1 of this rule reads as follows:

TABLE 1
Generic Input Values

Variable		VI Tier 1 Screening Levels	VI Tier 2 Generic criteria	VI Tier 3A Generic criteria
--	Exposure scenario category	Unrestricted Residential	Unrestricted Residential	Limited Residential & Limited Nonresidential
--	Soil type input values (Tables 1 and 2 of R 299.7)	Sand	No info available: Sand Observation: Sand, sandy loam, loamy sand, or loam Via approved method: 12 classifications identified by the NRCS	VI Tier 2 values
T_S	Source temperature (Table 3 of R 299.7)	10°C or 283.15K	For sand: 10°C or 283.15K For all other soil types: County-specific value	VI Tier 2 values
--	Depth to groundwater (in contact definition in subrule (3) of this rule)	3 m or 300 cm and in contact with the structure	3 m or 300 cm and in contact unless actual depth to groundwater > depth of building considering capillary fringe, depth of footings, and subsurface utilities	Actual depth unless in contact
--	Soil source type	Infinite	VI Tier 1 value	VI Tier 1 value
L_T	Distance to a vapor source (in contact defined in subrule (3) of this rule)	Soil and Vapor: 1 cm or 0.01 m Groundwater: Assumed to be in contact with structure	Soil and Vapor: 1 cm or 0.01 m Groundwater: In contact unless actual depth to groundwater > depth of building considering capillary fringe, depth of footings, and subsurface utilities	Soil: 1 cm or 0.01 m Vapor : 1 cm or 0.01 m when the vapor source is ≤ to 1 m vertically from the structure 100 cm or 1 m when the vapor source is > 1 m vertically from the structure Groundwater: Actual depth unless in contact
--	Basis of Capillary Fringe or Zone	Calculated based on sand	Calculated based on soil type	VI Tier 2 values
f_{oc}	Soil organic carbon weight fraction	0.002	VI Tier 1 value	VI Tier 1 value
--	Building Type	Groundwater and vapor: Residential house with occupied basement Soil: Residential house with a slab-on-grade foundation	VI Tier 1 value	Residential: House, Apartment Nonresidential: Office, Manufacturing

Variable		VI Tier 1 Screening Levels	VI Tier 2 Generic criteria	VI Tier 3A Generic criteria
--	Exposure scenario category	Unrestricted Residential	Unrestricted Residential	Limited Residential & Limited Nonresidential
ER	Air Exchange Rate	0.25 hr^{1}	VI Tier 1 value	Residential: House: 0.25 hr^{-1} Apartment: 0.61 hr^{-1} Nonresidential: Office: 1.0 hr^{-1} Manufacturing: 1.5 hr^{-1} Other approved values
--	Foundation Type	Groundwater and vapor: Basement Soil: slab-on-grade	VI Tier 1 value	Basement Slab-on-grade
L_{FF}	Depth of footings and utilities below enclosed space	100 cm; 1 m	VI Tier 1 value	VI Tier 1 value
L_F, Z_{crack}	Depth below grade and crack depth below grade	Groundwater and vapor: 200 cm or 2 m Soil: 15cm or 0.15m	VI Tier 1 Value	Residential or Nonresidential: Basement: 200 cm or 2 m Slab-on-grade: 15 cm or 0.15 m
L_{crack}	Enclosed space floor thickness	15 cm or 0.15m	VI Tier 1 value	Residential or Nonresidential: 15 cm or; 0.15 m
L_B	Enclosed space floor length	1,000 cm or 10 m	VI Tier 1 value	Residential: 1,000 cmor 10 m Nonresidential: 1,500 cm or 15 m
W_B	Enclosed space floor width	1,000 cm or 10 m	VI Tier 1 value	Residential: 1,000 cm or 10 m Nonresidential: 1,500 cm or; 15 m
H_B	Enclosed space height (mixing height)	244 cm or 2.44 m	VI Tier 1 value	Residential: Basement (occupied): 244 cm or 2.44 m Basement (unoccupied): 366 cm or 3.66 m Slab-on-grade: 244 cm or 2.44 m Nonresidential: Basement: 366 cm Slab-on-grade: 366 cm
w	Floor-wall seam crack width	0.1 cm or 0.001 m	VI Tier 1 value	VI Tier 1 value
ΔP	Soil-bldg. differential pressure, Residential or Nonresidential	40 g/cm-s^2	VI Tier 1 value	VI Tier 1 value
$VF_{G\ Win}$	Volatilization factor	Groundwater in contact: Calculated	VI Tier 1 value	VI Tier 1 value

Variable		VI Tier 1 Screening Levels	VI Tier 2 Generic criteria	VI Tier 3A Generic criteria
--	Exposure scenario category	Unrestricted Residential	Unrestricted Residential	Limited Residential & Limited Nonresidential
α	Attenuation coefficient	Soil: Calculated Vapor:0.03	Soil: Calculated Vapor: 0.03 Groundwater in contact: 0.03 Groundwater not in contact: Calculated	Soil: Calculated Vapor: Source <1 m: 0.03 Source and sampling location is >1 m: Calculated Groundwater: Calculated

R 299.28 Cleanup criteria for contaminated environmental media based on other injury which requires consideration.

Rule 28. (1) To assure that hazardous substances in contaminated environmental media do not pose unacceptable risks not accounted for by other rules in this part, the concentration of a hazardous substance in a given environmental medium shall meet cleanup criteria based on sound scientific principles and determined by the department to be necessary to protect the public health, safety, and welfare and the environment from any of the following:

(a) Food chain contamination.

(b) Damage to soil or biota in the soil that impairs the use of such soil for agricultural purposes.

(c) Phytotoxicity.

(d) Physical hazards.

(e) Nonsystemic or acute toxicity.

(f) Injury that may result from the direct transport or runoff of hazardous substances in soil into surface water.

(g) Injury to the groundwater resource which may impair its use for other purposes that are determined by the department to be reasonable and relevant considerations at a facility.

(h) Other injury that requires consideration.

(2) The basis for and information used by the department to develop cleanup criteria under this rule shall be made available to the public upon request.

R 299.30 Surface water and surface water sediments; cleanup criteria.

Rule 30. (1) Any response activity plan that addresses surface water or sediments associated with waters of the state shall include site-specific cleanup criteria established ~~by the department~~ on the basis of sound scientific principles and evaluation of bulk sediment chemistry, sediment toxicity, and benthic community populations **and be approved by the department**. Criteria shall be established considering the need to eliminate or mitigate the following use impairments, as appropriate to the facility in question:

(a) Restrictions on fish or wildlife consumption.

(b) Tainting of fish and wildlife flavor.

(c) Degraded fish or wildlife populations.

(d) Fish tumors or other deformities.

(e) Bird or animal deformities or reproductive problems.

(f) Degradation of benthos.
(g) Restrictions on dredging activities.
(h) Eutrophication or undesirable algae.
(i) Restrictions on drinking water consumption or taste or odor problems.
(j) Beach closings.
(k) Degradation of aesthetics.
(l) Added costs to agriculture, industry, or a local unit of government.
(m) Degradation of phytoplankton or zooplankton populations.
(n) Loss of fish and wildlife habitat.
(o) Unacceptable risk through human contact as a result of absorption of hazardous substances through the skin or by incidental ingestion of sediments.
(p) Other unacceptable risks to human receptors exposed to hazardous substances**.** ~~in sediments.~~

(2) The basis for, and information used ~~by the department~~ to develop~~,~~ cleanup criteria under this rule**,** shall be made available to the public upon request.

R 299.34 Risk assessment and development of cleanup criteria for certain substances; special considerations.

Rule 34. ~~(1) All polychlorinated and polybrominated dibenzodioxins and dibenzofurans shall be considered as 1 hazardous substance, expressed as an equivalent concentration of 2,3,7,8-tetrachlorodibenzo-p-dioxin, based upon the relative potency and concentration of the congeners present at the facility.~~

(~~2~~**1**) If 2 or more hazardous substances are present and known to result in toxicological interaction, then the interactive effects**, including additivity,** shall be considered in establishing levels that are protective of the public health, safety, and welfare and the environment**. Both of the following apply:**

(a) All polychlorinated and polybrominated dibenzodioxins and dibenzofurans and dioxin-like polychlorinated biphenyls shall be evaluated as a single hazardous substance and environmental concentrations expressed as an equivalent concentration of 2,3,7,8-tetrachlorodibenzo-p-dioxin based upon the relative potency and concentration of the dioxin-like chemicals present at the facility. All classes of hazardous substances that have documented dioxin-like activity and have toxicity equivalent factors or other relative potency factors recognized by the United States environmental protection agency shall be evaluated as a single hazardous substance and environmental concentrations calculated on the basis of the relative potencies and chemical-specific concentrations present at the facility. The adjusted environmental concentrations shall be summed and the resulting total equivalent concentration compared to the criterion for 2,3,7,8-tetrachlorodibenzo-p-dioxin.

(b) Carcinogenic polynuclear aromatic hydrocarbons shall be evaluated as a single hazardous substance and environmental concentrations expressed as an equivalent concentration of benzo(a)pyrene based upon the relative potency and concentration of the carcinogenic polynuclear aromatic hydrocarbons present at the facility. All carcinogenic polynuclear aromatic hydrocarbons that have documented carcinogenic activity that is additive to that of benzo(z)pyrene and have relative potency factors recognized by the United States Environmental Protection Agency shall be evaluated as

a single hazardous substance and environmental concentrations calculated on the basis of the relative potencies and chemical-specific concentrations present at the facility. The adjusted environmental concentrations shall be summed and the resulting total equivalent concentration compared to the criteria for benzo(a)pyrene.

(~~3~~**2**) The department may calculate generic cleanup criteria for certain hazardous substances using exposure assumptions other than those shown in the ~~algorithms~~**equations** in these rules if either of the following conditions is satisfied:

(a) A hazardous substance causes an adverse effect in a sensitive **lifestage or** subpopulation that is not adequately protected **by a generic criterion** or represented by **any of** the generic exposure assumptions. **Adverse effects to be addressed by this subrule include, but are not limited to, developmental or reproductive effects.**

(b) The toxicokinetics of a hazardous substance are not best represented by the average daily dose, when accounting for the most sensitive effect.

(3) When determining compliance with generic cleanup criteria calculated under subrule (2) of this rule, the environmental data shall represent the exposure assumptions used to develop the criteria.

(4) When polychlorinated biphenyls are present, refer to the federal Toxic Substances Control Act (TSCA), 40 C.F.R. 761 to determine the applicability of the TSCA cleanup standards.

R 299.36 ~~Calculation of criteria based on~~**Determination of** noncarcinogenic ~~endpoints; minimum~~ toxicity ~~data~~**values**.

Rule 36. (1) The ~~minimum~~ data required to calculate a ~~cleanup criterion~~**health-based value** for a ~~noncarcinogen~~**hazardous substance** when the route of exposure is ingestion or dermal absorption shall be the reference dose **or an equivalent noncarcinogenic toxicity value** that is determined on the basis of the best available information and considering the weight of evidence.

(2) ~~The minimum data required to calculate a cleanup criterion for a noncarcinogen when the route of exposure is inhalation shall be the minimum data required for calculation of an initial threshold screening level developed under part 55 of the act, and rules promulgated under part 55~~**The data required to calculate a health-based value that is based on or incorporates the inhalation route of exposure shall be the reference concentration or an equivalent inhalation noncarcinogenic toxicity value that is determined on the basis of the best available information and considering the weight of evidence**.

R 299.38 Determination of ~~cancer slope factors for use in calculation of criteria based on~~ carcinogenic ~~endpoints~~**toxicity values**.

Rule 38. (1) **The department shall rely on the cancer risk for oral or inhalation exposure conducted by the United States Environmental Protection Agency and published in the integrated risk information system as a basis for calculation of criteria for those hazardous substances that cause cancer unless the department determines that other sources represent best available scientific information.**

(2) **If the department develops a carcinogenic toxicity value or a site-specific carcinogenic toxicity value is proposed, the following shall apply:**

(a) A non-threshold mechanism of carcinogenesis shall be assumed unless biological data adequately demonstrate the existence of a threshold on a ~~hazardous substance~~ **chemical**-specific basis.

(~~2~~**b**) All appropriate human ~~epidemiologic~~ **cancer** data, animal cancer ~~bioassay~~ data, and all other pertinent data shall be considered and a ~~cancer slope factor~~ **carcinogenic toxicity value** developed if the weight of evidence for carcinogenicity is sufficient. **The carcinogenic toxicity value shall be developed consistent with the cancer risk assessment guidelines developed by the United States environmental protection agency.** ~~Preferred data are those from studies which use the same route of exposure addressed by the criteria. However, in the absence of such data, route-to-route extrapolations may be conducted where appropriate, considering whether the critical effect is systemic and thus possible for each different route of exposure. The risk-associated dose shall be set at a level corresponding to an increased cancer risk of 1 in 100,000. If acceptable human epidemiologic data are available for a hazardous substance, then those data shall be used to derive the risk-associated dose. If acceptable human epidemiologic data are not available, then the risk-associated dose shall be derived from available animal bioassay data. Data from a species that is considered most biologically relevant to humans, that is, responds most like humans, is preferred where all other considerations regarding quality of data are equal. In the absence of data to distinguish the most relevant species, data from the most sensitive species tested, that is the species showing a carcinogenic effect at the lowest administered dose, shall generally be used.~~

(c) The cancer risks associated with early life exposures shall be addressed using the United States Environmental Protection Agency guidance for assessing susceptibility from early-life exposure to carcinogens with a mutagenic mode of action. When chemical-specific data are available for a sensitive lifestage, the data may be used to develop chemical-specific age-dependent adjustment factors. When chemical-specific data are not available, generic age-dependent adjustment factors shall be used.

(~~3~~**d**) If animal bioassay data are used and a non-threshold mechanism of carcinogenicity is assumed, then the data shall be fitted to a linearized multistage model~~, for example, a Global '86 or equivalent computer model. Global '86 is the linearized multistage model that was derived by Howe, Crump, and Van Landingham (1986), which was prepared for the United States environmental protection agency under subcontract 2-251u-2745 to Research Triangle Institute, contract 68-01-6826, and which the United States environmental protection agency uses~~ to determine cancer potencies. The upper-bound 95% confidence limit on risk, or the lower 95% confidence limit on dose, at the 1 in 100,000 risk level shall be used to calculate a risk-associated dose for individual hazardous substances. Other models, including modifications or variations of the linearized multistage model that are more appropriate to the available data, may be used where scientifically justified.

(~~4~~**e**) If the duration of the study is significantly less than the natural lifespan of the test animal, then the slope factor may be adjusted on a case-by-case basis to compensate for latent tumors that were not expressed. The lifespan of a rat is assumed to be 104 weeks and the lifespan of a mouse is assumed to be 90 weeks. If the test animal is a rat and the study duration is less than 90 weeks, or if the test animal is a mouse and the study duration is less than 78 weeks, then the slope factor shall be multiplied by the following factor: the expected lifespan (L) divided by the study duration (L_e) raised to the third power, $[(L/L_e)^3]$.

(~~5~~**f**) A species scaling factor shall be used to account for differences between test species and humans. It shall be assumed that scaling daily administered doses by body mass raised to

the 3/4 power achieves equivalence in lifetime carcinogenic risk in different mammalian species. To derive a human slope factor from animal data, the default procedure shall be to multiply the animal slope factor by the ratio of human to animal body weights raised to the 1/4 power. However, if adequate pharmacokinetic and metabolism studies are available, then these data may be factored into the adjustment for species differences on a case-by-case basis.

(~~6~~**g**) Additional adjustments shall be made to the data as appropriate. For some cancer data sets, it may be appropriate to combine incidences of multiple tumor types or combine benign and malignant tumors of the same histogenic origin. All doses shall be adjusted to give an average daily dose over the study duration. Adjustments shall be made to the tumor incidence for early mortality. Animals dying before the appearance of the first tumor within their dose group shall be removed from the data set. Before quantification of the dose response, a goodness-of-fit evaluation of the data shall be conducted.

(~~7~~**h**) If human epidemiologic data, animal bioassay data, or other biological data indicate that a chemical causes cancer via a threshold mechanism, then the risk-associated dose may, on a case-by-case basis, be calculated using a method that assumes a threshold mechanism is operative.

~~(8) Inhalation unit risk factors shall be calculated in the same manner as cancer risk screening levels for inhalation risk under part 55 of the act.~~

R 299.40 **Rescinded.**~~Availability of information used by department to establish cleanup criteria; public review and comment on revised criteria.~~

~~Rule 40. (1) The department shall make available to the public the detailed basis for calculation of any cleanup criterion established under these rules, including the references for original studies, papers, or other sources of information that were used or considered. Requests for information under this rule shall specify the hazardous substance and exposure pathways for which information is desired.~~

~~(2) Any proposed change to a criterion shall be published by the department and subject to review and comment as part of the rule-making process.~~

R 299.44 **Rescinded.**~~Generic groundwater cleanup criteria.~~

~~Rule 44. The generic groundwater cleanup criteria for all categories shall be as shown in table 1.~~

TABLE 1. GROUNDWATER: RESIDENTIAL AND NONRESIDENTIAL
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Nonresidential Groundwater Volatilization to Indoor Air Inhalation Criteria	Water Solubility	Flammability and Explosivity Screening Level
Acenaphthene	83329	1,300	3,800	38	4,200 (S)	4,200 (S)	4,240	ID
Acenaphthylene	208968	52	150	ID	3,900 (S)	3,900 (S)	3,930	ID
Acetaldehyde (I)	75070	950	2,700	130	1.1E+6	2.3E+6	1.00E+9	8.9E+6
Acetate	71501	4,200	12,000	(G)	ID	ID	ID	ID
Acetic acid	64197	4,200	12,000	(G)	NLV	NLV	6.00E+9	1.0E+9 (D)
Acetone (I)	67641	730	2,100	1,700	1.0E+9 (D,S)	1.0E+9 (D,S)	1.00E+9	1.5E+7
Acetonitrile	75058	140	400	NA	2.4E+7	4.5E+7	2.00E+8	2.1E+7
Acetophenone	98862	1,500	4,400	ID	6.1E+6 (S)	6.1E+6 (S)	6.10E+6	ID
Acrolein (I)	107028	120	330	NA	2,100	4,200	2.10E+8	6.7E+6
Acrylamide	79061	0.5 (A)	0.5 (A)	10 (X)	NLV	NLV	2.20E+9	NA
Acrylic acid	79107	3,900	11,000	NA	1.2E+7	2.8E+7	1.00E+9	1.0E+9 (D)
Acrylonitrile (I)	107131	2.6	11	2.0 (M); 1.2	34,000	1.9E+5	7.50E+7	6.4E+6

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Alachlor	15972608	2.0 (A)	2.0 (A)	11 (X)	NLV	NLV	1.83E+5	ID
Aldicarb	116063	3.0 (A)	3.0 (A)	NA	NLV	NLV	6.00E+6	ID
Aldicarb sulfone	1646884	2.0 (A)	2.0 (A)	NA	NLV	NLV	7.80E+6	ID
Aldicarb sulfoxide	1646873	4.0 (A)	4.0 (A)	NA	NLV	NLV	2.80E+7	ID
Aldrin	309002	0.098	0.4	0.01 (M); 8.7E-6	180 (S)	180 (S)	180	ID
Aluminum (B)	7429905	50 (V)	50 (V)	NA	NLV	NLV	NA	ID
Ammonia	7664417	10,000 (N)	10,000 (N)	(CC)	3.2E+6	7.1E+6	5.30E+8	ID
t-Amyl methyl ether (TAME)	994058	190 (E)	190 (E)	NA	2.6E+5	5.7E+5	2.64E+6	NA
Aniline	62533	53	220	4	NLV	NLV	3.60E+7	NA
Anthracene	120127	43 (S)	43 (S)	ID	43 (S)	43 (S)	43.4	ID
Antimony	7440360	6.0 (A)	6.0 (A)	130 (X)	NLV	NLV	NA	ID
Arsenic	7440382	10 (A)	10 (A)	10	NLV	NLV	NA	ID
Asbestos (BB)	1332214	7.0E MFL (A)	7.0E MFL (A)	NA	NLV	NLV	NA	NA
Atrazine	1912249	3.0 (A)	3.0 (A)	7.3	NLV	NLV	70,000	ID
Azobenzene	103333	23	94	ID	6,400 (S)	6,400 (S)	6,400	ID
Barium (B)	7440393	2,000 (A)	2,000 (A)	(G)	NLV	NLV	NA	ID

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Nonresidential Groundwater Volatilization to Indoor Air Inhalation Criteria	Water Solubility	Flammability and Explosivity Screening Level
Benzene (I)	71432	5.0 (A)	5.0 (A)	200 (X)	5,600	35,000	1.75E+6	68,000
Benzidine	92875	0.3 (M); 0.0037	0.3 (M); 0.015	0.3 (M); 0.073	NLV	NLV	5.20E+5	ID
Benzo(a)anthracene (Q)	56553	2.1	8.5	ID	NLV	NLV	9.4	ID
Benzo(b)fluoranthene (Q)	205992	1.5 (S,AA)	1.5 (S,AA)	ID	ID	ID	1.5	ID
Benzo(k)fluoranthene (Q)	207089	1.0 (M); 0.8 (S)	1.0 (M); 0.8 (S)	NA	NLV	NLV	0.8	ID
Benzo(g,h,i)perylene	191242	1.0 (M); 0.26 (S)	1.0 (M); 0.26 (S)	ID	NLV	NLV	0.26	ID
Benzo(a)pyrene (Q)	50328	5.0 (A)	5.0 (A)	ID	NLV	NLV	1.62	ID
Benzoic acid	65850	32,000	92,000	NA	NLV	NLV	3.50E+6	ID
Benzyl alcohol	100516	10,000	29,000	NA	NLV	NLV	4.40E+7	ID
Benzyl chloride	100447	7.7	32	NA	12,000	77,000	4.90E+5	NA
Beryllium	7440417	4.0 (A)	4.0 (A)	(G)	NLV	NLV	NA	ID
bis(2-Chloroethoxy)ethane	112265	ID	ID	ID	NLV	NLV	1.89E+7	ID
bis(2-Chloroethyl)ether (I)	111444	2	8.3	1.0 (M); 0.79	38,000	2.1E+5	1.72E+7	1.7E+7 (S)
bis(2-Ethylhexyl)phthalate	117817	6.0 (A)	6.0 (A)	25	NLV	NLV	340	NA
Boron (B)	7440428	500 (F)	500 (F)	7,200 (X)	NLV	NLV	NA	ID

Bromate	15541454	10 (A)	10 (A)	40 (X)	NLV	NLV	38,000	ID
Bromobenzene (I)	108861	18	50	NA	1.8E+5	3.9E+5	4.13E+5	ID
Bromodichloromethane	75274	80 (A,W)	80 (A,W)	ID	4,800	37,000	6.74E+6	ID
Bromoform	75252	80 (A,W)	80 (A,W)	ID	4.7E+5	3.1E+6 (S)	3.10E+6	ID
Bromomethane	74839	10	29	35	4,000	9,000	1.45E+7	ID
n-Butanol (I)	71363	950	2,700	9,800 (X)	NLV	NLV	7.40E+7	4.7E+7
2-Butanone (MEK) (I)	78933	13,000	38,000	2,200	2.4E+8 (S)	2.4E+8 (S)	2.40E+8	ID
n-Butyl acetate	123864	550	1,600	NA	6.7E+6 (S)	6.7E+6 (S)	6.70E+6	2.5E+6
t-Butyl alcohol	75650	3,900	11,000	NA	1.0E+9 (D,S)	1.0E+9 (D,S)	1.00E+9	6.1E+7
Butyl benzyl phthalate	85687	1,200	2,700 (S)	67 (X)	NLV	NLV	2,690	ID
n-Butylbenzene	104518	80	230	ID	ID	ID	NA	ID
sec-Butylbenzene	135988	80	230	ID	ID	ID	NA	ID
t-Butylbenzene (I)	98066	80	230	ID	ID	ID	NA	ID

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Cadmium (B)	7440439	5.0 (A)	5.0 (A)	(G,X)	NLV	NLV	NA	ID
Camphene (I)	79925	ID	ID	NA	440	1,000	33,400	ID
Caprolactam	105602	5,800	17,000	NA	NLV	NLV	5.25E+9	NA
Carbaryl	63252	700	2,000	NA	ID	ID	1.26E+5	ID
Carbazole	86748	85	350	10 (M); 4.0	NLV	NLV	7,480	ID
Carbofuran	1563662	40 (A)	40 (A)	NA	NLV	NLV	7.00E+5	ID
Carbon disulfide (I,R)	75150	800	2,300	ID	2.5E+5	5.5E+5	1.19E+6	13,000
Carbon tetrachloride	56235	5.0 (A)	5.0 (A)	45 (X)	370	2,400	7.93E+5	ID
Chlordane (J)	57749	2.0 (A)	2.0 (A)	2.0 (M); 0.00025	56 (S)	56 (S)	56	ID
Chloride	16887006	2.5E+5 (E)	2.5E+5 (E)	(FF)	NLV	NLV	NA	ID
Chlorobenzene (I)	108907	100 (A)	100 (A)	25	2.1E+5	4.7E+5 (S)	4.72E+5	1.6E+5
p-Chlorobenzene sulfonic acid	98668	7,300	21,000	ID	ID	ID	NA	ID
1-Chloro-1,1-difluoroethane	75683	15,000	44,000	NA	3.9E+6 (S)	3.9E+6 (S)	3.90E+6	NA
Chloroethane	75003	430	1,700	1,100 (X)	5.7E+6 (S)	5.7E+6 (S)	5.74E+6	1.1E+5
2-Chloroethyl vinyl	110758	ID	ID	NA	ID	ID	1.50E+7	ID

ether								
Chloroform	67663	80 (A,W)	80 (A,W)	350	28,000	1.8E+5	7.92E+6	ID
Chloromethane (I)	74873	260	1,100	ID	8,600	45,000	6.34E+6	36,000
4-Chloro-3-methylphenol	59507	150	420	7.4	NLV	NLV	3.90E+6	ID
beta-Chloronaphthalene	91587	1,800	5,200	NA	ID	ID	6,740	ID
2-Chlorophenol	95578	45	130	18	4.9E+5	1.1E+6	2.20E+7	ID
o-Chlorotoluene (I)	95498	150	420	ID	2.2E+5	3.7E+5 (S)	3.73E+5	ID
Chlorpyrifos	2921882	22	63	2.0 (M); 0.002	2.9	6.6	1,120	ID
Chromium (III) (B,H)	16065831	100 (A)	100 (A)	(G,X)	NLV	NLV	NA	ID
Chromium (VI)	18540299	100 (A)	100 (A)	11	NLV	NLV	NA	ID
Chrysene (Q)	218019	1.6 (S)	1.6 (S)	ID	ID	ID	1.6	ID
Cobalt	7440484	40	100	100	NLV	NLV	NA	ID
Copper (B)	7440508	1,000 (E)	1,000 (E)	(G)	NLV	NLV	NA	ID
Cyanazine	21725462	2.3	9.4	56 (X)	NLV	NLV	1.70E+5	ID

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Cyanide (P,R)	57125	200 (A)	200 (A)	5.2	NLV	NLV	NA	ID
Cyclohexanone	108941	33,000	94,000	NA	1,500	3,300	2.30E+7	NA
Dacthal	1861321	73	210	NA	NLV	NLV	500	ID
Dalapon	75990	200 (A)	200 (A)	NA	NLV	NLV	5.02E+8	ID
4-4'-DDD	72548	9.1	37	NA	NLV	NLV	90	ID
4-4'-DDE	72559	4.3	15	NA	NLV	NLV	120	ID
4-4'-DDT	50293	3.6	10	0.02 (M); 1.1E-5	NLV	NLV	25	NA
Decabromodiphenyl ether	1163195	30 (S)	30 (S)	NA	30 (S)	30 (S)	30	ID
Di-n-butyl phthalate	84742	880	2,500	9.7	NLV	NLV	11,200	NA
Di(2-ethylhexyl) adipate	103231	400 (A)	400 (A)	ID	NLV	NLV	471	ID
Di-n-octyl phthalate	117840	130	380	ID	NLV	NLV	3,000	ID
Diacetone alcohol (I)	123422	ID	ID	NA	NLV	NLV	1.00E+9	1.0E+9 (S)
Diazinon	333415	1.3	3.8	1.0 (M); 0.004	NLV	NLV	68,800	NA
Dibenzo(a,h)anthracene (Q)	53703	2.0 (M); 0.21	2.0 (M); 0.85	ID	NLV	NLV	2.49	ID
Dibenzofuran	132649	ID	ID	4	10,000 (S)	10,000 (S)	10,000	ID
Dibromochloromethane	124481	80 (A,W)	80 (A,W)	ID	14,000	1.1E+5	2.60E+6	ID

Dibromochloropropane	96128	0.2 (A)	0.2 (A)	ID	220	1,200 (S)	1,230	NA
Dibromomethane	74953	80	230	NA	ID	ID	1.10E+7	ID
Dicamba	1918009	220	630	NA	NLV	NLV	4.50E+6	ID
1,2-Dichlorobenzene	95501	600 (A)	600 (A)	13	1.6E+5 (S)	1.6E+5 (S)	1.56E+5	NA
1,3-Dichlorobenzene	541731	6.6	19	28	18,000	41,000	1.11E+5	ID
1,4-Dichlorobenzene	106467	75 (A)	75 (A)	17	16,000	74,000 (S)	73,800	NA
3,3'-Dichlorobenzidine	91941	1.1	4.3	0.3 (M); 0.2	NLV	NLV	3,110	ID
Dichlorodifluoromethane	75718	1,700	4,800	ID	2.2E+5	3.0E+5 (S)	3.00E+5	ID
1,1-Dichloroethane	75343	880	2,500	740	1.0E+6	2.3E+6	5.06E+6	3.8E+5
1,2-Dichloroethane (I)	107062	5.0 (A)	5.0 (A)	360 (X)	9,600	59,000	8.52E+6	2.5E+6
1,1-Dichloroethylene (I)	75354	7.0 (A)	7.0 (A)	130	200	1,300	2.25E+6	97,000
cis-1,2-Dichloroethylene	156592	70 (A)	70 (A)	620	93,000	2.1E+5	3.50E+6	5.3E+5

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trans-1,2-Dichloroethylene	156605	100 (A)	100 (A)	1,500 (X)	85,000	2.0E+5	6.30E+6	2.3E+5
2,6-Dichloro-4-nitroaniline	99309	2,200	6,300	NA	NLV	NLV	7,000	ID
2,4-Dichlorophenol	120832	73	210	11	NLV	NLV	4.50E+6	ID
2,4-Dichlorophenoxyacetic acid	94757	70 (A)	70 (A)	220	NLV	NLV	6.80E+5	ID
1,2-Dichloropropane (I)	78875	5.0 (A)	5.0 (A)	230 (X)	16,000	36,000	2.80E+6	5.5E+5
1,3-Dichloropropene	542756	8.5	35	9.0 (X)	3,900	26,000	2.80E+6	1.3E+5
Dichlorovos	62737	1.6	6.7	NA	NLV	NLV	1.60E+7	NA
Dicyclohexyl phthalate	84617	ID	ID	NA	ID	ID	4,000	ID
Dieldrin	60571	0.11	0.43	0.02 (M); 6.5E-6	200 (S)	200 (S)	195	ID
Diethyl ether	60297	10 (E)	10 (E)	ID	6.1E+7 (S)	6.1E+7 (S)	6.10E+7	6.5E+5
Diethyl phthalate	84662	5,500	16,000	110	NLV	NLV	1.08E+6	NA
Diethylene glycol monobutyl ether	112345	88	250	NA	NLV	NLV	1.00E+9	ID
Diisopropyl ether	108203	30	86	ID	8,000 (S)	8,000 (S)	8,041	8,000 (S)

Diisopropylamine (I)	108189	5.6	16	NA	2.1E+7	3.7E+7 (S)	3.69E+7	4.6E+6
Dimethyl phthalate	131113	73,000	2.10E+05	NA	NLV	NLV	4.19E+6	NA
N,N-Dimethylacetamide	127195	180	520	4,100 (X)	NLV	NLV	1.00E+9	NA
N,N-Dimethylaniline	121697	16	46	NA	2.4E+5	1.3E+6 (S)	1.27E+6	NA
Dimethylformamide (I)	68122	700	2,000	NA	NLV	NLV	1.00E+9	ID
2,4-Dimethylphenol	105679	370	1,000	380	NLV	NLV	7.87E+6	ID
2,6-Dimethylphenol	576261	4.4	13	NA	NLV	NLV	6.14E+6	ID
3,4-Dimethylphenol	95658	10	29	25	NLV	NLV	4.93E+6	ID
Dimethylsulfoxide	67685	2.2E+5	6.3E+5	1.9E+5	NLV	NLV	1.66E+8	ID
2,4-Dinitrotoluene	121142	7.7	32	NA	NLV	NLV	2.70E+5	ID
Dinoseb	88857	7.0 (A)	7.0 (A)	1.0 (M); 0.48	NLV	NLV	52,000	ID
1,4-Dioxane (I)	123911	85	350	2,800 (X)	NLV	NLV	9.00E+8	1.4E+8
Diquat	85007	20 (A)	20 (A)	20 (M); 6.0	NLV	NLV	7.00E+5	ID
Dissolved oxygen (DO)	NA	ID	ID	(EE)	ID	ID	NA	NA
Diuron	330541	31	90	NA	NLV	NLV	37,300	ID

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Endosulfan (J)	115297	44	130	0.03 (M); 0.029	ID	ID	510	ID
Endothall	145733	100 (A)	100 (A)	NA	NLV	NLV	1.00E+8	ID
Endrin	72208	2.0 (A)	2.0 (A)	ID	NLV	NLV	250	ID
Epichlorohydrin (I)	106898	5.0 (M); 2.0 (A)	5.0 (M); 2.0 (A)	NA	3.2E+5	6.3E+5	6.60E+7	4.7E+7
Ethanol (I)	64175	1.9E+6	3.8E+6	ID	NLV	NLV	1.00E+9	9.7E+7
Ethyl acetate (I)	141786	6,600	19,000	NA	6.4E+7 (S)	6.4E+7 (S)	6.40E+7	4.2E+6
Ethyl tert-butyl ether (ETBE)	637923	49 (E)	49 (E)	ID	2.9E+6	5.6E+6 (S)	5.63E+6	ID
Ethylbenzene (I)	100414	74 (E)	74 (E)	18	1.1E+5	1.7E+5 (S)	1.69E+5	43,000
Ethylene dibromide	106934	0.05 (A)	0.05 (A)	5.7 (X)	2,400	15,000	4.20E+6	ID
Ethylene glycol	107211	15,000	42,000	1.9E+5 (X)	NLV	NLV	1.00E+9	NA
Ethylene glycol monobutyl ether	111762	3,700	10,000	NA	2.9E+6	6.5E+6	2.24E+8	NA
Fluoranthene	206440	210 (S)	210 (S)	1.6	210 (S)	210 (S)	206	ID
Fluorene	86737	880	2,000 (S)	12	2,000 (S)	2,000 (S)	1,980	ID
Fluorine (soluble fluoride) (B)	7782414	2,000 (E)	2,000 (E)	ID	NLV	NLV	NA	ID
Formaldehyde	50000	1,300	3,800	120	63,000	3.6E+5	5.50E+8	ID

Formic acid (I,U)	64186	10,000	29,000	ID	7.7E+6	1.5E+7	1.00E+9	1.0E+9 (D)
1-Formylpiperidine	2591868	80	230	NA	ID	ID	NA	ID
Gentian violet	548629	15	63	NA	NLV	NLV	1.00E+6	ID
Glyphosate	1071836	700 (A)	700 (A)	NA	NLV	NLV	1.16E+7	ID
Heptachlor	76448	0.4 (A)	0.4 (A)	0.01 (M); 0.0018	180 (S)	180 (S)	180	ID
Heptachlor epoxide	1024573	0.2 (A)	0.2 (A)	ID	NLV	NLV	200	ID
n-Heptane	142825	2,700 (S)	2,700 (S)	NA	2,700 (S)	2,700 (S)	2,690	200
Hexabromobenzene	87821	0.17 (S); 20	0.17 (S); 58	ID	ID	ID	0.17	ID
Hexachlorobenzene (C-66)	118741	1.0 (A)	1.0 (A)	0.2 (M); 0.0003	440	3,000	6,200	ID
Hexachlorobutadiene (C-46)	87683	15	42	0.053	1,600	3,200 (S)	3,230	ID
alpha-Hexachlorocyclohexane	319846	0.43	1.7	ID	2,000 (S)	2,000 (S)	2,000	ID
beta-Hexachlorocyclohexane	319857	0.88	3.6	ID	NLV	NLV	240	ID
Hexachlorocyclopentadiene (C-56)	77474	50 (A)	50 (A)	ID	130	420	1,800	ID

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Hexachloroethane	67721	7.3	21	6.7 (X)	27,000	50,000 (S)	50,000	ID
n-Hexane	110543	3,000	8,600	NA	12,000 (S)	12,000 (S)	12,000	12,000 (S)
2-Hexanone	591786	1,000	2,900	ID	4.2E+6	8.7E+6	1.60E+7	NA
Indeno(1,2,3-cd)pyrene (Q)	193395	2.0 (M); 0.022 (S)	2.0 (M); 0.022 (S)	ID	NLV	NLV	0.022	ID
Iron (B)	7439896	300 (E)	300 (E)	NA	NLV	NLV	NA	ID
Isobutyl alcohol (I)	78831	2,300	6,700	NA	7.6E+7 (S)	7.6E+7 (S)	7.60E+7	ID
Isophorone	78591	770	3,100	1,300 (X)	NLV	NLV	1.20E+7	ID
Isopropyl alcohol (I)	67630	470	1,300	57,000 (X)	NLV	NLV	1.00E+9	6.0E+7
Isopropyl benzene	98828	800	2,300	28	56,000 (S)	56,000 (S)	56,000	29,000
Lead (B)	7439921	4.0 (L)	4.0 (L)	(G,X)	NLV	NLV	NA	ID
Lindane	58899	0.2 (A)	0.2 (A)	0.03 (M); 0.026	ID	ID	6,800	ID
Lithium (B)	7439932	170	350	440	NLV	NLV	NA	ID
Magnesium (B)	7439954	4.0E+5	1.1E+6	NA	NLV	NLV	NA	ID
Manganese (B)	7439965	50 (E)	50 (E)	(G,X)	NLV	NLV	NA	ID
Mercury (Total) (B,Z)	Varies	2.0 (A)	2.0 (A)	0.0013	56 (S)	56 (S)	56	ID
Methane	74828	ID	ID	NA	(K)	(K)	NA	(AA)

Methanol	67561	3,700	10,000	5.9E+5 (X)	2.9E+7 (S)	2.9E+7 (S)	2.90E+7	4.5E+6
Methoxychlor	72435	40 (A)	40 (A)	NA	ID	ID	45	ID
2-Methoxyethanol (I)	109864	7.3	21	NA	NLV	NLV	1.00E+9	ID
2-Methyl-4-chlorophenoxyacetic acid	94746	7.3	21	NA	NLV	NLV	9.24E+5	ID
2-Methyl-4,6-dinitrophenol	534521	20 (M); 2.6	20 (M); 7.3	NA	NLV	NLV	2.00E+5	ID
N-Methyl-morpholine (I)	109024	20	56	NA	NLV	NLV	1.00E+9	ID
Methyl parathion	298000	1.8	5.2	NA	NLV	NLV	50,000	ID
4-Methyl-2-pentanone (MIBK) (I)	108101	1,800	5,200	ID	2.0E+7 (S)	2.0E+7 (S)	2.00E+7	ID
Methyl-tert-butyl ether (MTBE)	1634044	40 (E)	40 (E)	7,100 (X)	4.7E+7 (S)	4.7E+7 (S)	4.68E+7	ID
Methylcyclopentane (I)	96377	ID	ID	NA	22,000	49,000	73,890	ID
4,4'-Methylene-bis-2-chloroaniline	101144	1.1	4.5	NA	NLV	NLV	14,000	ID
Methylene chloride	75092	5.0 (A)	5.0 (A)	1,500 (X)	2.2E+5	1.4E+6	1.70E+7	ID

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2-Methylnaphthalene	91576	260	750	19	25,000 (S)	25,000 (S)	24,600	ID
Methylphenols (J)	1319773	370	1,000	30 (M); 25	NLV	NLV	2.80E+7	NA
Metolachlor	51218452	240	990	15	NLV	NLV	5.30E+5	ID
Metribuzin	21087649	180	520	NA	ID	ID	1.20E+6	ID
Mirex	2385855	0.02 (M); 6.8E-6 (S)	0.02 (M); 6.8E-6 (S)	0.02 (M); 6.8E-6 (S)	ID	ID	6.80E-6	NA
Molybdenum (B)	7439987	73	210	3,200 (X)	NLV	NLV	NA	ID
Naphthalene	91203	520	1,500	11	31,000 (S)	31,000 (S)	31,000	NA
Nickel (B)	7440020	100 (A)	100 (A)	(G)	NLV	NLV	NA	ID
Nitrate (B,N)	14797558	10,000 (A,N)	10,000 (A,N)	ID	NLV	NLV	NA	ID
Nitrite (B,N)	14797650	1,000 (A,N)	1,000 (A,N)	NA	NLV	NLV	NA	ID
Nitrobenzene (I)	98953	3.4	9.6	180 (X)	2.8E+5	5.5E+5	2.09E+6	NA
2-Nitrophenol	88755	20	58	ID	NLV	NLV	2.50E+6	ID
n-Nitroso-di-n-propylamine	621647	5.0 (M); 0.19	5.0 (M); 0.77	NA	NLV	NLV	9.89E+6	ID
N-Nitrosodiphenylamine	86306	270	1,100	NA	NLV	NLV	35,100	ID
Oxamyl	23135220	200 (A)	200 (A)	NA	NLV	NLV	2.80E+8	ID

Oxo-hexyl acetate	88230357	73	210	NA	ID	ID	NA	ID
Pendimethalin	40487421	280 (S)	280 (S)	NA	NLV	NLV	275	ID
Pentachlorobenzene	608935	6.1	17	5.0 (M); 0.019	ID	ID	650	ID
Pentachloronitrobenzene	82688	32 (S)	32 (S)	NA	32 (S)	32 (S)	32	ID
Pentachlorophenol	87865	1.0 (A)	1.0 (A)	(G,X)	NLV	NLV	1.85E+6	ID
Pentane	109660	ID	ID	NA	38,000 (S)	38,000 (S)	38,200	340
2-Pentene, (I)	109682	ID	ID	NA	ID	ID	2.03E+5	ID
pH	NA	6.5 to 8.5 (E)	6.5 to 8.5 (E)	6.5 to 9.0	ID	ID	NA	NA
Phenanthrene	85018	52	150	2.0 (M); 1.4	1,000 (S)	1,000 (S)	1,000	ID
Phenol	108952	4,400	13,000	450	NLV	NLV	8.28E+7	NA
Phenytoin	57410	17	68	89 (X)	NLV	NLV	32,000	ID
Phosphorus (Total)	7723140	63,000	2.40E+05	(EE)	NLV	NLV	NA	ID
Phthalic acid	88993	14,000	40,000	NA	NLV	NLV	1.42E+7	ID

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Phthalic anhydride	85449	15,000	44,000	NA	NLV	NLV	6.20E+6	NA
Picloram	1918021	500 (A)	500 (A)	46	NLV	NLV	4.30E+5	ID
Piperidine	110894	3.2	9.2	NA	NLV	NLV	1.00E+9	ID
Polybrominated biphenyls (J)	67774327	0.03	0.09	ID	NLV	NLV	1.66E+7	ID
Polychlorinated biphenyls (PCBs) (J,T)	1336363	0.5 (A)	0.5 (A)	0.2 (M); 2.6E-5	45 (S)	45 (S)	44.7	ID
Prometon	1610180	160	460	NA	NLV	NLV	7.50E+5	ID
Propachlor	1918167	95	270	NA	NLV	NLV	6.55E+5	ID
Propazine	139402	200	560	NA	NLV	NLV	8,600	ID
Propionic acid	79094	12,000	35,000	ID	NLV	NLV	1.00E+9	1.0E+9 (D)
Propyl alcohol (I)	71238	1,400	4,000	NA	NLV	NLV	1.00E+9	7.1E+7
n-Propylbenzene (I)	103651	80	230	ID	ID	ID	NA	ID
Propylene glycol	57556	1.5E+5	4.2E+5	2.9E+5	NLV	NLV	1.00E+9	ID
Pyrene	129000	140 (S)	140 (S)	ID	140 (S)	140 (S)	135	ID
Pyridine (I)	110861	20 (M); 7.3	21	NA	5,500	12,000	3.00E+5	81,000
Selenium (B)	7782492	50 (A)	50 (A)	5	NLV	NLV	NA	ID
Silver (B)	7440224	34	98	0.2 (M);	NLV	NLV	NA	ID

				0.06				
Silvex (2,4,5-TP)	93721	50 (A)	50 (A)	30	NLV	NLV	1.40E+5	ID
Simazine	122349	4.0 (A)	4.0 (A)	17	NLV	NLV	4,470	ID
Sodium	17341252	2.3E+S(HH)	3.5E+5	NA	NLV	NLV	NA	ID
Sodium azide	26628228	88	250	50 (M); 7.3	ID	ID	NA	ID
Strontium (B)	7440246	4,600	13,000	21,000	NLV	NLV	NA	ID
Styrene	100425	100 (A)	100 (A)	80 (X)	1.7E+5	3.1E+5 (S)	3.10E+5	1.4E+5
Sulfate	14808798	2.5E+5 (E)	2.5E+5 (E)	NA	NLV	NLV	NA	ID
Tebuthiuron	34014181	510	1,500	NA	NLV	NLV	2.50E+6	ID
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	(O)	(O)	(O)	NLV	NLV	0.00996	ID
1,2,4,5-Tetrachlorobenzene	95943	1,300 (S)	1,300 (S)	2.9 (X)	1,300 (S)	1,300 (S)	1,300	ID
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O)	1746016	3.0E-5 (A)	3.0E-5 (A)	1.0E-5 (M); 3.1E-9	NLV	NLV	0.019	ID
1,1,1,2-Tetrachloroethane	630206	77	320	ID	15,000	96,000	1.10E+6	ID

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1,1,2,2-Tetrachloroethane	79345	8.5	35	78 (X)	12,000	77,000	2.97E+6	ID
Tetrachloroethylene	127184	5.0 (A)	5.0 (A)	60 (X)	25,000	1.7E+5	2.00E+5	ID
Tetrahydrofuran	109999	95	270	11,000 (X)	6.9E+6	1.6E+7	1.00E+9	60,000
Tetranitromethane	509148	ID	ID	NA	580	3,200	85,000	ID
Thallium (B)	7440280	2.0 (A)	2.0 (A)	3.7 (X)	NLV	NLV	NA	ID
Toluene (I)	108883	790 (E)	790 (E)	270	5.3E+5 (S)	5.3E+5 (S)	5.26E+5	61,000
p-Toluidine	106490	15	62	NA	NLV	NLV	7.60E+6	NA
Total dissolved solids (TDS)	NA	5.0E+5 (E)	5.0E+5 (E)	(EE)	ID	ID	NA	NA
Toxaphene	8001352	3.0 (A)	3.0 (A)	1.0 (M); 6.8E-5	NLV	NLV	740	ID
Triallate	2303175	95	270	NA	ID	ID	4,000	ID
Tributylamine	102829	10	29	ID	14,000	32,000	75,400	ID
1,2,4-Trichlorobenzene	120821	70 (A)	70 (A)	99 (X)	3.0E+5 (S)	3.0E+5 (S)	3.00E+5	NA
1,1,1-Trichloroethane	71556	200 (A)	200 (A)	89	6.6E+5	1.3E+6 (S)	1.33E+6	ID
1,1,2-Trichloroethane	79005	5.0 (A)	5.0 (A)	330 (X)	17,000	1.1E+5	4.42E+6	NA
Trichloroethylene	79016	5.0 (A)	5.0 (A)	200 (X)	2,200	4,900	1.10E+6	ID
Trichlorofluoromethane	75694	2,600	7,300	NA	1.1E+6 (S)	1.1E+6 (S)	1.10E+6	ID
2,4,5-Trichlorophenol	95954	730	2,100	NA	NLV	NLV	1.20E+6	ID

2,4,6-Trichlorophenol	88062	120	470	5	NLV	NLV	8.00E+5	ID
1,2,3-Trichloropropane	96184	42	120	NA	8,300	18,000	1.90E+6	NA
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	1.7E+5 (S)	1.7E+5 (S)	32	1.7E+5 (S)	1.7E+5 (S)	1.70E+5	ID
Triethanolamine	102716	3,700	10,000	NA	NLV	NLV	1.00E+9	ID
Triethylene glycol	112276	4,300	12,000	NA	NLV	NLV	1.00E+6	ID
3-Trifluoromethyl-4-nitrophenol	88302	4,500	13,000	NA	NLV	NLV	5.00E+6	ID
Trifluralin	1582098	37	110	NA	ID	ID	8,100	ID
2,2,4-Trimethyl pentane	540841	ID	ID	NA	2,300 (S)	2,300 (S)	2,330	160
2,4,4-Trimethyl-2-pentene (I)	107404	ID	ID	NA	ID	ID	11,900	ID
1,2,4-Trimethylbenzene (I)	95636	63 (E)	63 (E)	17	56,000 (S)	56,000 (S)	55,890	56,000 (S)
1,3,5-Trimethylbenzene (I)	108678	72 (E)	72 (E)	45	61,000 (S)	61,000 (S)	61,150	ID

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Triphenyl phosphate	115866	1,200	1,400 (S)	NA	NLV	NLV	1,430	ID
tris(2,3-Dibromopropyl)phosphate	126727	10 (M); 0.71	10 (M); 2.9	ID	4,700 (S)	4,700 (S)	4,700	ID
Urea	57136	ID	ID	NA	NLV	NLV	NA	ID
Vanadium	7440622	4.5	62	27	NLV	NLV	NA	ID
Vinyl acetate (I)	108054	640	1,800	NA	4.1E+6	8.9E+6	2.00E+7	1.8E+6
Vinyl chloride	75014	2.0 (A)	2.0 (A)	13 (X)	1,100	13,000	2.76E+6	33,000
White phosphorus (R)	12185103	0.11	0.31	NA	NLV	NLV	NA	ID
Xylenes (I)	1330207	280 (E)	280 (E)	41	1.9E+5 (S)	1.9E+5 (S)	1.86E+5	70,000
Zinc (B)	7440666	2,400	5,000 (E)	(G)	NLV	NLV	NA	ID

History: 2013 AACS.

R 299.46 Generic ~~soil~~ cleanup criteria **and screening levels** ~~for residential catergory~~.

Rule 46 **(1) The generic groundwater cleanup criteria shall be as shown in table 1. The cleanup criteria designated as residential and the groundwater surface water interface criteria are the cleanup criteria for unrestricted residential use as defined by sections 20101(1)(i) and 20120e(1)(a) of the act.**

(2) The generic soil cleanup criteria for residential category shall be as shown in table 2. **These cleanup criteria are the cleanup criteria for unrestricted residential use as defined by sections 20101(1)(i) and 20120e(1)(a) of the act.**

(3) The generic soil cleanup criteria for nonresidential category shall be as shown in table 3.

(4) The vapor intrusion screening levels for groundwater, soil, and soil gas shall be shown as table 4.

(5) Abbreviations and defintions have the following meanings when used in the tables of this rule:

(a) "acute" means the associated criterion is based on acute effects.

(b) "aes" means based on aesthetic value pursuant to R 299.9.

(c) "ca" means based on carcinogenic health effects.

(d) "dev" means based on developmental health effects.

(e) "FCV" means based on the R 323.1057 surface water quality standard final chronic value.

(f) "HCV" means based on the R 323.1057 surface water quality standard non-drink human cancer value.

(g) "HNV" means based on the R 323.1057 surface water quality standard non-drink noncancer value.

(h) "ID" means insufficient data to develop criterion.

(i) "NA" means a criterion or value is not available.

(j) "NV" means hazardous substance is not likely to volatilize under most conditions.

(k) "max" means the maximum ceiling concentration pursuant to R 299.6(5).

(l) "mut" means based on mutagenic cancer effects.

(m) "nc" means based on noncarcinogenic health effects.

(n) "sdws" means based on the state drinking water standard.

(o) "sol" means based on solubility.

(p) "swpv" means based on the soil water partition value.

(q) "tdl" means based on target detection limit.

(r) "WV" means based on the R 323.1057 surface water quality standard wildlife value.

(s) "20x" means based on the groundwater criterion multiplied by 20.

(6) Tables 1 to 4 of this rule read as follows:

TABLE 1. GROUNDWATER: RESIDENTIAL AND NONRESIDENTIAL
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to 1 microgram per liter (µg/L). Criteria with 6 or more digits are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by one or more letters in parentheses and is defined in R 299.49(1). The abbreviation beneath the value represents the basis for the criterion. When the health-based value is less than the target detection limit (TDL), the TDL is listed as the criterion (MCL 324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the health-based or solubility value, whichever is lower.

Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
Acenaphthene	83329	360 nc	1,100 nc	38 FCV	3.90E+03	NA
Acenaphthylene	208968	360 nc	1,100 nc	ID	1.61E+04	NA
Acetaldehyde (I)	75070	770 nc	2,500 nc	130 FCV	1.00E+09	1.1E+07
Acetate	71501	3,400 nc	11,000 nc	(G)	1.00E+09	NA
Acetic acid (OO)	64197	3,400 nc	11,000 nc	(G)	1.00E+09	1.0E+09 (S) sol
Acetone (I)	67641	5,300 nc	17,000 nc	1,700 FCV	1.00E+09	1.7E+07
Acetonitrile	75058	360 nc	1,100 nc	13,000 (X) FCV	1.00E+09	1.4E+07
Acetophenone (DD)	98862	3,200 (DD) dev	13,000 (DD) dev	ID	6.13E+06	NA
Acrolein (I)	107028	24 nc	76 nc	NA	2.1E+08	5.1E+06
Acrylamide (MM)	79061	0.5 (A) sdws	0.5 (A) sdws	10 (X) HCV	3.90E+08	NA
Acrylic acid (DD,OO)	79107	800 (DD) dev	3,800 nc	NA	1.00E+09	1.0E+09 (S) sol
Acrylonitrile (I)	107131	2.0 (M); 1.3 tdl	6.8 ca	2.0 (M); 1.2 (X) tdl	7.45E+07	4.6E+06
Alachlor	15972608	2.0 (A) sdws	2.0 (A) sdws	11 (X) FCV	2.40E+05	NA
Aldicarb	116063	3.0 (A) sdws	3.0 (A) sdws	NA	6.03E+06	NA
Aldicarb sulfone	1646884	2.0 (A) sdws	2.0 (A) sdws	NA	1.00E+07	NA
Aldicarb sulfoxide	1646873	4.0 (A) sdws	4.0 (A) sdws	NA	2.80E+07	NA

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
Aldrin	309002	0.043 ca	0.22 ca	0.01 (M); 8.7E-6 tdl	1.70E+01	NA
Aluminum (B,DD)	7429905	50 (E,V) aes	50 (E,V) aes	NA	NA	NA
Ammonia (N)	7664417	10,000 (N) na	10,000 (N) na	(CC)	4.82E+08	NA
t-Amyl methyl ether (TAME)	994058	190 (E) aes	190 (E) aes	NA	1.07E+07	3.4E+05
Aniline	62533	42 nc	130 nc	4.0 FCV	3.60E+07	NA
Anthracene	120127	43 (S) sol	43 (S) sol	ID	4.34E+01	NA
Antimony	7440360	6.0 (A) sdws	6.0 (A) sdws	130 (X) HNV	NA	NA
Arsenic (B,KK)	7440382	10 (A) sdws	10 (A) sdws	10 HCV	NA	NA
Asbestos (BB)	1332214	7.0 MFL (A,BB) sdws	7.0 MFL (A,BB) sdws	NA	NA	NA
Atrazine	1912249	3.0 (A) sdws	3.0 (A) sdws	7.3 FCV	3.47E+04	NA
Azobenzene	103333	6.6 ca	33 ca	ID	6.40E+03	NA
Barium (B,KK)	7440393	2,000 (A) sdws	2,000 (A) sdws	(G)	NA	NA
Benzene (I,KK)	71432	5.0 (A) sdws	5.0 (A) sdws	200 (X) FCV	1.79E+06	68,000
Benzidine (MM)	92875	0.3 (M); 9.8E-4 tdl	0.3 (M); 0.02 tdl	0.3 (M); 0.073 (X) tdl	3.22E+05	NA
Benzo(a)anthracene (Q,MM)	56553	(Q)	(Q)	ID	9.40E+00	NA
Benzo(b)fluoranthene (Q,MM)	205992	(Q)	(Q)	ID	1.50E+00	NA

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
Benzo(k)fluoranthene (Q,MM)	207089	(Q)	(Q)	NA	8.00E-01	NA
Benzo(g,h,i)perylene	191242	1.0 (M); 0.26 (S) tdl	1.0 (M); 0.26 (S) tdl	ID	2.60E-01	NA
Benzo(a)pyrene (Q,DD,MM)	50328	0.2 (A) sdws	0.2 (A) sdws	ID	1.62E+00	NA
Benzoic acid	65850	24,000 nc	76,000 nc	NA	3.40E+06	NA
Benzyl alcohol	100516	830 nc	2,600 nc	NA	4.29E+07	NA
Benzyl chloride	100447	5.0 (M); 4.3 tdl	22 ca	NA	5.25E+05	NA
Beryllium (B)	7440417	4.0 (A) sdws	4.0 (A) sdws	(G)	NA	NA
bis(2-Chloroethoxy)ethane	112265	5.0 (M); 1.5 tdl	5.0 (M); 4.7 tdl	ID	1.89E+07	NA
bis-2-Chloroethylether (I)	111444	1.0 (M); 0.66 tdl	3.3 ca	1.0 (M); 0.79 tdl	1.72E+07	1.7E+07 (S) sol
bis(2-Ethylhexyl) phthalate (DD)	117817	6.0 (A) sdws	6.0 (A) sdws	14 HCV	2.70E+02	NA
Boron (DD)	7440428	800 (F,DD) dev	3,300 (F,DD) dev	7,200 (X) FCV	NA	NA
Bromate	15541454	10 (A) sdws	10 (A) sdws	40 (X) HCV	NA	NA
Bromobenzene (I)	108861	47 nc	150 nc	NA	4.46E+05	4.5E+05 (S) sol
Bromodichloromethane (DD)	75274	80 (A,W) sdws	80 (A,W) sdws	ID	3.03E+06	NA
Bromoform	75252	80 (A,W) sdws	80 (A,W) sdws	ID	3.10E+06	NA
Bromomethane	74839	120 nc	380 nc	5.0 (M); 4.2 tdl	1.52E+07	NA

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
n-Butanol (I,OO)	71363	800 (M); 590 tdl	1,900 nc	9,800 (X) FCV	6.30E+07	4.7E+07
2-Butanone (MEK) (I,DD,KK)	78933	2,400 (DD) dev	11,000 nc	2,200 FCV	2.23E+08	7.1E+06
n-Butyl acetate	123864	590 nc	1,900 nc	NA	8.40E+06	2.8E+06
t-Butyl alcohol (OO)	75650	1,100 nc	3,400 nc	NA	1.00E+09	7.9E+07
Butyl benzyl phthalate (DD)	85687	80 (DD) dev	330 (DD) dev	67 (X) FCV	2.69E+03	NA
n-Butylbenzene	104518	270 nc	870 nc	ID	1.18E+03	NA
sec-Butylbenzene	135988	590 nc	1,900 nc	ID	1.76E+04	18,000 (S) sol
t-Butylbenzene (I)	98066	590 nc	1,900 nc	ID	2.95E+04	NA
Cadmium (B,KK)	7440439	5.0 (A) sdws	5.0 (A) sdws	(G,X)	NA	NA
Camphene (I)	79925	NA	NA	NA	4.60E+03	NA
Caprolactam (DD)	105602	2,000 (DD) dev	9,400 nc	NA	7.72E+08	NA
Carbaryl (DD)	63252	40 (DD) dev	170 (DD) dev	NA	1.10E+05	NA
Carbazole	86748	10 (M); 7.4 tdl	38 ca	10 (M); 4 tdl	1.80E+03	NA
Carbofuran (DD)	1563662	40 (A) sdws	40 (A) sdws	NA	3.20E+05	NA
Carbon disulfide (I,R,DD)	75150	440 (DD) dev	1,800 (DD) dev	ID	2.16E+06	27,000
Carbon tetrachloride (KK)	56235	5.0 (A) sdws	5.0 (A) sdws	38 (X) HCV	7.93E+05	NA

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
Chlordane (J,KK)	57749	2.0 (A) sdws	2.0 (A) sdws	0.05 (M); 0.00025 tdl	5.60E+01	NA
Chloride	16887006	2.5E+05 (E) aes	2.5E+05 (E) aes	(X,FF)	NA	NA
2-Chloroaniline	95512	18 nc	57 nc	ID	8.16E+06	NA
4-Chloroaniline	106478	3.0 nc	9.4 nc	ID	3.90E+06	NA
Chlorobenzene (I,KK)	108907	100 (A) sdws	100 (A) sdws	25 FCV	4.98E+05	1.9E+05
p-Chlorobenzene sulfonic acid	98668	4,700 nc	15,000 nc	ID	3.06E+08	NA
1-Chloro-1,1-difluoroethane	75683	12,000 nc	40,000 nc	NA	1.40E+06	NA
Chloroethane (DD)	75003	240 nc	760 nc	1,100 (X) FCV	6.71E+06	88,000
2-Chloroethyl vinyl ether	110758	NA	NA	NA	4.29E+05	NA
Chloroform (KK)	67663	80 (A,W) sdws	80 (A,W) sdws	350 HCV	7.95E+06	NA
Chloromethane (I)	74873	220 ca	1,100 ca	ID	5.32E+06	NA
4-Chloro-3-methylphenol (DD)	59507	400 (DD) dev	1,700 (DD) dev	7.4 FCV	3.83E+06	NA
beta-Chloronaphthalene	91587	470 nc	1,500 nc	NA	1.17E+04	NA
2-Chlorophenol (DD)	95578	32 (DD) dev	130 (DD) dev	18 FCV	1.13E+07	NA
o-Chlorotoluene (I)	95498	40 nc	130 nc	ID	3.74E+05	1.4E+05
Chlorpyrifos (DD)	2921882	19 (DD) dev	78 (DD) dev	2.0 (M); 0.002 tdl	1.12E+03	NA

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
Chromium (III) (B,H,KK)	16065831	100 (A) sdws	100 (A) sdws	(G,X)	NA	NA
Chromium (VI) (H,KK,MM)	18540299	100 (A) sdws	100 (A) sdws	11 FCV	NA	NA
Chrysene (Q,MM)	218019	(Q)	(Q)	ID	2.00E+00	NA
Cobalt (B)	7440484	20 (M); 1.8 tdl	20 (M); 5.7 tdl	100 FCV	NA	NA
Copper (B)	7440508	30 nc	95 nc	(G)	NA	NA
Cyanazine	21725462	2.0 (M); 1.2 tdl	3.8 nc	56 (X) HCV	1.70E+05	NA
Cyanide (P,R,DD)	57125	200 (A) sdws	200 (A) sdws	5.2 FCV	NA	NA
Cyclohexane (DD)	110827	NA	NA	ID	5.50E+04	2,900
Cyclohexanone (OO)	108941	1,200 nc	3,800 nc	NA	2.50E+07	2.5E+07 (S) sol
Dacthal	1861321	59 nc	190 nc	NA	5.00E+02	NA
Dalapon	75990	200 (A) sdws	200 (A) sdws	NA	5.02E+08	NA
4-4'-DDD	72548	3.0 ca	15 ca	NA	9.00E+01	NA
4-4'-DDE	72559	2.1 ca	11 ca	NA	4.00E+01	NA
4-4'-DDT (DD)	50293	2.0 (DD) dev	5.5 (S) sol	0.02 (M); 1.1E-5 tdl	5.50E+00	NA
Decabromodiphenyl ether (DD)	1163195	10 (M); 0.1 (S) tdl	10 (M); 0.1 (S) tdl	NA	1.00E-01	NA
Di-n-butyl phthalate (DD)	84742	27 (DD) dev	110 (DD) dev	9.7 FCV	1.12E+04	NA

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
Di(2-ethylhexyl) adipate (DD)	103231	400 (A) sdws	400 (A) sdws	ID	7.80E+02	NA
Di-n-octyl phthalate	117840	22 (S) sol	22 (S) sol	ID	2.20E+01	NA
Diacetone alcohol (I,OO)	123422	NA	NA	NA	1.00E+09	1.0E+09 (S) sol
Diazinon	333415	4.2 nc	13 nc	1.0 (M); 0.004 tdl	4.00E+04	NA
Dibenzo(a,h)anthracene (Q,MM)	53703	(Q)	(Q)	ID	2.49E+00	NA
Dibenzofuran	132649	5.9 nc	19 nc	4.0 FCV	3.10E+03	NA
Dibromochloromethane (MM)	124481	80 (A,W) sdws	80 (A,W) sdws	ID	2.70E+06	NA
Dibromochloropropane (MM)	96128	0.2 (A) sdws	0.2 (A) sdws	ID	1.23E+06	NA
Dibromomethane	74953	18 nc	57 nc	NA	1.19E+07	NA
Dicamba (DD)	1918009	1,800 (DD) dev	8,500 nc	NA	8.31E+06	NA
1,2-Dichlorobenzene	95501	600 (A) sdws	600 (A) sdws	13 FCV	1.56E+05	NA
1,3-Dichlorobenzene	541731	12 nc	38 nc	28 FCV	1.25E+05	NA
1,4-Dichlorobenzene (KK)	106467	75 (A) sdws	75 (A) sdws	17 FCV	8.13E+04	NA
3,3`-Dichlorobenzidine	91941	1.6 ca	8.2 ca	0.3 (M); 0.2 (X) tdl	3.10E+03	NA
Dichlorodifluoromethane	75718	30 nc	94 nc	ID	2.80E+05	NA
1,1-Dichloroethane	75343	1,200 nc	3,800 nc	740 FCV	5.04E+06	3.8E+05

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
1,2-Dichloroethane (I,KK)	107062	5.0 (A) sdws	5.0 (A) sdws	360 (X) HCV	8.60E+06	2.1E+06
1,1-Dichloroethylene (I,KK)	75354	7.0 (A) sdws	7.0 (A) sdws	130 FCV	2.42E+06	97,000
cis-1,2-Dichloroethylene	156592	70 (A) sdws	70 (A) sdws	620 FCV	6.41E+06	2.9E+05
trans-1,2-Dichloroethylene	156605	100 (A) sdws	100 (A) sdws	1,500 (X) FCV	4.52E+06	2.5E+05
2,6-Dichloro-4-nitroaniline	99309	15 nc	47 nc	NA	7.00E+03	NA
2,4-Dichlorophenol (DD)	120832	80 (DD) dev	330 (DD) dev	11 FCV	5.55E+06	NA
2,4-Dichlorophenoxyacetic acid (KK)	94757	70 (A) sdws	70 (A) sdws	220 FCV	6.77E+05	NA
1,2-Dichloropropane (I)	78875	5.0 (A) sdws	5.0 (A) sdws	230 (X) FCV	2.80E+06	5.4E+05
1,3-Dichloropropene (J)	542756	7.2 ca	37 ca	9.0 (X) FCV	2.80E+06	6.6E+05
Dichlorvos (MM)	62737	1.0 (M); 0.78 tdl	9.4 nc	NA	8.00E+06	NA
Dicyclohexyl phthalate	84617	NA	NA	NA	4.00E+03	NA
Dieldrin	60571	0.045 ca	0.23 ca	0.02 (M); 6.5E-6 tdl	1.95E+02	NA
Diethyl ether	60297	5.0 (M); 1.2 (E) tdl	5.0 (M); 1.2 (E) tdl	ID	6.00E+07	4.6E+05
Diethyl phthalate	84662	4,700 nc	15,000 nc	110 FCV	1.08E+06	NA
Diethylene glycol monobutyl ether	112345	180 nc	570 nc	NA	1.00E+09	NA
Diisopropyl ether (DD)	108203	1,100 (DD) dev	4,500 (DD) dev	ID	8.80E+06	2.2E+05

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
Diisopropylamine (I)	108189	4.6 nc	15 nc	NA	1.10E+08	4.6E+06
Dimethyl phthalate	131113	590 nc	1,900 nc	NA	4.00E+06	NA
N,N-Dimethylacetamide (OO)	127195	150 nc	470 nc	4,100 (X) FCV	1.00E+09	NA
N,N-Dimethylaniline	121697	12 nc	38 nc	NA	1.45E+06	NA
Dimethylformamide (I,OO)	68122	590 nc	1,900 nc	NA	1.00E+09	1.0E+09 (S) sol
2,4-Dimethylphenol	105679	120 nc	380 nc	380 FCV	7.87E+06	NA
2,6-Dimethylphenol	576261	4.0 (M); 3.6 tdl	11 nc	NA	6.05E+06	NA
3,4-Dimethylphenol	95658	5.9 nc	19 nc	25 FCV	4.76E+06	NA
Dimethylsulfoxide	67685	5,900 nc	19,000 nc	1.9E+05 FCV	1.00E+09	NA
2,4-Dinitrophenol	51285	12 nc	38 nc	19 FCV	2.79E+06	NA
2,4-Dinitrotoluene (KK)	121142	1.1 ca	5.5 ca	NA	2.00E+05	NA
Dinoseb (DD)	88857	7.0 (A) sdws	7.0 (A) sdws	1.0 (M); 0.48 tdl	5.20E+04	NA
1,4-Dioxane (I,OO)	123911	7.2 ca	37 ca	2,800 (X) HCV	1.00E+09	1.5E+08
Diquat	85007	20 (A) sdws	20 (A) sdws	20 (M); 6 tdl	7.08E+08	NA
Dissolved oxygen (DO)	NA	NA	NA	(EE)	NA	NA
Diuron	330541	18 nc	57 nc	NA	4.20E+04	NA

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
Endosulfan (J)	115297	30 nc	94 nc	0.03 (M); 0.029 tdl	3.25E+02	NA
Endothall	145733	100 (A) sdws	100 (A) sdws	NA	1.00E+08	NA
Endrin (KK)	72208	2.0 (A) sdws	2.0 (A) sdws	ID	2.50E+02	NA
Epichlorohydrin (I)	106898	2.0 (A) sdws	2.0 (A) sdws	NA	6.59E+07	4.8E+07
Ethanol (I,DD,OO)	64175	1.2E+06 (DD) dev	5.2E+06 (DD) dev	ID	1.00E+09	1.2E+08
Ethyl acetate (I)	141786	430 nc	1,400 nc	NA	8.00E+07	5.3E+06
Ethyl-tert-butyl ether (ETBE)	637923	49 (E) aes	49 (E) aes	ID	1.20E+07	3.1E+05
Ethylbenzene (I)	100414	66 ca	74 (E) aes	18 FCV	1.69E+05	43,000
Ethylene dibromide	106934	0.05 (A) sdws	0.05 (A) sdws	5.7 (X) HCV	3.91E+06	NA
Ethylene glycol (DD)	107211	10,000 (M);3,200 tdl	13,000 (DD) dev	1.9E+05 (X) FCV	1.00E+09	NA
Ethylene glycol monobutyl ether	111762	590 nc	1,900 nc	NA	1.00E+09	NA
Ethylenediaminetetraacetic acid (EDTA) (II)	60004	NA	NA	NA	1.00E+06	NA
Fluoranthene	206440	240 nc	260 (S) sol	1.6 FCV	2.60E+02	NA
Fluorene	86737	240 nc	760 nc	12 FCV	1.69E+03	NA
Fluorine (soluble fluoride) (DD)	7782414	1,200 (DD) dev	1,700 (S) sol	ID	1.69E+03	NA
Formaldehyde (DD,MM,OO)	50000	1,200 nc	3,800 nc	180 FCV	4.00E+08	NA

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Formic acid (I,U,OO)	64186	5,300 nc	17,000 nc	ID	1.00E+09	1.0E+9 (S) sol
1-Formylpiperidine (DD)	2591868	4,400 (DD) dev	18,000 (DD) dev	NA	9.58E+07	NA
Gentian violet	548629	13 ca	67 ca	NA	4.00E+06	NA
Glyphosate (DD)	1071836	700 (A) sdws	700 (A) sdws	NA	1.05E+07	NA
Heptachlor (DD,KK)	76448	0.4 (A) sdws	0.4 (A) sdws	0.01 (M); 0.0018 (X) tdl	1.80E+02	NA
Heptachlor epoxide (KK)	1024573	0.2 (A) sdws	0.2 (A) sdws	ID	2.00E+02	NA
n-Heptane	142825	3,400 (S) sol	3,400 (S) sol	NA	3.40E+03	210
Hexabromobenzene	87821	0.16 (S) sol	0.16 (S) sol	ID	1.60E-01	NA
Hexachlorobenzene (C-66) (KK)	118741	1.0 (A) sdws	1.0 (A) sdws	0.2 (M); 0.0003 tdl	6.20E+00	NA
Hexachlorobutadiene (C-46) (KK)	87683	5.9 nc	19 nc	0.053 WV	3.20E+03	NA
alpha-Hexachlorocyclohexane	319846	0.11 ca	0.58 ca	ID	2.00E+03	NA
beta-Hexachlorocyclohexane	319857	0.36 nc	1.1 nc	ID	2.40E+02	NA
Hexachlorocyclopentadiene (C-56)	77474	50 (A) sdws	50 (A) sdws	ID	1.80E+03	NA
Hexachloroethane (KK)	67721	5.0 (M); 4.2 tdl	13 nc	6.7 (X) HCV	5.00E+04	NA
n-Hexane	110543	1,800 nc	5,700 nc	NA	9.50E+03	210
2-Hexanone	591786	50 (M); 30 tdl	94 nc	ID	1.72E+07	4.3E+06

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Indeno(1,2,3-cd)pyrene (Q,MM)	193395	(Q)	(Q)	ID	1.90E-01	NA
Iron (B)	7439896	300 (E) aes	300 (E) aes	NA	NA	NA
Isobutyl alcohol (I,OO)	78831	1,800 nc	5,700 nc	NA	8.50E+07	5.2E+07
Isophorone (DD)	78591	760 ca	3,800 nc	1,300 (X) FCV	1.20E+07	NA
Isopropyl alcohol (I,DD,OO)	67630	8,000 (DD) dev	38,000 nc	57,000 (X) FCV	1.00E+09	5.9E+07
Isopropyl benzene	98828	590 nc	1,900 nc	28 FCV	6.13E+04	38,000
Lead (B,L,DD,KK)	7439921	1.0 (L,DD) dev	1.0 (L,DD) dev	(G,X)	NA	NA
Lindane (KK)	58899	0.2 (A) sdws	0.2 (A) sdws	0.03 (M); 0.026 (X) tdl	7.30E+03	NA
Lithium (B,DD)	7439932	10 (M); 8.0 tdl	33 (DD) dev	440 FCV	NA	NA
Magnesium	7439954	3.3E+05 nc	1.0E+06 nc	NA	NA	NA
Manganese (B)	7439965	50 (E) aes	50 (E) aes	(G,X)	NA	NA
Mercury (Total) (Z,DD,KK)	Varies	2.0 (A) sdws	2.0 (A) sdws	0.0013 WV	6.00E+02	NA
Methane (K,AA)	74828	NA	NA	NA	2.20E+04	10,000 (AA)
Methanol (DD,OO)	67561	8,000 (DD) dev	33,000 (DD) dev	5.9E+05 (X) FCV	1.00E+09	1.7E+08
Methoxychlor (DD,KK)	72435	40 (A) sdws	40 (A) sdws	NA	1.00E+02	NA
2-Methoxyethanol (I,DD,OO)	109864	20 (DD) dev	83 (DD) dev	NA	1.00E+09	1.0E+9 (S) sol

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2-Methyl-4-chlorophenoxyacetic acid	94746	26 nc	83 nc	NA	6.30E+05	NA
2-Methyl-4,6-dinitrophenol	534521	20 (M); 2.4 tdl	20 (M); 7.6 tdl	NA	1.98E+05	NA
N-Methyl-morpholine (I,OO)	109024	420 nc	1,300 nc	NA	1.00E+09	NA
Methyl parathion	298000	1.2 nc	3.8 nc	NA	3.77E+04	NA
4-Methyl-2-pentanone (MIBK) (I,DD)	108101	300 nc	940 nc	ID	1.90E+07	3.5E+06
Methyl-tert-butyl ether (MTBE)	1634044	40 (E) aes	40 (E) aes	7,100 (X) HCV	5.10E+07	9.6E+05
N-methylaniline	100618	12 nc	38 nc	ID	5.62E+06	NA
Methylcyclopentane (I)	96377	NA	NA	NA	4.20E+04	930
4,4`-Methylene-bis-2- chloroaniline (MBOCA) (MM)	101144	12 nc	38 nc	NA	1.39E+04	NA
Methylene chloride (MM)	75092	5.0 (A) sdws	5.0 (A) sdws	1,500 (X) FCV	1.30E+07	NA
2-Methylnaphthalene	91576	24 nc	76 nc	19 FCV	2.46E+04	NA
Methylphenols (JJ,KK)	1319773	300 nc	940 nc	30 (M); 25 tdl	2.20E+07	NA
2-Methylphenol (DD,KK)	95487	8,000 (DD) dev	33,000 (DD) dev	30 (M); 25 tdl	2.59E+07	NA
Metolachlor	51218452	590 nc	1,900 nc	15 FCV	5.30E+05	NA
Metribuzin	21087649	77 nc	250 nc	NA	1.05E+06	NA
Mirex	2385855	0.78 ca	3.8 nc	0.02 (M); 1.6E-5 tdl	8.50E+01	NA

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Molybdenum	7439987	59 nc	190 nc	3,200 (X) FCV	NA	NA
Naphthalene	91203	590 nc	1,900 nc	11 FCV	3.10E+04	NA
Nickel (B)	7440020	36 nc	110 nc	(G)	NA	NA
Nitrate (N,DD)	14797558	10,000 (A,N) sdws	10,000 (A,N) sdws	ID	NA	NA
Nitrite (N,DD)	14797650	1,000 (A,N) sdws	1,000 (A,N) sdws	NA	NA	NA
Nitrobenzene (I,KK)	98953	12 nc	38 nc	180 (X) HCV	2.09E+06	NA
2-Nitrophenol	88755	12 nc	38 nc	ID	2.50E+06	NA
n-Nitroso-di-n-propylamine	621647	5.0 (M); 0.10 tdl	5.0 (M); 0.53 tdl	NA	1.30E+07	NA
N-Nitrosodiphenylamine	86306	150 ca	750 ca	NA	3.50E+04	NA
Oxamyl	23135220	200 (A) sdws	200 (A) sdws	NA	2.80E+08	NA
Oxo-hexyl acetate (OO)	88230357	59 nc	190 nc	NA	NA	NA
Pendimethalin (DD)	40487421	330 (S) sol	330 (S) sol	NA	3.30E+02	NA
Pentachlorobenzene	608935	5.0 (M); 4.7 tdl	15 nc	5.0 (M); 0.019 tdl	8.31E+02	NA
Pentachloronitrobenzene	82688	20 (M); 18 tdl	57 nc	NA	4.40E+02	NA
Pentachlorophenol (KK)	87865	1.0 (A) sdws	1.0 (A) sdws	(G,X)	1.40E+04	NA
Pentane	109660	NA	NA	NA	3.80E+04	320

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2-Pentene (I)	109682	NA	NA	NA	2.03E+05	NA
Perchlorate (DD)	14797730	3.0 (M); 2.8 tdl	12 (DD) dev	ID	NA	NA
Perfluorooctanoic acid	335671	0.089 nc	0.28 nc	12 (X) HNV	9.50E+06	NA
Perfluorooctane sulfonic acid (DD)	1763231	0.12 (DD) dev	0.50 (DD) dev	0.012 (X) HNV	3.10E+00	NA
pH	NA	6.5-8.5 (E) aes	6.5-8.5 (E) aes	6.5 to 9.0	NA	NA
Phenanthrene	85018	180 nc	570 nc	2.0 (M); 1.7 tdl	1.15E+03	NA
Phenol (DD)	108952	1,200 (DD) dev	5,700 nc	450 FCV	8.28E+07	NA
Phenytoin (DD)	57410	15 (M); 14 tdl	72 ca	89 (X) HCV	3.20E+04	NA
Phosphorus, Total	Varies	NA	NA	(EE)	NA	NA
Phosphorus, White (R,DD)	7723140	10 (M); 0.08 tdl	10 (M); 0.33 tdl	NA	3.30E+03	NA
o-Phthalic acid	88993	11,000 nc	36,000 nc	NA	6.97E+06	NA
Phthalic anhydride	85449	12,000 nc	38,000 nc	NA	6.20E+06	NA
Picloram	1918021	500 (A) sdws	500 (A) sdws	46 FCV	4.30E+05	NA
Piperidine (OO)	110894	2.6 nc	8.3 nc	NA	1.00E+09	NA
Polybrominated biphenyls (J,DD)	67774327	0.1 ca	0.51 ca	ID	1.10E+01	NA
Polychlorinated biphenyls (PCBs) (J,T,DD)	1336363	0.5 (A) sdws	0.5 (A) sdws	0.2 (M); 2.6E-5 tdl	7.00E+02	NA

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Polychlorinated biphenyls (PCBs) congeners (O)	Varies	(O)	(O)	NA	NA	NA
Prometon	1610180	300 nc	940 nc	NA	7.50E+05	NA
Propachlor	1918167	50 (M); 23 tdl	120 ca	NA	5.80E+05	NA
Propazine	139402	110 nc	340 nc	NA	8.60E+03	NA
Propionic acid (OO)	79094	11,000 nc	34,000 nc	ID	1.00E+09	1.0E+09 (S) sol
Propyl alcohol (I,DD,OO)	71238	8,000 (DD) dev	33,000 (DD) dev	NA	1.00E+09	7.1E+07
n-Propylbenzene (I,DD)	103651	590 nc	1,900 nc	ID	5.22E+04	37,000
Propylene glycol	57556	1.2E+05 nc	3.8E+05 nc	2.9E+05 FCV	1.00E+09	NA
Pyrene	129000	140 (S) sol	140 (S) sol	ID	1.35E+02	NA
Pyridine (I,KK)	110861	20 (M); 5.9 tdl	20 (M); 19 tdl	NA	1.00E+09	5.2E+07
Selenium (B,KK)	7782492	50 (A) sdws	50 (A) sdws	5.0 FCV	NA	NA
Silver (KK)	7440224	5.9 nc	19 nc	0.2 (M); 0.06 tdl	NA	NA
Silvex (2,4,5-TP) (KK)	93721	50 (A) sdws	50 (A) sdws	30 FCV	7.10E+04	NA
Simazine	122349	4.0 (A) sdws	4.0 (A) sdws	17 FCV	6.20E+03	NA
Sodium	17341252	2.3E+5 (HH)	1.8E+05 nc	NA	NA	NA
Sodium azide	26628228	71 nc	230 nc	50 (M); 7.3 tdl	NA	NA

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
Sodium bromide	7647156	240 nc	760 nc	NA	9.46E+08	NA
Strontium (B,DD)	7440246	2,400 (DD) dev	11,000 nc	21,000 FCV	NA	NA
Styrene	100425	100 (A) sdws	100 (A) sdws	80 (X) HCV	3.10E+05	1.4E+05
Sulfate	14808798	2.5E+05 (E) aes	2.5E+05 (E) aes	NA	NA	NA
Tebuthiuron (DD)	34014181	280 (DD) dev	1,300 nc	NA	2.50E+06	NA
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	(O)	(O)	NA	9.96E-03	NA
1,2,4,5-Tetrachlorobenzene (DD)	95943	28 (DD) dev	11 (DD) dev	2.9 (X) HNV	5.95E+02	NA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O,DD)	1746016	3.0E-05 (A,O) sdws	3.0E-05 (A,O) sdws	1.0E-05 (M); 3.1E-09 (O) tdl	2.00E-01	NA
1,1,1,2-Tetrachloroethane	630206	28 ca	140 ca	ID	1.07E+06	NA
1,1,2,2-Tetrachloroethane	79345	3.6 ca	18 ca	78 (X) HCV	2.83E+06	NA
Tetrachloroethylene (KK)	127184	5.0 (A) sdws	5.0 (A) sdws	60 (X) HCV	2.06E+05	NA
Tetrahydrofuran (DD)	109999	3,600 (DD) dev	17,000 nc	11,000 (X) FCV	1.00E+09	8.2E+06
1,1,3,3-Tetramethylurea (OO)	632224	NA	NA	ID	1.00E+09	NA
Tetranitromethane	509148	NA	NA	NA	9.00E+05	NA
Thallium	7440280	2.0 (A) sdws	2.0 (A) sdws	3.7 (X) HNV	NA	NA
Toluene (I)	108883	470 nc	790 (E) aes	270 FCV	5.26E+05	61,000

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Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Water Solubility	Flammability and Explosivity Screening Level
p-Toluidine	106490	24 nc	76 nc	NA	6.50E+06	NA
Total dissolved solids (TDS)	NA	5.0E+05 (E) aes	5.0E+05 (E) aes	(EE)	NA	NA
Toxaphene (KK)	8001352	3.0 (A) sdws	3.0 (A) sdws	1.0 (M); 6.8E-05 tdl	5.50E+2	NA
Triallate (DD)	2303175	50 (M); 10 tdl	51 ca	NA	4.00E+03	NA
Tributylamine	102829	21 nc	66 nc	ID	1.42E+05	NA
1,2,3-Trichlorobenzene	87616	16 nc	51 nc	ID	1.80E+04	NA
1,2,4-Trichlorobenzene	120821	70 (A) sdws	70 (A) sdws	99 (X) HNV	4.90E+04	NA
1,1,1-Trichloroethane	71556	200 (A) sdws	200 (A) sdws	89 FCV	1.29E+06	NA
1,1,2-Trichloroethane	79005	5.0 (A) sdws	5.0 (A) sdws	330 (X) HCV	4.59E+06	3.9E+06
Trichloroethylene (DD,KK,MM,NN)	79016	5.0 (A) sdws	5.0 (A) sdws	200 (X) FCV	1.28E+06	NA
Trichlorofluoromethane	75694	1,800 nc	5,700 nc	NA	1.10E+06	NA
2,4,5-Trichlorophenol (KK)	95954	180 nc	570 nc	NA	1.20E+06	NA
2,4,6-Trichlorophenol (DD,KK)	88062	40 (DD) dev	170 (DD) dev	5.0 FCV	8.00E+05	NA
1,2,3-Trichloropropane (MM)	96184	1.0 (M); 0.0075 tdl	1.0 (M); 0.12 tdl	NA	1.75E+06	NA
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	1.6E+05 nc	1.7E+05 (S) sol	32 FCV	1.70E+05	NA
Triethanolamine	102716	3,000 nc	9,400 nc	NA	1.00E+09	NA

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Triethylene glycol (DD)	112276	24,000 (DD) dev	1.1E+05 nc	NA	1.00E+09	NA
3-Trifluoromethyl-4-nitrophenol (DD)	88302	2,500 (DD) dev	12,000 nc	NA	5.00E+06	NA
Trifluralin	1582098	140 nc	180 (S) sol	NA	1.84E+02	NA
2,2,4-Trimethyl pentane	540841	NA	NA	NA	2.44E+03	170
2,4,4-Trimethyl-2-pentene (I)	107404	NA	NA	NA	1.29E+04	NA
1,2,3-Trimethylbenzene (I)	526738	120 nc	130 (E) aes	ID	7.52E+04	75,000 (S) sol
1,2,4-Trimethylbenzene (I)	95636	63 (E) aes	63 (E) aes	17 FCV	5.70E+04	57,000 (S) sol
1,3,5-Trimethylbenzene (I)	108678	72 (E) aes	72 (E) aes	45 FCV	4.82E+04	48,000 (S) sol
Triphenyl phosphate	115866	950 nc	1,900 (S) sol	NA	1.90E+03	NA
tris(2,3-Dibromopropyl)phosphate	126727	10 (M); 0.66 tdl	10 (M); 3.3 tdl	ID	8.00E+03	NA
Urea	57136	NA	NA	NA	5.45E+08	NA
Vanadium (B)	7440622	4.0 (M); 0.41 tdl	4.0 (M); 1.3 tdl	27 FCV	NA	NA
Vinyl acetate (I,DD)	108054	3,500 (DD) dev	15,000 (DD) dev	NA	2.00E+07	1.8E+06
Vinyl chloride (KK,LL,MM)	75014	2.0 (A) sdws	2.0 (A) sdws	13 (X) HCV	8.80E+06	32,000
Xylenes (I,J)	1330207	280 (E) aes	280 (E) aes	41 FCV	1.06E+05	58,000
Zinc (B)	7440666	1,800 nc	5,000 (E) aes	(G)	NA	NA

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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			Groundwater Protection		Ambient Air (C, D, M,Y)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Acenaphthene	83329	NA	58,000 swpv	6,100 swpv	1.2E+07 nc	1.4E+09 nc	1.1E+09 nc	1.1E+10 nc	1.5E+07 nc	NA
Acenaphthylene	208968	NA	58,000 swpv	NA	1.6E+07 nc	1.8E+09 nc	1.8E+09 nc	1.1E+10 nc	1.5E+07 nc	NA
Acetaldehyde (I)	75070	NA	15,000 20x	2,600 20x	31,000 nc	1.5E+07 nc	7.1E+06 nc	4.6E+08 nc	3.2E+07 nc	NA
Acetate	71501	NA	68,000 20x	(G)	NA	NA	NA	NA	1.0E+08 (D) max	NA
Acetic acid (OO)	64197	NA	68,000 20x	(G)	2.1E+07 nc	2.5E+09 nc	2.5E+09 nc	1.3E+10 nc	1.0E+08 (C,D) max	3.5E+07
Acetone (I)	67641	NA	1.1E+05 20x	34,000 20x	1.7E+08 nc	5.5E+10 nc	2.8E+10 nc	1.6E+12 nc	1.0E+08 (C,D) max	3.7E+07
Acetonitrile	75058	NA	7,200 20x	2.6E+05 (X) 20x	3.0E+05 nc	1.1E+08 nc	5.4E+07 nc	3.1E+09 nc	1.5E+07 nc	4.2E+07
Acetophenone (DD)	98862	NA	64,000 20x	NA	7.3E+07 (DD) dev	9.3E+09 (DD) dev	8.5E+09 (DD) dev	1.6E+11 (DD) dev	5.3E+07 (C,DD) dev	8.4E+05
Acrolein (I)	107028	NA	480 20x	NA	54 nc	33,000 nc	15,000 nc	1.0E+06 nc	1.0E+06 nc	7.4E+06
Acrylamide (MM)	79061	NA	10 20x	200 (X) 20x	NA	NA	NA	5.1E+06 (MM) mut	2,200 (MM) mut	NA
Acrylic acid (DD,OO)	79107	NA	16,000 20x	NA	10,000 nc	1.2E+06 nc	1.2E+06 nc	1.0E+07 nc	1.3E+07 (DD) dev	3.5E+07
Acrylonitrile (I)	107131	NA	100 (M); 40 tdl	100 (M);40 (X) tdl	1,100 ca	6.0E+05 ca	2.7E+05 ca	1.8E+07 ca	11,000 ca	3.7E+06
Alachlor	15972608	NA	40 20x	220 (X) 20x	NA	NA	NA	NA	63,000 ca	NA
Aldicarb	116063	NA	60 20x	NA	NA	NA	NA	NA	67,000 nc	NA

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Aldicarb sulfone	1646884	NA	200 (M); 40 tdl	NA	NA	NA	NA	NA	2.5E+05 nc	NA
Aldicarb sulfoxide	1646873	NA	200 (M); 80 tdl	NA	NA	NA	NA	NA	NA	NA
Aldrin	309002	NA	110 swpv	26 swpv	3,400 ca	4.0E+05 ca	4.0E+05 ca	2.5E+05 ca	570 ca	NA
Aluminum (B,DD)	7429905	5.7E+06	1,000 20x	NA	NA	NA	NA	2.8E+08 nc	1.0E+08 (D) max	NA
Ammonia (N)	7664417	NA	2.0E+05 (N) 20x	(CC)	NA	NA	NA	3.6E+09 nc	NA	NA
t-Amyl methyl ether (TAME)	994058	NA	3,800 20x	NA	1.0E+05 nc	1.0E+08 nc	4.3E+07 nc	3.2E+09 nc	3.2E+07 (C) nc	8.9E+05
Aniline	62533	NA	840 20x	330 (M); 80 tdl	NA	NA	NA	5.1E+07 nc	1.1E+06 ca	6.2E+06
Anthracene	120127	NA	23,000 swpv	NA	2.1E+08 nc	2.4E+10 nc	2.4E+10 nc	5.1E+10 nc	7.5E+07 nc	NA
Antimony	7440360	NA	4,300 swpv	94,000 (X) swpv	NA	NA	NA	1.0E+07 nc	1.8E+05 nc	NA
Arsenic (B,KK)	7440382	5,500	4,700 swpv	4,700 swpv	NA	NA	NA	2.9E+05 ca	9,000 ca	NA
Asbestos (BB)	1332214	NA	NA	NA	NA	NA	NA	(BB) NA	NA	NA
Atrazine	1912249	NA	60 20x	150 20x	NA	NA	NA	1.1E+09 nc	4.5E+06 nc	NA
Azobenzene	103333	NA	800 swpv	NA	1.7E+05 ca	1.9E+07 ca	1.9E+07 ca	4.0E+07 ca	55,000 ca	NA
Barium (B,KK)	7440393	45,000	1.3E+06 swpv	(G)	NA	NA	NA	2.6E+08 nc	6.8E+07 nc	NA

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Benzene (I,KK)	71432	NA	100 20x	4,000 (X) 20x	4,400 ca	5.0E+06 ca	2.1E+06 ca	1.6E+08 ca	1.1E+05 ca	6.2E+05
Benzidine (MM)	92875	NA	1,000 (M); 12 tdl	1,000 (M); 12 (X) tdl	NA	NA	NA	7,600 (MM) mut	1,000 (M); 4.8 tdl	NA
Benzo(a)anthracene (Q,MM)	56553	NA	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Benzo(b)fluoranthene (Q,MM)	205992	NA	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Benzo(k)fluoranthene (Q,MM)	207089	NA	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Benzo(g,h,i)perylene	191242	NA	62,000 swpv	NA	NA	NA	NA	3.6E+08 nc	7.1E+05 nc	NA
Benzo(a)pyrene (Q,DD,MM)	50328	NA	3,800 swpv	NA	NA	NA	NA	98 (DD) dev	2,800 (MM) mut	NA
Benzoic acid	65850	NA	4.8E+05 20x	NA	NA	NA	NA	3.6E+07 nc	1.0E+08 (D) max	NA
Benzyl alcohol	100516	NA	17,000 20x	NA	NA	NA	NA	2.6E+11 nc	3.5E+07 (C) nc	3.2E+06
Benzyl chloride	100447	NA	150 (M); 100 tdl	NA	4,900 ca	9.9E+05 ca	6.1E+05 ca	2.5E+07 ca	36,000 ca	4.9E+05
Beryllium (B)	7440417	1,000	51,000 swpv	(G)	NA	NA	NA	5.2E+05 ca	1.3E+05 nc	NA
bis(2-Chloroethoxy)ethane	112265	NA	330 (M); 100 tdl	NA	NA	NA	NA	NA	62,000 nc	1.6E+06
bis-2-Chloroethylether (I)	111444	NA	100 (M); 20 tdl	100 (M); 20 tdl	950 ca	1.6E+05 ca	1.1E+05 ca	3.8E+06 ca	5,500 ca	1.7E+06
bis(2-Ethylhexyl) phthalate (DD)	117817	NA	23,000 swpv	54,000 swpv	NA	NA	NA	7.8E+08 ca	6.9E+05 (C) ca	65,000

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Boron (DD)	7440428	NA	10,000 (F) 20x	1.4E+05 (X) 20x	NA	NA	NA	1.5E+09 nc	3.3E+07 (DD) dev	NA
Bromate	15541454	NA	200 20x	800 (X) 20x	NA	NA	NA	NA	22,000 ca	NA
Bromobenzene (I)	108861	NA	940 20x	NA	2.0E+05 nc	1.0E+08 nc	4.6E+07 nc	3.1E+09 nc	2.0E+06 (C) nc	2.3E+05
Bromodichloromethane (DD)	75274	NA	1,600 (W) 20x	NA	2,200 ca	2.2E+06 ca	9.5E+05 ca	7.0E+07 ca	98,000 ca	3.2E+05
Bromoform	75252	NA	1,600 (W) 20x	NA	85,000 ca	3.8E+07 ca	1.8E+07 ca	1.1E+09 ca	7.7E+05 (C) ca	3.0E+05
Bromomethane	74839	NA	2,400 20x	200 (M); 100 tdl	5,800 nc	1.6E+07 nc	6.5E+06 nc	5.1E+08 nc	5.0E+06 nc	NA
n-Butanol (I,OO)	71363	NA	16,000 20x	2.0E+05 (X) 20x	4.2E+06 nc	7.5E+08 nc	5.0E+08 nc	1.8E+10 nc	2.5E+07 (C) nc	2.5E+06
2-Butanone (MEK) (I,DD,KK)	78933	NA	48,000 20x	44,000 20x	2.3E+07 (DD) dev	8.4E+09 (DD) dev	4.1E+09 (DD) dev	2.5E+11 (DD) dev	3.9E+07 (C,DD) dev	9.3E+06
n-Butyl acetate	123864	NA	12,000 20x	NA	1.3E+06 nc	6.8E+08 nc	3.1E+08 nc	2.0E+10 nc	2.5E+07 (C) nc	5.9E+05
t-Butyl alcohol (OO)	75650	NA	22,000 20x	NA	8.2E+05 nc	1.5E+08 nc	1.0E+08 nc	3.7E+09 nc	4.5E+07 nc	NA
Butyl benzyl phthalate (DD)	85687	NA	18,000 swpv	15,000 (X) swpv	NA	NA	NA	4.0E+10 nc	1.3E+06 (DD) dev	NA
n-Butylbenzene	104518	NA	13,000 swpv	NA	7.1E+05 nc	3.4E+08 nc	1.6E+08 nc	1.0E+10 nc	1.1E+07 (C) nc	36,000
sec-Butylbenzene	135988	NA	26,000 swpv	NA	1,100 nc	6.7E+05 nc	3.0E+05 nc	2.0E+07 nc	2.5E+07 (C) nc	49,000
t-Butylbenzene (I)	98066	NA	20,000 swpv	NA	1,200 nc	6.7E+05 nc	3.0E+05 nc	2.0E+07 nc	2.5E+07 (C) nc	61,000

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Cadmium (B,KK)	7440439	2,000	6,000 swpv	(G,X)	NA	NA	NA	6.9E+05 ca	59,000 nc	NA
Camphene (I)	79925	NA	NA	NA	65,000 nc	1.3E+08 nc	5.2E+07 nc	4.1E+09 nc	NA	NA
Caprolactam (DD)	105602	NA	40,000 20x	NA	NA	NA	NA	1.1E+08 nc	3.3E+07 (DD) dev	NA
Carbaryl (DD)	63252	NA	800 20x	NA	NA	NA	NA	NA	6.6E+05 (DD) dev	NA
Carbazole	86748	NA	2,900 swpv	2,900 swpv	NA	NA	NA	4.5E+08 ca	62,000 ca	NA
Carbofuran (DD)	1563662	NA	800 20x	NA	NA	NA	NA	NA	4,000 (DD) dev	NA
Carbon disulfide (I,R,DD)	75150	NA	8,800 20x	NA	3.5E+05 nc	1.1E+09 nc	4.5E+08 nc	3.6E+10 nc	7.3E+06 (C,DD) dev	2.9E+05
Carbon tetrachloride (KK)	56235	NA	100 20x	760 (X) 20x	2,800 ca	6.9E+06 ca	2.8E+06 ca	2.2E+08 ca	93,000 ca	1.8E+05
Chlordane (J,KK)	57749	NA	4,300 swpv	110 swpv	1.5E+05 ca	1.7E+07 ca	1.7E+07 ca	1.2E+07 ca	37,000 ca	NA
Chloride	16887006	NA	5.0E+06 20x	2.5E+6 (X,FF) na	NA	NA	NA	NA	NA	NA
2-Chloroaniline	95512	NA	360 20x	NA	NA	NA	NA	5.1E+08 nc	7.5E+05 nc	2.1E+06
4-Chloroaniline	106478	NA	60 20x	NA	NA	NA	NA	NA	30,000 ca	NA
Chlorobenzene (I,KK)	108907	NA	2,000 20x	500 20x	1.3E+05 nc	8.3E+07 nc	3.7E+07 nc	2.6E+09 nc	5.0E+06 (C) nc	2.6E+05
p-Chlorobenzene sulfonic acid	98668	NA	94,000 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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			Groundwater Protection		Ambient Air (C, D, M,Y)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
1-Chloro-1,1-difluoroethane	75683	NA	2.4E+05 20x	NA	2.3E+07 nc	7.9E+10 nc	3.2E+10 nc	2.6E+12 nc	1.0E+08 (D) max	NA
Chloroethane (DD)	75003	NA	4,800 20x	22,000 (X) 20x	2.2E+06 nc	6.3E+09 nc	2.6E+09 nc	2.0E+11 nc	3.0E+06 ca	NA
2-Chloroethyl vinyl ether	110758	NA	NA	NA	NA	NA	NA	NA	NA	44,000
Chloroform (KK)	67663	NA	1,600 (W) 20x	7,000 20x	1,100 ca	1.7E+06 ca	7.0E+05 ca	5.4E+07 ca	2.5E+06 (C) nc	8.8E+05
Chloromethane (I)	74873	NA	4,400 20x	NA	44,000 nc	1.4E+08 nc	5.8E+07 nc	4.6E+09 nc	1.8E+06 ca	NA
4-Chloro-3-methylphenol (DD)	59507	NA	8,000 20x	280 (M); 150 tdl	NA	NA	NA	NA	6.6E+06 (DD) dev	NA
beta-Chloronaphthalene	91587	NA	38,000 swpv	NA	NA	NA	NA	NA	2.0E+07 nc	NA
2-Chlorophenol (DD)	95578	NA	640 20x	360 20x	8.6E+05 (DD) dev	1.0E+08 (DD) dev	9.9E+07 (DD) dev	8.8E+08 (DD) dev	5.3E+05 (DD) dev	7.3E+06
o-Chlorotoluene (I)	95498	NA	800 20x	NA	2.6E+05 nc	1.3E+08 nc	6.1E+07 nc	4.1E+09 nc	1.7E+06 (C) nc	3.0E+05
Chlorpyrifos (DD)	2921882	NA	4,400 swpv	470 swpv	NA	NA	NA	5.1E+07 nc	5.0E+05 (DD) dev	NA
Chromium (III) (B,H,KK)	16065831	15,000	1.0E+08 (D) max	(G,X)	NA	NA	NA	5.1E+06 nc	1.0E+08 (D) max	NA
Chromium (VI) (H,KK,MM)	18540299	NA	31,000 swpv	3,400 swpv	NA	NA	NA	43,000 (MM) mut	2,000 (M); 1,700 tdl	NA
Chrysene (Q,MM)	218019	NA	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Cobalt (B)	7440484	10,000	500 (M); 400 tdl	2,000 20x	NA	NA	NA	1.4E+05 ca	1.9E+05 nc	NA

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Copper (B)	7440508	14,000	1.7E+05 swpv	(G)	NA	NA	NA	1.0E+08 nc	6.2E+05 nc	NA
Cyanazine	21725462	NA	200 (M); 40 tdl	1,100 (X) 20x	NA	NA	NA	NA	16,000 ca	NA
Cyanide (P,R,DD)	57125	NA	32,000 swpv	840 swpv	NA	NA	NA	4.1E+07 nc	52,000 (P) acute	NA
Cyclohexane (DD)	110827	NA	NA	NA	2.8E+06 nc	9.5E+09 nc	3.8E+09 nc	3.1E+11 nc	NA	50,000
Cyclohexanone (OO)	108941	NA	24,000 20x	NA	1.2E+07 nc	1.7E+09 nc	1.4E+09 nc	3.6E+10 nc	5.0E+07 (C) nc	1.7E+06
Dacthal	1861321	NA	1,200 20x	NA	NA	NA	NA	NA	2.5E+06 nc	NA
Dalapon	75990	NA	4,000 20x	NA	NA	NA	NA	NA	7.5E+06 nc	2.0E+07
4-4'-DDD	72548	NA	11,000 swpv	NA	NA	NA	NA	1.8E+07 ca	41,000 ca	NA
4-4'-DDE	72559	NA	7,900 swpv	NA	1.6E+05 ca	1.9E+07 ca	1.9E+07 ca	1.3E+07 ca	29,000 ca	NA
4-4'-DDT (DD)	50293	NA	11,000 swpv	110 swpv	NA	NA	NA	1.3E+07 ca	40,000 ca	NA
Decabromodiphenyl ether (DD)	1163195	NA	88,000 swpv	NA	NA	NA	NA	1.2E+09 (DD) dev	7.5E+05 (DD) dev	NA
Di-n-butyl phthalate (DD)	84742	NA	1,000 swpv	360 swpv	NA	NA	NA	9.8E+08 (DD) dev	4.4E+05 (C,DD) dev	26,000
Di(2-ethylhexyl) adipate (DD)	103231	NA	4.6E+05 (C) swpv	NA	NA	NA	NA	3.7E+09 ca	8.1E+06 (C) ca	56,000
Di-n-octyl phthalate	117840	NA	99,000 swpv	NA	3.9E+08 nc	4.6E+10 nc	4.6E+10 nc	2.4E+10 nc	4.8E+06 nc	NA

TABLE 2. SOIL: RESIDENTIAL

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Diacetone alcohol (I,OO)	123422	NA	NA	NA	1.8E+08 nc	2.1E+10 nc	2.1E+10 nc	1.2E+11 nc	NA	3.5E+07
Diazinon	333415	NA	410 swpv	98 swpv	NA	NA	NA	5.1E+07 nc	1.7E+05 nc	NA
Dibenzo(a,h)anthracene (Q,MM)	53703	NA	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Dibenzofuran	132649	NA	1,700 swpv	1,200 swpv	3.5E+05 nc	4.1E+07 nc	4.1E+07 nc	2.0E+08 nc	2.5E+05 nc	NA
Dibromochloromethane (MM)	124481	NA	1,600 (W) 20x	NA	1,300 (MM) mut	7.0E+05 (MM) mut	3.2E+05 (MM) mut	2.1E+07 (MM) mut	13,000 (MM) mut	2.7E+05
Dibromochloropropane (MM)	96128	NA	10 (M); 4 tdl	NA	23 (MM) mut	3,900 (MM) mut	2,700 (MM) mut	91,000 (MM) mut	1,400 (MM) mut	3.3E+05
Dibromomethane	74953	NA	360 20x	NA	8,900 nc	6.6E+06 nc	2.9E+06 nc	2.0E+08 nc	7.5E+05 nc	9.4E+05
Dicamba (DD)	1918009	NA	36,000 20x	NA	NA	NA	NA	NA	3.0E+07 (DD) dev	NA
1,2-Dichlorobenzene	95501	NA	12,000 20x	260 20x	1.4E+06 nc	5.2E+08 nc	2.5E+08 nc	1.5E+10 nc	7.5E+07 (C) nc	1.3E+05
1,3-Dichlorobenzene	541731	NA	240 20x	560 20x	12,000 nc	5.1E+06 nc	2.4E+06 nc	1.5E+08 nc	5.0E+05 (C) nc	99,000
1,4-Dichlorobenzene (KK)	106467	NA	1,500 20x	340 20x	210 ca	87,000 ca	41,000 ca	2.6E+06 ca	4.7E+05 ca	NA
3,3`-Dichlorobenzidine	91941	NA	2,000 (M); 160 tdl	2,000 (M); 31 (X) tdl	NA	NA	NA	3.7E+06 ca	14,000 ca	NA
Dichlorodifluoromethane	75718	NA	710 swpv	NA	1.3E+05 nc	5.2E+08 nc	2.1E+08 nc	1.7E+10 nc	1.2E+06 nc	NA
1,1-Dichloroethane	75343	NA	24,000 20x	15,000 20x	4.2E+05 nc	7.9E+08 nc	3.3E+08 nc	2.6E+10 nc	5.0E+07 (C) nc	6.0E+05

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1,2-Dichloroethane (I,KK)	107062	NA	100 20x	7,200 (X) 20x	1,700 ca	1.5E+06 ca	6.5E+05 ca	4.8E+07 ca	67,000 ca	1.0E+06
1,1-Dichloroethylene (I,KK)	75354	NA	140 20x	2,600 20x	1.0E+05 nc	3.2E+08 nc	1.3E+08 nc	1.0E+10 nc	1.2E+07 (C) nc	4.8E+05
cis-1,2-Dichloroethylene	156592	NA	1,400 20x	12,000 20x	8,000 nc	1.3E+07 nc	5.3E+06 nc	4.1E+08 nc	5.0E+05 nc	8.2E+05
trans-1,2-Dichloroethylene	156605	NA	2,000 20x	30,000 (X) 20x	62,000 nc	1.3E+08 nc	5.2E+07 nc	4.1E+09 nc	5.0E+06 (C) nc	7.9E+05
2,6-Dichloro-4-nitroaniline	99309	NA	940 swpv	NA	NA	NA	NA	4.5E+08 nc	6.2E+05 nc	NA
2,4-Dichlorophenol (DD)	120832	NA	1,600 20x	330 (M); 220 tdl	NA	NA	NA	5.6E+08 nc	1.3E+06 (DD) dev	NA
2,4-Dichlorophenoxyacetic acid (KK)	94757	NA	1,400 20x	4,400 20x	NA	NA	NA	9.0E+09 nc	1.4E+07 nc	NA
1,2-Dichloropropane (I)	78875	NA	100 20x	4,600 (X) 20x	6,000 nc	6.5E+06 nc	2.7E+06 nc	2.0E+08 nc	1.7E+05 ca	4.6E+05
1,3-Dichloropropene (J)	542756	NA	140 20x	180 (X) 20x	8,600 ca	9.8E+06 ca	4.1E+06 ca	3.1E+08 ca	61,000 ca	5.3E+05
Dichlorvos (MM)	62737	NA	50 (M); 20 tdl	NA	NA	NA	NA	1.0E+08 nc	3,800 (MM) mut	1.1E+06
Dicyclohexyl phthalate	84617	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	60571	NA	29 swpv	20 (M); 13 tdl	3,700 ca	4.4E+05 ca	4.4E+05 ca	2.7E+05 ca	610 ca	NA
Diethyl ether	60297	NA	200 (M); 100 tdl	NA	1.2E+06 nc	1.6E+09 nc	6.7E+08 nc	5.1E+10 nc	5.0E+07 (C) nc	3.4E+06
Diethyl phthalate	84662	NA	94,000 20x	2,200 20x	NA	NA	NA	1.4E+11 nc	1.0E+08 (C,D) max	2.6E+05

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Diethylene glycol monobutyl ether	112345	NA	3,600 20x	NA	NA	NA	NA	5.1E+06 nc	7.5E+06 nc	5.3E+07
Diisopropyl ether (DD)	108203	NA	22,000 20x	NA	8.2E+05 (DD) dev	1.1E+09 (DD) dev	4.5E+08 (DD) dev	3.4E+10 (DD) dev	1.8E+07 (C,DD) dev	7.8E+05
Diisopropylamine (I)	108189	NA	92 20x	NA	1.7E+06 nc	3.9E+08 nc	2.2E+08 nc	1.0E+10 nc	1.9E+05 nc	1.8E+07
Dimethyl phthalate	131113	NA	12,000 20x	NA	NA	NA	NA	2.6E+09 nc	2.5E+07 (C) nc	3.8E+05
N,N-Dimethylacetamide (OO)	127195	NA	3,000 20x	82,000 (X) 20x	2.2E+07 nc	2.5E+09 nc	2.5E+09 nc	5.1E+09 nc	6.2E+06 nc	3.9E+07
N,N-Dimethylaniline	121697	NA	240 20x	NA	25,000 ca	4.4E+06 ca	3.0E+06 ca	1.0E+08 ca	1.2E+05 ca	2.8E+05
Dimethylformamide (I,OO)	68122	NA	12,000 20x	NA	7.5E+05 nc	8.7E+07 nc	8.7E+07 nc	3.6E+08 nc	2.5E+07 nc	3.5E+07
2,4-Dimethylphenol	105679	NA	2,400 20x	7,600 20x	NA	NA	NA	3.6E+09 nc	5.0E+06 nc	NA
2,6-Dimethylphenol	576261	NA	330 (M); 80 tdl	NA	NA	NA	NA	1.0E+08 nc	1.5E+05 nc	NA
3,4-Dimethylphenol	95658	NA	330 (M); 120 tdl	500 20x	NA	NA	NA	1.8E+08 nc	2.5E+05 nc	NA
Dimethylsulfoxide	67685	NA	1.2E+05 20x	3.8E+06 20x	NA	NA	NA	1.0E+09 nc	1.0E+08 (C,D) max	3.7E+07
2,4-Dinitrophenol	51285	NA	330 (M); 240 tdl	380 20x	NA	NA	NA	3.6E+08 nc	5.0E+05 nc	NA
2,4-Dinitrotoluene (KK)	121142	NA	22 20x	NA	NA	NA	NA	1.4E+07 ca	9,100 ca	NA
Dinoseb (DD)	88857	NA	970 swpv	200 (M); 140 tdl	NA	NA	NA	2.0E+08 nc	66,000 (DD) dev	NA

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1,4-Dioxane (I,OO)	123911	NA	500 (M); 140 tdl	56,000 (X) 20x	78,000 ca	1.2E+07 ca	9.1E+06 ca	2.5E+08 ca	61,000 ca	3.8E+07
Diquat	85007	NA	400 20x	400 20x	NA	NA	NA	NA	1.2E+06 nc	NA
Diuron	330541	NA	500 (M); 360 tdl	NA	NA	NA	NA	1.7E+08 nc	3.2E+05 ca	NA
Endosulfan (J)	115297	NA	6,500 swpv	20 (M); 6.5 tdl	NA	NA	NA	NA	1.2E+06 nc	NA
Endothall	145733	NA	2,000 20x	NA	NA	NA	NA	3.6E+09 nc	1.7E+06 nc	NA
Endrin (KK)	72208	NA	790 swpv	NA	NA	NA	NA	NA	1.2E+05 nc	NA
Epichlorohydrin (I)	106898	NA	100 (M); 40 tdl	NA	7,500 nc	1.9E+06 nc	1.0E+06 nc	5.1E+07 nc	6.1E+05 ca	3.5E+06
Ethanol (I,DD,OO)	64175	NA	2.4E+07 20x	NA	2.4E+08 nc	4.2E+10 nc	2.9E+10 nc	9.7E+11 nc	1.0E+08 (C,D) max	3.5E+07
Ethyl acetate (I)	141786	NA	8,600 20x	NA	2.4E+05 nc	1.2E+08 nc	5.4E+07 nc	3.6E+09 nc	1.8E+07 (C) nc	3.5E+06
Ethyl-tert-butyl ether (ETBE)	637923	NA	980 20x	NA	8,700 nc	9.7E+06 nc	4.1E+06 nc	3.1E+08 nc	2.3E+07 (C) nc	9.7E+05
Ethylbenzene (I)	100414	NA	1,300 20x	360 20x	22,000 ca	1.6E+07 ca	7.0E+06 ca	5.0E+08 ca	5.5E+05 (C) ca	1.6E+05
Ethylene dibromide	106934	NA	20 (M); 1.0 tdl	110 (X) 20x	140 ca	69,000 ca	32,000 ca	2.1E+06 ca	3,000 ca	4.5E+05
Ethylene glycol (DD)	107211	NA	2.0E+05 20x	3.8E+06 (X) 20x	NA	NA	NA	1.0E+09 nc	5.3E+07 (C,DD) dev	3.5E+07
Ethylene glycol monobutyl ether	111762	NA	12,000 20x	NA	NA	NA	NA	8.2E+10 nc	2.5E+07 nc	3.8E+07

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to 1 microgram per kilogram (µg/kg). Criteria with 6 or more digits are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by one or more letters in parentheses and is defined in R 299.49(1). The abbreviation beneath the value represents the basis for the criterion.When the health-based value is less than the target detection limit (TDL), the TDL is listed as the criterion (MCL 324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the health-based value.

			Groundwater Protection		Ambient Air (C, D, M,Y)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Ethylenediaminetetraacetic acid (EDTA) (II)	60004	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	206440	NA	4.3E+05 swpv	2,800 swpv	NA	NA	NA	7.2E+09 nc	1.6E+07 nc	NA
Fluorene	86737	NA	70,000 swpv	3,500 swpv	1.3E+07 nc	1.5E+09 nc	1.5E+09 nc	7.2E+09 nc	1.0E+07 nc	NA
Fluorine (soluble fluoride) (DD)	7782414	NA	40,000 20x	NA	NA	NA	NA	NA	9.9E+06 (DD) dev	NA
Formaldehyde (DD,MM,OO)	50000	NA	24,000 20x	3,600 20x	5,500 (MM) mut	8.5E+05 (MM) mut	8.5E+05 (MM) mut	7.8E+06 (MM) mut	5.0E+07 nc	NA
Formic acid (I,U,OO)	64186	NA	1.1E+05 20x	NA	18,000 nc	2.3E+06 nc	2.3E+06 nc	1.5E+07 nc	1.0E+08 (C,D) max	3.5E+07
1-Formylpiperidine (DD)	2591868	NA	88,000 20x	NA	NA	NA	NA	NA	7.3E+07 (C,DD) dev	3.9E+06
Gentian violet	548629	NA	2.8E+05 swpv	NA	NA	NA	NA	NA	1.1E+05 ca	NA
Glyphosate (DD)	1071836	NA	14,000 20x	NA	NA	NA	NA	NA	6.6E+06 (DD) dev	NA
Heptachlor (DD,KK)	76448	NA	18,000 swpv	450 (X) swpv	20,000 ca	2.4E+06 ca	2.4E+06 ca	9.6E+05 ca	8,100 ca	NA
Heptachlor epoxide (KK)	1024573	NA	65 swpv	NA	2,600 ca	3.0E+05 ca	3.0E+05 ca	4.8E+05 ca	2,700 ca	NA
n-Heptane	142825	NA	4.6E+05 (C) swpv	NA	1.5E+06 nc	5.5E+09 nc	2.2E+09 nc	1.8E+11 nc	1.0E+08 (C,D) max	29,000
Hexabromobenzene	87821	NA	100 (M); 14 tdl	NA	NA	NA	NA	NA	8.0E+05 nc	NA
Hexachlorobenzene (C-66) (KK)	118741	NA	330 (M); 200 tdl	330 (M); 40 tdl	940 nc	1.2E+05 nc	1.1E+05 nc	1.8E+06 nc	4,000 nc	NA

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Hexachlorobutadiene (C-46) (KK)	87683	NA	170 swpv	50 (M); 1.5 tdl	4,700 ca	1.9E+06 ca	9.1E+05 ca	5.7E+07 ca	78,000 (C) ca	5,600
alpha-Hexachlorocyclohexane	319846	NA	10 (M); 9.9 tdl	NA	NA	NA	NA	6.9E+05 ca	960 ca	NA
beta-Hexachlorocyclohexane	319857	NA	33 swpv	NA	NA	NA	NA	2.4E+06 ca	3,400 ca	NA
Hexachlorocyclopentadiene (C-56)	77474	NA	2,400 swpv	NA	670 nc	3.4E+05 nc	1.5E+05 nc	1.0E+07 nc	2.4E+06 (C) nc	5,300
Hexachloroethane (KK)	67721	NA	300 (M); 100 tdl	300 (M);130 (X) tdl	7,700 ca	4.1E+06 ca	1.9E+06 ca	1.2E+08 ca	1.5E+05 ca	NA
n-Hexane	110543	NA	2.1E+05 (C) swpv	NA	2.8E+05 nc	1.1E+09 nc	4.5E+08 nc	3.6E+10 nc	7.5E+07 (C) nc	70,000
2-Hexanone	591786	NA	2,500 (M); 1,000 tdl	NA	1.6E+05 nc	5.3E+07 nc	2.7E+07 nc	1.5E+09 nc	1.2E+06 (C) nc	1.1E+06
Indeno(1,2,3-cd)pyrene (Q,MM)	193395	NA	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Iron (B)	7439896	1.125E+07	6,000 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Isobutyl alcohol (I,OO)	78831	NA	36,000 20x	NA	1.7E+07 nc	3.1E+09 nc	2.0E+09 nc	7.7E+10 nc	7.5E+07 (C) nc	3.3E+06
Isophorone (DD)	78591	NA	15,000 20x	26,000 (X) 20x	NA	NA	NA	4.6E+09 ca	6.4E+06 (C) ca	2.0E+06
Isopropyl alcohol (I,DD,OO)	67630	NA	1.6E+05 20x	1.1E+06 (X) 20x	2.2E+06 nc	4.2E+08 nc	2.7E+08 nc	1.0E+10 nc	1.0E+08 (C,D) max	3.6E+07
Isopropyl benzene	98828	NA	14,000 swpv	660 swpv	5,700 ca	3.8E+06 ca	1.7E+06 ca	1.2E+08 ca	2.5E+07 (C) nc	90,000
Lead (B,L,DD,KK)	7439921	11,000	1.8E+05 (L) swpv	(G,X)	NA	NA	NA	7.7E+06 (L) nc	1.9E+05 (L,DD) dev	NA

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Lindane (KK)	58899	NA	20 (M); 18 tdl	20 (M); 2.7 (X) tdl	NA	NA	NA	NA	6,500 ca	NA
Lithium (B,DD)	7439932	11,000	400 (M); 200 tdl	8,800 20x	NA	NA	NA	1.8E+09 nc	3.3E+05 (DD) dev	NA
Magnesium	7439954	NA	6.6E+06 20x	NA	NA	NA	NA	5.1E+09 nc	1.0E+08 (D) max	NA
Manganese (B)	7439965	3.6E+05	1,000 20x	(G,X)	NA	NA	NA	1.5E+07 nc	1.2E+07 nc	NA
Mercury (Total) (Z,DD,KK)	Varies	NA	40 20x	0.026 20x	160 nc	4.7E+05 nc	1.9E+05 nc	1.5E+07 nc	16,000 (DD) dev	NA
Methane (K)	74828	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methanol (DD,OO)	67561	NA	1.6E+05 20x	1.2E+07 (X) 20x	2.2E+08 (DD) dev	4.3E+10 (DD) dev	3.1E+10 (DD) dev	9.8E+11 (DD) dev	1.0E+08 (C,D) max	3.5E+07
Methoxychlor (DD,KK)	72435	NA	34,000 swpv	NA	NA	NA	NA	NA	5.4E+05 (DD) dev	NA
2-Methoxyethanol (I,DD,OO)	109864	NA	400 20x	NA	38 nc	4,400 nc	4,400 nc	36,000 nc	3.3E+05 (DD) dev	3.5E+07
2-Methyl-4-chlorophenoxyacetic acid	94746	NA	520 20x	NA	NA	NA	NA	9.2E+08 nc	1.1E+06 nc	NA
2-Methyl-4,6-dinitrophenol	534521	NA	830 (M); 490 tdl	NA	NA	NA	NA	1.0E+08 nc	1.0E+05 nc	NA
N-Methyl-morpholine (I,OO)	109024	NA	8,400 20x	NA	NA	NA	NA	NA	1.7E+07 nc	4.7E+07
Methyl parathion	298000	NA	40 (M); 29 tdl	NA	NA	NA	NA	NA	50,000 nc	NA
4-Methyl-2-pentanone (MIBK) (I,DD)	108101	NA	6,000 20x	NA	1.2E+07 (DD) dev	5.0E+09 (DD) dev	2.4E+09 (DD) dev	1.5E+11 (DD) dev	1.2E+07 (C) nc	1.1E+06

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Methyl-tert-butyl ether (MTBE)	1634044	NA	800 20x	1.4E+05 (X) 20x	5.8E+06 nc	4.9E+09 nc	2.1E+09 nc	1.5E+11 nc	1.8E+06 ca	3.0E+06
N-methylaniline	100618	NA	240 20x	NA	NA	NA	NA	NA	5.0E+05 nc	1.1E+06
Methylcyclopentane (I)	96377	NA	NA	NA	2.9E+05 nc	1.1E+09 nc	4.5E+08 nc	3.6E+10 nc	NA	72,000
4,4`-Methylene-bis-2- chloroaniline (MBOCA) (MM)	101144	NA	2,200 swpv	NA	NA	NA	NA	NA	1.6E+05 (MM) mut	NA
Methylene chloride (MM)	75092	NA	100 20x	30,000 (X) 20x	5.3E+05 nc	9.6E+08 nc	3.9E+08 nc	3.1E+10 nc	5.5E+05 (MM) mut	1.2E+06
2-Methylnaphthalene	91576	NA	1,900 swpv	1,500 swpv	2.3E+05 nc	3.0E+07 nc	2.7E+07 nc	5.1E+08 nc	1.0E+06 nc	NA
Methylphenols (JJ,KK)	1319773	NA	6,000 20x	1,000 (M); 600 tdl	NA	NA	NA	5.1E+09 nc	1.2E+6 nc	NA
2-Methylphenol (DD,KK)	95487	NA	1.6E+05 20x	1,000 (M); 600 tdl	NA	NA	NA	5.1E+09 nc	1.3E+07 (DD) dev	NA
Metolachlor	51218452	NA	12,000 20x	300 20x	NA	NA	NA	NA	2.5E+07 (C) nc	5.4E+05
Metribuzin	21087649	NA	1,500 20x	NA	NA	NA	NA	NA	3.2E+06 nc	NA
Mirex	2385855	NA	8,900 swpv	230 swpv	NA	NA	NA	NA	10,000 ca	NA
Molybdenum	7439987	NA	1,200 20x	64,000 (X) 20x	NA	NA	NA	1.5E+09 nc	3.1E+06 nc	NA
Naphthalene	91203	NA	29,000 swpv	550 swpv	13,000 ca	1.8E+06 ca	1.5E+06 ca	3.7E+07 ca	2.5E+07 nc	NA
Nickel (B)	7440020	15,000	38,000 swpv	(G)	NA	NA	NA	4.6E+06 nc	1.5E+06 nc	NA

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Nitrate (N,DD)	14797558	NA	2.0E+05 (N) 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Nitrite (N,DD)	14797650	NA	20,000 (N) 20x	NA	NA	NA	NA	NA	1.6E+07 (DD) dev	NA
Nitrobenzene (I,KK)	98953	NA	330 (M); 240 tdl	3,600 (X) 20x	18,000 ca	2.1E+06 ca	2.0E+06 ca	3.1E+07 ca	5.0E+05 nc	1.0E+06
2-Nitrophenol	88755	NA	330 (M); 240 tdl	NA	2,300 nc	2.7E+05 nc	2.7E+05 nc	2.6E+06 nc	5.0E+05 nc	NA
n-Nitroso-di-n-propylamine	621647	NA	330 (M); 100 tdl	NA	NA	NA	NA	6.2E+05 ca	870 ca	7.6E+06
N-Nitrosodiphenylamine	86306	NA	13,000 swpv	NA	NA	NA	NA	NA	1.2E+06 ca	NA
Oxamyl	23135220	NA	4,000 20x	NA	NA	NA	NA	1.3E+09 nc	1.7E+06 nc	NA
Oxo-hexyl acetate (OO)	88230357	NA	1,200 20x	NA	NA	NA	NA	4.1E+09 nc	2.5E+06 nc	NA
Pendimethalin (DD)	40487421	NA	59,000 swpv	NA	NA	NA	NA	NA	3.2E+07 (DD) dev	NA
Pentachlorobenzene	608935	NA	600 swpv	600 swpv	3,200 nc	3.8E+05 nc	3.7E+05 nc	5.1E+06 nc	3.2E+05 nc	NA
Pentachloronitrobenzene	82688	NA	3,800 swpv	NA	1.9E+06 nc	2.2E+08 nc	2.2E+08 nc	5.6E+08 nc	7.5E+05 nc	NA
Pentachlorophenol (KK)	87865	NA	160 swpv	(G,X)	NA	NA	NA	1.1E+07 ca	15,000 ca	NA
Pentane	109660	NA	NA	NA	3.8E+05 nc	1.6E+09 nc	6.4E+08 nc	5.1E+10 nc	NA	1.9E+05
2-Pentene (I)	109682	NA	NA	NA	NA	NA	NA	NA	NA	2.3E+05

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Perchlorate (DD)	14797730	NA	200 (M); 60 tdl	NA	NA	NA	NA	NA	1.2E+05 (DD) dev	NA
Perfluorooctanoic acid	335671	NA	75 swpv	10,000 (X) swpv	NA	NA	NA	NA	6,000 nc	NA
Perfluorooctane sulfonic acid (DD)	1763231	NA	2.4 20x	0.24 (X) 20x	NA	NA	NA	NA	3,200 (DD) dev	NA
Phenanthrene	85018	NA	96,000 swpv	1,100 swpv	24,000 nc	2.9E+06 nc	2.9E+06 nc	5.1E+06 nc	7.5E+06 nc	NA
Phenol (DD)	108952	NA	24,000 20x	9,000 20x	NA	NA	NA	1.0E+10 nc	2.0E+07 (DD) dev	NA
Phenytoin (DD)	57410	NA	710 swpv	4,200 (X) swpv	NA	NA	NA	8.9E+07 ca	1.2E+05 ca	NA
Phosphorus, Total	Varies	NA	NA	(EE)	NA	NA	NA	NA	NA	NA
Phosphorus, White (R,DD)	7723140	NA	200 20x	NA	NA	NA	NA	1.0E+07 nc	2,100 (DD) dev	NA
o-Phthalic acid	88993	NA	2.2E+05 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Phthalic anhydride	85449	NA	2.4E+05 20x	NA	NA	NA	NA	1.0E+09 nc	1.0E+08 (D) max	NA
Picloram	1918021	NA	10,000 20x	920 20x	NA	NA	NA	NA	1.7E+07 nc	NA
Piperidine (OO)	110894	NA	52 20x	NA	2.3E+08 nc	2.7E+10 nc	2.7E+10 nc	3.6E+11 nc	1.1E+05 nc	1.4E+08
Polybrominated biphenyls (J,DD)	67774327	NA	50 (M); 2 tdl	NA	NA	NA	NA	NA	1,400 ca	NA
Polychlorinated biphenyls (PCBs) (J,T,DD)	1336363	NA	1,200 swpv	500 swpv	38,000 ca	4.5E+06 ca	4.5E+06 ca	1.2E+07 ca	1,900 (T,DD) dev	NA

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Polychlorinated biphenyls (PCBs) congeners (O)	Varies	NA	(O)	(O)	(O)	(O)	(O)	(O)	(O)	NA
Prometon	1610180	NA	6,000 20x	NA	NA	NA	NA	NA	1.2E+07 nc	NA
Propachlor	1918167	NA	1,000 20x	NA	NA	NA	NA	NA	1.9E+05 ca	NA
Propazine	139402	NA	2,200 20x	NA	NA	NA	NA	NA	4.5E+06 nc	NA
Propionic acid (OO)	79094	NA	2.2E+05 20x	NA	1.4E+07 nc	1.6E+09 nc	1.6E+09 nc	1.5E+10 nc	1.0E+08 (C,D) max	3.5E+07
Propyl alcohol (I,DD,OO)	71238	NA	1.6E+05 20x	NA	8.1E+06 (DD) dev	1.5E+09 (DD) dev	9.8E+08 (DD) dev	3.6E+10 (DD) dev	1.0E+08 (C,D) max	3.6E+07
n-Propylbenzene (I,DD)	103651	NA	16,000 swpv	NA	2.6E+06 (DD) dev	1.6E+09 (DD) dev	7.1E+08 (DD) dev	4.9E+10 (DD) dev	2.5E+07 (C) nc	89,000
Propylene glycol	57556	NA	2.4E+06 20x	5.8E+06 20x	NA	NA	NA	NA	1.0E+08 (C,D) max	3.5E+07
Pyrene	129000	NA	2.4E+05 swpv	NA	9.6E+07 nc	1.1E+10 nc	1.1E+10 nc	5.1E+09 nc	1.2E+07 nc	NA
Pyridine (I,KK)	110861	NA	400 20x	NA	77,000 nc	1.0E+07 nc	9.0E+06 nc	1.8E+08 nc	2.5E+05 nc	1.8E+08
Selenium (B,KK)	7782492	610	4,200 swpv	420 swpv	NA	NA	NA	1.0E+09 nc	3.1E+06 nc	NA
Silver (KK)	7440224	NA	800 swpv	100 (M); 27 tdl	NA	NA	NA	1.5E+08 nc	2.5E+05 nc	NA
Silvex (2,4,5-TP) (KK)	93721	NA	1,000 20x	600 20x	NA	NA	NA	NA	2.0E+06 nc	NA
Simazine	122349	NA	80 20x	340 20x	NA	NA	NA	NA	1.2E+06 nc	NA

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to 1 microgram per kilogram (µg/kg). Criteria with 6 or more digits are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by one or more letters in parentheses and is defined in R 299.49(1). The abbreviation beneath the value represents the basis for the criterion.When the health-based value is less than the target detection limit (TDL), the TDL is listed as the criterion (MCL 324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the health-based value.

			Groundwater Protection		Ambient Air (C, D, M,Y)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Sodium	17341252	NA	1.1E+06 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Sodium azide	26628228	NA	1,500 (M); 1,400 tdl	1,500 (M); 1,000 tdl	NA	NA	NA	NA	7.5E+06 nc	NA
Sodium bromide	7647156	NA	4,800 20x	NA	NA	NA	NA	7.2E+09 nc	2.5E+07 nc	NA
Strontium (B,DD)	7440246	1.29E+05	48,000 20x	4.2E+05 20x	NA	NA	NA	NA	9.9E+07 (DD) dev	NA
Styrene	100425	NA	2,000 20x	1,600 (X) 20x	1.6E+05 ca	7.3E+07 ca	3.4E+07 ca	2.2E+09 ca	4.7E+05 (C) ca	2.9E+05
Sulfate	14808798	NA	5.0E+06 20x	NA	NA	NA	NA	NA	NA	NA
Tebuthiuron (DD)	34014181	NA	5,600 20x	NA	NA	NA	NA	NA	4.6E+06 (DD) dev	NA
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NA	(O) swpv	NA	NA	NA	NA	NA	(O)	NA
1,2,4,5-Tetrachlorobenzene (DD)	95943	NA	2,000 swpv	330 (M); 210 (X) tdl	20,000 nc	2.7E+06 nc	2.3E+06 nc	5.1E+07 nc	4.6E+05 (DD) dev	NA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O,DD)	1746016	NA	0.24 (O) swpv	0.08 (O) swpv	0.58 (O) ca	69 (O) ca	69 (O) ca	28 (O) ca	0.1 (O,DD) dev	NA
1,1,1,2-Tetrachloroethane	630206	NA	560 20x	NA	7,400 ca	5.4E+06 ca	2.4E+06 ca	1.7E+08 ca	2.3E+05 ca	2.3E+05
1,1,2,2-Tetrachloroethane	79345	NA	72 20x	1,600 (X) 20x	2,500 ca	7.6E+05 ca	3.9E+05 ca	2.2E+07 ca	30,000 ca	6.3E+05
Tetrachloroethylene (KK)	127184	NA	100 20x	1,200 (X) 20x	38,000 nc	6.4E+07 nc	2.6E+07 nc	2.0E+09 nc	1.5E+06 (C) nc	60,000
Tetrahydrofuran (DD)	109999	NA	72,000 20x	2.2E+05 (X) 20x	9.6E+06 nc	3.5E+09 nc	1.7E+09 nc	1.0E+11 nc	6.0E+07 (C,DD) dev	5.4E+07

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
1,1,3,3-Tetramethylurea (OO)	632224	NA	NA	NA	2.1E+05 nc	2.5E+07 nc	2.5E+07 nc	4.1E+07 nc	NA	4.0E+07
Tetranitromethane	509148	NA	NA	NA	29 ca	4,100 ca	3,300 ca	83,000 ca	NA	8.0E+05
Thallium	7440280	NA	2,300 swpv	4,200 (X) swpv	NA	NA	NA	1.0E+07 nc	6,200 nc	NA
Toluene (I)	108883	NA	9,400 20x	5,400 20x	8.5E+06 nc	8.1E+09 nc	3.5E+09 nc	2.6E+11 nc	2.0E+07 (C) nc	2.8E+05
p-Toluidine	106490	NA	660 (M); 480 tdl	NA	NA	NA	NA	4.0E+07 ca	2.0E+05 ca	NA
Toxaphene (KK)	8001352	NA	25,000 swpv	8,200 swpv	NA	NA	NA	3.9E+06 ca	8,800 ca	NA
Triallate (DD)	2303175	NA	2,000 (M); 1,600 tdl	NA	2.8E+07 (DD) dev	3.3E+09 (DD) dev	3.3E+09 (DD) dev	9.8E+09 (DD) dev	84,000 ca	NA
Tributylamine	102829	NA	1,300 swpv	NA	3.4E+05 nc	4.0E+07 nc	4.0E+07 nc	3.6E+08 nc	8.7E+05 (C) nc	5.3E+05
1,2,3-Trichlorobenzene	87616	NA	720 swpv	NA	3.4E+05 nc	5.9E+07 nc	4.1E+07 nc	1.4E+09 nc	6.7E+05 nc	NA
1,2,4-Trichlorobenzene	120821	NA	3,100 swpv	4,400 (X) swpv	24,000 nc	4.3E+06 nc	2.8E+06 nc	1.0E+08 nc	2.1E+05 (C) ca	1.3E+05
1,1,1-Trichloroethane	71556	NA	4,000 20x	1,800 20x	3.5E+06 nc	7.9E+09 nc	3.3E+09 nc	2.6E+11 nc	1.0E+08 (C,D) max	2.4E+05
1,1,2-Trichloroethane	79005	NA	100 20x	6,600 (X) 20x	0.57 nc	330 nc	150 nc	10,000 nc	1.0E+05 nc	7.2E+05
Trichloroethylene (DD,KK,MM,NN)	79016	NA	100 20x	4,000 (X) 20x	1,700 (DD) dev	3.1E+06 (DD) dev	1.3E+06 (DD) dev	9.8E+07 (DD) dev	33,000 (DD) dev	2.5E+05
Trichlorofluoromethane	75694	NA	36,000 20x	NA	1.9E+05 nc	6.3E+08 nc	2.6E+08 nc	2.0E+10 nc	7.5E+07 (C) nc	5.5E+05

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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			Groundwater Protection		Ambient Air (C, D, M,Y)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
2,4,5-Trichlorophenol (KK)	95954	NA	10,000 swpv	NA	NA	NA	NA	1.8E+10 nc	7.5E+06 nc	NA
2,4,6-Trichlorophenol (DD,KK)	88062	NA	2,300 swpv	330 (M); 290 tdl	NA	NA	NA	4.0E+08 ca	5.5E+05 ca	NA
1,2,3-Trichloropropane (MM)	96184	NA	100 (M); 20 tdl	NA	1,900 nc	5.5E+05 nc	2.8E+05 nc	1.5E+07 nc	100 (M); 37 tdl	4.6E+05
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	4.3E+06 (C) swpv	860 swpv	1.2E+07 nc	3.0E+10 nc	1.2E+10 nc	9.7E+11 nc	1.0E+08 (C,D) max	2.8E+05
Triethanolamine	102716	NA	60,000 20x	NA	NA	NA	NA	2.3E+08 nc	1.0E+08 (C,D) max	5.3E+07
Triethylene glycol (DD)	112276	NA	4.8E+05 20x	NA	NA	NA	NA	NA	1.0E+08 (C,D) max	5.3E+07
3-Trifluoromethyl-4-nitrophenol (DD)	88302	NA	1.6E+05 swpv	NA	NA	NA	NA	NA	4.1E+07 (DD) dev	NA
Trifluralin	1582098	NA	74,000 swpv	NA	6.1E+08 nc	7.2E+10 nc	7.2E+10 nc	1.5E+11 nc	3.3E+06 ca	NA
2,2,4-Trimethyl pentane	540841	NA	NA	NA	1.6E+06 nc	5.5E+09 nc	2.2E+09 nc	1.8E+11 nc	NA	30,000
2,4,4-Trimethyl-2-pentene (I)	107404	NA	NA	NA	NA	NA	NA	NA	NA	52,000
1,2,3-Trimethylbenzene (I)	526738	NA	2,500 swpv	NA	19,000 nc	8.5E+06 nc	4.0E+06 nc	2.6E+08 nc	5.0E+06 (C) nc	98,000
1,2,4-Trimethylbenzene (I)	95636	NA	1,300 20x	350 swpv	22,000 nc	1.2E+07 nc	5.3E+06 nc	3.6E+08 nc	5.0E+06 (C) nc	73,000
1,3,5-Trimethylbenzene (I)	108678	NA	1,500 swpv	920 swpv	1.3E+05 nc	8.3E+07 nc	3.7E+07 nc	2.6E+09 nc	5.0E+06 (C) nc	61,000
Triphenyl phosphate	115866	NA	3.3E+05 swpv	NA	NA	NA	NA	NA	4.0E+07 nc	NA

TABLE 2. SOIL: RESIDENTIAL

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
tris(2,3-Dibromopropyl)phosphate	126727	NA	3,100 swpv	NA	17,000 ca	1.9E+06 ca	1.9E+06 ca	2.4E+06 ca	5,500 ca	1.6E+05
Urea	57136	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (B)	7440622	27,000	64,000 swpv	4.3E+05 swpv	NA	NA	NA	5.1E+06 nc	13,000 nc	NA
Vinyl acetate (I,DD)	108054	NA	70,000 20x	NA	3.5E+05 nc	3.2E+08 nc	1.4E+08 nc	1.0E+10 nc	5.8E+07 (C,DD) dev	9.1E+05
Vinyl chloride (KK,LL,MM)	75014	NA	40 20x	260 (X) 20x	980 (LL,MM) mut	3.7E+06 (LL,MM) mut	1.5E+06 (LL,MM) mut	1.2E+08 (LL,MM) mut	2,300 (LL,MM) mut	NA
Xylenes (I,J)	1330207	NA	5,600 20x	820 20x	5.0E+05 nc	3.6E+08 nc	1.6E+08 nc	1.1E+10 nc	5.0E+07 (C) nc	87,000
Zinc (B)	7440666	39,000	1.8E+06 swpv	(G)	NA	NA	NA	NA	1.0E+08 (D) max	NA

TABLE 3. SOIL: NONRESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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			Groundwater Protection			Ambient Air (C,D,M,Y)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Acenaphthene	83329	NA	58,000 swpv	1.8E+05 swpv	6,100 swpv	1.4E+07 nc	1.6E+09 nc	1.6E+09 nc	1.5E+10 nc	5.1E+07 nc	NA
Acenaphthylene	208968	NA	58,000 swpv	1.8E+05 swpv	NA	1.8E+07 nc	2.1E+09 nc	2.1E+09 nc	1.5E+10 nc	5.1E+07 nc	NA
Acetaldehyde (I)	75070	NA	15,000 20x	50,000 20x	2,600 20x	36,000 nc	1.4E+07 nc	6.9E+06 nc	6.6E+08 nc	1.0E+08 (D) max	NA
Acetate	71501	NA	68,000 20x	2.2E+05 20x	(G)	NA	NA	NA	NA	1.0E+08 (D) max	NA
Acetic acid (OO)	64197	NA	68,000 20x	2.2E+05 20x	(G)	2.5E+07 nc	2.9E+09 nc	2.9E+09 nc	1.8E+10 nc	1.0E+08 (C,D) max	3.5E+07
Acetone (I)	67641	NA	1.1E+05 20x	3.4E+05 20x	34,000 20x	1.9E+08 nc	5.3E+10 nc	2.8E+10 nc	2.3E+12 nc	1.0E+08 (C,D) max	3.7E+07
Acetonitrile	75058	NA	7,200 20x	22,000 20x	2.6E+05 (X) 20x	3.5E+05 nc	1.0E+08 nc	5.5E+07 nc	4.4E+09 nc	5.1E+07 (C) nc	4.2E+07
Acetophenone (DD)	98862	NA	64,000 20x	2.6E+05 20x	NA	5.8E+07 (DD) dev	7.0E+09 (DD) dev	6.7E+09 (DD) dev	1.5E+11 (DD) dev	1.0E+08 (C,D) max	8.4E+05
Acrolein (I)	107028	NA	480 20x	1,500 20x	NA	63 nc	31,000 nc	14,000 nc	1.5E+06 nc	3.4E+06 nc	7.4E+06
Acrylamide (MM)	79061	NA	10 20x	10 20x	200 (X) 20x	NA	NA	NA	2.9E+07 ca	65,000 ca	NA
Acrylic acid (DD,OO)	79107	NA	16,000 20x	76,000 20x	NA	12,000 nc	1.4E+06 nc	1.4E+06 nc	1.5E+07 nc	1.0E+08 (C,D) max	3.5E+07
Acrylonitrile (I)	107131	NA	100 (M); 40 tdl	140 20x	100 (M); 40 (X) tdl	2,000 ca	9.0E+05 ca	4.2E+05 ca	4.2E+07 ca	61,000 ca	3.7E+06
Alachlor	15972608	NA	40 20x	40 20x	220 (X) 20x	NA	NA	NA	NA	3.5E+05 ca	NA
Aldicarb	116063	NA	60 20x	60 20x	NA	NA	NA	NA	NA	2.3E+05 nc	NA

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Aldicarb sulfone	1646884	NA	200 (M); 40 tdl	200 (M); 40 tdl	NA	NA	NA	NA	NA	8.5E+05 nc	NA
Aldicarb sulfoxide	1646873	NA	200 (M); 80 tdl	200 (M); 80 tdl	NA	NA	NA	NA	NA	NA	NA
Aldrin	309002	NA	110 swpv	580 swpv	26 swpv	6,300 ca	7.5E+05 ca	7.5E+05 ca	5.8E+05 ca	2,800 ca	NA
Aluminum (B,DD)	7429905	5.7E+06	1,000 20x	1,000 20x	NA	NA	NA	NA	4.0E+08 nc	1.0E+08 (D) max	NA
Ammonia (N)	7664417	NA	2.0E+05 (N) 20x	2.0E+05 (N) 20x	(CC)	NA	NA	NA	5.1E+09 nc	NA	NA
t-Amyl methyl ether (TAME)	994058	NA	3,800 20x	3,800 20x	NA	1.2E+05 nc	9.3E+07 nc	4.0E+07 nc	4.5E+09 nc	1.0E+08 (C,D) max	8.9E+05
Aniline	62533	NA	840 20x	2,600 20x	330 (M); 80 tdl	NA	NA	NA	7.3E+07 nc	5.8E+06 ca	6.2E+06
Anthracene	120127	NA	23,000 swpv	23,000 swpv	NA	2.4E+08 nc	2.8E+10 nc	2.8E+10 nc	7.3E+10 nc	1.0E+08 (D) max	NA
Antimony	7440360	NA	4,300 swpv	4,300 swpv	94,000 (X) swpv	NA	NA	NA	1.5E+07 nc	6.0E+05 nc	NA
Arsenic (B,KK)	7440382	5,500	4,700 swpv	4,700 swpv	4,700 swpv	NA	NA	NA	6.6E+05 ca	52,000 ca	NA
Asbestos (BB)	1332214	NA	NA	NA	NA	NA	NA	NA	(BB)	NA	NA
Atrazine	1912249	NA	60 20x	60 20x	150 20x	NA	NA	NA	1.5E+09 nc	1.5E+07 nc	NA
Azobenzene	103333	NA	800 swpv	4,000 swpv	NA	3.1E+05 ca	3.6E+07 ca	3.6E+07 ca	9.2E+07 ca	3.0E+05 ca	NA
Barium (B,KK)	7440393	45,000	1.3E+06 swpv	1.3E+06 swpv	(G)	NA	NA	NA	3.7E+08 nc	1.0E+08 (D) max	NA

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Benzene (I,KK)	71432	NA	100 20x	100 20x	4,000 (X) 20x	8,200 ca	7.5E+06 ca	3.2E+06 ca	3.7E+08 ca	4.3E+05 nc	6.2E+05
Benzidine (MM)	92875	NA	1,000 (M); 12 tdl	1,000 (M); 12 tdl	1,000 (M); 12 (X) tdl	NA	NA	NA	43,000 ca	1,000 (M); 140 tdl	NA
Benzo(a)anthracene (Q,MM)	56553	NA	(Q)	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Benzo(b)fluoranthene (Q,MM)	205992	NA	(Q)	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Benzo(k)fluoranthene (Q,MM)	207089	NA	(Q)	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Benzo(g,h,i)perylene	191242	NA	62,000 swpv	62,000 swpv	NA	NA	NA	NA	5.1E+08 nc	2.1E+06 nc	NA
Benzo(a)pyrene (Q,DD,MM)	50328	NA	3,800 swpv	3,800 swpv	NA	NA	NA	NA	96 (DD) dev	41,000 ca	NA
Benzoic acid	65850	NA	4.8E+05 20x	1.5E+06 20x	NA	NA	NA	NA	5.1E+07 nc	1.0E+08 (D) max	NA
Benzyl alcohol	100516	NA	17,000 20x	52,000 20x	NA	NA	NA	NA	3.7E+11 nc	1.0E+08 (C,D) max	3.2E+06
Benzyl chloride	100447	NA	150 (M); 100 tdl	440 20x	NA	9,100 ca	1.6E+06 ca	1.1E+06 ca	5.7E+07 ca	2.0E+05 ca	4.9E+05
Beryllium (B)	7440417	1,000	51,000 swpv	51,000 swpv	(G)	NA	NA	NA	1.2E+06 ca	2.9E+05 nc	NA
bis(2-Chloroethoxy)ethane	112265	NA	330 (M); 100 tdl	330 (M); 100 tdl	NA	NA	NA	NA	NA	2.1E+05 nc	1.6E+06
bis-2-Chloroethylether (I)	111444	NA	100 (M); 20 tdl	100 (M); 66 tdl	100 (M); 20 tdl	1,800 ca	2.6E+05 ca	2.1E+05 ca	8.7E+06 ca	30,000 ca	1.7E+06
bis(2-Ethylhexyl) phthalate (DD)	117817	NA	23,000 swpv	23,000 swpv	54,000 swpv	NA	NA	NA	1.8E+09 ca	3.4E+06 (C) ca	65,000

TABLE 3. SOIL: NONRESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Boron (DD)	7440428	NA	10,000 (F) 20x	10,000 (F) 20x	1.4E+05 (X) 20x	NA	NA	NA	2.2E+09 nc	1.0E+08 (D) max	NA
Bromate	15541454	NA	200 20x	200 20x	800 (X) 20x	NA	NA	NA	NA	1.4E+05 ca	NA
Bromobenzene (I)	108861	NA	940 20x	3,000 20x	NA	2.3E+05 nc	9.5E+07 nc	4.5E+07 nc	4.4E+09 nc	6.8E+06 (C) nc	2.3E+05
Bromodichloromethane (DD)	75274	NA	1,600 (W) 20x	1,600 (W) 20x	NA	3,700 nc	3.0E+06 nc	1.3E+06 nc	1.5E+08 nc	5.3E+05 (C) ca	3.2E+05
Bromoform	75252	NA	1,600 (W) 20x	1,600 (W) 20x	NA	1.6E+05 ca	5.7E+07 ca	2.8E+07 ca	2.6E+09 ca	4.2E+06 (C) ca	3.0E+05
Bromomethane	74839	NA	2,400 20x	7,600 20x	200 (M); 100 tdl	6,800 nc	1.5E+07 nc	6.0E+06 nc	7.3E+08 nc	1.7E+07 nc	NA
n-Butanol (I,OO)	71363	NA	16,000 20x	38,000 20x	2.0E+05 (X) 20x	4.8E+06 nc	7.5E+08 nc	5.7E+08 nc	2.6E+10 nc	8.5E+07 (C) nc	2.5E+06
2-Butanone (MEK) (I,DD,KK)	78933	NA	48,000 20x	2.2E+05 20x	44,000 20x	1.8E+07 (DD) dev	5.4E+09 (DD) dev	2.8E+09 (DD) dev	2.4E+11 (DD) dev	1.0E+08 (C,D) max	9.3E+06
n-Butyl acetate	123864	NA	12,000 20x	38,000 20x	NA	1.6E+06 nc	6.4E+08 nc	3.0E+08 nc	2.9E+10 nc	8.5E+07 (C) nc	5.9E+05
t-Butyl alcohol (OO)	75650	NA	22,000 20x	68,000 20x	NA	9.5E+05 nc	1.5E+08 nc	1.1E+08 nc	5.3E+09 nc	1.0E+08 (D) max	NA
Butyl benzyl phthalate (DD)	85687	NA	18,000 swpv	76,000 swpv	15,000 (X) swpv	NA	NA	NA	5.7E+10 nc	9.9E+06 (DD) dev	NA
n-Butylbenzene	104518	NA	13,000 swpv	42,000 (C) swpv	NA	8.2E+05 nc	3.2E+08 nc	1.5E+08 nc	1.5E+10 nc	3.9E+07 (C) nc	36,000
sec-Butylbenzene	135988	NA	26,000 swpv	84,000 (C) swpv	NA	1,300 nc	6.3E+05 nc	2.9E+05 nc	2.9E+07 nc	8.5E+07 (C) nc	49,000
t-Butylbenzene (I)	98066	NA	20,000 swpv	63,000 (C) swpv	NA	1,400 nc	6.3E+05 nc	2.9E+05 nc	2.9E+07 nc	8.5E+07 (C) nc	61,000

TABLE 3. SOIL: NONRESIDENTIAL

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Cadmium (B,KK)	7440439	2,000	6,000 swpv	6,000 swpv	(G,X)	NA	NA	NA	1.6E+06 ca	2.2E+05 nc	NA
Camphene (I)	79925	NA	NA	NA	NA	76,000 nc	1.2E+08 nc	4.9E+07 nc	5.9E+09 nc	NA	NA
Caprolactam (DD)	105602	NA	40,000 20x	1.9E+05 20x	NA	NA	NA	NA	1.6E+08 nc	1.0E+08 (D) max	NA
Carbaryl (DD)	63252	NA	800 20x	3,400 20x	NA	NA	NA	NA	NA	5.0E+06 (DD) dev	NA
Carbazole	86748	NA	2,900 swpv	11,000 swpv	2,900 swpv	NA	NA	NA	1.0E+09 ca	3.4E+05 ca	NA
Carbofuran (DD)	1563662	NA	800 20x	800 20x	NA	NA	NA	NA	NA	30,000 (DD) dev	NA
Carbon disulfide (I,R,DD)	75150	NA	8,800 20x	36,000 20x	NA	4.0E+05 nc	1.0E+09 nc	4.2E+08 nc	5.1E+10 nc	5.5E+07 (C,DD) dev	2.9E+05
Carbon tetrachloride (KK)	56235	NA	100 20x	100 20x	760 (X) 20x	5,200 ca	1.0E+07 ca	4.2E+06 ca	5.1E+08 ca	5.1E+05 (C) ca	1.8E+05
Chlordane (J,KK)	57749	NA	4,300 swpv	4,300 swpv	110 swpv	2.7E+05 ca	3.2E+07 ca	3.2E+07 ca	2.9E+07 ca	2.1E+05 ca	NA
Chloride	16887006	NA	5.0E+06 20x	5.0E+06 20x	2.5E+06 (X,FF) na	NA	NA	NA	NA	NA	NA
2-Chloroaniline	95512	NA	360 20x	1,100 20x	NA	NA	NA	NA	7.3E+08 nc	2.6E+06 (C) nc	2.1E+06
4-Chloroaniline	106478	NA	60 20x	190 20x	NA	NA	NA	NA	NA	1.7E+05 ca	NA
Chlorobenzene (I,KK)	108907	NA	2,000 20x	2,000 20x	500 20x	1.5E+05 nc	7.8E+07 nc	3.5E+07 nc	3.7E+09 nc	1.7E+07 (C) nc	2.6E+05
p-Chlorobenzene sulfonic acid	98668	NA	94,000 20x	3.0E+05 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
1-Chloro-1,1-difluoroethane	75683	NA	2.4E+05 20x	8.0E+05 20x	NA	2.7E+07 nc	7.2E+10 nc	3.0E+10 nc	3.7E+12 nc	1.0E+08 (D) max	NA
Chloroethane (DD)	75003	NA	4,800 20x	15,000 20x	22,000 (X) 20x	2.5E+06 nc	5.8E+09 nc	2.4E+09 nc	2.9E+11 nc	1.7E+07 ca	NA
2-Chloroethyl vinyl ether	110758	NA	NA	NA	NA	NA	NA	NA	NA	NA	44,000
Chloroform (KK)	67663	NA	1,600 (W) 20x	1,600 (W) 20x	7,000 20x	2,100 ca	2.5E+06 ca	1.1E+06 ca	1.2E+08 ca	8.5E+06 (C) nc	8.8E+05
Chloromethane (I)	74873	NA	4,400 20x	22,000 20x	NA	52,000 nc	1.3E+08 nc	5.4E+07 nc	6.6E+09 nc	1.0E+07 ca	NA
4-Chloro-3-methylphenol (DD)	59507	NA	8,000 20x	34,000 20x	280 (M); 150 tdl	NA	NA	NA	NA	5.0E+07 (DD) dev	NA
beta-Chloronaphthalene	91587	NA	38,000 swpv	1.2E+05 swpv	NA	NA	NA	NA	NA	6.8E+07 nc	NA
2-Chlorophenol (DD)	95578	NA	640 20x	2,600 20x	360 20x	6.8E+05 (DD) dev	7.9E+07 (DD) dev	7.9E+07 (DD) dev	8.6E+08 (DD) dev	4.0E+06 (DD) dev	7.3E+06
o-Chlorotoluene (I)	95498	NA	800 20x	2,600 20x	NA	3.0E+05 nc	1.3E+08 nc	6.0E+07 nc	5.9E+09 nc	5.7E+06 (C) nc	3.0E+05
Chlorpyrifos (DD)	2921882	NA	4,400 swpv	18,000 swpv	470 swpv	NA	NA	NA	7.3E+07 nc	3.3E+06 (DD) dev	NA
Chromium (III) (B,H,KK)	16065831	15,000	1.0E+08 (D) max	1.0E+08 (D) max	(G,X)	NA	NA	NA	7.3E+06 nc	1.0E+08 (D) max	NA
Chromium (VI) (H,KK,MM)	18540299	NA	31,000 swpv	31,000 swpv	3,400 swpv	NA	NA	NA	2.4E+05 ca	36,000 ca	NA
Chrysene (Q,MM)	218019	NA	(Q)	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Cobalt (B)	7440484	10,000	500 (M); 400 tdl	500 (M); 400 tdl	2,000 20x	NA	NA	NA	3.2E+05 ca	7.4E+05 nc	NA

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Copper (B)	7440508	14,000	1.7E+05 swpv	5.5E+05 swpv	(G)	NA	NA	NA	1.5E+08 nc	2.5E+06 nc	NA
Cyanazine	21725462	NA	200 (M); 40 tdl	200 (M); 76 tdl	1,100 (X) 20x	NA	NA	NA	NA	90,000 ca	NA
Cyanide (P,R,DD)	57125	NA	32,000 swpv	32,000 swpv	840 swpv	NA	NA	NA	5.9E+07 nc	8.2E+05 (P) nc	NA
Cyclohexane (DD)	110827	NA	NA	NA	NA	3.2E+06 nc	8.7E+09 nc	3.6E+09 nc	4.4E+11 nc	NA	50,000
Cyclohexanone (OO)	108941	NA	24,000 20x	76,000 20x	NA	1.4E+07 nc	1.8E+09 nc	1.6E+09 nc	5.1E+10 nc	1.0E+08 (C,D) max	1.7E+06
Dacthal	1861321	NA	1,200 20x	3,800 20x	NA	NA	NA	NA	NA	8.5E+06 nc	NA
Dalapon	75990	NA	4,000 20x	4,000 20x	NA	NA	NA	NA	NA	2.6E+07 (C) nc	2.0E+07
4-4'-DDD	72548	NA	11,000 swpv	56,000 swpv	NA	NA	NA	NA	4.1E+07 ca	2.0E+05 ca	NA
4-4'-DDE	72559	NA	7,900 swpv	41,000 swpv	NA	2.9E+05 ca	3.5E+07 ca	3.5E+07 ca	2.9E+07 ca	1.4E+05 ca	NA
4-4'-DDT (DD)	50293	NA	11,000 swpv	30,000 swpv	110 swpv	NA	NA	NA	2.9E+07 ca	2.3E+05 ca	NA
Decabromodiphenyl ether (DD)	1163195	NA	88,000 swpv	88,000 swpv	NA	NA	NA	NA	1.2E+09 (DD) dev	4.9E+06 (DD) dev	NA
Di-n-butyl phthalate (DD)	84742	NA	1,000 swpv	4,100 swpv	360 swpv	NA	NA	NA	9.6E+08 (DD) dev	3.3E+06 (C,DD) dev	26,000
Di(2-ethylhexyl) adipate (DD)	103231	NA	4.6E+05 (C) swpv	4.6E+05 (C) swpv	NA	NA	NA	NA	8.4E+09 ca	4.0E+07 (C) ca	56,000

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Di-n-octyl phthalate	117840	NA	99,000 swpv	99,000 swpv	NA	4.5E+08 nc	5.4E+10 nc	5.4E+10 nc	3.4E+10 nc	1.5E+07 nc	NA
Diacetone alcohol (I,OO)	123422	NA	NA	NA	NA	2.1E+08 nc	2.4E+10 nc	2.4E+10 nc	1.8E+11 nc	NA	3.5E+07
Diazinon	333415	NA	410 swpv	1,300 swpv	98 swpv	NA	NA	NA	7.3E+07 nc	6.0E+05 nc	NA
Dibenzo(a,h)anthracene (Q,MM)	53703	NA	(Q)	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Dibenzofuran	132649	NA	1,700 swpv	5,600 swpv	1,200 swpv	4.1E+05 nc	4.7E+07 nc	4.7E+07 nc	2.9E+08 nc	8.5E+05 nc	NA
Dibromochloromethane (MM)	124481	NA	1,600 (W) 20x	1,600 (W) 20x	NA	5,900 ca	2.6E+06 ca	1.2E+06 ca	1.2E+08 ca	3.9E+05 (C) ca	2.7E+05
Dibromochloropropane (MM)	96128	NA	10 (M); 4 tdl	10 (M); 4 tdl	NA	100 ca	15,000 ca	12,000 ca	5.1E+05 ca	41,000 ca	3.3E+05
Dibromomethane	74953	NA	360 20x	1,100 20x	NA	10,000 nc	6.1E+06 nc	2.7E+06 nc	2.9E+08 nc	2.6E+06 (C) nc	9.4E+05
Dicamba (DD)	1918009	NA	36,000 20x	1.7E+05 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
1,2-Dichlorobenzene	95501	NA	12,000 20x	12,000 20x	260 20x	1.6E+06 nc	5.0E+08 nc	2.5E+08 nc	2.2E+10 nc	1.0E+08 (C,D) max	1.3E+05
1,3-Dichlorobenzene	541731	NA	240 20x	760 20x	560 20x	14,000 nc	4.9E+06 nc	2.4E+06 nc	2.2E+08 nc	1.7E+06 (C) nc	99,000
1,4-Dichlorobenzene (KK)	106467	NA	1,500 20x	1,500 20x	340 20x	390 ca	1.3E+05 ca	66,000 ca	6.0E+06 ca	2.6E+06 ca	NA
3,3`-Dichlorobenzidine	91941	NA	2,000 (M); 160 tdl	2,000 (M); 840 tdl	2,000 (M); 31 (X) tdl	NA	NA	NA	8.4E+06 ca	74,000 ca	NA
Dichlorodifluoromethane	75718	NA	710 swpv	2,200 swpv	NA	1.6E+05 nc	4.8E+08 nc	2.0E+08 nc	2.4E+10 nc	4.3E+06 nc	NA

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1,1-Dichloroethane	75343	NA	24,000 20x	76,000 20x	15,000 20x	4.9E+05 nc	7.3E+08 nc	3.0E+08 nc	3.7E+10 nc	1.0E+08 (C,D) max	6.0E+05
1,2-Dichloroethane (I,KK)	107062	NA	100 20x	100 20x	7,200 (X) 20x	3,100 ca	2.3E+06 ca	9.9E+05 ca	1.1E+08 ca	3.6E+05 ca	1.0E+06
1,1-Dichloroethylene (I,KK)	75354	NA	140 20x	140 20x	2,600 20x	1.2E+05 nc	2.9E+08 nc	1.2E+08 nc	1.5E+10 nc	4.3E+07 (C) nc	4.8E+05
cis-1,2-Dichloroethylene	156592	NA	1,400 20x	1,400 20x	12,000 20x	9,300 nc	1.2E+07 nc	5.0E+06 nc	5.9E+08 nc	1.7E+06 (C) nc	8.2E+05
trans-1,2-Dichloroethylene	156605	NA	2,000 20x	2,000 20x	30,000 (X) 20x	72,000 nc	1.2E+08 nc	4.9E+07 nc	5.9E+09 nc	1.7E+07 (C) nc	7.9E+05
2,6-Dichloro-4-nitroaniline	99309	NA	940 swpv	3,000 swpv	NA	NA	NA	NA	6.4E+08 nc	2.1E+06 nc	NA
2,4-Dichlorophenol (DD)	120832	NA	1,600 20x	6,600 20x	330 (M); 220 tdl	NA	NA	NA	8.1E+08 nc	9.9E+06 (DD) dev	NA
2,4-Dichlorophenoxyacetic acid (KK)	94757	NA	1,400 20x	1,400 20x	4,400 20x	NA	NA	NA	1.3E+10 nc	5.3E+07 nc	NA
1,2-Dichloropropane (I)	78875	NA	100 20x	100 20x	4,600 (X) 20x	7,000 nc	6.0E+06 nc	2.6E+06 nc	2.9E+08 nc	9.2E+05 (C) ca	4.6E+05
1,3-Dichloropropene (J)	542756	NA	140 20x	740 20x	180 (X) 20x	16,000 ca	1.5E+07 ca	6.2E+06 ca	7.1E+08 ca	3.3E+05 ca	5.3E+05
Dichlorvos (MM)	62737	NA	50 (M); 20 tdl	190 20x	NA	NA	NA	NA	1.5E+08 nc	1.1E+05 ca	1.1E+06
Dicyclohexyl phthalate	84617	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	60571	NA	29 swpv	150 swpv	20 (M); 13 tdl	6,900 ca	8.2E+05 ca	8.2E+05 ca	6.2E+05 ca	3,000 ca	NA
Diethyl ether	60297	NA	200 (M); 100 tdl	200 (M); 100 tdl	NA	1.4E+06 nc	1.5E+09 nc	6.3E+08 nc	7.3E+10 nc	1.0E+08 (C,D) max	3.4E+06

TABLE 3. SOIL: NONRESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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			Groundwater Protection			Ambient Air (C,D,M,Y)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Diethyl phthalate	84662	NA	94,000 20x	3.0E+05 (C) 20x	2,200 20x	NA	NA	NA	2.1E+11 nc	1.0E+08 (C,D) max	2.6E+05
Diethylene glycol monobutyl ether	112345	NA	3,600 20x	11,000 20x	NA	NA	NA	NA	7.3E+06 nc	2.6E+07 nc	5.3E+07
Diisopropyl ether (DD)	108203	NA	22,000 20x	90,000 20x	NA	6.5E+05 (DD) dev	6.8E+08 (DD) dev	2.9E+08 (DD) dev	3.3E+10 (DD) dev	1.0E+08 (C,D) max	7.8E+05
Diisopropylamine (I)	108189	NA	92 20x	300 20x	NA	2.0E+06 nc	3.8E+08 nc	2.4E+08 nc	1.5E+10 nc	6.5E+05 nc	1.8E+07
Dimethyl phthalate	131113	NA	12,000 20x	38,000 20x	NA	NA	NA	NA	3.7E+09 nc	8.5E+07 (C) nc	3.8E+05
N,N-Dimethylacetamide (OO)	127195	NA	3,000 20x	9,400 20x	82,000 (X) 20x	2.5E+07 nc	2.9E+09 nc	2.9E+09 nc	7.3E+09 nc	2.1E+07 nc	3.9E+07
N,N-Dimethylaniline	121697	NA	240 20x	760 20x	NA	47,000 ca	7.1E+06 ca	5.5E+06 ca	2.4E+08 ca	6.8E+05 (C) ca	2.8E+05
Dimethylformamide (I,OO)	68122	NA	12,000 20x	38,000 20x	NA	8.7E+05 nc	1.0E+08 nc	1.0E+08 nc	5.1E+08 nc	8.5E+07 (C) nc	3.5E+07
2,4-Dimethylphenol	105679	NA	2,400 20x	7,600 20x	7,600 20x	NA	NA	NA	5.1E+09 nc	1.7E+07 nc	NA
2,6-Dimethylphenol	576261	NA	330 (M); 80 tdl	330 (M); 220 tdl	NA	NA	NA	NA	1.5E+08 nc	5.1E+05 nc	NA
3,4-Dimethylphenol	95658	NA	330 (M); 120 tdl	380 20x	500 20x	NA	NA	NA	2.6E+08 nc	8.5E+05 nc	NA
Dimethylsulfoxide	67685	NA	1.2E+05 20x	3.8E+05 20x	3.8E+06 20x	NA	NA	NA	1.5E+09 nc	1.0E+08 (C,D) max	3.7E+07
2,4-Dinitrophenol	51285	NA	330 (M); 240 tdl	760 20x	380 20x	NA	NA	NA	5.1E+08 nc	1.7E+06 nc	NA
2,4-Dinitrotoluene (KK)	121142	NA	22 20x	110 20x	NA	NA	NA	NA	3.2E+07 ca	49,000 ca	NA

TABLE 3. SOIL: NONRESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Dinoseb (DD)	88857	NA	970 swpv	970 swpv	200 (M); 140 tdl	NA	NA	NA	2.9E+08 nc	8.5E+05 nc	NA
1,4-Dioxane (I,OO)	123911	NA	500 (M); 140 tdl	740 20x	56,000 (X) 20x	1.4E+05 ca	2.0E+07 ca	1.7E+07 ca	5.7E+08 ca	3.3E+05 ca	3.8E+07
Diquat	85007	NA	400 20x	400 20x	400 20x	NA	NA	NA	NA	4.3E+06 nc	NA
Diuron	330541	NA	500 (M); 360 tdl	1,100 20x	NA	NA	NA	NA	2.4E+08 nc	1.7E+06 ca	NA
Endosulfan (J)	115297	NA	6,500 swpv	20,000 swpv	20 (M); 6.5 tdl	NA	NA	NA	NA	4.3E+06 nc	NA
Endothall	145733	NA	2,000 20x	2,000 20x	NA	NA	NA	NA	5.1E+09 nc	6.0E+06 nc	NA
Endrin (KK)	72208	NA	790 swpv	790 swpv	NA	NA	NA	NA	NA	3.7E+05 nc	NA
Epichlorohydrin (I)	106898	NA	100 (M); 40 tdl	100 (M); 40 tdl	NA	8,700 nc	1.8E+06 nc	1.1E+06 nc	7.3E+07 nc	3.3E+06 ca	3.5E+06
Ethanol (I,DD,OO)	64175	NA	2.4E+07 20x	1.0E+08 (C,D) max	NA	2.8E+08 nc	4.3E+10 nc	3.3E+10 nc	1.4E+12 nc	1.0E+08 (C,D) max	3.5E+07
Ethyl acetate (I)	141786	NA	8,600 20x	28,000 20x	NA	2.7E+05 nc	1.1E+08 nc	5.3E+07 nc	5.1E+09 nc	6.1E+07 (C) nc	3.5E+06
Ethyl-tert-butyl ether (ETBE)	637923	NA	980 20x	980 20x	NA	10,000 nc	9.0E+06 nc	3.9E+06 nc	4.4E+08 nc	7.8E+07 (C) nc	9.7E+05
Ethylbenzene (I)	100414	NA	1,300 20x	1,500 20x	360 20x	41,000 ca	2.4E+07 ca	1.1E+07 ca	1.1E+09 ca	3.0E+06 (C) ca	1.6E+05
Ethylene dibromide	106934	NA	20 (M); 1.0 tdl	20 (M); 1.0 tdl	110 (X) 20x	260 ca	1.0E+05 ca	49,000 ca	4.8E+06 ca	17,000 ca	4.5E+05
Ethylene glycol (DD)	107211	NA	2.0E+05 20x	2.6E+05 20x	3.8E+06 (X) 20x	NA	NA	NA	1.5E+09 nc	1.0E+08 (C,D) max	3.5E+07

TABLE 3. SOIL: NONRESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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			Groundwater Protection			Ambient Air (C,D,M,Y)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Ethylene glycol monobutyl ether	111762	NA	12,000 20x	38,000 20x	NA	NA	NA	NA	1.2E+11 nc	8.5E+07 (C) nc	3.8E+07
Ethylenediaminetetraacetic acid (EDTA) (II)	60004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	206440	NA	4.3E+05 swpv	4.6E+05 swpv	2,800 swpv	NA	NA	NA	1.0E+10 nc	4.9E+07 nc	NA
Fluorene	86737	NA	70,000 swpv	2.2E+05 swpv	3,500 swpv	1.5E+07 nc	1.8E+09 nc	1.8E+09 nc	1.0E+10 nc	3.4E+07 nc	NA
Fluorine (soluble fluoride) (DD)	7782414	NA	40,000 20x	40,000 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Formaldehyde (DD,MM,OO)	50000	NA	24,000 20x	76,000 20x	3,600 20x	25,000 ca	3.8E+06 ca	3.8E+06 ca	4.3E+07 ca	1.0E+08 (D) max	NA
Formic acid (I,U,OO)	64186	NA	1.1E+05 20x	3.4E+05 20x	NA	21,000 nc	2.7E+06 nc	2.7E+06 nc	2.2E+07 nc	1.0E+08 (C,D) max	3.5E+07
1-Formylpiperidine (DD)	2591868	NA	88,000 20x	3.6E+05 20x	NA	NA	NA	NA	NA	1.0E+08 (C,D) max	3.9E+06
Gentian violet	548629	NA	2.8E+05 swpv	1.4E+06 swpv	NA	NA	NA	NA	NA	6.0E+05 ca	NA
Glyphosate (DD)	1071836	NA	14,000 20x	14,000 20x	NA	NA	NA	NA	NA	5.0E+07 (DD) dev	NA
Heptachlor (DD,KK)	76448	NA	18,000 swpv	18,000 swpv	450 (X) swpv	38,000 ca	4.6E+06 ca	4.6E+06 ca	2.2E+06 ca	40,000 ca	NA
Heptachlor epoxide (KK)	1024573	NA	65 swpv	65 swpv	NA	4,800 ca	5.6E+05 ca	5.6E+05 ca	1.1E+06 ca	13,000 ca	NA
n-Heptane	142825	NA	4.6E+05 (C) swpv	4.6E+05 (C) swpv	NA	1.7E+06 nc	5.1E+09 nc	2.1E+09 nc	2.6E+11 nc	1.0E+08 (C,D) max	29,000
Hexabromobenzene	87821	NA	100 (M); 14 tdl	100 (M); 14 tdl	NA	NA	NA	NA	NA	2.5E+06 nc	NA

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Hexachlorobenzene (C-66) (KK)	118741	NA	330 (M); 200 tdl	330 (M); 200 tdl	330 (M); 40 tdl	1,100 nc	1.3E+05 nc	1.3E+05 nc	2.6E+06 nc	12,000 nc	NA
Hexachlorobutadiene (C-46) (KK)	87683	NA	170 swpv	540 swpv	50 (M); 1.5 tdl	8,800 ca	2.9E+06 ca	1.5E+06 ca	1.3E+08 ca	4.3E+05 (C) ca	5,600
alpha-Hexachlorocyclohexane	319846	NA	10 (M); 9.9 tdl	52 swpv	NA	NA	NA	NA	1.6E+06 ca	5,300 ca	NA
beta-Hexachlorocyclohexane	319857	NA	33 swpv	99 swpv	NA	NA	NA	NA	5.4E+06 ca	18,000 ca	NA
Hexachlorocyclopentadiene (C-56)	77474	NA	2,400 swpv	2,400 swpv	NA	780 nc	3.2E+05 nc	1.5E+05 nc	1.5E+07 nc	7.4E+06 (C) nc	5,300
Hexachloroethane (KK)	67721	NA	300 (M); 100 tdl	300 (M); 260 tdl	300 (M); 130 (X) tdl	14,000 ca	6.2E+06 ca	2.9E+06 ca	2.9E+08 ca	6.0E+05 nc	NA
n-Hexane	110543	NA	2.1E+05 (C) swpv	6.8E+05 (C) swpv	NA	3.2E+05 nc	1.0E+09 nc	4.1E+08 nc	5.1E+10 nc	1.0E+08 (C,D) max	70,000
2-Hexanone	591786	NA	2,500 (M); 1,000 tdl	2,500 (M); 1,900 tdl	NA	1.8E+05 nc	5.1E+07 nc	2.7E+07 nc	2.2E+09 nc	4.3E+06 (C) nc	1.1E+06
Indeno(1,2,3-cd)pyrene (Q,MM)	193395	NA	(Q)	(Q)	NA	NA	NA	NA	(Q)	(Q)	NA
Iron (B)	7439896	1.125E+07	6,000 20x	6,000 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Isobutyl alcohol (I,OO)	78831	NA	36,000 20x	1.1E+05 20x	NA	1.9E+07 nc	3.1E+09 nc	2.3E+09 nc	1.1E+11 nc	1.0E+08 (C,D) max	3.3E+06
Isophorone (DD)	78591	NA	15,000 20x	76,000 20x	26,000 (X) 20x	NA	NA	NA	1.1E+10 ca	3.5E+07 (C) ca	2.0E+06
Isopropyl alcohol (I,DD,OO)	67630	NA	1.6E+05 20x	7.6E+05 20x	1.1E+06 (X) 20x	2.6E+06 nc	4.2E+08 nc	3.0E+08 nc	1.5E+10 nc	1.0E+08 (C,D) max	3.6E+07

TABLE 3. SOIL: NONRESIDENTIAL

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Isopropyl benzene	98828	NA	14,000 swpv	45,000 swpv	660 swpv	11,000 ca	5.7E+06 ca	2.6E+06 ca	2.7E+08 ca	8.5E+07 (C) nc	90,000
Lead (B,L,DD,KK)	7439921	11,000	1.8E+05 (L) swpv	1.8E+05 (L) swpv	(G,X)	NA	NA	NA	1.1E+07 (L) nc	3.3E+5 (L,DD) dev	NA
Lindane (KK)	58899	NA	20 (M); 18 tdl	20 (M); 18 tdl	20 (M); 2.7 (X) tdl	NA	NA	NA	NA NA	39,000 ca	NA
Lithium (B,DD)	7439932	11,000	400 (M); 200 tdl	660 20x	8,800 20x	NA	NA	NA	2.6E+09 nc	3.0E+06 (DD) dev	NA
Magnesium	7439954	NA	6.6E+06 20x	2.0E+07 20x	NA	NA	NA	NA	7.3E+09 nc	1.0E+08 (D) max	NA
Manganese (B)	7439965	3.6E+05	1,000 20x	1,000 20x	(G,X)	NA	NA	NA	2.2E+07 nc	3.2E+07 nc	NA
Mercury (Total) (Z,DD,KK)	Varies	NA	40 20x	40 20x	0.026 20x	190 nc	4.4E+05 nc	1.8E+05 nc	2.2E+07 nc	1.5E+05 (DD) dev	NA
Methane (K)	74828	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methanol (DD,OO)	67561	NA	1.6E+05 20x	6.6E+05 20x	1.2E+07 (X) 20x	1.8E+08 (DD) dev	3.0E+10 (DD) dev	2.4E+10 (DD) dev	9.6E+11 (DD) dev	1.0E+08 (C,D) max	3.5E+07
Methoxychlor (DD,KK)	72435	NA	34,000 swpv	34,000 swpv	NA	NA	NA	NA	NA	3.5E+06 (DD) dev	NA
2-Methoxyethanol (I,DD,OO)	109864	NA	400 20x	1,700 20x	NA	44 nc	5,100 nc	5,100 nc	51,000 nc	2.5E+06 (DD) dev	3.5E+07
2-Methyl-4-chlorophenoxyacetic acid	94746	NA	520 20x	1,700 20x	NA	NA	NA	NA	1.3E+09 nc	3.7E+06 nc	NA
2-Methyl-4,6-dinitrophenol	534521	NA	830 (M); 490 tdl	830 (M); 490 tdl	NA	NA	NA	NA	1.5E+08 nc	3.4E+05 nc	NA
N-Methyl-morpholine (I,OO)	109024	NA	8,400 20x	26,000 20x	NA	NA	NA	NA	NA	6.0E+07 (C) nc	4.7E+07

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Methyl parathion	298000	NA	40 (M); 29 tdl	91 swpv	NA	NA	NA	NA	NA	1.7E+05 nc	NA
4-Methyl-2-pentanone (MIBK) (I,DD)	108101	NA	6,000 20x	19,000 20x	NA	9.4E+06 (DD) dev	3.2E+09 (DD) dev	1.6E+09 (DD) dev	1.4E+11 (DD) dev	4.3E+07 (C) nc	1.1E+06
Methyl-tert-butyl ether (MTBE)	1634044	NA	800 20x	800 20x	1.4E+05 (X) 20x	6.7E+06 nc	4.6E+09 nc	2.0E+09 nc	2.2E+11 nc	9.8E+06 (C) ca	3.0E+06
N-methylaniline	100618	NA	240 20x	760 20x	NA	NA	NA	NA	NA	1.7E+06 (C) nc	1.1E+06
Methylcyclopentane (I)	96377	NA	NA	NA	NA	3.4E+05 nc	1.0E+09 nc	4.1E+08 nc	5.1E+10 nc	NA	72,000
4,4`-Methylene-bis-2- chloroaniline (MBOCA) (MM)	101144	NA	2,200 swpv	6,900 swpv	NA	NA	NA	NA	NA	1.7E+06 nc	NA
Methylene chloride (MM)	75092	NA	100 20x	100 20x	30,000 (X) 20x	6.1E+05 nc	8.8E+08 nc	3.7E+08 nc	4.4E+10 nc	5.1E+06 (C) nc	1.2E+06
2-Methylnaphthalene	91576	NA	1,900 swpv	6,100 swpv	1,500 swpv	2.7E+05 nc	3.2E+07 nc	3.1E+07 nc	7.3E+08 nc	3.4E+06 nc	NA
Methylphenols (JJ,KK)	1319773	NA	6,000 20x	19,000 20x	1,000 (M); 600 tdl	NA	NA	NA	NA	4.3E+06 nc	NA
2-Methylphenol (DD,KK)	95487	NA	1.6E+05 20x	6.6E+05 20x	1,000 (M); 600 tdl	NA	NA	NA	7.3E+09 nc	9.9E+07 (DD) dev	NA
Metolachlor	51218452	NA	12,000 20x	38,000 20x	300 20x	NA	NA	NA	NA	8.5E+07 (C) nc	5.4E+05
Metribuzin	21087649	NA	1,500 20x	5,000 20x	NA	NA	NA	NA	NA	1.1E+07 nc	NA
Mirex	2385855	NA	8,900 swpv	43,000 swpv	230 swpv	NA	NA	NA	NA	52,000 ca	NA
Molybdenum	7439987	NA	1,200 20x	3,800 20x	64,000 (X) 20x	NA	NA	NA	2.2E+09 nc	1.2E+07 nc	NA

TABLE 3. SOIL: NONRESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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			Groundwater Protection			Ambient Air (C,D,M,Y)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 2 Meter Source Thickness	Finite VSIC for 5 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Naphthalene	91203	NA	29,000 swpv	95,000 swpv	550 swpv	24,000 ca	3.1E+06 ca	2.8E+06 ca	8.4E+07 ca	8.5E+07 nc	NA
Nickel (B)	7440020	15,000	38,000 swpv	1.1E+05 swpv	(G)	NA	NA	NA	6.6E+06 nc	4.0E+06 nc	NA
Nitrate (N,DD)	14797558	NA	2.0E+05 (N) 20x	2.0E+05 (N) 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Nitrite (N,DD)	14797650	NA	20,000 (N) 20x	20,000 (N) 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Nitrobenzene (I,KK)	98953	NA	330 (M); 240 tdl	760 20x	3,600 (X) 20x	33,000 ca	3.9E+06 ca	3.8E+06 ca	7.1E+07 ca	1.7E+06 (C) nc	1.0E+06
2-Nitrophenol	88755	NA	330 (M); 240 tdl	760 20x	NA	2,700 nc	3.1E+05 nc	3.1E+05 nc	3.7E+06 nc	1.7E+06 nc	NA
n-Nitroso-di-n-propylamine	621647	NA	330 (M); 100 tdl	330 (M); 100 tdl	NA	NA	NA	NA	1.4E+06 ca	4,700 ca	7.6E+06
N-Nitrosodiphenylamine	86306	NA	13,000 swpv	64,000 swpv	NA	NA	NA	NA	NA	6.8E+06 ca	NA
Oxamyl	23135220	NA	4,000 20x	4,000 20x	NA	NA	NA	NA	1.8E+09 nc	5.9E+06 nc	NA
Oxo-hexyl acetate (OO)	88230357	NA	1,200 20x	3,800 20x	NA	NA	NA	NA	5.9E+09 nc	8.5E+06 nc	NA
Pendimethalin (DD)	40487421	NA	59,000 swpv	59,000 swpv	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Pentachlorobenzene	608935	NA	600 swpv	1,800 swpv	600 swpv	3,700 nc	4.3E+05 nc	4.3E+05 nc	7.3E+06 nc	9.8E+05 nc	NA
Pentachloronitrobenzene	82688	NA	3,800 swpv	11,000 swpv	NA	2.2E+06 nc	2.5E+08 nc	2.5E+08 nc	8.1E+08 nc	2.6E+06 nc	NA
Pentachlorophenol (KK)	87865	NA	160 swpv	160 swpv	(G,X)	NA	NA	NA	2.6E+07 ca	65,000 ca	NA

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Pentane	109660	NA	NA	NA	NA	4.4E+05 nc	1.4E+09 nc	5.9E+08 nc	7.3E+10 nc	NA	1.9E+05
2-Pentene (I)	109682	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3E+05
Perchlorate (DD)	14797730	NA	200 (M); 60 tdl	240 20x	NA	NA	NA	NA	NA	1.0E+06 (DD) dev	NA
Perfluorooctanoic acid	335671	NA	75 swpv	240 swpv	10,000 (X) swpv	NA	NA	NA	NA	18,000 nc	NA
Perfluorooctane sulfonic acid (DD)	1763231	NA	2.4 20x	10 20x	0.24 (X) 20x	NA	NA	NA	NA	21,000 (DD) dev	NA
Phenanthrene	85018	NA	96,000 swpv	3.0E+05 swpv	1,100 swpv	28,000 nc	3.3E+06 nc	3.3E+06 nc	7.3E+06 nc	2.6E+07 nc	NA
Phenol (DD)	108952	NA	24,000 20x	1.1E+05 20x	9,000 20x	NA	NA	NA	1.5E+10 nc	1.0E+08 (D) max	NA
Phenytoin (DD)	57410	NA	710 swpv	3,400 swpv	4,200 (X) swpv	NA	NA	NA	2.0E+08 ca	6.5E+05 ca	NA
Phosphorus, Total	Varies	NA	NA	NA	(EE)	NA	NA	NA	NA	NA	NA
Phosphorus, White (R,DD)	7723140	NA	200 20x	200 20x	NA	NA	NA	NA	1.5E+07 nc	14,000 (DD) dev	NA
o-Phthalic acid	88993	NA	2.2E+05 20x	7.2E+05 20x	NA	NA	NA	NA	NA NA	1.0E+08 (D) max	NA
Phthalic anhydride	85449	NA	2.4E+05 20x	7.6E+05 20x	NA	NA	NA	NA	1.5E+09 nc	1.0E+08 (D) max	NA
Picloram	1918021	NA	10,000 20x	10,000 20x	920 20x	NA	NA	NA	NA	6.0E+07 nc	NA
Piperidine (OO)	110894	NA	52 20x	170 20x	NA	2.7E+08 nc	3.1E+10 nc	3.1E+10 nc	5.1E+11 nc	3.7E+05 nc	1.4E+08

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Polybrominated biphenyls (J,DD)	67774327	NA	50 (M); 2 tdl	50 (M); 10 tdl	NA	NA	NA	NA	NA	6,700 ca	NA
Polychlorinated biphenyls (PCBs) (J,T,DD)	1336363	NA	1,200 swpv	1,200 swpv	500 swpv	71,000 ca	8.3E+06 ca	8.3E+06 ca	2.9E+07 ca	20,000 (T) ca	NA
Polychlorinated biphenyls (PCBs) congeners (O)	Varies	NA	(O)	(O)	(O)	(O)	(O)	(O)	(O)	(O)	NA
Prometon	1610180	NA	6,000 20x	19,000 20x	NA	NA	NA	NA	NA	4.3E+07 nc	NA
Propachlor	1918167	NA	1,000 20x	2,400 20x	NA	NA	NA	NA	NA	1.0E+06 ca	NA
Propazine	139402	NA	2,200 20x	6,800 20x	NA	NA	NA	NA	NA	1.5E+07 nc	NA
Propionic acid (OO)	79094	NA	2.2E+05 20x	6.8E+05 20x	NA	1.6E+07 nc	1.9E+09 nc	1.9E+09 nc	2.2E+10 nc	1.0E+08 (C,D) max	3.5E+07
Propyl alcohol (I,DD,OO)	71238	NA	1.6E+05 20x	6.6E+05 20x	NA	6.4E+06 (DD) dev	1.0E+09 (DD) dev	7.5E+08 (DD) dev	3.5E+10 (DD) dev	1.0E+08 (C,D) max	3.6E+07
n-Propylbenzene (I,DD)	103651	NA	16,000 swpv	52,000 swpv	NA	2.1E+06 (DD) dev	1.0E+09 (DD) dev	4.7E+08 (DD) dev	4.8E+10 (DD) dev	8.5E+07 (C) nc	89,000
Propylene glycol	57556	NA	2.4E+06 20x	7.6E+06 20x	5.8E+06 20x	NA	NA	NA	NA	1.0E+08 (C,D) max	3.5E+07
Pyrene	129000	NA	2.4E+05 swpv	2.4E+05 swpv	NA	1.1E+08 nc	1.3E+10 nc	1.3E+10 nc	7.3E+09 nc	3.7E+07 nc	NA
Pyridine (I,KK)	110861	NA	400 20x	400 20x	NA	90,000 nc	1.1E+07 nc	1.0E+07 nc	2.6E+08 nc	8.5E+05 nc	1.8E+08
Selenium (B,KK)	7782492	610	4,200 swpv	4,200 swpv	420 swpv	NA	NA	NA	1.5E+09 nc	1.2E+07 nc	NA

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Silver (KK)	7440224	NA	800 swpv	2,600 swpv	100 (M); 27 tdl	NA	NA	NA	2.2E+08 nc	6.7E+05 nc	NA
Silvex (2,4,5-TP) (KK)	93721	NA	1,000 20x	1,000 20x	600 20x	NA	NA	NA	NA	6.8E+06 nc	NA
Simazine	122349	NA	80 20x	80 20x	340 20x	NA	NA	NA	NA	4.3E+06 nc	NA
Sodium	17341252	NA	1.1E+06 20x	3.6E+06 20x	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Sodium azide	26628228	NA	1,500 (M); 1,400 tdl	4,600 20x	1,500 (M); 1,000 tdl	NA	NA	NA	NA	2.9E+07 nc	NA
Sodium bromide	7647156	NA	4,800 20x	15,000 20x	NA	NA	NA	NA	1.0E+10 nc	9.8E+07 nc	NA
Strontium (B,DD)	7440246	1.29E+05	48,000 20x	2.2E+05 20x	4.2E+05 20x	NA	NA	NA	NA NA	1.0E+08 (D) max	NA
Styrene	100425	NA	2,000 20x	2,000 20x	1,600 (X) 20x	2.9E+05 ca	1.1E+08 ca	5.3E+07 ca	5.0E+09 ca	2.6E+06 (C) ca	2.9E+05
Sulfate	14808798	NA	5.0E+06 20x	5.0E+06 20x	NA	NA	NA	NA	NA	NA	NA
Tebuthiuron (DD)	34014181	NA	5,600 20x	26,000 20x	NA	NA	NA	NA	NA	6.0E+07 nc	NA
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NA	0.36 swpv	0.36 swpv	NA	NA	NA	NA	NA	(O)	NA
1,2,4,5-Tetrachlorobenzene (DD)	95943	NA	2,000 swpv	790 swpv	330 (M); 210 (X) tdl	23,000 nc	2.9E+06 nc	2.7E+06 nc	7.3E+07 nc	3.3E+05 (DD) dev	NA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O,DD)	1746016	NA	0.24 (O) swpv	0.24 (O) swpv	0.08 (O) swpv	1.1 (O) ca	130 (O) ca	130 (O) ca	65 (O) ca	1.0 (O) ca	NA

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1,1,1,2-Tetrachloroethane	630206	NA	560 20x	2,800 20x	NA	14,000 ca	8.1E+06 ca	3.6E+06 ca	3.9E+08 ca	1.3E+06 (C) ca	2.3E+05
1,1,2,2-Tetrachloroethane	79345	NA	72 20x	360 20x	1,600 (X) 20x	4,600 ca	1.2E+06 ca	6.5E+05 ca	4.9E+07 ca	1.7E+05 ca	6.3E+05
Tetrachloroethylene (KK)	127184	NA	100 20x	100 20x	1,200 (X) 20x	45,000 nc	5.9E+07 nc	2.5E+07 nc	2.9E+09 nc	5.1E+06 (C) nc	60,000
Tetrahydrofuran (DD)	109999	NA	72,000 20x	3.4E+05 20x	2.2E+05 (X) 20x	1.1E+07 nc	3.3E+09 nc	1.7E+09 nc	1.5E+11 nc	1.0E+08 (C,D) max	5.4E+07
1,1,3,3-Tetramethylurea (OO)	632224	NA	NA	NA	NA	2.4E+05 nc	2.9E+07 nc	2.9E+07 nc	5.9E+07 nc	NA	4.0E+07
Tetranitromethane	509148	NA	NA	NA	NA	54 ca	6,900 ca	6,200 ca	1.9E+05 ca	NA	8.0E+05
Thallium	7440280	NA	2,300 swpv	2,300 swpv	4,200 (X) swpv	NA	NA	NA	1.5E+07 nc	25,000 nc	NA
Toluene (I)	108883	NA	9,400 20x	16,000 20x	5,400 20x	9.9E+06 nc	7.5E+09 nc	3.3E+09 nc	3.7E+11 nc	6.7E+07 (C) nc	2.8E+05
p-Toluidine	106490	NA	660 (M); 480 tdl	1,500 20x	NA	NA	NA	NA	9.2E+07 ca	1.1E+06 ca	NA
Toxaphene (KK)	8001352	NA	25,000 swpv	25,000 swpv	8,200 swpv	NA	NA	NA	8.9E+06 ca	44,000 ca	NA
Triallate (DD)	2303175	NA	2.000 (M); 1,600 tdl	2,000 (M); 1,700 tdl	NA	2.2E+07 (DD) dev	2.6E+09 (DD) dev	2.6E+09 (DD) dev	9.6E+09 (DD) dev	4.6E+05 ca	NA
Tributylamine	102829	NA	1,300 swpv	4,000 swpv	NA	4.0E+05 nc	4.6E+07 nc	4.6E+07 nc	5.1E+08 nc	3.0E+06 (C) nc	5.3E+05
1,2,3-Trichlorobenzene	87616	NA	720 swpv	2,300 swpv	NA	4.0E+05 nc	6.0E+07 nc	4.6E+07 nc	2.0E+09 nc	2.3E+06 nc	NA
1,2,4-Trichlorobenzene	120821	NA	3,100 swpv	3,100 swpv	4,400 (X) swpv	27,000 nc	4.3E+06 nc	3.2E+06 nc	1.5E+08 nc	1.1E+06 (C) ca	1.3E+05

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1,1,1-Trichloroethane	71556	NA	4,000 20x	4,000 20x	1,800 20x	4.0E+06 nc	7.3E+09 nc	3.0E+09 nc	3.7E+11 nc	1.0E+08 (C,D) max	2.4E+05
1,1,2-Trichloroethane	79005	NA	100 20x	100 20x	6,600 (X) 20x	0.66 nc	310 nc	140 nc	15,000 nc	3.4E+05 nc	7.2E+05
Trichloroethylene (DD,KK,MM,NN)	79016	NA	100 20x	100 20x	4,000(X) 20x	1,400(DD) dev	1.9E+06(DD) dev	8.0E+05(DD) dev	9.6E+07(DD) dev	2.5E+05(DD) dev	2.5E+05
Trichlorofluoromethane	75694	NA	36,000 20x	1.1E+05 20x	NA	2.2E+05 nc	5.8E+08 nc	2.4E+08 nc	2.9E+10 nc	1.0E+08 (C,D) max	5.5E+05
2,4,5-Trichlorophenol (KK)	95954	NA	10,000 swpv	33,000 swpv	NA	NA	NA	NA	2.6E+10 nc	2.6E+07 nc	NA
2,4,6-Trichlorophenol (DD,KK)	88062	NA	2,300 swpv	9,800 swpv	330 (M); 290 tdl	NA	NA	NA	9.2E+08 ca	3.0E+06 ca	NA
1,2,3-Trichloropropane (MM)	96184	NA	100 (M); 20 tdl	100 (M); 20 tdl	NA	2,200 nc	5.3E+05 nc	2.9E+05 nc	2.2E+07 nc	1,100 ca	4.6E+05
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	4.3E+06 (C) swpv	4.6E+06 (C) swpv	860 swpv	1.4E+07 nc	2.8E+10 nc	1.1E+10 nc	1.4E+12 nc	1.0E+08 (C,D) max	2.8E+05
Triethanolamine	102716	NA	60,000 20x	1.9E+05 20x	NA	NA	NA	NA	3.2E+08 nc	1.0E+08 (C,D) max	5.3E+07
Triethylene glycol (DD)	112276	NA	4.8E+05 20x	2.2E+06 20x	NA	NA	NA	NA	NA	1.0E+08 (C,D) max	5.3E+07
3-Trifluoromethyl-4-nitrophenol (DD)	88302	NA	1.6E+05 swpv	7.9E+05 swpv	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
Trifluralin	1582098	NA	74,000 swpv	95,000 swpv	NA	7.1E+08 nc	8.3E+10 nc	8.3E+10 nc	2.2E+11 nc	1.6E+07 ca	NA
2,2,4-Trimethyl pentane	540841	NA	NA	NA	NA	1.8E+06 nc	5.1E+09 nc	2.1E+09 nc	2.6E+11 nc	NA	30,000
2,4,4-Trimethyl-2-pentene (I)	107404	NA	NA	NA	NA	NA	NA	NA	NA	NA	52,000

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1,2,3-Trimethylbenzene (I)	526738	NA	2,500 swpv	2,700 swpv	NA	22,000 nc	8.1E+06 nc	3.9E+06 nc	3.7E+08 nc	1.7E+07 (C) nc	98,000
1,2,4-Trimethylbenzene (I)	95636	NA	1,300 20x	1,300 20x	350 swpv	25,000 nc	1.1E+07 nc	5.2E+06 nc	5.1E+08 nc	1.7E+07 (C) nc	73,000
1,3,5-Trimethylbenzene (I)	108678	NA	1,500 swpv	1,500 swpv	920 swpv	1.5E+05 nc	7.8E+07 nc	3.5E+07 nc	3.7E+09 nc	1.7E+07 (C) nc	61,000
Triphenyl phosphate	115866	NA	3.3E+05 swpv	6.5E+05 swpv	NA	NA	NA	NA	NA	1.0E+08 (D) max	NA
tris(2,3-Dibromopropyl)phosphate	126727	NA	3,100 swpv	3,100 swpv	NA	31,000 ca	3.6E+06 ca	3.6E+06 ca	5.4E+06 ca	30,000 ca	1.6E+05
Urea	57136	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (B)	7440622	27,000	64,000 swpv	64,000 swpv	4.3E+05 swpv	NA	NA	NA	7.3E+06 nc	33,000 nc	NA
Vinyl acetate (I,DD)	108054	NA	70,000 20x	3.0E+05 20x	NA	4.0E+05 nc	3.0E+08 nc	1.3E+08 nc	1.5E+10 nc	1.0E+08 (C,D) max	9.1E+05
Vinyl chloride (KK,LL,MM)	75014	NA	40 20x	40 20x	260 (X) 20x	2,200 ca	6.4E+06 ca	2.6E+06 ca	3.2E+08 ca	24,000 ca	NA
Xylenes (I,J)	1330207	NA	5,600 20x	5,600 20x	820 20x	5.8E+05 nc	3.4E+08 nc	1.5E+08 nc	1.6E+10 nc	1.0E+08 (C,D) max	87,000
Zinc (B)	7440666	39,000	1.8E+06 swpv	5.0E+06 swpv	(G)	NA	NA	NA	NA	1.0E+08 (D) max	NA

TABLE 4. VI TIER 1 GROUNDWATER, SOIL AND VAPOR SCREENING LEVELS
PART 201 GENERIC SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Acenaphthene	83329	43 nc	3,900	NA	2.1E+05 nc	NA	7,330 nc	NA
Acenaphthylene	208968	65 nc	16,000	NA	NA	NA	7,330 nc	NA
Acetaldehyde (I)	75070	100 (M); 4 tdl	1.0E+09	1.1E+07	2,500 (M); 34 tdl	NA	310 nc	4.0
Acetate	71501	NA	1.0E+09	NA	NA	NA	NA	NA
Acetic acid (OO)	64197	69,600 nc	1.0E+09	1.0E+09 (S) sol	6.5E+05 nc	3.5E+07	8,670 nc	4.0
Acetone (I)	67641	25,600 nc	1.0E+09	1.7E+07	2.7E+05 nc	3.7E+07	1.1E+06 nc	2.5
Acetonitrile	75058	50 nc	1.0E+09	1.4E+07	2,500 (M); 620 tdl	4.2E+07	2,100 nc	3.0
Acetophenone (DD)	98862	8,690 (DD) dev	6.1E+06	NA	6.2E+05 (DD) dev	8.4E+05	1.1E+05 (DD) dev	NA
Acrolein (I)	107028	20 (M); 5.2E-03 tdl	2.1E+08	5.1E+06	250 (M); 4.6E-02 tdl	7.4E+06	0.70 nc	2.8
Acrylamide (MM)	79061	NV	3.9E+08	NA	NV	NA	NV	NA
Acrylic acid (DD,OO)	79107	15 nc	1.0E+09	1.0E+09 (S) sol	260 nc	3.5E+07	7 nc	2.4
Acrylonitrile (I)	107131	2 (M); 8.3E-02 tdl	7.5E+07	4.6E+06	100 (M); 1.2 tdl	3.7E+06	12 ca	3.0
Alachlor	15972608	NV	2.4E+05	NA	NV	NA	NV	NA
Aldicarb	116063	NV	6.0E+06	NA	NV	NA	NV	NA
Aldicarb sulfone	1646884	NV	1.0E+07	NA	NV	NA	NV	NA
Aldicarb sulfoxide	1646873	NV	2.8E+07	NA	NV	NA	NV	NA

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Aldrin	309002	0.01 (M); 4.0E-03 tdl	17	NA	530 ca	NA	0.17 ca	NA
Aluminum (B,DD)	7429905	NA	NA	NA	NA	NA	NA	NA
Ammonia	7664417	118 nc	4.8E+08	NA	NA	NA	2,430 nc	15
t-Amyl methyl ether (TAME)	994058	5 (M); 3.9 tdl	1.1E+07	3.4E+05	NA	8.9E+05	2,170 nc	1.1
Aniline	62533	NV	3.6E+07	NA	NV	6.2E+06	NV	1.3
Anthracene	120127	43 (S) sol	43	NA	1.2E+07 nc	NA	33,300 nc	0.6
Antimony	7440360	NA	NA	NA	NA	NA	NA	NA
Arsenic (B,KK)	7440382	NA	NA	NA	NA	NA	NA	5.1
Asbestos (BB)	1332214	NA	NA	NA	NA	NA	NA	NA
Atrazine	1912249	NV	35,000	NA	NV	NA	NV	NA
Azobenzene	103333	2 (M); 1.8 tdl	6,400	NA	NA	NA	27 ca	NA
Barium (B,KK)	7440393	NA	NA	NA	NA	NA	NA	NA
Benzene (I,KK)	71432	1 (M); 0.13 tdl	1.8E+06	68,000	50 (M); 1.7 tdl	6.2E+05	110 ca	1.2
Benzidine (MM)	92875	NV	3.2E+05	NA	NV	NA	NV	NA
Benzo(a)anthracene (Q,MM)	56553	1 (M); 0.44 tdl	9.4	NA	1.6E+05 mut	NA	5.7 (MM) mut	NA
Benzo(b)fluoranthene (Q,MM)	205992	NV	1.5	NA	NV	NA	NV	NA

TABLE 4. VI TIER 1 GROUNDWATER, SOIL AND VAPOR SCREENING LEVELS
PART 201 GENERIC SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Benzo(k)fluoranthene (Q,MM)	207089	NV	0.80	NA	NV	NA	NV	NA
Benzo(g,h,i)perylene	191242	NV	0.26	NA	NV	NA	NV	NA
Benzo(a)pyrene (Q,DD,MM)	50328	NV	1.6	NA	NV	NA	NV	NA
Benzoic acid	65850	NV	3.4E+06	NA	NV	NA	NV	NA
Benzyl alcohol	100516	NV	4.3E+07	NA	NV	3.2E+06	NV	NA
Benzyl chloride	100447	5 (M); 5.3E-02 tdl	5.3E+05	NA	150 (M); 12 tdl	4.9E+05	17 ca	1.1
Beryllium (B)	7440417	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)ethane	112265	NV	1.9E+07	NA	NV	1.6E+06	NV	NA
bis-2-Chloroethylether (I)	111444	1 (M); 7.6E-02 tdl	1.7E+07	1.7E+07 (S) sol	100 (M); 3.4 tdl	1.7E+06	2.6 ca	2.7
bis(2-Ethylhexyl) phthalate (DD)	117817	NV	270	NA	NV	65,000	NV	0.3
Boron (DD)	7440428	NA	NA	NA	NA	NA	NA	NA
Bromate	15541454	NA	NA	NA	NA	NA	NA	NA
Bromobenzene (I)	108861	3.0 nc	4.5E+05	4.5E+05 (S) sol	160 nc	2.3E+05	2,100 nc	6.0
Bromodichloromethane (DD)	75274	1 (M); 6.4E-02 tdl	3.0E+06	NA	100 (M); 0.60 tdl	3.2E+05	47 ca	NA
Bromoform	75252	2.0 ca	3.1E+06	NA	100 (M); 45 tdl	3.0E+05	770 ca	NA
Bromomethane	74839	5 (M); 0.32 tdl	1.5E+07	NA	200 (M); 0.86 tdl	NA	330 nc	10

TABLE 4. VI TIER 1 GROUNDWATER, SOIL AND VAPOR SCREENING LEVELS
PART 201 GENERIC SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
n-Butanol (I,OO)	71363	1,150 nc	6.3E+07	4.7E+07	20,000 nc	2.5E+06	12,300 nc	1.4
2-Butanone (MEK) (I,DD,KK)	78933	2,550 (DD) dev	2.2E+08	7.1E+06	31,000 (DD) dev	9.3E+06	1.7E+05 (DD) dev	1.4
n-Butyl acetate	123864	58 nc	8.4E+06	2.8E+06	1,100 nc	5.9E+05	14,000 nc	1.7
t-Butyl alcohol (OO)	75650	228 nc	1.0E+09	7.9E+07	NA	NA	2,500 nc	2.4
Butyl benzyl phthalate (DD)	85687	NV	2,700	NA	NV	NA	NV	NA
n-Butylbenzene	104518	9.3 nc	12,000	NA	560 nc	36,000	7,000 nc	0.8
sec-Butylbenzene	135988	1 (M); 1.8E-02 tdl	18,000	18,000 (S) sol	3,800 nc	49,000	14 nc	0.8
t-Butylbenzene (I)	98066	1 (M); 1.8E-02 tdl	30,000	NA	50 (M); 0.65 tdl	61,000	14 nc	0.7
Cadmium (B,KK)	7440439	NA	NA	NA	NA	NA	NA	NA
Camphene (I)	79925	3.2 nc	4,600	NA	NA	NA	2,770 nc	NA
Caprolactam (DD)	105602	NV	7.7E+08	NA	NV	NA	NV	1.4
Carbaryl (DD)	63252	NV	1.1E+05	NA	NV	NA	NV	NA
Carbazole	86748	NV	1,800	NA	NV	NA	NV	NA
Carbofuran (DD)	1563662	NV	3.2E+05	NA	NV	NA	NV	NA
Carbon disulfide (I,R,DD)	75150	22 nc	2.2E+06	27,000	250 (M); 52 tdl	2.9E+05	24,300 nc	1.3
Carbon tetrachloride (KK)	56235	1 (M); 0.16 tdl	7.9E+05	NA	50 (M); 0.31 tdl	1.8E+05	150 ca	NA

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Chlordane (J,KK)	57749	0.18 ca	56	NA	16,000 ca	NA	8.3 ca	NA
Chloride	16887006	NA	NA	NA	NA	NA	NA	NA
2-Chloroaniline	95512	NV	8.2E+06	NA	NV	2.1E+06	NV	NA
4-Chloroaniline	106478	NV	3.9E+06	NA	NV	NA	NV	NA
Chlorobenzene (I,KK)	108907	2.3 nc	5.0E+05	1.9E+05	82 nc	2.6E+05	1,730 nc	1.3
p-Chlorobenzene sulfonic acid	98668	NV	3.1E+08	NA	NV	NA	NV	NA
1-Chloro-1,1-difluoroethane	75683	1,780 nc	1.4E+06	NA	2,400 nc	NA	1.7E+06 nc	6.0
Chloroethane (DD)	75003	138 nc	6.7E+06	88,000	330 nc	NA	1.4E+05 nc	3.8
2-Chloroethyl vinyl ether	110758	NA	4.3E+05	NA	NA	44,000	NA	NA
Chloroform (KK)	67663	1 (M); 4.4E-02 tdl	8.0E+06	NA	50 (M); 0.26 tdl	8.8E+05	37 ca	NA
Chloromethane (I)	74873	5 (M); 2.9 tdl	5.3E+06	NA	250 (M); 6.9 tdl	NA	3,130 nc	8.1
4-Chloro-3-methylphenol (DD)	59507	NV	3.8E+06	NA	NV	NA	NV	NA
beta-Chloronaphthalene	91587	NA	12,000	NA	NA	NA	NA	NA
2-Chlorophenol (DD)	95578	45 (DD) dev	1.1E+07	NA	12,000 (DD) dev	7.3E+06	600 (DD) dev	NA
o-Chlorotoluene (I)	95498	5 (M); 3.7 tdl	3.7E+05	1.4E+05	200 nc	3.0E+05	2,770 nc	1.0
Chlorpyrifos (DD)	2921882	NV	1,100	NA	NV	NA	NV	NA

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Chromium (III) (B,H,KK)	16065831	NA	NA	NA	NA	NA	NA	NA
Chromium (VI) (H,KK,MM)	18540299	NA	NA	NA	NA	NA	NA	NA
Chrysene (Q,MM)	218019	NV	2.0	NA	NV	NA	NV	NA
Cobalt (B)	7440484	NA	NA	NA	NA	NA	NA	NA
Copper (B)	7440508	NA	NA	NA	NA	NA	NA	NA
Cyanazine	21725462	NV	1.7E+05	NA	NV	NA	NV	NA
Cyanide (P,R,DD)	57125	NA	NA	NA	NA	NA	NA	6.0
Cyclohexane (DD)	110827	229 nc	55,000	2,900	500 (M); 320 tdl	50,000	2.1E+05 nc	1.3
Cyclohexanone (OO)	108941	2,260 nc	2.5E+07	2.5E+07 (S) sol	NA	1.7E+06	24,300 nc	1.1
Dacthal	1861321	NV	500	NA	NV	NA	NV	NA
Dalapon	75990	NV	5.0E+08	NA	NV	2.0E+07	NV	NA
4-4`-DDD	72548	NV	90	NA	NV	NA	NV	NA
4-4`-DDE	72559	0.20 ca	40	NA	39,000 ca	NA	8.7 ca	NA
4-4`-DDT (DD)	50293	NV	5.5	NA	NV	NA	NV	NA
Decabromodiphenyl ether (DD)	1163195	NV	0.10	NA	NV	NA	NV	NA
Di-n-butyl phthalate (DD)	84742	NV	11,000	NA	NV	26,000	NV	0.5

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Di(2-ethylhexyl) adipate (DD)	103231	NV	780	NA	NV	56,000	NV	0.4
Di-n-octyl phthalate	117840	22 (S) sol	22	NA	NA	NA	16,300 nc	NA
Diacetone alcohol (I,OO)	123422	2.7E+05 nc	1.0E+09	1.0E+09 (S) sol	5.2E+06 nc	3.5E+07	83,300 nc	1.8
Diazinon	333415	NV	40,000	NA	NV	NA	NV	NA
Dibenzo(a,h)anthracene (Q,MM)	53703	NV	2.5	NA	NV	NA	NV	NA
Dibenzofuran	132649	4 (M); 1.3 tdl	3,100	NA	7.2E+06 nc	NA	140 nc	NA
Dibromochloromethane (MM)	124481	5 (M); 3.0E-02 tdl	2.7E+06	NA	100 (M); 0.40 tdl	2.7E+05	14 (MM) mut	NA
Dibromochloropropane (MM)	96128	0.2 (M); 4.6E-04 tdl	1.2E+06	NA	NA	3.3E+05	6.3E-02 (MM) mut	NA
Dibromomethane	74953	5 (M); 0.27 tdl	1.2E+07	NA	250 (M); 3.6 tdl	9.4E+05	140 nc	NA
Dicamba (DD)	1918009	NV	8.3E+06	NA	NV	NA	NV	NA
1,2-Dichlorobenzene	95501	16 nc	1.6E+05	NA	1,500 nc	1.3E+05	10,300 nc	2.2
1,3-Dichlorobenzene	541731	1 (M); 0.15 tdl	1.3E+05	NA	100 (M); 10 tdl	99,000	100 nc	NA
1,4-Dichlorobenzene (KK)	106467	1 (M); 2.6E-03 tdl	81,000	NA	100 (M); 0.19 tdl	NA	1.8 ca	2.5
3,3`-Dichlorobenzidine	91941	NV	3,100	NA	NV	NA	NV	NA
Dichlorodifluoromethane	75718	11 nc	2.8E+05	NA	250 (M); 12 tdl	NA	11,300 nc	NA
1,1-Dichloroethane	75343	20 nc	5.0E+06	3.8E+05	86 nc	6.0E+05	17,300 nc	5.4

TABLE 4. VI TIER 1 GROUNDWATER, SOIL AND VAPOR SCREENING LEVELS
PART 201 GENERIC SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

The Tier 1 vapor intrusion screening levels serve as the basis for the development of Tier 2 generic residential and Tier 3A generic restricted categorical criteria. A person may elect to use the Tier 1 screening levels as the generic residential clean-up criteria. All soil and groundwater values, unless otherwise noted, are expressed in units of parts per billion (ppb). All vapor values, unless otherwise noted, are expressed in micrograms per meter cubed (µg/m^3). One ppb is equivalent to 1 µg per liter (µg/L) for groundwater and 1 µg per kilogram (µg/kg) for soil. For vapor 1 µg/m^3 is not equal to 1 part per billion by volume (ppbv). The lower explosive limit is expressed as % by volume in air. Some screening levels are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by one or more letters in parentheses and is defined in R 299.49(1). The abbreviation beneath the value represents the basis for the criterion. When the health-based value is less than the target detection limit (TDL), the TDL is listed as the criterion (MCL 324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the health-based value.

Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
1,2-Dichloroethane (I,KK)	107062	1 (M); 5.4E-02 tdl	8.6E+06	2.1E+06	50 (M); 0.82 tdl	1.0E+06	33 ca	6.2
1,1-Dichloroethylene (I,KK)	75354	6.9 nc	2.4E+06	97,000	50 (M); 12 tdl	4.8E+05	7,000 nc	6.5
cis-1,2-Dichloroethylene	156592	1 (M); 0.32 tdl	6.4E+06	2.9E+05	50 (M); 2.1 tdl	8.2E+05	280 nc	3.0
trans-1,2-Dichloroethylene	156605	2.9 nc	4.5E+06	2.5E+05	50 (M); 12 tdl	7.9E+05	2,770 nc	6.0
2,6-Dichloro-4-nitroaniline	99309	NV	7,000	NA	NV	NA	NV	NA
2,4-Dichlorophenol (DD)	120832	NV	5.6E+06	NA	NV	NA	NV	NA
2,4-Dichlorophenoxyacetic acid (KK)	94757	NV	6.8E+05	NA	NV	NA	NV	NA
1,2-Dichloropropane (I)	78875	1 (M); 0.19 tdl	2.8E+06	5.4E+05	50 (M); 2.1 tdl	4.6E+05	140 nc	3.4
1,3-Dichloropropene (J)	542756	1 (M); 0.26 tdl	2.8E+06	6.6E+05	100 (M); 3.1 tdl	5.3E+05	210 ca	5.3
Dichlorvos (MM)	62737	NV	8.0E+06	NA	NV	1.1E+06	NV	NA
Dicyclohexyl phthalate	84617	NV	4,000	NA	NV	NA	NV	NA
Dieldrin	60571	0.02 (M); 1.7E-02 tdl	200	NA	770 ca	NA	0.18 ca	NA
Diethyl ether	60297	58 nc	6.0E+07	4.6E+05	340 nc	3.4E+06	33,300 nc	1.9
Diethyl phthalate	84662	NV	1.1E+06	NA	NV	2.6E+05	NV	0.7
Diethylene glycol monobutyl ether	112345	NV	1.0E+09	NA	NV	5.3E+07	NV	0.8
Diisopropyl ether (DD)	108203	36 (DD) dev	8.8E+06	2.2E+05	250 (M); 200 tdl	7.8E+05	23,300 (DD) dev	1.4

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PART 201 GENERIC SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Diisopropylamine (I)	108189	69 nc	1.1E+08	4.6E+06	3,000 nc	1.8E+07	7,000 nc	1.1
Dimethyl phthalate	131113	NV	4.0E+06	NA	NV	3.8E+05	NV	0.9
N,N-Dimethylacetamide (OO)	127195	2.1E+05 nc	1.0E+09	NA	3.7E+06 nc	3.9E+07	3,330 nc	1.8
N,N-Dimethylaniline	121697	5 (M); 1.1 tdl	1.5E+06	NA	NA	2.8E+05	70 ca	NA
Dimethylformamide (I,OO)	68122	2,670 nc	1.0E+09	1.0E+09 (S) sol	NA	3.5E+07	240 nc	2.2
2,4-Dimethylphenol	105679	NV	7.9E+06	NA	NV	NA	NV	1.1
2,6-Dimethylphenol	576261	NV	6.1E+06	NA	NV	NA	NV	NA
3,4-Dimethylphenol	95658	NV	4.8E+06	NA	NV	NA	NV	NA
Dimethylsulfoxide	67685	NV	1.0E+09	NA	NV	3.7E+07	NV	2.6
2,4-Dinitrophenol	51285	NV	2.8E+06	NA	NV	NA	NV	NA
2,4-Dinitrotoluene (KK)	121142	NV	2.0E+05	NA	NV	NA	NV	NA
Dinoseb (DD)	88857	NV	52,000	NA	NV	NA	NV	NA
1,4-Dioxane (I,OO)	123911	29 ca	1.0E+09	1.5E+08	500 (M); 370 tdl	3.8E+07	170 ca	2.0
Diquat	85007	NV	7.1E+08	NA	NV	NA	NV	NA
Diuron	330541	NV	42,000	NA	NV	NA	NV	NA
Endosulfan (J)	115297	NA	330	NA	NA	NA	NA	NA

TABLE 4. VI TIER 1 GROUNDWATER, SOIL AND VAPOR SCREENING LEVELS
PART 201 GENERIC SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

The Tier 1 vapor intrusion screening levels serve as the basis for the development of Tier 2 generic residential and Tier 3A generic restricted categorical criteria. A person may elect to use the Tier 1 screening levels as the generic residential clean-up criteria. All soil and groundwater values, unless otherwise noted, are expressed in units of parts per billion (ppb). All vapor values, unless otherwise noted, are expressed in micrograms per meter cubed (µg/m^3). One ppb is equivalent to 1 µg per liter (µg/L) for groundwater and 1 µg per kilogram (µg/kg) for soil. For vapor 1 µg/m^3 is not equal to 1 part per billion by volume (ppbv). The lower explosive limit is expressed as % by volume in air. Some screening levels are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by one or more letters in parentheses and is defined in R 299.49(1). The abbreviation beneath the value represents the basis for the criterion. When the health-based value is less than the target detection limit (TDL), the TDL is listed as the criterion (MCL 324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the health-based value.

Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Endothall	145733	NV	1.0E+08	NA	NV	NA	NV	NA
Endrin (KK)	72208	NV	250	NA	NV	NA	NV	NA
Epichlorohydrin (I)	106898	5 (M); 0.95 tdl	6.6E+07	4.8E+07	NA	3.5E+06	33 nc	3.8
Ethanol (I,DD,OO)	64175	1.1E+05 nc	1.0E+09	1.2E+08	1.4E+06 nc	3.5E+07	6. 7E+05 nc	3.3
Ethyl acetate (I)	141786	17 nc	8.0E+07	5.3E+06	210 nc	3.5E+06	2,430 nc	2.0
Ethyl-tert-butyl ether (ETBE)	637923	5 (M); 0.36 tdl	1.2E+07	3.1E+05	NA	9.7E+05	210 nc	1.2
Ethylbenzene (I)	100414	1 (M); 0.42 tdl	1.7E+05	43,000	50 (M); 12 tdl	1.6E+05	330 ca	0.8
Ethylene dibromide	106934	0.05 (M); 3.3E-03 tdl	3.9E+06	NA	20 (M); 7.4E-02 tdl	4.5E+05	1.4 ca	NA
Ethylene glycol (DD)	107211	NV	1.0E+09	NA	NV	3.5E+07	NV	3.2
Ethylene glycol monobutyl ether	111762	NV	1.0E+09	NA	NV	3.8E+07	NV	4.0
Ethylenediaminetetraacetic acid (EDTA) (II)	60004	NV	1.0E+06	NA	NV	NA	NV	NA
Fluoranthene	206440	NV	260	NA	NV	NA	NV	NA
Fluorene	86737	50 nc	1,700	NA	4.9E+05 nc	NA	5,000 nc	NA
Fluorine (soluble fluoride) (DD)	7782414	NA	1,700	NA	NA	NA	NA	NA
Formaldehyde (DD,MM,OO)	50000	100 (M); 12 tdl	4.0E+08	NA	2,000 (M); 110 tdl	NA	5.3 (MM) mut	7.0
Formic acid (I,U,OO)	64186	50 (M); 49 tdl	1.0E+09	1.0E+09 (S) sol	20,000 (M); 440 tdl	3.5E+07	10 nc	18

TABLE 4. VI TIER 1 GROUNDWATER, SOIL AND VAPOR SCREENING LEVELS
PART 201 GENERIC SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
1-Formylpiperidine (DD)	2591868	NV	9.6E+07	NA	NV	3.9E+06	NV	NA
Gentian violet	548629	NV	4.0E+06	NA	NV	NA	NV	NA
Glyphosate (DD)	1071836	NV	1.1E+07	NA	NV	NA	NV	NA
Heptachlor (DD,KK)	76448	0.01 (M); 3.1E-03 tdl	180	NA	3,700 ca	NA	0.67 ca	NA
Heptachlor epoxide (KK)	1024573	1.4E-02 ca	200	NA	NA	NA	0.33 ca	NA
n-Heptane	142825	151 nc	3,400	210	130 nc	29,000	1.2E+05 nc	1.1
Hexabromobenzene	87821	NA	0.16	NA	NA	NA	NA	NA
Hexachlorobenzene (C-66) (KK)	118741	0.2 (M); 2.1E-03 tdl	6.2	NA	330 (M); 6.9 tdl	NA	1.2 nc	NA
Hexachlorobutadiene (C-46) (KK)	87683	5.5E-02 ca	3,200	NA	50 (M); 2.6 tdl	5,600	40 ca	NA
alpha-Hexachlorocyclohexane	319846	NV	2,000	NA	NV	NA	NV	NA
beta-Hexachlorocyclohexane	319857	NV	240	NA	NV	NA	NV	NA
Hexachlorocyclopentadiene (C-56)	77474	25 (M); 9.1E-03 tdl	1,800	NA	1,000 (M); 0.33 tdl	5,300	7.0 nc	NA
Hexachloroethane (KK)	67721	5 (M); 0.11 tdl	50,000	NA	300 (M); 3.2 tdl	NA	83 ca	NA
n-Hexane	110543	28 nc	9,500	210	25 nc	70,000	24,300 nc	1.1
2-Hexanone	591786	50 (M); 10 tdl	1.7E+07	4.3E+06	2,500 (M); 210 tdl	1.1E+06	1,030 nc	1.0
Indeno(1,2,3-cd)pyrene (Q,MM)	193395	NV	0.19	NA	NV	NA	NV	NA

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PART 201 GENERIC SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Iron (B)	7439896	NA	NA	NA	NA	NA	NA	NA
Isobutyl alcohol (I,OO)	78831	4,500 nc	8.5E+07	5.2E+07	81,000 nc	3.3E+06	53,300 nc	1.7
Isophorone (DD)	78591	NV	1.2E+07	NA	NV	2.0E+06	NV	0.8
Isopropyl alcohol (I,DD,OO)	67630	705 nc	1.0E+09	5.9E+07	9,900 nc	3.6E+07	7,000 nc	2.0
Isopropyl benzene	98828	5 (M); 0.10 tdl	61,000	38,000	250 (M); 3.8 tdl	90,000	80 ca	0.9
Lead (B,L, DD,KK)	7439921	NA	NA	NA	NA	NA	NA	NA
Lindane (KK)	58899	NA	7,300	NA	NA	NA	NA	NA
Lithium (B,DD)	7439932	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439954	NA	NA	NA	NA	NA	NA	NA
Manganese (B)	7439965	NA	NA	NA	NA	NA	NA	NA
Mercury (Total) (Z,DD,KK)	Varies	5.8E-03 nc	60	NA	2.7E-02 nc	NA	10 nc	NA
Methane (K)	74828	10,000 (AA)	22,000	480	NA	NA	8.4E+6 (GG)	5.0
Methanol (DD,OO)	67561	1.2E+05 (DD) dev	1.0E+09	1.7E+08	1.4E+06 (DD) dev	3.5E+07	6.67E+05 (DD) dev	6.0
Methoxychlor (DD,KK)	72435	NV	100	NA	NV	NA	NV	NA
2-Methoxyethanol (I,DD,OO)	109864	6.0E-02 nc	1.0E+09	1.0E+09 (S) sol	0.95 nc	3.5E+07	2.4E-02 nc	1.8
2-Methyl-4-chlorophenoxyacetic acid	94746	NV	6.3E+05	NA	NV	NA	NV	NA

TABLE 4. VI TIER 1 GROUNDWATER, SOIL AND VAPOR SCREENING LEVELS
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2-Methyl-4,6-dinitrophenol	534521	NV	2.0E+05	NA	NV	NA	NV	NA
N-Methyl-morpholine (I,OO)	109024	NA	1.0E+09	NA	NA	4.7E+07	NA (OO)	NA
Methyl parathion	298000	NV	38,000	NA	NV	NA	NV	NA
4-Methyl-2-pentanone (MIBK) (I,DD)	108101	718 (DD) dev	1.9E+07	3.5E+06	12,000 (DD) dev	1.1E+06	1.0E+05 (DD) dev	1.2
Methyl-tert-butyl ether (MTBE)	1634044	262 nc	5.1E+07	9.6E+05	2,400 nc	3.0E+06	1.0E+05 nc	1.6
N-methylaniline	100618	NV	5.6E+06	NA	NV	1.1E+06	NV	NA
Methylcyclopentane (I)	96377	50 (M); 27 tdl	42,000	930	2,500 (M); 29 tdl	72,000	24,300 nc	1.0
4,4`-Methylene-bis-2- chloroaniline (MBOCA) (MM)	101144	NV	14,000	NA	NV	NA	NV	NA
Methylene chloride (MM)	75092	24 nc	1.3E+07	NA	130 nc	1.2E+06	21,000 nc	13
2-Methylnaphthalene	91576	5 (M); 0.95 tdl	25,000	NA	1,600 nc	NA	330 nc	NA
Methylphenols (JJ,KK)	1319773	NV	2.2E+07	NA	NV	NA	NV	1.1
2-Methylphenol (DD,KK)	95487	NV	2.6E+07	NA	NV	NA	NV	1.4
Metolachlor	51218452	NV	5.3E+05	NA	NV	5.4E+05	NV	NA
Metribuzin	21087649	NV	1.1E+06	NA	NV	NA	NV	NA
Mirex	2385855	NA	85	NA	NA	NA	NA	NA
Molybdenum	7439987	NA	NA	NA	NA	NA	NA	NA

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Naphthalene	91203	5 (M); 7.7E-02 tdl	31,000	NA	330 (M); 68 tdl	NA	25 ca	0.9
Nickel (B)	7440020	NA	NA	NA	NA	NA	NA	NA
Nitrate (N,DD)	14797558	NA	NA	NA	NA	NA	NA	NA
Nitrite (N,DD)	14797650	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene (I,KK)	98953	3 (M); 0.76 tdl	2.1E+06	NA	330 (M); 170 tdl	1.0E+06	21 ca	1.8
2-Nitrophenol	88755	5 (M); 0.12 tdl	2.5E+06	NA	NA	NA	1.7 nc	NA
n-Nitroso-di-n-propylamine	621647	NV	1.3E+07	NA	NV	7.6E+06	NV	NA
N-Nitrosodiphenylamine	86306	NV	35,000	NA	NV	NA	NV	NA
Oxamyl	23135220	NV	2.8E+08	NA	NV	NA	NV	NA
Oxo-hexyl acetate (OO)	88230357	NA	NA	NA	NA	NA	NA	NA
Pendimethalin (DD)	40487421	NV	330	NA	NV	NA	NV	NA
Pentachlorobenzene	608935	5 (M); 8.3E-03 tdl	830	NA	NA	NA	3.3 nc	NA
Pentachloronitrobenzene	82688	20 (M); 8.1 tdl	440	NA	NA	NA	370 nc	NA
Pentachlorophenol (KK)	87865	NV	14,000	NA	NV	NA	NV	NA
Pentane	109660	100 (M); 37 tdl	38,000	320	5,000 (M); 34 tdl	1.9E+05	33,300 nc	1.4
2-Pentene (I)	109682	NA	2.0E+05	NA	NA	2.3E+05	NA	NA

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Perchlorate (DD)	14797730	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid	335671	NA	9.5E+06	NA	NA	NA	NA	NA
Perfluorooctane sulfonic acid (DD)	1763231	NA	3.1	NA	NA	NA	NA	NA
Phenanthrene	85018	2 (M); 7.4E-02 tdl	1,200	NA	NA	NA	3.3 nc	NA
Phenol (DD)	108952	NV	8.3E+07	NA	NV	NA	NV	1.8
Phenytoin (DD)	57410	NV	32,000	NA	NV	NA	NV	NA
Phosphorus, White (R,DD)	7723140	NA	3,300	NA	NA	NA	7 nc	NA
o-Phthalic acid	88993	NV	7.0E+06	NA	NV	NA	NV	NA
Phthalic anhydride	85449	NV	6.2E+06	NA	NV	NA	NV	1.7
Picloram	1918021	NV	4.3E+05	NA	NV	NA	NV	NA
Piperidine (OO)	110894	45,100 nc	1.0E+09	NA	NA	1.4E+08	2.4E+05 nc	NA
Polybrominated biphenyls (J,DD)	67774327	NA	11	NA	NA	NA	NA	NA
Polychlorinated biphenyls (PCBs) (J,T,DD)	1336363	0.2 (M); 3.1E-02 tdl	700	NA	NA	NA	8.3 ca	NA
Polychlorinated biphenyls (PCBs) congeners (O)	varies	(O)	(O)	(O)	(O)	(O)	(O)	NA
Prometon	1610180	NV	7.5E+05	NA	NV	NA	NV	NA
Propachlor	1918167	NV	5.8E+05	NA	NV	NA	NV	NA

TABLE 4. VI TIER 1 GROUNDWATER, SOIL AND VAPOR SCREENING LEVELS
PART 201 GENERIC SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Propazine	139402	NV	8,600	NA	NV	NA	NV	NA
Propionic acid (OO)	79094	18,800 nc	1.0E+09	1.0E+09 (S) sol	2.2E+05 nc	3.5E+07	10,300 nc	2.9
Propyl alcohol (I,DD,OO)	71238	2,680 (DD) dev	1.0E+09	7.1E+07	41,000 (DD) dev	3.6E+07	24,300 (DD) dev	2.2
n-Propylbenzene (I,DD,OO)	103651	43 (DD) dev	52,000	37,000	1,800 (DD) dev	89,000	33,300 (DD) dev	0.8
Propylene glycol	57556	NV	1.0E+09	NA	NV	3.5E+07	NV	2.6
Pyrene	129000	140 (S) sol	140	NA	2.4E+07 nc	NA	3,330 nc	NA
Pyridine (I,KK)	110861	20 (M); 9.2 tdl	1.0E+09	5.2E+07	550 nc	1.8E+08	120 nc	1.8
Selenium (B,KK)	7782492	NA	NA	NA	NA	NA	NA	NA
Silver (KK)	7440224	NA	NA	NA	NA	NA	NA	NA
Silvex (2,4,5-TP) (KK)	93721	NV	71,000	NA	NV	NA	NV	NA
Simazine	122349	NV	6,200	NA	NV	NA	NV	NA
Sodium	17341252	NA	NA	NA	NA	NA	NA	NA
Sodium azide	26628228	NA	NA	NA	NA	NA	NA	NA
Sodium bromide	7647156	NA	9.5E+08	NA	NA	NA	NA	NA
Strontium (B,DD)	7440246	NA	NA	NA	NA	NA	NA	NA
Styrene	100425	2.1 ca	3.1E+05	1.4E+05	160 ca	2.9E+05	1,500 ca	0.9

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Sulfate	14808798	NA	NA	NA	NA	NA	NA	NA
Tebuthiuron (DD)	34014181	NV	2.5E+06	NA	NV	NA	NV	NA
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NV	1.0E-02	NA	NV	NA	NV	NA
1,2,4,5-Tetrachlorobenzene (DD)	95943	2 (M); 6.7E-02 tdl	600	NA	330 (M); 68 tdl	NA	33 nc	NA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O,DD)	1746016	1E-05 (M,O); 3.8E-07 tdl	0.20	NA	NA	NA	1.9E-05 ca	NA
1,1,1,2-Tetrachloroethane	630206	1 (M); 0.16 tdl	1.1E+06	NA	100 (M); 3.2 tdl	2.3E+05	110 ca	NA
1,1,2,2-Tetrachloroethane	79345	1 (M); 5.0E-02 tdl	2.8E+06	NA	50 (M); 2.8 tdl	6.3E+05	15 ca	NA
Tetrachloroethylene (KK)	127184	1.6 nc	2.1E+05	NA	50 (M); 6.4 tdl	60,000	1,400 nc	NA
Tetrahydrofuran (DD)	109999	875 nc	1.0E+09	8.2E+06	13,000 nc	5.4E+07	70,000 nc	2.0
1,1,3,3-Tetramethylurea (OO)	632224	2,730 nc	1.0E+09	NA	NA	4.0E+07	28 nc	NA
Tetranitromethane	509148	100 (M); 2.8E-04 tdl	9.0E+05	NA	NA	8.0E+05	5.7E-02 ca	NA
Thallium	7440280	NA	NA	NA	NA	NA	NA	NA
Toluene (I)	108883	209 nc	5.3E+05	61,000	3,700 nc	2.8E+05	1.7E+05 nc	1.1
p-Toluidine	106490	NV	6.5E+06	NA	NV	NA	NV	1.1
Toxaphene (KK)	8001352	NV	550	NA	NV	NA	NV	NA
Triallate (DD)	2303175	535 (DD) dev	4,000	NA	NA	NA	6,670 (DD) dev	NA

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
Tributylamine	102829	1.8 nc	1.4E+05	NA	3,400 nc	5.3E+05	240 nc	1.4
1,2,3-Trichlorobenzene	87616	5 (M); 1.7 tdl	18,000	NA	840 nc	NA	930 nc	NA
1,2,4-Trichlorobenzene	120821	5 (M); 0.12 tdl	49,000	NA	250 (M); 53 tdl	1.3E+05	70 nc	2.5
1,1,1-Trichloroethane	71556	190 nc	1.3E+06	NA	470 nc	2.4E+05	1.7E+05 nc	8.0
1,1,2-Trichloroethane	79005	1 (M); 1.4E-05 tdl	4.6E+06	3.9E+06	50 (M); 3.8E-04 tdl	7.2E+05	7.0E-03 nc	6.0
Trichloroethylene (DD,KK,MM,NN)	79016	1 (M); 7.3E-02 tdl	1.3E+06	NA	50 (M); 0.33 tdl	2.5E+05	67 (DD) dev	8.0
Trichlorofluoromethane	75694	14 nc	1.1E+06	NA	100 (M); 18 tdl	5.5E+05	14,000 nc	NA
2,4,5-Trichlorophenol (KK)	95954	NV	1.2E+06	NA	NV	NA	NV	NA
2,4,6-Trichlorophenol (DD,KK)	88062	NV	8.0E+05	NA	NV	NA	NV	NA
1,2,3-Trichloropropane (MM)	96184	1 (M); 3.7E-02 tdl	1.8E+06	NA	100 (M); 2.6 tdl	4.6E+05	10 nc	3.2
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	755 nc	1.7E+05	NA	870 nc	2.8E+05	6. 7E+05 nc	NA
Triethanolamine	102716	NV	1.0E+09	NA	NV	5.3E+07	NV	1.0
Triethylene glycol (DD)	112276	NV	1.0E+09	NA	NV	5.3E+07	NV	0.9
3-Trifluoromethyl-4-nitrophenol (DD)	88302	NV	5.0E+06	NA	NV	NA	NV	NA
Trifluralin	1582098	180 (S) sol	180	NA	NA	NA	1.0E+05 nc	NA
2,2,4-Trimethyl pentane	540841	159 nc	2,400	170	2,500 (M); 130 tdl	30,000	1.2E+05 nc	1.1

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Hazardous Substance	Chemical Abstract Service Number	Groundwater Values	Water Solubility	Flammability and Explosivity Screening Level	Soil Values	Soil Saturation Concentration Screening Levels	Vapor Values	Lower Explosive Level (PP)
2,4,4-Trimethyl-2-pentene (I)	107404	NA	13,000	NA	NA	52,000	NA	NA
1,2,3-Trimethylbenzene (I)	526738	5 (M); 0.24 tdl	75,000	75,000 (S) sol	250 (M); 23 tdl	98,000	170 nc	0.8
1,2,4-Trimethylbenzene (I)	95636	1 (M); 0.32 tdl	57,000	57,000 (S) sol	100 (M); 17 tdl	73,000	240 nc	0.9
1,3,5-Trimethylbenzene (I)	108678	2.2 nc	48,000	48,000 (S) sol	100 (M); 85 tdl	61,000	1,730 nc	1.0
Triphenyl phosphate	115866	NV	1,900	NA	NV	NA	NV	NA
tris(2,3-Dibromopropyl)phosphate	126727	10 (M); 7.4E-02 tdl	8,000	NA	NA	1.6E+05	1.6 ca	NA
Urea	57136	NA	5.5E+08	NA	NA	NA	NA	NA
Vanadium (B)	7440622	NA	NA	NA	NA	NA	NA	NA
Vinyl acetate (I,DD)	108054	100 (M); 18 tdl	2.0E+07	1.8E+06	5,000 (M); 160 tdl	9.1E+05	7,000 nc	2.6
Vinyl chloride (KK,LL,MM)	75014	1 (M); 7.5E-02 tdl	8.8E+06	32,000	40 (M); 0.12 tdl	NA	80 mut	3.6
Xylenes (I,J)	1330207	9.6 nc	1.1E+05	58,000	280 nc	87,000	7,670 nc	0.9
Zinc (B)	7440666	NA	NA	NA	NA	NA	NA	NA

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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-	-	-	Groundwater Protection		Indoor Air	Ambient Air (Y) (C)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Acenaphthene	83329	NA	3.0E+5	8,700	1.9E+8	8.1E+7	8.1E+7	8.1E+7	1.4E+10	4.1E+7	NA
Acenaphthylene	208968	NA	5,900	ID	1.6E+6	2.2E+6	2.2E+6	2.2E+6	2.3E+9	1.6E+6	NA
Acetaldehyde (I)	75070	NA	19,000	2,600	2.2E+5	1.7E+5	1.7E+5	2.8E+5	6.0E+8	2.9E+7	1.1E+8
Acetate	71501	NA	ID	(G)	ID	ID	ID	ID	ID	ID	ID
Acetic acid	64197	NA	84,000	(G)	NLV	NLV	NLV	NLV	1.7E+10	1.3E+8	6.5E+8
Acetone (I)	67641	NA	15,000	34,000	2.9E+8 (C)	1.3E+8	1.3E+8	1.9E+8	3.9E+11	2.3E+7	1.1E+8
Acetonitrile	75058	NA	2,800	NA	4.8E+6	1.6E+6	1.6E+6	2.1E+6	4.0E+9	4.3E+6	2.2E+7
Acetophenone	98862	NA	30,000	ID	1.2E+8 (C)	4.4E+7	4.4E+7	4.4E+7	3.3E+10	4.7E+7 (C)	1.1E+6
Acrolein (I)	107028	NA	2,400	NA	410	310	310	610	1.3E+6	3.6E+6	2.3E+7
Acrylamide	79061	NA	10	200 (X)	NLV	NLV	NLV	NLV	2.4E+6	1,900	NA
Acrylic acid	79107	NA	78,000	NA	2.4E+6	1.9E+5	2.3E+5	2.3E+5	6.7E+7	3.5E+7 (DD)	1.1E+8
Acrylonitril	10713	NA	100 (M);	100 (M);	6,600	5,000	5,100	10,000	4.6E+7	16,000	8.3E+6

e (I)	1		52	40							
Alachlor	15972608	NA	52	290 (X)	NLV	NLV	NLV	NLV	ID	93,000	NA
Aldicarb	116063	NA	60	NA	NLV	NLV	NLV	NLV	ID	2.3E+5	NA
Aldicarb sulfone	1646884	NA	200 (M); 40	NA	NLV	NLV	NLV	NLV	ID	2.5E+5	NA
Aldicarb sulfoxide	1646873	NA	200(M); 80	NA	NLV	NLV	NLV	NLV	ID	2.9E+5	NA
Aldrin	309002	NA	NLL	NLL	1.3E+6	58,000	58,000	58,000	6.4E+5	1,000	NA
Aluminum (B)	7429905	6.9E+6	1,000	NA	NLV	NLV	NLV	NLV	ID	5.0E+7 (DD)	NA
Ammonia	7664417	NA	ID	(CC)	ID	ID	ID	ID	6.7E+9	ID	1.0E+7
t-Amyl methyl ether (TAME)	994058	NA	3,900	NA	58,000	3.4E+5	7.6E+5	1.8E+6	4.1E+9	2.9E+7 (C)	4.4E+5
Aniline	62533	NA	1,100	330 (M); 80	NLV	NLV	NLV	NLV	6.7E+7	3.3E+5	4.5E+6
Anthracene	120127	NA	41,000	ID	1.0E+9 (D)	1.4E+9	1.4E+9	1.4E+9	6.7E+10	2.3E+8	NA
Antimony	7440360	NA	4,300	94,000 (X)	NLV	NLV	NLV	NLV	1.3E+7	1.8E+5	NA
Arsenic	7440382	5,800	4,600	4,600	NLV	NLV	NLV	NLV	7.2E+5	7,600	NA
Asbestos (BB)	1332214	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.0E+7 (M); 68,000	ID	NA
Atrazine	1912249	NA	60	150	NLV	NLV	NLV	NLV	ID	71,000 (DD)	NA
Azobenzene	103333	NA	4,200	ID	6.1E+6	6.3E+5	6.3E+5	6.3E+5	1.0E+8	1.4E+5	NA

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PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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-	-	-	Groundwater Protection		Indoor Air	Ambient Air (Y) (C)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Barium (B)	7440393	75,000	1.3E+6	(G)	NLV	NLV	NLV	NLV	3.3E+8	3.7E+7	NA
Benzene (I)	71432	NA	100	4,000 (X)	1,600	13,000	34,000	79,000	3.8E+8	1.8E+5	4.0E+5
Benzidine	92875	NA	1,000 (M); 6.0	1,000 (M); 6.0	NLV	NLV	NLV	NLV	46,000	1,000 (M); 23	NA
Benzo(a)anthracene (Q)	56553	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA
Benzo(b)fluoranthene (Q)	205992	NA	NLL	NLL	ID	ID	ID	ID	ID	20,000	NA
Benzo(k)fluoranthene (Q)	207089	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	2.0E+5	NA
Benzo(g,h,i)perylene	191242	NA	NLL	NLL	NLV	NLV	NLV	NLV	8.0E+8	2.5E+6	NA
Benzo(a)pyrene (Q)	50328	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.5E+6	2,000	NA
Benzoic acid	65850	NA	6.4E+5	NA	NLV	NLV	NLV	NLV	ID	9.9E+8	NA
Benzyl alcohol	100516	NA	2.0E+5	NA	NLV	NLV	NLV	NLV	3.3E+11	3.2E+8 (C)	5.8E+6

Benzyl chloride	100447	NA	150	NA	6,300	14,000	14,000	17,000	6.2E+7	48,000	2.3E+5
Beryllium	7440417	NA	51,000	(G)	NLV	NLV	NLV	NLV	1.3E+6	4.1E+5	NA
bis(2-Chloroethoxy)ethane	112265	NA	ID	ID	NLV	NLV	NLV	NLV	ID	ID	2.7E+6
bis(2-Chloroethyl)ether (I)	111444	NA	100	100 (M); 20	8,300	3,800	3,800	3,800	9.4E+6	13,000	2.2E+6
bis(2-Ethylhexyl)phthalate	117817	NA	NLL	NLL	NLV	NLV	NLV	NLV	7.0E+8	2.8E+6	1.0E+7
Boron (B)	7440428	NA	10,000	1.4E+5 (X)	NLV	NLV	NLV	NLV	ID	4.8E+7 (DD)	NA
Bromate	15541454	NA	200	800 (X)	NLV	NLV	NLV	NLV	ID	17,000	NA
Bromobenzene (I)	108861	NA	550	NA	3.1E+5	4.5E+5	4.5E+5	4.5E+5	5.3E+8	5.4E+5	7.6E+5
Bromodichloromethane	75274	NA	1,600 (W)	ID	1,200	9,100	9,700	19,000	8.4E+7	1.1E+5	1.5E+6
Bromoform	75252	NA	1,600 (W)	ID	1.5E+5	9.0E+5	9.0E+5	9.0E+5	2.8E+9	8.2E+5	8.7E+5
Bromomethane	74839	NA	200	700	860	11,000	57,000	1.4E+5	3.3E+8	3.2E+5	2.2E+6
n-Butanol (I)	71363	NA	19,000	2.0E+5	NLV	NLV	NLV	NLV	2.3E+10	2.9E+7 (C)	8.7E+6
2-Butanone (MEK) (I)	78933	NA	2.6E+5	44,000	5.4E+7 (C)	2.9E+7	2.9E+7	3.5E+7	6.7E+10	1.2E+8 (C, DD)	2.7E+7
n-Butyl acetate	123864	NA	11,000	NA	5.6E+7 (C)	1.1E+8	2.6E+8	3.2E+8	4.7E+11	1.7E+7 (C)	1.1E+6
t-Butyl alcohol	75650	NA	78,000	NA	3.1E+8 (C)	9.7E+7	2.0E+8	2.0E+8	1.3E+11	1.2E+8 (C)	1.1E+8
Butyl benzyl phthalate	85687	NA	2.2E+6 (C)	1.2E+5 (X)	NLV	NLV	NLV	NLV	4.7E+10	3.6E+7 (C)	3.1E+5
n-Butylbenzene	104518	NA	1,600	ID	ID	ID	ID	ID	2.0E+9	2.5E+6	1.0E+7

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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sec-Butylbenzene	135988	NA	1,600	ID	ID	ID	ID	ID	4.0E+8	2.5E+6	1.0E+7
t-Butylbenzene (I)	98066	NA	1,600	ID	ID	ID	ID	ID	6.7E+8	2.5E+6	1.0E+7
Cadmium (B)	7440439	1,200	6,000	(G,X)	NLV	NLV	NLV	NLV	1.7E+6	5.5E+5	NA
Camphene (I)	79925	NA	ID	NA	3,700	1.5E+5	9.1E+5	2.2E+6	5.3E+9	ID	NA
Caprolactam	105602	NA	1.2E+5	NA	NLV	NLV	NLV	NLV	6.7E+8	5.3E+7 (DD)	NA
Carbaryl	63252	NA	14,000	NA	ID	ID	ID	ID	ID	2.2E+7	NA
Carbazole	86748	NA	9,400	1,100	NLV	NLV	NLV	NLV	6.2E+7	5.3E+5	NA
Carbofuran	1563662	NA	800	NA	NLV	NLV	NLV	NLV	ID	1.1E+6	NA
Carbon disulfide (I,R)	75150	NA	16,000	ID	76,000	1.3E+6	7.9E+6	1.9E+7	4.7E+10	7.2E+6 (C, DD)	2.8E+5
Carbon tetrachloride	56235	NA	100	900 (X)	190	3,500	12,000	28,000	1.3E+8	96,000	3.9E+5
Chlordane (J)	57749	NA	NLL	NLL	1.1E+7	1.2E+6	1.2E+6	1.2E+6	3.1E+7	31,000	NA
Chloride	168870	NA	5.0E+6	(X)	NLV	NLV	NLV	NLV	ID	5.0E+5	NA

	06									(F)	
Chlorobenzene (I)	108907	NA	2,000	500	1.2E+5	7.7E+5	9.9E+5	2.1E+6	4.7E+9	4.3E+6 (C)	2.6E+5
p-Chlorobenzene sulfonic acid	98668	NA	1.5E+5	ID	ID	ID	ID	ID	ID	2.3E+8	ID
1-Chloro-1,1-difluoroethane	75683	NA	3.0E+5	NA	2.9E+6 (C)	7.9E+7	5.6E+8	1.4E+9	3.3E+12	4.7E+8 (C)	9.6E+5
Chloroethane	75003	NA	8,600	22,000 (X)	2.9E+6 (C)	3.00E+07	1.2E+8	2.8E+8	6.7E+11	2.6E+6 (C)	9.5E+5
2-Chloroethyl vinyl ether	110758	NA	ID	NA	ID	ID	ID	ID	ID	ID	1.9E+6
Chloroform	67663	NA	1,600 (W)	7,000	7,200	45,000	1.2E+5	2.7E+5	1.3E+9	1.2E+6	1.5E+6
Chloromethane (I)	74873	NA	5,200	ID	2,300	40,000	4.1E+5	1.0E+6	4.9E+9	1.6E+6 (C)	1.1E+6
4-Chloro-3-methylphenol	59507	NA	5,800	280	NLV	NLV	NLV	NLV	ID	4.5E+6	NA
beta-Chloronaphthalene	91587	NA	6.2E+5	NA	ID	ID	ID	ID	ID	5.6E+7	NA
2-Chlorophenol	95578	NA	900	360	4.3E+5	9.6E+5	9.6E+5	9.6E+5	1.2E+9	1.4E+6	1.9E+7
o-Chlorotoluene (I)	95498	NA	3,300	ID	2.7E+5	1.2E+6	2.9E+6	6.3E+6	4.7E+9	4.5E+6 (C)	5.0E+5
Chlorpyrifos	2921882	NA	17,000	1,500	130	4,600	23,000	55,000	1.3E+8	1.1E+7	NA
Chromium (III) (B,H)	16065831	18,000 (total)	1.0E+9 (D)	(G,X)	NLV	NLV	NLV	NLV	3.3E+8	7.9E+8	NA
Chromium (VI)	18540299	NA	30,000	3,300	NLV	NLV	NLV	NLV	2.6E+5	2.5E+6	NA
Chrysene (Q)	218019	NA	NLL	NLL	ID	ID	ID	ID	ID	2.0E+6	NA

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Cobalt	7440484	6,800	800	2,000	NLV	NLV	NLV	NLV	1.3E+7	2.6E+6	NA
Copper (B)	7440508	32,000	5.8E+6	(G)	NLV	NLV	NLV	NLV	1.3E+8	2.0E+7	NA
Cyanazine	21725462	NA	200	1,100 (X)	NLV	NLV	NLV	NLV	ID	14,000	NA
Cyanide (P,R)	57125	390 (total)	4,000	100	NLV	NLV	NLV	NLV	2.5E+5	12,000	NA
Cyclohexanone	108941	NA	5.2E+6	NA	17,000	1.0E+6	1.1E+7	2.7E+7	6.7E+10	1.0E+9 (C,D)	2.2E+8
Dacthal	1861321	NA	50,000	NA	NLV	NLV	NLV	NLV	ID	2.3E+6	NA
Dalapon	75990	NA	4,000	NA	NLV	NLV	NLV	NLV	ID	1.9E+7	5.9E+7
4-4'-DDD	72548	NA	NLL	NLL	NLV	NLV	NLV	NLV	4.4E+7	95,000	NA
4-4'-DDE	72559	NA	NLL	NLL	NLV	NLV	NLV	NLV	3.2E+7	45,000	NA
4-4'-DDT	50293	NA	NLL	NLL	NLV	NLV	NLV	NLV	3.2E+7	57,000	NA
Decabromodiphenyl ether	1163195	NA	1.4E+5	NA	1.0E+9 (D)	8.6E+7	8.6E+7	8.6E+7	2.3E+9	3.8E+6	NA
Di-n-butyl phthalate	84742	NA	9.6E+5	11,000	NLV	NLV	NLV	NLV	3.3E+9	2.7E+7	7.6E+5

			(C)							(C)	
Di(2-ethylhexyl) adipate	103231	NA	1.3E+7 (C)	ID	NLV	NLV	NLV	NLV	9.2E+9	1.5E+7 (C, DD)	9.6E+5
Di-n-octyl phthalate	117840	NA	1.0E+8	ID	NLV	NLV	NLV	NLV	3.1E+10	6.9E+6	1.4E+8
Diacetone alcohol (I)	123422	NA	ID	NA	NLV	NLV	NLV	NLV	1.6E+11	ID	1.1E+8
Diazinon	333415	NA	95	72	NLV	NLV	NLV	NLV	ID	12,000 (DD)	3.1E+5
Dibenzo(a,h)anthracene (Q)	53703	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	2,000	NA
Dibenzofuran	132649	NA	ID	1,700	2.0E+6	1.3E+5	1.3E+5	1.3E+5	6.7E+6	ID	NA
Dibromochloromethane	124481	NA	1,600 (W)	ID	3,900	24,000	24,000	33,000	1.3E+8	1.1E+5	6.1E+5
Dibromochloropropane	96128	NA	10 (M); 4.0	ID	220	260	260	260	5.6E+5	4,400 (C)	1,200
Dibromomethane	74953	NA	1,600	NA	ID	ID	ID	ID	ID	2.5E+6 (C)	2.0E+6
Dicamba	1918009	NA	4,400	NA	NA	NLV	NLV	NLV	ID	3.4E+6	NA
1,2-Dichlorobenzene	95501	NA	14,000	280	1.1E+7 (C)	3.9E+7	3.9E+7	5.2E+7	1.0E+11	1.9E+7 (C)	2.1E+5
1,3-Dichlorobenzene	541731	NA	170	680	26,000	79,000	79,000	1.1E+5	2.0E+8	2.0E+5 (C)	1.7E+5
1,4-Dichlorobenzene	106467	NA	1,700	360	19,000	77,000	77,000	1.1E+5	4.5E+8	4.0E+5	NA
3,3'-Dichlorobenzidine	91941	NA	2,000 (M); 28	2,000 (M); 7.4	NLV	NLV	NLV	NLV	6.5E+6	6,600	NA
Dichlorodifluoromethane	75718	NA	95,000	ID	9.0E+5	5.3E+7	5.5E+8	1.4E+9	3.3E+12	5.2E+7 (C)	1.0E+6

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1,1-Dichloroethane	75343	NA	18,000	15,000	2.3E+5	2.1E+6	5.9E+6	1.4E+7	3.3E+10	2.7E+7 (C)	8.9E+5
1,2-Dichloroethane (I)	107062	NA	100	7,200 (X)	2,100	6,200	11,000	26,000	1.2E+8	91,000	1.2E+6
1,1-Dichloroethylene (I)	75354	NA	140	2,600	62	1,100	5,300	13,000	6.2E+7	2.0E+5	5.7E+5
cis-1,2-Dichloroethylene	156592	NA	1,400	12,000	22,000	1.8E+5	4.2E+5	9.9E+5	2.3E+9	2.5E+6 (C)	6.4E+5
trans-1,2-Dichloroethylene	156605	NA	2,000	30,000 (X)	23,000	2.8E+5	8.3E+5	2.0E+6	4.7E+9	3.8E+6 (C)	1.4E+6
2,6-Dichloro-4-nitroaniline	99309	NA	44,000	NA	NLV	NLV	NLV	NLV	ID	6.8E+7	NA
2,4-Dichlorophenol	120832	NA	1,500	330 (M); 220	NLV	NLV	NLV	NLV	5.1E+9	6.6E+5 (DD)	1.8E+6

2,4-Dichlorophenoxy acetic acid	94757	NA	1,400	4,400	NLV	NLV	NLV	NLV	6.7E+9	2.5E+6	NA
1,2-Dichloropropane (I)	78875	NA	100	4,600 (X)	4,000	25,000	50,000	1.1E+5	2.7E+8	1.4E+5	5.5E+5
1,3-Dichloropropene	542756	NA	170	180 (X)	1,000	18,000	68,000	1.6E+5	7.8E+8	10,000	6.2E+5
Dichlorovos	62737	NA	50 (M); 32	NA	NLV	NLV	NLV	NLV	3.3E+7	10,000	2.2E+6
Dicyclohexyl phthalate	84617	NA	ID	NA	ID	ID	ID	ID	ID	ID	NA
Dieldrin	60571	NA	NLL	NLL	1.4E+5	19,000	19,000	19,000	6.8E+5	1,100	NA
Diethyl ether	60297	NA	200	ID	2.8E+7 (C)	8.5E+7	1.5E+8	3.4E+8	8.0E+11	1.1E+8 (C)	7.4E+6
Diethyl phthalate	84662	NA	1.1E+5	2,200	NLV	NLV	NLV	NLV	3.3E+9	1.7E+8 (C)	7.4E+5
Diethylene glycol monobutyl ether	112345	NA	1,800	NA	NLV	NLV	NLV	NLV	1.3E+9	2.7E+6	1.1E+8
Diisopropyl ether	108203	NA	600	ID	6.7E+5 (C)	3.4E+5	7.6E+5	1.8E+6	4.1E+9	9.2E+5 (C)	1,300
Diisopropylamine (I)	108189	NA	110	NA	5.5E+6	6.2E+6	6.2E+6	7.3E+6	1.3E+10	1.7E+5	6.7E+6
Dimethyl phthalate	131113	NA	1.5E+6 (C)	NA	NLV	NLV	NLV	NLV	3.3E+9	1.0E+9 (C,D)	7.9E+5
N,N-Dimethylacetamide	127195	NA	3,600	82,000 (X)	NLV	NLV	NLV	NLV	ID	5.6E+6	1.1E+8
N,N-Dimethylaniline	121697	NA	320	NA	1.7E+5	1.5E+5	1.5E+5	1.5E+5	2.6E+8	5.0E+5	8.0E+5
Dimethylformamide (I)	68122	NA	14,000	NA	NLV	NLV	NLV	NLV	2.0E+9	2.2E+7	1.1E+8
2,4-Dimethylphenol	105679	NA	7,400	7,600	NLV	NLV	NLV	NLV	4.7E+9	1.1E+7	NA

~~2,6-Dimethylphenol~~	~~576261~~	~~NA~~	~~330 (M); 88~~	~~NA~~	~~NLV~~	~~NLV~~	~~NLV~~	~~NLV~~	~~1.3E+8~~	~~1.4E+5~~	~~NA~~
~~3,4-Dimethylphenol~~	~~95658~~	~~NA~~	~~330 (M); 200~~	~~500~~	~~NLV~~	~~NLV~~	~~NLV~~	~~NLV~~	~~2.3E+8~~	~~3.2E+5~~	~~NA~~
~~Dimethylsulfoxide~~	~~67685~~	~~NA~~	~~4.4E+6~~	~~3.8E+6~~	~~NLV~~	~~NLV~~	~~NLV~~	~~NLV~~	~~1.3E+9~~	~~1.0E+9 (C,D)~~	~~1.8E+7~~
~~2,4-Dinitrotoluene~~	~~121142~~	~~NA~~	~~430~~	~~NA~~	~~NLV~~	~~NLV~~	~~NLV~~	~~NLV~~	~~1.6E+7~~	~~48,000~~	~~NA~~

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Dinoseb	88857	NA	300	200 (M); 43	NLV	NLV	NLV	NLV	2.7E+8	66,000 (DD)	1.4E+5
1,4-Dioxane (I)	123911	NA	1,700	56,000 (X)	NLV	NLV	NLV	NLV	5.7E+8	5.3E+5	9.7E+7
Diquat	85007	NA	400	400	NLV	NLV	NLV	NLV	ID	5.0E+5	NA
Diuron	330541	NA	620	NA	NLV	NLV	NLV	NLV	4.7E+8	9.7E+5	NA
Endosulfan (J)	115297	NA	NLL	NLL	ID	ID	ID	ID	ID	1.4E+6	NA
Endothall	145733	NA	NLL	NLL	NLV	NLV	NLV	NLV	2.3E+9	3.8E+6	NA
Endrin	72208	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	65,000	NA
Epichlorohydrin (I)	106898	NA	100	NA	64,000	31,000	31,000	35,000	6.7E+7	8,900	7.3E+6
Ethanol (I)	64175	NA	3.8E+7	ID	NLV	NLV	NLV	NLV	1.3E+12	1.0E+9 (C,D,DD)	1.1E+8
Ethyl acetate (I)	141786	NA	1.3E+5	NA	3.8E+7 (C)	4.9E+7	4.9E+7	9.8E+7	2.1E+11	2.0E+8 (C)	7.5E+6
Ethyl-tert-butyl ether (ETBE)	637923	NA	980	ID	5.4E+5	1.9E+6	4.5E+6	1.1E+7	2.5E+10	ID	6.5E+5
Ethylbenzene	100414	NA	1,500	360	87,000	7.2E+5	1.0E+6	2.2E+6	1.0E+10	2.2E+7	1.4E+5

(I)										(C)	
Ethylene dibromide	106934	NA	20 (M); 1.0	110 (X)	670	1,700	1,700	3,300	1.4E+7	92	8.9E+5
Ethylene glycol	107211	NA	3.0E+5	3.8E+6 (X)	NLV	NLV	NLV	NLV	6.7E+10	4.5E+8 (C)	1.1E+8
Ethylene glycol monobutyl ether	111762	NA	74,000	NA	7.4E+5	1.8E+7	1.5E+8	3.6E+8	8.7E+11	1.1E+8 (C)	4.1E+7
Fluoranthene	206440	NA	7.3E+5	5,500	1.0E+9 (D)	7.4E+8	7.4E+8	7.4E+8	9.3E+9	4.6E+7	NA
Fluorene	86737	NA	3.9E+5	5,300	5.8E+8	1.3E+8	1.3E+8	1.3E+8	9.3E+9	2.7E+7	NA
Fluorine (soluble fluoride) (B)	7782414	NA	40,000	ID	NLV	NLV	NLV	NLV	ID	9.0E+6 (DD)	NA
Formaldehyde	50000	NA	26,000	2,400	12,000	13,000	23,000	52,000	2.4E+8	4.1E+7	6.0E+7
Formic acid (I,U)	64186	NA	2.0E+5	ID	1.5E+6	2.1E+5	1.4E+5	1.4E+5	1.3E+8	3.2E+8 (C)	1.1E+8
1-Formylpiperidine	2591868	NA	1,600	NA	ID	ID	ID	ID	ID	2.5E+6	1.0E+7
Gentian violet	548629	NA	300	NA	NLV	NLV	NLV	NLV	ID	96,000	NA
Glyphosate	1071836	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	1.1E+7 (DD)	NA
Heptachlor	76448	NA	NLL	NLL	3.5E+5	62,000	62,000	62,000	2.4E+6	5,600	NA
Heptachlor epoxide	1024573	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.2E+6	3,100	NA
n-Heptane	142825	NA	4.6E+7 (C)	NA	1.5E+6 (C)	2.1E+7	4.4E+7	1.0E+8	2.3E+11	9.9E+8 (C)	2.4E+5
Hexabromobenzene	87821	NA	5,400	ID	ID	ID	ID	ID	ID	1.1E+6	NA

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Hexachlorobenzene (C-66)	118741	NA	1,800	350	41,000	17,000	17,000	17,000	6.8E+6	8,900	NA
Hexachlorobutadiene (C-46)	87683	NA	26,000	91	1.3E+5	1.3E+5	1.3E+5	1.3E+5	1.4E+8	1.0E+5	3.5E+5
alpha-Hexachlorocyclohexane	319846	NA	18	ID	30,000	12,000	22,000	25,000	1.7E+6	2,600	NA
beta-Hexachlorocyclohexane	319857	NA	37	ID	NLV	NLV	NLV	NLV	5.9E+6	5,400	NA
Hexachlorocyclopentadiene (C-56)	77474	NA	3.2E+5	ID	30,000	50,000	50,000	50,000	1.3E+7	2.3E+6 (C)	7.2E+5
Hexachloroethane	67721	NA	430	1,800 (X)	40,000	5.5E+5	9.3E+5	9.3E+5	2.3E+8	2.3E+5	NA
n-Hexane	110543	NA	1.8E+5 (C)	NA	5.1E+5 (C)	3.0E+6	3.2E+6	6.2E+6	1.3E+10	9.2E+7 (C)	44,000
2-Hexanone	591786	NA	20,000	ID	9.9E+5	1.1E+6	1.1E+6	1.4E+6	2.7E+9	3.2E+7 (C)	2.5E+6
Indeno(1,2,3-cd)	193395	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA

pyrene (Q)											
Iron (B)	7439896	1.2E+7	6,000	NA	NLV	NLV	NLV	NLV	ID	1.6E+8	NA
Isobutyl alcohol (I)	78831	NA	46,000	NA	2.3E+8 (C)	7.9E+7	7.9E+7	7.9E+7	1.0E+11	7.2E+7 (C)	8.9E+6
Isophorone	78591	NA	15,000	26,000 (X)	NLV	NLV	NLV	NLV	1.2E+10	4.8E+6 (C)	2.4E+6
Isopropyl alcohol (I)	67630	NA	9,400	1.1E+6 (X)	NLV	NLV	NLV	NLV	1.5E+10	1.4E+7	1.1E+8
Isopropyl benzene	98828	NA	91,000	3,200	4.0E+5 (C)	1.7E+6	1.7E+6	2.8E+6	5.8E+9	2.5E+7 (C)	3.9E+5
Lead (B)	7439921	21,000	7.0E+5	(G,X)	NLV	NLV	NLV	NLV	1.0E+8	4.0E+5	NA
Lindane	58899	NA	20 (M); 7.0	20 (M); 1.1	ID	ID	ID	ID	ID	8,300	NA
Lithium (B)	7439932	9,800	3,400	8,800	NLV	NLV	NLV	NLV	2.3E+9	4.2E+6 (DD)	NA
Magnesium (B)	7439954	NA	8.0E+6	NA	NLV	NLV	NLV	NLV	6.7E+9	1.0E+9 (D)	NA
Manganese (B)	7439965	4.4E+5	1,000	(G,X)	NLV	NLV	NLV	NLV	3.3E+6	2.5E+7	NA
Mercury (Total) (B,Z)	Varies	130	1,700	50 (M); 1.2	48,000	52,000	52,000	52,000	2.0E+7	1.6E+5	NA
Methane	74828	NA	ID	NA	8.4E+6 ug/m3 (GG)	ID	ID	ID	ID	ID	ID
Methanol	67561	NA	74,000	1.2E+7 (C)	3.7E+7 (C)	3.1E+7	4.4E+7	9.6E+7	2.2E+11	1.1E+8 (C)	3.1E+6
Methoxychlor	72435	NA	16,000	NA	ID	ID	ID	ID	ID	1.9E+6	NA
2-Methoxyethanol (I)	109864	NA	150	NA	NLV	NLV	NLV	NLV	1.3E+9	2.3E+5	1.1E+8
2-Methyl-4-chlorophenoxyacetic acid	94746	NA	390	NA	NLV	NLV	NLV	NLV	ID	2.3E+5	NA
2-Methyl-4,6-dinitrophenol	534521	NA	830 (M); 400	NA	NLV	NLV	NLV	NLV	1.3E+8	79,000	NA
N-Methyl-morpholine	109024	NA	400	NA	NLV	NLV	NLV	NLV	ID	6.1E+5	1.1E+8

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TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Methyl parathion	298000	NA	46	NA	NLV	NLV	NLV	NLV	ID	56,000	NA
4-Methyl-2-pentanone (MIBK) (I)	108101	NA	36,000	ID	3.7E+7 (C)	4.5E+7	4.5E+7	6.7E+7	1.4E+11	5.6E+7 (C)	2.7E+6
Methyl-tert-butyl ether (MTBE)	1634044	NA	800	1.4E+5 (X)	9.9E+6 (C)	2.5E+7	3.9E+7	8.7E+7	2.0E+11	1.5E+6	5.9E+6
Methylcyclopentane (I)	96377	NA	ID	NA	92,000	2.3E+6	8.2E+6	2.0E+7	4.7E+10	ID	3.5E+5
4,4'-Methylene-bis-2-chloroaniline (MBOCA)	101144	NA	NLL	NLL	NLV	NLV	NLV	NLV	8.4E+7	6,800	NA
Methylene chloride	75092	NA	100	30,000 (X)	45,000	2.1E+5	5.9E+5	1.4E+6	6.6E+9	1.3E+6	2.3E+6
2-Methylnaphthalene	91576	NA	57,000	4,200	2.7E+6	1.5E+6	1.5E+6	1.5E+6	6.7E+8	8.1E+6	NA
Methylphenols (J)	1319773	NA	7,400	1,000 (M); 600	NLV	NLV	NLV	NLV	6.7E+9	1.1E+7	NA
Metolachlor	512184	NA	4,800	300	NLV	NLV	NLV	NLV	ID	1.5E+6	4.4E+5

	52									(C, DD)	
Metribuzin	21087649	NA	3,600	NA	ID	ID	ID	ID	ID	9.6E+6	NA
Mirex	2385855	NA	NLL	NLL	ID	ID	ID	ID	ID	9,600	NA
Molybdenum (B)	7439987	NA	1,500	64,000 (X)	NLV	NLV	NLV	NLV	ID	2.6E+6	NA
Naphthalene	91203	NA	35,000	730	2.5E+5	3.0E+5	3.0E+5	3.0E+5	2.0E+8	1.6E+7	NA
Nickel (B)	7440020	20,000	1.0E+5	(G)	NLV	NLV	NLV	NLV	1.3E+7	4.0E+7	NA
Nitrate (B,N)	14797558	NA	2.0E+5 (N)	ID	NLV	NLV	NLV	NLV	ID	ID	NA
Nitrite (B,N)	14797650	NA	20,000 (N)	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Nitrobenzene (I)	98953	NA	330 (M); 68	3,600 (X)	91,000	54,000	54,000	54,000	4.7E+7	1.0E+5	4.9E+5
2-Nitrophenol	88755	NA	400	ID	NLV	NLV	NLV	NLV	ID	6.3E+5	NA
n-Nitroso-di-n-propylamine	621647	NA	330 (M); 100	NA	NLV	NLV	NLV	NLV	1.6E+6	1,200	1.5E+6
N-Nitrosodiphenylamine	86306	NA	5,400	NA	NLV	NLV	NLV	NLV	2.2E+9	1.7E+6	NA
Oxamyl	23135220	NA	4,000	NA	NLV	NLV	NLV	NLV	ID	8.6E+6	NA
Oxo-hexyl acetate	88230357	NA	1,500	NA	ID	ID	ID	ID	5.4E+9	2.3E+6	1.0E+7
Pendimethalin	40487421	NA	1.1E+6	NA	NLV	NLV	NLV	NLV	ID	4.6E+7	NA
Pentachlorobenzene	608935	NA	29,000	9,500	ID	ID	ID	ID	ID	3.2E+5 (C)	1.9E+5
Pentachloronitrobenzene	82688	NA	37,000	NA	1.2E+5	2.3E+5	2.3E+5	2.3E+5	3.3E+8	1.7E+6	NA
Pentachlorophenol	87865	NA	22	(G,X)	NLV	NLV	NLV	NLV	1.0E+8	90,000	NA
Pentane	109660	NA	ID	NA	9.7E+5 (C)	3.7E+7	3.1E+8	5.8E+8	1.2E+12	ID	2.4E+5

TABLE 2. SOIL: RESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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2-Pentene (I)	109682	NA	ID	NA	ID	ID	ID	ID	ID	ID	2.2E+5
Phenanthrene	85018	NA	56,000	2,100	2.8E+6	1.6E+5	1.6E+5	1.6E+5	6.7E+6	1.6E+6	NA
Phenol	108952	NA	88,000	9,000	NLV	NLV	NLV	NLV	4.0E+10	4.0E+7 (C, DD)	1.2E+7
Phenytoin	57410	NA	830	4300 (X)	NLV	NLV	NLV	NLV	2.2E+8	1.0E+5	NA
Phosphorus (Total)	7723140	NA	1.3E+6	(EE)	NLV	NLV	NLV	NLV	6.7E+7	1.0E+9 (D)	NA
Phthalic acid	88993	NA	2.8E+5	NA	NLV	NLV	NLV	NLV	ID	4.3E+8 (C)	1.7E+6
Phthalic anhydride	85449	NA	3.0E+5	NA	NLV	NLV	NLV	NLV	ID	4.7E+8 (C)	1.1E+6
Picloram	1918021	NA	10,000	920	NLV	NLV	NLV	NLV	ID	1.6E+7	NA
Piperidine	110894	NA	64	NA	NLV	NLV	NLV	NLV	9.3E+9	99,000	1.2E+8
Polybrominated biphenyls (J)	67774327	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	1,200	NA
Polychlorinated biphenyls (PCBs) (J,T)	1336363	NA	NLL	NLL	3.0E+6	2.4E+5	7.9E+6	7.9E+6	5.2E+6	(T)	NA
Prometon	161018	NA	4,900	NA	NLV	NLV	NLV	NLV	ID	5.0E+6	NA

	0										
Propachlor	1918167	NA	1,900	NA	NLV	NLV	NLV	NLV	ID	2.9E+6	NA
Propazine	139402	NA	4,000	NA	NLV	NLV	NLV	NLV	ID	6.1E+6	NA
Propionic acid	79094	NA	2.4E+5	ID	NLV	NLV	NLV	NLV	2.0E+10	3.8E+8 (C)	1.1E+8
Propyl alcohol (I)	71238	NA	28,000	NA	NLV	NLV	NLV	NLV	4.9E+10	1.3E+7 (DD)	1.1E+8
n-Propylbenzene (I)	103651	NA	1,600	ID	ID	ID	ID	ID	1.3E+9	2.5E+6	1.0E+7
Propylene glycol	57556	NA	3.0E+6	5.8E+6	NLV	NLV	NLV	NLV	4.0E+11	1.0E+9 (C,D)	1.1E+8
Pyrene	129000	NA	4.8E+5	ID	1.0E+9 (D)	6.5E+8	6.5E+8	6.5E+8	6.7E+9	2.9E+7	NA
Pyridine (I)	110861	NA	400	NA	1,100	8,200	40,000	97,000	2.3E+8	2.3E+5 (C)	37,000
Selenium (B)	7782492	410	4,000	400	NLV	NLV	NLV	NLV	1.3E+8	2.6E+6	NA
Silver (B)	7440224	1,000	4,500	100 (M); 27	NLV	NLV	NLV	NLV	6.7E+6	2.5E+6	NA
Silvex (2,4,5-TP)	93721	NA	3,600	2,200	NLV	NLV	NLV	NLV	ID	1.7E+6	NA
Simazine	122349	NA	80	340	NLV	NLV	NLV	NLV	ID	1.2E+6	NA
Sodium	17341252	NA	4.6E+6	NA	NLV	NLV	NLV	NLV	ID	1.0E+9 (D)	NA
Sodium azide	26628228	NA	1,800	1,000	ID	ID	ID	ID	ID	2.7E+6	NA
Strontium (B)	7440246	NA	92,000	4.2E+5	NLV	NLV	NLV	NLV	ID	3.3E+8	NA

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Styrene	100425	NA	2,700	2,100 (X)	2.5E+5	9.7E+5	9.7E+5	1.4E+6	5.5E+9	4.0E+5	5.2E+5
Sulfate	14808798	NA	5.0E+6	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Tebuthiuron	34014181	NA	10,000	NA	NLV	NLV	NLV	NLV	ID	4.6E+6 (DD)	NA
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NA	NLL	NLL	NLV	NLV	NLV	NLV	(O)	(O)	NA
1,2,4,5-Tetrachlorobenzene	95943	NA	1.5E+6	3,400 (X)	5.8E+5	2.3E+5	2.3E+5	2.3E+5	6.7E+7	7.7E+7	NA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O)	1746016	NA	NLL	NLL	NLV	NLV	NLV	NLV	71 (O)	0.09 (O)	NA
1,1,1,2-Tetrachloroethane	630206	NA	1,500	ID	6,200	36,000	54,000	1.0E+5	4.2E+8	4.8E+5 (C)	4.4E+5
1,1,2,2-Tetrachloroethane	79345	NA	170	1,600 (X)	4,300	10,000	10,000	14,000	5.4E+7	53,000	8.7E+5
Tetrachloroethylene	127184	NA	100	1,200 (X)	11,000	1.7E+5	4.8E+5	1.1E+6	2.7E+9	2.0E+5	88,000

										(C)	
Tetrahydrofuran	109999	NA	1,900	2.2E+5 (X)	1.3E+6	1.3E+7	6.7E+7	1.6E+8	3.9E+11	2.9E+6	1.2E+8
Tetranitromethane	509148	NA	ID	NA	500(M); 110	500 (M); 51	ID	ID	2.1E+5	ID	ID
Thallium (B)	7440280	NA	2,300	4,200 (X)	NLV	NLV	NLV	NLV	1.3E+7	35,000	NA
Toluene (I)	108883	NA	16,000	5,400	3.3E+5 (C)	2.8E+6	5.1E+6	1.2E+7	2.7E+10	5.0E+7 (C)	2.5E+5
p-Toluidine	106490	NA	660 (M); 300	NA	NLV	NLV	NLV	NLV	1.0E+8	94,000	1.2E+6
Toxaphene	8001352	NA	24,000	8,200	NLV	NLV	NLV	NLV	9.7E+6	20,000	NA
Triallate	2303175	NA	95,000	NA	ID	ID	ID	ID	ID	2.9E+6 (C)	2.5E+5
Tributylamine	102829	NA	7,800	ID	5.8E+5	6.0E+5	6.0E+5	6.0E+5	4.7E+8	7.9E+5	3.7E+6
1,2,4-Trichlorobenzene	120821	NA	4,200	5,900 (X)	9.6E+6 (C)	2.8E+7	2.8E+7	2.8E+7	2.5E+10	9.9E+5 (DD)	1.1E+6
1,1,1-Trichloroethane	71556	NA	4,000	1,800	2.5E+5	3.8E+6	1.2E+7	2.8E+7	6.7E+10	5.0E+8 (C)	4.6E+5
1,1,2-Trichloroethane	79005	NA	100	6,600 (X)	4,600	17,000	21,000	44,000	1.9E+8	1.8E+5	9.2E+5
Trichloroethylene	79016	NA	100	4,000 (X)	1,000	11,000	25,000	57,000	1.3E+8	1.1E+5 (DD)	5.0E+5
Trichlorofluoromethane	75694	NA	52,000	NA	2.8E+6 (C)	9.2E+7	6.3E+8	1.5E+9	3.8E+12	7.9E+7 (C)	5.6E+5
2,4,5-Trichlorophenol	95954	NA	39,000	NA	NLV	NLV	NLV	NLV	2.3E+10	2.3E+7	NA
2,4,6-Trichlorophenol	88062	NA	2,400	330 (M); 100	NLV	NLV	NLV	NLV	1.0E+9	7.1E+5	NA
1,2,3-Trichloropropane	96184	NA	840	NA	4,000	9,200	9,200	11,000	2.0E+7	1.3E+6 (C)	8.3E+5
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	9.0E+6 (C)	1,700	5.1E+6 (C)	1.8E+8	8.8E+8	2.1E+9	5.1E+12	1.0E+9 (C,D)	5.5E+5
Triethanolamine	102716	NA	74,000	NA	NLV	NLV	NLV	NLV	3.3E+9	1.1E+8	1.1E+8

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Triethylene glycol	112276	NA	86,000	NA	NLV	NLV	NLV	NLV	ID	3.9E+7 (C,DD)	1.1E+5
3-Trifluoromethyl-4-nitrophenol	88302	NA	1.1E+5	NA	NLV	NLV	NLV	NLV	ID	4.1E+7 (DD)	NA
Trifluralin	1582098	NA	1.9E+5	NA	ID	ID	ID	ID	ID	2.0E+6	NA
2,2,4-Trimethyl pentane	540841	NA	ID	NA	1.1E+5 (C)	5.2E+6	3.9E+7	9.6E+7	2.3E+11	ID	19,000
2,4,4-Trimethyl-2-pentene (I)	107404	NA	ID	NA	ID	ID	ID	ID	ID	ID	56,000
1,2,4-Trimethylbenzene (I)	95636	NA	2,100	570	4.3E+6 (C)	2.1E+7	5.0E+8	5.0E+8	8.2E+10	3.2E+7 (C)	1.1E+5
1,3,5-Trimethylbenzene (I)	108678	NA	1,800	1,100	2.6E+6 (C)	1.6E+7	3.8E+8	3.8E+8	8.2E+10	3.2E+7 (C)	94,000
Triphenyl phosphate	115866	NA	1.5E+6 (C)	NA	NLV	NLV	NLV	NLV	ID	3.6E+7 (C)	1.1E+5

tris(2,3-Dibromopropyl)phosphate	126727	NA	930	ID	82,000 (C)	18,000	18,000	18,000	5.9E+6	4,400	27,000
Urea	57136	NA	ID	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Vanadium	7440622	NA	72,000	4.3E+5	NLV	NLV	NLV	NLV	ID	7.5E+5 (DD)	NA
Vinyl acetate (I)	108054	NA	13,000	NA	7.9E+5	1.7E+6	2.6E+6	5.8E+6	1.3E+10	5.8E+6 (C,DD)	2.4E+6
Vinyl chloride	75014	NA	40	260 (X)	270	4,200	30,000	73,000	3.5E+8	3,800	4.9E+5
White phosphorus (R)	12185103	NA	2.2	NA	NLV	NLV	NLV	NLV	ID	2,300 (DD)	NA
Xylenes (I)	1330207	NA	5,600	820	6.3E+6 (C)	4.6E+7	6.1E+7	1.3E+8	2.9E+11	4.1E+8 (C)	1.5E+5
Zinc (B)	7440666	47,000	2.4E+6	(G)	NLV	NLV	NLV	NLV	ID	1.7E+8	NA

History: 2013 AACS.

R 299.48 **Rescinded.**~~Generic soil cleanup criteria for nonresidential category.~~

~~Rule 48. Generic soil cleanup criteria for nonresidential category shall be as shown in table 3.~~

TABLE 3. SOIL: NONRESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to 1 microgram per kilogram (ug/kg). Criteria with 6 or more digits are expressed in scientific notation. For example, 200,000 is presented as 2.0E+5. A footnote is designated by a letter in parentheses and is explained in the footnote pages that follow the criteria tables. When the risk-based criterion is less than the target detection limit (TDL), the TDL is listed as the criterion (§324.20120a(10)). In these cases, 2 numbers are present in the cell. The first number is the criterion (i.e., TDL), and the second number is the risk-based value.

-			Groundwater Protection			Indoor Air	Ambient Air (Y) (C)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Nonresidential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Acenaphthene	83329	NA	3.0E+5	8.8E+5	8,700	3.5E+8	9.7E+7	9.7E+7	9.7E+7	6.2E+9	1.3E+8	NA
Acenaphthylene	208968	NA	5,900	17,000	ID	3.0E+6	2.7E+6	2.7E+6	2.7E+6	1.0E+9	5.2E+6	NA
Acetaldehyde (I)	75070	NA	19,000	54,000	2,600	4.0E+5	2.1E+5	2.1E+5	2.9E+5	2.6E+8	9.5E+7	1.1E+8
Acetate	71501	NA	ID	ID	(G)	ID	ID	ID	ID	ID	ID	ID
Acetic acid	64197	NA	84,000	2.4E+5	(G)	NLV	NLV	NLV	NLV	7.4E+9	4.2E+8	6.5E+8
Acetone (I)	67641	NA	15,000	42,000	34,000	5.4E+8 (C)	1.6E+8	1.6E+8	2.0E+8	1.7E+11	7.3E+7	1.1E+8
Acetonitrile	75058	NA	2,800	8,000	NA	8.8E+6	1.9E+6	1.9E+6	2.2E+6	1.8E+9	1.4E+7	2.2E+7
Acetophenone	98862	NA	30,000	88,000	ID	2.1E+8 (C)	5.2E+7	5.2E+7	5.2E+7	1.4E+10	1.5E+8 (C)	1.1E+6
Acrolein (I)	107028	NA	2,400	6,600	NA	760	370	370	630	5.9E+5	1.2E+7	2.3E+7
Acrylamide	79061	NA	10	10	200 (X)	NLV	NLV	NLV	NLV	3.0E+6	8,700	NA

Acrylic acid	79107	NA	78,000	2.2E+5	NA	5.5E+6	2.2E+5	2.7E+5	2.7E+5	2.9E+7	2.1E+8 (C,DD)	1.1E+8
Acrylonitrile (I)	107131	NA	100 (M); 52	220	100 (M); 40	35,000	17,000	17,000	31,000	5.8E+7	74,000	8.3E+6
Alachlor	15972608	NA	52	52	290 (X)	NLV	NLV	NLV	NLV	ID	3.9E+5	NA
Aldicarb	116063	NA	60	60	NA	NLV	NLV	NLV	NLV	ID	7.3E+5	NA
Aldicarb sulfone	1646884	NA	200 (M); 40	200 (M); 40	NA	NLV	NLV	NLV	NLV	ID	8.0E+5	NA
Aldicarb sulfoxide	1646873	NA	200(M); 80	200 (M); 80	NA	NLV	NLV	NLV	NLV	ID	9.5E+5	NA
Aldrin	309002	NA	NLL	NLL	NLL	7.1E+6	2.0E+5	2.0E+5	2.0E+5	8.0E+5	4,300	NA
Aluminum (B)	7429905	6.9E+6	1,000	1,000	NA	NLV	NLV	NLV	NLV	ID	3.7E+8 (DD)	NA
Ammonia	7664417	NA	ID	ID	(CC)	ID	ID	ID	ID	2.9E+9	ID	1.0E+7
t-Amyl methyl ether (TAME)	994058	NA	3,900	3,900	NA	1.1E+5	4.0E+5	7.8E+5	1.8E+6	1.8E+9	9.5E+7 (C)	4.4E+5
Aniline	62533	NA	1,100	4,400	330 (M); 80	NLV	NLV	NLV	NLV	2.9E+7	1.5E+6	4.5E+6
Anthracene	120127	NA	41,000	41,000	ID	1.0E+9 (D)	1.6E+9	1.6E+9	1.6E+9	2.9E+10	7.3E+8	NA
Antimony	7440360	NA	4,300	4,300	94,000 (X)	NLV	NLV	NLV	NLV	5.9E+6	6.7E+5	NA
Arsenic	7440382	5,800	4,600	4,600	4,600	NLV	NLV	NLV	NLV	9.1E+5	37,000	NA
Asbestos (BB)	1332214	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.0E+7 (M); 85,000	ID	NA
Atrazine	1912249	NA	60	60	150	NLV	NLV	NLV	NLV	ID	3.3E+5 (DD)	NA
Azobenzene	103333	NA	4,200	17,000	ID	3.2E+7	2.1E+6	2.1E+6	2.1E+6	1.3E+8	6.6E+5	NA

TABLE 3. SOIL: NONRESIDENTIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS;

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			Groundwater Protection			Indoor Air	Ambient Air (Y) (C)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria & RBSLs	Nonresidential Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
Barium (B)	7440393	75,000	1.3E+6	1.3E+6	(G)	NLV	NLV	NLV	NLV	1.5E+8	1.3E+8	NA
Benzene (I)	71432	NA	100	100	4,000 (X)	8,400	45,000	99,000	2.3E+5	4.7E+8	8.4E+5 (C)	4.0E+5
Benzidine	92875	NA	1,000 (M); 6.0	1,000 (M); 6.0	1,000 (M); 6.0	NLV	NLV	NLV	NLV	59,000	1,000 (M); 110	NA
Benzo(a)anthracene (Q)	56553	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000	NA
Benzo(b)fluoranthene (Q)	205992	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	80,000	NA
Benzo(k)fluoranthene (Q)	207089	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	8.0E+5	NA
Benzo(g,h,i)perylene	191242	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	3.5E+8	7.0E+6	NA
Benzo(a)pyrene	50328	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.9E+6	8,000	NA

(Q)												
Benzoic acid	65850	NA	6.4E+5	1.8E+6	NA	NLV	NLV	NLV	NLV	ID	1.0E+9 (D)	NA
Benzyl alcohol	100516	NA	2.0E+5	5.8E+5	NA	NLV	NLV	NLV	NLV	1.5E+11	1.0E+9 (C,D)	5.8E+6
Benzyl chloride	100447	NA	150	640	NA	33,000	48,000	48,000	52,000	7.8E+7	2.2E+5	2.3E+5
Beryllium	7440417	NA	51,000	51,000	(G)	NLV	NLV	NLV	NLV	5.9E+5	1.6E+6	NA
bis(2-Chloroethoxy)ethane	112265	NA	ID	ID	ID	NLV	NLV	NLV	NLV	ID	ID	2.7E+6
bis(2-Chloroethyl)ether (I)	111444	NA	100	170	100 (M); 20	44,000	13,000	13,000	13,000	1.2E+7	58,000	2.2E+6
bis(2-Ethylhexyl)phthalate	117817	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	8.9E+8	1.2E+7 (C)	1.0E+7
Boron (B)	7440428	NA	10,000	10,000	1.4E+5 (X)	NLV	NLV	NLV	NLV	ID	3.5E+8 (DD)	NA
Bromate	15541454	NA	200	200	800 (X)	NLV	NLV	NLV	NLV	ID	91,000	NA
Bromobenzene (I)	108861	NA	550	1,500	NA	5.8E+5	5.4E+5	5.4E+5	5.4E+5	2.4E+8	1.7E+6 (C)	7.6E+5
Bromodichloromethane	75274	NA	1,600 (W)	1,600 (W)	ID	6,400	31,000	31,000	57,000	1.1E+8	4.9E+5	1.5E+6
Bromoform	75252	NA	1,600 (W)	1,600 (W)	ID	7.7E+5	3.1E+6	3.1E+6	3.1E+6	3.6E+9	3.8E+6 (C)	8.7E+5
Bromomethane	74839	NA	200	580	700	1,600	13,000	57,000	1.4E+5	1.5E+8	1.0E+6	2.2E+6
n-Butanol (I)	71363	NA	19,000	54,000	2.00E+05	NLV	NLV	NLV	NLV	1.0E+10	9.5E+7 (C)	8.7E+6
2-Butanone (MEK) (I)	78933	NA	2.6E+5	7.6E+5	44,000	9.9E+7 (C)	3.5E+7	3.5E+7	3.6E+7	2.9E+10	7.0E+8 (C,DD)	2.7E+7
n-Butyl acetate	123864	NA	11,000	32,000	NA	1.0E+8 (C)	1.4E+8	3.1E+8	3.5E+8	2.1E+11	5.5E+7 (C)	1.1E+6
t-Butyl alcohol	75650	NA	78,000	2.2E+5	NA	5.8E+8	1.2E+8	2.4E+8	2.4E+8	5.6E+1	3.9E+8	1.1E+8

						(C)				0	(C)	
Butyl benzyl phthalate	85687	NA	2.2E+6 (C)	5.0E+6 (C)	1.2E+5 (X)	NLV	NLV	NLV	NLV	2.1E+10	1.2E+8 (C)	3.1E+5
n-Butylbenzene	104518	NA	1,600	4,600	ID	ID	ID	ID	ID	8.8E+8	8.0E+6	1.0E+7

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria & RBSLs	Nonresidential Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
sec-Butylbenzene	135988	NA	1,600	4,600	ID	ID	ID	ID	ID	1.8E+8	8.0E+6	1.0E+7
t-Butylbenzene (I)	98066	NA	1,600	4,600	ID	ID	ID	ID	ID	2.9E+8	8.0E+6	1.0E+7
Cadmium (B)	7440439	1,200	6,000	6,000	(G,X)	NLV	NLV	NLV	NLV	2.2E+6	2.1E+6	NA
Camphene (I)	79925	NA	ID	ID	NA	6,700	1.8E+5	9.1E+5	2.2E+6	2.4E+9	ID	NA
Caprolactam	105602	NA	1.2E+5	3.4E+5	NA	NLV	NLV	NLV	NLV	2.9E+8	3.1E+8 (DD)	NA
Carbaryl	63252	NA	14,000	40,000	NA	ID	ID	ID	ID	ID	7.0E+7	NA
Carbazole	86748	NA	9,400	39,000	1,100	NLV	NLV	NLV	NLV	7.8E+7	2.4E+6	NA
Carbofuran	1563662	NA	800	800	NA	NLV	NLV	NLV	NLV	ID	3.6E+6	NA
Carbon disulfide (I,R)	75150	NA	16,000	46,000	ID	1.4E+5	1.6E+6	8.0E+6	1.9E+7	2.1E+10	4.3E+7 (C,DD)	2.8E+5

Carbon tetrachloride	56235	NA	100	100	900 (X)	990	12,000	34,000	79,000	1.7E+8	4.4E+5 (C)	3.9E+5
Chlordane (J)	57749	NA	NLL	NLL	NLL	5.9E+7	4.2E+6	4.2E+6	4.2E+6	2.1E+7	1.5E+5	NA
Chloride	16887006	NA	5.0E+6	5.0E+6	(X)	NLV	NLV	NLV	NLV	ID	5.0E+5 (F)	NA
Chlorobenzene (I)	108907	NA	2,000	2,000	500	2.2E+5	9.2E+5	1.1E+6	2.1E+6	2.1E+9	1.4E+7 (C)	2.6E+5
p-Chlorobenzene sulfonic acid	98668	NA	1.5E+5	4.2E+5	ID	ID	ID	ID	ID	ID	7.3E+8	ID
1-Chloro-1,1-difluoroethane	75683	NA	3.0E+5	8.8E+5	NA	5.4E+6 (C)	9.4E+7	5.7E+8	1.4E+9	1.5E+12	1.0E+9 (C,D)	9.6E+5
Chloroethane	75003	NA	8,600	34,000	22,000 (X)	5.3E+6 (C)	3.6E+7	1.2E+8	2.8E+8	2.9E+11	1.2E+7 (C)	9.5E+5
2-Chloroethyl vinyl ether	110758	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	1.9E+6
Chloroform	67663	NA	1,600 (W)	1,600 (W)	7,000	38,000	1.5E+5	3.4E+5	7.9E+5	1.6E+9	5.5E+6 (C)	1.5E+6
Chloromethane (I)	74873	NA	5,200	22,000	ID	10,000	1.2E+5	1.0E+6	2.5E+6	2.6E+9	7.4E+6 (C)	1.1E+6
4-Chloro-3-methylphenol	59507	NA	5,800	16,000	280	NLV	NLV	NLV	NLV	ID	1.5E+7	NA
beta-Chloronaphthalene	91587	NA	6.2E+5	1.8E+6	NA	ID	ID	ID	ID	ID	1.8E+8	NA
2-Chlorophenol	95578	NA	900	2,600	360	8.0E+5	1.1E+6	1.1E+6	1.1E+6	5.3E+8	4.5E+6	1.9E+7
o-Chlorotoluene (I)	95498	NA	3,300	9,300	ID	5.0E+5	1.5E+6	3.1E+6	6.4E+6	2.1E+9	1.5E+7 (C)	5.0E+5
Chlorpyrifos	2921882	NA	17,000	48,000	1,500	240	5,500	23,000	56,000	5.9E+7	3.4E+7	NA
Chromium (III) (B,H)	16065831	18,000 (total)	1.0E+9 (D)	1.0E+9 (D)	(G,X)	NLV	NLV	NLV	NLV	1.5E+8	1.0E+9 (D)	NA
Chromium (VI)	18540299	NA	30,000	30,000	3,300	NLV	NLV	NLV	NLV	2.4E+5	9.2E+6	NA
Chrysene (Q)	218019	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	8.0E+6	NA

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Cobalt	7440484	6,800	800	2,000	2,000	NLV	NLV	NLV	NLV	5.9E+6	9.0E+6	NA
Copper (B)	7440508	32,000	5.8E+6	5.8E+6	(G)	NLV	NLV	NLV	NLV	5.9E+7	7.3E+7	NA
Cyanazine	21725462	NA	200	200	1,100 (X)	NLV	NLV	NLV	NLV	ID	66,000	NA
Cyanide (P,R)	57125	390 (total)	4,000	4,000	100	NLV	NLV	NLV	NLV	2.5E+5	2.5E+5	NA
Cyclohexanone	108941	NA	5.2E+6	1.5E+7	NA	32,000	1.3E+6	1.1E+7	2.7E+7	2.9E+10	1.0E+9 (C,D)	2.2E+8
Dacthal	1861321	NA	50,000	1.4E+5	NA	NLV	NLV	NLV	NLV	ID	7.3E+6	NA
Dalapon	75990	NA	4,000	4,000	NA	NLV	NLV	NLV	NLV	ID	6.2E+7 (C)	5.9E+7
4-4'-DDD	72548	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	5.6E+7	4.0E+5	NA
4-4'-DDE	72559	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	4.0E+7	1.9E+5	NA

4-4'-DDT	50293	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	4.0E+7	2.8E+5	NA
Decabromodiphenyl ether	1163195	NA	1.4E+5	1.4E+5	NA	1.0E+9 (D)	1.0E+8	1.0E+8	1.0E+8	1.0E+9	1.1E+7	NA
Di-n-butyl phthalate	84742	NA	9.6E+5 (C)	2.7E+6 (C)	11,000	NLV	NLV	NLV	NLV	1.5E+9	8.7E+7 (C)	7.6E+5
Di(2-ethylhexyl) adipate	103231	NA	1.3E+7 (C)	1.3E+7 (C)	ID	NLV	NLV	NLV	NLV	1.2E+10	6.3E+7 (C,DD)	9.6E+5
Di-n-octyl phthalate	117840	NA	1.0E+8	2.9E+8 (C)	ID	NLV	NLV	NLV	NLV	1.4E+10	2.0E+7	1.4E+8
Diacetone alcohol (I)	123422	NA	ID	ID	NA	NLV	NLV	NLV	NLV	7.1E+10	ID	1.1E+8
Diazinon	333415	NA	95	280	72	NLV	NLV	NLV	NLV	ID	70,000 (DD)	3.1E+5
Dibenzo(a,h)anthracene (Q)	53703	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	8,000	NA
Dibenzofuran	132649	NA	ID	ID	1,700	3.6E+6	1.6E+5	1.6E+5	1.6E+5	2.9E+6	ID	NA
Dibromochloromethane	124481	NA	1,600 (W)	1,600 (W)	ID	21,000	80,000	80,000	98,000	1.6E+8	5.0E+5	6.1E+5
Dibromochloropropane	96128	NA	10 (M); 4.0	10 (M); 4.0	ID	1,200	900	900	900	7.0E+5	20,000 (C)	1,200
Dibromomethane	74953	NA	1,600	4,600	NA	ID	ID	ID	ID	ID	8.0E+6 (C)	2.0E+6
Dicamba	1918009	NA	4,400	13,000	NA	NLV	NLV	NLV	NLV	ID	1.7E+7	NA
1,2-Dichlorobenzene	95501	NA	14,000	14,000	280	2.0E+7 (C)	4.6E+7	4.6E+7	5.5E+7	4.4E+10	6.3E+7 (C)	2.1E+5
1,3-Dichlorobenzene	541731	NA	170	480	680	48,000	94,000	94,000	1.1E+5	8.8E+7	6.6E+5 (C)	1.7E+5
1,4-Dichlorobenzene	106467	NA	1,700	1,700	360	1.0E+5	2.6E+5	2.6E+5	3.4E+5	5.7E+8	1.9E+6	NA
3,3'-Dichlorobenzidine	91941	NA	2,000 (M); 28	2,000 (M); 110	2,000 (M); 7.4	NLV	NLV	NLV	NLV	8.2E+6	30,000	NA
Dichlorodifluoromethane	75718	NA	95,000	2.7E+5	ID	1.7E+6	6.3E+7	5.5E+8	1.4E+9	1.5E+12	1.7E+8 (C)	1.0E+6

~~TABLE 3. SOIL: NONRESIDENTIAL~~

~~PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS;~~

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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria & RBSLs	Nonresidential Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
1,1-Dichloroethane	75343	NA	18,000	50,000	15,000	4.3E+5	2.5E+6	6.0E+6	1.4E+7	1.5E+10	8.7E+7 (C)	8.9E+5
1,2-Dichloroethane (I)	107062	NA	100	100	7,200 (X)	11,000	21,000	33,000	74,000	1.5E+8	4.2E+5	1.2E+6
1,1-Dichloroethylene (I)	75354	NA	140	140	2,600	330	3,700	15,000	37,000	7.8E+7	6.6E+5 (C)	5.7E+5
cis-1,2-Dichloroethylene	156592	NA	1,400	1,400	12,000	41,000	2.1E+5	4.3E+5	1.0E+6	1.0E+9	8.0E+6 (C)	6.4E+5
trans-1,2-Dichloroethylene	156605	NA	2,000	2,000	30,000 (X)	43,000	3.3E+5	8.4E+5	2.0E+6	2.1E+9	1.2E+7 (C)	1.4E+6
2,6-Dichloro-4-nitroaniline	99309	NA	44,000	1.3E+5	NA	NLV	NLV	NLV	NLV	ID	2.2E+8	NA
2,4-Dichlorophenol	120832	NA	1,500	4,200	330 (M); 220	NLV	NLV	NLV	NLV	2.3E+9	3.9E+6 (C,DD	1.8E+6

											)	
2,4-Dichlorophenoxyacetic acid	94757	NA	1,400	1,400	4,400	NLV	NLV	NLV	NLV	2.9E+9	8.6E+6	NA
1,2-Dichloropropane (I)	78875	NA	100	100	4,600 (X)	7,400	30,000	51,000	1.2E+5	1.2E+8	6.6E+5 (C)	5.5E+5
1,3-Dichloropropene	542756	NA	170	700	180 (X)	5,400	60,000	2.0E+5	4.7E+5	5.9E+8	2.4E+5	6.2E+5
Dichlorovos	62737	NA	50 (M); 32	130	NA	NLV	NLV	NLV	NLV	1.5E+7	47,000	2.2E+6
Dicyclohexyl phthalate	84617	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	NA
Dieldrin	60571	NA	NLL	NLL	NLL	7.2E+5	64,000	64,000	64,000	8.5E+5	4,700	NA
Diethyl ether	60297	NA	200	200	ID	5.2E+7 (C)	1.0E+8	1.6E+8	3.5E+8	3.5E+11	3.6E+8 (C)	7.4E+6
Diethyl phthalate	84662	NA	1.1E+5	3.2E+5	2,200	NLV	NLV	NLV	NLV	1.5E+9	5.5E+8 (C)	7.4E+5
Diethylene glycol monobutyl ether	112345	NA	1,800	5,000	NA	NLV	NLV	NLV	NLV	5.9E+8	8.7E+6	1.1E+8
Diisopropyl ether	108203	NA	600	1,700 (C)	ID	1.2E+6 (C)	3.2E+6	4.8E+6	1.0E+7	1.1E+10	3.0E+6 (C)	1,300
Diisopropylamine (I)	108189	NA	110	320	NA	1.0E+7 (C)	7.4E+6	7.4E+6	7.7E+6	5.9E+9	5.6E+5	6.7E+6
Dimethyl phthalate	131113	NA	1.5E+6 (C)	4.2E+6 (C)	NA	NLV	NLV	NLV	NLV	1.5E+9	1.0E+9 (C,D)	7.9E+5
N,N-Dimethylacetamide	127195	NA	3,600	10,000	82,000 (X)	NLV	NLV	NLV	NLV	ID	1.8E+7	1.1E+8
N,N-Dimethylaniline	121697	NA	320	920	NA	8.9E+5 (C)	5.2E+5	5.2E+5	5.2E+5	3.3E+8	1.6E+6 (C)	8.0E+5
Dimethylformamide (I)	68122	NA	14,000	40,000	NA	NLV	NLV	NLV	NLV	8.8E+8	7.0E+7	1.1E+8
2,4-Dimethylphenol	105679	NA	7,400	20,000	7,600	NLV	NLV	NLV	NLV	2.1E+9	3.6E+7	NA

2,6-Dimethylphenol	576261	NA	330 (M); 88	330 (M); 260	NA	NLV	NLV	NLV	NLV	5.9E+7	4.4E+5	NA
3,4-Dimethylphenol	95658	NA	330 (M); 200	580	500	NLV	NLV	NLV	NLV	1.0E+8	1.0E+6	NA
Dimethylsulfoxide	67685	NA	4.4E+6	1.3E+7	3.8E+6	NLV	NLV	NLV	NLV	5.9E+8	1.0E+9 (C,D)	1.8E+7
2,4-Dinitrotoluene	121142	NA	430	640	NA	NLV	NLV	NLV	NLV	2.0E+7	2.2E+5	NA

TABLE 3. SOIL: NONRESIDENTIAL
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS;

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Dinoseb	88857	NA	300	300	200 (M); 43	NLV	NLV	NLV	NLV	1.2E+8	3.9E+5 (C,DD)	1.4E+5
1,4-Dioxane (I)	123911	NA	1,700	7,000	56,000 (X)	NLV	NLV	NLV	NLV	7.1E+8	2.4E+6	9.7E+7
Diquat	85007	NA	400	400	400	NLV	NLV	NLV	NLV	ID	1.6E+6	NA
Diuron	330541	NA	620	1,800	NA	NLV	NLV	NLV	NLV	2.1E+8	3.1E+6	NA

Endosulfan (J)	115297	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	4.4E+6	NA
Endothall	145733	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.0E+9	1.2E+7	NA
Endrin	72208	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	1.9E+5	NA
Epichlorohydrin (I)	106898	NA	100	100	NA	1.2E+5	37,000	37,000	37,000	2.9E+7	41,000	7.3E+6
Ethanol (I)	64175	NA	3.8E+7	7.6E+7	ID	NLV	NLV	NLV	NLV	5.6E+11	1.0E+9 (C,D,DDD)	1.1E+8
Ethyl acetate (I)	141786	NA	1.3E+5	3.8E+5	NA	7.0E+7 (C)	5.9E+7	5.9E+7	1.0E+8	9.4E+10	6.6E+8 (C)	7.5E+6
Ethyl tert-butyl ether (ETBE)	637923	NA	980	980	ID	1.7E+6 (C)	2.3E+6	4.6E+6	1.1E+7	1.1E+10	ID	6.5E+5
Ethylbenzene (I)	100414	NA	1,500	1,500	360	4.6E+5 (C)	2.4E+6	3.1E+6	6.5E+6	1.3E+10	7.1E+7 (C)	1.4E+5
Ethylene dibromide	106934	NA	20 (M); 1.0	20 (M); 1.0	110 (X)	3,600	5,800	5,800	9,800	1.8E+7	430	8.9E+5
Ethylene glycol	107211	NA	3.0E+5	8.4E+5	3.8E+6 (X)	NLV	NLV	NLV	NLV	2.9E+10	1.0E+9 (C,D)	1.1E+8
Ethylene glycol monobutyl ether	111762	NA	74,000	2.0E+5	NA	1.4E+6	2.1E+7	1.5E+8	3.6E+8	3.8E+11	3.6E+8 (C)	4.1E+7
Fluoranthene	206440	NA	7.3E+5	7.3E+5	5,500	1.0E+9 (D)	8.9E+8	8.8E+8	8.8E+8	4.1E+9	1.3E+8	NA
Fluorene	86737	NA	3.9E+5	8.9E+5	5,300	1.0E+9 (D)	1.5E+8	1.5E+8	1.5E+8	4.1E+9	8.7E+7	NA
Fluorine (soluble fluoride) (B)	7782414	NA	40,000	40,000	ID	NLV	NLV	NLV	NLV	ID	6.7E+7 (DD)	NA
Formaldehyde	50000	NA	26,000	76,000	2,400	65,000	43,000	69,000	1.5E+5	2.6E+8	1.3E+8 (C)	6.0E+7
Formic acid (I,U)	64186	NA	2.0E+5	5.8E+5	ID	2.8E+6	2.6E+5	1.6E+5	1.6E+5	5.9E+7	1.0E+9 (C,D)	1.1E+8
1-	25918	NA	1,600	4,600	NA	ID	ID	ID	ID	ID	8.0E+6	1.0E+7

Formylpiperidine	68											
Gentian violet	548629	NA	300	1,300	NA	NLV	NLV	NLV	NLV	ID	4.4E+5	NA
Glyphosate	1071836	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	5.7E+7 (DD)	NA
Heptachlor	76448	NA	NLL	NLL	NLL	1.9E+6	2.1E+5	2.1E+5	2.1E+5	3.0E+6	23,000	NA
Heptachlor epoxide	1024573	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.5E+6	9,500	NA
n-Heptane	142825	NA	4.6E+7 (C)	1.3E+8 (C)	NA	2.7E+6 (C)	2.5E+7	4.5E+7	1.0E+8	1.0E+11	1.0E+9 (C,D)	2.4E+5

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Hexabromobenzene	87821	NA	5,400	5,400	ID	ID	ID	ID	ID	ID	3.1E+6	NA
Hexachlorobenzene (C-66)	118741	NA	1,800	1,800	350	2.2E+5	56,000	56,000	56,000	8.5E+6	37,000	NA
Hexachlorobutadiene (C-46)	87683	NA	26,000	72,000	91	7.1E+5 (C)	4.6E+5	4.6E+5	4.6E+5	1.8E+8	4.7E+5 (C)	3.5E+5
alpha-Hexachlorocyclohexane	319846	NA	18	71	ID	1.6E+5	41,000	86,000	86,000	2.1E+6	12,000	NA
beta-Hexachlorocyclohexane	319857	NA	37	150	ID	NLV	NLV	NLV	NLV	7.4E+6	25,000	NA
Hexachlorocyclopentadiene (C-56)	77474	NA	3.2E+5	3.2E+5	ID	56,000	60,000	60,000	60,000	5.9E+6	6.7E+6 (C)	7.2E+5

Hexachloroethane	67721	NA	430	1,200	1,800 (X)	79,000	6.6E+5	1.4E+6	1.4E+6	1.0E+8	7.3E+5	NA
n-Hexane	110543	NA	1.8E+5 (C)	5.1E+5 (C)	NA	9.5E+5 (C)	3.5E+6	3.5E+6	6.4E+6	5.9E+9	3.0E+8 (C)	44,000
2-Hexanone	591786	NA	20,000	58,000	ID	1.8E+6	1.3E+6	1.3E+6	1.5E+6	1.2E+9	1.0E+8 (C)	2.5E+6
Indeno(1,2,3-cd)pyrene (Q)	193395	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000	NA
Iron (B)	7439896	1.2E+7	6,000	6,000	NA	NLV	NLV	NLV	NLV	ID	5.8E+8	NA
Isobutyl alcohol (I)	78831	NA	46,000	1.3E+5	NA	4.3E+8 (C)	9.5E+7	9.5E+7	9.5E+7	4.4E+10	2.3E+8 (C)	8.9E+6
Isophorone	78591	NA	15,000	62,000	26,000 (X)	NLV	NLV	NLV	NLV	8.2E+9	2.2E+7 (C)	2.4E+6
Isopropyl alcohol (I)	67630	NA	9,400	26,000	1.1E+6 (X)	NLV	NLV	NLV	NLV	6.5E+9	4.7E+7	1.1E+8
Isopropyl benzene	98828	NA	91,000	2.6E+5	3,200	7.3E+5 (C)	2.0E+6	2.0E+6	3.0E+6	2.6E+9	8.0E+7 (C)	3.9E+5
Lead (B)	7439921	21,000	7.0E+5	7.0E+5	(G,X)	NLV	NLV	NLV	NLV	4.4E+7	9.0E+5 (DD)	NA
Lindane	58899	NA	20 (M); 7.0	20 (M); 7.0	20 (M); 1.1	ID	ID	ID	ID	ID	42,000	NA
Lithium (B)	7439932	9,800	3,400	7,000	8,800	NLV	NLV	NLV	NLV	1.0E+9	3.1E+7 (DD)	NA
Magnesium (B)	7439954	NA	8.0E+6	2.2E+7	NA	NLV	NLV	NLV	NLV	2.9E+9	1.0E+9 (D)	NA
Manganese (B)	7439965	4.4E+5	1,000	1,000	(G,X)	NLV	NLV	NLV	NLV	1.5E+6	9.0E+7	NA
Mercury (Total)	Varies	130	1,700	1,700	50 (M);	89,000	62,000	62,000	62,000	8.8E+6	5.8E	NA

(B,Z)					1.2						+5	
Methane	74828	NA	ID	ID	NA	8.4E+6 ug/m^3 (GG)	ID	ID	ID	ID	ID	ID
Methanol	67561	NA	74,000	2.0E+5	1.2E+7 (C)	6.7E+7 (C)	3.7E+7	4.6E+7	9.7E+7	9.6E+10	3.6E+8 (C)	3.1E+6
Methoxychlor	72435	NA	16,000	16,000	NA	ID	ID	ID	ID	ID	5.6E+6	NA
2-Methoxyethanol (I)	109864	NA	150	420	NA	NLV	NLV	NLV	NLV	5.9E+8	7.3E+5	1.1E+8
2-Methyl-4-chlorophenoxyacetic acid	94746	NA	390	1,100	NA	NLV	NLV	NLV	NLV	ID	7.3E+5	NA
2-Methyl-4,6-dinitrophenol	534521	NA	830 (M); 400	830 (M); 400	NA	NLV	NLV	NLV	NLV	5.9E+7	2.6E+5	NA

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							RBSLs					
N-Methyl-morpholine (I)	109024	NA	400	1,100	NA	NLV	NLV	NLV	NLV	ID	2.0E+6	1.1E+8
Methyl parathion	298000	NA	46	130	NA	NLV	NLV	NLV	NLV	ID	1.8E+5	NA
4-Methyl-2-pentanone (MIBK) (I)	108101	NA	36,000	1.0E+5	ID	6.9E+7 (C)	5.3E+7	5.3E+7	7.0E+7	6.0E+10	1.8E+8 (C)	2.7E+6
Methyl-tert-butyl ether (MTBE)	1634044	NA	800	800	1.4E+5 (X)	1.8E+7 (C)	3.0E+7	4.1E+7	8.9E+7	8.8E+10	7.1E+6 (C)	5.9E+6
Methylcyclopentane (I)	96377	NA	ID	ID	NA	1.7E+5	2.8E+6	8.3E+6	2.0E+7	2.1E+10	ID	3.5E+5
4,4'-Methylene-bis-2-chloroaniline	101144	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.1E+8	32,000	NA
Methylene chloride	75092	NA	100	100	30,000 (X)	2.4E+5	7.0E+5	1.7E+6	4.0E+6	8.3E+9	5.8E+6 (C)	2.3E+6
2-Methylnaphthalene	91576	NA	57,000	1.7E+5	4,200	4.9E+6	1.8E+6	1.8E+6	1.8E+6	2.9E+8	2.6E+7	NA
Methylphenols (J)	1319773	NA	7,400	20,000	1,000 (M); 600	NLV	NLV	NLV	NLV	2.9E+9	3.6E+7	NA
Metolachlor	51218452	NA	4,800	20,000	300	NLV	NLV	NLV	NLV	ID	6.9E+6 (C,DD)	4.4E+5
Metribuzin	21087649	NA	3,600	10,000	NA	ID	ID	ID	ID	ID	2.8E+7	NA
Mirex	2385855	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	40,000	NA
Molybdenum (B)	7439987	NA	1,500	4,200	64,000 (X)	NLV	NLV	NLV	NLV	ID	9.6E+6	NA
Naphthalene	91203	NA	35,000	1.0E+5	730	4.7E+5	3.5E+5	3.5E+5	3.5E+5	8.8E+7	5.2E+7	NA
Nickel (B)	7440020	20,000	1.0E+5	1.0E+5	(G)	NLV	NLV	NLV	NLV	1.6E+7	1.5E+8	NA
Nitrate (B,N)	14797558	NA	2.0E+5 (N)	2.0E+5 (N)	ID	NLV	NLV	NLV	NLV	ID	ID	NA
Nitrite (B,N)	14797650	NA	20,000 (N)	20,000 (N)	NA	NLV	NLV	NLV	NLV	ID	ID	NA

Nitrobenzene (I)	98953	NA	330 (M); 68	330 (M); 190	3,600 (X)	1.7E+5	64,000	64,000	64,000	2.1E+7	3.4E+5	4.9E+5
2-Nitrophenol	88755	NA	400	1,200	ID	NLV	NLV	NLV	NLV	ID	2.0E+6	NA
n-Nitroso-di-n-propylamine	621647	NA	330 (M); 100	330 (M); 100	NA	NLV	NLV	NLV	NLV	2.0E+6	5,400	1.5E+6
N-Nitrosodiphenylamine	86306	NA	5,400	22,000	NA	NLV	NLV	NLV	NLV	2.8E+9	7.8E+6	NA
Oxamyl	23135220	NA	4,000	4,000	NA	NLV	NLV	NLV	NLV	ID	2.8E+7	NA
Oxo-hexyl acetate	88230357	NA	1,500	4,200	NA	ID	ID	ID	ID	2.4E+9	7.3E+6	1.0E+7
Pendimethalin	40487421	NA	1.1E+6	1.1E+6	NA	NLV	NLV	NLV	NLV	ID	1.3E+8	NA
Pentachlorobenzene	608935	NA	29,000	81,000	9,500	ID	ID	ID	ID	ID	9.3E+5 (C)	1.9E+5
Pentachloronitrobenzene	82688	NA	37,000	37,000	NA	2.2E+5	2.8E+5	2.8E+5	2.8E+5	1.5E+8	5.5E+6	NA

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			Groundwater Protection			Indoor Air	Ambient Air (Y) (C)				Contact	Csat
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria & RBSLs	Nonresidential Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
Pentachlorophenol	87865	NA	22	22	(G,X)	NLV	NLV	NLV	NLV	1.3E+8	3.2E+5	NA
Pentane	109660	NA	ID	ID	NA	1.8E+5	4.4E+7	3.4E+8	6.0E+8	5.3E+11	ID	2.4E+5
2-Pentene (l)	109682	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	2.2E+5
Phenanthrene	85018	NA	56,000	1.6E+5	2,100	5.1E+6	1.9E+5	1.9E+5	1.9E+5	2.9E+6	5.2E+6	NA
Phenol	108952	NA	88,000	2.6E+5	9,000	NLV	NLV	NLV	NLV	1.8E+10	2.3E+8 (C,DD)	1.2E+7
Phenytoin	57410	NA	830	3300	4300 (X)	NLV	NLV	NLV	NLV	2.8E+8	4.8E+5	NA
Phosphorus (Total)	7723140	NA	1.3E+6	4.8E+6	(EE)	NLV	NLV	NLV	NLV	2.9E+7	1.0E+9 (D)	NA
Phthalic acid	88993	NA	2.8E+5	8.0E+5	NA	NLV	NLV	NLV	NLV	ID	1.0E+9 (C,D)	1.7E+6
Phthalic anhydride	85449	NA	3.0E+5	8.8E+5	NA	NLV	NLV	NLV	NLV	ID	1.0E+9 (C,D)	1.1E+6
Picloram	1918021	NA	10,000	10,000	920	NLV	NLV	NLV	NLV	ID	5.1E+7	NA

Piperidine	110894	NA	64	180	NA	NLV	NLV	NLV	NLV	4.1E+9	3.2E+5	1.2E+8
Polybrominated biphenyls (J)	67774327	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	4,800	NA
Polychlorinated biphenyls (PCBs) (J,T)	1336363	NA	NLL	NLL	NLL	1.6E+7	8.1E+5	2.8E+7	2.8E+7	6.5E+6	(T)	NA
Prometon	1610180	NA	4,900	14,000	NA	NLV	NLV	NLV	NLV	ID	1.6E+7	NA
Propachlor	1918167	NA	1,900	5,400	NA	NLV	NLV	NLV	NLV	ID	9.5E+6	NA
Propazine	139402	NA	4,000	11,000	NA	NLV	NLV	NLV	NLV	ID	2.0E+7	NA
Propionic acid	79094	NA	2.4E+5	7.0E+5	ID	NLV	NLV	NLV	NLV	8.8E+9	1.0E+9 (C,D)	1.1E+8
Propyl alcohol (I)	71238	NA	28,000	80,000	NA	NLV	NLV	NLV	NLV	2.1E+10	7.4E+7 (DD)	1.1E+8
n-Propylbenzene (I)	103651	NA	1,600	4,600	ID	ID	ID	ID	ID	5.9E+8	8.0E+6	1.0E+7
Propylene glycol	57556	NA	3.0E+6	8.4E+6	5.8E+6	NLV	NLV	NLV	NLV	1.8E+11	1.0E+9 (C,D)	1.1E+8
Pyrene	129000	NA	4.8E+5	4.8E+5	ID	1.0E+9 (D)	7.8E+8	7.8E+8	7.8E+8	2.9E+9	8.4E+7	NA
Pyridine (I)	110861	NA	400	420	NA	2,000	9,800	40,000	97,000	1.0E+8	7.3E+5 (C)	37,000
Selenium (B)	7782492	410	4,000	4,000	400	NLV	NLV	NLV	NLV	5.9E+7	9.6E+6	NA
Silver (B)	7440224	1,000	4,500	13,000	100 (M); 27	NLV	NLV	NLV	NLV	2.9E+6	9.0E+6	NA
Silvex (2,4,5-TP)	93721	NA	3,600	3,600	2,200	NLV	NLV	NLV	NLV	ID	5.5E+6	NA
Simazine	122349	NA	80	80	340	NLV	NLV	NLV	NLV	ID	3.8E+6	NA
Sodium	17341252	NA	4.6E+6	7.0E+6	NA	NLV	NLV	NLV	NLV	ID	1.0E+9 (D)	NA

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Sodium azide	26628228	NA	1,800	5,000	1,000	ID	ID	ID	ID	ID	8.7E+6	NA
Strontium (B)	7440246	NA	92,000	2.6E+5	4.2E+5	NLV	NLV	NLV	NLV	ID	1.0E+9 (D)	NA
Styrene	100425	NA	2,700	2,700	2,100 (X)	1.3E+6 (C)	3.3E+6	3.3E+6	4.2E+6	6.9E+9	1.9E+6 (C)	5.2E+5
Sulfate	14808798	NA	5.0E+6	5.0E+6	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Tebuthiuron	34014181	NA	10,000	30,000	NA	NLV	NLV	NLV	NLV	ID	2.7E+7 (DD)	NA
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	(O)	(O)	NA
1,2,4,5-Tetrachlorobenzene	95943	NA	1.5E+6	1.5E+6	3,400 (X)	1.1E+6	2.7E+5	2.7E+5	2.7E+5	2.9E+7	2.5E+8	NA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O)	1746016	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	59 (O)	0.99 (O)	NA

1,1,1,2-Tetrachloroethane	630206	NA	1,500	6,400	ID	33,000	1.2E+5	2.1E+5	3.3E+5	5.3E+8	2.2E+6 (C)	4.4E+5
1,1,2,2-Tetrachloroethane	79345	NA	170	700	1,600 (X)	23,000	34,000	34,000	34,000	6.8E+7	2.4E+5	8.7E+5
Tetrachloroethylene	127184	NA	100	100	1,200 (X)	21,000	2.1E+5	4.9E+5	1.1E+6	1.2E+9	9.3E+5 (C)	88,000
Tetrahydrofuran	109999	NA	1,900	5,400	2.2E+5 (X)	2.4E+6	1.5E+7	6.7E+7	1.6E+8	1.7E+11	9.5E+6	1.2E+8
Tetranitromethane	509148	NA	ID	ID	NA	600	500 (M); 180	ID	ID	2.6E+5	ID	ID
Thallium (B)	7440280	NA	2,300	2,300	4,200 (X)	NLV	NLV	NLV	NLV	5.9E+6	1.3E+5	NA
Toluene (I)	108883	NA	16,000	16,000	5,400	6.1E+5 (C)	3.3E+6	3.6E+7	3.6E+7	1.2E+10	1.6E+8 (C)	2.5E+5
p-Toluidine	106490	NA	660 (M); 300	1,200	NA	NLV	NLV	NLV	NLV	1.3E+8	4.3E+5	1.2E+6
Toxaphene	8001352	NA	24,000	24,000	8,200	NLV	NLV	NLV	NLV	1.2E+7	85,000	NA
Triallate	2303175	NA	95,000	2.7E+5 (C)	NA	ID	ID	ID	ID	ID	9.5E+6 (C)	2.5E+5
Tributylamine	102829	NA	7,800	23,000	ID	1.1E+6	7.2E+5	7.2E+5	7.2E+5	2.1E+8	2.6E+6	3.7E+6
1,2,4-Trichlorobenzene	120821	NA	4,200	4,200	5,900 (X)	1.8E+7 (C)	3.4E+7	3.4E+7	3.4E+7	1.1E+10	5.8E+6 (C,DD)	1.1E+6
1,1,1-Trichloroethane	71556	NA	4,000	4,000	1,800	4.6E+5	4.5E+6	1.5E+7	3.1E+7	2.9E+10	1.0E+9 (C,D)	4.6E+5
1,1,2-Trichloroethane	79005	NA	100	100	6,600 (X)	24,000	57,000	57,000	1.2E+5	2.5E+8	8.4E+5	9.2E+5
Trichloroethylene	79016	NA	100	100	4,000 (X)	1,900	14,000	25,000	58,000	5.9E+7	6.6E+5 (C,DD)	5.0E+5
Trichlorofluorom	75694	NA	52,000	1.5E+5	NA	5.1E+6(C	1.1E+8	1.4E+1	1.4E+1	1.7E+1	2.6E+8	5.6E+5

ethane						)		1	1	2	(C)	
2,4,5-Trichlorophenol	95954	NA	39,000	1.1E+5	NA	NLV	NLV	NLV	NLV	1.0E+10	7.3E+7	NA
2,4,6-Trichlorophenol	88062	NA	2,400	9,400	330 (M); 100	NLV	NLV	NLV	NLV	1.3E+9	3.3E+6	NA

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1,2,3-Trichloropropane	96184	NA	840	2,400	NA	7,500	11,000	11,000	12,000	8.8E+6	4.2E+6 (C)	8.3E+5
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	9.0E+6 (C)	9.0E+6 (C)	1,700	9.3E+6 (C)	2.1E+8	8.9E+8	2.1E+9	2.3E+12	1.0E+9 (C,D)	5.5E+5
Triethanolamine	102716	NA	74,000	2.0E+5	NA	NLV	NLV	NLV	NLV	1.5E+9	3.6E+8 (C)	1.1E+8
Triethylene glycol	112276	NA	86,000	2.4E+5 (C)	NA	NLV	NLV	NLV	NLV	ID	2.3E+8 (C,DD)	1.1E+5
3-Trifluoromethyl-4-nitrophenol	88302	NA	1.1E+5	3.1E+5	NA	NLV	NLV	NLV	NLV	ID	2.4E+8 (DD)	NA
Trifluralin	1582098	NA	1.9E+5	5.7E+5	NA	ID	ID	ID	ID	ID	5.7E+6	NA
2,2,4-Trimethyl	54084	NA	ID	ID	NA	2.0E+5	6.3E+6	4.0E+7	9.6E+7	1.0E+1	ID	19,000

pentane	1					(C)				1		
2,4,4-Trimethyl-2-pentene (I)	107404	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	56,000
1,2,4-Trimethylbenzene (I)	95636	NA	2,100	2,100	570	8.0E+6 (C)	2.5E+7	6.0E+8	6.0E+8	3.6E+10	1.0E+8 (C)	1.1E+5
1,3,5-Trimethylbenzene (I)	108678	NA	1,800	1,800	1,100	4.8E+6 (C)	1.9E+7	4.6E+8	4.6E+8	3.6E+10	1.0E+8 (C)	94,000
Triphenyl phosphate	115866	NA	1.5E+6 (C)	1.8E+6 (C)	NA	NLV	NLV	NLV	NLV	ID	1.2E+8 (C)	1.1E+5
tris(2,3-Dibromopropyl)phosphate	126727	NA	930	930	ID	4.3E+5 (C)	60,000	60,000	60,000	7.4E+6	20,000	27,000
Urea	57136	NA	ID	ID	NA	NLV	NLV	NLV	NLV	ID	ID	NA
Vanadium	7440622	NA	72,000	9.9E+5	4.3E+5	NLV	NLV	NLV	NLV	ID	5.5E+6 (DD)	NA
Vinyl acetate (I)	108054	NA	13,000	36,000	NA	1.5E+6	2.0E+6	2.7E+6	5.9E+6	5.9E+9	3.4E+7 (C,DD)	2.4E+6
Vinyl chloride	75014	NA	40	40	260 (X)	2,800	29,000	1.7E+5	4.2E+5	8.9E+8	34,000	4.9E+5
White phosphorus (R)	12185103	NA	2.2	6	NA	NLV	NLV	NLV	NLV	ID	17,000 (DD)	NA
Xylenes (I)	1330207	NA	5,600	5,600	820	1.2E+7 (C)	5.4E+7	6.5E+7	1.3E+8	1.3E+11	1.0E+9 (C,D)	1.5E+5
Zinc (B)	7440666	47,000	2.4E+6	5.0E+6	(G)	NLV	NLV	NLV	NLV	ID	6.3E+8	NA

History: 2013 AACS.

R 299.49 Footnotes for generic cleanup criteria tables.

Rule 49. (1) The footnotes that apply to the generic criteria tables in ~~R 299.44,~~ R 299.46~~, and R 299.48~~ are as follows:

(A) Criterion is the state of Michigan drinking water standard established pursuant to section 5 of 1976 PA 399, MCL 325.1005.

(B) Background, as defined in ~~R 299.1(b)~~ **section 20101(1)(e) of the act**, may be substituted if ~~higher~~ **it has a greater numeric value** than the ~~calculated~~ cleanup criterion. ~~Background levels may be less than criteria for some inorganic compounds.~~

(C) The criterion developed under R 299.20 to R 299.2~~6~~**7** exceeds the chemical-specific soil saturation screening level (C_{sat}). The person proposing or implementing response activity shall document whether additional response activity is required to control ~~free phase liquids or~~ NAPL to protect against risks associated with ~~free phase liquids~~**NAPL** by using methods appropriate for the ~~free phase liquids~~**NAPL** present. Development of a site-specific C_{sat} or methods presented in R 299.22, ~~R 299.24(5), and R 299.26(8)~~ may be conducted for the relevant exposure pathway~~s~~.

(D) Calculated ~~criterion~~ **health-based soil value** exceeds 10~~0~~ ~~percent~~**% by dry weight**, hence it is reduced to **the maximum ceiling concentration of** 10~~0~~ ~~percent~~**%** or 1.0E+~~9~~**8** parts per billion (ppb).

(E) Criterion is the aesthetic drinking water value, as required by section 20120a(5) of the ~~Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA)~~**act**. A notice of aesthetic impact may be ~~employed~~**used** as a~~n institutional control mechanism~~**land or resource use restriction** if groundwater concentrations exceed the aesthetic drinking water criterion, but do not exceed the applicable health-based drinking water value provided in the following table:

Hazardous Substance	~~Chemical Abstract Service~~ **CAS** Number	**Aesthetic Drinking Water Value µg/L**	Residential Health-Based Drinking Water Value***** **µg/L**	Non-Residential Health-Based Drinking Water Value **µg/L**
Aluminum	7429905	**50**	~~300~~**4,000 (V)**	~~4,100~~ **16,000 (V)**
~~tertiary-~~Amyl methyl ether **(TAME)**	994058	**190**	~~910~~**770**	~~2,600~~**2,400**
~~Copper~~	~~7440508~~		~~1,400~~	~~4,000~~
Chloride	**16887006**	**2.5E+5**	**NA**	**NA**
Diethyl ether	**60297**	**5.0 (M); 1.2**	~~3,700~~**1,200**	~~10,000~~**3,800**
Ethyl-tert-butyl ether (ETBE)	**637923**	**49**	**550**	**1,700**
Ethylbenzene	100414	**74**	~~700~~**(66)***	~~700~~**330**
Iron	**7439896**	**300**	~~2,000~~**4,200**	~~5,600~~**13,000**
Manganese	7439965	**50**	~~860~~**700**	~~2,500~~**2,200**
Methyl-tert-butyl ether (MTBE)	1634044	**40**	~~240~~**210**	~~690~~**1,100**
Sulfate	**14808798**	**2.5E+5**	**NA**	**NA**
Toluene	108883	**790**	~~1,000~~**(470)***	~~1,000~~**1,500**
Total Dissolved Solids	**NA**	**5.0E+5**	**NA**	**NA**
1,2,3-Trimethylbenzene	**526738**	**130**	**(120)***	**380**

Hazardous Substance	~~Chemical Abstract Service~~ **CAS** Number	**Aesthetic Drinking Water Value µg/L**	Residential Health-Based Drinking Water Value* **µg/L**	Non-Residential Health-Based Drinking Water Value **µg/L**
1,2,4-Trimethylbenzene	95636	**63**	~~1,000~~**120**	~~2,900~~**380**
1,3,5-Trimethylbenzene	108678	**72**	~~1,000~~**120**	~~2,900~~**380**
Xylenes	1330207	**280**	~~10,000~~**1,200**	~~10,000~~**3,800**
Zinc	**7440666**	**5,000**	**(1,800)***	**5,700**

*** The health-based drinking water values in parenthesis are the final drinking water criteria and a notice of aesthetic impact is not appropriate.**

(F) Criterion is based on adverse impacts to plant life and phytotoxicity. **Boron drinking water criteria listed are health-based values and do not protect for adverse impacts to plant life and phytotoxicity from irrigation water. Pursuant to R 299.28, when irrigation water is a reasonable and relevant use of groundwater the potential for phytotoxicity and injury to the groundwater resource that may impair its use for irrigation require consideration. The department has determined 500 ppb is necessary to address the risks to plant life and groundwater resources not otherwise accounted for with the generic criterion. Boron soil criteria protective of drinking water are based upon adverse impacts to plant life and phytotoxicity from soil conditions.**

(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water. Where water hardness exceeds 400 mg $CaCO_3$/L, use 400 mg $CaCO_3$/L for the FCV calculation. The FCV formula provides values in units of ~~ug/L~~ **µg/L** or ppb. The generic GSI criterion is the lesser of the calculated FCV, the wildlife value (WV), and the surface water human non-drinking water value (HN~~D~~V)**, for these hazardous substances WVs are not available**. ~~The soil GSI protection criteria for these hazardous substances are the greater of the 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote.~~

Hazardous Substance	**CAS Number**	FCV Formula ~~ug/L~~ **µg/L**	FCV Conversion Factor (CF)	~~WV ug/L~~	HN~~D~~V ~~ug/L~~ **µg/L**
Acetate	**71501**	EXP(0.2732~~*~~**×**(pH) + 7.0362)	NA	~~NA~~	1.3E+6
Acetic Acid	**64197**	EXP(0.2732~~*~~**×**(pH) + 7.0362)	NA	~~NA~~	1.3E+6
Barium	**7440393**	EXP(1.0629~~*~~**×**(LnH)+1.1869)	NA	~~NA~~	1.6E+5
Beryllium	**7440417**	~~EXP(2.5279*×(LnH) 10.7689)~~ **EXP(1.6839×(LnH)-5.8575)**	NA	~~NA~~	1,200

Hazardous Substance	**CAS Number**	FCV Formula ~~ug/L~~ **µg/L**	FCV Conversion Factor (CF)	~~WV~~ ~~ug/L~~	HN~~D~~V ~~ug/L~~ **µg/L**
Cadmium⊗	**7440439**	(EXP(0.7852~~*~~**×**(LnH)-2.715))~~*~~**×**CF	~~1.101672-((LnH)*(0.041838))~~ **1.101672-((LnH)×(0.04184))**	~~NA~~	130
Chromium (total) ⊗	**7440473**	(EXP(0.819~~*~~**×**(LnH)+0.6848))~~*~~**×**CF	0.86	~~NA~~	9,400
Copper	**7440508**	(EXP(0.8545~~*~~**×**(LnH)-1.702)) ~~*~~**×**CF	0.96	~~NA~~	38,000
Lead⊗	**7439921**	(EXP(0.9859~~*~~**×**(LnH)-1.270))~~*~~**×**CF	1.46203-((LnH)~~*~~**×**(0.14571))	~~NA~~	190
Manganese⊗	**7439965**	EXP(0.8784~~*~~**×**(LnH)+3.5385)	NA	~~NA~~	59,000
Nickel	**7440020**	(EXP(0.846~~*~~**×**(LnH)+0.0584))~~*~~**×**CF	0.997	~~NA~~	2.1E+5
Pentachlorophenol⊗	**87865**	EXP(1.005~~*~~**×**(pH)-5.134)	NA	~~NA~~	2.8
Zinc	**7440666**	(EXP(0.8473~~*~~**×**(LnH)+0.884))~~*~~**×**CF	0.986	~~NA~~	16,000

where,

EXP(x) = The base of the natural logarithm raised to power x (e^x).

LnH = The natural logarithm of water hardness in mg $CaCO_3$/L.

~~*~~ = ~~The multiplication symbol.~~

⊗ = The GSI criterion developed here may not be protective for surface water that is used as a drinking water source. Refer to footnote (X) for further guidance.

The soil GSI protection criteria for these hazardous substances are the greater of the 20 times the GSI criterion or the soil-water partition values using the GSI criteria developed with the procedure described in this footnote. ~~A spreadsheet that may be used to calculate GSI and GSI protection criteria for (G) footnoted hazardous substances is available on the Department of Environmental Quality (DEQ) internet web site.~~

(H) Valence-specific chromium data (Cr III and Cr VI) shall be compared to the corresponding valence-specific cleanup criteria **for soil**. ~~If both Cr III and Cr VI are present in groundwater,~~ ~~t~~**T**he total concentration of ~~both~~ **chromium** cannot exceed the drinking water criterion of 100 ~~ug/L~~**µg/L**. If analytical data are provided for total chromium only, they shall be compared to the cleanup criteria for Cr VI. ~~Cr III soil cleanup criterion for protection of drinking water can only be used at sites where groundwater is prevented from being used as a public water supply, currently and in the future, through an approved land or resource use restriction.~~

(I) Hazardous substance may exhibit the characteristic of ignitability as defined ~~40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules~~**.** ~~and is available for inspection at the DEQ, 525 West Allegan Street,~~

~~Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost~~ **under part 111 of the act** in **R 299.9212(1)**.

(J) Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.

(K) Hazardous substance may be flammable or explosive, or both.

(L) **Drinking water, soils protective of drinking water and direct contact** ~~C~~**c**riteria for lead are derived using a biologically based model, as allowed for under section 20120a(9) of the ~~NREPA~~**act**, and are not calculated using the ~~algorithms~~**equations** and generic input values in pathway-specific rules**. Total lead and both fine and coarse lead fractions analysis may be required for comparison to lead soil criteria**.~~The generic residential drinking water criterion of 4 ug/L is linked to the generic residential soil direct contact criterion of 400 mg/kg. A higher concentration in the drinking water, up to the state action level of 15 ug/L, may be allowed as a site-specific remedy and still allow for drinking water use, under Section 20120a(2) and 20120b of the NREPA if soil concentrations are appropriately lower than 400 mg/kg. If a site-specific criterion is approved based on this subdivision, a notice shall be filed on the deed for all property where the groundwater concentrations will exceed 4 ug/L to provide notice of the potential for unacceptable risk if soil or groundwater concentrations increase. Acceptable combinations of site-specific soil and drinking water concentrations are presented in the following table:~~

~~Acceptable Combinations of Lead in Drinking Water and Soil~~

~~Drinking Water Concentration (ug/L)~~	~~Soil Concentration (mg/kg)~~
~~5~~	~~386-395~~
~~6~~	~~376-385~~
~~7~~	~~376-385~~
~~8~~	~~366-375~~
~~9~~	~~356-365~~
~~10~~	~~346-355~~
~~11~~	~~336-345~~
~~12~~	~~336-345~~
~~13~~	~~326-335~~
~~14~~	~~316-325~~
~~15~~	~~306-315~~

(M) Calculated ~~criterion~~ **health-based value** is below the analytical target detection limit, therefore, the ~~criterion defaults to~~ ~~the~~ target detection limit **is the criterion**. **The target detection limit is established specific for an individual environmental medium. The volatilization to indoor air pathway is evaluated using criterion for soil, groundwater and vapor pursuant to R 299.27. When a volatilization to indoor air criterion is the target detection limit for 1 or more medium, further evaluation of the remaining media is required to demonstrate compliance for the pathway.**

(N) The concentrations of all potential sources of ~~nitrate nitrogen (e.g.,~~ ammonia-N, nitrite-N, **and** nitrate-N~~)~~ in groundwater that is used as a source of drinking water shall not, when added together, exceed the nitrate drinking water criterion of 10,000 ~~ug/L~~**µg/L**. Where leaching to groundwater is a relevant pathway, soil concentrations of all potential sources of nitrate-nitrogen shall not, when added together, exceed the nitrate drinking water protection criterion of 2.0E+5 ~~u~~**µ**g/kg.

(O) The concentration of all polychlorinated and polybrominated dibenzodioxin and dibenzofuran ~~isomers~~**and polychlorinated biphenyl congeners listed in the table below** present at a facility, expressed as an equivalent concentration of 2,3,7,8-tetrachlorodibenzo-p-dioxin based upon their ~~relative potency~~ **toxicity equivalence factors (TEF)**, shall be added together and compared to the criteria for 2,3,7,8-tetrachlorodibenzo-p-dioxin. **Soil direct contact criteria for these hazardous substances are not protective for the human consumption of eggs from chickens with access to soil at these concentrations. In addition, the soil direct contact criteria may not be protective for other livestock products raised or produced on soils at these concentrations. Exposure from livestock products is an injury which requires consideration pursuant to R 299.28.** ~~The generic cleanup criteria for 2,3,7,8-tetrachlorodibenzo-p-dioxin are not calculated according to the algorithms presented in R 299.14 to R 299.26. The generic cleanup criteria are being held at the values that the DEQ has used since August 1998, in recognition of the fact that national efforts to reassess risks posed by dioxin are not yet complete. Until these studies are complete, it is premature to select a revised slope factor and/or reference dose for calculation of generic cleanup criteria.~~ **Toxicity equivalence factors for dibenzodioxins, dibenzofurans, and dioxin-like polychlorinated biphenyls are identified as follow:**

Dioxin Congener	CAS Number	TEF
2,3,7,8-TCDD	1746016	1.0
1,2,3,7,8-PeCDD	40321764	1.0 (0.5)*
1,2,3,4,7,8-HxCDD	39227286	0.1
1,2,3,6,7,8-HxCDD	57653857	0.1
1,2,3,7,8,9-HxCDD	19408743	0.1
1,2,3,4,6,7,8-HpCDD	35822469	0.01
1,2,3,4,6,7,8,9-OCDD	3268879	0.0003 (0.001)*

Furan Congener	CAS Number	TEF
2,3,7,8-TCDF	51207319	0.1
1,2,3,7,8-PeCDF	57117416	0.03 (0.05)*
2,3,4,7,8-PeCDF	57117314	0.3 (0.05)*
1,2,3,4,7,8-HxCDF	70648269	0.1
1,2,3,6,7,8-HxCDF	57117449	0.1
1,2,3,7,8,9-HxCDF	72918219	0.1
2,3,4,6,7,8-HxCDF	60851345	0.1
1,2,3,4,6,7,8-HpCDF	67562394	0.01
1,2,3,4,7,8,9-HpCDF	55673897	0.01
1,2,3,4,5,7,7,9-OCDF	39001020	0.0003 (0.001)*

*** For comparison of groundwater samples to GSI criteria, use the TEF in parentheses and do not include dioxin-like PCB congeners (R 323.1209).**

PCB Congener	CAS Number	TEF
3,3,4,4'-TCB (77)	32598133	0.0001
3,4,4',5-TCB (81)	70362604	0.0003
3,3',4,4',5-PeCB (126)	57465288	0.1
3,3',4,4',5,5',-HxCB (169)	32774166	0.03
2,3,3',4,4'-PeCB (105)	32598144	0.00003
2,3,4,4',5-PeCB (114)	74472370	0.00003
2,3,4,4',5-PeCB (118)	31508006	0.00003
2',3,4,4'5-PeCB (123),	65510443	0.00003
2,3,3',4,4',5-HxCB (156)	38380084	0.00003
2,3,3',4,4',5-HxCB (157)	69782907	0.00003
2,3,4,4',5,5'-HxCB (167)	52663726	0.00003
2,3,3',4,4',5,5',-HxCB (189)	39635319	0.00003

(P) ~~Amenable cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with all groundwater criteria. Total cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with soil criteria.~~**The residential direct contact criterion for cyanide is protective of acute toxicity resulting in fatality; therefore, the concentrations of individual discrete samples are required for comparison to this criterion. The nonresidential** direct contact **criterion** may not be protective of the potential for release of hydrogen cyanide gas **with acidic conditions**. Additional **response activity or** land or resource use restrictions may be necessary to **be** protect**ive** for the acute inhalation concerns associated with hydrogen cyanide gas.

(Q) ~~Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.~~ **The concentration of each carcinogenic polynuclear aromatic hydrocarbon (cPAH) detected at a facility shall be expressed as its equivalent concentration of benzo(a)pyrene by multiplying the concentration by its respective toxicity equivalent factor (TEF). All TEF-adjusted cPAH concentrations shall then be added together and the total TEF-adjusted concentration compared to the relevant criteria for benzo(a)pyrene. The cPAH and their associated TEF are identified as follows:**

Hazardous Substance	CAS Number	TEF
Benzo(a)pyrene	50328	1.0
Benzo(a)anthracene	56553	0.1
Benzo(b)fluoranthene	205992	0.1
Benzo(k)fluoranthene	207089	0.01
Chrysene	218019	0.001
Dibenz(a,h)anthracene	53703	1.0
Indeno(1,2,3-c,d)pyrene	193395	0.1

(R) Hazardous substance may exhibit the characteristic of reactivity as defined ~~40 C.F.R. §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules. and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost~~ **under part 111 of the act** in **R 299.9212(3)**.

(S) ~~Criterion defaults to~~ **Calculated health-based value exceeds** the hazardous substance-specific water solubility limit**, therefore, the water solubility limit is the criterion**.

(T) Refer to the federal Toxic Substances Control Act (TSCA), 40 C.F.R. §761, Subpart D and 40 C.F.R. §761, Subpart G, to determine the applicability of TSCA cleanup standards. Subpart D and Subpart G of 40 C.F.R. §761 (~~July 1, 2001~~ **September 29, 2014**) are adopted by reference in these rules and are available for inspection at the **Michigan** D**epartment of** E**nvironmental** Q**uality (M**DEQ**)**, 525 West Allegan Street, Lansing, Michigan. Copies of the regulations may be purchased, at a cost as of the time of adoption of these rules of $55, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401, or from the **M**DEQ~~, RRD~~, 525 West Allegan Street, Lansing, Michigan 48933, at cost. Alternatives to compliance with the TSCA standards listed below are possible under 40 C.F.R. §761 Subpart D. New releases may be subject to the standards identified in 40 C.F.R. §761, Subpart G. Use ~~Part 201~~**the** soil direct contact cleanup criteria in the following table if TSCA standards are not applicable.

Land Use Category	TSCA, Subpart D Cleanup Standards	~~Part 201~~ Soil Direct Contact Cleanup Criteria
Residential	1,000 ppb, or 10,000 ppb if capped	~~4,000~~ **1,900** ppb
Nonresidential	1,000 ppb, or 10,000 ppb if capped	~~16,000~~ **20,000** ppb

(U) Hazardous substance may exhibit the characteristic of corrosivity as defined ~~40 C.F.R. §261.22 (revised as of July 1, 2001), which is adopted by reference in these rules. and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost~~ **under part 111 of the act** in **R 299.9212(2), as it may result in an aqueous mixture that has a pH less than or equal to 2 or greater than or equal to 12.5**.

(V) Criterion is the aesthetic drinking water value as required by section 20120(a)(5) of the ~~NREPA~~**act**. Concentrations up to 200 ~~ug/L~~**µg/L** may be acceptable, and still allow for drinking water use, as part of **an unrestricted** site-specific cleanup under section**s** 20120a(2) and 20120b of the ~~NREPA~~**act**.

(W) Concentrations of trihalomethane~~s~~ **disinfection by-products** in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ~~ug/L~~**µg/L**. Concentrations of trihalomethanes in soil shall be added together to determine compliance with the drinking water protection criterion of 1,600 ~~u~~**µ**g/kg. **The trihalomethanes are: bromodichloromethane (CAS No. 75274), bromoform (CAS No. 75252), chloroform (CAS No. 67663), and dibromochloromethane (CAS No. 74953).**

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. For a groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value (HDV) listed in the table in this footnote, except for those HDV indicated with an asterisk. For HDV with an asterisk, the generic GSI criterion shall be the lowest of the HDV, the WV, and the calculated FCV. See formulas in footnote (G). ~~Soil protection criteria based on the HDV shall be as listed in the table in this footnote, except for those values with an asterisk.~~ Soil GSI protection criteria based on the HDV shall be as listed in the table in this footnote, except for those values with an asterisk. Soil GSI protection criteria for compounds with an asterisk shall be the greater of 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote.

~~Hazardous Substance~~	~~Chemical Abstract Service Number~~	~~Surface Water Human Drinking Water Values (HDV) (ug/L)~~	~~Soil GSI Protection Criteria for HDV (µug/kg)~~
~~Acrylamide~~	~~79061~~	~~0.5 (M); 0.12~~	~~10~~
~~Alachlor~~	~~15972608~~	~~3.5~~	~~88~~
~~Antimony~~	~~7440360~~	~~2.0 (M); 1.7~~	~~1,200~~
~~Benzene~~	~~71432~~	~~12~~	~~240~~
~~Boron~~	~~7440428~~	~~4,000~~	~~80,000~~
~~Bromate~~	~~15541454~~	~~10 (M); 0.5~~	~~200~~
~~n-Butanol~~	~~71363~~	~~3,500~~	~~70,000~~
~~Butyl benzyl phthalate~~	~~85687~~	~~6.9~~	~~13,000~~
~~Cadmium~~	~~7440439~~	~~2.5*~~	~~*~~
~~Carbon tetrachloride~~	~~56235~~	~~5.6~~	~~110~~
~~Chloride~~	~~16887006~~	~~50,000~~	~~1.0E+6~~
~~Chloroethane~~	~~75003~~	~~170~~	~~3,400~~
~~Chromium (III)~~	~~16065831~~	~~120*~~	~~*~~
~~Cyanazine~~	~~21725462~~	~~2.0 (M); 0.93~~	~~200 (M); 40~~
~~1,2-Dichloroethane~~	~~107062~~	~~6.0~~	~~120~~
~~trans-1,2-Dichloroethylene~~	~~156605~~	~~470~~	~~9,400~~
~~1,2-Dichloropropane~~	~~78875~~	~~9.1~~	~~180~~
~~1,3-Dichloropropene~~	~~542756~~	~~3.3~~	~~100 (M); 66~~
~~N,N-Dimethylacetamide~~	~~127195~~	~~700~~	~~14,000~~
~~1,4-Dioxane~~	~~123911~~	~~34~~	~~680~~
~~Ethylene dibromide~~	~~106934~~	~~0.17~~	~~20 (M); 3.4~~

~~Hazardous Substance~~	~~Chemical Abstract Service Number~~	~~Surface Water Human Drinking Water Values (HDV) (ug/L)~~	~~Soil GSI Protection Criteria for HDV (µug/kg)~~
~~Ethylene glycol~~	~~107211~~	~~56,000~~	~~1.1E+6~~
~~Hexachloroethane~~	~~67721~~	~~5.3~~	~~310~~
~~Isophorone~~	~~78591~~	~~310~~	~~6,200~~
~~Isopropyl alcohol~~	~~67630~~	~~28,000~~	~~5.6E+5~~
~~Lead~~	~~7439921~~	~~14*~~	~~*~~
~~Manganese~~	~~7439965~~	~~1,300*~~	~~*~~
~~Methanol~~	~~67561~~	~~14,000~~	~~2.8E+5~~
~~Methyl-tert-butyl ether (MTBE)~~	~~1634044~~	~~100~~	~~2,000~~
~~Methylene chloride~~	~~75092~~	~~47~~	~~940~~
~~Molybdenum~~	~~7439987~~	~~120~~	~~2,400~~
~~Nitrobenzene~~	~~98953~~	~~4.7~~	~~330 (M); 94~~
~~Pentachlorophenol~~	~~87865~~	~~1.8*~~	~~*~~
~~Styrene~~	~~100425~~	~~20~~	~~530~~
~~1,2,4,5-Tetrachlorobenzene~~	~~95943~~	~~2.8~~	~~3,300~~
~~1,1,2,2-Tetrachloroethane~~	~~79345~~	~~3.2~~	~~64~~
~~Tetrachloroethylene~~	~~127184~~	~~11~~	~~220~~
~~Tetrahydrofuran~~	~~109999~~	~~350~~	~~7,000~~
~~Thallium~~	~~7440280~~	~~2.0 (M); 1.2~~	~~1,400~~
~~1,2,4-Trichlorobenzene~~	~~120821~~	~~80~~	~~4,700~~
~~1,1,2-Trichloroethane~~	~~79005~~	~~12~~	~~240~~
~~Trichloroethylene~~	~~79016~~	~~29~~	~~580~~
~~Vinyl chloride~~	~~75014~~	~~1.0 (M); 0.25~~	~~40 (M); 20~~

Hazardous Substance	**CAS Number**	**Generic GSI Criterion (µg/L)**	**Surface Water Human Drinking Water Values (HDV) (µg/L)**	**Soil GSI Protection Criteria for HDV (µg/kg)**
Acetonitrile	**75058**	**13,000**	**5,600**	**1.1E+5**
Acrylamide	**79061**	**10**	**0.5(M); 0.12**	**10**
Acrylonitrile	**107131**	**2.0(M); 1.2**	**2.0(M); 0.21**	**100(M); 40**
Alachlor	**15972608**	**11**	**3.5**	**70**
Antimony	**7440360**	**130**	**2.0**	**1,400**
Benzene	**71432**	**200**	**12**	**240**
Benzidine	**92875**	**0.3(M); 0.073**	**0.3(M); 0.0015**	**1,000(M); 12**
Boron	**7440428**	**7,200**	**4,000**	**80,000**
Bromate	**15541454**	**40**	**10(M); 0.5**	**200**
n-Butanol	**71363**	**9,800**	**3,500**	**70,000**
Butyl benzyl phthalate	**85687**	**67**	**6.9**	**1,600**
Cadmium	**7440439**	**(G)**	**2.5***	****
Carbon tetrachloride	**56235**	**38**	**4.7**	**94**
Chloride	**16887006**	**1.25E+5**	**50,000**	**1.0E+6**
Chloroethane	**75003**	**1,100**	**170**	**3,400**
Chromium (III)	**16065831**	**(G)**	**120**	**1.0E+8(D)**
Cyanazine	**21725462**	**56**	**2.0(M); 0.93**	**200(M); 40**
3,3'-Dichlorobenzidine	**91941**	**0.03(M); 0.2**	**0.3(M); 0.14**	**2,000(M); 31**
1,2-Dichloroethane	**107062**	**360**	**6.0**	**120**
trans-1,2-Dichloroethylene	**156605**	**1,500**	**470**	**9,400**
1,2-Dichloropropane	**78875**	**230**	**9.1**	**180**
1,3-Dichloropropene	**542756**	**9.0**	**3.3**	**100(M); 66**

Hazardous Substance	CAS Number	Generic GSI Criterion (µg/L)	Surface Water Human Drinking Water Values (HDV) (µg/L)	Soil GSI Protection Criteria for HDV (µg/kg)
N,N-Dimethylacetamide	127195	4,100	700	14,000
1,4-Dioxane	123911	2,800	34	680
Ethylene dibromide	106934	5.7	0.17	20(M); 3.4
Ethylene glycol	107211	1.9E+05	56,000	1.1E+6
Heptachlor	76448	0.01(M); 0.0018	0.01(M); 0.0017	450
Hexachloroethane	67721	6.7	5.3	300(M); 110
Isophorone	78591	1,300	310	6,200
Isopropyl alcohol	67630	57,000	28,000	5.6E+5
Lead	7439921	(G)	14*	*
Lindane	58899	0.03(M); 0.026	0.03(M); 0.025	20(M); 2.7
Manganese	7439965	(G)	1,300*	*
Methanol	67561	5.9E+5	14,000	2.8E+5
Methyl-tert-butyl ether (MTBE)	1634044	7,100	100	2,000
Methylene chloride	75092	1,500	47	940
Molybdenum	7439987	3,200	120	2,400
Nitrobenzene	98953	180	4.7	330(M); 94
Pentachlorophenol	87865	(G)	1.8	290
Perfluorooctanoic acid	335671	12	0.42	350
Perfluorooctane sulfonic acid	1763231	0.012	0.011	0.22
Phenytoin	57410	89	15(M); 6.1	720
Styrene	100425	80	20	400
1,2,4,5-Tetrachlorobenzene	95943	2.9	2.8	330(M); 200
1,1,2,2-Tetrachloroethane	79345	78	3.2	64
Tetrachloroethylene	127184	60	11	220
Tetrahydrofuran	109999	11,000	350	7,000
Thallium	7440280	3.7	2.0(M); 1.2	1,400
1,2,4-Trichlorobenzene	120821	99	80	3,500
1,1,2-Trichloroethane	79005	330	12	240
Trichloroethylene	79016	200	29	580
Vinyl chloride	75014	13	1.0(M); 0.25	40(M); 20

(Y) Source size modifiers shown in the following table shall be used to determine soil inhalation criteria for ambient air when the source size is not one-half acre. The ~~modifier shall be multiplied by~~ ~~the~~ generic soil inhalation criteria shown in the table of generic cleanup criteria **shall be multiplied by the modifier** to determine the applicable ~~criterion~~**health based value**. **If the resulting value exceeds the maximum ceiling concentration that concentration becomes the criterion. [Footnote (D)]. If the resulting value is less than the target detection limit the target detection limit becomes the criterion [Footnote M]. The modified criterion may exceed the chemical-specific C_{sat}.** See Footnote (C) **and R 299.4(9)**.

~~Source Size~~	

~~sq. feet or acres~~	~~Modifier~~
~~400 sq feet~~	~~3.17~~
~~1000 sq feet~~	~~2.2~~
~~2000 sq feet~~	~~1.76~~
~~1/4 acre~~	~~1.15~~
~~1/2 acre~~	~~1~~
~~1 acre~~	~~0.87~~
~~2 acre~~	~~0.77~~
~~5 acre~~	~~0.66~~
~~10 acre~~	~~0.6~~
~~32 acre~~	~~0.5~~
~~100 acre~~	~~0.43~~

Source Size Modifiers:

Contamination Source Area Size (ft^2 or acres)	Modifier for deriving final VSIC/PSIC
100 ft^2	6.97
400 ft^2	3.05
1000 ft^2	2.14
2000 ft^2	1.74
½ acre	1.00
1 acre	0.88
2 acres	0.77
5 acres	0.66
10 acres	0.59
20 acres	0.52
30 acres	0.49
50 acres	0.45
75 acres	0.43
100 acres	0.41
150 acres	0.38
200 acres	0.36
300 acres	0.34
400 acres	0.33
500 acres	0.32
1000 acres	0.28
1500 acres	0.26

(Z) ~~Mercury is typically measured as total mercury~~. The generic cleanup criteria~~, however,~~ are based on data for different species of mercury**; however, total mercury analytical results are compared to criteria.** ~~Specifically, data for elemental mercury, chemical abstract service (CAS) number 7439976, serve as the basis for the soil volatilization to indoor air criteria, groundwater volatilization to indoor air, and soil inhalation criteria. Data for methyl mercury, CAS number 22967926, serve as the basis for the GSI criterion; and data for mercuric chloride, CAS number 7487947, serve as the basis for the drinking water, groundwater contact, soil direct contact, and the groundwater protection criteria. Comparison to criteria shall be based on species-specific analytical data only if sufficient~~

~~facility characterization has been conducted to rule out the presence of other species of mercury.~~

(AA) ~~Use 10,000 ug/l where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 ug/l for all other uses.~~**Health-based criteria are not available for methane dissolved in groundwater due to insufficient toxicity data. 10,000 µg/L is an acceptable screening level to evaluate potential explosive risks when groundwater is not under pressure, groundwater is not entering a confined space, methane is not present in a drinking water well, and there is no additional source of methane. Concentrations that exceed 10,000 µg/L or the existence of any of the above conditions shall require further evaluation of the potential acute risk pursuant to R 299.4(10) and R 299.27(5)(c).**

(BB) The state drinking water standard for asbestos (fibers greater than 10 micrometers in length) is in units of a million fibers per liter of water (MFL). Soil concentrations of asbestos ~~are determined by polarized light microscopy~~**must be evaluated on a site-specific basis**. **United States Environmental Protection Agency asbestos technical resources provide applicable information for a site specific evaluation.**

(CC) Groundwater: The generic GSI criteria are based on the toxicity of unionized ammonia (NH_3); the criteria are 29 ~~ug/L~~**µg/L** and 53 ~~ug/L~~**µg/L** for cold water and warm water surface water, respectively. As a result, the GSI criterion shall be compared to the ~~percent~~**%** of the total ammonia concentration in the groundwater that will become NH_3 in the surface water. This ~~percent~~**%** NH_3 is a function of the pH and temperature of the receiving surface water and can be estimated using the following table, taken from Emerson, et al., (Journal of the Fisheries Research Board of Canada, Volume 32(12):2382, 1975).

Percent NH_3 in Aqueous Ammonia Solutions for 0-30 °C and pH 6-10

Temp (°F)	Temp (°C)	pH								
		6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
32.0	0	0.00827	0.0261	0.0826	0.261	0.820	2.55	7.64	20.7	45.3
33.8	1	0.00899	0.0284	0.0898	0.284	0.891	2.77	8.25	22.1	47.3
35.6	2	0.00977	0.0309	0.0977	0.308	0.968	3.00	8.90	23.6	49.4
37.4	3	0.0106	0.0336	0.106	0.335	1.05	3.25	9.60	25.1	51.5
39.2	4	0.0115	0.0364	0.115	0.363	1.14	3.52	10.3	26.7	53.5
41.0	5	0.0125	0.0395	0.125	0.394	1.23	3.80	11.1	28.3	55.6
42.8	6	0.0136	0.0429	0.135	0.427	1.34	4.11	11.9	30.0	57.6
44.6	7	0.0147	0.0464	0.147	0.462	1.45	4.44	12.8	31.7	59.5
46.4	8	0.0159	0.0503	0.159	0.501	1.57	4.79	13.7	33.5	61.4
48.2	9	0.0172	0.0544	0.172	0.542	1.69	5.16	14.7	35.3	63.3
50.0	10	0.0186	0.0589	0.186	0.586	1.83	5.56	15.7	37.1	65.1
51.8	11	0.0201	0.0637	0.201	0.633	1.97	5.99	16.8	38.9	66.8
53.6	12	0.0218	0.0688	0.217	0.684	2.13	6.44	17.9	40.8	68.5
55.4	13	0.0235	0.0743	0.235	0.738	2.30	6.92	19.0	42.6	70.2
57.2	14	0.0254	0.0802	0.253	0.796	2.48	7.43	20.2	44.5	71.7
59.0	15	0.0274	0.0865	0.273	0.859	2.67	7.97	21.5	46.4	73.3
60.8	16	0.0295	0.0933	0.294	0.925	2.87	8.54	22.8	48.3	74.7

Temp (◦F)	Temp (◦C)	pH								
		6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
62.6	17	0.0318	0.101	0.317	0.996	3.08	9.14	24.1	50.2	76.1
64.4	18	0.0343	0.108	0.342	1.07	3.31	9.78	25.5	52.0	77.4
66.2	19	0.0369	0.117	0.368	1.15	3.56	10.5	27.0	53.9	78.7
68.0	20	0.0397	0.125	0.396	1.24	3.82	11.2	28.4	55.7	79.9
69.5	21	0.0427	0.135	0.425	1.33	4.10	11.9	29.9	57.5	81.0
71.6	22	0.0459	0.145	0.457	1.43	4.39	12.7	31.5	59.2	82.1
73.4	23	0.0493	0.156	0.491	1.54	4.70	13.5	33.0	60.9	83.2
75.2	24	0.0530	0.167	0.527	1.65	5.03	14.4	34.6	62.6	84.1
77.0	25	0.0569	0.180	0.566	1.77	5.38	15.3	36.3	64.3	85.1
78.8	26	0.0610	0.193	0.607	1.89	5.75	16.2	37.9	65.9	85.9
80.6	27	0.0654	0.207	0.651	2.03	6.15	17.2	39.6	67.4	86.8
82.4	28	0.0701	0.221	0.697	2.17	6.56	18.2	41.2	68.9	87.3
84.2	29	0.0752	0.237	0.747	2.32	7.00	19.2	42.9	70.4	88.3
86.0	30	0.0805	0.254	0.799	2.48	7.46	20.3	44.6	71.8	89.0

The generic approach for estimating NH_3 assumes a default pH of 8 and default temperatures of 68°F and 85°F for cold water and warm water surface water, respectively. The resulting ~~percent~~**%** NH_3 is 3.8 ~~percent~~**%** and 7.2 ~~percent~~**%** for cold water and warm water, respectively. This default percentage shall be multiplied by the total ammonia-nitrogen (NH_3-N) concentration in the groundwater and the resulting NH_3 concentration compared to the applicable GSI criterion. As an alternative, the maximum pH and temperature data from the specific receiving surface water can be used to estimate, from the table in this footnote, a lower ~~percent~~**%** unionized ammonia concentration for comparison to the generic GSI.

Soil: The generic soil GSI protection criteria for unionized ammonia are 580 ~~u~~**µ**g/kg and 1,100 ~~u~~**µ**g/kg for cold water and warm water surface water, respectively.

(DD) Hazardous substance causes developmental effects. Residential ~~direct contact~~ criteria are protective of both prenatal **exposure using a pregnant female receptor** and postnatal exposure **using a child receptor**. Nonresidential ~~direct contact~~ criteria are protective ~~for a~~**of prenatal exposure using a** pregnant ~~adult~~**female** receptor**. Prenatal developmental effects may occur after a single exposure (SE) or full-term (FT) exposure. Oral exposure pathways are drinking water and soil direct contact. Inhalation exposure pathways are ambient air and volatilization to indoor air. Individual discrete sample concentrations shall be compared to criteria, without temporal or spatial averaging, for those hazardous substances categorized as "SE" in the following table and having final criteria for relevant pathways that are based on developmental effects (dev). If the final criterion for an "SE" categorized hazardous substance is not based on developmental effects, discrete samples are not required where the use of statistics is appropriate.**

Categorization of the Developmental Toxicants

Hazardous Substance	CAS Number	Oral Exposure Pathways	Inhalation Exposure Pathways
Acetophenone	98862	SE	SE
Acrylic acid	79107	FT	--
Aluminum	7429905	SE	--
Benzo(a)pyrene	50328	SE	SE
bis(2-Ethylhexyl)phthalate	117817	SE	--
Boron	7440428	SE	--
Bromodichloromethane	75274	SE	--
2-Butanone (MEK)	78933	FT	SE
Butyl benzyl phthalate	85687	SE	--
Caprolactam	105602	FT	--
Carbaryl	63252	SE	--
Carbofuran	1563662	SE	--
Carbon Disulfide	75150	SE	--
Chloroethane	75003	--	FT
4-Chloro-3-methylphenol	59507	SE	--
2-Chlorophenol	95578	SE	SE
Chlorpyrifos	2921882	SE	--
Cyanide	57125	FT	--
Cyclohexane	110827	--	FT
4-4'-DDT	50293	SE	--
Decabromodiphenyl ether	1163195	SE	SE
Di-n-butyl phthalate	84742	SE	SE
Di(2-ethylhexyl) adipate	103231	SE	--
Dicamba	1918009	FT	--
2,4-Dichlorophenol	120832	SE	--
Diisopropyl ether	108203	SE	SE
Dinoseb	88857	FT	FT
Ethanol	64175	SE	--
Ethylene glycol	107211	SE	--
Fluorine (soluble fluoride)	7782414	FT	--
Formaldehyde	50000	--	FT
1-Formylpiperidine	2591868	SE	--
Glyphosate	1071836	SE	--
Heptachlor	76448	SE	--
Isophorone	78591	--	SE
Isopropyl alcohol	67630	FT	--

Hazardous Substance	CAS Number	Oral Exposure Pathways	Inhalation Exposure Pathways
Lead	7439921	FT	FT
Lithium	7439932	SE	FT
Mercury , organic (CH3Hg)	22967926	SE	--
Methanol	67561	SE	SE
Methoxychlor	72435	SE	--
2-Methoxyethanol	109864	SE	--
4-Methyl-2-pentanone (MIBK)	108101	--	SE
2-Methylphenol	95487	SE	--
Nitrate	14797558	FT	--
Nitrite	14797650	FT	--
Pendimethalin	40487421	SE	--
Perchlorate	14797730	FT	--
Perfluorooctane sulfonic acid	1763231	SE	--
Phenol	108952	FT	--
Phenytoin	57410	SE	--
Phosphorus, White	7723140	SE	--
Polybrominated biphenyls	67774327	FT	--
Polychlorinated biphenyls (PCBs)	1336363	FT	--
PCB dioxin-like congeners	varies	FT	FT
Propyl alcohol	71238	SE	SE
n-Propylbenzene	103651	--	SE
Strontium	7440246	FT	--
Tebuthiuron	34014181	FT	--
1,2,4,5-Tetrachlorobenzene	95943	SE	--
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746016	FT	FT
Tetrahydrofuran	109999	FT	--
Triallate	2303175	--	SE
Trichloroethylene	79016	SE	SE
2,4,6-Trichlorophenol	88062	SE	--
Triethylene glycol	112276	FT	--
3-Trifluoromethyl-4-nitrophenol	88302	FT	--
Vinyl acetate	108054	SE	--

(EE) The following are applicable generic GSI criteria as required by section 20120e of the ~~N~~REPA**act**.

~~Hazardous Substance~~ **Water Quality Standard**	GSI ~~(ug/L)~~ **µg/L**	Notes
Phosphorus	1,000	Criteria applicable unless receiving water is a surface water that has a phosphorus waste load allocation or is an inland lake. In those cases, contact the department for applicable values.
Total dissolved solids (TDS)	5.0E+5	If TDS data are not available, the TDS criterion may be used as a screening level for the sum of the concentrations of the following substances: calcium, chlorides, iron, magnesium, potassium, sodium, sulfate.
Dissolved Oxygen (DO): Cold receiving waters Warm receiving waters	 ≥ 7,000 ≥ 5,000	Since a low level of DO can be harmful to aquatic life, the criterion represents a minimum level that on-site samples must exceed. This is in contrast to other criteria which represent "not to exceed" concentrations. DO criteria are not applicable if groundwater Carbonaceous Biochemical Oxygen Demand (CBOD) is less than 10,000 ~~ug/L~~**µg/L** and groundwater ammonia concentration is less than 2,000 ~~ug/L~~**µg/L**.

(FF) The chloride GSI criterion shall be 125 mg/l when the discharge is to surface waters of the state designated as public water supply sources or 50 mg/l when the discharge is to the Great Lakes or connecting waters. Chloride GSI criteria shall not apply for surface waters of the state that are not designated as a public water supply source, however, the total dissolved solids criterion is applicable.

(GG) Risk-based criteria are not available for methane due to insufficient toxicity data. An acceptable soil gas concentration (presented for both residential and nonresidential land uses) was derived utilizing 25 ~~percent~~**%** of the lower explosive level for methane. This equates to 1.25 ~~percent~~**%** or 8.4E+6 µ~~u~~g/m^3.

(HH) The residential criterion for sodium is 230,000 ~~ug/l~~**µg/L pursuant** ~~to~~**in** ~~accordance with~~ the **department's** Sodium Advisory Council recommendation and revised Groundwater Discharge Standards.

(II) This hazardous substance belongs to a class of chemicals known as chelating agents. The department's experience with the behavior of chelating agents in the environment comes from ethylene diamine tetraacetic acid (EDTA) and the sodium and calcium salts of EDTA. The ability of EDTA and other chelating agents to mobilize more toxic hazardous substances, such as, inorganics in soil, sediment, and groundwater, poses a greater concern than the toxicity of the individual chelating agents. As such, generic groundwater cleanup criteria are not presented for hazardous substances in this class. Rather, inorganic concentrations in groundwater must be evaluated at sites where chelating agents are known or suspected to have been released. Concentrations of inorganics in groundwater must satisfy applicable cleanup criteria.

(JJ) 3- and 4-Methylphenol cannot be analyzed separately. Environmental concentrations are reported as 3- and 4-methylphenol. As a result, both isomers are listed together as a single hazardous substance in the criteria tables. To protect for the adverse effects of both isomers, the criteria presented in the tables is the lower of the criteria generated for each.

(KK) Hazardous substance may exhibit the characteristic of toxicity as defined as defined under part 111 of the act in R 299.9212(4).

Hazardous Substance	CAS Number	EPA Hazardous Waste Number	TCLP Extract Concentration (µg/L)	Total Concentration Screening Level (µg/kg)
Arsenic	440382	D004	5,000	100,000
Barium	7440393	D005	100,000	2,000,000
Benzene	71432	D018	500	10,000
2-Butanone (MEK)	78933	D035	200,000	4,000,000
Cadmium	7440439	D006	1,000	20,000
Carbon tetrachloride	56235	D019	500	10,000
Chlordane	57749	D020	30	600
Chlorobenzene	108907	D021	100,000	2,000,000
Chloroform	67663	D022	6,000	120,000
Chromium, total	7440473	D007	5,000	100,000
Cresol	--------	D026	200,000	4,000,000
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94757	D016	10,000	200,000
1,4-Dichlorobenzene	106467	D027	7,500	150,000
1,2-Dichloroethane	107062	D028	500	10,000
1,1-Dichloroethylene	75354	D029	700	14,000
2,4-Dinitrotoluene	121142	D030	130	2,600
Endrin	72208	D012	20	400
Heptachlor and Heptachlor Epoxide	76448 1024573	D031	8	160
Hexachlorobenzene (C-66)	118741	D032	130	2,600
Hexachlorobutadiene (C-46)	87683	D033	500	10,000
Hexachloroethane	67721	D034	3,000	60,000
Lead	7439921	D008	5,000	100,000
Lindane	58899	D013	400	8,000
Mercury	7439976	D009	200	4,000
Methoxychlor	72435	D014	10,000	200,000
2-Methylphenol	95487	D023	200,000	4,000,000
3-Methylphenol	108394	D024	200,000	4,000,000
4-Methylphenol	106445	D025	200,000	4,000,000
Nitrobenzene	98953	D036	2,000	40,000
Pentachlorophenol	87865	D037	100,000	2,000,000
Pyridine	110861	D038	5,000	100,000
Selenium	7782492	D010	1,000	20,000
Silver	7440224	D011	5,000	100,000
Tetrachloroethylene	127184	D039	700	14,000
Toxaphene	8001352	D015	500	10,000
Trichloroethylene	79016	D040	500	10,000
2,4,5-Trichlorophenol	95954	D041	400,000	8,000,000

Hazardous Substance	CAS Number	EPA Hazardous Waste Number	TCLP Extract Concentration (µg/L)	Total Concentration Screening Level (µg/kg)
2,4,6-Trichlorophenol	41026	D042	2,000	40,000
Silvex (2,4,5 TP)	93721	D017	1,000	20,000
Vinyl chloride	050518	D043	200	4,000

(LL) The health-based values for vinyl chloride (VC) are calculated using 2 different cancer potency values to protect for continuous lifetime exposure from birth and for continuous lifetime exposure during adulthood. Chemical-specific twofold adjustment to the cancer potency factors shall be used for calculating the health-based value for mutagenic effect to account for greater sensitivity to VC exposure during early life.

Cancer Potency Values	Residential	Nonresidential
Cancer Slope Factor, $(mg/kg\text{-}day)^{-1}$	1.4E+00	7.2E-01
Inhalation Unit Risk Factor, $(\mu g/m^3)^{-1}$	8.8E-06	4.4E-06

(MM) Hazardous substance is a carcinogen with a mutagenic mode of action. The cancer potency values used in calculating health-based values shall be modified using age-dependent adjustment factors for those carcinogenic chemicals identified as mutagenic.

(NN) The health-based values for trichloroethylene mutagenic effects are calculated using cancer adjustment factors (CAF) and mutagenic adjustment factors (MAF) to adjust the cancer potency values for combined risk for mutagenic and non-mutagenic cancer effects.

Mutagenic health-based values:	CAF	MAF	Adult-based cancer potency values
Ingestion and dermal (Drinking Water Value; Direct Contact Value)	0.804	0.202	Cancer Slope Factor = 4.6E-2 $((mg/kg\text{-}day)^{-1})$
Inhalation (Acceptable Air Value; Volatilization to Indoor Air Value; Particulate Soil Inhalation Value)	0.756	0.244	Inhalation Unit Risk Factor = 4.1E-6 $((\mu g/kg\text{-}day)^{-1})$

(OO) Available information indicates the hazardous substance is or may become volatile.

(PP) The lower explosive level represents a % by volume in air, at room temperature unless noted otherwise in the source document identified in table 3 of R 299.50.

(2) Abbreviations have the following meanings when used in the tables of this rule:

(a) "CAF" means cancer adjustment factor

(b) "CAS Number" means Chemical Abstract Service Number.

(c) "FCV" means the R 323.1057 surface water quality standard final chronic value.

(d) "HDV" means the R 323.1057 surface water quality standard human drinking water value.

(e) "HNV" means the R 323.1057 surface water quality standard human non-drink noncancer value.

(f) "MAF" means mutagenic adjustment factors.

(g) "TEF" means toxicity equivalence factor.

(h) "TEMP" means temperature.

(i) "TSCA" means Toxic Substance Control Act, 15 U.S.C. §2601 et seq.

~~"ID" means insufficient data to develop criterion.~~

~~"NA" means a criterion or value is not available or, in the case of background and CAS numbers, not applicable.~~

~~"NLL" means hazardous substance is not likely to leach under most soil conditions.~~

~~"NLV" means hazardous substance is not likely to volatilize under most conditions.~~

R 299.50 Toxicological ~~and~~**, chemical-specific, and** chemical-physical properties.

Rule 50. (1) The toxicological ~~and chemical-physical~~ properties used to calculate generic **criteria** shall be as shown in table **41**, except as provided in ~~section 20120a(9) of the act, R 299.49(1)(l) and R 299.49(1)(o).~~**the footnotes of the generic cleanup criteria tables in R 299.49.**

(2) Abbreviations used in table **1**4 have the following meanings when used in this rule:

(a) "ATSDR" means Agency for Toxic Substances and Disease Registry

(b) "CAEPA" means California environmental protection agency

(c) "ECHA" means European Chemicals Agency

(d) "HEAST" means USEPA's Health Effects Assessment Summary Tables

(e) "IRIS" means USEPA's Integrated Risk Information System

(f) "MADEP" means Massachusetts department of environmental protection

(g) "MDEQ" means Michigan department of environmental quality

(h) "MNDOH" means Minnesota department of health

(i) "NYDEC" means New York state department of environmental conservation

(j) "OPP" means USEPA's Office of Pesticide Programs

(k) "PPRTV" means USEPA's Provisional Peer Reviewed Toxicity Values

(l) "TCEQ" means Texas commission on environmental quality

(m) "USEPA" means United States Environmental Protection Agency

(n) "WHO" means World Health Organization

(o) "A/MDEQ" means ATSDR value has been modified by MDEQ

(p) "C/MDEQ" means CAEPA value has been modified by MDEQ

(q) "E/MDEQ" means ECHA value has been modified by MDEQ

(r) "I/MDEQ" means IRIS value has been modified by MDEQ

(s) "O/MDEQ" means OPP value has been modified by MDEQ

(t) "P/MDEQ" means PPRTV value has been modified by MDEQ

(u) "W/MDEQ" means WHO value has been modified by MDEQ

(v) ~~(a)~~**"NA" means not available.**

~~(b) "NR" means not relevant.~~

(3) The chemical-specific properties used to calculate generic criteria shall be as shown in table 2, except as provided in the footnotes of the generic cleanup criteria tables in R 299.49.

(4) Abbreviations used in table 2 have the following meanings when used in this rule:

(a) "MDEQ" means Michigan department of environmental quality

(b) "USEPA" means United States Environmental Protection Agency's Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). July, 2004.

(5) The chemical-physical properties used to calculate generic criteria shall be as shown in table 3, except as provided in the footnotes of the generic cleanup criteria tables in R 299.49.

(6) Abbreviations used in table 3 have the following meanings when used in this rule:

(a) Source abbreviations are as follows:

(i) "CRC" means Chemical Rubber Company Handbook of Chemistry and Physics, 95th edition, 2014-2015

(ii) "EPA1" means USEPA (2001) Fact Sheet, Correcting the Henry's Law Constant for Soil Temperature. Office of Solid Waste and Emergency Response, Washington, D.C.

(iii) "EPA4" means USEPA (2004) User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. February 22, 2004.

(iv) "EPI" means USEPA's Estimation Programs Interface SUITE 4.1, Copyright 2000-2012

(v) "HSDB" means Hazardous Substances Data Bank

(vi) "NPG" means National Institute for Occupational Safety and Health Pocket Guide to Chemical Hazards

(vii) "PC" means National Center for Biotechnology Information's PubChem database

(viii) "PP" means Syracuse Research Corporation's PhysProp database

(ix) "SCDM" means USEPA's Superfund Chemical Data Matrix

(x) "SSG" means USEPA's Soil Screening Guidance: Technical Background Document, Second Edition, 1996

(xi) "W9" means USEPA's User Guide for Water9 Software, Version 2.0.0, 2001

(b) Basis abbreviations are as follows:

(i) "EST" means estimated

(ii) "EXP" means experimental

(iii) "EXT" means extrapolated

(iv) "NA" means not available

(v) "NR" means not relevant

(7) Tables 1 to 4 of this rule read as follows:

TABLE 1. TOXICOLOGICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. Hazardous substance footnotes are defined in R 299.49. Data sources are as defined in R 299.50(2).

Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	RfD Source	Oral Slope Factor	SF Source	Chronic Inhalation Reference Concentration	RfC Source	Inhalation Unit Risk Factor	IURF Source	Mutagenic Carcinogen?		Developmental or Reproductive Toxicant?	
		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{-1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
Acenaphthene	83329	6.0E-02	IRIS	NA	MDEQ	2.1E+02	MDEQ	NA	MDEQ	No	No	No	No
Acenaphthylene	208968	6.0E-02	TCEQ	NA	PPRTV	2.1E+02	NYDEC	NA	MDEQ	No	No	No	No
Acetaldehyde (I)	75070	1.3E-01	MDEQ	NA	MDEQ	9.0E+00	IRIS	2.2E-06	IRIS	No	No	No	No
Acetate	71501	5.7E-01	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Acetic acid (OO)	64197	5.7E-01	MDEQ	NA	MDEQ	2.5E+02	MDEQ	NA	MDEQ	No	No	No	No
Acetone (I)	67641	9.0E-01	IRIS	NA	MDEQ	3.1E+04	ATSDR	NA	MDEQ	No	No	No	No
Acetonitrile	75058	6.0E-02	HEAST	NA	MDEQ	6.0E+01	IRIS	NA	MDEQ	No	No	No	No
Acetophenone (DD)	98862	8.0E-01	P/MDEQ	NA	MDEQ	3.2E+03	MDEQ	NA	MDEQ	No	No	Yes	Yes
Acrolein (I)	107028	4.0E-03	ATSDR	NA	MDEQ	2.0E-02	IRIS	NA	MDEQ	No	No	No	No
Acrylamide (MM)	79061	2.0E-03	IRIS	5.1E-01	IRIS	6.0E+00	IRIS	1.0E-04	IRIS	Yes	Yes	No	No
Acrylic acid (DD,OO)	79107	2.0E-01	PPRTV	NA	MDEQ	2.0E-01	PPRTV	NA	MDEQ	No	No	No	Yes
Acrylonitrile (I)	107131	1.0E-02	ATSDR	5.4E-01	IRIS	2.0E+00	IRIS	6.8E-05	IRIS	No	No	No	No
Alachlor	15972608	1.0E-02	IRIS	9.6E-02	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Aldicarb	116063	2.7E-04	OPP	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Aldicarb sulfone	1646884	1.0E-03	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Aldicarb sulfoxide	1646873	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Aldrin	309002	3.0E-05	ATSDR	1.7E+01	IRIS	NA	MDEQ	4.9E-03	IRIS	No	No	No	No
Aluminum (B,DD)	7429905	1.0E+00	ATSDR	NA	MDEQ	5.5E+00	PPRTV	NA	MDEQ	No	No	No	Yes
Ammonia	7664417	NA	MDEQ	NA	MDEQ	7.0E+01	ATSDR	NA	MDEQ	No	No	No	No
t-Amyl methyl ether (TAME)	994058	1.3E-01	MDEQ	NA	MDEQ	6.2E+01	MDEQ	NA	MDEQ	No	No	No	No
Aniline	62533	7.0E-03	PPRTV	5.7E-03	IRIS	1.0E+00	IRIS	1.6E-06	MDEQ	No	No	No	No
Anthracene	120127	3E-01	IRIS	NA	MDEQ	1.0E+03	MDEQ	NA	MDEQ	No	No	No	No
Antimony	7440360	4.0E-04	IRIS	NA	MDEQ	2.0E-01	MDEQ	NA	MDEQ	No	No	No	No
Arsenic (B,KK)	7440382	3.0E-04	ATSDR	1.5E+00	IRIS	NA	MDEQ	4.3E-03	IRIS	No	No	No	No
Asbestos (BB)	1332214	NA	MDEQ	NA	MDEQ	NA	IRIS	NA	IRIS	No	No	No	No
Atrazine	1912249	1.8E-02	OPP	NA	MDEQ	2.1E+01	O/MDEQ	NA	MDEQ	No	No	No	No
Azobenzene	103333	NA	MDEQ	1.1E-01	IRIS	NA	MDEQ	3.1E-05	IRIS	No	No	No	No
Barium (B,KK)	7440393	2.0E-01	IRIS	NA	MDEQ	5.0E+00	MDEQ	NA	MDEQ	No	No	No	No
Benzene (I,KK)	71432	5.0E-04	ATSDR	5.5E-02	IRIS	1.0E+01	ATSDR	7.80E-06	IRIS	No	No	No	No
Benzidine (MM)	92875	3.0E-03	IRIS	2.3E+02	IRIS	NA	MDEQ	6.7E-02	IRIS	Yes	Yes	No	No

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PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	RfD Source	Oral Slope Factor	SF Source	Chronic Inhalation Reference Concentration	RfC Source	Inhalation Unit Risk Factor	IURF Source	Mutagenic Carcinogen?		Developmental or Reproductive Toxicant?	
		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{-1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
Benzo(a)anthracene (Q,MM)	56553	NA	MDEQ	1.0E-01	IRIS	NA	MDEQ	6.0E-05	IRIS	Yes	Yes	No	No
Benzo(b)fluoranthene (Q,MM)	205992	NA	MDEQ	1.0E-01	IRIS	NA	MDEQ	6.0E-05	IRIS	Yes	Yes	No	No
Benzo(k)fluoranthene (Q,MM)	207089	NA	MDEQ	1.0E-02	IRIS	NA	MDEQ	6.0E-06	IRIS	Yes	Yes	No	No
Benzo(g,h,i)perylene	191242	2E-03	MDEQ	NA	MDEQ	7E+00	MDEQ	NA	MDEQ	No	No	No	No
Benzo(a)pyrene (Q,DD,MM)	50328	3.0E-04	IRIS	1.0E+00	IRIS	2.0E-06	IRIS	6.0E-04	IRIS	Yes	Yes	Yes	Yes
Benzoic acid	65850	4.0E+00	IRIS	NA	MDEQ	7.0E-01	PPRTV	NA	MDEQ	No	No	No	No
Benzyl alcohol	100516	1.4E-01	PPRTV	NA	MDEQ	5.0E+03	MDEQ	NA	MDEQ	No	No	No	No
Benzyl chloride	100447	2.0E-03	PPRTV	1.7E-01	IRIS	1.0E+00	PPRTV	5.0E-05	MDEQ	No	No	No	No
Beryllium (B)	7440417	2.0E-03	ATSDR	NA	MDEQ	2.0E-02	IRIS	2.4E-03	IRIS	No	No	No	No
bis(2-Chloroethoxy)ethane	112265	2.5E-04	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
bis-2-Chloroethylether (I)	111444	NA	MDEQ	1.1E+00	IRIS	1.2E+02	ATSDR	3.3E-04	IRIS	No	No	No	No
bis(2-Ethylhexyl) phthalate (DD)	117817	6.0E-02	ATSDR	1.4E-02	IRIS	7.0E+01	MDEQ	1.6E-06	MDEQ	No	No	No	Yes
Boron (DD)	7440428	2.0E-01	IRIS	NA	MDEQ	3.0E+01	ATSDR	NA	MDEQ	No	No	No	Yes
Bromate	15541454	4.0E-03	IRIS	7E-01	IRIS	NA	MDEQ	NA	MDEQ	No	No	No	No
Bromobenzene (I)	108861	8.0E-03	IRIS	NA	MDEQ	6.0E+01	IRIS	NA	MDEQ	No	No	No	No
Bromodichloromethane (DD)	75274	8.0E-03	PPRTV	6.2E-02	IRIS	2.0E+00	PPRTV	1.77E-05	MDEQ	No	No	No	Yes
Bromoform	75252	2.0E-02	ATSDR	7.9E-03	IRIS	NA	MDEQ	1.1E-06	IRIS	No	No	No	No
Bromomethane	74839	2.0E-02	OPP	NA	MDEQ	1.0E+01	PPRTV	NA	MDEQ	No	No	No	No
n-Butanol (I,OO)	71363	1.0E-01	IRIS	NA	MDEQ	3.5E+02	MDEQ	NA	MDEQ	No	No	No	No
2-Butanone (MEK) (I,DD,KK)	78933	5.9E-01	IRIS	NA	MDEQ	5.0E+03	IRIS	NA	MDEQ	No	No	Yes	Yes
n-Butyl acetate	123864	1.0E-01	W/MDEQ	NA	MDEQ	4.0E+02	WHO	NA	MDEQ	No	No	No	No
t-Butyl alcohol (OO)	75650	1.8E-01	MADEP	NA	MDEQ	7.2E+01	E/MDEQ	NA	MDEQ	No	No	No	No
Butyl benzyl phthalate (DD)	85687	2.0E-02	CAEPA	1.9E-03	PPRTV	7.8E+02	ECHA	NA	MDEQ	No	No	No	Yes
n-Butylbenzene	104518	0.046	PPRTV	NA	MDEQ	2.0E+02	CAEPA	NA	MDEQ	No	No	No	No
sec-Butylbenzene	135988	1.0E-01	PPRTV	NA	MDEQ	4.0E-01	MDEQ	NA	MDEQ	No	No	No	No
t-Butylbenzene (I)	98066	1.0E-01	PPRTV	NA	MDEQ	4.0E-01	CAEPA	NA	MDEQ	No	No	No	No
Cadmium (B,KK)	7440439	1E-04	ATSDR	NA	MDEQ	NA	MDEQ	1.8E-03	IRIS	No	No	No	No
Camphene (I)	79925	NA	MDEQ	NA	MDEQ	8.0E+01	MDEQ	NA	MDEQ	No	No	No	No
Caprolactam (DD)	105602	5.0E-01	IRIS	NA	MDEQ	2.2E+00	CAEPA	NA	MDEQ	No	No	No	Yes
Carbaryl (DD)	63252	1.0E-02	OPP	8.7E-04	OPP	NA	MDEQ	NA	MDEQ	No	No	No	Yes

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	RfD Source	Oral Slope Factor	SF Source	Chronic Inhalation Reference Concentration	RfC Source	Inhalation Unit Risk Factor	IURF Source	Mutagenic Carcinogen?		Developmental or Reproductive Toxicant?	
		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{-1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
Carbazole	86748	5.0E-03	MDEQ	9.8E-02	MDEQ	NA	MDEQ	2.8E-06	MDEQ	No	No	No	No
Carbofuran (DD)	1563662	6.0E-05	OPP	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Carbon disulfide (I,R,DD)	75150	1.1E-01	IRIS	NA	MDEQ	7.0E+02	IRIS	NA	MDEQ	No	No	No	Yes
Carbon tetrachloride (KK)	56235	4.0E-03	IRIS	6.5E-2	IRIS	1.0E+02	IRIS	5.6E-06	IRIS	No	No	No	No
Chlordane (J,KK)	57749	5.0E-04	IRIS	3.5E-01	IRIS	7.0E-01	IRIS	1.0E-04	IRIS	No	No	No	No
Chloride	16887006	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
2-Chloroaniline	95512	3.0E-03	MDEQ	NA	MDEQ	1.0E+01	MDEQ	NA	MDEQ	No	No	No	No
4-Chloroaniline	106478	5.0E-04	PPRTV	2.0E-01	PPRTV	NA	MDEQ	NA	MDEQ	No	No	No	No
Chlorobenzene (I,KK)	108907	2.0E-02	IRIS	NA	MDEQ	5.0E+01	PPRTV	NA	MDEQ	No	No	No	No
p-Chlorobenzene sulfonic acid	98668	8.0E-01	C/MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
1-Chloro-1,1-difluoroethane	75683	2.1E+00	MDEQ	NA	MDEQ	5.0E+04	IRIS	NA	MDEQ	No	No	No	No
Chloroethane (DD)	75003	4E-02	P/MDEQ	2.0E-03	MDEQ	4.0E+03	PPRTV	NA	MDEQ	No	No	Yes	No
2-Chloroethyl vinyl ether	110758	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Chloroform (KK)	67663	1.0E-02	IRIS	NA	MDEQ	9.8E+01	ATSDR	2.3E-05	IRIS	No	No	No	No
Chloromethane (I)	74873	NA	MDEQ	3.3E-03	MDEQ	9.0E+01	IRIS	NA	MDEQ	No	No	No	No
4-Chloro-3-methylphenol (DD)	59507	1.0E-01	PPRTV	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
beta-Chloronaphthalene	91587	8.0E-02	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
2-Chlorophenol (DD)	95578	8.0E-03	PPRTV	NA	MDEQ	1.8E+01	MDEQ	NA	MDEQ	No	No	Yes	Yes
o-Chlorotoluene (I)	95498	6.7E-03	P/MDEQ	NA	MDEQ	8.0E+01	CAEPA	NA	MDEQ	No	No	Yes	No
Chlorpyrifos (DD)	2921882	4.7E-03	OPP	NA	MDEQ	1E+00	MDEQ	NA	MDEQ	No	No	No	Yes
Chromium (III) (B,H,KK)	16065831	1.5E+00	IRIS	NA	MDEQ	1.0E-01	ATSDR	NA	MDEQ	No	No	No	No
Chromium (VI) (H,KK,MM)	18540299	9.0E-04	ATSDR	5.0E-01	IRIS	5.0E-03	ATSDR	1.2E-02	IRIS	Yes	Yes	No	No
Chrysene (Q,MM)	218019	NA	MDEQ	1.0E-03	USEPA	NA	MDEQ	6.0E-07	USEPA	Yes	Yes	No	No
Cobalt (B)	7440484	3.0E-04	PPRTV	NA	MDEQ	6.0E-03	PPRTV	9.0E-03	PPRTV	No	No	No	No
Copper (B)	7440508	1.0E-03	ATSDR	NA	MDEQ	2.0E+00	MDEQ	NA	MDEQ	No	No	No	No
Cyanazine	21725462	2.0E-04	WHO	3.7E-01	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Cyanide (P,R,DD)	57125	6.3E-04	IRIS	NA	MDEQ	8.0E-01	IRIS	NA	MDEQ	No	No	No	Yes
Cyclohexane (DD)	110827	NA	MDEQ	NA	MDEQ	6.0E+03	IRIS	NA	MDEQ	No	No	Yes	No
Cyclohexanone (OO)	108941	2.0E-01	PPRTV	NA	MDEQ	7.0E+02	PPRTV	NA	MDEQ	No	No	No	No
Dacthal	1861321	1.0E-02	OPP	1.49E-03	OPP	NA	MDEQ	NA	MDEQ	No	No	No	No

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	RfD Source	Oral Slope Factor	SF Source	Chronic Inhalation Reference Concentration	RfC Source	Inhalation Unit Risk Factor	IURF Source	Mutagenic Carcinogen?		Developmental or Reproductive Toxicant?	
		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{-1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
Dalapon	75990	3.0E-02	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
4-4'-DDD	72548	3.0E-03	MDEQ	2.4E-01	IRIS	NA	MDEQ	7.0E-05	MDEQ	No	No	No	Yes
4-4'-DDE	72559	7.0E-04	MDEQ	3.4E-01	IRIS	NA	MDEQ	9.7E-05	MDEQ	No	No	No	No
4-4'-DDT (DD)	50293	5.0E-04	ATSDR	3.4E-01	IRIS	NA	MDEQ	9.7E-05	IRIS	No	No	No	Yes
Decabromodiphenyl ether (DD)	1163195	7.0E-03	IRIS	7.0E-04	IRIS	2.5E+01	MDEQ	2.0E-07	MDEQ	No	No	Yes	Yes
Di-n-butyl phthalate (DD)	84742	6.7E-03	ECHA	NA	MDEQ	2.0E+01	ECHA	NA	MDEQ	No	No	Yes	Yes
Di(2-ethylhexyl) adipate (DD)	103231	6.0E-01	IRIS	1.2E-03	IRIS	NA	MDEQ	3.4E-07	MDEQ	No	No	No	Yes
Di-n-octyl phthalate	117840	1.2E-02	PPRTV	NA	MDEQ	4.7E+02	MDEQ	NA	MDEQ	No	No	No	No
Diacetone alcohol (I,OO)	123422	NA	MDEQ	NA	MDEQ	2.4E+03	MDEQ	NA	MDEQ	No	No	No	No
Diazinon	333415	7.0E-04	ATSDR	NA	MDEQ	1.0E+00	ATSDR	NA	MDEQ	No	No	No	No
Dibenzo(a,h)anthracene (Q,MM)	53703	NA	MDEQ	1.0E+00	IRIS	NA	MDEQ	6.0E-04	IRIS	Yes	Yes	No	No
Dibenzofuran	132649	1.0E-03	PPRTV	NA	MDEQ	4.0E+00	MDEQ	NA	MDEQ	No	No	No	No
Dibromochloromethane (MM)	124481	7.0E-03	P/MDEQ	8.4E-02	IRIS	NA	MDEQ	2.4E-05	MDEQ	Yes	Yes	No	No
Dibromochloropropane (MM)	96128	2.0E-04	PPRTV	8.0E-01	PPRTV	2.0E-01	IRIS	5.6E-03	PPRTV	Yes	Yes	No	No
Dibromomethane	74953	3.0E-03	P/MDEQ	NA	MDEQ	4.0E+00	PPRTV	NA	MDEQ	No	No	No	No
Dicamba (DD)	1918009	4.5E-01	OPP	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
1,2-Dichlorobenzene	95501	3.0E-01	ATSDR	NA	MDEQ	3.0E+02	MDEQ	NA	MDEQ	No	No	No	No
1,3-Dichlorobenzene	541731	2.0E-03	A/MDEQ	NA	MDEQ	3.0E+00	MDEQ	NA	MDEQ	No	No	No	No
1,4-Dichlorobenzene (KK)	106467	7.0E-02	ATSDR	1.3E-02	I/MDEQ	6.0E+01	ATSDR	4.8E-04	MDEQ	No	No	No	No
3,3`-Dichlorobenzidine	91941	7.3E-03	MDEQ	4.5E-01	IRIS	NA	MDEQ	3.4E-04	CAEPA	No	No	No	No
Dichlorodifluoromethane	75718	5.0E-03	P/MDEQ	NA	MDEQ	3.3E+02	P/MDEQ	NA	MDEQ	No	No	No	No
1,1-Dichloroethane	75343	2.0E-01	PPRTV	NA	MDEQ	5.0E+02	MDEQ	NA	MDEQ	No	No	No	No
1,2-Dichloroethane (I,KK)	107062	2.0E-02	PPRTV	9.1E-02	IRIS	7.0E+00	PPRTV	2.6E-05	IRIS	No	No	No	No
1,1-Dichloroethylene (I,KK)	75354	5.0E-02	IRIS	NA	MDEQ	2.0E+02	IRIS	NA	MDEQ	No	No	No	No
cis-1,2-Dichloroethylene	156592	2.0E-03	IRIS	NA	MDEQ	8.0E+00	CAEPA	NA	MDEQ	No	No	No	No
trans-1,2-Dichloroethylene	156605	2.0E-02	IRIS	NA	MDEQ	8.0E+01	A/MDEQ	NA	MDEQ	No	No	No	No
2,6-Dichloro-4-nitroaniline	99309	2.5E-03	OPP	NA	MDEQ	8.8E+00	O/MDEQ	NA	MDEQ	No	No	No	No
2,4-Dichlorophenol (DD)	120832	2.0E-02	P/MDEQ	NA	MDEQ	1.1E+01	MDEQ	NA	MDEQ	No	No	No	Yes
2,4-Dichlorophenoxyacetic acid (KK)	94757	5.0E-02	OPP	NA	MDEQ	1.75E+02	O/MDEQ	NA	MDEQ	No	No	No	No
1,2-Dichloropropane (I)	78875	9.0E-02	ATSDR	3.6E-02	CAEPA	4.0E+00	IRIS	5.0E-06	MDEQ	No	No	No	No

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		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{-1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
1,3-Dichloropropene (J)	542756	3.0E-02	ATSDR	1.0E-01	IRIS	3.0E+01	ATSDR	4.0E-06	IRIS	No	No	No	No
Dichlorvos (MM)	62737	5.0E-04	OPP	2.9E-01	IRIS	2.0E+00	O/MDEQ	NA	MDEQ	Yes	Yes	No	No
Dicyclohexyl phthalate	84617	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Dieldrin	60571	5.0E-05	ATSDR	1.6E+01	IRIS	NA	MDEQ	4.6E-03	IRIS	No	No	No	No
Diethyl ether	60297	2.0E-01	IRIS	NA	MDEQ	1.0E+03	P/MDEQ	NA	MDEQ	No	No	No	No
Diethyl phthalate	84662	8.0E-01	IRIS	NA	MDEQ	2.8E+03	MDEQ	NA	MDEQ	No	No	No	No
Diethylene glycol monobutyl ether	112345	3.0E-02	PPRTV	NA	MDEQ	1.0E-01	PPRTV	NA	MDEQ	No	No	No	No
Diisopropyl ether (DD)	108203	2.7E-01	MDEQ	NA	MDEQ	7.0E+02	PPRTV	NA	MDEQ	No	No	Yes	Yes
Diisopropylamine (I)	108189	7.7E-04	MDEQ	NA	MDEQ	2.0E+02	MDEQ	NA	MDEQ	No	No	No	No
Dimethyl phthalate	131113	1.0E-01	PPRTV	NA	MDEQ	5.0E+01	MDEQ	NA	MDEQ	No	No	No	No
N,N-Dimethylacetamide (OO)	127195	2.5E-02	MDEQ	NA	MDEQ	1.0E+02	MDEQ	NA	MDEQ	No	No	No	No
N,N-Dimethylaniline	121697	2.0E-03	IRIS	4.9E-02	MDEQ	NA	MDEQ	1.2E-05	MDEQ	No	No	No	No
Dimethylformamide (I,OO)	68122	1.0E-01	PPRTV	NA	MDEQ	7.0E+00	P/MDEQ	NA	MDEQ	No	No	No	No
2,4-Dimethylphenol	105679	2.0E-02	P/MDEQ	NA	MDEQ	7.0E+01	MDEQ	NA	MDEQ	No	No	No	No
2,6-Dimethylphenol	576261	6.0E-04	IRIS	NA	MDEQ	2.0E+00	MDEQ	NA	MDEQ	No	No	No	No
3,4-Dimethylphenol	95658	1.0E-03	IRIS	NA	MDEQ	3.5E+00	MDEQ	NA	MDEQ	No	No	No	No
Dimethylsulfoxide	67685	1.0E+00	O/MDEQ	NA	MDEQ	2.0E+01	MDEQ	NA	MDEQ	No	No	No	No
2,4-Dinitrophenol	51285	2.0E-03	PPRTV	NA	MDEQ	7.0E+00	MDEQ	NA	MDEQ	No	No	No	No
2,4-Dinitrotoluene (KK)	121142	1.0E-03	ATSDR	6.7E-01	USEPA	2.0E+00	MDEQ	8.9E-05	CAEPA	No	No	No	No
Dinoseb (DD)	88857	1.0E-03	IRIS	NA	MDEQ	4.0E+00	MDEQ	NA	MDEQ	No	No	Yes	Yes
1,4-Dioxane (I,OO)	123911	3.0E-02	IRIS	1.0E-01	IRIS	3.0E+01	IRIS	5.0E-06	IRIS	No	No	No	No
Diquat	85007	5.0E-03	OPP	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Dissolved oxygen (DO)	NA	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	NA	No	No
Diuron	330541	3.0E-03	OPP	1.9E-02	OPP	3.3E+00	OPP	NA	MDEQ	No	No	No	No
Endosulfan (J)	115297	5.0E-03	ATSDR	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Endothall	145733	7.0E-03	OPP	NA	MDEQ	7.0E+01	OPP	NA	MDEQ	No	No	No	No
Endrin (KK)	72208	3.0E-04	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Epichlorohydrin (I)	106898	6.0E-03	PPRTV	9.9E-03	IRIS	1.0E+00	IRIS	1.2E-06	IRIS	No	No	No	No
Ethanol (I,DD,OO)	64175	6.2E+01	MDEQ	NA	MDEQ	1.9E+04	MDEQ	NA	MDEQ	No	No	No	Yes
Ethyl acetate (I)	141786	7.2E-02	P/MDEQ	NA	MDEQ	7.0E+01	PPRTV	NA	MDEQ	No	No	No	No

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PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	RfD Source	Oral Slope Factor	SF Source	Chronic Inhalation Reference Concentration	RfC Source	Inhalation Unit Risk Factor	IURF Source	Mutagenic Carcinogen?		Developmental or Reproductive Toxicant?	
		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
Ethyl-tert-butyl ether (ETBE)	637923	9.2E-02	IRIS	NA	MDEQ	6.0E+00	IRIS	NA	MDEQ	No	No	No	No
Ethylbenzene (I)	100414	4.0E-02	ATSDR	1.1E-02	CAEPA	2.6E+02	ATSDR	2.5E-06	CAEPA	No	No	No	No
Ethylene dibromide	106934	9.0E-03	IRIS	2.0E+00	IRIS	9.0E+00	IRIS	6.0E-04	IRIS	No	No	No	No
Ethylene glycol (DD)	107211	8.0E-01	ATSDR	NA	MDEQ	2.0E+01	A/MDEQ	NA	MDEQ	No	No	No	Yes
Ethylene glycol monobutyl ether	111762	1.0E-01	IRIS	NA	MDEQ	1.6E+03	IRIS	NA	MDEQ	No	No	No	No
Ethylenediaminetetraacetic acid (EDTA) (II)	60004	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Fluoranthene	206440	4.0E-02	P/MDEQ	NA	MDEQ	1.4E+02	MDEQ	NA	MDEQ	No	No	No	No
Fluorene	86737	4.0E-02	A/MDEQ	NA	MDEQ	1.4E+02	MDEQ	NA	MDEQ	No	No	No	No
Fluorine (soluble fluoride) (DD)	7782414	6.0E-02	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Formaldehyde (DD,MM,OO)	50000	2.0E-01	IRIS	NA	MDEQ	4.0E+00	IRIS	6.6E-05	IRIS	Yes	Yes	Yes	No
Formic acid (I,U,OO)	64186	9E-01	PPRTV	NA	MDEQ	3E-01	PPRTV	NA	MDEQ	No	No	No	No
1-Formylpiperidine (DD)	2591868	1.1E+00	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Gentian violet	548629	1.4E-01	MDEQ	5.5E-02	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Glyphosate (DD)	1071836	1E-01	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Heptachlor (DD,KK)	76448	1E-04	ATSDR	1.2E+00	MDEQ	NA	MDEQ	1.30E-03	IRIS	No	No	No	Yes
Heptachlor epoxide (KK)	1024573	1.3E-05	IRIS	3.6E+00	MDEQ	NA	MDEQ	2.6E-03	IRIS	No	No	No	No
n-Heptane	142825	4.4E+00	MDEQ	NA	MDEQ	3.5E+03	MDEQ	NA	MDEQ	No	No	No	No
Hexabromobenzene	87821	2E-03	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Hexachlorobenzene (C-66) (KK)	118741	1.0E-05	PPRTV	1.6E+00	IRIS	3.5E-02	MDEQ	4.6E-04	IRIS	No	No	No	No
Hexachlorobutadiene (C-46) (KK)	87683	1.0E-03	PPRTV	7.8E-02	IRIS	NA	MDEQ	2.2E-05	IRIS	No	No	No	No
alpha-Hexachlorocyclohexane	319846	8.0E-03	ATSDR	6.3E+00	IRIS	NA	MDEQ	1.8E-03	IRIS	No	No	No	No
beta-Hexachlorocyclohexane	319857	6E-05	A/MDEQ	1.8E+00	IRIS	NA	MDEQ	5.3E-04	IRIS	No	No	No	No
Hexachlorocyclopentadiene (C-56)	77474	6E-03	IRIS	NA	MDEQ	2E-01	IRIS	NA	MDEQ	No	No	No	No
Hexachloroethane (KK)	67721	7.0E-04	IRIS	4E-02	IRIS	3E+01	IRIS	1.0E-05	MDEQ	No	No	No	No
n-Hexane	110543	3E-01	PPRTV	NA	MDEQ	7E+02	MDEQ	NA	MDEQ	No	No	No	No
2-Hexanone	591786	5E-03	IRIS	NA	MDEQ	3E+01	IRIS	NA	MDEQ	No	No	No	No
Indeno(1,2,3-cd)pyrene (Q,MM)	193395	NA	MDEQ	1.0E-01	IRIS	NA	MDEQ	6.0E-05	IRIS	Yes	Yes	No	No
Iron (B)	7439896	7E-01	PPRTV	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Isobutyl alcohol (I,OO)	78831	3E-01	IRIS	NA	MDEQ	1.5E+03	MDEQ	NA	MDEQ	No	No	No	No
Isophorone (DD)	78591	2E-01	IRIS	9.5E-04	IRIS	2E+03	CAEPA	2.7E-07	MDEQ	No	No	Yes	No

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	RfD Source	Oral Slope Factor	SF Source	Chronic Inhalation Reference Concentration	RfC Source	Inhalation Unit Risk Factor	IURF Source	Mutagenic Carcinogen?		Developmental or Reproductive Toxicant?	
		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{-1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
Isopropyl alcohol (I,DD,OO)	67630	2E+00	PPRTV	NA	MDEQ	2E+02	PPRTV	NA	MDEQ	No	No	No	Yes
Isopropyl benzene	98828	1.0E-01	IRIS	NA	MDEQ	4E+02	IRIS	1.05E-05	MDEQ	No	No	No	No
Lead (B,L,DD,KK)	7439921	NA	MDEQ	NA	MDEQ	1.5E-01	USEPA	NA	MDEQ	No	No	Yes	Yes
Lindane (KK)	58899	4.7E-03	OPP	1.1E+00	CAEPA	NA	MDEQ	NA	MDEQ	No	No	No	No
Lithium (B,DD)	7439932	0.002	PPRTV	NA	MDEQ	3.5E+01	MDEQ	NA	MDEQ	No	No	Yes	Yes
Magnesium	7439954	1.1E+01	MDEQ	NA	MDEQ	1.0E+02	MDEQ	NA	MDEQ	No	No	No	No
Manganese (B)	7439965	4.7E-02	I/MDEQ	NA	MDEQ	3.0E-01	ATSDR	NA	MDEQ	No	No	No	No
Mercury (Total) (Z,DD,KK)	Varies												
Mercury, elemental	7439976	6.0E-05	MDEQ	NA	MDEQ	3.0E-01	IRIS	NA	MDEQ	No	No	No	No
Mercuric chloride	7487947	3.0E-04	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Methyl mercury (DD)	22967926	1.0E-04	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Methane (K)	74828	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Methanol (DD,OO)	67561	2.0E+00	IRIS	NA	MDEQ	2.0E+04	IRIS	NA	MDEQ	No	No	Yes	Yes
Methoxychlor (DD,KK)	72435	5.0E-03	ATSDR	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
2-Methoxyethanol (I,DD,OO)	109864	5E-03	PPRTV	NA	MDEQ	7.0E-04	P/MDEQ	NA	MDEQ	No	No	No	Yes
2-Methyl-4-chlorophenoxyacetic acid	94746	4.4E-03	OPP	NA	MDEQ	1.8E+01	OPP	NA	MDEQ	No	No	No	No
2-Methyl-4,6-dinitrophenol	534521	4.0E-04	A/MDEQ	NA	MDEQ	2.0E+00	MDEQ	NA	MDEQ	No	No	No	No
N-Methyl-morpholine (I,OO)	109024	7.0E-02	E/MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Methyl parathion	298000	2E-04	OPP	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
4-Methyl-2-pentanone (MIBK) (I,DD)	108101	5.0E-02	MDEQ	NA	MDEQ	3E+03	IRIS	NA	MDEQ	No	No	Yes	No
Methyl-tert-butyl ether (MTBE)	1634044	1.4E-01	MNDOH	3.4E-03	MDEQ	3E+03	IRIS	NA	MDEQ	No	No	No	No
N-methylaniline	100618	2.0E-03	PPRTV	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Methylcyclopentane (I)	96377	NA	MDEQ	NA	MDEQ	7E+02	MDEQ	NA	MDEQ	No	No	No	No
4,4`-Methylene-bis-2-chloroaniline (MBOCA) (MM)	101144	2E-03	PPRTV	7E-03	PPRTV	NA	MDEQ	NA	MDEQ	Yes	Yes	No	No
Methylene chloride (MM)	75092	6.0E-03	IRIS	2E-03	IRIS	6E+02	IRIS	1E-08	IRIS	Yes	Yes	No	No
2-Methylnaphthalene	91576	4E-03	IRIS	NA	MDEQ	1.0E+01	MDEQ	NA	MDEQ	No	No	No	No
Methylphenols (JJ,KK)	1319773												
2-Methylphenol (DD,KK)	95487	2.0E-01	PPRTV	NA	MDEQ	1.0E+02	MDEQ	NA	PPRTV	No	No	No	Yes
3-Methylphenol (KK)	108394	5.0E-02	IRIS	NA	MDEQ	1.0E+02	MDEQ	NA	MDEQ	No	No	No	No

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PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{-1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
4-Methylphenol (KK)	106445	5.0E-03	P/MDEQ	NA	MDEQ	1.0E+02	MDEQ	NA	MDEQ	No	No	No	No
Metolachlor	51218452	1.0E-01	OPP	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Metribuzin	21087649	1.3E-02	OPP	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Mirex	2385855	2E-04	IRIS	9.3E-01	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Molybdenum	7439987	5.0E-03	IRIS	NA	MDEQ	3.0E+01	MDEQ	NA	MDEQ	No	No	No	No
Naphthalene	91203	1.0E-01	OPP	NA	MDEQ	3.0E+00	IRIS	3.4E-05	CAEPA	No	No	No	No
Nickel (B)	7440020	6.0E-03	MDEQ	NA	MDEQ	9E-02	ATSDR	2.4E-04	IRIS	No	No	No	No
Nitrate (N,DD)	14797558	1.6E+00	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Nitrite (N,DD)	14797650	1.0E-01	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Nitrobenzene (I,KK)	98953	2E-03	IRIS	NA	MDEQ	9.0E+00	IRIS	4E-05	IRIS	No	No	No	No
2-Nitrophenol	88755	2.0E-03	TCEQ	NA	MDEQ	5.0E-02	P/MDEQ	NA	MDEQ	No	No	No	No
n-Nitroso-di-n-propylamine	621647	NA	MDEQ	7.0E+00	IRIS	NA	MDEQ	2E-03	MDEQ	No	No	No	No
N-Nitrosodiphenylamine	86306	2.5E-01	MDEQ	4.9E-03	IRIS	NA	MDEQ	NA	MDEQ	No	No	No	No
Oxamyl	23135220	6.9E-03	OPP	NA	MDEQ	2.5E+01	MDEQ	NA	MDEQ	No	No	No	No
Oxo-hexyl acetate (OO)	88230357	1.0E-02	MDEQ	NA	MDEQ	8.1E+01	MDEQ	NA	MDEQ	No	No	No	No
Pendimethalin (DD)	40487421	3.0E-01	OPP	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Pentachlorobenzene	608935	8.0E-04	IRIS	NA	MDEQ	1.0E-01	MDEQ	NA	MDEQ	No	No	No	No
Pentachloronitrobenzene	82688	3.0E-03	IRIS	NA	MDEQ	1.1E+01	MDEQ	NA	MDEQ	No	No	No	No
Pentachlorophenol (KK)	87865	5.0E-03	IRIS	4.0E-01	IRIS	2.0E+01	MDEQ	1.1E-04	MDEQ	No	No	No	No
Pentane	109660	NA	MDEQ	NA	MDEQ	1.0E+03	PPRTV	NA	MDEQ	No	No	No	No
2-Pentene (I)	109682	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Perchlorate (DD)	14797730	7.0E-04	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Perfluorooctanoic acid	335671	1.5E-05	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Perfluorooctane sulfonic acid (DD)	1763231	3.0E-05	USEPA	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
pH	NA	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	NA	No	No
Phenanthrene	85018	3.0E-02	IRIS	NA	MDEQ	1.0E-01	MDEQ	NA	MDEQ	No	No	No	No
Phenol (DD)	108952	3.0E-01	IRIS	NA	MDEQ	2.0E+02	MDEQ	NA	MDEQ	No	No	No	Yes
Phenytoin (DD)	57410	3.0E-02	MDEQ	5.1E-02	MDEQ	NA	MDEQ	1.4E-05	MDEQ	No	No	No	Yes
Phosphorus, Total	Varies	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	NA	No	No
Phosphorus, White (R,DD)	7723140	2.0E-05	IRIS	NA	MDEQ	2.0E-01	A/MDEQ	NA	MDEQ	No	No	No	Yes

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		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{-1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
o-Phthalic acid	88993	1.9E+00	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Phthalic anhydride	85449	2.0E+00	IRIS	NA	MDEQ	2.0E+01	MDEQ	NA	MDEQ	No	No	No	No
Picloram	1918021	7.0E-02	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Piperidine (OO)	110894	4.4E-04	MDEQ	NA	MDEQ	7.0E+03	ECHA	NA	MDEQ	No	No	No	No
Polybrominated biphenyls (J,DD)	67774327	1.0E-02	ASTDR	7.2E+00	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Polychlorinated biphenyls (PCBs) (J,T,DD)	1336363	2.0E-05	IRIS	2.0E+00	IRIS	NA	MDEQ	1.0E-04	IRIS	No	No	No	Yes
Polychlorinated biphenyls (PCBs) congeners (O)	(O)	(O)		(O)		(O)		(O)		No	No	Yes	Yes
Prometon	1610180	5.0E-2	OPP	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Propachlor	1918167	5.4E-2	OPP	3.2E-2	OPP	NA	MDEQ	NA	MDEQ	No	No	No	No
Propazine	139402	1.8E-2	OPP	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Propionic acid (OO)	79094	1.8E+0	MDEQ	NA	MDEQ	3.0E+2	MDEQ	NA	MDEQ	No	No	No	No
Propyl alcohol (I,DD,OO)	71238	2.0E+00	MDEQ	NA	MDEQ	7.3E+2	MDEQ	NA	MDEQ	No	No	Yes	Yes
n-Propylbenzene (I,DD)	103651	1.0E-1	PPRTV	NA	MDEQ	1.0E+03	PPRTV	NA	MDEQ	No	No	Yes	No
Propylene glycol	57556	2E+1	PPRTV	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Pyrene	129000	3.0E-2	IRIS	NA	MDEQ	1.0E+2	MDEQ	NA	MDEQ	No	No	No	No
Pyridine (I,KK)	110861	1.0E-3	IRIS	NA	MDEQ	3.5E+0	MDEQ	NA	MDEQ	No	No	No	No
Selenium (B,KK)	7782492	5.0E-3	IRIS	NA	MDEQ	2.0E+1	CAEPA	NA	MDEQ	No	No	No	No
Silver (KK)	7440224	1.0E-3	OPP	NA	MDEQ	3.0E+0	OPP	NA	MDEQ	No	No	No	No
Silvex (2,4,5-TP) (KK)	93721	8E-3	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Simazine	122349	5.0E-3	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Sodium	17341252	1.9E+1	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Sodium azide	26628228	1.2E-2	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Sodium bromide	7647156	4.0E-2	MDEQ	NA	MDEQ	1.4E+2	MDEQ	NA	MDEQ	No	No	No	No
Strontium (B,DD)	7440246	6.0E-1	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Styrene	100425	2.0E-1	IRIS	1.3E-2	MDEQ	9.0E+2	ATSDR	5.7E-7	MDEQ	No	No	No	No
Sulfate	14808798	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Tebuthiuron (DD)	34014181	7.0E-2	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NA	MDEQ	7.5E+4	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
1,2,4,5-Tetrachlorobenzene (DD)	95943	7.0E-3	PPRTV	NA	MDEQ	1.0E+0	MDEQ	NA	MDEQ	No	No	No	Yes

TABLE 1. TOXICOLOGICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. Hazardous substance footnotes are defined in R 299.49. Data sources are as defined in R 299.50(2).

Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	RfD Source	Oral Slope Factor	SF Source	Chronic Inhalation Reference Concentration	RfC Source	Inhalation Unit Risk Factor	IURF Source	Mutagenic Carcinogen?		Developmental or Reproductive Toxicant?	
		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O,DD)	1746016	7E-10	IRIS	7.5E+4	MDEQ	2.0E-6	MDEQ	4.4E+1	MDEQ	No	No	Yes	Yes
1,1,1,2-Tetrachloroethane	630206	3.0E-2	IRIS	2.6E-2	IRIS	NA	MDEQ	7.4E-6	IRIS	No	No	No	No
1,1,2,2-Tetrachloroethane	79345	2.0E-2	IRIS	2.0E-1	IRIS	NA	MDEQ	5.8E-5	MDEQ	No	No	No	No
Tetrachloroethylene (KK)	127184	6.0E-3	IRIS	2.1E-3	IRIS	4.0E+1	IRIS	3.0E-7	IRIS	No	No	No	No
Tetrahydrofuran (DD)	109999	9.0E-1	IRIS	NA	MDEQ	2.0E+3	IRIS	NA	MDEQ	No	No	No	Yes
1,1,3,3-Tetramethylurea (OO)	632224	NA	MDEQ	NA	MDEQ	8.0E-1	MDEQ	NA	MDEQ	No	No	No	No
Tetranitromethane	509148	NA	MDEQ	NA	MDEQ	4.0E-1	MDEQ	1.5E-2	MDEQ	No	No	No	No
Thallium	7440280	1.0E-5	PPRTV	NA	MDEQ	2.0E-1	MDEQ	NA	MDEQ	No	No	No	No
Toluene (I)	108883	7.9E-2	IRIS	NA	MDEQ	5.0E+3	IRIS	NA	MDEQ	No	No	No	No
p-Toluidine	106490	4E-3	PPRTV	3E-2	PPRTV	2	MDEQ	3.1E-5	MDEQ	No	No	No	No
Total dissolved solids (TDS)	NA	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	NA	No	No
Toxaphene (KK)	8001352	2.0E-4	A/MDEQ	1.1E+0	IRIS	NA	MDEQ	3.2E-4	IRIS	No	No	No	Yes
Triallate (DD)	2303175	2.5E-2	OPP	7.2E-2	OPP	2.0E+2	O/MDEQ	NA	MDEQ	No	No	Yes	No
Tributylamine	102829	3.5E-3	MDEQ	NA	MDEQ	7.0E+00	MDEQ	NA	MDEQ	No	No	No	No
1,2,3-Trichlorobenzene	87616	2.7E-3	P/MDEQ	NA	MDEQ	2.7E+1	MDEQ	NA	MDEQ	No	No	No	No
1,2,4-Trichlorobenzene	120821	1.0E-1	ATSDR	2.9E-02	PPRTV	2.0E+0	PPRTV	NA	MDEQ	No	No	No	No
1,1,1-Trichloroethane	71556	2.0E+0	IRIS	NA	MDEQ	5.0E+3	IRIS	NA	MDEQ	No	No	No	No
1,1,2-Trichloroethane	79005	4.0E-4	P/MDEQ	5.7E-2	IRIS	2.0E-4	PPRTV	1.6E-5	IRIS	No	No	No	No
Trichloroethylene (DD,KK,MM,NN)	79016	5.0E-4	IRIS	4.6E-2	IRIS	2.0E+0	IRIS	4.1E-6	IRIS	Yes	Yes	Yes	Yes
Trichlorofluoromethane	75694	3.0E-1	IRIS	NA	MDEQ	4.0E+2	PPRTV	NA	MDEQ	No	No	No	No
2,4,5-Trichlorophenol (KK)	95954	3.0E-2	PPRTV	NA	MDEQ	3.5E+2	MDEQ	NA	MDEQ	No	No	No	No
2,4,6-Trichlorophenol (DD,KK)	88062	1.0E-02	PPRTV	1.1E-02	IRIS	NA	MDEQ	3.1E-6	IRIS	No	No	No	Yes
1,2,3-Trichloropropane (MM)	96184	4.0E-3	IRIS	3.0E+1	IRIS	3.0E-1	IRIS	NA	MDEQ	Yes	Yes	No	No
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	2.7E+1	IRIS	NA	MDEQ	1.9E+4	MDEQ	NA	MDEQ	No	No	No	No
Triethanolamine	102716	5.0E-1	MDEQ	NA	MDEQ	4.4E+0	ECHA	NA	MDEQ	No	No	No	No
Triethylene glycol (DD)	112276	5.9E+0	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
3-Trifluoromethyl-4-nitrophenol (DD)	88302	6.2E-1	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	Yes
Trifluralin	1582098	2.4E-2	OPP	2.96E-3	OPP	3.0E+3	OPP	NA	MDEQ	No	No	No	No
2,2,4-Trimethyl pentane	540841	NA	MDEQ	NA	MDEQ	3.5E+3	MDEQ	NA	MDEQ	No	No	No	No

TABLE 1. TOXICOLOGICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. Hazardous substance footnotes are defined in R 299.49. Data sources are as defined in R 299.50(2).

Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	RfD Source	Oral Slope Factor	SF Source	Chronic Inhalation Reference Concentration	RfC Source	Inhalation Unit Risk Factor	IURF Source	Mutagenic Carcinogen?		Developmental or Reproductive Toxicant?	
		RfD		SF		RfC		IURF		Inhalation Route	Oral Route	Inhalation Route	Oral Route
		mg/kg-day		$(mg/kg\text{-}day)^{1}$		$\mu g/m^3$		$(\mu g/m^3)^{-1}$					
2,4,4-Trimethyl-2-pentene (I)	107404	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
1,2,3-Trimethylbenzene (I)	526738	2.0E-2	IRIS	NA	MDEQ	5.0E+0	PPRTV	NA	MDEQ	No	No	No	No
1,2,4-Trimethylbenzene (I)	95636	2.0E-2	IRIS	NA	MDEQ	7.0E+0	PPRTV	NA	MDEQ	No	No	No	No
1,3,5-Trimethylbenzene (I)	108678	2.0E-2	IRIS	NA	MDEQ	5.0E+1	IRIS	NA	MDEQ	No	No	No	No
Triphenyl phosphate	115866	1.6E-1	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
tris(2,3-Dibromopropyl)phosphate	126727	NA	MDEQ	1.1E+0	MDEQ	NA	MDEQ	5.3E-4	MDEQ	No	No	No	No
Urea	57136	NA	MDEQ	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No
Vanadium (B)	7440622	7.0E-05	PPRTV	NA	MDEQ	1.0E-1	ATSDR	NA	MDEQ	No	No	No	No
Vinyl acetate (I,DD)	108054	8.8E-1	MDEQ	NA	MDEQ	2.0E+2	IRIS	NA	MDEQ	No	No	No	Yes
Vinyl chloride (KK,LL,MM)	75014	3.0E-3	ATSDR	1.4E+0	IRIS	8.0E+1	ATSDR	8.8E-6	IRIS	Yes	Yes	No	No
Xylenes (I,J)	1330207	2.0E-1	ATSDR	NA	MDEQ	2.2E+2	ATSDR	NA	MDEQ	No	No	No	No
Zinc (B)	7440666	3.0E-01	IRIS	NA	MDEQ	NA	MDEQ	NA	MDEQ	No	No	No	No

TABLE 2. CHEMICAL-SPECIFIC DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Hazardous substance footnotes are defined in R 299.49. Data sources are as defined in R 299.50(4)

Hazardous Substance	Chemical Abstract Service Number	Relative Source Contribution for Drinking Water RSCw unitless	RSCw Source	Relative Source Contribution for Soil RSCs unitless	RSCs Source	Relative Source Contribution for Air RSCa unitless	RSCa Source	Ingestion Absorption Efficiency AEi unitless	AEi Source	Dermal Absorption Efficiency AEd unitless	AEd Source	Gastrointestinal Absorption Efficiency ABSgi unitless	ABSgi Source
Acenaphthene	83329	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acenaphthylene	208968	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acetaldehyde (I)	75070	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acetate	71501	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acetic acid (OO)	64197	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acetone (I)	67641	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acetonitrile	75058	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acetophenone (DD)	98862	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acrolein (I)	107028	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acrylamide (MM)	79061	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acrylic acid (DD,OO)	79107	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Acrylonitrile (I)	107131	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Alachlor	15972608	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Aldicarb	116063	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Aldicarb sulfone	1646884	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Aldicarb sulfoxide	1646873	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Aldrin	309002	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Aluminum (B,DD)	7429905	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Ammonia	7664417	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
t-Amyl methyl ether (TAME)	994058	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Aniline	62533	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Anthracene	120127	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Antimony	7440360	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	0.15	USEPA
Arsenic (B,KK)	7440382	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.03	USEPA	1.0	MDEQ
Asbestos (BB)	1332214	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0	MDEQ	1.0	MDEQ
Atrazine	1912249	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Azobenzene	103333	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Barium (B,KK)	7440393	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	0.07	USEPA
Benzene (I,KK)	71432	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ

TABLE 2. CHEMICAL-SPECIFIC DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Hazardous substance footnotes are defined in R 299.49. Data sources are as defined in R 299.50(4)

Hazardous Substance	Chemical Abstract Service Number	Relative Source Contribution for Drinking Water RSCw unitless	RSCw Source	Relative Source Contribution for Soil RSCs unitless	RSCs Source	Relative Source Contribution for Air RSCa unitless	RSCa Source	Ingestion Absorption Efficiency AEi unitless	AEi Source	Dermal Absorption Efficiency AEd unitless	AEd Source	Gastrointestinal Absorption Efficiency ABSgi unitless	ABSgi Source
Benzidine (MM)	92875	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Benzo(a)anthracene (Q,MM)	56553	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.13	USEPA	1.0	MDEQ
Benzo(b)fluoranthene (Q,MM)	205992	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.13	USEPA	1.0	MDEQ
Benzo(k)fluoranthene (Q,MM)	207089	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.13	USEPA	1.0	MDEQ
Benzo(g,h,i)perylene	191242	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.13	USEPA	1.0	MDEQ
Benzo(a)pyrene (Q,DD,MM)	50328	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.13	USEPA	1.0	MDEQ
Benzoic acid	65850	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Benzyl alcohol	100516	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Benzyl chloride	100447	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Beryllium (B)	7440417	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	0.007	USEPA
bis(2-Chloroethoxy)ethane	112265	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
bis-2-Chloroethylether (I)	111444	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
bis(2-Ethylhexyl) phthalate (DD)	117817	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Boron (DD)	7440428	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Bromate	15541454	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Bromobenzene (I)	108861	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Bromodichloromethane (DD)	75274	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Bromoform	75252	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Bromomethane	74839	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
n-Butanol (I,OO)	71363	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2-Butanone (MEK) (I,DD,KK)	78933	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
n-Butyl acetate	123864	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
t-Butyl alcohol (OO)	75650	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Butyl benzyl phthalate (DD)	85687	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
n-Butylbenzene	104518	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
sec-Butylbenzene	135988	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
t-Butylbenzene (I)	98066	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Cadmium (B,KK)	7440439	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.001	USEPA	0.05	USEPA
Camphene (I)	79925	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Caprolactam (DD)	105602	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ

TABLE 2. CHEMICAL-SPECIFIC DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Carbaryl (DD)	63252	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Carbazole	86748	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Carbofuran (DD)	1563662	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Carbon disulfide (I,R,DD)	75150	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Carbon tetrachloride (KK)	56235	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Chlordane (J,KK)	57749	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.04	USEPA	1.0	MDEQ
Chloride	16887006	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
2-Chloroaniline	95512	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
4-Chloroaniline	106478	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Chlorobenzene (I,KK)	108907	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
p-Chlorobenzene sulfonic acid	98668	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1-Chloro-1,1-difluoroethane	75683	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Chloroethane (DD)	75003	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2-Chloroethyl vinyl ether	110758	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Chloroform (KK)	67663	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Chloromethane (I)	74873	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
4-Chloro-3-methylphenol (DD)	59507	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
beta-Chloronaphthalene	91587	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2-Chlorophenol (DD)	95578	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
o-Chlorotoluene (I)	95498	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Chlorpyrifos (DD)	2921882	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Chromium (III) (B,H,KK)	16065831	0.7	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	0.013	USEPA
Chromium (VI) (H,KK,MM)	18540299	0.7	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	0.025	USEPA
Chrysene (Q,MM)	218019	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.13	USEPA	1.0	MDEQ
Cobalt (B)	7440484	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Copper (B)	7440508	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Cyanazine	21725462	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Cyanide (P,R,DD)	57125	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.01	MDEQ	1.0	MDEQ
Cyclohexane (DD)	110827	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Cyclohexanone (OO)	108941	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ

TABLE 2. CHEMICAL-SPECIFIC DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Hazardous substance footnotes are defined in R 299.49. Data sources are as defined in R 299.50(4)

Hazardous Substance	Chemical Abstract Service Number	Relative Source Contribution for Drinking Water RSCw unitless	RSCw Source	Relative Source Contribution for Soil RSCs unitless	RSCs Source	Relative Source Contribution for Air RSCa unitless	RSCa Source	Ingestion Absorption Efficiency AEi unitless	AEi Source	Dermal Absorption Efficiency AEd unitless	AEd Source	Gastrointestinal Absorption Efficiency ABSgi unitless	ABSgi Source
Dacthal	1861321	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dalapon	75990	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
4-4'-DDD	72548	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
4-4'-DDE	72559	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
4-4'-DDT (DD)	50293	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.03	USEPA	1.0	MDEQ
Decabromodiphenyl ether (DD)	1163195	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Di-n-butyl phthalate (DD)	84742	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Di(2-ethylhexyl) adipate (DD)	103231	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Di-n-octyl phthalate	117840	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Diacetone alcohol (I,OO)	123422	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Diazinon	333415	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dibenzo(a,h)anthracene (Q,MM)	53703	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.13	USEPA	1.0	MDEQ
Dibenzofuran	132649	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dibromochloromethane (MM)	124481	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dibromochloropropane (MM)	96128	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dibromomethane	74953	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dicamba (DD)	1918009	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,2-Dichlorobenzene	95501	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,3-Dichlorobenzene	541731	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,4-Dichlorobenzene (KK)	106467	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
3,3`-Dichlorobenzidine	91941	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dichlorodifluoromethane	75718	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,1-Dichloroethane	75343	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,2-Dichloroethane (I,KK)	107062	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,1-Dichloroethylene (I,KK)	75354	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
cis-1,2-Dichloroethylene	156592	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
trans-1,2-Dichloroethylene	156605	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,6-Dichloro-4-nitroaniline	99309	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,4-Dichlorophenol (DD)	120832	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,4-Dichlorophenoxyacetic acid (KK)	94757	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.05	USEPA	1.0	MDEQ

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1,2-Dichloropropane (I)	78875	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,3-Dichloropropene (J)	542756	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dichlorvos (MM)	62737	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dicyclohexyl phthalate	84617	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Dieldrin	60571	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Diethyl ether	60297	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Diethyl phthalate	84662	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Diethylene glycol monobutyl ether	112345	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Diisopropyl ether (DD)	108203	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Diisopropylamine (I)	108189	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dimethyl phthalate	131113	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
N,N-Dimethylacetamide (OO)	127195	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
N,N-Dimethylaniline	121697	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dimethylformamide (I,OO)	68122	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,4-Dimethylphenol	105679	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,6-Dimethylphenol	576261	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
3,4-Dimethylphenol	95658	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dimethylsulfoxide	67685	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,4-Dinitrophenol	51285	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,4-Dinitrotoluene (KK)	121142	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dinoseb (DD)	88857	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,4-Dioxane (I,OO)	123911	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Diquat	85007	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Dissolved oxygen (DO)	NA	NR	MDEQ	NR	MDEQ	NR	MDEQ	NR	MDEQ	NR	MDEQ	NR	MDEQ
Diuron	330541	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Endosulfan (J)	115297	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Endothall	145733	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Endrin (KK)	72208	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Epichlorohydrin (I)	106898	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Ethanol (I,DD,OO)	64175	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ

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Ethyl acetate (I)	141786	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Ethyl-tert-butyl ether (ETBE)	637923	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Ethylbenzene (I)	100414	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Ethylene dibromide	106934	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Ethylene glycol (DD)	107211	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Ethylene glycol monobutyl ether	111762	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Ethylenediaminetetraacetic acid (EDTA) (II)	60004	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Fluoranthene	206440	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Fluorene	86737	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Fluorine (soluble fluoride) (DD)	7782414	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Formaldehyde (DD,MM,OO)	50000	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Formic acid (I,U,OO)	64186	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1-Formylpiperidine (DD)	2591868	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Gentian violet	548629	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Glyphosate (DD)	1071836	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Heptachlor (DD,KK)	76448	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Heptachlor epoxide (KK)	1024573	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
n-Heptane	142825	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Hexabromobenzene	87821	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Hexachlorobenzene (C-66) (KK)	118741	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Hexachlorobutadiene (C-46) (KK)	87683	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
alpha-Hexachlorocyclohexane	319846	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
beta-Hexachlorocyclohexane	319857	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Hexachlorocyclopentadiene (C-56)	77474	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Hexachloroethane (KK)	67721	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
n-Hexane	110543	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2-Hexanone	591786	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Indeno(1,2,3-cd)pyrene (Q,MM)	193395	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.13	USEPA	1.0	MDEQ
Iron (B)	7439896	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Isobutyl alcohol (I,OO)	78831	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ

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PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Relative Source Contribution for Drinking Water RSCw unitless	RSCw Source	Relative Source Contribution for Soil RSCs unitless	RSCs Source	Relative Source Contribution for Air RSCa unitless	RSCa Source	Ingestion Absorption Efficiency AEi unitless	AEi Source	Dermal Absorption Efficiency AEd unitless	AEd Source	Gastrointestinal Absorption Efficiency ABSgi unitless	ABSgi Source
Isophorone (DD)	78591	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Isopropyl alcohol (I,DD,OO)	67630	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Isopropyl benzene	98828	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Lead (B,L,DD,KK)	7439921	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Lindane (KK)	58899	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.04	USEPA	1.0	MDEQ
Lithium (B,DD)	7439932	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Magnesium	7439954	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Manganese (B)	7439965	0.5	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	0.04	USEPA
Mercury (Total) (Z,DD,KK)	Varies												
Mercury, elemental	7439976	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Mercuric chloride	7487947	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	0.07	USEPA
Methyl mercury (DD)	22967926	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Methane (K)	74828	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Methanol (DD,OO)	67561	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Methoxychlor (DD,KK)	72435	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
2-Methoxyethanol (I,DD,OO)	109864	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2-Methyl-4-chlorophenoxyacetic acid	94746	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2-Methyl-4,6-dinitrophenol	534521	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
N-Methyl-morpholine (I,OO)	109024	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Methyl parathion	298000	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
4-Methyl-2-pentanone (MIBK) (I,DD)	108101	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Methyl-tert-butyl ether (MTBE)	1634044	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
N-methylaniline	100618	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Methylcyclopentane (I)	96377	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
4,4`-Methylene-bis-2-chloroaniline (MBOCA) (MM)	101144	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Methylene chloride (MM)	75092	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2-Methylnaphthalene	91576	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Methylphenols (JJ,KK)	1319773												
2-Methylphenol (DD,KK)	95487	2.0	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	USEPA
3-Methylphenol (KK)	108394	2.0	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	USEPA

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4-Methylphenol (KK)	106445	2.0	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	USEPA
Metolachlor	51218452	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Metribuzin	21087649	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Mirex	2385855	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Molybdenum	7439987	0.4	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Naphthalene	91203	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Nickel (B)	7440020	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	0.04	USEPA
Nitrate (N,DD)	14797558	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Nitrite (N,DD)	14797650	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Nitrobenzene (I,KK)	98953	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2-Nitrophenol	88755	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
n-Nitroso-di-n-propylamine	621647	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
N-Nitrosodiphenylamine	86306	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Oxamyl	23135220	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Oxo-hexyl acetate (OO)	88230357	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Pendimethalin (DD)	40487421	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Pentachlorobenzene	608935	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Pentachloronitrobenzene	82688	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Pentachlorophenol (KK)	87865	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.25	USEPA	1.0	MDEQ
Pentane	109660	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2-Pentene (I)	109682	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Perchlorate (DD)	14797730	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Perfluorooctanoic acid	335671	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Perfluorooctane sulfonic acid (DD)	1763231	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
pH	NA	NR	MDEQ	NR	MDEQ	NR	MDEQ	NR	MDEQ	NR	MDEQ	NR	MDEQ
Phenanthrene	85018	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Phenol (DD)	108952	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Phenytoin (DD)	57410	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Phosphorus, Total	Varies	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Phosphorus, White (R,DD)	7723140	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ

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o-Phthalic acid	88993	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Phthalic anhydride	85449	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Picloram	1918021	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Piperidine (OO)	110894	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Polybrominated biphenyls (J,DD)	67774327	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Polychlorinated biphenyls (PCBs) (J,T,DD)	1336363	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.14	USEPA	1.0	MDEQ
Polychlorinated biphenyls (PCBs) congeners (O)	(O)	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.03	USEPA	1.0	MDEQ
Prometon	1610180	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Propachlor	1918167	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Propazine	139402	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Propionic acid (OO)	79094	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Propyl alcohol (I,DD,OO)	71238	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
n-Propylbenzene (I,DD)	103651	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Propylene glycol	57556	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Pyrene	129000	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Pyridine (I,KK)	110861	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Selenium (B,KK)	7782492	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Silver (KK)	7440224	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	0.04	USEPA
Silvex (2,4,5-TP) (KK)	93721	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Simazine	122349	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Sodium	17341252	0.1	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Sodium azide	26628228	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Sodium bromide	7647156	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Strontium (B,DD)	7440246	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Styrene	100425	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Sulfate	14808798	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Tebuthiuron (DD)	34014181	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,3,7,8-Tetrabromodibenzo-p-dioxin(O)	50585416	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.03	USEPA	1.0	MDEQ
1,2,4,5-Tetrachlorobenzene (DD)	95943	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O,DD)	1746016	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.03	USEPA	1.0	MDEQ

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1,1,1,2-Tetrachloroethane	630206	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,1,2,2-Tetrachloroethane	79345	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Tetrachloroethylene (KK)	127184	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Tetrahydrofuran (DD)	109999	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,1,3,3-Tetramethylurea (OO)	632224	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Tetranitromethane	509148	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Thallium	7440280	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ
Toluene (I)	108883	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
p-Toluidine	106490	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Total dissolved solids (TDS)	NA	NR	MDEQ	NR	MDEQ	NR	MDEQ	NR	MDEQ	NR	MDEQ	NR	MDEQ
Toxaphene (KK)	8001352	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
Triallate (DD)	2303175	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Tributylamine	102829	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,2,3-Trichlorobenzene	87616	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,2,4-Trichlorobenzene	120821	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,1,1-Trichloroethane	71556	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,1,2-Trichloroethane	79005	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Trichloroethylene (DD,KK,MM,NN)	79016	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Trichlorofluoromethane	75694	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,4,5-Trichlorophenol (KK)	95954	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,4,6-Trichlorophenol (DD,KK)	88062	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,2,3-Trichloropropane (MM)	96184	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Triethanolamine	102716	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Triethylene glycol (DD)	112276	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
3-Trifluoromethyl-4-nitrophenol (DD)	88302	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Trifluralin	1582098	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.1	MDEQ	1.0	MDEQ
2,2,4-Trimethyl pentane	540841	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
2,4,4-Trimethyl-2-pentene (I)	107404	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,2,3-Trimethylbenzene (I)	526738	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ

TABLE 2. CHEMICAL-SPECIFIC DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Hazardous substance footnotes are defined in R 299.49. Data sources are as defined in R 299.50(4)

Hazardous Substance	Chemical Abstract Service Number	Relative Source Contribution for Drinking Water RSCw unitless	RSCw Source	Relative Source Contribution for Soil RSCs unitless	RSCs Source	Relative Source Contribution for Air RSCa unitless	RSCa Source	Ingestion Absorption Efficiency AEi unitless	AEi Source	Dermal Absorption Efficiency AEd unitless	AEd Source	Gastrointestinal Absorption Efficiency ABSgi unitless	ABSgi Source
1,2,4-Trimethylbenzene (I)	95636	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
1,3,5-Trimethylbenzene (I)	108678	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Triphenyl phosphate	115866	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
tris(2,3-Dibromopropyl)phosphate	126727	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Urea	57136	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Vanadium (B)	7440622	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	0.026	USEPA
Vinyl acetate (I,DD)	108054	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Vinyl chloride (KK,LL,MM)	75014	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Xylenes (I,J)	1330207	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	1.0	MDEQ	0.1	MDEQ	1.0	MDEQ
Zinc (B)	7440666	0.2	MDEQ	1.0	MDEQ	1.0	MDEQ	0.5	MDEQ	0.01	MDEQ	1.0	MDEQ

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Molecular Weight	MW Source	Physical State at Standard Temperature and Pressure	Physical State Source	Boiling Point	BP Basis	BP Source	Melting Point	MP Basis	MP Source	Log Octanol-Water Partition Coefficient	Log Kow Basis	Log Kow Source
		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
Acenaphthene	83329	154.21	EPI	Solid	MDEQ	279	EXP	EPI	93.4	EXP	EPI	3.92	EXP	EPI
Acenaphthylene	208968	152.20	EPI	Solid	MDEQ	280	EXP	EPI	92.5	EXP	EPI	3.94	EXP	EPI
Acetaldehyde (I)	75070	44.05	EPI	Gas	MDEQ	20.1	EXP	EPI	-123.37	EXP	EPI	-0.34	EXP	EPI
Acetate	71501	59.04402	PC	Liquid	MDEQ	117.9	NA	PC	16.6	EXP	PC	NA	NA	NA
Acetic acid (OO)	64197	60.05	EPI	Liquid	MDEQ	117.9	EXP	EPI	16.6	EXP	EPI	-0.17	EXP	EPI
Acetone (I)	67641	58.08	EPI	Liquid	MDEQ	56	EXP	EPI	-94.8	EXP	EPI	-0.24	EXP	EPI
Acetonitrile	75058	41.05	EPI	Liquid	MDEQ	81.6	EXP	EPI	-43.8	EXP	EPI	-0.34	EXP	EPI
Acetophenone (DD)	98862	120.15	EPI	Liquid	MDEQ	202	EXP	EPI	20	EXP	EPI	1.58	EXP	EPI
Acrolein (I)	107028	56.06	EPI	Liquid	MDEQ	52.6	EXP	EPI	-87.7	EXP	EPI	-0.01	EXP	EPI
Acrylamide (MM)	79061	71.08	EPI	Solid	MDEQ	192.6	EXP	EPI	84.5	EXP	EPI	-0.67	EXP	EPI
Acrylic acid (DD,OO)	79107	72.06	EPI	Liquid	MDEQ	141	EXP	EPI	12.5	EXP	EPI	0.35	EXP	EPI
Acrylonitrile (I)	107131	53.06	EPI	Liquid	MDEQ	77.3	EXP	EPI	-83.5	EXP	EPI	0.25	EXP	EPI
Alachlor	15972608	269.77	EPI	Solid	MDEQ	400	EXP	PC	40	EXP	EPI	3.52	EXP	EPI
Aldicarb	116063	190.26	EPI	Solid	MDEQ	NA	NA	NA	99	EXP	EPI	1.13	EXP	EPI
Aldicarb sulfone	1646884	222.26	EPI	Solid	MDEQ	NA	NA	NA	140	EXP	EPI	-0.57	EXP	EPI
Aldicarb sulfoxide	1646873	206.26	EPI	Solid	MDEQ	NA	NA	NA	NA	NA	NA	-0.78	EST	PP
Aldrin	309002	364.92	EPI	Solid	MDEQ	329.86	EXP	EPA4	104	EXP	EPI	6.50	EXP	EPI
Aluminum (B,DD)	7429905	30.01	EPI	Inorganic	MDEQ	2519	EXP	CRC	660.323	EXP	CRC	NR	NA	NA
Ammonia	7664417	17.03	EPI	Gas	MDEQ	-33.35	EXP	EPI	-77.7	EXP	EPI	0.23	EST	PP
t-Amyl methyl ether (TAME)	994058	102.18	EPI	Liquid	MDEQ	86.3	EXP	EPI	-80	EXP	PC	1.55	EXP	PP
Aniline	62533	93.13	EPI	Liquid	MDEQ	184.17	EXP	EPI	-6.02	EXP	EPI	0.90	EXP	EPI
Anthracene	120127	178.24	EPI	Solid	MDEQ	339.9	EXP	EPI	215	EXP	EPI	4.45	EXP	EPI
Antimony	7440360	124.78	EPI	Inorganic	MDEQ	1635	EXP	PP	630	EXP	PP	NR	NA	NA
Arsenic (B,KK)	7440382	77.95	EPI	Inorganic	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
Asbestos (BB)	1332214	NA	NA	Inorganic	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
Atrazine	1912249	215.69	EPI	Solid	MDEQ	NA	NA	NA	173	EXP	EPI	2.61	EXP	EPI
Azobenzene	103333	182.23	EPI	Solid	MDEQ	293	EXP	EPI	68	EXP	EPI	3.82	EXP	EPI
Barium (B,KK)	7440393	137.33	EPI	Inorganic	MDEQ	1600	EXP	PP	710	EXP	PP	NR	NA	NA
Benzene (I,KK)	71432	78.11	EPI	Liquid	MDEQ	80	EXP	EPI	5.5	EXP	EPI	2.13	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Molecular Weight	MW Source	Physical State at Standard Temperature and Pressure	Physical State Source	Boiling Point	BP Basis	BP Source	Melting Point	MP Basis	MP Source	Log Octanol-Water Partition Coefficient	Log Kow Basis	Log Kow Source
		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
Benzidine (MM)	92875	184.24	EPI	Solid	MDEQ	401	EXP	EPI	120	EXP	EPI	1.34	EXP	EPI
Benzo(a)anthracene (Q,MM)	56553	228.3	EPI	Solid	MDEQ	437.6	EXP	EPI	84	EXP	EPI	5.76	EXP	EPI
Benzo(b)fluoranthene (Q,MM)	205992	252.32	EPI	Solid	MDEQ	481	EXP	PC	168	EXP	EPI	5.78	EXP	EPI
Benzo(k)fluoranthene (Q,MM)	207089	252.32	EPI	Solid	MDEQ	480	EXP	EPI	217	EXP	EPI	6.11	EXP	EPI
Benzo(g,h,i)perylene	191242	276.34	EPI	Solid	MDEQ	500	EXP	EPI	278	EXP	EPI	6.63	EXP	EPI
Benzo(a)pyrene (Q,DD,MM)	50328	252.32	EPI	Solid	MDEQ	495	EXP	EPI	176.5	EXP	EPI	6.13	EXP	EPI
Benzoic acid	65850	122.12	EPI	Solid	MDEQ	249.2	EXP	EPI	122.4	EXP	EPI	1.87	EXP	EPI
Benzyl alcohol	100516	108.14	EPI	Liquid	MDEQ	205.3	EXP	EPI	-15.2	EXP	EPI	1.10	EXP	EPI
Benzyl chloride	100447	126.59	EPI	Liquid	MDEQ	179	EXP	EPI	-45	EXP	EPI	2.30	EXP	EPI
Beryllium (B)	7440417	9.01	EPI	Inorganic	MDEQ	2468	EXP	HSDB	986	EXP	PP	NR	NA	NA
bis(2-Chloroethoxy)ethane	112265	187.07	EPI	Liquid	MDEQ	232	EXP	EPI	-31.5	EXP	EPI	1.28	EST	PP
bis-2-Chloroethylether (I)	111444	143.01	EPI	Liquid	MDEQ	178.5	EXP	EPI	-51.9	EXP	EPI	1.29	EXP	EPI
bis(2-Ethylhexyl) phthalate (DD)	117817	390.57	EPI	Liquid	MDEQ	384	EXP	EPI	-55	EXP	EPI	7.60	EXP	EPI
Boron (DD)	7440428	10.806	CRC	Inorganic	MDEQ	4000	EXP	CRC	2077	EXP	CRC	NR	NA	NA
Bromate	15541454	127.9022	PC	Inorganic	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
Bromobenzene (I)	108861	157.01	EPI	Liquid	MDEQ	156	EXP	EPI	-30.6	EXP	EPI	2.99	EXP	EPI
Bromodichloromethane (DD)	75274	163.83	EPI	Liquid	MDEQ	90	EXP	EPI	-57	EXP	EPI	2.00	EXP	EPI
Bromoform	75252	252.73	EPI	Liquid	MDEQ	149.1	EXP	EPI	8	EXP	EPI	2.40	EXP	EPI
Bromomethane	74839	94.94	EPI	Gas	MDEQ	3.5	EXP	EPI	-93.7	EXP	EPI	1.19	EXP	EPI
n-Butanol (I,OO)	71363	74.12	EPI	Liquid	MDEQ	117.7	EXP	EPI	-89.8	EXP	EPI	0.88	EXP	EPI
2-Butanone (MEK) (I,DD,KK)	78933	72.11	EPI	Liquid	MDEQ	79.5	EXP	EPI	-86.6	EXP	EPI	0.29	EXP	EPI
n-Butyl acetate	123864	116.16	EPI	Liquid	MDEQ	126.1	EXP	EPI	-78	EXP	EPI	1.78	EXP	EPI
t-Butyl alcohol (OO)	75650	74.12	EPI	Solid	MDEQ	82.4	EXP	EPI	25.4	EXP	EPI	0.35	EXP	EPI
Butyl benzyl phthalate (DD)	85687	312.37	EPI	Solid	MDEQ	370	EXP	EPI	25	EXP	EPI	4.73	EXP	EPI
n-Butylbenzene	104518	134.22	EPI	Liquid	MDEQ	183.3	EXP	EPI	-87.9	EXP	EPI	4.38	EXP	EPI
sec-Butylbenzene	135988	134.22	EPI	Liquid	MDEQ	173.5	EXP	EPI	-82.7	EXP	EPI	4.57	EXP	EPI
t-Butylbenzene (I)	98066	134.22	EPI	Liquid	MDEQ	169.1	EXP	EPI	-57.8	EXP	EPI	4.11	EXP	EPI
Cadmium (B,KK)	7440439	112.4	PP	Inorganic	MDEQ	765	EXP	PP	321	EXP	PP	NR	NA	NA
Camphene (I)	79925	136.24	EPI	Solid	MDEQ	160	EXP	EPI	51.2	EXP	EPI	4.22	EXP	PP

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Molecular Weight	MW Source	Physical State at Standard Temperature and Pressure	Physical State Source	Boiling Point	BP Basis	BP Source	Melting Point	MP Basis	MP Source	Log Octanol-Water Partition Coefficient	Log Kow Basis	Log Kow Source
		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
Caprolactam (DD)	105602	113.16	EPI	Solid	MDEQ	270	EXP	EPI	69.3	EXP	EPI	0.66	EST	PP
Carbaryl (DD)	63252	201.23	EPI	Solid	MDEQ	315	EXP	EPI	145	EXP	EPI	2.36	EXP	EPI
Carbazole	86748	167.21	EPI	Solid	MDEQ	354.7	EXP	EPI	346.2	EXP	EPI	3.72	EXP	EPI
Carbofuran (DD)	1563662	221.26	EPI	Solid	MDEQ	NA	NA	NA	151	EXP	EPI	2.32	EXP	EPI
Carbon disulfide (I,R,DD)	75150	76.13	EPI	Liquid	MDEQ	46	EXP	EPI	-111.5	EXP	EPI	1.94	EXP	EPI
Carbon tetrachloride (KK)	56235	153.82	EPI	Liquid	MDEQ	76.8	EXP	EPI	-23	EXP	EPI	2.83	EXP	EPI
Chlordane (J,KK)	57749	409.78	EPI	Solid	MDEQ	351.1	EXP	EPA4	106	EXP	EPI	6.16	EXP	EPI
Chloride	16887006	35.45	EPI	Inorganic	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
2-Chloroaniline	95512	127.57	EPI	Liquid	MDEQ	208.8	EXP	EPI	-14	EXP	EPI	1.90	EXP	EPI
4-Chloroaniline	106478	127.57	EPI	Solid	MDEQ	232	EXP	EPI	72.5	EXP	EPI	1.83	EXP	EPI
Chlorobenzene (I,KK)	108907	112.56	EPI	Liquid	MDEQ	131.7	EXP	EPI	-45.31	EXP	EPI	2.84	EXP	EPI
p-Chlorobenzene sulfonic acid	98668	192.62	EPI	Solid	MDEQ	NA	NA	NA	67	EXP	EPI	-0.52	EST	PP
1-Chloro-1,1-difluoroethane	75683	100.5	EPI	Gas	MDEQ	-9.1	EXP	EPI	-130.8	EXP	EPI	2.05	EST	PP
Chloroethane (DD)	75003	64.52	EPI	Gas	MDEQ	12.3	EXP	EPI	-138.7	EXP	EPI	1.43	EXP	EPI
2-Chloroethyl vinyl ether	110758	106.55	EPI	Liquid	MDEQ	108	EXP	EPI	-70	EXP	EPI	1.17	EST	PP
Chloroform (KK)	67663	119.38	EPI	Liquid	MDEQ	61.1	EXP	EPI	-63.6	EXP	EPI	1.97	EXP	EPI
Chloromethane (I)	74873	50.49	EPI	Gas	MDEQ	-24	EXP	EPI	-97.7	EXP	EPI	0.91	EXP	EPI
4-Chloro-3-methylphenol (DD)	59507	142.59	EPI	Solid	MDEQ	235	EXP	EPI	67	EXP	EPI	3.10	EXP	EPI
beta-Chloronaphthalene	91587	162.62	EPI	Solid	MDEQ	256	EXP	EPI	61	EXP	EPI	3.90	EXP	EPI
2-Chlorophenol (DD)	95578	128.56	EPI	Liquid	MDEQ	174.9	EXP	EPI	9.8	EXP	EPI	2.15	EXP	EPI
o-Chlorotoluene (I)	95498	126.59	EPI	Liquid	MDEQ	159	EXP	EPI	-35.6	EXP	EPI	3.42	EXP	EPI
Chlorpyrifos (DD)	2921882	350.59	EPI	Solid	MDEQ	160	EXP	HSDB	42	EXP	EPI	4.96	EXP	EPI
Chromium (III) (B,H,KK)	16065831	51.996	PP	Inorganic	MDEQ	2642	EXP	PP	1900	EXP	PP	NR	NA	NA
Chromium (VI) (H,KK,MM)	18540299	51.996	PP	Inorganic	MDEQ	2642	EXP	PP	1900	EXP	PP	NR	NA	NA
Chrysene (Q,MM)	218019	228.3	PP	Solid	MDEQ	448	EXP	PP	258.2	EXP	PP	5.81	EXP	PP
Cobalt (B)	7440484	58.93	EPI	Inorganic	MDEQ	2927	EXP	HSDB	1495	EXP	HSDB	NR	NA	NA
Copper (B)	7440508	63.55	EPI	Inorganic	MDEQ	2595	EXP	PP	1083	EXP	PP	NR	NA	NA
Cyanazine	21725462	240.70	EPI	Solid	MDEQ	NA	NA	NA	168	EXP	EPI	2.22	EXP	EPI
Cyanide (P,R,DD)	57125	26.018	PP	Inorganic	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
Cyclohexane (DD)	110827	84.16	EPI	Liquid	MDEQ	80.7	EXP	EPI	6.6	EXP	EPI	3.44	EXP	EPI
Cyclohexanone (OO)	108941	98.15	EPI	Liquid	MDEQ	155.4	EXP	EPI	-31	EXP	EPI	0.81	EXP	EPI
Dacthal	1861321	331.97	EPI	Solid	MDEQ	365	EXP	EPI	155	EXP	EPI	4.28	EXP	EPI
Dalapon	75990	142.97	EPI	Liquid	MDEQ	187.5	EXP	EPI	-5	EXP	EPI	0.78	EXP	EPI
4-4'-DDD	72548	320.05	EPI	Solid	MDEQ	350	EXP	EPI	109.5	EXP	EPI	6.02	EXP	EPI
4-4'-DDE	72559	318.03	EPI	Solid	MDEQ	336	EXP	EPI	89	EXP	EPI	6.51	EXP	EPI
4-4'-DDT (DD)	50293	354.49	EPI	Solid	MDEQ	260	EXP	EPI	108.5	EXP	EPI	6.91	EXP	EPI
Decabromodiphenyl ether (DD)	1163195	959.17	EPI	Solid	MDEQ	530	EXP	EPI	305	EXP	EPI	12.11	EST	PP
Di-n-butyl phthalate (DD)	84742	278.35	EPI	Liquid	MDEQ	340	EXP	EPI	-35	EXP	EPI	4.50	EXP	EPI
Di(2-ethylhexyl) adipate (DD)	103231	370.58	EPI	Liquid	MDEQ	417	EXP	EPI	-67.8	EXP	EPI	6.11	EST	PP
Di-n-octyl phthalate	117840	390.57	EPI	Solid	MDEQ	NA	NA	NA	25	EXP	EPI	8.10	EXP	EPI
Diacetone alcohol (I,OO)	123422	116.16	EPI	Liquid	MDEQ	167.9	EXP	EPI	-44	EXP	EPI	-0.34	EST	PP
Diazinon	333415	304.35	EPI	Solid	MDEQ	NA	NA	NA	25	EXP	EPI	3.81	EXP	EPI
Dibenzo(a,h)anthracene (Q,MM)	53703	278.36	EPI	Solid	MDEQ	524	EXP	EPI	269.5	EXP	EPI	6.75	EXP	EPI
Dibenzofuran	132649	168.20	EPI	Solid	MDEQ	287	EXP	EPI	86.5	EXP	EPI	4.12	EXP	EPI
Dibromochloromethane (MM)	124481	208.28	EPI	Liquid	MDEQ	120	EXP	EPI	-20	EXP	EPI	2.16	EXP	EPI
Dibromochloropropane (MM)	96128	236.33	EPI	Liquid	MDEQ	196	EXP	EPI	6	EXP	EPI	2.96	EXP	EPI
Dibromomethane	74953	173.84	EPI	Liquid	MDEQ	97	EXP	EPI	-52.5	EXP	EPI	1.70	EXP	EPI
Dicamba (DD)	1918009	221.04	EPI	Solid	MDEQ	NA	NA	NA	115	EXP	EPI	2.21	EXP	EPI
1,2-Dichlorobenzene	95501	147.00	EPI	Liquid	MDEQ	180	EXP	EPI	-16.7	EXP	EPI	3.43	EXP	EPI
1,3-Dichlorobenzene	541731	147.00	EPI	Liquid	MDEQ	173	EXP	EPI	-24.8	EXP	EPI	3.53	EXP	EPI
1,4-Dichlorobenzene (KK)	106467	147.00	EPI	Solid	MDEQ	174	EXP	EPI	52.09	EXP	EPI	3.44	EXP	EPI
3,3`-Dichlorobenzidine	91941	253.13	EPI	Solid	MDEQ	368	EXP	EPI	132	EXP	EPI	3.51	EXP	EPI
Dichlorodifluoromethane	75718	120.91	EPI	Gas	MDEQ	-29.8	EXP	EPI	-158	EXP	EPI	2.16	EXP	EPI
1,1-Dichloroethane	75343	98.96	EPI	Liquid	MDEQ	57.4	EXP	EPI	-96.9	EXP	EPI	1.79	EXP	EPI
1,2-Dichloroethane (I,KK)	107062	98.96	EPI	Liquid	MDEQ	83.5	EXP	EPI	-35.5	EXP	EPI	1.48	EXP	EPI
1,1-Dichloroethylene (I,KK)	75354	96.94	EPI	Liquid	MDEQ	31.7	EXP	EPI	-122.5	EXP	EPI	2.13	EXP	EPI
cis-1,2-Dichloroethylene	156592	96.94	EPI	Liquid	MDEQ	60.1	EXP	EPI	-80	EXP	EPI	1.86	EXP	EPI
trans-1,2-Dichloroethylene	156605	96.94	EPI	Liquid	MDEQ	48.7	EXP	PP	-49.8	EXP	PP	2.09	EXP	PP

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Molecular Weight	MW Source	Physical State at Standard Temperature and Pressure	Physical State Source	Boiling Point	BP Basis	BP Source	Melting Point	MP Basis	MP Source	Log Octanol-Water Partition Coefficient	Log Kow Basis	Log Kow Source
		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
2,6-Dichloro-4-nitroaniline	99309	207.02	EPI	Solid	MDEQ	NA	NA	NA	191	EXP	EPI	2.80	EXP	EPI
2,4-Dichlorophenol (DD)	120832	163.00	EPI	Solid	MDEQ	210	EXP	EPI	45	EXP	EPI	3.06	EXP	EPI
2,4-Dichlorophenoxyacetic acid (KK)	94757	221.04	EPI	Solid	MDEQ	NA	NA	NA	140.5	EXP	EPI	2.81	EXP	EPI
1,2-Dichloropropane (I)	78875	112.99	EPI	Liquid	MDEQ	95.5	EXP	EPI	-100	EXP	EPI	1.98	EXP	EPI
1,3-Dichloropropene (J)	542756	110.97	EPI	Liquid	MDEQ	112	EXP	EPI	-50	EXP	EPI	2.04	EXP	EPI
Dichlorvos (MM)	62737	220.98	EPI	Liquid	MDEQ	234.1	EXP	EPI	-60	EXP	EPI	1.43	EXP	EPI
Dicyclohexyl phthalate	84617	330.43	EPI	Solid	MDEQ	NA	NA	NA	66	EXP	EPI	NA	NA	NA
Dieldrin	60571	380.91	EPI	Solid	MDEQ	330	EXP	EPI	175.5	EXP	EPI	5.40	EXP	EPI
Diethyl ether	60297	74.12	EPI	Liquid	MDEQ	34.6	EXP	EPI	-116.3	EXP	EPI	0.89	EXP	EPI
Diethyl phthalate	84662	222.24	EPI	Liquid	MDEQ	295	EXP	EPI	-40.5	EXP	EPI	2.42	EXP	EPI
Diethylene glycol monobutyl ether	112345	162.23	EPI	Liquid	MDEQ	231	EXP	EPI	-68	EXP	EPI	0.56	EXP	EPI
Diisopropyl ether (DD)	108203	102.18	EPI	Liquid	MDEQ	68.5	EXP	EPI	-86.8	EXP	EPI	1.52	EXP	EPI
Diisopropylamine (I)	108189	101.19	EPI	Liquid	MDEQ	83.9	EXP	EPI	-61	EXP	EPI	1.40	EXP	EPI
Dimethyl phthalate	131113	194.19	EPI	Liquid	MDEQ	283.7	EXP	EPI	5.5	EXP	EPI	1.60	EXP	EPI
N,N-Dimethylacetamide (OO)	127195	87.12	EPI	Liquid	MDEQ	165	EXP	EPI	-20	EXP	EPI	-0.77	EXP	EPI
N,N-Dimethylaniline	121697	121.18	EPI	Liquid	MDEQ	193.45	EXP	EPI	2.5	EXP	EPI	2.31	EXP	EPI
Dimethylformamide (I,OO)	68122	73.10	EPI	Liquid	MDEQ	153	EXP	EPI	-60.4	EXP	EPI	-1.01	EXP	EPI
2,4-Dimethylphenol	105679	122.17	EPI	Solid	MDEQ	210.9	EXP	EPI	24.5	EXP	EPI	2.30	EXP	EPI
2,6-Dimethylphenol	576261	122.17	EPI	Solid	MDEQ	201	EXP	EPI	45.7	EXP	EPI	2.36	EXP	EPI
3,4-Dimethylphenol	95658	122.17	EPI	Solid	MDEQ	227	EXP	EPI	60.8	EXP	EPI	2.23	EXP	EPI
Dimethylsulfoxide	67685	78.13	EPI	Liquid	MDEQ	189	EXP	EPI	18.5	EXP	EPI	-1.35	EXP	EPI
2,4-Dinitrophenol	51285	184.11	EPI	Solid	MDEQ	NA	NA	NA	115.5	EXP	EPI	1.67	EXP	EPI
2,4-Dinitrotoluene (KK)	121142	182.14	EPI	Solid	MDEQ	300	EXP	EPI	71	EXP	EPI	1.98	EXP	EPI
Dinoseb (DD)	88857	240.22	EPI	Solid	MDEQ	332	EXP	EPI	40	EXP	EPI	3.56	EXP	EPI
1,4-Dioxane (I,OO)	123911	88.11	EPI	Liquid	MDEQ	101.5	EXP	EPI	11.8	EXP	EPI	-0.27	EXP	EPI
Diquat	85007	344.05	EPI	Solid	MDEQ	NA	NA	NA	337	EXP	PP	-4.60	EXP	PP
Dissolved oxygen (DO)	NA	NA	NA	NA	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
Diuron	330541	233.10	EPI	Solid	MDEQ	NA	NA	NA	158	EXP	EPI	2.68	EXP	EPI
Endosulfan (J)	115297	406.92	EPI	Solid	MDEQ	NA	NA	NA	106	EXP	EPI	3.83	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
Endothall	145733	186.17	EPI	Solid	MDEQ	NA	NA	NA	144	EXP	EPI	1.91	EXP	EPI
Endrin (KK)	72208	380.91	PP	Solid	MDEQ	NA	NA	NA	228	EXP	PP	5.20	EXP	PP
Epichlorohydrin (I)	106898	92.53	EPI	Liquid	MDEQ	116.11	EXP	EPI	-57.2	EXP	EPI	0.45	EXP	EPI
Ethanol (I,DD,OO)	64175	46.07	EPI	Liquid	MDEQ	78.2	EXP	EPI	-114.1	EXP	EPI	-0.31	EXP	EPI
Ethyl acetate (I)	141786	88.11	EPI	Liquid	MDEQ	77.1	EXP	EPI	-83.6	EXP	EPI	0.73	EXP	EPI
Ethyl-tert-butyl ether (ETBE)	637923	102.18	EPI	Liquid	MDEQ	73.1	EXP	EPI	-94	EXP	EPI	1.92	EST	PP
Ethylbenzene (I)	100414	106.17	EPI	Liquid	MDEQ	136.1	EXP	EPI	-94.9	EXP	EPI	3.15	EXP	EPI
Ethylene dibromide	106934	187.86	EPI	Liquid	MDEQ	131.6	EXP	EPI	9.9	EXP	EPI	1.96	EXP	EPI
Ethylene glycol (DD)	107211	62.07	EPI	Liquid	MDEQ	197.3	EXP	EPI	-13	EXP	EPI	-1.36	EXP	EPI
Ethylene glycol monobutyl ether	111762	118.18	EPI	Liquid	MDEQ	168.4	EXP	EPI	-74.8	EXP	EPI	0.83	EXP	EPI
Ethylenediaminetetraacetic acid (EDTA) (II)	60004	292.25	EPI	Solid	MDEQ	NA	NA	NA	245	EXP	EPI	-3.86	EST	PP
Fluoranthene	206440	202.26	EPI	Solid	MDEQ	384	EXP	EPI	107.8	EXP	EPI	5.16	EXP	EPI
Fluorene	86737	166.22	EPI	Solid	MDEQ	295	EXP	EPI	114.8	EXP	EPI	4.18	EXP	EPI
Fluorine (soluble fluoride) (DD)	7782414	38.00	EPI	Inorganic	MDEQ	-188.13	EXP	EPI	-219.61	EXP	EPI	NR	NA	NA
Formaldehyde (DD,MM,OO)	50000	30.03	EPI	Gas	MDEQ	-19.5	EXP	EPI	-92	EXP	EPI	0.35	EXP	EPI
Formic acid (I,U,OO)	64186	46.03	EPI	Liquid	MDEQ	101	EXP	EPI	8.3	EXP	EPI	-0.54	EXP	EPI
1-Formylpiperidine (DD)	2591868	113.16	EPI	Liquid	MDEQ	222.5	EXP	EPI	-30.8	EXP	EPI	0.43	EST	PP
Gentian violet	548629	407.99	EPI	Solid	MDEQ	NA	NA	NA	215	EXP	EPI	0.96	EXP	EPI
Glyphosate (DD)	1071836	169.07	EPI	Solid	MDEQ	NA	NA	NA	189.5	EXP	EPI	-3.40	EXP	EPI
Heptachlor (DD,KK)	76448	373.32	EPI	Solid	MDEQ	310	EXP	PP	95.5	EXP	PP	6.10	EXP	PP
Heptachlor epoxide (KK)	1024573	389.32	EPI	Solid	MDEQ	NA	NA	NA	160	EXP	EPI	4.98	EXP	EPI
n-Heptane	142825	100.21	EPI	Liquid	MDEQ	98.5	EXP	EPI	-90.6	EXP	EPI	4.66	EXP	EPI
Hexabromobenzene	87821	551.49	EPI	Solid	MDEQ	NA	NA	NA	326	EXP	EPI	6.07	EXP	EPI
Hexachlorobenzene (C-66) (KK)	118741	284.78	EPI	Solid	MDEQ	325	EXP	EPI	231.8	EXP	EPI	5.73	EXP	EPI
Hexachlorobutadiene (C-46) (KK)	87683	260.76	EPI	Liquid	MDEQ	215	EXP	EPI	-21	EXP	EPI	4.78	EXP	EPI
alpha-Hexachlorocyclohexane	319846	290.83	EPI	Solid	MDEQ	288	EXP	PP	159.5	EXP	PP	3.80	EXP	PP
beta-Hexachlorocyclohexane	319857	290.83	EPI	Solid	MDEQ	323.4	EXP	PC	314.5	EXP	PP	3.78	EXP	PP
Hexachlorocyclopentadiene (C-56)	77474	272.77	EPI	Liquid	MDEQ	239	EXP	EPI	-9	EXP	EPI	5.40	EXP	EPI
Hexachloroethane (KK)	67721	236.74	EPI	Solid	MDEQ	184.85	EXP	EPA4	187	EXP	EPI	4.14	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Molecular Weight	MW Source	Physical State at Standard Temperature and Pressure	Physical State Source	Boiling Point	BP Basis	BP Source	Melting Point	MP Basis	MP Source	Log Octanol-Water Partition Coefficient	Log Kow Basis	Log Kow Source
		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
n-Hexane	110543	86.18	EPI	Liquid	MDEQ	68.7	EXP	EPI	-95.3	EXP	EPI	3.90	EXP	EPI
2-Hexanone	591786	100.16	EPI	Liquid	MDEQ	127.6	EXP	EPI	-55.5	EXP	EPI	1.38	EXP	EPI
Indeno(1,2,3-cd)pyrene (Q,MM)	193395	276.34	EPI	Solid	MDEQ	536	EXP	EPI	163.6	EXP	EPI	6.54	EXP	SSG
Iron (B)	7439896	55.85	EPI	Inorganic	MDEQ	2861	EXP	CRC	1538	EXP	CRC	NR	NA	NA
Isobutyl alcohol (I,OO)	78831	74.12	EPI	Liquid	MDEQ	107.8	EXP	EPI	-108	EXP	EPI	0.76	EXP	EPI
Isophorone (DD)	78591	138.21	EPI	Liquid	MDEQ	215.2	EXP	EPI	-8.1	EXP	EPI	1.70	EXP	EPI
Isopropyl alcohol (I,DD,OO)	67630	60.10	EPI	Liquid	MDEQ	82.3	EXP	EPI	-89.5	EXP	EPI	0.05	EXP	EPI
Isopropyl benzene	98828	120.20	EPI	Liquid	MDEQ	152.4	EXP	EPI	-96	EXP	EPI	3.66	EXP	EPI
Lead (B,L,DD,KK)	7439921	207.20	EPI	Inorganic	MDEQ	1749	EXP	CRC	327.462	EXP	CRC	NR	NA	NA
Lindane (KK)	58899	290.83	EPI	Solid	MDEQ	323.4	EXP	EPI	112.5	EXP	EPI	3.72	EXP	EPI
Lithium (B,DD)	7439932	6.94	EPI	Inorganic	MDEQ	1342	EXP	CRC	180.5	EXP	CRC	NR	NA	NA
Magnesium	7439954	24.304	CRC	Inorganic	MDEQ	1090	EXP	CRC	650	EXP	CRC	NR	NA	NA
Manganese (B)	7439965	54.94	EPI	Inorganic	MDEQ	2061	EXP	CRC	1246	EXP	CRC	NR	NA	NA
Mercury (Total) (Z,DD,KK)	Varies													
Mercury, elemental	7439976	200.59	EPI	Inorganic	MDEQ	356.619	EXP	CRC	-38.8	EXP	PP	0.62	EST	SCDM
Mercuric chloride	7487947	271.50	EPI	Inorganic	MDEQ	302	EXP	HSDB	277	EXP	EPI	NR	NA	NA
Methyl mercury (DD)	22967926	215.63	EPI	Inorganic	MDEQ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane (K)	74828	16.04	EPI	Gas	MDEQ	-161.5	EXP	EPI	-182.4	EXP	EPI	1.09	EXP	EPI
Methanol (DD,OO)	67561	32.04	EPI	Liquid	MDEQ	64.7	EXP	EPI	-97.6	EXP	EPI	-0.77	EXP	EPI
Methoxychlor (DD,KK)	72435	345.66	EPI	Solid	MDEQ	346	EXP	EPI	87	EXP	EPI	5.08	EXP	EPI
2-Methoxyethanol (I,DD,OO)	109864	76.10	EPI	Liquid	MDEQ	124.1	EXP	EPI	-85.1	EXP	EPI	-0.77	EXP	EPI
2-Methyl-4-chlorophenoxyacetic acid	94746	200.62	EPI	Solid	MDEQ	286.74	EXP	EPI	120	EXP	EPI	3.25	EXP	EPI
2-Methyl-4,6-dinitrophenol	534521	198.14	EPI	Solid	MDEQ	378	EXP	EPI	86.6	EXP	EPI	2.13	EXP	EPI
N-Methyl-morpholine (I,OO)	109024	101.15	EPI	Liquid	MDEQ	116	EXP	EPI	-64.4	EXP	CRC	-0.33	EXP	EPI
Methyl parathion	298000	263.21	EPI	Solid	MDEQ	NA	NA	NA	35.5	EXP	EPI	2.86	EXP	EPI
4-Methyl-2-pentanone (MIBK) (I,DD)	108101	100.16	EPI	Liquid	MDEQ	116.5	EXP	EPI	-84	EXP	EPI	1.31	EXP	EPI
Methyl-tert-butyl ether (MTBE)	1634044	88.15	EPI	Liquid	MDEQ	55.2	EXP	EPI	-108.6	EXP	EPI	0.94	EXP	EPI
N-methylaniline	100618	107.16	EPI	Liquid	MDEQ	196.2	EXP	EPI	-57	EXP	EPI	1.66	EXP	EPI
Methylcyclopentane (I)	96377	84.16	EPI	Liquid	MDEQ	71.8	EXP	EPI	-142.5	EXP	EPI	3.37	EXP	EPI

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		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
4,4`-Methylene-bis-2-chloroaniline (MBOCA) (MM)	101144	267.16	EPI	Solid	MDEQ	378.9	EXP	EPI	110	EXP	EPI	3.91	EXP	EPI
Methylene chloride (MM)	75092	84.93	EPI	Liquid	MDEQ	40	EXP	EPI	-95.1	EXP	EPI	1.25	EXP	EPI
2-Methylnaphthalene	91576	142.20	EPI	Solid	MDEQ	241.1	EXP	EPI	34.4	EXP	EPI	3.86	EXP	EPI
Methylphenols (JJ,KK)	1319773													
2-Methylphenol (DD,KK)	95487	108.14	EPI	Solid	MDEQ	191	EXP	EPI	29.8	EXP	EPI	1.95	EXP	EPI
3-Methylphenol (KK)	108394	108.14	EPI	Liquid	MDEQ	202.2	EXP	EPI	11.8	EXP	EPI	1.96	EXP	EPI
4-Methylphenol (KK)	106445	108.14	EPI	Solid	MDEQ	201.9	EXP	EPI	35.5	EXP	EPI	1.94	EXP	EPI
Metolachlor	51218452	283.80	EPI	Liquid	MDEQ	NA	NA	NA	-62.1	EXP	EPI	3.13	EXP	EPI
Metribuzin	21087649	214.29	EPI	Solid	MDEQ	NA	NA	NA	126	EXP	EPI	1.70	EXP	EPI
Mirex	2385855	545.55	EPI	Solid	MDEQ	NA	NA	NA	NA	NA	NA	6.89	EXP	EPI
Molybdenum	7439987	95.94	EPI	Inorganic	MDEQ	4639	EXP	CRC	2622	EXP	PP	NR	NA	NA
Naphthalene	91203	128.18	EPI	Solid	MDEQ	217.9	EXP	EPI	80.2	EXP	EPI	3.30	EXP	EPI
Nickel (B)	7440020	58.69	EPI	Inorganic	MDEQ	2913	EXP	CRC	1455	EXP	CRC	NR	NA	NA
Nitrate (N,DD)	14797558	62.00	EPI	Inorganic	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
Nitrite (N,DD)	14797650	47.01	EPI	Inorganic	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
Nitrobenzene (I,KK)	98953	123.11	EPI	Liquid	MDEQ	210.8	EXP	EPI	5.7	EXP	EPI	1.85	EXP	EPI
2-Nitrophenol	88755	139.11	EPI	Solid	MDEQ	216	EXP	EPI	44.8	EXP	EPI	1.79	EXP	EPI
n-Nitroso-di-n-propylamine	621647	130.19	EPI	Liquid	MDEQ	206	EXP	EPI	NA	NA	NA	1.36	EXP	EPI
N-Nitrosodiphenylamine	86306	198.23	EPI	Solid	MDEQ	101	EXP	PC	66.5	EXP	EPI	3.13	EXP	EPI
Oxamyl	23135220	219.26	EPI	Solid	MDEQ	NA	NA	NA	101	EXP	EPI	-0.47	EXP	EPI
Oxo-hexyl acetate (OO)	88230357	144.22	EPI	Liquid	MDEQ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pendimethalin (DD)	40487421	281.31	EPI	Solid	MDEQ	330	EXP	EPI	56	EXP	EPI	5.20	EXP	EPI
Pentachlorobenzene	608935	250.34	EPI	Solid	MDEQ	277	EXP	EPI	86	EXP	EPI	5.17	EXP	EPI
Pentachloronitrobenzene	82688	295.34	EPI	Solid	MDEQ	328	EXP	EPI	144	EXP	EPI	4.64	EXP	EPI
Pentachlorophenol (KK)	87865	266.34	EPI	Solid	MDEQ	310	EXP	EPI	174	EXP	EPI	5.12	EXP	EPI
Pentane	109660	72.15	EPI	Liquid	MDEQ	36	EXP	EPI	-129.7	EXP	EPI	3.39	EXP	EPI
2-Pentene (I)	109682	70.14	EPI	Liquid	MDEQ	37	EXP	EPI	-151.4	EXP	PC	2.58	EST	PP
Perchlorate (DD)	14797730	99.4506	PC	Inorganic	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
Perfluorooctanoic acid	335671	414.07	EPI	Solid	MDEQ	192.4	EXP	PP	55	EXP	EPI	6.30	EST	PP

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		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
Perfluorooctane sulfonic acid (DD)	1763231	500.13	EPI	Liquid	MDEQ	258	EXP	EPI	NA	NA	NA	6.28	EST	PC
pH	NA	NA	NA	NA	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
Phenanthrene	85018	178.24	EPI	Solid	MDEQ	340	EXP	EPI	99.24	EXP	EPI	4.46	EXP	EPI
Phenol (DD)	108952	94.11	EPI	Solid	MDEQ	181.8	EXP	EPI	40.9	EXP	EPI	1.46	EXP	EPI
Phenytoin (DD)	57410	252.27	EPI	Solid	MDEQ	NA	NA	NA	295	EXP	EPI	2.47	EXP	EPI
Phosphorus, Total	Varies	NA	NA	NA	MDEQ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus, White (R,DD)	7723140	34	EPI	Inorganic	MDEQ	280	EXP	EPI	44.1	EXP	EPI	NR	NA	NA
o-Phthalic acid	88993	166.13	EPI	Solid	MDEQ	NA	NA	NA	230	EXP	EPI	0.73	EXP	EPI
Phthalic anhydride	85449	148.12	EPI	Solid	MDEQ	295	EXP	EPI	130.8	EXP	EPI	1.60	EXP	EPI
Picloram	1918021	241.46	EPI	Solid	MDEQ	NA	NA	NA	218.5	EXP	EPI	1.90	EXP	EPI
Piperidine (OO)	110894	85.15	EPI	Liquid	MDEQ	106	EXP	EPI	-7	EXP	EPI	0.84	EXP	EPI
Polybrominated biphenyls (J,DD)	67774327	627.58416	PC	Solid	MDEQ	72	EXP	PC	NA	NA	NA	6.39	EXP	PC
Polychlorinated biphenyls (PCBs) (J,T,DD)	1336363	291.99	EPI	Solid	MDEQ	357.5	EXP	HSDB	NA	NA	NA	7.10	EXP	EPI
Polychlorinated biphenyls (PCBs) congeners (O)	(O)													
Prometon	1610180	225.30	EPI	Solid	MDEQ	NA	NA	NA	91	EXP	EPI	2.99	EXP	EPI
Propachlor	1918167	211.69	EPI	Solid	MDEQ	110	EXP	PP	77	EXP	EPI	2.18	EXP	EPI
Propazine	139402	229.71	EPI	Solid	MDEQ	NA	NA	NA	213	EXP	EPI	2.93	EXP	EPI
Propionic acid (OO)	79094	74.08	EPI	Liquid	MDEQ	141.1	EXP	EPI	-21.1	EXP	EPI	0.33	EXP	EPI
Propyl alcohol (I,DD,OO)	71238	60.10	EPI	Liquid	MDEQ	97.2	EXP	EPI	-126.1	EXP	EPI	0.25	EXP	EPI
n-Propylbenzene (I,DD)	103651	120.20	EPI	Liquid	MDEQ	159.2	EXP	EPI	-99.5	EXP	EPI	3.69	EXP	EPI
Propylene glycol	57556	76.10	EPI	Liquid	MDEQ	187.6	EXP	EPI	-60	EXP	EPI	-0.92	EXP	EPI
Pyrene	129000	202.26	EPI	Solid	MDEQ	404	EXP	EPI	151.2	EXP	EPI	4.88	EXP	EPI
Pyridine (I,KK)	110861	79.10	EPI	Liquid	MDEQ	115.2	EXP	EPI	-41.6	EXP	EPI	0.65	EXP	EPI
Selenium (B,KK)	7782492	78.96	CRC	Inorganic	MDEQ	685	EXP	CRC	221	EXP	PP	NR	NA	NA
Silver (KK)	7440224	107.87	EPI	Inorganic	MDEQ	2162	EXP	CRC	960.5	EXP	PP	NR	NA	NA
Silvex (2,4,5-TP) (KK)	93721	269.51	EPI	Solid	MDEQ	NA	NA	NA	181.6	EXP	EPI	3.80	EXP	EPI
Simazine	122349	201.66	EPI	Solid	MDEQ	NA	NA	NA	226	EXP	EPI	2.18	EXP	EPI
Sodium	17341252	22.99	EPI	Inorganic	MDEQ	882.94	EXP	CRC	97.79	EXP	CRC	NR	NA	NA
Sodium azide	26628228	65.01	EPI	Inorganic	MDEQ	NA	NA	NA	275	EXP	PC	NR	NA	NA

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Molecular Weight	MW Source	Physical State at Standard Temperature and Pressure	Physical State Source	Boiling Point	BP Basis	BP Source	Melting Point	MP Basis	MP Source	Log Octanol-Water Partition Coefficient	Log Kow Basis	Log Kow Source
		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
Sodium bromide	7647156	102.89	EPI	Inorganic	MDEQ	1390	EXP	CRC	747	EXP	CRC	NR	NA	NA
Strontium (B,DD)	7440246	87.62	EPI	Inorganic	MDEQ	1377	EXP	CRC	777	EXP	PP	NR	NA	NA
Styrene	100425	104.15	EPI	Liquid	MDEQ	145	EXP	EPI	-31	EXP	EPI	2.95	EXP	EPI
Sulfate	14808798	96.0626	PC	Inorganic	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
Tebuthiuron (DD)	34014181	228.31	EPI	Solid	MDEQ	NA	NA	NA	162.85	EXP	EPI	1.79	EXP	EPI
2,3,7,8-Tetrabromodibenzo-p-dioxin(O)	50585416	499.78	EPI	Solid	MDEQ	NA	NA	NA	334	EXP	EPI	7.90	EST	PP
1,2,4,5-Tetrachlorobenzene (DD)	95943	215.89	EPI	Solid	MDEQ	244.5	EXP	EPI	139.5	EXP	EPI	4.64	EXP	EPI
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O,DD)	1746016	321.98	EPI	Solid	MDEQ	NA	NA	NA	305	EXP	EPI	6.80	EXP	EPI
1,1,1,2-Tetrachloroethane	630206	167.85	EPI	Liquid	MDEQ	130.2	EXP	EPI	-70.2	EXP	EPI	2.93	EST	PP
1,1,2,2-Tetrachloroethane	79345	167.85	EPI	Liquid	MDEQ	146.5	EXP	EPI	-43.8	EXP	EPI	2.39	EXP	EPI
Tetrachloroethylene (KK)	127184	165.83	EPI	Liquid	MDEQ	121.3	EXP	EPI	-22.3	EXP	EPI	3.40	EXP	EPI
Tetrahydrofuran (DD)	109999	72.11	EPI	Liquid	MDEQ	65	EXP	EPI	-108.44	EXP	EPI	0.46	EXP	EPI
1,1,3,3-Tetramethylurea (OO)	632224	116.16	EPI	Liquid	MDEQ	176.5	EXP	EPI	-1.2	EXP	EPI	0.19	EXP	EPI
Tetranitromethane	509148	196.03	EPI	Liquid	MDEQ	126.1	EXP	EPI	13.8	EXP	EPI	-2.05	EST	PP
Thallium	7440280	204.38	EPI	Inorganic	MDEQ	1473	EXP	CRC	303.5	EXP	PP	NR	NA	NA
Toluene (I)	108883	92.14	EPI	Liquid	MDEQ	110.6	EXP	EPI	-94.9	EXP	EPI	2.73	EXP	EPI
p-Toluidine	106490	107.16	EPI	Solid	MDEQ	200.4	EXP	EPI	43.6	EXP	EPI	1.39	EXP	EPI
Total dissolved solids (TDS)	NA	NA	NA	NA	MDEQ	NA	NA	NA	NA	NA	NA	NR	NA	NA
Toxaphene (KK)	8001352	414	HSDB	Solid	MDEQ	NA	NA	NA	77	EXP	PP	5.90	EXP	PP
Triallate (DD)	2303175	304.66	EPI	Solid	MDEQ	NA	NA	NA	29	EXP	EPI	4.60	EXP	EPI
Tributylamine	102829	185.36	EPI	Liquid	MDEQ	216.5	EXP	EPI	-70	EXP	EPI	4.46	EST	PP
1,2,3-Trichlorobenzene	87616	181.45	EPI	Solid	MDEQ	218.5	EXP	EPI	53.5	EXP	EPI	4.05	EXP	EPI
1,2,4-Trichlorobenzene	120821	181.45	EPI	Liquid	MDEQ	213.5	EXP	EPI	17	EXP	EPI	4.02	EXP	EPI
1,1,1-Trichloroethane	71556	133.41	EPI	Liquid	MDEQ	74	EXP	EPI	-30.41	EXP	EPI	2.49	EXP	EPI
1,1,2-Trichloroethane	79005	133.41	EPI	Liquid	MDEQ	113.8	EXP	EPI	-36.6	EXP	EPI	1.89	EXP	EPI
Trichloroethylene (DD,KK,MM,NN)	79016	131.39	EPI	Liquid	MDEQ	87.2	EXP	EPI	-84.7	EXP	EPI	2.42	EXP	EPI
Trichlorofluoromethane	75694	137.37	EPI	Liquid	MDEQ	23.7	EXP	EPI	-111.1	EXP	EPI	2.53	EXP	EPI
2,4,5-Trichlorophenol (KK)	95954	197.45	EPI	Solid	MDEQ	247	EXP	EPI	69	EXP	EPI	3.72	EXP	EPI
2,4,6-Trichlorophenol (DD,KK)	88062	197.45	EPI	Solid	MDEQ	246	EXP	EPI	69	EXP	EPI	3.69	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Molecular Weight	MW Source	Physical State at Standard Temperature and Pressure	Physical State Source	Boiling Point	BP Basis	BP Source	Melting Point	MP Basis	MP Source	Log Octanol-Water Partition Coefficient	Log Kow Basis	Log Kow Source
		MW				BP			MP			Log Kow		
		g/mol		unitless		ºC			ºC			unitless		
1,2,3-Trichloropropane (MM)	96184	147.43	EPI	Liquid	MDEQ	157	EXP	EPI	-14.7	EXP	EPI	2.27	EXP	EPI
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	187.38	EPI	Liquid	MDEQ	47.7	EXP	EPI	-35	EXP	EPI	3.16	EXP	EPI
Triethanolamine	102716	149.19	EPI	Liquid	MDEQ	335.4	EXP	EPI	20.5	EXP	EPI	-1.00	EXP	EPI
Triethylene glycol (DD)	112276	150.18	EPI	Liquid	MDEQ	285	EXP	EPI	-7	EXP	EPI	-1.75	EXP	EPI
3-Trifluoromethyl-4-nitrophenol (DD)	88302	207.11	EPI	Solid	MDEQ	NA	NA	NA	76	EXP	EPI	2.87	EST	PP
Trifluralin	1582098	335.29	EPI	Solid	MDEQ	NA	NA	NA	49	EXP	EPI	5.34	EXP	EPI
2,2,4-Trimethyl pentane	540841	114.23	EPI	Liquid	MDEQ	99.2	EXP	EPI	-107.3	EXP	EPI	1.09	EST	PP
2,4,4-Trimethyl-2-pentene (I)	107404	112.22	EPI	Liquid	MDEQ	104.9	EXP	EPI	-106.3	EXP	EPI	4.00	EST	PP
1,2,3-Trimethylbenzene (I)	526738	120.20	EPI	Liquid	MDEQ	176.1	EXP	EPI	-25.4	EXP	EPI	3.66	EXP	EPI
1,2,4-Trimethylbenzene (I)	95636	120.20	EPI	Liquid	MDEQ	169.3	EXP	EPI	-43.8	EXP	EPI	3.63	EXP	EPI
1,3,5-Trimethylbenzene (I)	108678	120.20	EPI	Liquid	MDEQ	164.7	EXP	EPI	-44.7	EXP	EPI	3.42	EXP	EPI
Triphenyl phosphate	115866	326.29	EPI	Solid	MDEQ	370	EXP	PC	50.5	EXP	EPI	4.59	EXP	EPI
tris(2,3-Dibromopropyl)phosphate	126727	697.62	EPI	Liquid	MDEQ	NA	NA	NA	5.5	EXP	EPI	4.29	EXP	EPI
Urea	57136	60.06	EPI	Solid	MDEQ	NA	NA	NA	132.7	EXP	EPI	-2.11	EXP	EPI
Vanadium (B)	7440622	50.94	EPI	Inorganic	MDEQ	3407	EXP	CRC	1910	EXP	CRC	NR	NA	NA
Vinyl acetate (I,DD)	108054	86.09	EPI	Liquid	MDEQ	72.8	EXP	EPI	-93.2	EXP	EPI	0.73	EXP	EPI
Vinyl chloride (KK,LL,MM)	75014	62.50	EPI	Gas	MDEQ	-13.3	EXP	EPI	-153.7	EXP	EPI	1.27	EXP	SSG
Xylenes (I,J)	1330207	106.17	EPI	Liquid	MDEQ	138.23	EXP	EPI	13.25	EXP	EPI	3.16	EXP	PP
Zinc (B)	7440666	65.37	EPI	Inorganic	MDEQ	908	EXP	PP	419.5	EXP	PP	NR	NA	NA

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds	Koc Basis	Koc Source	Soil Koc for Ionizing Organic Compounds at pH=6.8	Ion Koc Basis	Ion Koc Source	Soil-Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Kd Basis	Kd Source	Henry's Law Constant at 25ºC	HLC Basis	HLC Source
		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
Acenaphthene	83329	5027	EST	EPI	NR	NA	NA	NR	NA	NA	1.84E-04	EXP	EPI
Acenaphthylene	208968	5027	EST	EPI	NR	NA	NA	NR	NA	NA	1.14E-04	EXP	EPI
Acetaldehyde (I)	75070	1	EST	EPI	NR	NA	NA	NR	NA	NA	6.67E-05	EXP	EPI
Acetate	71501	NA	NA	NA	NR	NA	NA	NR	NA	NA	NA	NA	NA
Acetic acid (OO)	64197	1	EST	EPI	NR	NA	NA	NR	NA	NA	1.00E-07	EXP	EPI
Acetone (I)	67641	2.364	EST	EPI	NR	NA	NA	NR	NA	NA	3.50E-05	EXP	EPI
Acetonitrile	75058	4.67	EST	EPI	NR	NA	NA	NR	NA	NA	3.45E-05	EXP	EPI
Acetophenone (DD)	98862	51.85	EST	EPI	NR	NA	NA	NR	NA	NA	1.04E-05	EXP	EPI
Acrolein (I)	107028	1	EST	EPI	NR	NA	NA	NR	NA	NA	1.22E-04	EXP	EPI
Acrylamide (MM)	79061	5.694	EST	EPI	NR	NA	NA	NR	NA	NA	1.70E-09	EST	PP
Acrylic acid (DD,OO)	79107	1.44	EST	EPI	NR	NA	NA	NR	NA	NA	3.70E-07	EST	PP
Acrylonitrile (I)	107131	8.511	EST	EPI	NR	NA	NA	NR	NA	NA	1.38E-04	EXP	EPI
Alachlor	15972608	312.3	EST	EPI	NR	NA	NA	NR	NA	NA	8.32E-09	EXP	EPI
Aldicarb	116063	24.64	EST	EPI	NR	NA	NA	NR	NA	NA	1.44E-09	EST	PP
Aldicarb sulfone	1646884	10	EST	EPI	NR	NA	NA	NR	NA	NA	3.37E-09	EST	PP
Aldicarb sulfoxide	1646873	10	EST	EPI	NR	NA	NA	NR	NA	NA	9.69E-10	EST	PP
Aldrin	309002	8.202E+04	EST	EPI	NR	NA	NA	NR	NA	NA	4.40E-05	EXP	EPI
Aluminum (B,DD)	7429905	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Ammonia	7664417	NA	NA	NA	NR	NA	NA	NR	NA	NA	1.61E-05	EXP	EPI
t-Amyl methyl ether (TAME)	994058	22.66	EST	EPI	NR	NA	NA	NR	NA	NA	1.32E-03	EXP	EPI
Aniline	62533	70.23	EST	EPI	NR	NA	NA	NR	NA	NA	2.02E-06	EXP	EPI
Anthracene	120127	1.636E+04	EST	EPI	NR	NA	NA	NR	NA	NA	5.56E-05	EXP	EPI
Antimony	7440360	NR	NA	NA	NR	NA	NA	4.5E+01	EST	SSG	NR	NA	NA
Arsenic (B,KK)	7440382	NR	NA	NA	NR	NA	NA	2.9E+01	EST	SSG	NR	NA	NA
Asbestos (BB)	1332214	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Atrazine	1912249	224.5	EST	EPI	NR	NA	NA	NR	NA	NA	2.60E-09	EXP	HSDB

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Hazardous Substance	Chemical Abstract Service Number	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds	Koc Basis	Koc Source	Soil Koc for Ionizing Organic Compounds at pH=6.8	Ion Koc Basis	Ion Koc Source	Soil-Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Kd Basis	Kd Source	Henry's Law Constant at 25ºC	HLC Basis	HLC Source
		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
Azobenzene	103333	3759	EST	EPI	NR	NA	NA	NR	NA	NA	1.35E-05	EST	PP
Barium (B,KK)	7440393	NR	NA	NA	NR	NA	NA	4.1E+01	EST	SSG	NR	NA	NA
Benzene (I,KK)	71432	145.8	EST	EPI	NR	NA	NA	NR	NA	NA	5.55E-03	EXP	EPI
Benzidine (MM)	92875	1190	EST	EPI	NR	NA	NA	NR	NA	NA	5.17E-11	EST	PP
Benzo(a)anthracene (Q,MM)	56553	1.769E+05	EST	EPI	NR	NA	NA	NR	NA	NA	1.20E-05	EXP	EPI
Benzo(b)fluoranthene (Q,MM)	205992	5.994E+05	EST	EPI	NR	NA	NA	NR	NA	NA	6.57E-07	EXP	EPI
Benzo(k)fluoranthene (Q,MM)	207089	5.874E+05	EST	EPI	NR	NA	NA	NR	NA	NA	5.84E-07	EXP	EPI
Benzo(g,h,i)perylene	191242	1.951E+06	EST	EPI	NR	NA	NA	NR	NA	NA	3.31E-07	EXP	EPI
Benzo(a)pyrene (Q,DD,MM)	50328	5.874E+05	EST	EPI	NR	NA	NA	NR	NA	NA	4.57E-07	EXP	EPI
Benzoic acid	65850	16.55	EST	EPI	0.6	EST	SSG	NR	NA	NA	3.81E-08	EST	PP
Benzyl alcohol	100516	21.46	EST	EPI	NR	NA	NA	NR	NA	NA	3.37E-07	EXP	EPI
Benzyl chloride	100447	446.1	EST	EPI	NR	NA	NA	NR	NA	NA	4.12E-04	EST	PP
Beryllium (B)	7440417	NR	NA	NA	NR	NA	NA	7.9E+02	EST	SSG	NR	NA	NA
bis(2-Chloroethoxy)ethane	112265	26.21	EST	EPI	NR	NA	NA	NR	NA	NA	7.81E-07	EST	PP
bis-2-Chloroethylether (I)	111444	32.21	EST	EPI	NR	NA	NA	NR	NA	NA	2.96E-05	EXP	CRC
bis(2-Ethylhexyl) phthalate (DD)	117817	1.196E+05	EST	EPI	NR	NA	NA	NR	NA	NA	1.02E-07	EXP	SSG
Boron (DD)	7440428	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Bromate	15541454	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Bromobenzene (I)	108861	233.9	EST	EPI	NR	NA	NA	NR	NA	NA	2.47E-03	EXP	EPI
Bromodichloromethane (DD)	75274	31.82	EST	EPI	NR	NA	NA	NR	NA	NA	2.12E-03	EXP	EPI
Bromoform	75252	31.82	EST	EPI	NR	NA	NA	NR	NA	NA	5.35E-04	EXP	EPI
Bromomethane	74839	13.22	EST	EPI	NR	NA	NA	NR	NA	NA	7.34E-03	EXP	EPI
n-Butanol (I,OO)	71363	3.471	EST	EPI	NR	NA	NA	NR	NA	NA	8.81E-06	EXP	EPI
2-Butanone (MEK) (I,DD,KK)	78933	4.51	EST	EPI	NR	NA	NA	NR	NA	NA	5.69E-05	EXP	EPI
n-Butyl acetate	123864	18.54	EST	EPI	NR	NA	NA	NR	NA	NA	2.81E-04	EXP	EPI
t-Butyl alcohol (OO)	75650	2.111	EST	EPI	NR	NA	NA	NR	NA	NA	9.05E-06	EXP	EPI

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PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
Butyl benzyl phthalate (DD)	85687	7155	EST	EPI	NR	NA	NA	NR	NA	NA	1.26E-06	EXP	SSG
n-Butylbenzene	104518	1482	EST	EPI	NR	NA	NA	NR	NA	NA	1.31E-02	EXP	CRC
sec-Butylbenzene	135988	1331	EST	EPI	NR	NA	NA	NR	NA	NA	1.87E-02	EXP	CRC
t-Butylbenzene (I)	98066	1001	EST	EPI	NR	NA	NA	NR	NA	NA	1.26E-02	EXP	CRC
Cadmium (B,KK)	7440439	NR	NA	NA	NR	NA	NA	7.5E+01	EST	SSG	NR	NA	NA
Camphene (I)	79925	1020	EST	EPI	NR	NA	NA	NR	NA	NA	1.61E-01	EST	PP
Caprolactam (DD)	105602	24.5	EST	EPI	NR	NA	NA	NR	NA	NA	2.53E-08	EST	PP
Carbaryl (DD)	63252	354.8	EST	EPI	NR	NA	NA	NR	NA	NA	2.80E-09	EXP	HSDB
Carbazole	86748	9161	EST	EPI	NR	NA	NA	NR	NA	NA	1.16E-07	EXP	EPI
Carbofuran (DD)	1563662	95.25	EST	EPI	NR	NA	NA	NR	NA	NA	3.09E-09	EST	PP
Carbon disulfide (I,R,DD)	75150	21.73	EST	EPI	NR	NA	NA	NR	NA	NA	1.44E-02	EXP	EPI
Carbon tetrachloride (KK)	56235	43.89	EST	EPI	NR	NA	NA	NR	NA	NA	2.76E-02	EXP	EPI
Chlordane (J,KK)	57749	6.754E+04	EST	EPI	NR	NA	NA	NR	NA	NA	4.86E-05	EXP	EPI
Chloride	16887006	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
2-Chloroaniline	95512	115	EST	EPI	NR	NA	NA	NR	NA	NA	5.39E-06	EST	PP
4-Chloroaniline	106478	112.7	EST	EPI	NR	NA	NA	NR	NA	NA	3.31E-07	EXP	SSG
Chlorobenzene (I,KK)	108907	233.9	EST	EPI	NR	NA	NA	NR	NA	NA	3.11E-03	EXP	EPI
p-Chlorobenzene sulfonic acid	98668	16.06	EST	EPI	NR	NA	NA	NR	NA	NA	1.86E-09	EST	PP
1-Chloro-1,1-difluoroethane	75683	43.89	EST	EPI	NR	NA	NA	NR	NA	NA	5.88E-02	EXP	EPI
Chloroethane (DD)	75003	21.73	EST	EPI	NR	NA	NA	NR	NA	NA	1.11E-02	EXP	EPI
2-Chloroethyl vinyl ether	110758	17.68	EST	EPI	NR	NA	NA	NR	NA	NA	8.76E-03	EST	PP
Chloroform (KK)	67663	31.82	EST	EPI	NR	NA	NA	NR	NA	NA	3.67E-03	EXP	EPI
Chloromethane (I)	74873	13.22	EST	EPI	NR	NA	NA	NR	NA	NA	8.82E-03	EXP	EPI
4-Chloro-3-methylphenol (DD)	59507	491.8	EST	EPI	NR	NA	NA	NR	NA	NA	2.45E-06	EST	PP
beta-Chloronaphthalene	91587	2478	EST	EPI	NR	NA	NA	NR	NA	NA	3.20E-04	EXP	EPI
2-Chlorophenol (DD)	95578	306.5	EST	EPI	388	EST	SSG	NR	NA	NA	1.12E-05	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds	Koc Basis	Koc Source	Soil Koc for Ionizing Organic Compounds at pH=6.8	Ion Koc Basis	Ion Koc Source	Soil-Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Kd Basis	Kd Source	Henry's Law Constant at 25ºC	HLC Basis	HLC Source
		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
o-Chlorotoluene (I)	95498	382.9	EST	EPI	NR	NA	NA	NR	NA	NA	3.57E-03	EXP	EPI
Chlorpyrifos (DD)	2921882	7283	EST	EPI	NR	NA	NA	NR	NA	NA	2.93E-06	EXP	EPI
Chromium (III) (B,H,KK)	16065831	NR	NA	NA	NR	NA	NA	1.8E+06	EST	SSG	NR	NA	NA
Chromium (VI) (H,KK,MM)	18540299	NR	NA	NA	NR	NA	NA	1.9E+01	EST	SSG	NR	NA	NA
Chrysene (Q,MM)	218019	3.98E+05	EST	SSG	NR	NA	NA	NR	NA	NA	5.23E-06	EXP	PP
Cobalt (B)	7440484	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Copper (B)	7440508	NR	NA	NA	NR	NA	NA	3.6E+02	EST	MDEQ	NR	NA	NA
Cyanazine	21725462	134.1	EST	EPI	NR	NA	NA	NR	NA	NA	2.57E-10	EXP	HSDB
Cyanide (P,R,DD)	57125	NR	NA	NA	NR	NA	NA	9.9E+00	EST	SSG	NR	NA	NA
Cyclohexane (DD)	110827	145.8	EST	EPI	NR	NA	NA	NR	NA	NA	1.50E-01	EXP	EPI
Cyclohexanone (OO)	108941	17.38	EST	EPI	NR	NA	NA	NR	NA	NA	9.00E-06	EXP	EPI
Dacthal	1861321	511.1	EST	EPI	NR	NA	NA	NR	NA	NA	2.18E-06	EST	PP
Dalapon	75990	3.231	EST	EPI	NR	NA	NA	NR	NA	NA	5.66E-08	EST	PP
4-4'-DDD	72548	1.175E+05	EST	EPI	NR	NA	NA	NR	NA	NA	6.60E-06	EXP	EPI
4-4'-DDE	72559	1.175E+05	EST	EPI	NR	NA	NA	NR	NA	NA	4.16E-05	EXP	EPI
4-4'-DDT (DD)	50293	1.686E+05	EST	EPI	NR	NA	NA	NR	NA	NA	8.32E-06	EXP	EPI
Decabromodiphenyl ether (DD)	1163195	2.762E+05	EST	EPI	NR	NA	NA	NR	NA	NA	1.19E-08	EST	PP
Di-n-butyl phthalate (DD)	84742	1157	EST	EPI	NR	NA	NA	NR	NA	NA	1.81E-06	EXP	EPI
Di(2-ethylhexyl) adipate (DD)	103231	3.6E+04	EST	EPI	NR	NA	NA	NR	NA	NA	4.34E-07	EXP	EPI
Di-n-octyl phthalate	117840	1.408E+05	EST	EPI	NR	NA	NA	NR	NA	NA	6.68E-05	EXP	SSG
Diacetone alcohol (I,OO)	123422	1	EST	EPI	NR	NA	NA	NR	NA	NA	2.61E-07	EST	PP
Diazinon	333415	3034	EST	EPI	NR	NA	NA	NR	NA	NA	1.13E-07	EXP	EPI
Dibenzo(a,h)anthracene (Q,MM)	53703	1.912E+06	EST	EPI	NR	NA	NA	NR	NA	NA	1.47E-08	EXP	SSG
Dibenzofuran	132649	9161	EST	EPI	NR	NA	NA	NR	NA	NA	1.09E-04	EXP	CRC
Dibromochloromethane (MM)	124481	31.82	EST	EPI	NR	NA	NA	NR	NA	NA	7.83E-04	EXP	EPI
Dibromochloropropane (MM)	96128	115.8	EST	EPI	NR	NA	NA	NR	NA	NA	1.47E-04	EST	PP

TABLE 3. CHEMICAL-PHYSICAL DATA

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		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
Dibromomethane	74953	21.73	EST	EPI	NR	NA	NA	NR	NA	NA	8.22E-04	EXP	EPI
Dicamba (DD)	1918009	29.01	EST	EPI	NR	NA	NA	NR	NA	NA	4.38E-10	EST	PP
1,2-Dichlorobenzene	95501	382.9	EST	EPI	NR	NA	NA	NR	NA	NA	1.92E-03	EXP	EPI
1,3-Dichlorobenzene	541731	375.3	EST	EPI	NR	NA	NA	NR	NA	NA	2.63E-03	EXP	EPI
1,4-Dichlorobenzene (KK)	106467	375.3	EST	EPI	NR	NA	NA	NR	NA	NA	2.41E-03	EXP	EPI
3,3`-Dichlorobenzidine	91941	3190	EST	EPI	NR	NA	NA	NR	NA	NA	4.00E-09	EXP	SSG
Dichlorodifluoromethane	75718	43.89	EST	EPI	NR	NA	NA	NR	NA	NA	3.43E-01	EXP	EPI
1,1-Dichloroethane	75343	31.82	EST	EPI	NR	NA	NA	NR	NA	NA	5.62E-03	EXP	EPI
1,2-Dichloroethane (I,KK)	107062	39.6	EST	EPI	NR	NA	NA	NR	NA	NA	1.18E-03	EXP	EPI
1,1-Dichloroethylene (I,KK)	75354	31.82	EST	EPI	NR	NA	NA	NR	NA	NA	2.61E-02	EXP	EPI
cis-1,2-Dichloroethylene	156592	39.6	EST	EPI	NR	NA	NA	NR	NA	NA	4.08E-03	EXP	EPI
trans-1,2-Dichloroethylene	156605	52.5	EST	SSG	NR	NA	NA	NR	NA	NA	9.38E-03	EXP	PP
2,6-Dichloro-4-nitroaniline	99309	1947	EST	EPI	NR	NA	NA	NR	NA	NA	4.67E-08	EST	PP
2,4-Dichlorophenol (DD)	120832	491.8	EST	EPI	147	EST	SSG	NR	NA	NA	3.48E-06	EST	PP
2,4-Dichlorophenoxyacetic acid (KK)	94757	29.63	EST	EPI	NR	NA	NA	NR	NA	NA	9.75E-08	EXP	HSDB
1,2-Dichloropropane (I)	78875	60.7	EST	EPI	NR	NA	NA	NR	NA	NA	2.82E-03	EXP	EPI
1,3-Dichloropropene (J)	542756	72.17	EST	EPI	NR	NA	NA	NR	NA	NA	3.55E-03	EXP	EPI
Dichlorvos (MM)	62737	53.96	EST	EPI	NR	NA	NA	NR	NA	NA	5.74E-07	EST	PP
Dicyclohexyl phthalate	84617	1.332E+04	EST	EPI	NR	NA	NA	NR	NA	NA	1.00E-07	EST	PP
Dieldrin	60571	2.009E+04	EST	EPI	NR	NA	NA	NR	NA	NA	1.00E-05	EXP	EPI
Diethyl ether	60297	9.699	EST	EPI	NR	NA	NA	NR	NA	NA	1.23E-03	EXP	EPI
Diethyl phthalate	84662	104.9	EST	EPI	NR	NA	NA	NR	NA	NA	6.10E-07	EST	PP
Diethylene glycol monobutyl ether	112345	10	EST	EPI	NR	NA	NA	NR	NA	NA	7.20E-09	EXP	EPI
Diisopropyl ether (DD)	108203	22.79	EST	EPI	NR	NA	NA	NR	NA	NA	2.56E-03	EXP	EPI
Diisopropylamine (I)	108189	63.66	EST	EPI	NR	NA	NA	NR	NA	NA	9.60E-05	EST	PP
Dimethyl phthalate	131113	31.59	EST	EPI	NR	NA	NA	NR	NA	NA	1.97E-07	EST	PP

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		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
N,N-Dimethylacetamide (OO)	127195	3.344	EST	EPI	NR	NA	NA	NR	NA	NA	1.31E-08	EXP	EPI
N,N-Dimethylaniline	121697	78.67	EST	EPI	NR	NA	NA	NR	NA	NA	5.68E-05	EST	PP
Dimethylformamide (I,OO)	68122	1	EST	EPI	NR	NA	NA	NR	NA	NA	7.39E-08	EXP	EPI
2,4-Dimethylphenol	105679	491.8	EST	EPI	NR	NA	NA	NR	NA	NA	9.51E-07	EXP	EPI
2,6-Dimethylphenol	576261	501.9	EST	EPI	NR	NA	NA	NR	NA	NA	6.65E-06	EXP	EPI
3,4-Dimethylphenol	95658	491.8	EST	EPI	NR	NA	NA	NR	NA	NA	4.15E-07	EXP	EPI
Dimethylsulfoxide	67685	2.082	EST	EPI	NR	NA	NA	NR	NA	NA	1.51E-09	EXP	EPI
2,4-Dinitrophenol	51285	460.8	EST	EPI	0.01	EST	SSG	NR	NA	NA	8.60E-08	EXP	EPI
2,4-Dinitrotoluene (KK)	121142	575.6	EST	EPI	NR	NA	NA	NR	NA	NA	5.40E-08	EXP	EPI
Dinoseb (DD)	88857	4294	EST	EPI	NR	NA	NA	NR	NA	NA	4.56E-07	EST	PP
1,4-Dioxane (I,OO)	123911	2.633	EST	EPI	NR	NA	NA	NR	NA	NA	4.80E-06	EXP	EPI
Diquat	85007	NA	NA	NA	NR	NA	NA	NR	NA	NA	1.42E-13	EST	PP
Dissolved oxygen (DO)	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Diuron	330541	109.1	EST	EPI	NR	NA	NA	NR	NA	NA	5.04E-10	EST	PP
Endosulfan (J)	115297	6761	EST	EPI	NR	NA	NA	NR	NA	NA	6.50E-05	EXP	EPI
Endothall	145733	19.41	EST	EPI	NR	NA	NA	NR	NA	NA	3.85E-16	EST	PP
Endrin (KK)	72208	12300	EST	SSG	NR	NA	NA	NR	NA	NA	6.36E-06	EXP	PP
Epichlorohydrin (I)	106898	9.907	EST	EPI	NR	NA	NA	NR	NA	NA	2.96E-05	EXP	CRC
Ethanol (I,DD,OO)	64175	1.045	EST	EPI	NR	NA	NA	NR	NA	NA	5.00E-06	EXP	EPI
Ethyl acetate (I)	141786	5.583	EST	EPI	NR	NA	NA	NR	NA	NA	1.34E-04	EXP	EPI
Ethyl-tert-butyl ether (ETBE)	637923	21.07	EST	EPI	NR	NA	NA	NR	NA	NA	1.64E-03	EXP	EPI
Ethylbenzene (I)	100414	446.1	EST	EPI	NR	NA	NA	NR	NA	NA	7.88E-03	EXP	EPI
Ethylene dibromide	106934	39.6	EST	EPI	NR	NA	NA	NR	NA	NA	6.50E-04	EXP	EPI
Ethylene glycol (DD)	107211	1	EST	EPI	NR	NA	NA	NR	NA	NA	6.00E-08	EXP	EPI
Ethylene glycol monobutyl ether	111762	2.823	EST	EPI	NR	NA	NA	NR	NA	NA	1.60E-06	EXP	EPI
Ethylenediaminetetraacetic acid (EDTA) (II)	60004	312.7	EST	EPI	NR	NA	NA	NR	NA	NA	5.77E-16	EST	PP

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		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
Fluoranthene	206440	5.545E+04	EST	EPI	NR	NA	NA	NR	NA	NA	8.86E-06	EXP	EPI
Fluorene	86737	9160	EST	EPI	NR	NA	NA	NR	NA	NA	9.62E-05	EXP	EPI
Fluorine (soluble fluoride) (DD)	7782414	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Formaldehyde (DD,MM,OO)	50000	1	EST	EPI	NR	NA	NA	NR	NA	NA	3.37E-07	EXP	EPI
Formic acid (I,U,OO)	64186	1	EST	EPI	NR	NA	NA	NR	NA	NA	1.67E-07	EXP	EPI
1-Formylpiperidine (DD)	2591868	4.162	EST	EPI	NR	NA	NA	NR	NA	NA	7.61E-08	EST	PP
Gentian violet	548629	6.711E+05	EST	EPI	NR	NA	NA	NR	NA	NA	3.06E-16	EST	PP
Glyphosate (DD)	1071836	1	EST	EPI	NR	NA	NA	NR	NA	NA	2.10E-12	EST	PP
Heptachlor (DD,KK)	76448	1.41E+06	EST	SSG	NR	NA	NA	NR	NA	NA	2.94E-04	EXP	PP
Heptachlor epoxide (KK)	1024573	1.011E+04	EST	EPI	NR	NA	NA	NR	NA	NA	2.10E-05	EXP	EPI
n-Heptane	142825	239.7	EST	EPI	NR	NA	NA	NR	NA	NA	2.00E+00	EST	PP
Hexabromobenzene	87821	2807	EST	EPI	NR	NA	NA	NR	NA	NA	2.81E-05	EST	PP
Hexachlorobenzene (C-66) (KK)	118741	6195	EST	EPI	NR	NA	NA	NR	NA	NA	1.70E-03	EXP	EPI
Hexachlorobutadiene (C-46) (KK)	87683	845.2	EST	EPI	NR	NA	NA	NR	NA	NA	1.03E-02	EXP	EPI
alpha-Hexachlorocyclohexane	319846	2807	EXT	EPI	NR	NA	NA	NR	NA	NA	6.70E-06	EXP	PP
beta-Hexachlorocyclohexane	319857	2807	EXT	EPI	NR	NA	NA	NR	NA	NA	4.40E-07	EXP	PP
Hexachlorocyclopentadiene (C-56)	77474	1404	EST	EPI	NR	NA	NA	NR	NA	NA	2.70E-02	EXP	EPI
Hexachloroethane (KK)	67721	196.8	EST	EPI	NR	NA	NA	NR	NA	NA	3.89E-03	EXP	EPI
n-Hexane	110543	131.5	EST	EPI	NR	NA	NA	NR	NA	NA	1.80E+00	EST	PP
2-Hexanone	591786	14.98	EST	EPI	NR	NA	NA	NR	NA	NA	9.32E-05	EST	PP
Indeno(1,2,3-cd)pyrene (Q,MM)	193395	1.951E+06	EST	EPI	NR	NA	NA	NR	NA	NA	3.48E-07	EXP	EPI
Iron (B)	7439896	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Isobutyl alcohol (I,OO)	78831	2.919	EST	EPI	NR	NA	NA	NR	NA	NA	9.78E-06	EXP	EPI
Isophorone (DD)	78591	65.15	EST	EPI	NR	NA	NA	NR	NA	NA	6.64E-06	EXP	SSG
Isopropyl alcohol (I,DD,OO)	67630	1.53	EST	EPI	NR	NA	NA	NR	NA	NA	8.10E-06	EXP	EPI
Isopropyl benzene	98828	697.8	EST	EPI	NR	NA	NA	NR	NA	NA	1.15E-02	EXP	EPI

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		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
Lead (B,L,DD,KK)	7439921	NR	NA	NA	NR	NA	NA	1.1E+04	EST	MDEQ	NR	NA	NA
Lindane (KK)	58899	2807	EST	EPI	NR	NA	NA	NR	NA	NA	5.14E-06	EXP	EPI
Lithium (B,DD)	7439932	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Magnesium	7439954	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Manganese (B)	7439965	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Mercury (Total) (Z,DD,KK)	Varies												
Mercury, elemental	7439976	3.449	EST	EPI	NR	NA	NA	NA	NA	NA	1.14E-02	EXP	SSG
Mercuric chloride	7487947	NR	NA	NA	NR	NA	NA	5.2E+01	EST	SSG	NR	NA	NA
Methyl mercury (DD)	22967926	NA	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA
Methane (K)	74828	3.979	EST	EPI	NR	NA	NA	NR	NA	NA	6.65E-01	EXP	CRC
Methanol (DD,OO)	67561	1	EST	EPI	NR	NA	NA	NR	NA	NA	4.55E-06	EXP	EPI
Methoxychlor (DD,KK)	72435	26890	EST	EPI	NR	NA	NA	NR	NA	NA	2.03E-07	EXP	EPI
2-Methoxyethanol (I,DD,OO)	109864	1	EST	EPI	NR	NA	NA	NR	NA	NA	3.30E-07	EXP	EPI
2-Methyl-4-chlorophenoxyacetic acid	94746	29.63	EST	EPI	NR	NA	NA	NR	NA	NA	1.33E-09	EST	PP
2-Methyl-4,6-dinitrophenol	534521	754.4	EST	EPI	NR	NA	NA	NR	NA	NA	1.40E-06	EXP	EPI
N-Methyl-morpholine (I,OO)	109024	7.231	EST	EPI	NR	NA	NA	NR	NA	NA	2.50E-07	EST	PP
Methyl parathion	298000	729.3	EST	EPI	NR	NA	NA	NR	NA	NA	1.00E-07	EXP	EPI
4-Methyl-2-pentanone (MIBK) (I,DD)	108101	12.6	EST	EPI	NR	NA	NA	NR	NA	NA	1.38E-04	EST	PP
Methyl-tert-butyl ether (MTBE)	1634044	11.56	EST	EPI	NR	NA	NA	NR	NA	NA	5.87E-04	EXP	EPI
N-methylaniline	100618	82.08	EST	EPI	NR	NA	NA	NR	NA	NA	8.88E-06	EXP	EPI
Methylcyclopentane (I)	96377	128.3	EST	EPI	NR	NA	NA	NR	NA	NA	3.62E-01	EXP	CRC
4,4`-Methylene-bis-2-chloroaniline (MBOCA) (MM)	101144	5698	EST	EPI	NR	NA	NA	NR	NA	NA	4.06E-11	EST	PP
Methylene chloride (MM)	75092	21.73	EST	EPI	NR	NA	NA	NR	NA	NA	3.25E-03	EXP	EPI
2-Methylnaphthalene	91576	2478	EST	EPI	NR	NA	NA	NR	NA	NA	5.18E-04	EXP	EPI
Methylphenols (JJ,KK)	1319773												
2-Methylphenol (DD,KK)	95487	306.5	EXP	EPI	9.12E+01	EST	SSG	NR	NA	NA	1.20E-06	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds	Koc Basis	Koc Source	Soil Koc for Ionizing Organic Compounds at pH=6.8	Ion Koc Basis	Ion Koc Source	Soil-Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Kd Basis	Kd Source	Henry's Law Constant at 25ºC	HLC Basis	HLC Source
		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
3-Methylphenol (KK)	108394	300.4	EXP	EPI	NR	NA	NA	NR	NA	NA	8.56E-07	EXP	EPI
4-Methylphenol (KK)	106445	300.4	EXP	EPI	NR	NA	NA	NR	NA	NA	1.00E-06	EXP	EPI
Metolachlor	51218452	488.5	EST	EPI	NR	NA	NA	NR	NA	NA	9.00E-09	EXP	EPI
Metribuzin	21087649	53.13	EST	EPI	NR	NA	NA	NR	NA	NA	1.17E-10	EST	PP
Mirex	2385855	3.566E+05	EST	EPI	NR	NA	NA	NR	NA	NA	8.11E-04	EXP	EPI
Molybdenum	7439987	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Naphthalene	91203	1544	EST	EPI	NR	NA	NA	NR	NA	NA	4.40E-04	EXP	EPI
Nickel (B)	7440020	NR	NA	NA	NR	NA	NA	6.5E+01	EST	SSG	NR	NA	NA
Nitrate (N,DD)	14797558	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Nitrite (N,DD)	14797650	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Nitrobenzene (I,KK)	98953	226.4	EST	EPI	NR	NA	NA	NR	NA	NA	2.40E-05	EXP	EPI
2-Nitrophenol	88755	296.7	EST	EPI	NR	NA	NA	NR	NA	NA	1.28E-05	EXP	EPI
n-Nitroso-di-n-propylamine	621647	275.4	EST	EPI	NR	NA	NA	NR	NA	NA	5.38E-06	EXP	EPI
N-Nitrosodiphenylamine	86306	2632	EST	EPI	NR	NA	NA	NR	NA	NA	5.00E-06	EXP	SSG
Oxamyl	23135220	10	EST	EPI	NR	NA	NA	NR	NA	NA	2.37E-10	EST	PP
Oxo-hexyl acetate (OO)	88230357	NA	NA	NA	NR	NA	NA	NR	NA	NA	NA	NA	NA
Pendimethalin (DD)	40487421	5615	EST	EPI	NR	NA	NA	NR	NA	NA	8.56E-07	EXP	HSDB
Pentachlorobenzene	608935	3708	EST	EPI	NR	NA	NA	NR	NA	NA	7.03E-04	EXP	EPI
Pentachloronitrobenzene	82688	5996	EST	EPI	NR	NA	NA	NR	NA	NA	4.42E-05	EST	PP
Pentachlorophenol (KK)	87865	4959	EST	EPI	592	EST	SSG	NR	NA	NA	2.45E-08	EXP	EPI
Pentane	109660	72.17	EST	EPI	NR	NA	NA	NR	NA	NA	1.25E+00	EXP	EPI
2-Pentene (I)	109682	72.17	EST	EPI	NR	NA	NA	NR	NA	NA	2.40E-01	EST	PP
Perchlorate (DD)	14797730	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Perfluorooctanoic acid	335671	2.625E+04	EST	EPI	NR	NA	NA	NR	NA	NA	3.01E-05	EST	PP
Perfluorooctane sulfonic acid (DD)	1763231	7.168E+04	EST	EPI	NR	NA	NA	NR	NA	NA	NA	NA	NA
pH	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds	Koc Basis	Koc Source	Soil Koc for Ionizing Organic Compounds at pH=6.8	Ion Koc Basis	Ion Koc Source	Soil-Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Kd Basis	Kd Source	Henry's Law Constant at 25ºC	HLC Basis	HLC Source
		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
Phenanthrene	85018	1.669E+04	EST	EPI	NR	NA	NA	NR	NA	NA	4.23E-05	EXP	EPI
Phenol (DD)	108952	187.2	EST	EPI	NR	NA	NA	NR	NA	NA	3.33E-07	EXP	EPI
Phenytoin (DD)	57410	1473	EST	EPI	NR	NA	NA	NR	NA	NA	1.02E-11	EST	PP
Phosphorus, Total	Varies	NA	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus, White (R,DD)	7723140	NR	NA	NA	NR	NA	NA	NA	NA	NA	2.44E-02	EST	PP
o-Phthalic acid	88993	80.85	EST	EPI	NR	NA	NA	NR	NA	NA	2.00E-11	EST	PP
Phthalic anhydride	85449	10	EST	EPI	NR	NA	NA	NR	NA	NA	1.63E-08	EST	PP
Picloram	1918021	38.77	EST	EPI	NR	NA	NA	NR	NA	NA	5.33E-14	EST	PP
Piperidine (OO)	110894	54.73	EST	EPI	NR	NA	NA	NR	NA	NA	4.45E-06	EXP	EPI
Polybrominated biphenyls (J,DD)	67774327	NA	NA	NA	NR	NA	NA	NR	NA	NA	NA	NA	NA
Polychlorinated biphenyls (PCBs) (J,T,DD)	1336363	7.810E+04	EST	EPI	NR	NA	NA	NR	NA	NA	4.15E-04	EXP	EPI
Polychlorinated biphenyls (PCBs) congeners (O)	(O)												
Prometon	1610180	137.4	EST	EPI	NR	NA	NA	NR	NA	NA	9.09E-10	EST	PP
Propachlor	1918167	204.50	EST	EPI	NR	NA	NA	NR	NA	NA	3.60E-07	EST	PP
Propazine	139402	344.1	EST	EPI	NR	NA	NA	NR	NA	NA	4.60E-09	EST	PP
Propionic acid (OO)	79094	1.44	EST	EPI	NR	NA	NA	NR	NA	NA	4.45E-07	EXP	EPI
Propyl alcohol (I,DD,OO)	71238	1.904	EST	EPI	NR	NA	NA	NR	NA	NA	7.41E-06	EXP	EPI
n-Propylbenzene (I,DD)	103651	813.1	EST	EPI	NR	NA	NA	NR	NA	NA	1.05E-02	EXP	EPI
Propylene glycol	57556	1	EST	EPI	NR	NA	NA	NR	NA	NA	1.29E-08	EST	PP
Pyrene	129000	5.434E+04	EST	EPI	NR	NA	NA	NR	NA	NA	1.19E-05	EXP	EPI
Pyridine (I,KK)	110861	71.72	EST	EPI	NR	NA	NA	NR	NA	NA	1.10E-05	EXP	EPI
Selenium (B,KK)	7782492	NR	NA	NA	NR	NA	NA	5.0E+00	EST	SSG	9.74E-03	EST	PP
Silver (KK)	7440224	NR	NA	NA	NR	NA	NA	8.3E+00	EST	SSG	NR	NA	NA
Silvex (2,4,5-TP) (KK)	93721	175.3	EST	EPI	NR	NA	NA	NR	NA	NA	9.06E-09	EST	PP
Simazine	122349	146.5	EST	EPI	NR	NA	NA	NR	NA	NA	9.42E-10	EST	PP
Sodium	17341252	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds	Koc Basis	Koc Source	Soil Koc for Ionizing Organic Compounds at pH=6.8	Ion Koc Basis	Ion Koc Source	Soil-Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Kd Basis	Kd Source	Henry's Law Constant at 25ºC	HLC Basis	HLC Source
		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
Sodium azide	26628228	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Sodium bromide	7647156	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Strontium (B,DD)	7440246	NR	NA	NA	NR	NA	NA	NA	NA	NA	NR	NA	NA
Styrene	100425	446.1	EST	EPI	NR	NA	NA	NR	NA	NA	2.75E-03	EXP	EPI
Sulfate	14808798	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Tebuthiuron (DD)	34014181	42.35	EST	EPI	NR	NA	NA	NR	NA	NA	1.20E-10	EXP	EPI
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	1.129E+05	EST	EPI	NR	NA	NA	NR	NA	NA	2.95E-07	EST	PP
1,2,4,5-Tetrachlorobenzene (DD)	95943	2220	EST	EPI	NR	NA	NA	NR	NA	NA	1.00E-03	EXP	EPI
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O,DD)	1746016	2.491E+05	EST	EPI	NR	NA	NA	NR	NA	NA	5.00E-05	EST	PP
1,1,1,2-Tetrachloroethane	630206	86.03	EST	EPI	NR	NA	NA	NR	NA	NA	2.50E-03	EXP	EPI
1,1,2,2-Tetrachloroethane	79345	94.94	EST	EPI	NR	NA	NA	NR	NA	NA	3.67E-04	EXP	EPI
Tetrachloroethylene (KK)	127184	94.94	EST	EPI	NR	NA	NA	NR	NA	NA	1.77E-02	EXP	EPI
Tetrahydrofuran (DD)	109999	10.75	EST	EPI	NR	NA	NA	NR	NA	NA	7.05E-05	EXP	EPI
1,1,3,3-Tetramethylurea (OO)	632224	3.958	EST	EPI	NR	NA	NA	NR	NA	NA	8.48E-09	EST	PP
Tetranitromethane	509148	428.3	EST	EPI	NR	NA	NA	NR	NA	NA	2.40E-04	EST	PP
Thallium	7440280	NR	NA	NA	NR	NA	NA	7.1E+01	EST	SSG	2.45E-02	EST	PP
Toluene (I)	108883	233.9	EST	EPI	NR	NA	NA	NR	NA	NA	6.64E-03	EXP	EPI
p-Toluidine	106490	112.7	EST	EPI	NR	NA	NA	NR	NA	NA	2.02E-06	EXP	EPI
Total dissolved solids (TDS)	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Toxaphene (KK)	8001352	2.57E+05	EST	SSG	NR	NA	NA	NR	NA	NA	6.00E-06	EXP	PP
Triallate (DD)	2303175	1008	EST	EPI	NR	NA	NA	NR	NA	NA	1.20E-05	EST	PP
Tributylamine	102829	1861	EST	EPI	NR	NA	NA	NR	NA	NA	1.60E-04	EST	PP
1,2,3-Trichlorobenzene	87616	1383	EST	EPI	NR	NA	NA	NR	NA	NA	1.25E-03	EXP	EPI
1,2,4-Trichlorobenzene	120821	1356	EST	EPI	NR	NA	NA	NR	NA	NA	1.42E-03	EXP	EPI
1,1,1-Trichloroethane	71556	43.89	EST	EPI	NR	NA	NA	NR	NA	NA	1.72E-02	EXP	EPI
1,1,2-Trichloroethane	79005	60.7	EST	EPI	NR	NA	NA	NR	NA	NA	8.24E-04	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

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		Koc			IonKoc			Kd			HLC		
		L/kg			L/kg			L/kg			atm-m^3/mol		
Trichloroethylene (DD,KK,MM,NN)	79016	60.7	EST	EPI	NR	NA	NA	NR	NA	NA	9.85E-03	EXP	EPI
Trichlorofluoromethane	75694	43.89	EST	EPI	NR	NA	NA	NR	NA	NA	9.70E-02	EXP	EPI
2,4,5-Trichlorophenol (KK)	95954	1777	EST	EPI	2365	EST	SSG	NR	NA	NA	4.33E-06	EXP	SSG
2,4,6-Trichlorophenol (DD,KK)	88062	1777	EST	EPI	1040	EST	SSG	NR	NA	NA	7.79E-06	EXP	SSG
1,2,3-Trichloropropane (MM)	96184	115.8	EST	EPI	NR	NA	NA	NR	NA	NA	3.43E-04	EXP	EPI
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	196.8	EST	EPI	NR	NA	NA	NR	NA	NA	3.16E-01	EXP	CRC
Triethanolamine	102716	10	EST	EPI	NR	NA	NA	NR	NA	NA	7.05E-13	EST	PP
Triethylene glycol (DD)	112276	10	EST	EPI	NR	NA	NA	NR	NA	NA	3.16E-11	EST	PP
3-Trifluoromethyl-4-nitrophenol (DD)	88302	2038	EST	EPI	NR	NA	NA	NR	NA	NA	1.92E-08	EST	PP
Trifluralin	1582098	1.639E+04	EST	EPI	NR	NA	NA	NR	NA	NA	1.03E-04	EXP	EPI
2,2,4-Trimethyl pentane	540841	240.3	EST	EPI	NR	NA	NA	NR	NA	NA	3.03E+00	EXP	CRC
2,4,4-Trimethyl-2-pentene (I)	107404	240.3	EST	EPI	NR	NA	NA	NR	NA	NA	8.81E-01	EST	PP
1,2,3-Trimethylbenzene (I)	526738	626.9	EST	EPI	NR	NA	NA	NR	NA	NA	4.36E-03	EXP	EPI
1,2,4-Trimethylbenzene (I)	95636	614.3	EST	EPI	NR	NA	NA	NR	NA	NA	6.16E-03	EXP	EPI
1,3,5-Trimethylbenzene (I)	108678	602.1	EST	EPI	NR	NA	NA	NR	NA	NA	8.77E-03	EXP	EPI
Triphenyl phosphate	115866	1.074E+04	EST	EPI	NR	NA	NA	NR	NA	NA	3.31E-06	EST	PP
tris(2,3-Dibromopropyl)phosphate	126727	9706	EST	EPI	NR	NA	NA	NR	NA	NA	2.18E-05	EST	PP
Urea	57136	3.154	EST	EPI	NR	NA	NA	NR	NA	NA	NR	NA	NA
Vanadium (B)	7440622	NR	NA	NA	NR	NA	NA	1.0E+03	EST	SSG	NR	NA	NA
Vinyl acetate (I,DD)	108054	5.583	EST	EPI	NR	NA	NA	NR	NA	NA	5.11E-04	EXP	SSG
Vinyl chloride (KK,LL,MM)	75014	21.73	EST	EPI	NR	NA	NA	NR	NA	NA	2.78E-02	EXP	EPI
Xylenes (I,J)	1330207	382.9	EST	EPI	NR	NA	NA	NR	NA	NA	6.63E-03	EXP	PP
Zinc (B)	7440666	NR	NA	NA	NR	NA	NA	6.2E+01	EST	SSG	NR	NA	NA

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Hazardous Substance	Chemical Abstract Service Number	Air Diffusivity	D_a Basis	D_a Source	Water Diffusivity	Dw Basis	Dw Source	Lower Explosive Limit in Air	LEL Basis	LEL Source	Flash Point	FP Basis	FP Source	Water Solubility	S Basis	S Source
		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
Acenaphthene	83329	5.06E-02	EST	W9	8.33E-06	EST	W9	NA	NA	NA	135	EXP	PC	3.90E+03	EXP	EPI
Acenaphthylene	208968	4.50E-02	EST	W9	6.98E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.61E+04	EXP	EPI
Acetaldehyde (I)	75070	1.28E-01	EST	W9	1.35E-05	EST	W9	0.04	EXP	CRC	-39	EXP	CRC	1.00E+09	EXP	EPI
Acetate	71501	1.25E-01	EST	W9	1.46E-05	EST	W9	NA	NA	NA	NA	NA	NA	1.00E+09	EXP	PC
Acetic acid (OO)	64197	1.17E-01	EST	W9	1.34E-05	EST	W9	0.04	EXP	CRC	39	EXP	CRC	1.00E+09	EXP	EPI
Acetone (I)	67641	1.06E-01	EST	W9	1.15E-05	EST	W9	0.025	EXP	CRC	-20	EXP	CRC	1.00E+09	EXP	EPI
Acetonitrile	75058	1.34E-01	EST	W9	1.41E-05	EST	W9	0.03	EXP	CRC	6	EXP	CRC	1.00E+09	EXP	EPI
Acetophenone (DD)	98862	6.52E-02	EST	W9	8.72E-06	EST	W9	NA	NA	NA	77	EXP	CRC	6.13E+06	EXP	EPI
Acrolein (I)	107028	1.12E-01	EST	W9	1.22E-05	EST	W9	0.028	EXP	CRC	-26	EXP	CRC	2.12E+08	EXP	EPI
Acrylamide (MM)	79061	1.07E-01	EST	W9	1.26E-05	EST	W9	NA	NA	NA	138	EXP	NPG	3.90E+08	EXP	EPI
Acrylic acid (DD,OO)	79107	1.03E-01	EST	W9	1.20E-05	EST	W9	0.024	EXP	CRC	50	EXP	CRC	1.00E+09	EXP	EPI
Acrylonitrile (I)	107131	1.14E-01	EST	W9	1.23E-05	EST	W9	0.03	EXP	CRC	0	EXP	CRC	7.45E+07	EXP	EPI
Alachlor	15972608	2.26E-02	EST	W9	5.69E-06	EST	W9	NA	NA	NA	137	EXP	PC	2.40E+05	EXP	EPI
Aldicarb	116063	3.19E-02	EST	W9	7.25E-06	EST	W9	NA	NA	NA	NA	NA	NA	6.03E+06	EXP	EPI
Aldicarb sulfone	1646884	5.18E-02	EST	W9	6.05E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.00E+07	EXP	EPI
Aldicarb sulfoxide	1646873	5.44E-02	EST	W9	6.36E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.80E+07	EXP	EPI
Aldrin	309002	2.28E-02	EST	W9	5.84E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.70E+01	EXP	EPI
Aluminum (B,DD)	7429905	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ammonia	7664417	2.87E-01	EST	W9	3.35E-05	EST	W9	0.15	EXP	PC	NA	NA	NA	4.82E+08	EXP	EPI
t-Amyl methyl ether (TAME)	994058	6.73E-02	EST	W9	8.06E-06	EST	W9	0.011	EXP	PC	-7	EXP	PC	1.07E+07	EXP	PP
Aniline	62533	8.30E-02	EST	W9	1.01E-05	EST	W9	0.013	EXP	CRC	70	EXP	CRC	3.60E+07	EXP	EPI
Anthracene	120127	3.90E-02	EST	W9	7.85E-06	EST	W9	0.006	EXP	CRC	121	EXP	CRC	4.34E+01	EXP	EPI
Antimony	7440360	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (B,KK)	7440382	NR	NA	NA	NR	NA	NA	0.051	EXP	PC	NA	NA	NA	NA	NA	NA
Asbestos (BB)	1332214	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	1912249	2.65E-02	EST	W9	6.84E-06	EST	W9	NA	NA	NA	NA	NA	NA	3.47E+04	EXP	EPI
Azobenzene	103333	3.59E-02	EST	W9	7.47E-06	EST	W9	NA	NA	NA	NA	NA	NA	6.40E+03	EXP	EPI
Barium (B,KK)	7440393	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Air Diffusivity	D_a Basis	D_a Source	Water Diffusivity	Dw Basis	Dw Source	Lower Explosive Limit in Air	LEL Basis	LEL Source	Flash Point	FP Basis	FP Source	Water Solubility	S Basis	S Source
		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
Benzene (I,KK)	71432	8.95E-02	EST	W9	1.03E-05	EST	W9	0.012	EXP	CRC	-11	EXP	CRC	1.79E+06	EXP	EPI
Benzidine (MM)	92875	3.55E-02	EST	W9	7.59E-06	EST	W9	NA	NA	NA	NA	NA	NA	3.22E+05	EXP	EPI
Benzo(a)anthracene (Q,MM)	56553	2.61E-02	EST	W9	6.75E-06	EST	W9	NA	NA	NA	NA	NA	NA	9.40E+00	EXP	EPI
Benzo(b)fluoranthene (Q,MM)	205992	4.76E-02	EST	W9	5.56E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.50E+00	EXP	EPI
Benzo(k)fluoranthene (Q,MM)	207089	4.76E-02	EST	W9	5.56E-06	EST	W9	NA	NA	NA	NA	NA	NA	8.00E-01	EXP	EPI
Benzo(g,h,i)perylene	191242	2.39E-02	EST	W9	6.09E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.60E-01	EXP	EPI
Benzo(a)pyrene (Q,DD,MM)	50328	2.55E-02	EST	W9	6.58E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.62E+00	EXP	EPI
Benzoic acid	65850	7.02E-02	EST	W9	9.79E-06	EST	W9	NA	NA	NA	121	EXP	CRC	3.40E+06	EXP	EPI
Benzyl alcohol	100516	7.31E-02	EST	W9	9.37E-06	EST	W9	NA	NA	NA	93	EXP	CRC	4.29E+07	EXP	EPI
Benzyl chloride	100447	6.34E-02	EST	W9	8.81E-06	EST	W9	0.011	EXP	CRC	67	EXP	CRC	5.25E+05	EXP	EPI
Beryllium (B)	7440417	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)ethane	112265	3.34E-02	EST	W9	7.32E-06	EST	W9	NA	NA	NA	121	EXP	CRC	1.89E+07	EXP	EPI
bis-2-Chloroethylether (I)	111444	5.67E-02	EST	W9	8.71E-06	EST	W9	0.027	EXP	CRC	55	EXP	CRC	1.72E+07	EXP	EPI
bis(2-Ethylhexyl) phthalate (DD)	117817	1.73E-02	EST	W9	4.18E-06	EST	W9	0.003	EXP	PC	218	EXP	CRC	2.70E+02	EXP	EPI
Boron (DD)	7440428	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromate	15541454	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene (I)	108861	5.37E-02	EST	W9	9.30E-06	EST	W9	0.06	EXP	PC	51	EXP	CRC	4.46E+05	EXP	EPI
Bromodichloromethane (DD)	75274	5.63E-02	EST	W9	1.07E-05	EST	W9	NA	NA	NA	NA	NA	NA	3.03E+06	EXP	EPI
Bromoform	75252	3.57E-02	EST	W9	1.04E-05	EST	W9	NA	NA	NA	83	EXP	CRC	3.10E+06	EXP	EPI
Bromomethane	74839	1.00E-01	EST	W9	1.35E-05	EST	W9	0.1	EXP	CRC	194	EXP	PC	1.52E+07	EXP	EPI
n-Butanol (I,OO)	71363	9.00E-02	EST	W9	1.01E-05	EST	W9	0.014	EXP	CRC	37	EXP	CRC	6.30E+07	EXP	EPI
2-Butanone (MEK) (I,DD,KK)	78933	9.14E-02	EST	W9	1.02E-05	EST	W9	0.014	EXP	CRC	-9	EXP	CRC	2.23E+08	EXP	EPI
n-Butyl acetate	123864	6.32E-02	EST	W9	8.12E-06	EST	W9	0.017	EXP	CRC	22	EXP	CRC	8.40E+06	EXP	EPI
t-Butyl alcohol (OO)	75650	8.90E-02	EST	W9	9.94E-06	EST	W9	0.024	EXP	CRC	11	EXP	CRC	1.00E+09	EXP	EPI
Butyl benzyl phthalate (DD)	85687	2.08E-02	EST	W9	5.17E-06	EST	W9	NA	NA	NA	199	EXP	PC	2.69E+03	EXP	EPI
n-Butylbenzene	104518	5.28E-02	EST	W9	7.33E-06	EST	W9	0.008	EXP	CRC	71	EXP	CRC	1.18E+04	EXP	EPI
sec-Butylbenzene	135988	5.27E-02	EST	W9	7.32E-06	EST	W9	0.008	EXP	CRC	52	EXP	CRC	1.76E+04	EXP	EPI
t-Butylbenzene (I)	98066	5.30E-02	EST	W9	7.37E-06	EST	W9	0.007	EXP	CRC	60	EXP	CRC	2.95E+04	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

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Hazardous Substance	Chemical Abstract Service Number	Air Diffusivity	D_a Basis	D_a Source	Water Diffusivity	Dw Basis	Dw Source	Lower Explosive Limit in Air	LEL Basis	LEL Source	Flash Point	FP Basis	FP Source	Water Solubility	S Basis	S Source
		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
Cadmium (B,KK)	7440439	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Camphene (I)	79925	7.18E-02	EST	W9	8.38E-06	EST	W9	NA	NA	NA	33	EXP	PC	4.60E+03	EXP	EPI
Caprolactam (DD)	105602	6.89E-02	EST	W9	8.95E-06	EST	W9	0.014	EXP	NPG	125	EXP	CRC	7.72E+08	EXP	EPI
Carbaryl (DD)	63252	2.74E-02	EST	W9	7.12E-06	EST	W9	NA	NA	NA	193	EXP	PC	1.10E+05	EXP	EPI
Carbazole	86748	4.50E-02	EST	W9	8.22E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.80E+03	EXP	EPI
Carbofuran (DD)	1563662	2.56E-02	EST	W9	6.57E-06	EST	W9	NA	NA	NA	NA	NA	NA	3.20E+05	EXP	EPI
Carbon disulfide (I,R,DD)	75150	1.06E-01	EST	W9	1.30E-05	EST	W9	0.013	EXP	CRC	-30	EXP	CRC	2.16E+06	EXP	EPI
Carbon tetrachloride (KK)	56235	5.71E-02	EST	W9	9.78E-06	EST	W9	NA	NA	NA	NA	NA	NA	7.93E+05	EXP	EPI
Chlordane (J,KK)	57749	2.15E-02	EST	W9	5.45E-06	EST	W9	NA	NA	NA	55.6	EXP	PC	5.60E+01	EXP	EPI
Chloride	16887006	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloroaniline	95512	6.55E-02	EST	W9	9.29E-06	EST	W9	NA	NA	NA	39.4	EXP	NPG	8.16E+06	EXP	EPI
4-Chloroaniline	106478	7.04E-02	EST	W9	1.03E-05	EST	W9	NA	NA	NA	104	EXP	NPG	3.90E+06	EXP	EPI
Chlorobenzene (I,KK)	108907	7.21E-02	EST	W9	9.48E-06	EST	W9	0.013	EXP	CRC	28	EXP	CRC	4.98E+05	EXP	EPI
p-Chlorobenzene sulfonic acid	98668	5.70E-02	EST	W9	6.66E-06	EST	W9	NA	NA	NA	NA	NA	NA	3.06E+08	EST	PP
1-Chloro-1,1-difluoroethane	75683	8.04E-02	EST	W9	1.01E-05	EST	W9	0.06	EXP	CRC	NA	NA	NA	1.40E+06	EXP	EPI
Chloroethane (DD)	75003	1.05E-01	EST	W9	1.18E-05	EST	W9	0.038	EXP	CRC	-50	EXP	CRC	6.71E+06	EXP	EPI
2-Chloroethyl vinyl ether	110758	7.44E-02	EST	W9	9.49E-06	EST	W9	NA	NA	NA	27	EXP	CRC	4.29E+05	EXP	EPI
Chloroform (KK)	67663	7.69E-02	EST	W9	1.09E-05	EST	W9	NA	NA	NA	NA	NA	NA	7.95E+06	EXP	EPI
Chloromethane (I)	74873	1.24E-01	EST	W9	1.36E-05	EST	W9	0.081	EXP	CRC	NA	NA	NA	5.32E+06	EXP	EPI
4-Chloro-3-methylphenol (DD)	59507	4.96E-02	EST	W9	7.27E-06	EST	W9	NA	NA	NA	118	EXP	PC	3.83E+06	EXP	EPI
beta-Chloronaphthalene	91587	6.38E-02	EST	W9	7.45E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.17E+04	EXP	EPI
2-Chlorophenol (DD)	95578	6.61E-02	EST	W9	9.48E-06	EST	W9	NA	NA	NA	64	EXP	CRC	1.13E+07	EXP	EPI
o-Chlorotoluene (I)	95498	6.29E-02	EST	W9	8.72E-06	EST	W9	0.01	EXP	PC	35.6	EXP	NPG	3.74E+05	EXP	EPI
Chlorpyrifos (DD)	2921882	2.21E-02	EST	W9	5.62E-06	EST	W9	NA	NA	NA	27.8	EXP	PC	1.12E+03	EXP	EPI
Chromium (III) (B,H,KK)	16065831	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (VI) (H,KK,MM)	18540299	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene (Q,MM)	218019	2.61E-02	EST	W9	6.75E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.00E+00	EXP	PP
Cobalt (B)	7440484	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
Copper (B)	7440508	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanazine	21725462	4.91E-02	EST	W9	5.74E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.70E+05	EXP	EPI
Cyanide (P,R,DD)	57125	2.16E-01	EST	W9	2.53E-05	EST	W9	0.06	EXP	CRC	NA	NA	NA	NA	NA	NA
Cyclohexane (DD)	110827	8.00E-02	EST	W9	9.11E-06	EST	W9	0.013	EXP	CRC	-20	EXP	CRC	5.50E+04	EXP	EPI
Cyclohexanone (OO)	108941	7.68E-02	EST	W9	9.38E-06	EST	W9	0.011	EXP	CRC	44	EXP	CRC	2.50E+07	EXP	EPI
Dacthal	1861321	3.96E-02	EST	W9	4.63E-06	EST	W9	NA	NA	NA	NA	NA	NA	5.00E+02	EXP	EPI
Dalapon	75990	6.03E-02	EST	W9	9.46E-06	EST	W9	NA	NA	NA	NA	NA	NA	5.02E+08	EXP	EPI
4-4'-DDD	72548	2.35E-02	EST	W9	6.02E-06	EST	W9	NA	NA	NA	NA	NA	NA	9.00E+01	EXP	EPI
4-4'-DDE	72559	4.08E-02	EST	W9	4.76E-06	EST	W9	NA	NA	NA	NA	NA	NA	4.00E+01	EXP	EPI
4-4'-DDT (DD)	50293	2.29E-02	EST	W9	5.85E-06	EST	W9	NA	NA	NA	72.2	EXP	NPG	5.50E+00	EXP	EPI
Decabromodiphenyl ether (DD)	1163195	1.89E-02	EST	W9	4.77E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.00E-01	EXP	EPI
Di-n-butyl phthalate (DD)	84742	2.14E-02	EST	W9	5.33E-06	EST	W9	0.005	EXP	CRC	157	EXP	CRC	1.12E+04	EXP	EPI
Di(2-ethylhexyl) adipate (DD)	103231	1.73E-02	EST	W9	4.16E-06	EST	W9	0.004	EXP	CRC	206	EXP	CRC	7.80E+02	EXP	EPI
Di-n-octyl phthalate	117840	1.73E-02	EST	W9	4.17E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.20E+01	EXP	EPI
Diacetone alcohol (I,OO)	123422	6.49E-02	EST	W9	8.43E-06	EST	W9	0.018	EXP	CRC	58	EXP	CRC	1.00E+09	EXP	EPI
Diazinon	333415	2.10E-02	EST	W9	5.23E-06	EST	W9	NA	NA	NA	82.8	EXP	NPG	4.00E+04	EXP	EPI
Dibenzo(a,h)anthracene (Q,MM)	53703	2.36E-02	EST	W9	6.02E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.49E+00	EXP	EPI
Dibenzofuran	132649	6.24E-02	EST	W9	7.29E-06	EST	W9	NA	NA	NA	NA	NA	NA	3.10E+03	EXP	EPI
Dibromochloromethane (MM)	124481	3.66E-02	EST	W9	1.06E-05	EST	W9	NA	NA	NA	NA	NA	NA	2.70E+06	EXP	EPI
Dibromochloropropane (MM)	96128	3.20E-02	EST	W9	8.87E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.23E+06	EXP	EPI
Dibromomethane	74953	5.51E-02	EST	W9	1.19E-05	EST	W9	NA	NA	NA	NA	NA	NA	1.19E+07	EXP	EPI
Dicamba (DD)	1918009	2.92E-02	EST	W9	7.80E-06	EST	W9	NA	NA	NA	NA	NA	NA	8.31E+06	EXP	EPI
1,2-Dichlorobenzene	95501	5.62E-02	EST	W9	8.92E-06	EST	W9	0.022	EXP	CRC	66	EXP	CRC	1.56E+05	EXP	EPI
1,3-Dichlorobenzene	541731	5.58E-02	EST	W9	8.85E-06	EST	W9	NA	NA	NA	72	EXP	CRC	1.25E+05	EXP	EPI
1,4-Dichlorobenzene (KK)	106467	5.50E-02	EST	W9	8.68E-06	EST	W9	0.025	EXP	NPG	66	EXP	CRC	8.13E+04	EXP	EPI
3,3`-Dichlorobenzidine	91941	4.75E-02	EST	W9	5.55E-06	EST	W9	NA	NA	NA	NA	NA	NA	3.10E+03	EXP	EPI
Dichlorodifluoromethane	75718	7.30E-02	EST	W9	1.02E-05	EST	W9	NA	NA	NA	NA	NA	NA	2.80E+05	EXP	EPI
1,1-Dichloroethane	75343	8.36E-02	EST	W9	1.06E-05	EST	W9	0.054	EXP	CRC	-17	EXP	CRC	5.04E+06	EXP	EPI

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		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
1,2-Dichloroethane (I,KK)	107062	8.57E-02	EST	W9	1.10E-05	EST	W9	0.062	EXP	CRC	13	EXP	CRC	8.60E+06	EXP	EPI
1,1-Dichloroethylene (I,KK)	75354	8.63E-02	EST	W9	1.10E-05	EST	W9	0.065	EXP	CRC	-28	EXP	CRC	2.42E+06	EXP	EPI
cis-1,2-Dichloroethylene	156592	8.84E-02	EST	W9	1.13E-05	EST	W9	0.03	EXP	CRC	6	EXP	CRC	6.41E+06	EXP	EPI
trans-1,2-Dichloroethylene	156605	8.76E-02	EST	W9	1.12E-05	EST	W9	0.06	EXP	CRC	2	EXP	CRC	4.52E+06	EXP	PP
2,6-Dichloro-4-nitroaniline	99309	1.30E-02	EST	W9	2.88E-06	EST	W9	NA	NA	NA	NA	NA	NA	7.00E+03	EXP	EPI
2,4-Dichlorophenol (DD)	120832	4.88E-02	EST	W9	8.74E-06	EST	W9	NA	NA	NA	114	EXP	CRC	5.55E+06	EXP	EPI
2,4-Dichlorophenoxyacetic acid (KK)	94757	2.79E-02	EST	W9	7.34E-06	EST	W9	NA	NA	NA	NA	NA	NA	6.77E+05	EXP	EPI
1,2-Dichloropropane (I)	78875	7.33E-02	EST	W9	9.71E-06	EST	W9	0.034	EXP	CRC	21	EXP	CRC	2.80E+06	EXP	EPI
1,3-Dichloropropene (J)	542756	7.65E-02	EST	W9	1.02E-05	EST	W9	0.053	EXP	NPG	25	EXP	NPG	2.80E+06	EXP	EPI
Dichlorvos (MM)	62737	2.79E-02	EST	W9	7.33E-06	EST	W9	NA	NA	NA	NA	NA	NA	8.00E+06	EXP	EPI
Dicyclohexyl phthalate	84617	2.24E-02	EST	W9	5.68E-06	EST	W9	NA	NA	NA	185	EXP	PC	4.00E+03	EXP	EPI
Dieldrin	60571	2.33E-02	EST	W9	6.01E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.95E+02	EXP	EPI
Diethyl ether	60297	8.52E-02	EST	W9	9.36E-06	EST	W9	0.019	EXP	CRC	-45	EXP	CRC	6.00E+07	EXP	EPI
Diethyl phthalate	84662	2.49E-02	EST	W9	6.35E-06	EST	W9	0.007	EXP	CRC	161	EXP	CRC	1.08E+06	EXP	EPI
Diethylene glycol monobutyl ether	112345	4.14E-02	EST	W9	6.97E-06	EST	W9	0.008	EXP	PC	78	EXP	PC	1.00E+09	EXP	EPI
Diisopropyl ether (DD)	108203	6.54E-02	EST	W9	7.76E-06	EST	W9	0.014	EXP	CRC	-28	EXP	CRC	8.80E+06	EXP	EPI
Diisopropylamine (I)	108189	6.59E-02	EST	W9	7.78E-06	EST	W9	0.011	EXP	CRC	-1	EXP	CRC	1.10E+08	EXP	EPI
Dimethyl phthalate	131113	2.99E-02	EST	W9	7.14E-06	EST	W9	0.009	EXP	CRC	146	EXP	CRC	4.00E+06	EXP	EPI
N,N-Dimethylacetamide (OO)	127195	8.45E-02	EST	W9	1.00E-05	EST	W9	0.018	EXP	CRC	70	EXP	CRC	1.00E+09	EXP	EPI
N,N-Dimethylaniline	121697	6.25E-02	EST	W9	8.31E-06	EST	W9	NA	NA	NA	63	EXP	CRC	1.45E+06	EXP	EPI
Dimethylformamide (I,OO)	68122	9.72E-02	EST	W9	1.12E-05	EST	W9	0.022	EXP	CRC	58	EXP	CRC	1.00E+09	EXP	EPI
2,4-Dimethylphenol	105679	6.22E-02	EST	W9	8.31E-06	EST	W9	0.011	EXP	PC	112	EXP	PC	7.87E+06	EXP	EPI
2,6-Dimethylphenol	576261	6.35E-02	EST	W9	8.54E-06	EST	W9	NA	NA	NA	73	EXP	PC	6.05E+06	EXP	EPI
3,4-Dimethylphenol	95658	6.28E-02	EST	W9	8.41E-06	EST	W9	NA	NA	NA	NA	NA	NA	4.76E+06	EXP	EPI
Dimethylsulfoxide	67685	9.86E-02	EST	W9	1.18E-05	EST	W9	0.026	EXP	CRC	95	EXP	CRC	1.00E+09	EXP	EPI
2,4-Dinitrophenol	51285	4.07E-02	EST	W9	9.08E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.79E+06	EXP	EPI
2,4-Dinitrotoluene (KK)	121142	3.82E-02	EST	W9	8.11E-06	EST	W9	NA	NA	NA	207	EXP	CRC	2.00E+05	EXP	EPI
Dinoseb (DD)	88857	4.92E-02	EST	W9	5.74E-06	EST	W9	NA	NA	NA	15.6	EXP	PC	5.20E+04	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Air Diffusivity	D_a Basis	D_a Source	Water Diffusivity	Dw Basis	Dw Source	Lower Explosive Limit in Air	LEL Basis	LEL Source	Flash Point	FP Basis	FP Source	Water Solubility	S Basis	S Source
		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
1,4-Dioxane (I,OO)	123911	8.74E-02	EST	W9	1.05E-05	EST	W9	0.02	EXP	CRC	12	EXP	CRC	1.00E+09	EXP	EPI
Diquat	85007	2.08E-02	EST	W9	5.19E-06	EST	W9	NA	NA	NA	NA	NA	NA	7.08E+08	EXP	PP
Dissolved oxygen (DO)	NA	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diuron	330541	2.77E-02	EST	W9	7.29E-06	EST	W9	NA	NA	NA	NA	NA	NA	4.20E+04	EXP	EPI
Endosulfan (J)	115297	2.25E-02	EST	W9	5.76E-06	EST	W9	NA	NA	NA	NA	NA	NA	3.25E+02	EXP	EPI
Endothall	145733	3.67E-02	EST	W9	8.18E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.00E+08	EXP	EPI
Endrin (KK)	72208	2.30E-02	EST	W9	5.90E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.50E+02	EXP	PP
Epichlorohydrin (I)	106898	8.88E-02	EST	W9	1.11E-05	EST	W9	0.038	EXP	CRC	31	EXP	CRC	6.59E+07	EXP	EPI
Ethanol (I,DD,OO)	64175	1.24E-01	EST	W9	1.32E-05	EST	W9	0.033	EXP	CRC	13	EXP	CRC	1.00E+09	EXP	EPI
Ethyl acetate (I)	141786	8.23E-02	EST	W9	9.70E-06	EST	W9	0.02	EXP	CRC	-4	EXP	CRC	8.00E+07	EXP	EPI
Ethyl-tert-butyl ether (ETBE)	637923	6.61E-02	EST	W9	7.87E-06	EST	W9	0.0124	EXP	PC	-19	EXP	PC	1.20E+07	EXP	EPI
Ethylbenzene (I)	100414	6.85E-02	EST	W9	8.46E-06	EST	W9	0.008	EXP	CRC	21	EXP	CRC	1.69E+05	EXP	EPI
Ethylene dibromide	106934	4.30E-02	EST	W9	1.04E-05	EST	W9	NA	NA	NA	NA	NA	NA	3.91E+06	EXP	EPI
Ethylene glycol (DD)	107211	1.17E-01	EST	W9	1.36E-05	EST	W9	0.032	EXP	CRC	111	EXP	CRC	1.00E+09	EXP	EPI
Ethylene glycol monobutyl ether	111762	6.26E-02	EST	W9	8.14E-06	EST	W9	0.04	EXP	CRC	69	EXP	CRC	1.00E+09	EXP	EPI
Ethylenediaminetetraacetic acid (EDTA) (II)	60004	1.90E-02	EST	W9	4.60E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.00E+06	EXP	EPI
Fluoranthene	206440	5.51E-02	EST	W9	6.44E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.60E+02	EXP	EPI
Fluorene	86737	6.28E-02	EST	W9	7.34E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.69E+03	EXP	EPI
Fluorine (soluble fluoride) (DD)	7782414	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	1.69E+03	EXP	EPI
Formaldehyde (DD,MM,OO)	50000	2.07E-01	EST	W9	2.47E-05	EST	W9	0.07	EXP	CRC	85	EXP	CRC	4.00E+08	EXP	EPI
Formic acid (I,U,OO)	64186	1.48E-01	EST	W9	1.72E-05	EST	W9	0.18	EXP	CRC	50	EXP	CRC	1.00E+09	EXP	EPI
1-Formylpiperidine (DD)	2591868	6.91E-02	EST	W9	8.98E-06	EST	W9	NA	NA	NA	NA	NA	NA	9.58E+07	EST	PP
Gentian violet	548629	3.45E-02	EST	W9	4.04E-06	EST	W9	NA	NA	NA	NA	NA	NA	4.00E+06	EXP	EPI
Glyphosate (DD)	1071836	4.96E-02	EST	W9	9.63E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.05E+07	EXP	EPI
Heptachlor (DD,KK)	76448	2.29E-02	EST	W9	5.89E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.80E+02	EXP	PP
Heptachlor epoxide (KK)	1024573	3.56E-02	EST	W9	4.16E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.00E+02	EXP	EPI
n-Heptane	142825	6.49E-02	EST	W9	7.59E-06	EST	W9	0.0105	EXP	CRC	-4	EXP	CRC	3.40E+03	EXP	EPI
Hexabromobenzene	87821	2.83E-02	EST	W9	3.30E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.60E-01	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Air Diffusivity	D_a Basis	D_a Source	Water Diffusivity	Dw Basis	Dw Source	Lower Explosive Limit in Air	LEL Basis	LEL Source	Flash Point	FP Basis	FP Source	Water Solubility	S Basis	S Source
		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
Hexachlorobenzene (C-66) (KK)	118741	2.90E-02	EST	W9	7.85E-06	EST	W9	NA	NA	NA	242	EXP	PC	6.20E+00	EXP	EPI
Hexachlorobutadiene (C-46) (KK)	87683	2.67E-02	EST	W9	7.03E-06	EST	W9	NA	NA	NA	90	EXP	PC	3.20E+03	EXP	EPI
alpha-Hexachlorocyclohexane	319846	2.75E-02	EST	W9	7.35E-06	EST	W9	NA	NA	NA	65.6	EXP	PC	2.00E+03	EXP	PP
beta-Hexachlorocyclohexane	319857	2.77E-02	EST	W9	7.40E-06	EST	W9	NA	NA	NA	65.6	EXP	PC	2.40E+02	EXP	PP
Hexachlorocyclopentadiene (C-56)	77474	2.72E-02	EST	W9	7.22E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.80E+03	EXP	EPI
Hexachloroethane (KK)	67721	3.21E-02	EST	W9	8.89E-06	EST	W9	NA	NA	NA	NA	NA	NA	5.00E+04	EXP	EPI
n-Hexane	110543	7.31E-02	EST	W9	8.17E-06	EST	W9	0.011	EXP	CRC	-22	EXP	CRC	9.50E+03	EXP	EPI
2-Hexanone	591786	7.04E-02	EST	W9	8.44E-06	EST	W9	0.01	EXP	CRC	25	EXP	CRC	1.72E+07	EXP	EPI
Indeno(1,2,3-cd)pyrene (Q,MM)	193395	4.48E-02	EST	W9	5.23E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.90E-01	EXP	EPI
Iron (B)	7439896	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isobutyl alcohol (I,OO)	78831	8.97E-02	EST	W9	1.00E-05	EST	W9	0.017	EXP	CRC	28	EXP	CRC	8.50E+07	EXP	EPI
Isophorone (DD)	78591	5.25E-02	EST	W9	7.53E-06	EST	W9	0.008	EXP	CRC	84	EXP	CRC	1.20E+07	EXP	EPI
Isopropyl alcohol (I,DD,OO)	67630	1.03E-01	EST	W9	1.12E-05	EST	W9	0.02	EXP	CRC	12	EXP	CRC	1.00E+09	EXP	EPI
Isopropyl benzene	98828	6.03E-02	EST	W9	7.86E-06	EST	W9	0.009	EXP	CRC	36	EXP	CRC	6.13E+04	EXP	EPI
Lead (B,L,DD,KK)	7439921	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lindane (KK)	58899	2.75E-02	EST	W9	7.35E-06	EST	W9	NA	NA	NA	65.6	EXP	PC	7.30E+03	EXP	EPI
Lithium (B,DD)	7439932	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439954	NR	NA	NA	NR	NA	NA	NA	NA	NA	500	EXP	PC	NA	NA	NA
Manganese (B)	7439965	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury (Total) (Z,DD,KK)	Varies															
Mercury, elemental	7439976	7.09E-02	EST	W9	3.01E-05	EST	W9	NA	NA	NA	NA	NA	NA	6.00E+01	EXP	PP
Mercuric chloride	7487947	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	6.90E+07	EXP	EPI
Methyl mercury (DD)	22967926	5.28E-02	EST	W9	6.17E-06	EST	W9	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane (K)	74828	2.21E-01	EST	W9	2.01E-05	EST	W9	0.05	EXP	CRC	-188	EXP	NPG	2.20E+04	EXP	EPI
Methanol (DD,OO)	67561	1.58E-01	EST	W9	1.65E-05	EST	W9	0.06	EXP	CRC	11	EXP	CRC	1.00E+09	EXP	EPI
Methoxychlor (DD,KK)	72435	2.21E-02	EST	W9	5.59E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.00E+02	EXP	EPI
2-Methoxyethanol (I,DD,OO)	109864	9.52E-02	EST	W9	1.10E-05	EST	W9	0.018	EXP	CRC	39	EXP	CRC	1.00E+09	EXP	EPI
2-Methyl-4-chlorophenoxyacetic acid	94746	3.03E-02	EST	W9	8.24E-06	EST	W9	NA	NA	NA	NA	NA	NA	6.30E+05	EXP	EPI

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		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
2-Methyl-4,6-dinitrophenol	534521	3.19E-02	EST	W9	8.36E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.98E+05	EXP	EPI
N-Methyl-morpholine (I,OO)	109024	7.32E-02	EST	W9	8.96E-06	EST	W9	NA	NA	NA	24	EXP	CRC	1.00E+09	EXP	EPI
Methyl parathion	298000	2.50E-02	EST	W9	6.44E-06	EST	W9	NA	NA	NA	42	EXP	PC	3.77E+04	EXP	EPI
4-Methyl-2-pentanone (MIBK) (I,DD)	108101	6.98E-02	EST	W9	8.35E-06	EST	W9	0.012	EXP	CRC	18	EXP	CRC	1.90E+07	EXP	EPI
Methyl-tert-butyl ether (MTBE)	1634044	7.53E-02	EST	W9	8.59E-06	EST	W9	0.016	EXP	PC	-33	EXP	PC	5.10E+07	EXP	EPI
N-methylaniline	100618	7.21E-02	EST	W9	9.13E-06	EST	W9	NA	NA	NA	79.4	EXP	NPG	5.62E+06	EXP	EPI
Methylcyclopentane (I)	96377	7.88E-02	EST	W9	8.93E-06	EST	W9	0.01	EXP	CRC	-29	EXP	CRC	4.20E+04	EXP	EPI
4,4`-Methylene-bis-2-chloroaniline (MBOCA) (MM)	101144	2.55E-02	EST	W9	6.61E-06	EST	W9	NA	NA	NA	113	EXP	PC	1.39E+04	EXP	EPI
Methylene chloride (MM)	75092	9.99E-02	EST	W9	1.25E-05	EST	W9	0.13	EXP	CRC	NA	NA	NA	1.30E+07	EXP	EPI
2-Methylnaphthalene	91576	5.24E-02	EST	W9	7.78E-06	EST	W9	NA	NA	NA	97	EXP	PC	2.46E+04	EXP	EPI
Methylphenols (JJ,KK)	1319773															
2-Methylphenol (DD,KK)	95487	7.04E-02	EST	W9	9.39E-06	EST	W10	0.014	EXP	CRC	81	EXP	CRC	2.59E+07	EXP	EPI
3-Methylphenol (KK)	108394	7.08E-02	EST	W9	9.32E-06	EST	W11	0.011	EXP	CRC	86	EXP	CRC	2.27E+07	EXP	EPI
4-Methylphenol (KK)	106445	7.08E-02	EST	W9	9.32E-06	EST	W12	0.011	EXP	CRC	86	EXP	CRC	2.15E+07	EXP	EPI
Metolachlor	51218452	2.19E-02	EST	W9	5.48E-06	EST	W9	NA	NA	NA	93.3	EXP	PC	5.30E+05	EXP	EPI
Metribuzin	21087649	2.73E-02	EST	W9	7.13E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.05E+06	EXP	EPI
Mirex	2385855	2.85E-02	EST	W9	3.33E-06	EST	W9	NA	NA	NA	NA	NA	NA	8.50E+01	EXP	EPI
Molybdenum	7439987	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	91203	6.05E-02	EST	W9	8.38E-06	EST	W9	0.009	EXP	CRC	79	EXP	CRC	3.10E+04	EXP	EPI
Nickel (B)	7440020	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (N,DD)	14797558	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (N,DD)	14797650	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene (I,KK)	98953	6.81E-02	EST	W9	9.45E-06	EST	W9	0.018	EXP	CRC	88	EXP	CRC	2.09E+06	EXP	EPI
2-Nitrophenol	88755	6.43E-02	EST	W9	9.98E-06	EST	W9	NA	NA	NA	108	EXP	PC	2.50E+06	EXP	EPI
n-Nitroso-di-n-propylamine	621647	5.64E-02	EST	W9	7.76E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.30E+07	EXP	EPI
N-Nitrosodiphenylamine	86306	2.84E-02	EST	W9	7.19E-06	EST	W9	NA	NA	NA	NA	NA	NA	3.50E+04	EXP	EPI
Oxamyl	23135220	2.35E-02	EST	W9	5.87E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.80E+08	EXP	EPI
Oxo-hexyl acetate (OO)	88230357	4.83E-02	EST	W9	7.11E-06	EST	W9	NA	NA	NA	45	EXP	PC	NA	NA	NA

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		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
Pendimethalin (DD)	40487421	2.27E-02	EST	W9	5.72E-06	EST	W9	NA	NA	NA	33	EXP	PC	3.30E+02	EXP	EPI
Pentachlorobenzene	608935	2.94E-02	EST	W9	7.95E-06	EST	W9	NA	NA	NA	NA	NA	NA	8.31E+02	EXP	EPI
Pentachloronitrobenzene	82688	2.63E-02	EST	W9	6.92E-06	EST	W9	NA	NA	NA	NA	NA	NA	4.40E+02	EXP	EPI
Pentachlorophenol (KK)	87865	2.95E-02	EST	W9	8.01E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.40E+04	EXP	EPI
Pentane	109660	8.21E-02	EST	W9	8.80E-06	EST	W9	0.014	EXP	CRC	-40	EXP	CRC	3.80E+04	EXP	EPI
2-Pentene (I)	109682	8.49E-02	EST	W9	9.09E-06	EST	W9	NA	NA	NA	-20	EXP	PC	2.03E+05	EXP	EPI
Perchlorate (DD)	14797730	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid	335671	2.26E-02	EST	W9	5.79E-06	EST	W9	NA	NA	NA	NA	NA	NA	9.50E+06	EST	PP
Perfluorooctane sulfonic acid (DD)	1763231	3.02E-02	EST	W9	3.52E-06	EST	W9	NA	NA	NA	NA	NA	NA	3.10E+00	EST	PC
pH	NA	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	85018	3.75E-02	EST	W9	7.47E-06	EST	W9	NA	NA	NA	171	EXP	CRC	1.15E+03	EXP	EPI
Phenol (DD)	108952	8.40E-02	EST	W9	1.04E-05	EST	W9	0.018	EXP	CRC	79	EXP	CRC	8.28E+07	EXP	EPI
Phenytoin (DD)	57410	4.76E-02	EST	W9	5.56E-06	EST	W9	NA	NA	NA	NA	NA	NA	3.20E+04	EXP	EPI
Phosphorus, Total	Varies	NA	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus, White (R,DD)	7723140	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	3.30E+03	EXP	EPI
o-Phthalic acid	88993	4.99E-02	EST	W9	9.34E-06	EST	W9	NA	NA	NA	168	EXP	CRC	6.97E+06	EXP	EPI
Phthalic anhydride	85449	5.95E-02	EST	W9	9.77E-06	EST	W9	0.017	EXP	CRC	152	EXP	CRC	6.20E+06	EXP	EPI
Picloram	1918021	4.90E-02	EST	W9	5.73E-06	EST	W9	NA	NA	NA	NA	NA	NA	4.30E+05	EXP	EPI
Piperidine (OO)	110894	8.30E-02	EST	W9	9.64E-06	EST	W9	NA	NA	NA	16	EXP	CRC	1.00E+09	EXP	EPI
Polybrominated biphenyls (J,DD)	67774327	2.59E-02	EST	W9	3.03E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.10E+01	EXP	PC
Polychlorinated biphenyls (PCBs) (J,T,DD)	1336363	4.32E-02	EST	W9	5.04E-06	EST	W9	NA	NA	NA	NA	NA	NA	7.00E+02	EXP	EPI
Polychlorinated biphenyls (PCBs) congeners (O)	(O)															
Prometon	1610180	5.13E-02	EST	W9	6.00E-06	EST	W9	NA	NA	NA	NA	NA	NA	7.50E+05	EXP	EPI
Propachlor	1918167	2.68E-02	EST	W9	6.96E-06	EST	W9	NA	NA	NA	NA	NA	NA	5.80E+05	EXP	EPI
Propazine	139402	2.49E-02	EST	W9	6.36E-06	EST	W9	NA	NA	NA	NA	NA	NA	8.60E+03	EXP	EPI
Propionic acid (OO)	79094	9.81E-02	EST	W9	1.14E-05	EST	W9	0.029	EXP	CRC	52	EXP	CRC	1.00E+09	EXP	EPI
Propyl alcohol (I,DD,OO)	71238	1.04E-01	EST	W9	1.14E-05	EST	W9	0.022	EXP	CRC	23	EXP	CRC	1.00E+09	EXP	EPI
n-Propylbenzene (I,DD)	103651	6.02E-02	EST	W9	7.83E-06	EST	W9	0.008	EXP	CRC	30	EXP	CRC	5.22E+04	EXP	EPI

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Air Diffusivity	D_a Basis	D_a Source	Water Diffusivity	Dw Basis	Dw Source	Lower Explosive Limit in Air	LEL Basis	LEL Source	Flash Point	FP Basis	FP Source	Water Solubility	S Basis	S Source
		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
Propylene glycol	57556	9.81E-02	EST	W9	1.15E-05	EST	W9	0.026	EXP	CRC	99	EXP	CRC	1.00E+09	EXP	EPI
Pyrene	129000	2.78E-02	EST	W9	7.25E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.35E+02	EXP	EPI
Pyridine (I,KK)	110861	9.31E-02	EST	W9	1.09E-05	EST	W9	0.018	EXP	CRC	20	EXP	CRC	1.00E+09	EXP	EPI
Selenium (B,KK)	7782492	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver (KK)	7440224	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silvex (2,4,5-TP) (KK)	93721	2.34E-02	EST	W9	5.92E-06	EST	W9	NA	NA	NA	NA	NA	NA	7.10E+04	EXP	EPI
Simazine	122349	2.81E-02	EST	W9	7.37E-06	EST	W9	NA	NA	NA	NA	NA	NA	6.20E+03	EXP	EPI
Sodium	17341252	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium azide	26628228	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium bromide	7647156	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	9.46E+08	EXP	PC
Strontium (B,DD)	7440246	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100425	7.11E-02	EST	W9	8.78E-06	EST	W9	0.009	EXP	CRC	31	EXP	CRC	3.10E+05	EXP	EPI
Sulfate	14808798	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tebuthiuron (DD)	34014181	5.09E-02	EST	W9	5.94E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.50E+06	EXP	EPI
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	3.77E-02	EST	W9	3.53E-06	EST	W9	NA	NA	NA	NA	NA	NA	9.96E-03	EST	PP
1,2,4,5-Tetrachlorobenzene (DD)	95943	3.19E-02	EST	W9	8.75E-06	EST	W9	NA	NA	NA	155	EXP	CRC	5.95E+02	EXP	EPI
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O,DD)	1746016	2.57E-02	EST	W9	6.76E-06	EST	W9	NA	NA	NA	4	EXP	PC	2.00E-01	EXP	EPI
1,1,1,2-Tetrachloroethane	630206	4.82E-02	EST	W9	9.10E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.07E+06	EXP	EPI
1,1,2,2-Tetrachloroethane	79345	4.89E-02	EST	W9	9.29E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.83E+06	EXP	EPI
Tetrachloroethylene (KK)	127184	5.05E-02	EST	W9	9.46E-06	EST	W9	NA	NA	NA	NA	NA	NA	2.06E+05	EXP	EPI
Tetrahydrofuran (DD)	109999	9.54E-02	EST	W9	1.08E-05	EST	W9	0.02	EXP	CRC	-14	EXP	CRC	1.00E+09	EXP	EPI
1,1,3,3-Tetramethylurea (OO)	632224	6.59E-02	EST	W9	8.59E-06	EST	W9	NA	NA	NA	77	EXP	CRC	1.00E+09	EXP	EPI
Tetranitromethane	509148	3.35E-02	EST	W9	8.60E-06	EST	W9	NA	NA	NA	NA	NA	NA	9.00E+05	EXP	EPI
Thallium	7440280	NR	NA	NA	NR	NA	NA	NA	NA	NA	216	EXP	PC	NA	NA	NA
Toluene (I)	108883	7.78E-02	EST	W9	9.20E-06	EST	W9	0.011	EXP	CRC	4	EXP	CRC	5.26E+05	EXP	EPI
p-Toluidine	106490	7.12E-02	EST	W9	8.98E-06	EST	W9	0.011	EXP	PC	87	EXP	CRC	6.50E+06	EXP	EPI
Total dissolved solids (TDS)	NA	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene (KK)	8001352	3.42E-02	EST	W9	4.00E-06	EST	W9	NA	NA	NA	NA	NA	NA	5.50E+02	EXP	PP

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Air Diffusivity	D_a Basis	D_a Source	Water Diffusivity	Dw Basis	Dw Source	Lower Explosive Limit in Air	LEL Basis	LEL Source	Flash Point	FP Basis	FP Source	Water Solubility	S Basis	S Source
		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
Triallate (DD)	2303175	2.25E-02	EST	W9	5.67E-06	EST	W9	NA	NA	NA	90	EXP	PC	4.00E+03	EXP	EPI
Tributylamine	102829	2.80E-02	EST	W9	5.68E-06	EST	W9	0.014	EXP	PC	63	EXP	CRC	1.42E+05	EXP	EPI
1,2,3-Trichlorobenzene	87616	3.95E-02	EST	W9	8.38E-06	EST	W9	NA	NA	NA	112.7	EXP	NPG	1.80E+04	EXP	EPI
1,2,4-Trichlorobenzene	120821	3.96E-02	EST	W9	8.40E-06	EST	W9	0.025	EXP	CRC	105	EXP	CRC	4.90E+04	EXP	EPI
1,1,1-Trichloroethane	71556	6.48E-02	EST	W9	9.60E-06	EST	W9	0.08	EXP	CRC	NA	NA	NA	1.29E+06	EXP	EPI
1,1,2-Trichloroethane	79005	6.69E-02	EST	W9	1.00E-05	EST	W9	0.06	EXP	CRC	32	EXP	CRC	4.59E+06	EXP	EPI
Trichloroethylene (DD,KK,MM,NN)	79016	6.87E-02	EST	W9	1.02E-05	EST	W9	0.08	EXP	CRC	90	EXP	PC	1.28E+06	EXP	EPI
Trichlorofluoromethane	75694	6.54E-02	EST	W9	1.00E-05	EST	W9	NA	NA	NA	NA	NA	NA	1.10E+06	EXP	EPI
2,4,5-Trichlorophenol (KK)	95954	3.31E-02	EST	W9	8.69E-06	EST	W9	NA	NA	NA	133	EXP	PC	1.20E+06	EXP	EPI
2,4,6-Trichlorophenol (DD,KK)	88062	3.31E-02	EST	W9	8.68E-06	EST	W9	NA	NA	NA	99	EXP	PC	8.00E+05	EXP	EPI
1,2,3-Trichloropropane (MM)	96184	5.75E-02	EST	W9	9.24E-06	EST	W9	0.032	EXP	CRC	71	EXP	CRC	1.75E+06	EXP	EPI
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	3.76E-02	EST	W9	8.59E-06	EST	W9	NA	NA	NA	NA	NA	NA	1.70E+05	EXP	EPI
Triethanolamine	102716	5.14E-02	EST	W9	8.08E-06	EST	W9	0.01	EXP	CRC	179	EXP	CRC	1.00E+09	EXP	EPI
Triethylene glycol (DD)	112276	5.09E-02	EST	W9	8.06E-06	EST	W9	0.009	EXP	CRC	177	EXP	CRC	1.00E+09	EXP	EPI
3-Trifluoromethyl-4-nitrophenol (DD)	88302	5.43E-02	EST	W9	6.34E-06	EST	W9	NA	NA	NA	NA	NA	NA	5.00E+06	EXP	EPI
Trifluralin	1582098	2.15E-02	EST	W9	5.41E-06	EST	W9	NA	NA	NA	151	EXP	PC	1.84E+02	EXP	EPI
2,2,4-Trimethyl pentane	540841	5.74E-02	EST	W9	7.06E-06	EST	W9	0.011	EXP	PC	-12	EXP	CRC	2.44E+03	EXP	EPI
2,4,4-Trimethyl-2-pentene (I)	107404	5.98E-02	EST	W9	7.35E-06	EST	W9	NA	NA	NA	2	EXP	CRC	1.29E+04	EST	PP
1,2,3-Trimethylbenzene (I)	526738	6.13E-02	EST	W9	8.02E-06	EST	W9	0.008	EXP	CRC	44	EXP	CRC	7.52E+04	EXP	EPI
1,2,4-Trimethylbenzene (I)	95636	6.07E-02	EST	W9	7.92E-06	EST	W9	0.009	EXP	CRC	44	EXP	CRC	5.70E+04	EXP	EPI
1,3,5-Trimethylbenzene (I)	108678	6.02E-02	EST	W9	7.84E-06	EST	W9	0.01	EXP	CRC	50	EXP	CRC	4.82E+04	EXP	EPI
Triphenyl phosphate	115866	2.11E-02	EST	W9	5.27E-06	EST	W9	NA	NA	NA	220	EXP	CRC	1.90E+03	EXP	EPI
tris(2,3-Dibromopropyl)phosphate	126727	1.94E-02	EST	W9	4.88E-06	EST	W9	NA	NA	NA	112	EXP	PC	8.00E+03	EXP	EPI
Urea	57136	1.28E-01	EST	W9	1.54E-05	EST	W9	NA	NA	NA	NA	NA	NA	5.45E+08	EXP	EPI
Vanadium (B)	7440622	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl acetate (I,DD)	108054	8.49E-02	EST	W9	1.00E-05	EST	W9	0.026	EXP	CRC	-8	EXP	CRC	2.00E+07	EXP	EPI
Vinyl chloride (KK,LL,MM)	75014	1.07E-01	EST	W9	1.20E-05	EST	W9	0.036	EXP	CRC	-78	EXP	CRC	8.80E+06	EXP	EPI
Xylenes (I,J)	1330207	6.91E-02	EST	W9	8.56E-06	EST	W9	0.009	EXP	CRC	27	EXP	CRC	1.06E+05	EXP	PP

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Air Diffusivity	D_a Basis	D_a Source	Water Diffusivity	Dw Basis	Dw Source	Lower Explosive Limit in Air	LEL Basis	LEL Source	Flash Point	FP Basis	FP Source	Water Solubility	S Basis	S Source
		D_a			D_w			LEL			FP			S		
		cm^2/s			cm^2/s			unitless			°C			µg/L		
Zinc (B)	7440666	NR	NA	NA	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Hazardous Substance	Chemical Abstract Service Number	Density	Dens Basis	Dens Source	Vapor Pressure	VP Basis	VP Source	Critical Temperature	T_c Basis	T_c Source	Enthalpy of Vaporization	ΔH Basis	ΔH Source
		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
Acenaphthene	83329	1.222	EXP	CRC	2.15E-03	EXP	EPI	8.03E+02	EXP	EPA4	1.22E+04	EXP	EPA4
Acenaphthylene	208968	0.8987	EXP	CRC	6.68E-03	EXP	EPI	NA	NA	NA	NA	NA	NA
Acetaldehyde (I)	75070	0.7834	EXP	CRC	9.02E+02	EXP	EPI	466.00	EXP	EPA4	6.16E+03	EXP	EPA4
Acetate	71501	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetic acid (OO)	64197	1.0446	EXP	CRC	1.57E+01	EXP	EPI	593	EXP	CRC	5.66E+03	EXP	CRC
Acetone (I)	67641	0.7845	EXP	CRC	2.32E+02	EXP	EPI	508.10	EXP	EPA1	6.96E+03	EXP	EPA1
Acetonitrile	75058	0.7857	EXP	CRC	8.88E+01	EXP	EPI	545.50	EXP	EPA4	7.11E+03	EXP	EPA4
Acetophenone (DD)	98862	1.0281	EXP	CRC	3.97E-01	EXP	EPI	709.50	EXP	EPA4	1.17E+04	EXP	EPA4
Acrolein (I)	107028	0.84	EXP	CRC	2.74E+02	EXP	EPI	506.00	EXP	EPA4	6.73E+03	EXP	EPA4
Acrylamide (MM)	79061	1.13	EXP	PC	7.00E-03	EXP	EPI	NA	NA	NA	NA	NA	NA
Acrylic acid (DD,OO)	79107	1.0511	EXP	CRC	3.97E+00	EXP	EPI	615.15	EXP	HSDB	1.10E+04	EXP	HSDB
Acrylonitrile (I)	107131	0.8007	EXP	CRC	1.09E+02	EXP	EPI	519.00	EXP	EPA4	7.79E+03	EXP	EPA4
Alachlor	15972608	1.133	EXP	CRC	2.20E-05	EXP	PP	NA	NA	NA	NA	NA	NA
Aldicarb	116063	1.195	EXP	CRC	3.47E-05	EXP	EPI	NA	NA	NA	NA	NA	NA
Aldicarb sulfone	1646884	NA	NA	NA	9.00E-05	EXP	EPI	NA	NA	NA	NA	NA	NA
Aldicarb sulfoxide	1646873	NA	NA	NA	1.00E-04	EXP	EPI	NA	NA	NA	NA	NA	NA
Aldrin	309002	1.6	EXP	PC	1.20E-04	EXP	EPI	8.39E+02	EXP	EPA4	1.50E+04	EST	EPA4
Aluminum (B,DD)	7429905	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Ammonia	7664417	NA	NA	NA	7.51E+03	EXP	EPI	405.55	EXP	HSDB	5.58E+03	EXP	CRC
t-Amyl methyl ether (TAME)	994058	0.766	EXP	CRC	7.52E+01	EXP	EPI	536	EXP	CRC	NA	NA	NA
Aniline	62533	1.0217	EXP	CRC	6.67E-01	EXP	EPI	704	EXP	CRC	1.01E+04	EXP	CRC
Anthracene	120127	1.28	EXP	CRC	6.53E-06	EXP	EPI	873.00	EXP	EPA1	1.31E+04	EXP	EPA1
Antimony	7440360	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Arsenic (B,KK)	7440382	NR	NA	NA	NR	NA	NA	NR	NA	NA	NA	NA	NA
Asbestos (BB)	1332214	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Atrazine	1912249	1.23	EXP	PC	2.89E-07	EXP	EPI	NA	NA	NA	NA	NA	NA
Azobenzene	103333	1.203	EXP	PC	3.61E-04	EXP	EPI	NA	NA	NA	NA	NA	NA
Barium (B,KK)	7440393	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA

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Hazardous Substance	Chemical Abstract Service Number	Density	Dens Basis	Dens Source	Vapor Pressure	VP Basis	VP Source	Critical Temperature	T_c Basis	T_c Source	Enthalpy of Vaporization	ΔH Basis	ΔH Source
		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
Benzene (I,KK)	71432	0.8765	EXP	CRC	9.48E+01	EXP	EPI	562.16	EXP	EPA1	7.34E+03	EXP	EPA1
Benzidine (MM)	92875	1.25	EXP	PC	8.98E-07	EST	PP	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene (Q,MM)	56553	1.274	EXP	PC	2.10E-07	EXP	EPI	1004.79	EXP	EPA1	1.60E+04	EST	EPA1
Benzo(b)fluoranthene (Q,MM)	205992	NA	NA	NA	5.00E-07	EXP	EPI	9.69E+02	EXP	EPA4	1.70E+04	EST	EPA4
Benzo(k)fluoranthene (Q,MM)	207089	NA	NA	NA	9.65E-10	EXP	EPI	1019.70	EXP	EPA1	1.80E+04	EST	EPA1
Benzo(g,h,i)perylene	191242	1.3	EXP	PC	1.00E-10	EXP	EPI	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene (Q,DD,MM)	50328	1.351	EXP	PC	5.49E-09	EXP	EPI	969.27	EXP	EPA1	1.90E+04	EST	EPA1
Benzoic acid	65850	1.2659	EXP	CRC	7.00E-04	EXP	EPI	751.00	EXP	EPA1	1.21E+04	EXP	EPA1
Benzyl alcohol	100516	1.0419	EXP	CRC	9.40E-02	EXP	EPI	715	EXP	CRC	1.21E+04	EXP	CRC
Benzyl chloride	100447	1.1004	EXP	CRC	1.23E+00	EXP	EPI	685.00	EXP	EPA4	8.77E+03	EXP	EPA4
Beryllium (B)	7440417	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
bis(2-Chloroethoxy)ethane	112265	1.195	EXP	CRC	6.00E-02	EXP	EPI	NA	NA	NA	NA	NA	NA
bis-2-Chloroethylether (I)	111444	1.22	EXP	CRC	1.55E+00	EXP	EPI	6.60E+02	EXP	EPA4	1.08E+04	EXP	EPA4
bis(2-Ethylhexyl) phthalate (DD)	117817	0.981	EXP	CRC	1.42E-07	EXP	EPI	806.00	EXP	EPA1	1.60E+04	EXP	EPA1
Boron (DD)	7440428	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Bromate	15541454	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Bromobenzene (I)	108861	1.495	EXP	CRC	4.18E+00	EXP	EPI	670.15	EXP	HSDB	1.06E+04	EXP	HSDB
Bromodichloromethane (DD)	75274	1.98	EXP	CRC	5.00E+01	EXP	PP	5.86E+02	EXP	EPA4	7.80E+03	EST	EPA4
Bromoform	75252	2.8788	EXP	CRC	5.60E+00	EXP	PC	6.96E+02	EXP	EPA4	9.48E+03	EXP	EPA4
Bromomethane	74839	1.6755	EXP	CRC	1.62E+03	EXP	EPI	467.00	EXP	EPA4	5.71E+03	EXP	EPA4
n-Butanol (I,OO)	71363	0.8095	EXP	CRC	6.70E+00	EXP	EPI	563.05	EXP	EPA1	1.03E+04	EXP	EPA1
2-Butanone (MEK) (I,DD,KK)	78933	0.7999	EXP	CRC	9.06E+01	EXP	EPI	536.78	EXP	EPA4	7.48E+03	EXP	EPA4
n-Butyl acetate	123864	0.8825	EXP	CRC	1.15E+01	EXP	EPI	578	EXP	CRC	8.67E+03	EXP	CRC
t-Butyl alcohol (OO)	75650	0.7887	EXP	CRC	4.07E+01	EXP	EPI	NA	NA	NA	9.34E+03	EXP	HSDB
Butyl benzyl phthalate (DD)	85687	1.119	EXP	CRC	8.25E-06	EXP	EPI	839.68	EXP	EPA1	1.40E+04	EST	EPA1
n-Butylbenzene	104518	0.8601	EXP	CRC	1.06E+00	EXP	EPI	660.50	EXP	EPA4	9.29E+03	EXP	EPA4
sec-Butylbenzene	135988	0.858	EXP	PC	1.75E+00	EXP	EPI	679.00	EXP	EPA4	8.87E+04	EXP	EPA4
t-Butylbenzene (I)	98066	0.8665	EXP	CRC	2.20E+00	EXP	EPI	1220.00	EXP	EPA4	8.98E+03	EXP	EPA4
Cadmium (B,KK)	7440439	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Density	Dens Basis	Dens Source	Vapor Pressure	VP Basis	VP Source	Critical Temperature	T_c Basis	T_c Source	Enthalpy of Vaporization	ΔH Basis	ΔH Source
		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
Camphene (I)	79925	NA	NA	NA	2.51E+00	EXP	EPI	NA	NA	NA	NA	NA	NA
Caprolactam (DD)	105602	1.01	EXP	PC	1.90E-03	EXP	HSDB	NA	NA	NA	1.31E+04	EXP	HSDB
Carbaryl (DD)	63252	1.228	EXP	CRC	1.36E-06	EXP	EPI	NA	NA	NA	NA	NA	NA
Carbazole	86748	1.297	EXP	CRC	1.37E-06	EST	HSDB	899.00	EXP	EPA1	1.40E+04	EXP	EPA1
Carbofuran (DD)	1563662	1.18	EXP	CRC	4.85E-06	EXP	EPI	NA	NA	NA	NA	NA	NA
Carbon disulfide (I,R,DD)	75150	1.2632	EXP	CRC	3.59E+02	EXP	EPI	5.52E+02	EXP	EPA4	6.39E+03	EXP	EPA4
Carbon tetrachloride (KK)	56235	1.594	EXP	CRC	1.15E+02	EXP	EPI	556.60	EXP	EPA1	7.13E+03	EXP	EPA1
Chlordane (J,KK)	57749	1.6	EXP	CRC	9.75E-06	EXP	EPI	885.73	EXP	EPA1	1.40E+04	EST	EPA1
Chloride	16887006	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
2-Chloroaniline	95512	1.2114	EXP	PC	2.04E-01	EXP	EPI	NA	NA	NA	1.06E+04	EXP	CRC
4-Chloroaniline	106478	1.429	EXP	CRC	2.70E-02	EXP	EPI	754.00	EXP	EPA1	1.17E+04	EXP	EPA1
Chlorobenzene (I,KK)	108907	1.1058	EXP	CRC	1.20E+01	EXP	EPI	6.32E+02	EXP	EPA4	8.41E+03	EXP	EPA4
p-Chlorobenzene sulfonic acid	98668	NA	NA	NA	4.28E-06	EST	PP	NA	NA	NA	NA	NA	NA
1-Chloro-1,1-difluoroethane	75683	1.107	EXP	CRC	2.54E+03	EXP	EPI	410.31	EXP	CRC	5.36E+03	EXP	HSDB
Chloroethane (DD)	75003	0.918	EXP	PC	1.01E+03	EXP	EPI	460.40	EXP	EPA4	5.88E+03	EXP	EPA4
2-Chloroethyl vinyl ether	110758	1.0495	EXP	CRC	2.68E+01	EXP	EPI	NA	NA	NA	NA	NA	NA
Chloroform (KK)	67663	1.4788	EXP	CRC	1.97E+02	EXP	EPI	536.40	EXP	EPA1	6.99E+03	EXP	EPA1
Chloromethane (I)	74873	0.911	EXP	PC	4.30E+03	EXP	EPI	416.25	EXP	EPA4	5.11E+03	EXP	EPA4
4-Chloro-3-methylphenol (DD)	59507	0.9	EXP	PC	5.00E-02	EXP	EPI	NA	NA	NA	NA	NA	NA
beta-Chloronaphthalene	91587	NA	NA	NA	1.22E-02	EXT	EPI	NA	NA	NA	NA	NA	NA
2-Chlorophenol (DD)	95578	1.2634	EXP	CRC	2.53E+00	EXP	EPI	6.75E+02	EXP	EPA4	9.57E+03	EXP	EPA4
o-Chlorotoluene (I)	95498	1.0825	EXP	CRC	3.43E+00	EXP	EPI	654.25	EXP	HSDB	8.96E+03	EXP	CRC
Chlorpyrifos (DD)	2921882	1.44	EXP	PC	2.03E-05	EXP	EPI	NA	NA	NA	NA	NA	NA
Chromium (III) (B,H,KK)	16065831	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Chromium (VI) (H,KK,MM)	18540299	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Chrysene (Q,MM)	218019	1.274	EXP	CRC	6.23E-09	EXP	PP	9.79E+02	EXP	EPA4	1.65E+04	EXP	EPA4
Cobalt (B)	7440484	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Copper (B)	7440508	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Density	Dens Basis	Dens Source	Vapor Pressure	VP Basis	VP Source	Critical Temperature	T_c Basis	T_c Source	Enthalpy of Vaporization	ΔH Basis	ΔH Source
		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
Cyanazine	21725462	NA	NA	NA	1.38E-07	EXP	EPI	NA	NA	NA	NA	NA	NA
Cyanide (P,R,DD)	57125	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Cyclohexane (DD)	110827	0.7739	EXP	CRC	9.69E+01	EXP	EPI	553.4	EXP	CRC	7.16E+03	EXP	CRC
Cyclohexanone (OO)	108941	0.9478	EXP	CRC	4.33E+00	EXP	EPI	665	EXP	CRC	NA	NA	NA
Dacthal	1861321	NA	NA	NA	2.50E-06	EXP	EPI	NA	NA	NA	2.50E+04	EXP	HSDB
Dalapon	75990	1.4014	EXP	PC	1.51E-01	EXT	EPI	NA	NA	NA	NA	NA	NA
4-4'-DDD	72548	1.476	EXP	PC	1.35E-06	EXP	EPI	863.77	EXP	EPA1	1.70E+04	EST	EPA1
4-4'-DDE	72559	NA	NA	NA	6.00E-06	EXT	EPI	860.38	EXP	EPA1	1.50E+04	EST	EPA1
4-4'-DDT (DD)	50293	1.56	EXP	PC	1.60E-07	EXP	EPI	720.75	EXP	EPA1	2.20E+04	EST	EPA1
Decabromodiphenyl ether (DD)	1163195	3.0	EXP	PC	4.67E-12	EST	PP	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate (DD)	84742	1.0465	EXP	CRC	2.01E-05	EXP	EPI	798.67	EXP	EPA1	1.48E+04	EXP	EPA1
Di(2-ethylhexyl) adipate (DD)	103231	0.922	EXP	CRC	8.50E-07	EXP	EPI	845	EXP	HSDB	NA	NA	NA
Di-n-octyl phthalate	117840	0.978	EXP	PC	1.00E-07	EXP	EPI	862.22	EXP	EPA1	1.40E+04	EST	EPA1
Diacetone alcohol (I,OO)	123422	0.9387	EXP	CRC	1.71E+00	EXP	EPI	607	EXP	HSDB	1.17E+04	EXP	HSDB
Diazinon	333415	1.1088	EXP	CRC	9.01E-05	EXP	EPI	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene (Q,MM)	53703	1.282	EXP	PC	9.55E-10	EXT	EPI	990.41	EXP	EPA1	3.00E+04	EXP	EPA1
Dibenzofuran	132649	NA	NA	NA	2.48E-03	EXP	EPI	824.00	EXP	EPA4	6.64E+04	EXP	EPA4
Dibromochloromethane (MM)	124481	2.451	EXP	PC	5.54E+00	EST	PP	6.78E+02	EXP	EPA4	5.90E+03	EXP	EPA4
Dibromochloropropane (MM)	96128	2.08	EXP	PC	5.80E-01	EXP	EPI	NA	NA	NA	NA	NA	NA
Dibromomethane	74953	2.4969	EXP	CRC	4.44E+01	EXP	EPI	583.00	EXP	EPA4	7.87E+03	EXP	EPA4
Dicamba (DD)	1918009	1.57	EXP	CRC	1.25E-05	EXP	EPI	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	95501	1.3059	EXP	CRC	1.36E+00	EXP	EPI	7.05E+02	EXP	EPA4	9.70E+03	EXP	EPA4
1,3-Dichlorobenzene	541731	1.2884	EXP	CRC	2.15E+00	EXP	EPI	684.00	EXP	EPA4	9.23E+03	EXP	EPA4
1,4-Dichlorobenzene (KK)	106467	1.2475	EXP	PC	1.74E+00	EXP	EPI	6.85E+02	EXP	EPA4	9.27E+03	EXP	EPA4
3,3`-Dichlorobenzidine	91941	NA	NA	NA	2.56E-07	EST	PP	754.03	EXP	EPA1	2.00E+04	EST	EPA1
Dichlorodifluoromethane	75718	1.35	EXP	PC	4.85E+03	EXP	EPI	384.95	EXP	EPA4	9.42E+03	EXP	EPA4
1,1-Dichloroethane	75343	1.1757	EXP	CRC	2.27E+02	EXP	EPI	5.23E+02	EXP	EPA4	6.90E+03	EXP	EPA4
1,2-Dichloroethane (I,KK)	107062	1.2454	EXP	CRC	7.89E+01	EXP	EPI	5.61E+02	EXP	EPA4	7.64E+03	EXP	EPA4
1,1-Dichloroethylene (I,KK)	75354	1.213	EXP	CRC	6.00E+02	EXP	EPI	5.76E+02	EXP	EPA4	6.25E+03	EXP	EPA4

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Hazardous Substance	Chemical Abstract Service Number	Density	Dens Basis	Dens Source	Vapor Pressure	VP Basis	VP Source	Critical Temperature	T_c Basis	T_c Source	Enthalpy of Vaporization	ΔH Basis	ΔH Source
		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
cis-1,2-Dichloroethylene	156592	1.2837	EXP	CRC	2.00E+02	EXP	PP	5.44E+02	EXP	EPA4	7.19E+03	EXP	EPA4
trans-1,2-Dichloroethylene	156605	1.2565	EXP	CRC	3.31E+02	EXT	PP	5.17E+02	EXP	EPA4	6.72E+03	EXP	EPA4
2,6-Dichloro-4-nitroaniline	99309	0.28	EXP	PC	1.20E-06	EXP	EPI	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol (DD)	120832	1.4	EXP	PC	9.00E-02	EXP	EPI	708.17	EXP	EPA1	1.50E+04	EST	EPA1
2,4-Dichlorophenoxyacetic acid (KK)	94757	1.42	EXP	PC	8.25E-05	EXP	EPI	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane (I)	78875	1.156	EXP	CRC	5.33E+01	EXP	EPI	5.72E+02	EXP	EPA4	7.59E+03	EXP	EPA4
1,3-Dichloropropene (J)	542756	1.224	EXP	CRC	3.40E+01	EXP	EPI	5.87E+02	EXP	EPA4	7.90E+03	EST	EPA4
Dichlorvos (MM)	62737	1.415	EXP	CRC	1.58E-02	EXP	EPI	NA	NA	NA	NA	NA	NA
Dicyclohexyl phthalate	84617	1.383	EXP	CRC	8.69E-07	EXP	HSDB	NA	NA	NA	NA	NA	NA
Dieldrin	60571	1.75	EXP	CRC	5.89E-06	EXP	EPI	842.25	EXP	EPA1	1.70E+04	EST	EPA1
Diethyl ether	60297	0.7138	EXP	CRC	5.38E+02	EXP	EPI	466.8	EXP	CRC	6.34E+03	EXP	CRC
Diethyl phthalate	84662	1.120	EXP	PC	2.10E-03	EXP	EPI	757.00	EXP	EPA1	1.37E+04	EXP	EPA1
Diethylene glycol monobutyl ether	112345	0.9553	EXP	CRC	2.19E-02	EXP	EPI	692	EXP	CRC	NA	NA	NA
Diisopropyl ether (DD)	108203	0.7192	EXP	CRC	1.49E+02	EXP	EPI	500.2	EXP	CRC	6.96E+03	EXP	CRC
Diisopropylamine (I)	108189	0.7153	EXP	CRC	7.94E+01	EXP	EPI	523.1	EXP	CRC	7.27E+03	EXP	CRC
Dimethyl phthalate	131113	1.1905	EXP	CRC	3.08E-03	EXP	EPI	NA	NA	NA	1.81E+04	EXP	HSDB
N,N-Dimethylacetamide (OO)	127195	0.9372	EXP	CRC	2.00E+00	EXP	EPI	658.15	EXP	HSDB	1.04E+04	EXP	HSDB
N,N-Dimethylaniline	121697	0.9557	EXP	CRC	7.00E-01	EXP	EPI	687.7	EXP	CRC	NA	NA	NA
Dimethylformamide (I,OO)	68122	0.9445	EXP	CRC	3.87E+00	EXP	EPI	649.6	EXP	CRC	NA	NA	NA
2,4-Dimethylphenol	105679	0.965	EXP	CRC	1.02E-01	EXP	EPI	707.60	EXP	EPA1	1.13E+04	EXP	EPA1
2,6-Dimethylphenol	576261	1.01	EXP	PC	2.74E-01	EXP	HSDB	701	EXP	CRC	NA	NA	NA
3,4-Dimethylphenol	95658	0.983	EXP	CRC	3.56E-02	EXP	EPI	730	EXP	CRC	1.40E+04	EXP	HSDB
Dimethylsulfoxide	67685	1.101	EXP	CRC	6.10E-01	EXP	EPI	707	EXP	CRC	1.03E+04	EXP	CRC
2,4-Dinitrophenol	51285	1.683	EXP	CRC	3.90E-04	EXP	EPI	827.85	EXP	EPA1	2.50E+04	EXP	EPA1
2,4-Dinitrotoluene (KK)	121142	1.379	EXP	PC	1.47E-04	EXP	EPI	814.00	EXP	EPA1	1.35E+04	EXP	EPA1
Dinoseb (DD)	88857	NA	NA	NA	5.25E-05	EXP	PC	NA	NA	NA	NA	NA	NA
1,4-Dioxane (I,OO)	123911	1.0337	EXP	CRC	3.81E+01	EXP	EPI	587.3	EXP	CRC	8.16E+03	EXP	CRC
Diquat	85007	1.24	EXP	CRC	1.81E-06	EST	PP	NA	NA	NA	NA	NA	NA

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Hazardous Substance	Chemical Abstract Service Number	Density	Dens Basis	Dens Source	Vapor Pressure	VP Basis	VP Source	Critical Temperature	T_c Basis	T_c Source	Enthalpy of Vaporization	ΔH Basis	ΔH Source
		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
Dissolved oxygen (DO)	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Diuron	330541	1.48	EXP	PC	6.90E-08	EXP	EPI	NA	NA	NA	NA	NA	NA
Endosulfan (J)	115297	1.745	EXP	CRC	1.73E-07	EXP	EPI	9.43E+02	EXP	EPA4	1.40E+04	EST	EPA4
Endothall	145733	1.431	EXP	PC	1.57E-10	EXP	EPI	NA	NA	NA	NA	NA	NA
Endrin (KK)	72208	1.7	EXP	PC	3.00E-06	EXP	PP	986.20	EXP	EPA1	1.50E+04	EST	EPA1
Epichlorohydrin (I)	106898	1.1812	EXP	CRC	1.64E+01	EXP	EPI	NA	NA	NA	9.06E+03	EXP	HSDB
Ethanol (I,DD,OO)	64175	0.7893	EXP	CRC	5.93E+01	EXP	EPI	515	EXP	CRC	9.22E+03	EST	CRC
Ethyl acetate (I)	141786	0.9003	EXP	CRC	9.32E+01	EXP	EPI	523.30	EXP	EPA4	7.63E+03	EXP	EPA4
Ethyl-tert-butyl ether (ETBE)	637923	0.736	EXP	CRC	1.24E+02	EXP	EPI	NA	NA	NA	7.50E+03	EXP	HSDB
Ethylbenzene (I)	100414	0.8626	EXP	CRC	9.60E+00	EXP	EPI	6.17E+02	EXP	EPA4	8.50E+03	EXP	EPA4
Ethylene dibromide	106934	2.1683	EXP	CRC	1.12E+01	EXP	EPI	583.00	EXP	EPA4	8.31E+03	EXP	EPA4
Ethylene glycol (DD)	107211	1.1135	EXP	CRC	9.20E-02	EXP	EPI	719	EXP	CRC	1.21E+04	EXP	CRC
Ethylene glycol monobutyl ether	111762	0.9015	EXP	CRC	8.80E-01	EXP	EPI	633.9	EXP	CRC	NA	NA	NA
Ethylenediaminetetraacetic acid (EDTA) (II)	60004	0.86	EXP	PC	1.50E-12	EXT	EPI	NA	NA	NA	NA	NA	NA
Fluoranthene	206440	NA	NA	NA	9.22E-06	EXP	EPI	905.00	EXP	EPA1	1.38E+04	EXP	EPA1
Fluorene	86737	NA	NA	NA	6.00E-04	EXP	EPI	8.70E+02	EXP	EPA4	1.27E+04	EXP	EPA4
Fluorine (soluble fluoride) (DD)	7782414	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Formaldehyde (DD,MM,OO)	50000	1.46	EXP	PC	3.89E+03	EXP	EPI	410.35	EXP	HSDB	5.92E+03	EXP	HSDB
Formic acid (I,U,OO)	64186	1.22	EXP	CRC	4.26E+01	EXP	EPI	588	EXP	CRC	5.42E+03	EXP	CRC
1-Formylpiperidine (DD)	2591868	1.0158	EXP	CRC	1.15E-01	EST	PP	NA	NA	NA	NA	NA	NA
Gentian violet	548629	NA	NA	NA	1.93E-14	EST	PP	NA	NA	NA	NA	NA	NA
Glyphosate (DD)	1071836	1.705	EXP	PC	9.80E-08	EXP	EPI	NA	NA	NA	NA	NA	NA
Heptachlor (DD,KK)	76448	1.66	EXP	PC	4.00E-04	EXP	PP	8.46E+02	EXP	EPA4	1.30E+04	EST	EPA4
Heptachlor epoxide (KK)	1024573	NA	NA	NA	1.95E-05	EXP	EPI	848.76	EXP	EPA1	1.60E+04	EST	EPA1
n-Heptane	142825	0.6795	EXP	CRC	4.60E+01	EXP	EPI	540.1	EXP	CRC	7.59E+03	EXP	CRC
Hexabromobenzene	87821	NA	NA	NA	1.63E-08	EST	PP	NA	NA	NA	NA	NA	NA
Hexachlorobenzene (C-66) (KK)	118741	2.044	EXP	CRC	1.80E-05	EXP	EPI	8.25E+02	EXP	EPA4	1.44E+04	EXP	EPA4
Hexachlorobutadiene (C-46) (KK)	87683	1.556	EXP	CRC	2.20E-01	EXP	EPI	7.38E+02	EXP	EPA4	1.02E+04	EXP	EPA4
alpha-Hexachlorocyclohexane	319846	1.87	EXP	PC	3.50E-05	EXP	PC	8.39E+02	EXP	EPA4	1.50E+04	EXP	EPA4

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		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
beta-Hexachlorocyclohexane	319857	1.89	EXP	CRC	3.60E-07	EXP	PP	839.36	EXP	EPA1	1.90E+04	EST	EPA1
Hexachlorocyclopentadiene (C-56)	77474	1.7019	EXP	CRC	6.00E-02	EXP	EPI	7.46E+02	EXP	EPA4	1.09E+04	EXP	EPA4
Hexachloroethane (KK)	67721	2.091	EXP	CRC	2.10E-01	EXP	EPI	695.00	EXP	EPA1	9.51E+03	EXP	EPA1
n-Hexane	110543	0.6606	EXP	CRC	1.51E+02	EXP	EPI	508.00	EXP	EPA4	6.90E+03	EXP	EPA4
2-Hexanone	591786	0.8113	EXP	CRC	1.16E+01	EXP	EPI	586.7	EXP	CRC	8.69E+03	EXP	CRC
Indeno(1,2,3-cd)pyrene (Q,MM)	193395	NA	NA	NA	1.25E-10	EST	PP	1078.24	EXP	EPA1	1.90E+04	EST	EPA1
Iron (B)	7439896	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Isobutyl alcohol (I,OO)	78831	0.8018	EXP	CRC	1.05E+01	EXP	EPI	547.78	EXP	EPA4	1.09E+04	EXP	EPA4
Isophorone (DD)	78591	0.9255	EXP	CRC	4.38E-01	EXP	EPI	715.00	EXP	EPA1	1.03E+04	EXP	EPA1
Isopropyl alcohol (I,DD,OO)	67630	0.7809	EXP	CRC	4.54E+01	EXP	EPI	508.3	EXP	CRC	9.52E+03	EXP	CRC
Isopropyl benzene	98828	0.864	EXP	CRC	4.50E+00	EXP	EPI	631.10	EXP	EPA4	1.03E+04	EXP	EPA4
Lead (B,L,DD,KK)	7439921	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Lindane (KK)	58899	1.87	EXP	PC	4.20E-05	EXP	EPI	839.36	EXP	EPA1	1.50E+04	EST	EPA1
Lithium (B,DD)	7439932	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Magnesium	7439954	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Manganese (B)	7439965	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Mercury (Total) (Z,DD,KK)	Varies												
Mercury, elemental	7439976	13.534	EXP	PC	1.96E-03	EXP	PP	1.75E+03	EXP	EPA4	1.41E+04	EXP	EPA4
Mercuric chloride	7487947	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Methyl mercury (DD)	22967926	NR	NA	NA	NA	NA	NA	NR	NA	NA	NR	NA	NA
Methane (K)	74828	0.554	EXP	PC	4.66E+05	EXP	EPI	190.56	EXP	CRC	1.96E+03	EXP	CRC
Methanol (DD,OO)	67561	0.7914	EXP	CRC	1.27E+02	EXP	EPI	512.7	EXP	CRC	8.42E+03	EXP	CRC
Methoxychlor (DD,KK)	72435	1.41	EXP	CRC	2.58E-06	EST	PP	848.49	EXP	EPA1	1.60E+04	EST	EPA1
2-Methoxyethanol (I,DD,OO)	109864	0.9647	EXP	CRC	9.50E+00	EXP	EPI	598	EXP	CRC	1.08E+04	EXP	HSDB
2-Methyl-4-chlorophenoxyacetic acid	94746	1.56	EXP	PC	5.90E-06	EXP	EPI	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-dinitrophenol	534521	1.58	EXP	PC	1.20E-04	EXP	EPI	NA	NA	NA	NA	NA	NA
N-Methyl-morpholine (I,OO)	109024	0.9051	EXP	CRC	1.32E+01	EST	PP	NA	NA	NA	NA	NA	NA
Methyl parathion	298000	1.358	EXP	CRC	3.50E-06	EXP	EPI	NA	NA	NA	NA	NA	NA

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Density	Dens Basis	Dens Source	Vapor Pressure	VP Basis	VP Source	Critical Temperature	T_c Basis	T_c Source	Enthalpy of Vaporization	ΔH Basis	ΔH Source
		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
4-Methyl-2-pentanone (MIBK) (I,DD)	108101	0.7965	EXP	CRC	1.99E+01	EXP	EPI	571.00	EXP	EPA4	8.24E+03	EXP	EPA4
Methyl-tert-butyl ether (MTBE)	1634044	0.7353	EXP	CRC	2.50E+02	EXP	EPI	497.10	EXP	EPA4	6.68E+03	EXP	EPA4
N-methylaniline	100618	0.9891	EXP	CRC	4.53E-01	EXP	EPI	702	EXP	CRC	1.27E+04	EXP	HSDB
Methylcyclopentane (I)	96377	0.7486	EXP	CRC	1.38E+02	EXP	EPI	532.78	EXP	CRC	6.95E+03	EXP	CRC
4,4`-Methylene-bis-2- chloroaniline (MBOCA) (MM)	101144	1.44	EXP	PC	2.86E-07	EST	PP	NA	NA	NA	NA	NA	NA
Methylene chloride (MM)	75092	1.3266	EXP	CRC	4.35E+02	EXP	EPI	510	EXP	EPA4	6.71E+03	EXP	EPA4
2-Methylnaphthalene	91576	1.0058	EXP	CRC	5.50E-02	EXP	EPI	761.00	EXP	EPA4	1.26E+04	EXP	EPA4
Methylphenols (JJ,KK)	1319773												
2-Methylphenol (DD,KK)	95487	1.047	EXP	PC	3.10E-01	EXP	CRC	697.60	EXP	CRC	1.08E+01	EXP	CRC
3-Methylphenol (KK)	108394	1.0339	EXP	CRC	1.10E-01	EXP	EPI	705.80	EXP	CRC	1.14E+01	EXP	CRC
4-Methylphenol (KK)	106445	1.034	EXP	PC	1.10E-01	EXP	EPI	704.60	EXP	CRC	1.13E+01	EXP	CRC
Metolachlor	51218452	1.12	EXP	CRC	3.14E-05	EXP	EPI	NA	NA	NA	NA	NA	NA
Metribuzin	21087649	1.31	EXP	CRC	4.35E-07	EXP	EPI	NA	NA	NA	NA	NA	NA
Mirex	2385855	NA	NA	NA	8.00E-07	EXP	EPI	NA	NA	NA	NA	NA	NA
Molybdenum	7439987	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Naphthalene	91203	1.0253	EXP	CRC	8.50E-02	EXP	EPI	7.48E+02	EXP	EPA4	1.04E+04	EXP	EPA4
Nickel (B)	7440020	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Nitrate (N,DD)	14797558	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Nitrite (N,DD)	14797650	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Nitrobenzene (I,KK)	98953	1.2037	EXP	CRC	2.45E-01	EXP	EPI	719	EXP	EPA4	1.06E+04	EXP	EPA4
2-Nitrophenol	88755	1.49	EXP	PC	1.13E-01	EXP	EPI	NA	NA	NA	1.25E+04	EXP	HSDB
n-Nitroso-di-n-propylamine	621647	0.9163	EXP	CRC	8.60E-02	EST	PP	746.87	EXP	EPA1	6.10E+03	EST	EPA1
N-Nitrosodiphenylamine	86306	1.23	EXP	PC	1.00E-01	EST	PP	890.45	EXP	EPA1	7.30E+03	EST	EPA1
Oxamyl	23135220	0.97	EXP	CRC	2.30E-04	EXP	EPI	NA	NA	NA	NA	NA	NA
Oxo-hexyl acetate (OO)	88230357	0.8779	EXP	PC	1.32E+00	EXP	PC	NA	NA	NA	NA	NA	NA
Pendimethalin (DD)	40487421	1.19	EXP	CRC	1.46E-05	EXP	EPI	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	608935	1.8342	EXP	CRC	2.00E-03	EXP	PC	NA	NA	NA	1.51E+04	EXP	HSDB
Pentachloronitrobenzene	82688	1.718	EXP	CRC	5.00E-05	EXP	EPI	NA	NA	NA	NA	NA	NA
Pentachlorophenol (KK)	87865	1.978	EXP	CRC	1.10E-04	EXP	EPI	813.20	EXP	EPA1	1.61E+04	EXP	EPA1

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Density	Dens Basis	Dens Source	Vapor Pressure	VP Basis	VP Source	Critical Temperature	T_c Basis	T_c Source	Enthalpy of Vaporization	ΔH Basis	ΔH Source
		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
Pentane	109660	0.6262	EXP	CRC	5.14E+02	EXP	EPI	469.7	EXP	CRC	6.16E+03	EXP	CRC
2-Pentene (I)	109682	0.6431	EXP	PC	5.28E+02	EXP	EPI	NA	NA	NA	NA	NA	NA
Perchlorate (DD)	14797730	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Perfluorooctanoic acid	335671	1.792	EXP	HSDB	5.25E-01	EXP	EPI	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonic acid (DD)	1763231	NA	NA	NA	2.00E-03	EST	PC	NA	NA	NA	NA	NA	NA
pH	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Phenanthrene	85018	1.179	EXP	PC	1.21E-04	EXP	EPI	869	EXP	HSDB	NA	NA	NA
Phenol (DD)	108952	1.0722	EXP	PC	3.50E-01	EXP	EPI	694.20	EXP	EPA1	1.09E+04	EXP	EPA1
Phenytoin (DD)	57410	NA	NA	NA	1.20E-10	EST	PP	NA	NA	NA	NA	NA	NA
Phosphorus, Total	Varies	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus, White (R,DD)	7723140	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
o-Phthalic acid	88993	1.593	EXP	PC	6.36E-07	EXP	PC	800.00	EXP	HSDB	NA	NA	NA
Phthalic anhydride	85449	1.53	EXP	PC	5.17E-04	EXP	PC	NA	NA	NA	1.39E+04	EXP	HSDB
Picloram	1918021	NA	NA	NA	7.21E-11	EXP	EPI	NA	NA	NA	NA	NA	NA
Piperidine (OO)	110894	0.8606	EXP	CRC	3.21E+01	EXP	EPI	594.14	EXP	CRC	NA	NA	NA
Polybrominated biphenyls (J,DD)	67774327	NA	NA	NA	5.20E-08	EXP	PC	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyls (PCBs) (J,T,DD)	1336363	NA	NA	NA	4.94E-04	EST	PP	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyls (PCBs) congeners (O)	(O)												
Prometon	1610180	NA	NA	NA	2.30E-06	EXP	EPI	NA	NA	NA	NA	NA	NA
Propachlor	1918167	1.242	EXP	CRC	2.30E-04	EXP	EPI	NA	NA	NA	NA	NA	NA
Propazine	139402	1.162	EXP	CRC	1.31E-07	EXP	EPI	NA	NA	NA	NA	NA	NA
Propionic acid (OO)	79094	0.9882	EXP	CRC	3.53E+00	EXP	EPI	603	EXP	CRC	7.41E+03	EXP	HSDB
Propyl alcohol (I,DD,OO)	71238	0.7997	EXP	CRC	2.10E+01	EXP	EPI	536.8	EXP	CRC	9.90E+03	EXP	CRC
n-Propylbenzene (I,DD)	103651	0.8593	EXP	CRC	3.42E+00	EXP	EPI	630.00	EXP	EPA4	9.12E+03	EXP	EPA4
Propylene glycol	57556	1.0361	EXP	CRC	1.29E-01	EXP	EPI	NA	NA	NA	1.28E+04	EXP	HSDB
Pyrene	129000	1.271	EXP	CRC	4.50E-06	EXP	EPI	9.36E+02	EXP	EPA4	1.44E+04	EXP	EPA4
Pyridine (I,KK)	110861	0.9819	EXP	CRC	2.08E+01	EXP	EPI	619	EXP	CRC	8.39E+03	EXP	CRC
Selenium (B,KK)	7782492	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Density	Dens Basis	Dens Source	Vapor Pressure	VP Basis	VP Source	Critical Temperature	T_c Basis	T_c Source	Enthalpy of Vaporization	ΔH Basis	ΔH Source
		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
Silver (KK)	7440224	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Silvex (2,4,5-TP) (KK)	93721	1.2085	EXP	PC	9.97E-06	EST	PP	NA	NA	NA	NA	NA	NA
Simazine	122349	1.302	EXP	PC	2.21E-08	EXP	EPI	NA	NA	NA	NA	NA	NA
Sodium	17341252	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Sodium azide	26628228	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Sodium bromide	7647156	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Strontium (B,DD)	7440246	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Styrene	100425	0.9016	EXP	CRC	6.40E+00	EXP	EPI	6.36E+02	EXP	EPA4	8.74E+03	EXP	EPA4
Sulfate	14808798	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Tebuthiuron (DD)	34014181	NA	NA	NA	3.00E-07	EXP	EPI	NA	NA	NA	NA	NA	NA
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NA	NA	NA	4.80E-09	EXT	EPI	NA	NA	NA	NA	NA	NA
1,2,4,5-Tetrachlorobenzene (DD)	95943	1.858	EXP	CRC	5.40E-03	EXP	PC	762.95	EXP	HSDB	1.14E+04	EXP	HSDB
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O,DD)	1746016	1.8	EXP	PC	1.50E-09	EXP	EPI	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	630206	1.5406	EXP	CRC	1.20E+01	EXP	EPI	6.24E+02	EXP	EPA4	9.77E+03	EXP	EPA4
1,1,2,2-Tetrachloroethane	79345	1.5953	EXP	CRC	4.62E+00	EXP	EPI	6.61E+02	EXP	EPA4	9.00E+03	EXP	EPA4
Tetrachloroethylene (KK)	127184	1.623	EXP	CRC	1.85E+01	EXP	EPI	6.20E+02	EXP	EPA4	8.29E+03	EXP	EPA4
Tetrahydrofuran (DD)	109999	0.8833	EXP	CRC	1.62E+02	EXP	EPI	540	EXP	CRC	7.12E+03	EXP	CRC
1,1,3,3-Tetramethylurea (OO)	632224	0.9687	EXP	CRC	1.39E+01	EXP	EPI	NA	NA	NA	NA	NA	NA
Tetranitromethane	509148	1.638	EXP	CRC	8.42E+00	EXP	EPI	NA	NA	NA	9.74E+03	EXP	CRC
Thallium	7440280	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Toluene (I)	108883	0.8623	EXP	CRC	2.84E+01	EXP	EPI	5.92E+02	EXP	EPA4	7.93E+03	EXP	EPA4
p-Toluidine	106490	0.9619	EXP	CRC	2.86E-01	EXP	EPI	667	EXP	CRC	1.06E+04	EXP	CRC
Total dissolved solids (TDS)	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Toxaphene (KK)	8001352	NA	NA	NA	6.69E-06	EXP	PP	873.31	EXP	EPA1	1.50E+04	EST	EPA1
Triallate (DD)	2303175	1.273	EXP	CRC	1.20E-04	EXP	EPI	NA	NA	NA	NA	NA	NA
Tributylamine	102829	0.777	EXP	CRC	9.34E-02	EXP	EPI	638.35	EXP	HSDB	1.24E+04	EXP	HSDB
1,2,3-Trichlorobenzene	87616	1.4533	EXP	CRC	2.10E-01	EXP	EPI	762.65	EXP	HSDB	1.09E+04	EXP	HSDB
1,2,4-Trichlorobenzene	120821	1.459	EXP	CRC	4.60E-01	EXP	EPI	7.25E+02	EXP	EPA4	1.05E+04	EXP	EPA4
1,1,1-Trichloroethane	71556	1.339	EXP	CRC	1.24E+02	EXP	EPI	545.00	EXP	EPA1	7.14E+03	EXP	EPA1

TABLE 3. CHEMICAL-PHYSICAL DATA

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS/PART 213 RISK-BASED SCREENING LEVELS

Developed pursuant to R 299.50 of the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.20101 to 324.20142. Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The data set for each hazardous substance consists of 17 columns (excluding basis and source columns) across 4 pages. Review all 17 columns when evaluating data for a specific hazardous substance. Hazardous substance footnotes are defined in R 299.49. The data basis and sources are defined in R 299.50(6).

Hazardous Substance	Chemical Abstract Service Number	Density	Dens Basis	Dens Source	Vapor Pressure	VP Basis	VP Source	Critical Temperature	T_c Basis	T_c Source	Enthalpy of Vaporization	ΔH Basis	ΔH Source
		Dens			VP			T_c			ΔH		
		g/cm^3			(mmHg)			K			cal/mol		
1,1,2-Trichloroethane	79005	1.4397	EXP	CRC	2.30E+01	EXP	EPI	6.02E+02	EXP	EPA4	8.32E+03	EXP	EPA4
Trichloroethylene (DD,KK,MM,NN)	79016	1.4642	EXP	CRC	6.90E+01	EXP	EPI	5.44E+02	EXP	EPA4	7.51E+03	EXP	EPA4
Trichlorofluoromethane	75694	1.4879	EXP	CRC	8.03E+02	EXP	EPI	471.00	EXP	EPA4	6.00E+03	EXP	EPA4
2,4,5-Trichlorophenol (KK)	95954	1.678	EXP	PC	7.50E-03	EXP	PC	759.13	EXP	EPA1	1.10E+04	EST	EPA1
2,4,6-Trichlorophenol (DD,KK)	88062	1.675	EXP	PC	8.00E-03	EXP	PC	749.03	EXP	EPA1	1.20E+04	EST	EPA1
1,2,3-Trichloropropane (MM)	96184	1.3889	EXP	CRC	3.69E+00	EXP	EPI	652.00	EXP	EPA4	9.17E+03	EXP	EPA4
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	1.5635	EXP	CRC	3.63E+02	EXP	EPI	487.30	EXP	EPA4	6.46E+03	EXP	EPA4
Triethanolamine	102716	1.1242	EXP	CRC	3.59E-06	EXP	EPI	787.45	EXP	HSDB	1.61E+04	EXP	HSDB
Triethylene glycol (DD)	112276	1.1274	EXP	CRC	1.32E-03	EXP	EPI	775	EXP	CRC	1.71E+04	EXP	CRC
3-Trifluoromethyl-4-nitrophenol (DD)	88302	NA	NA	NA	1.33E-03	EST	PP	NA	NA	NA	NA	NA	NA
Trifluralin	1582098	1.294	EXP	PC	4.58E-05	EXP	EPI	NA	NA	NA	NA	NA	NA
2,2,4-Trimethyl pentane	540841	0.6878	EXP	CRC	4.93E+01	EXP	EPI	543.9	EXP	CRC	7.36E+03	EXP	CRC
2,4,4-Trimethyl-2-pentene (I)	107404	0.7218	EXP	CRC	3.59E+01	EXP	EPI	555	EXP	HSDB	NA	NA	NA
1,2,3-Trimethylbenzene (I)	526738	0.8944	EXP	CRC	1.69E+00	EXP	EPI	664.50	EXP	HSDB	1.17E+04	EXP	HSDB
1,2,4-Trimethylbenzene (I)	95636	0.8758	EXP	CRC	2.10E+00	EXP	EPI	649.17	EXP	EPA4	9.37E+03	EXP	EPA4
1,3,5-Trimethylbenzene (I)	108678	0.8615	EXP	CRC	2.48E+00	EXP	EPI	637.25	EXP	EPA4	9.32E+03	EXP	EPA4
Triphenyl phosphate	115866	1.2055	EXP	PC	6.28E-06	EXP	PC	NA	NA	NA	NA	NA	NA
tris(2,3-Dibromopropyl)phosphate	126727	2.27	EXP	PC	1.90E-04	EXP	EPI	NA	NA	NA	NA	NA	NA
Urea	57136	1.323	EXP	CRC	1.20E-05	EXP	PC	NA	NA	NA	NA	NA	NA
Vanadium (B)	7440622	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA
Vinyl acetate (I,DD)	108054	0.9256	EXP	CRC	9.02E+01	EXP	EPI	5.19E+02	EXP	EPA4	7.80E+03	EXP	EPA4
Vinyl chloride (KK,LL,MM)	75014	0.9106	EXP	CRC	2.98E+03	EXP	EPI	432	EXP	EPA4	5.25E+03	EXP	EPA4
Xylenes (I,J)	1330207	0.8801	EXP	PC	7.99E+00	EXP	PP	621	EXP	MDEQ	8.57E+03	EXP	MDEQ
Zinc (B)	7440666	NR	NA	NA	NR	NA	NA	NR	NA	NA	NR	NA	NA

TABLE 4. TOXICOLOGICAL AND CHEMICAL-PHYSICAL DATA FOR PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The dataset for each hazardous substance requires 22 columns across two pages. Review all 22 columns when evaluating data for a specific hazardous substance.

Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	Oral Slope Factor	Chronic Inhalation Reference Concentration	Inhalation Unit Risk Factor	Occupational Short Term Exposure Level	Relative Source Contribution for Drinking Water	Ingestion Absorption Efficiency	Dermal Absorption Efficiency	Relative Source Contribution for Soil	Log Octanol-Water Partition Coefficient	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds
-	-	RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	$(mg/kg\text{-}day)^{-1}$	ug/m^3	$(ug/m^3)^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
Acenaphthene	83329	1.80E-01	NA	2.10E+02	NA	NA	0.2	1	0.1	1	3.92	7,140
Acenaphthylene	208968	7.10E-03	NA	3.50E+01	NA	NA	0.2	1	0.1	1	3.6	3,460
Acetaldehyde (I)	75070	1.30E-01	NA	9.00E+00	2.20E-06	4.50E+04	0.2	1	0.1	1	-0.367	0.613
Acetate	71501	5.70E-01	NA	NA	NA	NA	0.2	NA	NA	NA	NA	NA
Acetic acid	64197	5.70E-01	NA	2.50E+02	NA	3.70E+04	0.2	1	0.1	1	-0.23	0.595
Acetone (I)	67641	1.00E-01	NA	5.90E+03	NA	1.70E+06	0.2	1	0.1	1	-0.24	0.581
Acetonitrile	75058	1.90E-02	NA	6.00E+01	NA	1.01E+05	0.2	1	0.1	1	-0.337	0.648
Acetophenone	98862	2.10E-01	NA	4.90E+02	NA	NA	0.2	1	0.1	1	1.6	37.4
Acrolein (I)	107028	1.60E-02	NA	2.00E-02	NA	6.90E+02	0.2	1	0.1	1	-0.01	1.18
Acrylamide	79061	2.00E-04	2.80E+00	6	1.30E-03	NA	0.2	1	0.1	1	-0.96	0.114
Acrylic acid	79107	5.30E-01	NA	1.00E+00	NA	NA	0.2	1	0.1	1	0.35	2.21
Acrylonitrile (I)	107131	NA	3.30E-01	2.00E+00	6.80E-05	NA	0.2	1	0.1	1	0.255	1.78
Alachlor	15972608	1.00E-02	9.60E-02	NA	NA	NA	0.2	0.5	0.1	1	3.52	734
Aldicarb	116063	1.00E-03	NA	NA	NA	NA	0.2	1	0.1	1	1.1	12.1
Aldicarb sulfone	1646884	1.10E-03	NA	NA	NA	NA	0.2	1	0.1	1	-0.57	0.275
Aldicarb sulfoxide	1646873	1.30E-03	NA	NA	NA	NA	0.2	1	0.1	1	-0.67	0.22
Aldrin	309002	2.50E-05	8.70E+00	NA	4.90E-03	NA	0.2	0.5	0.1	1	6.5	2.45E+06
Aluminum (B)	7429905	3.30E-01	NA	NA	NA	NA	0.2	0.5	0.01	1	NR	NR
Ammonia	7664417	NA	NA	1.00E+02	NA	2.40E+04	0.2	1	0.1	1	NA	NA
t-Amyl methyl	994058	1.30E-01	NA	6.20E+01	NA	NA	0.2	1	0.1	1	1.73	28.1

ether (TAME)												
Aniline	62533	NA	1.60E-02	1.00E+00	1.60E-06	NA	0.2	1	0.1	1	0.978	9.15
Anthracene	120127	1.00E+00	NA	1.00E+03	NA	NA	0.2	1	0.1	1	4.55	29,700
Antimony	7440360	3.50E-04	NA	2.00E-01	NA	NA	0.2	0.5	0.01	1	NR	NR
Arsenic	7440382	2.70E-04	1.50E+00	NA	4.30E-03	NA	0.2	0.5	0.03	1	NR	NR
Asbestos (BB)	1332214	NA	NA	NA	4.60E-02	NA	1	1	0	1	NR	NR
Atrazine	1912249	3.50E-02	7.40E-02	NA	NA	NA	0.2	1	0.1	1	2.7	451
Azobenzene	103333	NA	3.70E-02	NA	3.10E-05	NA	0.2	1	0.1	1	3.82	5,690
Barium (B)	7440393	7.00E-02	NA	5.00E+00	NA	NA	1	0.5	0.01	1	NR	NR

~~TABLE 4. TOXICOLOGICAL AND CHEMICAL-PHYSICAL DATA~~
~~PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS~~

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~~Hazardous Substance~~	~~Chemical Abstract Service Number~~	~~Soil Koc for Ionizing Organic Compounds at pH=6.8~~	~~Soil Water Distribution Coefficients for Inorganic Compounds at pH=6.8~~	~~Henry's Law Constant at 25□C~~	~~Air Diffusivity~~	~~Water Diffusivity~~	~~Lower Explosive Limit in Air~~	~~Flash Point~~	~~Water Solubility~~	~~Physical State at Standard Temperature and Pressure~~	~~Molecular Weight~~
			~~Kd~~	~~HLC~~	~~D_i, or D_a, or D^{air}~~	~~D_w~~	~~LEL~~	~~FP~~	~~S~~		~~MW~~
		~~L/kg~~	~~L/kg~~	~~atm-m^3/mol~~	~~cm^2/s~~	~~cm^2/s~~	~~unitless~~	~~□F~~	~~ug/L~~	~~unitless~~	~~g/mol~~
~~Acenaphthene~~	~~83329~~	~~NR~~	~~NR~~	~~1.55E-04~~	~~0.0421~~	~~7.69E-06~~	~~NA~~	~~NA~~	~~4,240~~	~~Solid~~	~~154.2~~
~~Acenaphthylene~~	~~208968~~	~~NR~~	~~NR~~	~~1.48E-03~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~3,930~~	~~Solid~~	~~152.271~~
~~Acetaldehyde (I)~~	~~75070~~	~~NR~~	~~NR~~	~~7.95E-05~~	~~0.08~~	~~8.00E-06~~	~~0.04~~	~~-36~~	~~1.00E+09~~	~~Liquid~~	~~44.1~~
~~Acetate~~	~~71501~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~NA~~	~~ID~~	~~NA~~	~~NA~~
~~Acetic acid~~	~~64197~~	~~NR~~	~~NR~~	~~1.00E-07~~	~~0.08~~	~~8.00E-06~~	~~0.04~~	~~103~~	~~6.00E+09~~	~~Liquid~~	~~60.05~~
~~Acetone (I)~~	~~67641~~	~~NR~~	~~NR~~	~~3.88E-05~~	~~0.124~~	~~1.14E-05~~	~~0.025~~	~~0~~	~~1.00E+09~~	~~Liquid~~	~~58.08~~
~~Acetonitrile~~	~~75058~~	~~NR~~	~~NR~~	~~2.40E-05~~	~~0.13~~	~~1.70E-05~~	~~0.03~~	~~42~~	~~2.00E+08~~	~~Liquid~~	~~41.05~~
~~Acetophenone~~	~~98862~~	~~NR~~	~~NR~~	~~1.10E-05~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~6.10E+06~~	~~Liquid~~	~~120.2~~
~~Acrolein (I)~~	~~107028~~	~~NR~~	~~NR~~	~~9.40E-05~~	~~0.11~~	~~1.20E-05~~	~~0.028~~	~~-15~~	~~2.10E+08~~	~~Liquid~~	~~56.06~~
~~Acrylamide~~	~~79061~~	~~NR~~	~~NR~~	~~3.22E-10~~	~~0.097~~	~~1.10E-04~~	~~NA~~	~~280~~	~~2.20E+09~~	~~Solid~~	~~71.08~~
~~Acrylic acid~~	~~79107~~	~~NR~~	~~NR~~	~~3.20E-07~~	~~0.08~~	~~8.00E-06~~	~~0.024~~	~~121~~	~~1.00E+09~~	~~Liquid~~	~~72.06~~
~~Acrylonitrile (I)~~	~~107131~~	~~NR~~	~~NR~~	~~1.00E-04~~	~~0.12~~	~~1.30E-05~~	~~0.03~~	~~30~~	~~7.50E+07~~	~~Liquid~~	~~53.06~~
~~Alachlor~~	~~15972608~~	~~NR~~	~~NR~~	~~8.32E-09~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~1.83E+05~~	~~Solid~~	~~269.77~~
~~Aldicarb~~	~~116063~~	~~NR~~	~~NR~~	~~4.17E-09~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~6.00E+06~~	~~Solid~~	~~190.25~~
~~Aldicarb sulfone~~	~~1646884~~	~~NR~~	~~NR~~	~~3.37E-09~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~7.80E+06~~	~~Solid~~	~~222.27~~
~~Aldicarb sulfoxide~~	~~1646873~~	~~NR~~	~~NR~~	~~9.69E-10~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~2.80E+07~~	~~Solid~~	~~206.27~~
~~Aldrin~~	~~309002~~	~~NR~~	~~NR~~	~~1.70E-04~~	~~0.0132~~	~~4.86E-06~~	~~NA~~	~~NA~~	~~180~~	~~Solid~~	~~364.9~~

Aluminum (B)	7429905	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	26.982
Ammonia	7664417	NR	NR	3.20E-04	0.08	8.00E-06	0.15	NA	5.30E+08	Liquid	17.04
t-Amyl methyl ether (TAME)	994058	NR	NR	2.68E-03	0.08	8.00E-06	NA	NA	2.64E+06	Liquid	102.18
Aniline	62533	NR	NR	2.30E-06	0.07	8.30E-06	0.013	158	3.60E+07	Liquid	93.13
Anthracene	120127	NR	NR	6.50E-05	0.0324	7.74E-06	NA	NA	43.4	Solid	178.24
Antimony	7440360	NR	45	NR	NR	NR	NA	NA	NA	Inorganic	121.76
Arsenic	7440382	NR	29	NR	NR	NR	NA	NA	NA	Inorganic	74.922
Asbestos (BB)	1332214	NR	NA	NR	NR	NR	NR	NR	NA	Inorganic	NA
Atrazine	1912249	NR	NR	2.63E-09	0.08	8.00E-06	NA	NA	70,000	Solid	215.72
Azobenzene	103333	NR	NR	1.35E-05	0.08	8.00E-06	NA	NA	6,400	Solid	182.23
Barium (B)	7440393	NR	41	NR	NR	NR	NA	NA	NA	Inorganic	137.327

TABLE 4. TOXICOLOGICAL AND CHEMICAL-PHYSICAL DATA FOR PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	Oral Slope Factor	Chronic Inhalation Reference Concentration	Inhalation Unit Risk Factor	Occupational Short Term Exposure Level	Relative Source Contribution for Drinking Water	Ingestion Absorption Efficiency	Dermal Absorption Efficiency	Relative Source Contribution for Soil	Log Octanol-Water Partition Coefficient	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds
		RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	$(mg/kg\text{-}day)^{-1}$	ug/m^3	$(ug/m^3)^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
Benzene (I)	71432	NA	2.90E-02	30	8.30E-06	8.00E+03	0.2	1	0.1	1	2.13	58.2
Benzidine	92875	2.70E-03	2.30E+02	NA	6.70E-02	NA	0.2	1	0.1	1	1.66	42.9
Benzo(a)anthracene (Q)	56553	NA	4.10E-01	NA	NA	NA	0.2	0.5	0.13	1	5.7	4.01E+05
Benzo(b)fluoranthene (Q)	205992	NA	4.10E-01	NA	NA	NA	0.2	0.5	0.13	1	6.2	1.24E+06
Benzo(k)fluoranthene (Q)	207089	NA	4.10E-02	NA	NA	NA	0.2	0.5	0.13	1	6.2	1.24E+06
Benzo(g,h,i)perylene	191242	7.10E-03	NA	1.20E+01	NA	NA	0.2	0.5	0.13	1	6.7	3.86E+06
Benzo(a)pyrene (Q)	50328	NA	4.10E+00	NA	2.10E-03	NA	0.2	0.5	0.13	1	6.11	1.01E+06
Benzoic acid	65850	4.40E+00	NA	NA	NA	NA	0.2	1	0.1	1	1.86	0.6
Benzyl alcohol	100516	1.40E+00	NA	5.00E+03	NA	NA	0.2	1	0.1	1	1.11	12.3
Benzyl chloride	100447	NA	1.10E-01	NA	5.00E-05	NA	0.2	1	0.1	1	2.3	182
Beryllium	7440417	1.50E-03	NA	2.00E-02	2.40E-03	1.00E+01	0.2	1	0	1	NR	NR
bis(2-Chloroethoxy)ethane	112265	NA	NA	NA	NA	NA	0.2	1	0.1	1	1.28	18.1
bis(2-Chloroethyl)ether (I)	111444	NA	4.20E-01	NA	3.30E-04	5.80E+04	0.2	1	0.1	1	1.21	10.9
bis(2-Ethylhexyl)phthalate	117817	1.90E-02	3.20E-03	NA	4.43E-06	1.00E+04	0.2	0.5	0.1	1	7.3	1.50E+07
Boron (B)	7440428	3.20E-01	NA	NA	NA	NA	0.2	0.5	0.01	1	NR	NR
Bromate	15541454	4.00E-03	7.00E-01	NA	NA	NA	0.2	0.5	0.01	1	0.63	NR
Bromobenzene (I)	108861	2.40E-03	NA	8.00E+00	NA	NA	0.2	1	0.1	1	2.99	870
Bromodichloromethane	75274	1.80E-02	5.00E-02	NA	3.70E-05	NA	0.2	1	0.1	1	2.1	55.1

Bromoform	75252	1.80E-02	6.40E-03	NA	1.10E-06	NA	0.2	1	0.1	1	2.35	87
Bromomethane	74839	1.40E-03	NA	5.00E+00	NA	NA	0.2	1	0.1	1	1.18	14.5
n-Butanol (I)	71363	1.30E-01	NA	3.50E+02	NA	1.52E+05	0.2	1	0.1	1	0.851	5.65
2-Butanone (MEK) (I)	78933	1.80E+00	NA	1.00E+03	NA	8.85E+05	0.2	1	0.1	1	0.279	1.99
n-Butyl acetate	123864	7.60E-02	NA	7.10E+03	NA	9.50E+05	0.2	1	0.1	1	1.78	30.8
t-Butyl alcohol	75650	5.40E-01	NA	1.89E+03	NA	NA	0.2	1	0.1	1	0.35	2.27
Butyl benzyl phthalate	85687	1.60E-01	NA	7.00E+02	NA	NA	0.2	1	0.1	1	4.84	57,300
n-Butylbenzene	104518	1.10E-02	NA	30	NA	NA	0.2	1	0.1	1	4.38	20,200
sec-Butylbenzene	135988	1.10E-02	NA	6.00E+00	NA	NA	0.2	1	0.1	1	4.57	31,100
t-Butylbenzene (I)	98066	1.10E-02	NA	10	NA	NA	0.2	1	0.1	1	4.11	11,000

TABLE 4. TOXICOLOGICAL AND CHEMICAL-PHYSICAL DATA
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Soil Koc for Ionizing Organic Compounds at pH=6.8	Soil Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Henry's Law Constant at 25°C	Air Diffusivity	Water Diffusivity	Lower Explosive Limit in Air	Flash Point	Water Solubility	Physical State at Standard Temperature and Pressure	Molecular Weight
			Kd	HLC	D_i or D_a or D^{air}	D_w	LEL	FP	S		MW
		L/kg	L/kg	atm-m^3/mol	cm^2/s	cm^2/s	unitless	°F	ug/L	unitless	g/mol
Benzene (I)	71432	NR	NR	5.55E-03	0.088	9.80E-06	0.012	12	1.75E+06	Liquid	78.11
Benzidine	92875	NR	NR	3.90E-11	0.08	1.50E-05	NA	NA	5.20E+05	Solid	184.24
Benzo(a)anthracene (Q)	56553	NR	NR	3.35E-06	0.051	9.00E-06	NA	NA	9.4	Solid	228.3
Benzo(b)fluoranthene (Q)	205992	NR	NR	1.11E-04	0.0226	5.56E-06	NA	NA	1.5	Solid	252.32
Benzo(k)fluoranthene (Q)	207089	NR	NR	8.29E-07	0.0226	5.56E-06	NA	NA	0.8	Solid	252.32
Benzo(g,h,i)perylene	191242	NR	NR	5.34E-08	0.08	8.00E-06	NA	NA	0.26	Solid	276.34
Benzo(a)pyrene (Q)	50328	NR	NR	1.13E-06	0.043	9.00E-06	NA	NA	1.62	Solid	252.32
Benzoic acid	65850	0.6	NR	1.54E-06	0.0536	7.97E-06	NA	NA	3.50E+06	Solid	122.1
Benzyl alcohol	100516	NR	NR	3.90E-07	0.08	8.00E-06	NA	NA	4.40E+07	Liquid	108.13
Benzyl chloride	100447	NR	NR	4.00E-04	0.075	7.80E-06	0.011	153	4.90E+05	Liquid	126.58
Beryllium	7440417	NR	790	NR	NR	NR	NA	NA	NA	Inorganic	9.012
bis(2-Chloroethoxy)ethane	112265	NR	NR	7.81E-07	0.08	8.00E-06	NA	NA	1.89E+07	Liquid	187.07
bis(2-Chloroethyl)ether (I)	111444	NR	NR	1.80E-05	0.0692	7.53E-06	0.027	131	1.72E+07	Liquid	143.01
bis(2-Ethylhexyl)phthalate	117817	NR	NR	1.02E-07	0.0351	3.66E-06	NA	420	340	Liquid	390.57
Boron (B)	7440428	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	10.811
Bromate	15541454	NR	NA	1.00E+00	NR	NR	NA	NA	38,000	Solid	79.9
Bromobenzene (I)	108861	NR	NR	4.74E-04	0.08	8.00E-06	NA	NA	4.13E+05	Liquid	157.015

Bromodichloromethane	75274	NR	NR	1.60E-03	0.0298	1.06E-05	NA	NA	6.74E+06	Liquid	163.8
Bromoform	75252	NR	NR	5.35E-04	0.0149	1.03E-05	NA	NA	3.10E+06	Liquid	252.8
Bromomethane	74839	NR	NR	1.42E-02	0.08	8.00E-06	0.1	NA	1.45E+07	Liquid	94.94
n-Butanol (I)	71363	NR	NR	8.81E-06	0.08	9.60E-06	0.014	84	7.40E+07	Liquid	74.14
2-Butanone (MEK) (I)	78933	NR	NR	3.60E-05	0.081	9.80E-06	NA	16	2.40E+08	Liquid	72.1
n-Butyl acetate	123864	NR	NR	3.20E-04	0.08	8.00E-06	0.017	72	6.70E+06	Liquid	116.16
t-Butyl alcohol	75650	NR	NR	1.17E-05	0.08	8.00E-06	0.024	52	1.00E+09	Liquid	74.12
Butyl benzyl phthalate	85687	NR	NR	1.26E-06	0.0174	4.83E-06	NA	NA	2,690	Liquid	312.37
n-Butylbenzene	104518	NR	NR	NA	0.08	8.00E-06	NA	NA	NA	Liquid	134.22
sec-Butylbenzene	135988	NR	NR	NA	0.08	8.00E-06	NA	NA	NA	Liquid	134.22
t-Butylbenzene (I)	98066	NR	NR	NA	0.08	8.00E-06	NA	NA	NA	Liquid	134.22

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	Oral Slope Factor	Chronic Inhalation Reference Concentration	Inhalation Unit Risk Factor	Occupational Short Term Exposure Level	Relative Source Contribution for Drinking Water	Ingestion Absorption Efficiency	Dermal Absorption Efficiency	Relative Source Contribution for Soil	Log Octanol-Water Partition Coefficient	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds
		RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	$(mg/kg\text{-}day)^{-1}$	ug/m^3	$(ug/m^3)^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
Cadmium (B)	7440439	1.00E-03	NA	NA	1.80E-03	NA	0.2	0.5	0.001	1	NR	NR
Camphene (I)	79925	NA	NA	80	NA	NA	0.2	1	0.1	1	3.53	2,950
Caprolactam	105602	8.00E-01	NA	1.00E+01	NA	4.60E+04	0.2	1	0.1	1	-0.19	0.65
Carbaryl	63252	9.60E-02	NA	NA	NA	NA	0.2	1	0.1	1	2.4	229
Carbazole	86748	NA	1.00E-02	NA	5.00E-05	NA	0.2	1	0.1	1	3.59	3,380
Carbofuran	1563662	5.00E-03	NA	NA	NA	NA	0.2	1	0.1	1	1.6	37.4
Carbon disulfide (I,R)	75150	1.10E-01	NA	7.00E+02	NA	NA	0.2	1	0.1	1	2	45.9
Carbon tetrachloride	56235	7.10E-04	5.50E-02	100	2.36E-05	6.30E+04	0.2	1	0.1	1	2.73	174
Chlordane (J)	57749	1.50E-03	3.50E-01	7.00E-01	1.00E-04	NA	0.2	0.5	0.04	1	6.32	1.21E+05
Chloride	16887006	NA	NA	NA	NA	NA	0.2	0.5	0.01	1	NR	NR
Chlorobenzene (I)	108907	1.90E-02	NA	7.00E+01	NA	NA	0.2	1	0.1	1	2.86	220
p-Chlorobenzene sulfonic acid	98668	1.00E+00	NA	NA	NA	NA	0.2	1	0.1	1	-0.52	4.64E-01
1-Chloro-1,1-difluoroethane	75683	2.10E+00	NA	5.00E+04	NA	NA	0.2	1	0.1	1	1.81	32.5
Chloroethane	75003	1.80E+01	2.00E-03	1.00E+04	NA	NA	0.2	1	0.1	1	1.4	23.8
2-Chloroethyl vinyl ether	110758	NA	NA	NA	NA	NA	0.2	1	0.1	1	1.07	8.43
Chloroform	67663	1.30E-02	4.40E-03	NA	2.40E-06	NA	0.2	1	0.1	1	1.92	39.7
Chloromethane (I)	74873	NA	3.30E-03	9.00E+01	6.39E-07	2.07E+05	0.2	1	0.1	1	0.91	6.3
4-Chloro-3-methylphenol	59507	2.00E-02	NA	NA	NA	NA	0.2	1	0.1	1	3.1	1,120

beta-Chloronaphthalene	91587	2.50E-01	NA	NA	NA	NA	0.2	1	0.1	1	4.1	10,700
2-Chlorophenol	95578	6.20E-03	NA	1.80E+01	NA	NA	0.2	1	0.1	1	2.15	388
o-Chlorotoluene (I)	95498	2.00E-02	NA	7.00E+01	NA	NA	0.2	1	0.1	1	3.42	612
Chlorpyrifos	2921882	3.00E-02	NA	2.00E+00	NA	NA	0.2	0.5	0.1	1	5.3	18,900
Chromium (III) (B,H)	16065831	1.50E+00	NA	5.00E+00	NA	NA	0.7	0.5	0.01	1	NR	NR
Chromium (VI)	18540299	4.80E-03	NA	8.00E-03	1.20E-02	NA	0.7	0.5	0.01	1	NR	NR
Chrysene (Q)	218019	NA	4.10E-03	NA	NA	NA	0.2	0.5	0.13	1	5.7	4.01E+05
Cobalt	7440484	5.00E-03	NA	2.00E-01	NA	NA	0.2	0.5	0.01	1	NR	NR
Copper (B)	7440508	3.80E-02	NA	2.00E+00	NA	NA	1	0.5	0.01	1	NR	NR
Cyanazine	21725462	3.00E-03	3.70E-01	NA	NA	NA	0.2	1	0.1	1	2.2	146

TABLE 4. TOXICOLOGICAL AND CHEMICAL-PHYSICAL DATA
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Soil Koc for Ionizing Organic Compounds at pH=6.8	Soil Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Henry's Law Constant at 25□C	Air Diffusivity	Water Diffusivity	Lower Explosive Limit in Air	Flash Point	Water Solubility	Physical State at Standard Temperature and Pressure	Molecular Weight
			Kd	HLC	D_i or D_a or D^{air}	D_w	LEL	FP	S		MW
		L/kg	L/kg	atm-m^3/mol	cm^2/s	cm^2/s	unitless	□F	ug/L	unitless	g/mol
Cadmium (B)	7440439	NR	75	NR	NR	NR	NA	NA	NA	Inorganic	112.411
Camphene (I)	79925	NR	NR	2.05E+00	0.08	8.00E-06	NA	NA	33,400	Solid	136.26
Caprolactam	105602	NR	NR	2.53E-08	0.08	8.00E-06	0.014	282	5.25E+09	Solid	113.2
Carbaryl	63252	NR	NR	6.80E-04	0.08	8.00E-06	NA	NA	1.26E+05	Solid	201.24
Carbazole	86748	NR	NR	1.53E-08	0.039	7.03E-06	NA	NA	7,480	Solid	167.21
Carbofuran	1563662	NR	NR	3.90E-10	0.08	8.00E-06	NA	NA	7.00E+05	Solid	221.3
Carbon disulfide (I,R)	75150	NR	NR	3.03E-02	0.104	1.00E-05	0.013	-22	1.19E+06	Liquid	76.14
Carbon tetrachloride	56235	NR	NR	3.04E-02	0.078	8.80E-06	NA	NA	7.93E+05	Liquid	153.92
Chlordane (J)	57749	NR	NR	4.86E-05	0.0118	4.37E-06	NA	NA	56	Solid	409.8
Chloride	16887006	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	35.453
Chlorobenzene (I)	108907	NR	NR	3.70E-03	0.073	8.70E-06	0.013	82	4.72E+05	Liquid	112.56
p-Chlorobenzene sulfonic acid	98668	NR	NR	NA	NA	NA	NA	226	NA	Solid	192.62
1-Chloro-1,1-difluoroethane	75683	NR	NR	6.16E-02	0.08	8.00E-06	0.06	NA	3.90E+06	Gas	100.5
Chloroethane	75003	NR	NR	8.80E-03	0.08	8.00E-06	0.038	-58	5.74E+06	Liquid	64.52
2-Chloroethyl vinyl ether	110758	NR	NR	6.25E-04	0.08	8.00E-06	NA	NA	1.50E+07	Liquid	106.55
Chloroform	67663	NR	NR	3.67E-03	0.104	1.00E-05	NA	NA	7.92E+06	Liquid	119.38

~~Chloromethane (I)~~	~~74873~~	~~NR~~	~~NR~~	~~4.52E-02~~	~~0.13~~	~~6.50E-06~~	~~0.081~~	~~-60.8~~	~~6.34E+06~~	~~Liquid~~	~~50.49~~
~~4-Chloro-3-methylphenol~~	~~59507~~	~~NR~~	~~NR~~	~~4.00E-07~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~3.90E+06~~	~~Solid~~	~~142.6~~
~~beta-Chloronaphthalene~~	~~91587~~	~~NR~~	~~NR~~	~~3.10E-04~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~6,740~~	~~Solid~~	~~162.62~~
~~2-Chlorophenol~~	~~95578~~	~~388~~	~~NR~~	~~3.91E-04~~	~~0.0501~~	~~9.46E-06~~	~~NA~~	~~NA~~	~~2.20E+07~~	~~Liquid~~	~~128.56~~
~~o-Chlorotoluene (I)~~	~~95498~~	~~NR~~	~~NR~~	~~3.57E-03~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~96~~	~~3.73E+05~~	~~Liquid~~	~~126.58~~
~~Chlorpyrifos~~	~~2921882~~	~~NR~~	~~NR~~	~~7.80E+00~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~1,120~~	~~Solid~~	~~350.59~~
~~Chromium (III) (B,H)~~	~~16065831~~	~~NR~~	~~1.80E+06~~	~~NR~~	~~NR~~	~~NR~~	~~NA~~	~~NA~~	~~NA~~	~~Inorganic~~	~~51.996~~
~~Chromium (VI)~~	~~18540299~~	~~NR~~	~~19~~	~~NR~~	~~NR~~	~~NR~~	~~NA~~	~~NA~~	~~NA~~	~~Inorganic~~	~~51.996~~
~~Chrysene (Q)~~	~~218019~~	~~NR~~	~~NR~~	~~9.46E-05~~	~~0.0248~~	~~6.21E-06~~	~~NA~~	~~NA~~	~~1.6~~	~~Solid~~	~~228.3~~
~~Cobalt~~	~~7440484~~	~~NR~~	~~NA~~	~~NR~~	~~NR~~	~~NR~~	~~NA~~	~~NA~~	~~NA~~	~~Inorganic~~	~~58.933~~
~~Copper (B)~~	~~7440508~~	~~NR~~	~~360~~	~~NR~~	~~NR~~	~~NR~~	~~NA~~	~~NA~~	~~NA~~	~~Inorganic~~	~~63.546~~
~~Cyanazine~~	~~21725462~~	~~NR~~	~~NR~~	~~1.00E-10~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~1.70E+05~~	~~Solid~~	~~241~~

TABLE 4. TOXICOLOGICAL AND CHEMICAL-PHYSICAL DATA FOR PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	Oral Slope Factor	Chronic Inhalation Reference Concentration	Inhalation Unit Risk Factor	Occupational Short Term Exposure Level	Relative Source Contribution for Drinking Water	Ingestion Absorption Efficiency	Dermal Absorption Efficiency	Relative Source Contribution for Soil	Log Octanol-Water Partition Coefficient	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds
		RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	$(mg/kg\text{-}day)^{-1}$	ug/m^3	$(ug/m^3)^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
Cyanide (P,R)	57125	5.40E-03	NA	5.00E+01	NA	NA	0.2	1	0	1	NA	NA
Cyclohexanone	108941	4.50E+00	NA	1.00E+03	NA	NA	0.2	1	0.1	1	0.81	6.26
Dacthal	1861321	1.00E-02	NA	NA	NA	NA	0.2	1	0.1	1	4.4	21,200
Dalapon	75990	8.50E-02	NA	NA	NA	NA	0.2	1	0.1	1	0.77	5.72
4,4'-DDD	72548	3.00E-03	9.40E-02	NA	7.00E-05	NA	0.2	0.5	0.1	1	6.1	81,100
4,4'-DDE	72559	7.00E-04	2.00E-01	NA	9.70E-05	NA	0.2	0.5	0.1	1	6.76	2.70E+05
4,4'-DDT	50293	5.00E-04	2.00E-01	NA	9.70E-05	NA	0.2	0.5	0.03	1	6.53	1.78E+05
Decabromodiphenyl ether	1163195	1.00E-02	NA	3.50E+01	4.00E-07	NA	0.2	0.5	0.1	1	5.24	1.42E+05
Di-n-butyl phthalate	84742	1.20E-01	NA	5.00E+01	NA	NA	0.2	1	0.1	1	4.61	34,000
Di(2-ethylhexyl) adipate	103231	1.70E+00	5.90E-04	NA	3.40E-07	NA	0.2	0.5	0.1	1	6.11	1.01E+06
Di-n-octyl phthalate	117840	1.80E-02	NA	4.70E+02	NA	NA	0.2	0.5	0.1	1	7.51	2.41E+07
Diacetone alcohol (I)	123422	NA	NA	2.40E+03	NA	NA	0.2	1	0.1	1	-0.34	0.464
Diazinon	333415	1.80E-04	NA	NA	NA	NA	0.2	1	0.1	1	3.4	2,200
Dibenzo(a,h)anthracene (Q)	53703	NA	4.10E+00	NA	NA	NA	0.2	0.5	0.13	1	6.69	3.77E+06
Dibenzofuran	132649	NA	NA	1.00E-01	NA	NA	0.2	1	0.1	1	4.2	13,500
Dibromochloromethane	124481	2.10E-02	4.90E-02	NA	2.45E-05	NA	0.2	1	0.1	1	2.17	62.6
Dibromochloropropane	96128	NA	1.20E+00	2.00E-01	5.60E-03	NA	0.2	1	0.1	1	2.68	431
Dibromomethane	74953	1.10E-02	NA	NA	NA	NA	0.2	1	0.1	1	1.62	39.2

Dicamba	1918009	3.00E-02	NA	NA	NA	NA	0.2	0.5	0.1	1	2.4	95.3
1,2-Dichlorobenzene	95501	8.60E-02	NA	1.50E+03	NA	3.01E+05	0.2	1	0.1	1	3.43	623
1,3-Dichlorobenzene	541731	9.00E-04	NA	3.00E+00	NA	NA	0.2	1	0.1	1	3.5	708
1,4-Dichlorobenzene	106467	NA	1.30E-02	8.00E+02	6.90E-06	NA	0.2	1	0.1	1	3.42	612
3,3'-Dichlorobenzidine	91941	NA	8.00E-01	NA	4.80E-04	NA	0.2	1	0.1	1	3.51	721
Dichlorodifluoromethane	75718	2.30E-01	NA	4.95E+04	NA	NA	0.2	1	0.1	1	2.15	60.4
1,1-Dichloroethane	75343	1.20E-01	NA	5.00E+02	NA	NA	0.2	1	0.1	1	1.79	31.3
1,2-Dichloroethane (I)	107062	NA	5.80E-02	NA	2.60E-05	NA	0.2	1	0.1	1	1.47	17.5
1,1-Dichloroethylene (I)	75354	9.00E-04	NA	2.00E+02	5.00E-05	7.90E+04	0.2	1	0.1	1	2.13	58.2
cis-1,2-Dichloroethylene	156592	1.10E-02	NA	3.40E+01	NA	NA	0.2	1	0.1	1	1.86	35.6

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Hazardous Substance	Chemical Abstract Service Number	Soil Koc for Ionizing Organic Compounds at pH=6.8	Soil Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Henry's Law Constant at 25□C	Air Diffusivity	Water Diffusivity	Lower Explosive Limit in Air	Flash Point	Water Solubility	Physical State at Standard Temperature and Pressure	Molecular Weight
			Kd	HLC	D_i or D_a or D^{air}	D_w	LEL	FP	S		MW
		L/kg	L/kg	atm-m^3/mol	cm^2/s	cm^2/s	unitless	□F	ug/L	unitless	g/mol
Cyanide (P,R)	57125	NR	NR	NR	0.08	8.00E-06	NA	NA	NA	Inorganic	26.02
Cyclohexanone	108941	NR	NR	7.80E+00	0.08	8.00E-06	NA	146	2.30E+07	Liquid	98.14
Dacthal	1861321	NR	NR	2.18E-06	0.08	8.00E-06	NA	NA	500	Solid	331
Dalapon	75990	NR	NR	6.43E-08	0.08	8.00E-06	NA	NA	5.02E+08	Liquid	142.97
4-4'-DDD	72548	NR	NR	4.00E-06	0.0169	4.76E-06	NA	NA	90	Solid	320.05
4-4'-DDE	72559	NR	NR	2.10E-05	0.0144	5.87E-06	NA	NA	120	Solid	518.03
4-4'-DDT	50293	NR	NR	8.10E-06	0.0137	4.95E-06	NA	162	25	Solid	354.49
Decabromodiphenyl ether	1163195	NR	NR	4.02E-05	0.08	8.00E-06	NA	NA	30	Solid	959.22
Di-n-butyl phthalate	84742	NR	NR	9.38E-10	0.0438	7.86E-06	NA	315	11,200	Liquid	278.34
Di(2-ethylhexyl) adipate	103231	NR	NR	4.34E-07	0.08	8.00E-06	NA	NA	471	Liquid	370
Di-n-octyl phthalate	117840	NR	NR	7.66E-07	0.0151	3.58E-06	NA	NA	3,000	Liquid	390.62
Diacetone alcohol (I)	123422	NR	NR	2.61E-07	0.08	8.00E-06	0.018	125	1.00E+09	Liquid	116.2
Diazinon	333415	NR	NR	1.13E-07	0.08	8.00E-06	NA	180	68,800	Liquid	304.3
Dibenzo(a,h)anthracene (Q)	53703	NR	NR	1.47E-08	0.0202	5.18E-06	NA	NA	2.49	Solid	278.36
Dibenzofuran	132649	NR	NR	1.30E-05	0.08	8.00E-06	NA	NA	10,000	Solid	168.21
Dibromochloromethane	124481	NR	NR	7.83E-04	0.0229	1.05E-05	NA	NA	2.60E+06	Liquid	208.29

Dibromochloropropane	96128	NR	NR	1.90E-04	0.08	8.00E-06	NA	170	1,230	Liquid	236.34
Dibromomethane	74953	NR	NR	9.00E-04	0.08	8.60E-06	NA	NA	1.10E+07	Liquid	173.85
Dicamba	1918009	NR	NR	7.90E-09	0.08	8.00E-06	NA	NA	4.50E+06	Solid	221.04
1,2-Dichlorobenzene	95501	NR	NR	1.90E-03	0.069	7.90E-06	0.022	151	1.56E+05	Liquid	147.01
1,3-Dichlorobenzene	541731	NR	NR	1.80E-03	0.08	8.00E-06	NA	NA	1.11E+05	Liquid	147.01
1,4-Dichlorobenzene	106467	NR	NR	2.43E-03	0.069	7.90E-06	0.025	150	73,800	Solid	147
3,3'-Dichlorobenzidine	91941	NR	NR	4.00E-09	0.0194	6.74E-06	NA	NA	3,110	Solid	253.1
Dichlorodifluoromethane	75718	NR	NR	2.60E+00	0.08	8.00E-06	NA	NA	3.00E+05	Liquid	120.91
1,1-Dichloroethane	75343	NR	NR	5.62E-03	0.0742	1.05E-05	0.054	2	5.06E+06	Liquid	98.96
1,2-Dichloroethane (I)	107062	NR	NR	9.79E-04	0.104	9.90E-06	0.062	56	8.52E+06	Liquid	98.97
1,1-Dichloroethylene (I)	75354	NR	NR	2.61E-02	0.09	1.04E-05	0.065	-2	2.25E+06	Liquid	96.94
cis-1,2-Dichloroethylene	156592	NR	NR	4.08E-03	0.0736	1.13E-05	0.056	36	3.50E+06	Liquid	96.94

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	Oral Slope Factor	Chronic Inhalation Reference Concentration	Inhalation Unit Risk Factor	Occupational Short Term Exposure Level	Relative Source Contribution for Drinking Water	Ingestion Absorption Efficiency	Dermal Absorption Efficiency	Relative Source Contribution for Soil	Log Octanol-Water Partition Coefficient	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds
		RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	$(mg/kg\text{-}day)^{-1}$	ug/m^3	$(ug/m^3)^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
trans-1,2-Dichloroethylene	156605	1.70E-02	NA	7.00E+01	NA	NA	0.2	1	0.1	1	2.07	52.2
2,6-Dichloro-4-nitroaniline	99309	3.00E-01	NA	NA	NA	NA	0.2	1	0.1	1	2.76	517
2,4-Dichlorophenol	120832	1.00E-02	NA	7.70E+01	NA	NA	0.2	1	0.1	1	3.08	147
2,4-Dichlorophenoxyacetic acid	94757	1.00E-02	NA	1.00E+02	NA	NA	0.2	1	0.05	1	2.7	451
1,2-Dichloropropane (I)	78875	4.40E-01	3.70E-02	4.00E+00	NA	5.08E+05	0.2	1	0.1	1	1.97	43.5
1,3-Dichloropropene	542756	3.40E-02	1.00E-01	2.00E+01	4.00E-06	NA	0.2	1	0.1	1	2	45.9
Dichlorovos	62737	4.00E-04	5.20E-01	5.00E-01	NA	NA	0.2	1	0.1	1	1.4	15.4
Dicyclohexyl phthalate	84617	NA	NA	NA	NA	NA	0.2	0.5	0.1	1	6.2	1.24E+06
Dieldrin	60571	7.60E-05	8.00E+00	NA	4.60E-03	NA	0.2	0.5	0.1	1	5.37	21,400
Diethyl ether	60297	5.00E-01	NA	1.20E+04	NA	1.52E+06	0.2	1	0.1	1	0.83	6.55
Diethyl phthalate	84662	7.50E-01	NA	5.00E+01	NA	NA	0.2	1	0.1	1	2.5	287
Diethylene glycol monobutyl ether	112345	1.20E-02	NA	2.00E+01	NA	NA	0.2	1	0.1	1	0.32	2.06
Diisopropyl ether	108203	4.10E-03	NA	3.58E+02	NA	NA	0.2	1	0.1	1	1.67	25.2
Diisopropylamine (I)	108189	7.70E-04	NA	2.00E+02	NA	NA	0.2	1	0.1	1	1.6	37.4
Dimethyl phthalate	131113	1.00E+01	NA	5.00E+01	NA	NA	0.2	1	0.1	1	1.64	41

N,N Dimethylacetamide	127195	2.50E 02	NA	NA	NA	NA	0.2	1	0.1	1	0.77	0.175
N,N Dimethylaniline	121697	2.20E 03	NA	NA	1.18E 05	5.00E+04	0.2	1	0.1	1	2.46	262
Dimethylformamide (I)	68122	9.60E 02	NA	3.00E+01	NA	NA	0.2	1	0.1	1	1.01	0.102
2,4 Dimethylphenol	105679	5.00E 02	NA	7.00E+01	NA	NA	0.2	1	0.1	1	2.36	209
2,6 Dimethylphenol	576261	6.00E 04	NA	2.00E+00	NA	NA	0.2	1	0.1	1	2.36	209
3,4 Dimethylphenol	95658	1.40E 03	NA	3.50E+00	NA	NA	0.2	1	0.1	1	2.23	156
Dimethylsulfoxide	67685	3.00E+01	NA	2.00E+01	NA	NA	0.2	1	0.1	1	1.66	0.0234
2,4 Dinitrotoluene	121142	2.00E 03	1.10E 01	2.00E+00	2.00E 04	NA	0.2	1	0.1	1	2.01	94.6
Dinoseb	88857	1.00E 03	NA	4.00E+00	NA	NA	0.2	1	0.1	1	3.15	1,250
1,4 Dioxane (I)	123911	NA	1.00E 02	100	5.50E 06	NA	0.2	1	0.1	1	0.39	0.588
Diquat	85007	2.20E 03	NA	NA	NA	NA	0.2	1	0.1	1	2.82	0.00169
Dissolved oxygen (DO)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diuron	330541	4.30E 03	NA	7.00E+00	NA	NA	0.2	1	0.1	1	2.77	187

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			Kd	HLC	D_i or D_a or D^{air}	D_w	LEL	FP	S		MW
		L/kg	L/kg	atm-m^3/mol	cm^2/s	cm^2/s	unitless	□F	ug/L	unitless	g/mol
trans-1,2-Dichloroethylene	156605	NR	NR	9.38E-03	0.0707	1.19E-05	0.056	36	6.30E+06	Liquid	96.94
2,6-Dichloro-4-nitroaniline	99309	NR	NR	4.67E-08	0.08	8.00E-06	NA	NA	7,000	Solid	207.02
2,4-Dichlorophenol	120832	147	NR	3.16E-06	0.0346	8.77E-06	NA	NA	4.50E+06	Liquid	163
2,4-Dichlorophenoxyacetic acid	94757	NR	NR	4.50E-06	0.059	6.50E-06	NA	NA	6.80E+05	Solid	221.04
1,2-Dichloropropane (I)	78875	NR	NR	2.80E-03	0.0782	8.73E-06	0.034	60	2.80E+06	Liquid	112.99
1,3-Dichloropropene	542756	NR	NR	1.77E-02	0.0626	1.00E-05	0.053	77	2.80E+06	Liquid	110.97
Dichlorovos	62737	NR	NR	9.58E-07	0.08	8.00E-06	NA	175	1.60E+07	Liquid	220.98
Dicyclohexyl phthalate	84617	NR	NR	7.61E-05	0.08	8.00E-06	NA	NA	4,000	Solid	330.43
Dieldrin	60571	NR	NR	1.51E-05	0.0125	4.74E-06	NA	NA	195	Solid	380.9
Diethyl ether	60297	NR	NR	8.70E-04	0.074	9.30E-06	0.019	-49	6.10E+07	Liquid	74.12
Diethyl phthalate	84662	NR	NR	4.50E-07	0.0256	6.35E-06	NA	322	1.08E+06	Liquid	222.23
Diethylene glycol monobutyl ether	112345	NR	NR	1.52E-09	0.08	8.00E-06	NA	NA	1.00E+09	Liquid	162.23
Diisopropyl ether	108203	NR	NR	1.30E-03	0.08	8.00E-06	0.014	-18	8,041	Liquid	102.18
Diisopropylamine (I)	108189	NR	NR	9.60E-05	0.08	8.00E-06	0.011	20	3.69E+07	Liquid	101.22
Dimethyl phthalate	131113	NR	NR	5.78E-07	0.067	6.30E-06	NA	295	4.19E+06	Liquid	194.19
N,N-Dimethylacetamide	127195	NR	NR	1.31E-08	0.08	8.00E-06	NA	158	1.00E+09	Liquid	87.14

N,N Dimethylaniline	121697	NR	NR	8.12E 05	0.08	8.00E 06	NA	142	1.27E+06	Liquid	121.18
Dimethylformamide (I)	68122	NR	NR	7.39E 08	0.08	8.00E 06	NA	136	1.00E+09	Liquid	73.1
2,4 Dimethylphenol	105679	NR	NR	2.00E 06	0.0584	8.69E 06	NA	NA	7.87E+06	Solid	122.16
2,6 Dimethylphenol	576261	NR	NR	5.02E 06	0.08	8.00E 06	NA	NA	6.14E+06	Solid	122.16
3,4 Dimethylphenol	95658	NR	NR	3.78E 07	0.08	8.00E 06	NA	NA	4.93E+06	Solid	122.16
Dimethylsulfoxide	67685	NR	NR	5.80E 08	0.08	8.00E 06	NA	NA	1.66E+08	Liquid	78.14
2,4 Dinitrotoluene	121142	NR	NR	9.26E 08	0.203	7.06E 06	NA	NA	2.70E+05	Solid	183.15
Dinoseb	88857	NR	NR	4.60E 07	0.08	8.00E 06	NA	NA	52,000	Liquid	240.2
1,4 Dioxane (I)	123911	NR	NR	4.90E 06	0.23	1.00E 05	0.02	55	9.00E+08	Liquid	88.11
Diquat	85007	NR	NR	1.42E 13	0.08	8.00E 06	NA	NA	7.00E+05	Solid	344.08
Dissolved oxygen (DO)	NA	NR	NA	NR	NA	NA	NA	NA	NA	NA	NA
Diuron	330541	NR	NR	2.70E 06	0.08	8.00E 06	NA	NA	37,300	Solid	233.1

TABLE 4. TOXICOLOGICAL AND CHEMICAL-PHYSICAL DATA FOR PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	Oral Slope Factor	Chronic Inhalation Reference Concentration	Inhalation Unit Risk Factor	Occupational Short Term Exposure Level	Relative Source Contribution for Drinking Water	Ingestion Absorption Efficiency	Dermal Absorption Efficiency	Relative Source Contribution for Soil	Log Octanol-Water Partition Coefficient	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds
		RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	$(mg/kg\text{-}day)^{-1}$	ug/m^3	$(ug/m^3)^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
Endosulfan (J)	115297	6.00E-03	NA	NA	NA	NA	0.2	1	0.1	1	4.1	2,110
Endothall	145733	1.70E-02	NA	3.50E+01	NA	NA	0.2	1	0.1	1	-0.55	0.288
Endrin	72208	1.70E-04	NA	NA	NA	NA	0.2	0.5	0.1	1	5.06	12,200
Epichlorohydrin (I)	106898	1.00E-03	5.90E-01	1.00E+00	1.20E-06	NA	0.2	1	0.1	1	0.26	1.92
Ethanol (I)	64175	6.20E+01	NA	1.90E+04	NA	NA	1	1	0.1	1	-0.31	0.496
Ethyl acetate (I)	141786	9.00E-01	NA	3.20E+03	NA	NA	0.2	1	0.1	1	0.69	4.77
Ethyl tert-butyl ether (ETBE)	637923	NA	NA	3.73E+02	NA	NA	NA	1	0.1	1	1.92	3.97
Ethylbenzene (I)	100414	9.70E-02	NA	1.00E+03	3.10E-07	5.43E+05	0.2	1	0.1	1	3.14	367
Ethylene dibromide	106934	NA	5.70E+01	9.00E+00	2.20E-04	NA	0.2	1	0.1	1	1.75	52.5
Ethylene glycol	107211	2.00E+00	NA	1.00E+03	NA	1.00E+05	0.2	1	0.1	1	-1.4	0.0421
Ethylene glycol monobutyl ether	111762	5.00E-01	NA	1.30E+04	NA	NA	0.2	1	0.1	1	0.83	6.55
Fluoranthene	206440	1.20E-01	NA	1.40E+02	NA	NA	0.2	0.5	0.1	1	5.12	1.08E+05
Fluorene	86737	1.20E-01	NA	1.40E+02	NA	NA	0.2	1	0.1	1	4.21	13,800
Fluorine (soluble fluoride) (B)	7782414	6.00E-02	NA	NA	NA	3.10E+03	1	0.5	0.01	1	NR	NR
Formaldehyde	50000	1.80E-01	NA	9.00E+00	1.30E-05	3.70E+02	0.2	1	0.1	1	-0.051	1.09
Formic acid (I,U)	64186	1.40E+00	NA	2.00E+00	NA	1.90E+04	0.2	1	0.1	1	-0.538	0.449
1-Formylpiperidine	2591868	1.10E-02	NA	NA	NA	NA	0.2	1	0.1	1	NA	NA
Gentian violet	548629	1.40E-01	5.50E-02	NA	NA	NA	0.2	1	0.1	1	0.51	3.17

Glyphosate	1071836	1.00E-01	NA	NA	NA	NA	0.2	0.5	0.1	1	-4.47	4.04E-05
Heptachlor	76448	2.30E-03	1.60E+00	NA	1.30E-03	NA	0.2	0.5	0.1	1	6.26	1.43E+06
Heptachlor epoxide	1024573	8.50E-06	2.90E+00	NA	2.60E-03	NA	0.2	0.5	0.1	1	5	82,300
n-Heptane	142825	4.40E+00	NA	3.50E+03	NA	2.05E+06	0.2	1	0.1	1	4.72	43,700
Hexabromobenzene	87821	2.80E-03	NA	NA	NA	NA	0.2	0.5	0.1	1	6.1	9.92E+05
Hexachlorobenzene (C-66)	118741	8.00E-04	1.00E+00	NA	4.60E-04	NA	0.2	0.5	0.1	1	5.89	55,300
Hexachlorobutadiene (C-46)	87683	2.00E-03	5.20E-02	NA	2.20E-05	NA	0.2	1	0.1	1	4.81	53,500
alpha-Hexachlorocyclohexane	319846	NA	2.00E+00	NA	1.83E-03	NA	0.2	1	0.1	1	3.8	1,220
beta-Hexachlorocyclohexane	319857	NA	9.70E-01	NA	5.30E-04	NA	0.2	1	0.1	1	3.81	1,250
Hexachlorocyclopentadiene (C-56)	77474	6.00E-03	NA	2.00E-01	NA	NA	0.2	0.5	0.1	1	5.39	1.99E+05

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PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Soil Koc for Ionizing Organic Compounds at pH=6.8	Soil Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Henry's Law Constant at 25□C	Air Diffusivity	Water Diffusivity	Lower Explosive Limit in Air	Flash Point	Water Solubility	Physical State at Standard Temperature and Pressure	Molecular Weight
			Kd	HLC	D_s or D_a or D^{air}	D_w	LEL	FP	S		MW
		L/kg	L/kg	atm-m^3/mol	cm^2/s	cm^2/s	unitless	□F	ug/L	unitless	g/mol
Endosulfan (J)	115297	NR	NR	1.12E-05	0.0115	4.55E-06	NA	NA	510	Solid	406.9
Endothall	145733	NR	NR	2.60E-10	0.08	8.00E-06	NA	NA	1.00E+08	Solid	186.18
Endrin	72208	NR	NR	7.52E-06	0.0125	4.74E-06	NA	NA	250	Solid	380.9
Epichlorohydrin (I)	106898	NR	NR	3.00E-05	0.086	9.80E-06	0.038	93	6.60E+07	Liquid	92.53
Ethanol (I)	64175	NR	NR	6.29E-06	0.08	8.00E-06	0.033	55	1.00E+09	Liquid	46.07
Ethyl acetate (I)	141786	NR	NR	1.70E-04	0.073	9.70E-06	0.02	24	6.40E+07	Liquid	88.12
Ethyl tert-butyl ether (ETBE)	637923	NR	NR	1.39E-03	0.08	8.00E-06	NA	NA	5.63E+06	Liquid	102.18
Ethylbenzene (I)	100414	NR	NR	7.88E-03	0.075	7.80E-06	0.008	55	1.69E+05	Liquid	106.17
Ethylene dibromide	106934	NR	NR	4.60E-04	0.08	8.00E-06	NA	NA	4.20E+06	Liquid	187.9
Ethylene glycol	107211	NR	NR	6.00E-08	0.08	8.00E-06	0.032	232	1.00E+09	Liquid	62.07
Ethylene glycol monobutyl ether	111762	NR	NR	5.13E-02	0.08	8.00E-06	NA	143	2.24E+08	Liquid	118.2
Fluoranthene	206440	NR	NR	1.61E-05	0.0302	6.35E-06	NA	NA	206	Solid	202.24
Fluorene	86737	NR	NR	6.36E-05	0.0363	7.88E-06	NA	NA	1,980	Solid	166.23
Fluorine (soluble fluoride) (B)	7782414	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	38
Formaldehyde	50000	NR	NR	2.80E-04	0.18	2.00E-05	0.07	NA	5.50E+08	Liquid	30.03
Formic acid (I,U)	64186	NR	NR	2.50E-06	0.079	1.40E-06	0.18	122	1.00E+09	Liquid	46.03
1-Formylpiperidine	2591868	NR	NR	NA	0.08	8.00E-06	NA	NA	NA	Liquid	113.2

~~Gentian violet~~	~~548629~~	~~NR~~	~~NR~~	~~3.06E-16~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~1.00E+06~~	~~Solid~~	~~408~~
~~Glyphosate~~	~~1071836~~	~~NR~~	~~NR~~	~~1.50E-09~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~1.16E+07~~	~~Solid~~	~~169.09~~
~~Heptachlor~~	~~76448~~	~~NR~~	~~NR~~	~~1.48E-03~~	~~0.0112~~	~~5.69E-06~~	~~NA~~	~~NA~~	~~180~~	~~Solid~~	~~373.4~~
~~Heptachlor epoxide~~	~~1024573~~	~~NR~~	~~NR~~	~~9.50E-06~~	~~0.0132~~	~~4.23E-06~~	~~NA~~	~~NA~~	~~200~~	~~Solid~~	~~389.32~~
~~n-Heptane~~	~~142825~~	~~NR~~	~~NR~~	~~2.11E+00~~	~~0.08~~	~~8.00E-06~~	~~0.0105~~	~~25~~	~~2,690~~	~~Liquid~~	~~100.2~~
~~Hexabromobenzene~~	~~87821~~	~~NR~~	~~NR~~	~~1.30E-05~~	~~0.08~~	~~8.00E-06~~	~~NA~~	~~NA~~	~~0.17~~	~~Solid~~	~~551~~
~~Hexachlorobenzene (C-66)~~	~~118741~~	~~NR~~	~~NR~~	~~1.32E-03~~	~~0.0542~~	~~5.91E-06~~	~~NA~~	~~NA~~	~~6,200~~	~~Solid~~	~~284.78~~
~~Hexachlorobutadiene (C-46)~~	~~87683~~	~~NR~~	~~NR~~	~~8.15E-03~~	~~0.0561~~	~~6.16E-06~~	~~NA~~	~~NA~~	~~3,230~~	~~Liquid~~	~~260.76~~
~~alpha-Hexachlorocyclohexane~~	~~319846~~	~~NR~~	~~NR~~	~~1.06E-05~~	~~0.0142~~	~~7.34E-06~~	~~NA~~	~~NA~~	~~2,000~~	~~Solid~~	~~290.82~~
~~beta-Hexachlorocyclohexane~~	~~319857~~	~~NR~~	~~NR~~	~~7.43E-07~~	~~0.0142~~	~~7.34E-06~~	~~NA~~	~~NA~~	~~240~~	~~Solid~~	~~290.82~~
~~Hexachlorocyclopentadiene (C-56)~~	~~77474~~	~~NR~~	~~NR~~	~~2.70E-02~~	~~0.0161~~	~~7.21E-06~~	~~NA~~	~~NA~~	~~1,800~~	~~Liquid~~	~~272.77~~

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	Oral Slope Factor	Chronic Inhalation Reference Concentration	Inhalation Unit Risk Factor	Occupational Short Term Exposure Level	Relative Source Contribution for Drinking Water	Ingestion Absorption Efficiency	Dermal Absorption Efficiency	Relative Source Contribution for Soil	Log Octanol-Water Partition Coefficient	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds
		RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	$(mg/kg\text{-}day)^{-1}$	ug/m^3	$(ug/m^3)^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
Hexachloroethane	67721	1.00E-03	8.50E-03	3.50E+00	4.00E-06	NA	0.2	1	0.1	1	4	1,760
n-Hexane	110543	4.10E-01	NA	2.00E+02	NA	NA	0.2	1	0.1	1	4	1,760
2-Hexanone	591786	1.40E-01	NA	4.00E+01	NA	NA	0.2	1	0.1	1	1.4	23.8
Indeno(1,2,3-cd)pyrene (Q)	193395	NA	4.10E-01	NA	NA	NA	0.2	0.5	0.13	1	6.65	3.45E+06
Iron (B)	7439896	3.00E-01	NA	NA	NA	NA	0.2	0.5	0.01	1	NR	NR
Isobutyl alcohol (I)	78831	3.20E-01	NA	1.50E+03	NA	NA	0.2	1	0.1	1	0.75	5.46
Isophorone	78591	1.50E-01	1.10E-03	2.80E+02	2.70E-07	2.80E+04	0.2	1	0.1	1	1.699	46.8
Isopropyl alcohol (I)	67630	6.40E-02	NA	2.20E+02	NA	1.23E+06	0.2	1	0.1	1	0.05	1.31
Isopropyl benzene	98828	1.10E-01	NA	8.70E+01	NA	NA	0.2	1	0.1	1	3.6	3,460
Lead (B)	7439921	NA	NA	1.50E+00	NA	NA	0.2	0.5	0.01	1	NR	NR
Lindane	58899	3.30E-04	7.10E-01	NA	NA	NA	0.2	1	0.04	1	3.73	1,080
Lithium (B)	7439932	2.80E-02	NA	3.50E+01	NA	NA	0.2	0.5	0.01	1	NR	NR
Magnesium (B)	7439954	1.10E+01	NA	1.00E+02	NA	NA	1	0.5	0.01	1	NR	NR
Manganese (B)	7439965	4.70E-02	NA	5.00E-02	NA	NA	0.5	0.5	0.01	1	NR	NR
Mercury (Total) (B,Z)	Varies	3.00E-04	NA	3.00E-01	NA	NA	0.2	0.5	0.01	1	5.95	NR
Methane	74828	NA	NA	NA	NA	NA	0.2	1	0.1	1	1.09	11.8
Methanol	67561	5.00E-01	NA	3.25E+03	NA	3.28E+06	0.2	1	0.1	1	-0.72	0.196
Methoxychlor	72435	5.00E-03	NA	NA	NA	NA	0.2	0.5	0.1	1	5.08	12,600

2-Methoxyethanol (I)	109864	1.00E-03	NA	2.00E+01	NA	NA	0.2	1	0.1	1	0.77	0.175
2-Methyl-4-chlorophenoxyacetic acid	94746	1.00E-03	NA	NA	NA	NA	0.2	1	0.1	1	3.25	1,570
2-Methyl-4,6-dinitrophenol	534521	3.50E-04	NA	2.00E+00	NA	NA	0.2	1	0.1	1	2.1	116
N-Methyl morpholine (I)	109024	2.70E-03	NA	NA	NA	NA	0.2	1	0.1	1	0.33	0.474
Methyl parathion	298000	2.50E-04	NA	NA	NA	NA	0.2	1	0.1	1	2.9	710
4-Methyl-2-pentanone (MIBK) (I)	108101	2.50E-01	NA	2.05E+03	NA	3.07E+06	0.2	1	0.1	1	1.18	14.5
Methyl-tert-butyl ether (MTBE)	1634044	3.30E-02	3.40E-03	3.00E+03	NA	NA	0.2	1	0.1	1	0.99	9.41
Methylcyclopentane (I)	96377	NA	NA	700	NA	NA	0.2	1	0.1	1	3.37	2,060
4,4'-Methylene-bis-2-chloroaniline	101144	7.30E-04	7.70E-01	NA	3.70E-05	NA	0.2	1	0.1	1	3.92	7,140
Methylene chloride	75092	5.80E-02	4.20E-03	2.00E+03	4.70E-07	NA	0.2	1	0.1	1	1.26	11.9

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Hazardous Substance	Chemical Abstract Service Number	Soil Koc for Ionizing Organic Compounds at pH=6.8	Soil Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Henry's Law Constant at 25□C	Air Diffusivity	Water Diffusivity	Lower Explosive Limit in Air	Flash Point	Water Solubility	Physical State at Standard Temperature and Pressure	Molecular Weight
			Kd	HLC	D_i or D_a or D^{air}	D_w	LEL	FP	S		MW
		L/kg	L/kg	atm-m^3/mol	cm^2/s	cm^2/s	unitless	□F	ug/L	unitless	g/mol
Hexachloroethane	67721	NR	NR	3.89E-03	0.0025	6.80E-06	NA	NA	50,000	Solid	236.74
n-Hexane	110543	NR	NR	1.40E-02	0.08	8.00E-06	0.011	-7	12,000	Liquid	86.18
2-Hexanone	591786	NR	NR	9.57E-05	0.08	8.00E-06	NA	77	1.60E+07	Liquid	100.16
Indeno(1,2,3-cd)pyrene (Q)	193395	NR	NR	1.60E-06	0.019	5.66E-06	NA	NA	0.022	Solid	276.34
Iron (B)	7439896	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	55.845
Isobutyl alcohol (I)	78831	NR	NR	1.30E-05	0.08	8.00E-06	NA	82	7.60E+07	Liquid	74.14
Isophorone	78591	NR	NR	6.20E-06	0.0623	6.76E-06	0.008	184	1.20E+07	Liquid	138.23
Isopropyl alcohol (I)	67630	NR	NR	8.07E-06	0.08	8.00E-06	0.02	53	1.00E+09	Liquid	60.09
Isopropyl benzene	98828	NR	NR	1.50E-02	0.086	7.10E-06	0.009	96	56,000	Liquid	122.16
Lead (B)	7439921	NR	11,000	NR	NR	NR	NA	NA	NA	Inorganic	207.2
Lindane	58899	NR	NR	1.40E-05	0.0176	7.34E-06	NA	NA	6,800	Solid	290.9
Lithium (B)	7439932	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	6.941
Magnesium (B)	7439954	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	24.305
Manganese (B)	7439965	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	54.938
Mercury (Total) (B,Z)	Varies	NR	52	7.10E-10	0.037	6.30E-06	NA	NA	56	Inorganic	200.59
Methane	74828	NR	NR	6.58E-01	0.08	8.00E-06	0.053	-306	NA	Gas	16.04

Methanol	67561	NR	NR	1.70E-04	0.15	1.30E-05	0.06	52	2.90E+07	Liquid	32.05
Methoxychlor	72435	NR	NR	1.58E-05	0.0156	4.46E-06	NA	NA	45	Solid	345.7
2-Methoxyethanol (I)	109864	NR	NR	9.51E-07	0.08	8.00E-06	NA	NA	1.00E+09	Liquid	76.1
2-Methyl-4-chlorophenoxyacetic acid	94746	NR	NR	1.33E-09	0.08	8.00E-06	NA	NA	9.24E+05	Solid	305.79
2-Methyl-4,6-dinitrophenol	534521	NR	NR	4.30E-07	0.08	8.00E-06	NA	NA	2.00E+05	Solid	198.13
N-Methyl-morpholine (I)	109024	NR	NR	2.50E-07	0.08	8.00E-06	NA	NA	1.00E+09	Liquid	101.17
Methyl parathion	298000	NR	NR	1.10E-07	0.08	8.00E-06	NA	NA	50,000	Solid	263.23
4-Methyl-2-pentanone (MIBK) (I)	108101	NR	NR	1.20E-04	0.075	7.80E-06	NA	64	2.00E+07	Liquid	100.2
Methyl-tert-butyl ether (MTBE)	1634044	NR	NR	6.39E-04	0.08	8.00E-06	NA	NA	4.68E+07	Liquid	88.15
Methylcyclopentane (I)	96377	NR	NR	3.63E-01	0.08	8.00E-06	NA	NA	73,890	Liquid	84.16
4,4'-Methylene-bis-2-chloroaniline	101144	NR	NR	4.10E-11	0.08	8.00E-06	NA	NA	14,000	Solid	267.17
Methylene chloride	75092	NR	NR	2.40E-03	0.101	1.17E-05	0.13	NA	1.70E+07	Liquid	50.5

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	Oral Slope Factor	Chronic Inhalation Reference Concentration	Inhalation Unit Risk Factor	Occupational Short-Term Exposure Level	Relative Source Contribution for Drinking Water	Ingestion Absorption Efficiency	Dermal Absorption Efficiency	Relative Source Contribution for Soil	Log Octanol-Water Partition Coefficient	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds
		RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	$(mg/kg\text{-}day)^{-1}$	ug/m^3	$(ug/m^3)^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
2-Methylnaphthalene	91576	3.60E-02	NA	1.00E+01	NA	NA	0.2	1	0.1	1	3.9	6,820
Methylphenols (J)	1319773	5.00E-02	NA	1.00E+02	NA	NA	0.2	1	0.1	1	1.99	45.1
Metolachlor	51218452	2.30E-01	3.50E-03	NA	NA	NA	0.2	1	0.1	1	3.13	361
Metribuzin	21087649	2.50E-02	NA	NA	NA	NA	0.2	0.5	0.1	1	1.7	46.9

Mirex	2385855	2.30E-04	9.30E-01	NA	NA	NA	0.2	0.5	0.1	1	6.7	3.86E+06
Molybdenum (B)	7439987	5.00E-03	NA	NA	NA	NA	0.4	0.5	0.01	1	NR	NR
Naphthalene	91203	7.10E-02	NA	3.00E+00	3.10E-06	7.90E+04	0.2	1	0.1	1	3.36	2,010
Nickel (B)	7440020	7.60E-02	NA	NA	2.40E-04	NA	0.2	0.5	0.01	1	NR	NR
Nitrate (B,N)	14797558	1.60E+00	NA	NA	NA	NA	1	0.5	0.01	1	NR	NR
Nitrite (B,N)	14797650	1.00E-01	NA	NA	NA	NA	1	0.5	0.01	1	NR	NR
Nitrobenzene (I)	98953	4.60E-04	NA	7.00E-01	2.00E-05	NA	0.2	1	0.1	1	1.84	64.4
2 Nitrophenol	88755	2.80E-03	NA	NA	NA	NA	0.2	1	0.1	1	1.8	58.8
n Nitroso di n propylamine	621647	2.50E-01	4.50E+00	NA	2.00E-03	NA	0.2	1	0.1	1	1.4	23.8
N Nitrosodiphenylamine	86306	2.50E-01	3.10E-03	NA	1.40E-06	NA	0.2	1	0.1	1	3.16	381
Oxamyl	23135220	3.80E-02	NA	NA	NA	NA	0.2	1	0.1	1	0.47	0.508
Oxo hexyl acetate	88230357	1.00E-02	NA	3.10E+01	NA	NA	0.2	1	0.1	1	NA	NA
Pendimethalin	40487421	1.20E-01	NA	NA	NA	NA	0.2	0.5	0.1	1	5.18	1.24E+05
Pentachlorobenzene	608935	8.30E-04	NA	NA	NA	NA	0.2	0.5	0.1	1	5.26	1.48E+05
Pentachloronitrobenzene	82688	7.50E-03	NA	5.00E+00	NA	NA	0.2	1	0.1	1	4.64	36,400
Pentachlorophenol	87865	3.00E-02	6.80E-02	1.00E+02	3.00E-05	NA	0.2	0.5	0.25	1	5.09	592
Pentane	109660	NA	NA	1.80E+04	NA	2.21E+06	0.2	1	0.1	1	3.42	2,300
2 Pentene (I)	109682	NA	NA	NA	NA	NA	0.2	1	0.1	1	2.58	344
pH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NR
Phenanthrene	85018	7.10E-03	NA	1.00E-01	NA	NA	0.2	1	0.1	1	4.6	33,300
Phenol	108952	6.00E-01	NA	6.00E+02	NA	NA	0.2	1	0.1	1	1.48	17.8
Phenytoin	57410	3.00E-02	5.10E-02	NA	1.40E-05	NA	0.2	1	0.1	1	2.47	1473
Phosphorus (Total)	7723140	1.10E+01	NA	1.00E+00	NA	NA	0.2	0.5	0.1	1	NR	NA
Phthalic acid	88993	1.90E+00	NA	NA	NA	NA	0.2	1	0.1	1	0.73	5.22

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Hazardous Substance	Chemical Abstract Service Number	Soil Koc for Ionizing Organic Compounds at pH=6.8	Soil Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Henry's Law Constant at 25□C	Air Diffusivity	Water Diffusivity	Lower Explosive Limit in Air	Flash Point	Water Solubility	Physical State at Standard Temperature and Pressure	Molecular Weight
			Kd	HLC	D_i or D_a or D^{air}	D_w	LEL	FP	S		MW
		L/kg	L/kg	atm-m^3/mol	cm^2/s	cm^2/s	unitless	□F	ug/L	unitless	g/mol
2-Methylnaphthalene	91576	NR	NR	4.99E-04	0.08	8.00E-06	NA	NA	24,600	Solid	142.2
Methylphenols (J)	1319773	NR	NR	1.60E-06	0.074	8.30E-06	NA	178	2.80E+07	Solid	108.13
Metolachlor	51218452	NR	NR	9.90E-09	0.08	8.00E-06	NA	NA	5.30E+05	Liquid	283.83
Metribuzin	21087649	NR	NR	8.80E-02	0.08	8.00E-06	NA	NA	1.20E+06	Solid	214.29
Mirex	2385855	NR	NR	5.16E-04	0.08	8.00E-06	NA	NA	6.80E-06	Solid	545.54
Molybdenum (B)	7439987	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	95.94
Naphthalene	91203	NR	NR	4.83E-04	0.059	7.50E-06	0.009	174	31,000	Solid	128.17
Nickel (B)	7440020	NR	65	NR	NR	NR	NA	NA	NA	Inorganic	58.7
Nitrate (B,N)	14797558	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	62
Nitrite (B,N)	14797650	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	46
Nitrobenzene (I)	98953	NR	NR	2.40E-05	0.076	8.60E-06	NA	190	2.09E+06	Liquid	123.11
2-Nitrophenol	88755	NR	NR	3.50E-06	0.08	8.00E-06	NA	NA	2.50E+06	Solid	139.11
n-Nitroso-di-n-propylamine	621647	NR	NR	2.25E-06	0.0545	8.17E-06	NA	NA	9.89E+06	Liquid	130.22
N-Nitrosodiphenylamine	86306	NR	NR	5.00E-06	0.0312	6.35E-06	NA	NA	35,100	Solid	198.22
Oxamyl	23135220	NR	NR	2.37E-10	0.08	8.00E-06	NA	NA	2.80E+08	Solid	219.29
Oxo-hexyl acetate	88230357	NR	NR	NA	0.08	8.00E-06	NA	NA	NA	Liquid	144.2

Pendimethalin	40487421	NR	NR	8.56E-07	0.08	8.00E-06	NA	NA	275	Solid	281.31
Pentachlorobenzene	608935	NR	NR	8.40E-04	0.067	6.30E-06	NA	NA	650	Liquid	250.3
Pentachloronitrobenzene	82688	NR	NR	2.90E-02	0.08	8.00E-06	NA	NA	32	Solid	295.32
Pentachlorophenol	87865	592	NR	2.44E-08	0.056	6.10E-06	NA	NA	1.85E+06	Solid	266.32
Pentane	109660	NR	NR	1.26E+00	0.08	8.00E-06	0.015	-57	38,200	Liquid	72.15
2-Pentene-(I)	109682	NR	NR	2.30E-01	0.08	8.00E-06	NA	NA	2.03E+05	Liquid	70.13
pH	NA	NR	NA	NR	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	85018	NR	NR	2.30E-05	0.08	8.00E-06	NA	NA	1,000	Solid	178.24
Phenol	108952	NR	NR	3.97E-07	0.082	9.10E-06	0.018	175	8.28E+07	Liquid	147.01
Phenytoin	57410	NA	NR	1.02E-11	0.08	8.00E-06	NA	NA	3.20E+04	Solid	252.2718
Phosphorus (Total)	7723140	NR	NR	NR	0.08	8.00E-06	NA	NA	NA	Solid	30.974
Phthalic acid	88993	NR	NR	2.18E-12	0.08	8.00E-06	NA	NA	1.42E+07	Liquid	166.13

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		RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	(mg/kg-day)$^{-1}$	ug/m^3	(ug/m^3)$^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
Phthalic anhydride	85449	2.10E+00	NA	NA	NA	NA	0.2	1	0.1	1	1.6	37.4
Picloram	1918021	7.00E-02	NA	NA	NA	NA	0.2	1	0.1	1	0.3	1.97
Piperidine	110894	4.40E-04	NA	1.40E+02	NA	NA	0.2	1	0.1	1	0.84	6.7
Polybrominated biphenyls (J)	67774327	4.30E-06	7.20E+00	NA	NA	NA	0.2	0.5	0.1	1	7.07	8.91E+06
Polychlorinated biphenyls (PCBs) (J,T)	1336363	2.00E-05	2.00E+00	NA	6.00E-04	NA	0.2	0.5	0.14	1	5.58	3.06E+05
Prometon	1610180	2.20E-02	NA	NA	NA	NA	0.2	1	0.1	1	2.99	870
Propachlor	1918167	1.30E-02	NA	NA	NA	NA	0.2	1	0.1	1	2.01	94.6
Propazine	139402	2.70E-02	NA	NA	NA	NA	0.2	1	0.1	1	2.75	505
Propionic acid	79094	1.70E+00	NA	3.00E+02	NA	NA	0.2	1	0.1	1	0.28	1.89
Propyl alcohol (I)	71238	1.90E-01	NA	7.30E+02	NA	6.14E+05	0.2	1	0.1	1	0.25	1.89
n-Propylbenzene (I)	103651	1.10E-02	NA	2.00E+01	NA	NA	0.2	1	0.1	1	3.69	4,240
Propylene glycol	57556	2.00E+01	NA	6.00E+03	NA	NA	0.2	1	0.1	1	-0.92	0.125
Pyrene	129000	7.50E-02	NA	1.00E+02	NA	NA	0.2	0.5	0.1	1	5.11	1.06E+05
Pyridine (I)	110861	1.00E-03	NA	3.50E+00	NA	NA	0.2	1	0.1	1	0.67	4.56
Selenium (B)	7782492	5.00E-03	NA	2.00E+00	NA	NA	0.2	0.5	0.01	1	NR	NR
Silver (B)	7440224	4.70E-03	NA	1.00E-01	NA	NA	0.2	0.5	0.01	1	NR	NR
Silvex (2,4,5-TP)	93721	7.50E-03	NA	NA	NA	NA	0.2	1	0.1	1	3.4	2,200
Simazine	122349	5.20E-03	NA	NA	NA	NA	0.2	1	0.1	1	1.93	79

Sodium	17341252	3.40E+01	NA	NA	NA	NA	0.1	0.5	0.01	1	NR	NR
Sodium azide	26628228	1.20E-02	NA	NA	NA	NA	0.2	1	0.1	1	NA	NA
Strontium (B)	7440246	6.30E-01	NA	NA	NA	NA	0.2	0.5	0.01	1	NR	NR
Styrene	100425	2.00E-01	1.30E-02	1.00E+03	5.70E-07	1.70E+05	0.2	1	0.1	1	2.94	777
Sulfate	14808798	NA	NA	NA	NA	NA	NA	0.5	0.1	1	NR	NR
Tebuthiuron	34014181	7.00E-02	NA	NA	NA	NA	0.2	1	0.1	1	1.78	56.2
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NA	7.50E+04	NA	NA	NA	0.2	0.5	0.03	1	7.24	1.31E+07
1,2,4,5-Tetrachlorobenzene	95943	3.40E-01	NA	1.00E+00	NA	NA	0.2	1	0.1	1	4.64	36,400
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O)	1746016	NA	7.50E+04	2.00E-06	4.40E+01	NA	0.2	0.5	0.03	1	7.04	8.33E+06
1,1,1,2-Tetrachloroethane	630206	8.90E-02	1.10E-02	NA	7.40E-06	NA	0.2	1	0.1	1	2.63	145

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			Kd	HLC	D_i or D_e or D^{air}	D_w	LEL	FP	S		MW
		L/kg	L/kg	atm-m^3/mol	cm^2/s	cm^2/s	unitless	□F	ug/L	unitless	g/mol
Phthalic anhydride	85449	NR	NR	1.63E-08	0.08	8.00E-06	1.70E+07	305	6.20E+06	Liquid	148.1
Picloram	1918021	NR	NR	4.05E-11	0.08	8.00E-06	NA	NA	4.30E+05	Solid	241.48
Piperidine	110894	NR	NR	4.45E-06	0.08	8.00E-06	NA	NA	1.00E+09	Liquid	85.15
Polybrominated biphenyls (I)	67774327	NR	NR	3.90E-06	0.08	8.00E-06	NA	NA	1.66E+07	Solid	NA
Polychlorinated biphenyls (PCBs) (J,T)	1336363	NR	NR	4.20E-04	0.08	8.00E-06	NA	NA	44.7	Solid	268.4
Prometon	1610180	NR	NR	1.98E-09	0.08	8.00E-06	NA	NA	7.50E+05	Solid	225.29
Propachlor	1918167	NR	NR	1.09E-07	0.08	8.00E-06	NA	NA	6.55E+05	Solid	211.69
Propazine	139402	NR	NR	4.60E-09	0.08	8.00E-06	NA	NA	8,600	Solid	229.75
Propionic acid	79094	NR	NR	4.45E-07	0.08	8.00E-06	0.029	126	1.00E+09	Liquid	74.09
Propyl alcohol (I)	71238	NR	NR	7.41E-06	0.08	8.00E-06	0.022	72	1.00E+09	Liquid	60.11
n-Propylbenzene (I)	103651	NR	NR	NA	0.08	8.00E-06	NA	NA	NA	Liquid	120.19
Propylene glycol	57556	NR	NR	1.24E-08	0.08	8.00E-06	NA	NA	1.00E+09	Liquid	76.1
Pyrene	129000	NR	NR	1.10E-05	0.0272	7.24E-06	NA	NA	135	Solid	202.26
Pyridine (I)	110861	NR	NR	7.00E-03	0.091	7.60E-06	0.018	68	3.00E+05	Liquid	79.11
Selenium (B)	7782492	NR	5	NR	NR	NR	NA	NA	NA	Inorganic	78.96
Silver (B)	7440224	NR	8.3	NR	NR	NR	NA	NA	NA	Inorganic	107.868
Silvex (2,4,5-TP)	93721	NR	NR	1.30E-08	0.08	8.00E-06	NA	NA	1.40E+05	Solid	269.51

Simazine	122349	NR	NR	3.37E-09	0.08	8.00E-06	NA	NA	4,470	Solid	201.67
Sodium	17341252	NR	NA	NR	NR	NR	NA	NA	NA	Inorganic	23
Sodium azide	26628228	NR	NA	NA	0.08	8.00E-06	NA	NA	NA	Solid	65.01
Strontium (B)	7440246	NR	NA	NR	NA	NA	NA	NA	NA	Inorganic	87.62
Styrene	100425	NR	NR	2.75E-03	0.071	8.00E-06	0.009	88	3.10E+05	Liquid	104.15
Sulfate	14808798	NR	NA	NR	0.08	8.00E-06	NA	NA	NA	Inorganic	96.066
Tebuthiuron	34014181	NR	NR	2.40E-10	0.08	8.00E-06	NA	NA	2.50E+06	Solid	228.31
2,3,7,8-Tetrabromodibenzo p-dioxin (O)	50585416	NR	NR	2.95E-07	0.08	8.00E-06	NA	NA	0.00996	Solid	499.6
1,2,4,5-Tetrachlorobenzene	95943	NR	NR	1.20E-03	0.08	8.00E-06	NA	NA	1,300	Solid	215.28
2,3,7,8-Tetrachlorodibenzo p-dioxin (O)	1746016	NR	NR	9.20E-06	0.047	8.00E-06	NA	NA	0.019	Solid	322
1,1,1,2-Tetrachloroethane	630206	NR	NR	2.40E-03	0.071	7.90E-06	NA	NA	1.10E+06	Liquid	167.85

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		RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	$(mg/kg\text{-}day)^{-1}$	ug/m^3	$(ug/m^3)^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
1,1,2,2-Tetrachloroethane	79345	NA	1.00E-01	NA	5.80E-05	NA	0.2	1	0.1	1	2.39	93.5
Tetrachloroethylene	127184	1.00E-02	2.60E-02	4.00E+01	5.80E-07	6.85E+05	0.2	1	0.1	1	2.67	156
Tetrahydrofuran	109999	1.30E-02	NA	5.90E+03	2.00E-06	7.37E+05	0.2	1	0.1	1	0.46	2.83
Tetranitromethane	509148	NA	NA	4.00E-01	1.50E-02	NA	0.2	NA	NA	1	-2.05	9.66E-03
Thallium (B)	7440280	6.70E-05	NA	0.2	NA	NA	0.2	0.5	0.01	1	NR	NR
Toluene (I)	108883	2.20E-01	NA	4.00E+02	NA	NA	0.2	1	0.1	1	2.75	180
p-Toluidine	106490	NA	5.60E-02	NA	3.10E-05	NA	0.2	1	0.1	1	1.39	23.3
Total dissolved solids (TDS)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NR
Toxaphene	8001352	NA	4.40E-01	NA	3.20E-04	1.00E+03	0.2	0.5	0.1	1	5.5	2.55E+05
Triallate	2303175	1.30E-02	NA	NA	NA	NA	0.2	1	0.1	1	4.57	31,100
Tributylamine	102829	3.50E-03	NA	7.00E+00	NA	NA	0.2	1	0.1	1	4.46	24,200
1,2,4-Trichlorobenzene	120821	1.50E-02	NA	3.70E+02	NA	3.70E+04	0.2	1	0.1	1	4.01	1,790
1,1,1-Trichloroethane	71556	2.20E+00	NA	1.00E+03	NA	2.46E+06	0.2	1	0.1	1	2.48	110
1,1,2-Trichloroethane	79005	3.90E-03	2.90E-02	NA	1.60E-05	NA	0.2	1	0.1	1	2.05	50.3
Trichloroethylene	79016	1.70E-03	1.00E-02	2.00E+00	1.70E-06	5.37E+05	0.2	1	0.1	1	2.71	168
Trichlorofluoromethane	75694	3.50E-01	NA	5.62E+04	NA	5.62E+06	0.2	1	0.1	1	2.53	121
2,4,5-Trichlorophenol	95954	1.00E-01	NA	3.50E+02	NA	NA	0.2	1	0.1	1	3.9	1,597
2,4,6-Trichlorophenol	88062	NA	7.40E-03	NA	3.10E-06	NA	0.2	1	0.1	1	3.7	381
1,2,3-Trichloropropane	96184	5.70E-03	NA	0.3	NA	NA	0.2	1	0.1	1	2.26	167

1,1,2 Trichloro 1,2,2 trifluoroethane	76131	2.70E+01	NA	7.67E+04	NA	9.59E+06	0.2	1	0.1	1	3.15	1,250
Triethanolamine	102716	5.00E-01	NA	5.00E+01	NA	NA	0.2	1	0.1	1	-1.38	0.044
Triethylene glycol	112276	5.90E-01	NA	NA	NA	NA	0.2	1	0.1	1	-1.69	0.0218
3-Trifluoromethyl-4-nitrophenol	88302	6.20E-01	NA	NA	NA	NA	0.2	1	0.1	1	2.87	663
Trifluralin	1582098	5.10E-03	4.50E-03	NA	NA	NA	0.2	0.5	0.1	1	5.3	1.62E+05
2,2,4-Trimethyl pentane	540841	NA	NA	3.50E+03	NA	NA	0.2	1	0.1	1	4.09	2,080
2,4,4-Trimethyl-2-pentene (I)	107404	NA	NA	NA	NA	NA	0.2	1	0.1	1	4	1,760
1,2,4-Trimethylbenzene (I)	95636	1.40E-01	NA	1.23E+03	NA	NA	0.2	1	0.1	1	3.67	965
1,3,5-Trimethylbenzene (I)	108678	1.40E-01	NA	1.23E+03	NA	NA	0.2	1	0.1	1	3.5	708

TABLE 4. TOXICOLOGICAL AND CHEMICAL-PHYSICAL DATA
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

Scientific notation is represented by E+ or E- a value, for example 200,000 is presented as 2.0E+5. Units are as indicated in each column heading. The dataset for each hazardous substance consists of 22 columns across two pages. Review all 22 columns when evaluating data for a specific hazardous substance.

Hazardous Substance	Chemical Abstract Service Number	Soil Koc for Ionizing Organic Compounds at pH=6.8	Soil Water Distribution Coefficients for Inorganic Compounds at pH=6.8	Henry's Law Constant at 25□C	Air Diffusivity	Water Diffusivity	Lower Explosive Limit in Air	Flash Point	Water Solubility	Physical State at Standard Temperature and Pressure	Molecular Weight
			Kd	HLC	D_i or D_e or D^{air}	D_w	LEL	FP	S		MW
		L/kg	L/kg	atm-m^3/mol	cm^2/s	cm^2/s	unitless	□F	ug/L	unitless	g/mol
1,1,2,2-Tetrachloroethane	79345	NR	NR	3.45E-04	0.071	7.90E-06	NA	NA	2.97E+06	Liquid	167.85
Tetrachloroethylene	127184	NR	NR	1.84E-02	0.072	8.20E-06	NA	NA	2.00E+05	Liquid	165.83
Tetrahydrofuran	109999	NR	NR	9.63E-03	0.08	8.00E-06	0.02	6	1.00E+09	Liquid	72.12
Tetranitromethane	509148	NR	NR	2.60E-05	0.08	8.00E-06	NA	NA	85,000	Liquid	196.03
Thallium (B)	7440280	NR	71	NR	NR	NR	NA	NA	NA	Inorganic	204.383
Toluene (I)	108883	NR	NR	6.64E-03	0.087	8.60E-06	0.011	40	5.26E+05	Liquid	92.14
p-Toluidine	106490	NR	NR	6.10E-06	0.08	8.00E-06	NA	188	7.60E+06	Liquid	107.17
Total dissolved solids (TDS)	NA	NR	NA	NR	NA	NA	NA	NA	NA	NA	NA
Toxaphene	8001352	NR	NR	6.00E-06	0.0116	4.34E-06	NA	NA	740	Solid	414
Triallate	2303175	NR	NR	1.93E-05	0.08	8.00E-06	NA	NA	4,000	Liquid	304.66
Tributylamine	102829	NR	NR	5.60E-03	0.08	8.00E-06	NA	NA	75,400	Liquid	185.4
1,2,4-Trichlorobenzene	120821	NR	NR	1.42E-03	0.03	8.23E-06	NA	222	3.00E+05	Liquid	181.45
1,1,1-Trichloroethane	71556	NR	NR	1.72E-02	0.078	8.80E-06	0.075	NA	1.33E+06	Liquid	133.4
1,1,2-Trichloroethane	79005	NR	NR	9.13E-04	0.078	8.80E-06	0.06	NA	4.42E+06	Liquid	133.4
Trichloroethylene	79016	NR	NR	1.03E-02	0.079	9.10E-06	0.08	NA	1.10E+06	Liquid	131.39
Trichlorofluoromethane	75694	NR	NR	1.30E-01	0.087	9.70E-06	NA	NA	1.10E+06	Liquid	137.38
2,4,5-Trichlorophenol	95954	1,597	NR	4.33E-06	0.0291	7.03E-06	NA	NA	1.20E+06	Solid	197.5

2,4,6 Trichlorophenol	88062	381	NR	7.79E-06	0.0318	6.25E-06	NA	NA	8.00E+05	Solid	197.5
1,2,3 Trichloropropane	96184	NR	NR	3.80E-04	0.071	7.90E-06	NA	160	1.90E+06	Liquid	147.43
1,1,2 Trichloro 1,2,2 trifluoroethane	76131	NR	NR	5.30E-01	0.078	8.20E-06	NA	NA	1.70E+05	Liquid	187.38
Triethanolamine	102716	NR	NR	3.38E-19	0.08	8.00E-06	NA	NA	1.00E+09	Liquid	149.19
Triethylene glycol	112276	NR	NR	2.61E-10	0.0427	8.06E-06	NA	NA	1.00E+06	Liquid	150.17
3 Trifluoromethyl 4 nitrophenol	88302	NR	NR	1.92E-08	0.08	8.00E-06	NA	NA	5.00E+06	Solid	207
Trifluralin	1582098	NR	NR	2.60E-05	0.08	8.00E-06	NA	NA	8,100	Solid	335.29
2,2,4 Trimethyl pentane	540841	NR	NR	3.13E+00	0.08	8.00E-06	0.011	10	2,330	Liquid	114.23
2,4,4 Trimethyl 2 pentene (I)	107404	NR	NR	8.81E-01	0.08	8.00E-06	NA	NA	11,900	Liquid	112.2
1,2,4 Trimethylbenzene (I)	95636	NR	NR	5.87E-03	0.08	8.00E-06	0.009	112	55,890	Liquid	120.2
1,3,5 Trimethylbenzene (I)	108678	NR	NR	7.38E-03	0.08	8.00E-06	NA	122	61,150	Liquid	120.2

TABLE 4. TOXICOLOGICAL AND CHEMICAL-PHYSICAL DATA FOR PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

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Hazardous Substance	Chemical Abstract Service Number	Oral Reference Dose	Oral Slope Factor	Chronic Inhalation Reference Concentration	Inhalation Unit Risk Factor	Occupational Short Term Exposure Level	Relative Source Contribution for Drinking Water	Ingestion Absorption Efficiency	Dermal Absorption Efficiency	Relative Source Contribution for Soil	Log Octanol-Water Partition Coefficient	Soil Organic Carbon-Water Partition Coefficients for Organic Compounds
		RfD	SF	RfC	IURF	STEL	RSC	AEi	AEd	RSC	Log Kow	Koc
		mg/kg-day	$(mg/kg\text{-}day)^{-1}$	ug/m^3	$(ug/m^3)^{-1}$	ug/m^3	unitless	unitless	unitless	unitless	unitless	L/kg
Triphenyl phosphate	115866	1.60E-01	NA	NA	NA	NA	0.2	1	0.1	1	4.67	39,000
tris(2,3-Dibromopropyl)phosphate	126727	NA	1.20E+00	NA	5.30E-04	NA	0.2	1	0.1	1	3.51	2,820
Urea	57136	NA	NA	NA	NA	NA	0.2	1	0.1	1	-2.11	0.0256
Vanadium	7440622	5.00E-03	NA	NA	NA	NA	0.2	0.5	0.01	1	NR	NR
Vinyl acetate (I)	108054	8.80E-02	NA	2.00E+02	NA	5.30E+04	0.2	1	0.1	1	0.73	5.22
Vinyl chloride	75014	3.00E-03	1.40E+00	1.00E+02	8.80E-06	NA	0.2	1	0.1	1	1.5	18.5
White phosphorus (R)	12185103	1.50E-05	NA	NA	NA	NA	0.2	0.5	0.01	1	NR	NR
Xylenes (I)	1330207	1.80E+00	NA	4.40E+03	NA	6.51E+05	0.2	1	0.1	1	3.11	348
Zinc (B)	7440666	3.30E-01	NA	NA	NA	NA	0.2	0.5	0.01	1	NR	NR