RULES AND REGULATIONS

Title 25—ENVIRONMENTAL PROTECTION

ENVIRONMENTAL QUALITY BOARD

[25 PA. CODE CH. 250]

Administration of Land Recycling Program

The Environmental Quality Board (Board) amends Chapter 250 (relating to administration of Land Recycling Program) to read as set forth in Annex A. This final-form rulemaking is required by § 250.11 (relating to periodic review of MSCs), which directs the Department of Environmental Protection (Department) to review new scientific information that relates to the basis of the Statewide health standard medium-specific concentrations (MSC) at least 36 months after the effective date of the most recently promulgated MSCs and to propose to the Board any changes to the MSCs as necessary. In addition to updating the existing MSCs, this final-form rulemaking adds MSCs for three new contaminants, namely Perfluorooctanoic Acid (PFOA), Perfluorooctane Sulfonate (PFOS) and Perfluorobutane Sulfonate (PFBS). These contaminants are within the Per-fluoroalkyl and Polyfluoroalkyl Acid Substances (PFAS) family of compounds for which the United States Environmental Protection Agency (EPA) has published toxicological data. This final-form rulemaking clarifies several other regulatory requirements.

This final-form rulemaking was adopted by the Board at its meeting of June 15, 2021.

A. *Effective Date*

This final-form rulemaking will be effective upon publication in the *Pennsylvania Bulletin*.

B. *Contact Persons*

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C. *Statutory Authority*

This final-form rulemaking is authorized under sections 104(a) and 303(a) of the Land Recycling and Environmental Remediation Standards Act (Act 2) (35 P.S. §§ 6026.104(a) and 6026.303(a)), which direct the Board to adopt and amend periodically by regulation Statewide health standards for regulated substances for each environmental medium, including any health-based standards adopted by the Federal government by regulation or statute, and health advisory levels (HAL), and which direct the Board to promulgate appropriate mathematically valid statistical tests to define compliance with Act 2, and other regulations as necessary to implement the provisions of Act 2; and section 1920-A of The Administrative Code of 1929 (71 P.S. § 510-20), which authorizes the Board to formulate, adopt and promulgate rules and regulations that are necessary for the proper work of the Department.

D. *Background and Purpose*

Section 250.11 requires that the Department review new scientific information that is used to calculate MSCs under the Statewide health standard and propose appropriate changes at least every 36 months following the effective date of the most recently promulgated MSCs. The Board's most recently promulgated MSCs became effective upon publication at 46 Pa.B. 5655 (August 27, 2016). These changes, based on new information, will protect public health and the environment, and will provide the regulated community with clear information regarding the requirements of Act 2 and Chapter 250 related to the remediation of contaminated sites.

In addition to updating Chapter 250 MSCs, this final-form rulemaking includes changes that add groundwater and soil MSCs for three compounds in the PFAS family—PFBS, PFOS and PFOA. The standards for the three PFAS chemicals are based on data in toxicological studies published by the EPA. Under Act 2, the Department has directly incorporated the EPA's 2016 HALs regarding PFOS and PFOA as groundwater MSCs and has used the data developed by the EPA for those HALs to calculate soil MSCs for both compounds. With respect to PFBS, the Department has established soil and groundwater standards based on a 2014 EPA Provisional Peer-Reviewed Toxicity Value (PPRTV).

Finally, this final-form rulemaking clarifies several procedural issues related to the administrative requirements of Act 2. In particular, this final-form rulemaking clarifies requirements for remediators and municipalities regarding public participation and public involvement plans, updates requirements for acceptable "practical quantitation limits" related to the precision of laboratory testing, updates requirements for professional seals from professional geologists or engineers, provides resources to calculate MSCs, and clarifies the proper submission of various reports related to the Act 2 Site-Specific Standard.

This final-form rulemaking impacts any person addressing a release of a regulated substance at a property, whether voluntarily or because of an order by the Department. This final-form rulemaking does not impact one particular category of person with additional or new regulatory obligations. Under Act 2, a remediator may select the standard to which to remediate. To complete a remediation, the remediator must then comply with all relevant remediation and administrative standards.

As noted previously, this final-form rulemaking does not singularly affect one specific industry or person. This final-form rulemaking does impact the owners and operators of storage tank facilities that have had a release of a petroleum or hazardous substance. There are approximately 12,000 storage facilities in this Commonwealth. Some of these facilities are owned or operated, or both, by small businesses. Because of the broad potential reach of this final-form rulemaking, it is not possible to identify specifics on the types and numbers of small businesses that could potentially be affected by property contamination. In addition, Act 2 and Chapter 250 are unique from other statutes and regulations because they do not create permitting or corrective action obligations. Instead, Act 2 and Chapter 250 provide remediators with options to address contamination and any associated liability that arises under other statutes. For example, adding PFOS to the Chapter 250 Appendix does not create any liability or

obligation related to PFOS. Instead, a person's liability arises under The Clean Streams Law (35 P.S. §§ 691.1—691.1001) while Act 2 and Chapter 250 provide that person the means to resolve their Clean Streams Law liability and to address the contamination. In this way, Act 2 and Chapter 250 do not create new obligations that will impact a particular category of person like a new permitting obligation or corrective action regulation would.

The soil numeric values represent a decrease for approximately 83% of the values and an increase for 17% of the values. For groundwater, the changes reflect a decrease for approximately 92% of the values and an increase in approximately 8% of the values. Lowering the values may indicate a more stringent cleanup is required at a site and increasing the values may indicate a less stringent cleanup is required at a site. These changes reflect updated information related to exposure limitations to these substances and recognize that a higher or lower standard is better representative of those substances' exposure thresholds.

The number of completed remediations vary each year. On average, remediators apply the Act 2 remediation standard to approximately 800 contaminated properties across this Commonwealth. Generally, investigation and cleanup costs vary greatly based on the severity of the contamination, the size of the site, the complexity of the remediation strategy, and the cleanup standard selected. Thus, accurate costs and savings cannot be determined at this time because the cost analysis must be based on site-specific considerations evaluated on case-by-case bases.

The Department worked with the Cleanup Standards Scientific Advisory Board (CSSAB) during the development of this final-form rulemaking. The CSSAB, which was established by section 105 of Act 2 (35 P.S. § 6026.105), consists of persons representing a cross-section of experience, including engineering, biology, hydrogeology, statistics, medicine, chemistry, toxicology and other related fields. The purpose of the CSSAB is to assist the Department and the Board in developing Statewide health standards, determining the appropriate statistically and scientifically valid procedures and risk factors to be used, and providing other technical advice as needed to implement Act 2. During CSSAB meetings on August 1, 2018, February 13, 2019, June 12, 2019, and October 29, 2019, CSSAB members were given the opportunity to review and provide feedback on draft regulatory amendments to Chapter 250. CSSAB members were also given the opportunity to review and provide feedback on this final-form rulemaking at the July 30, 2020, and the December 16, 2020, meetings. The Department worked with the CSSAB to resolve concerns and agreed to evaluate additional suggestions during the next review cycle for this final-form rulemaking. Following the presentations and discussions in 2018 and 2019, the CSSAB issued a letter related to the regulatory amendments included in this final-form rulemaking. Specifically, the CSSAB noted concern related to the MSCs for vanadium.

A listing of CSSAB members and minutes of CSSAB meetings are available on the Department's web site at www.dep.pa.gov (select "Public Participation," then "Advisory Committees," then "Cleanup and Brownfields," then "Cleanup Standards Scientific Advisory Board").

E. *Summary of Final-Form Rulemaking and Changes from Proposed to Final-Form Rulemaking*

§ 250.1. Definitions

This final-form rulemaking adds a definition for the term "MDL—Method detection limit" because both "method detection limit" and "MDL" are used in Chapter 250 but are not defined. This definition is consistent with the EPA's definition (see U.S. EPA Office of Water Publication EPA 821-R-16-006, 2016).

This final-form rulemaking amends the definition of "volatile compound" to match the description in Section IV, Appendix IV-A.1 of the Department's Land Recycling Program Technical Guidance Manual (TGM) and to match the EPA's definition in their Office of Solid Waste and Emergency Response (OSWER) *Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (OSWER Publication 9200.2-154, 2015). The previous definition excluded naphthalene as well as several other semi-volatiles that are considered volatiles in the vapor intrusion section of the TGM. The Department's TGM is available at https://www.dep.pa.gov/Business/Land/LandRecycling/Standards-Guidance-Procedures/Guidance-Technical-Tools/Pages/Technical-Guidance-Manual.aspx.

§ 250.4. Limits related to PQLs

Amendments to this section update the procedures for determining the practical quantitation limit (PQL), provide for a wider range of sources for PQLs and estimated quantitation limits (EQL), and remove confusing and outdated language. Improvements in laboratory instrument technology and the removal of PQLs and EQLs from revised laboratory methods resulted in the need to update this section. This change allows for the use of EPA analytical method manuals that may contain PQLs or EQLs other than the EPA RCRA Manual for SW-846.

§ 250.6. Public participation

The amendments to § 250.6(c) (relating to public participation) clarify that if a public involvement plan (PIP) has been initiated, the public has a right to be involved in the development and review of the remedial investigation report, risk assessment report, cleanup plan and final report consistent with section 304(o) of Act 2 (35 P.S. § 6026.304(o)), regarding community involvement, and outlines the necessary measures to involve the public.

The amendments to § 250.6(d) help to ensure that the Department and the municipality requesting the PIP are notified of the submission of the PIP and receive copies of the PIP. These amendments necessitate the deletion of § 250.6(d)(1) and (2) because it no longer makes sense to include them in subsection (d). Paragraphs (1) and (2) were deleted because they are already discussed in Chapter 250 in the final report requirements section for the site-specific standard in § 250.411(e) (relating to final report) and remediation requirements section for special industrial area (SIA) sites in § 250.503(f) (relating to remediation requirements). Finally, these two paragraphs were deleted because the current Chapter 250 regulations require that the public involvement plan be submitted with the remedial investigation report or baseline environmental report. The change is necessary because the Department needs notice of PIPs in advance of receipt of those reports.

§ 250.10. Measurement of regulated substances in media

The amendments to § 250.10(d) (relating to measurement of regulated substances in media) change the references from the Groundwater Monitoring Guidance

Manual to reference the most current version of Appendix A of the TGM or an alternative method that appropriately measures regulated substances in groundwater. Specific alternative methods are not provided in the rulemaking to allow for the use of various acceptable methods that may be developed after the publication of this final-form rulemaking. Laboratories are best suited to determine the appropriate analytical methods for their individual capabilities and to accommodate the variability of the samples submitted by their clients. The language in § 250.10(d) allows the flexibility remediators and laboratories need to determine the best method for a site. If the Department's staff question the methods chosen by a laboratory or remediator when reviewing data submitted with Act 2 reports, those questions will be addressed directly with the laboratory or remediator on a case-by-case basis.

§ 250.12. Professional seal

This section mirrors language from § 245.314 (relating to professional seals) of the storage tank regulations, requiring that reports submitted to the Department which include professional geologic or engineering work be sealed by a professional geologist or engineer.

§ 250.304. MSCs for groundwater

Under subsection (c), the EPA publication number is amended.

Under subsection (g), this final-form rulemaking lists additional sources of aqueous solubility information to support the new compounds to be added to the MSC tables in this final-form rulemaking. The following aqueous solubility sources have been added to subsection (g):

19. ATSDR (Agency for Toxic Substances and Disease Registry). 2015. *Toxicological Profile for Perfluoroalkyls. Draft for Public Comment*. Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. Accessed May 2016. http://www.atsdr.cdc.gov/ToxProfiles/tp200.pdf.

20. Hekster, F.M., R.W. Laane, and P. de Voogt. 2003. *Environmental and toxicity effects of perfluoroalkylated substances. Reviews of Environmental Contamination and Toxicology* 179:99—121.

21. HSDB (Hazardous Substances Data Bank). 2012. U.S. National Library of Medicine, Bethesda, MD. Accessed May 2016. http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.

22. Kauck, E.A., and A.R. Diesslin. 1951. *Some properties of perfluorocarboxylic acids. Industrial & Engineering Chemistry Research* 43(10):2332—2334.

23. SRC (Syracuse Research Corporation). 2016. PHYSPROP Database. Accessed May 2016. http://www.srcinc.com/what-we-do/environmental/scientific-databases.html.

24. OECD (Organisation for Economic Co-operation and Development). 2002. *Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts.* ENV/JM/RD (2002) 17/FINAL. Report of the Environment Directorate, Joint Meeting of the Chemicals Committee and the Working Party on Chemicals, Pesticides and Biotechnology, Co-operation on Existing Chemicals, Paris, November 21, 2002.

§ 250.305. MSCs for soil

Under subsection (c), a minor correction is made to a cross-reference.

The amendments to § 250.305(g) (relating to MSCs for soil) alleviate confusion as to the need to evaluate the soil-to-groundwater pathway for compounds that have secondary maximum contaminant levels (SMCL) and either a primary Maximum Containment Level (MCL) or a HAL. These changes allow for the determination of soil MSC values for substances with SMCLs but no toxicological information in Appendix A, Table 5B, of Chapter 250. This determination is based on the physical capacity of the soil to contain a regulated substance as described in § 250.305(b). This change, along with other changes to subsection (g), result in the ability of remediators to determine soil MSCs for chloride and sulfate that also incorporate impacts to ecological receptors as described in § 250.311(a)—(f) (relating to evaluation of ecological receptors).

§ 250.306. Ingestion numeric values

Due to new information published by the EPA in Exposure Factors Handbook 2011 Edition, EPA/600/R-090/052F, the residential groundwater ingestion rate is increased from 2 liters a day (L/day) to 2.4 L/day. This amendment results in additional changes to other exposure factors listed in the table and footnotes in § 250.306(d) (relating to ingestion numeric values). Formatting errors in the table footnotes in this section are corrected. Some equations in the footnotes contained brackets that should not be confused with brackets used to delineate changes in this final-form rulemaking. Bolded text within bolded brackets represents text that is deleted while unbolded brackets encompass existing text not removed.

Proposed amendments to § 250.306(e) reflect updated models used to calculate blood lead levels that are applied to the corresponding lead numeric value calculations. The new model references are updated in this subsection. As discussed further in section F of this preamble, this final-form rulemaking deletes the proposed changes to the lead models and will leave the existing regulation in place. The Department intends to propose a separate rulemaking addressing the calculation of the ingestion numeric values for lead in soil to ensure the Department is using the most current science regarding lead toxicity. This will allow the public the opportunity to comment on these changes.

§ 250.307. Inhalation numeric values

An amendment to the equation in § 250.307(g)(1) (relating to inhalation numeric values) adds a "× 24 hr/day" multiplier to the numerator. This component was inadvertently omitted from this equation in the previous rulemaking.

§ 250.308. Soil to groundwater pathway numeric values

In § 250.308(a)(2)(ii) (relating to soil to groundwater pathway numeric values), the word "standard" is replaced with "generic numeric value" to avoid the implication that the 1/10th value is always the soil MSC for saturated soil and to avoid the implication that the comparison process should be bypassed.

§ 250.311. Evaluation of ecological receptors

Amendments to § 250.311(b) directly reference the changes to § 250.305(g) and reference the physical capacity of the soil to contain a regulated substance as described in § 250.305(b).

§ 250.402. Human health and environmental protection goals

Amendments to § 250.402(d) (relating to human health and environmental protection goals) resolve confusion and

ensure the correct application of § 250.311(e) to protect ecological receptors under the site-specific standard. An amendment to § 250.402(d)(3) corrects and replaces the reference to § 230.311(f) with § 250.311(f).

§ 250.404. Pathway identification and elimination

Under subsection (a), the words "Department or" are added to allow for the use of Department guidance in identifying exposure pathways.

§ 250.409. Risk assessment report

An amendment to § 250.409(1) (relating to risk assessment report) clarifies that an approved remedial investigation report is needed in advance of submitting an approvable risk assessment report when the reports are submitted separately. This amendment is part of a clarification regarding the appropriate sequence of reports submitted under Subchapter D (relating to site-specific standard), including a new section for "combined reports," in § 250.412 (relating to combined reports), described as follows.

§ 250.410. Cleanup plan

New subsection (d) removes any ambiguity regarding the need for a cleanup plan in situations in which a remedy is already present. The previous language in subsection (d) is moved into a newly created subsection (e).

§ 250.412. Combined reports

This new section explains that prior approval of a remedial investigation report is not necessary when combined with either a risk assessment report or a cleanup plan. This section is necessary because of the changes made to § 250.410 (relating to cleanup plan).

§ 250.503. Remediation requirements

The amendments to § 250.503(e) clarify that a revised baseline environmental report, not just a new remediation plan, may need to be submitted when land use changes from nonresidential to residential at an SIA site.

§ 250.603. Exposure factors for site-specific standards

The amendment to § 250.603(a) (relating to exposure factors for site-specific standards) updates the citation of the 1992 version of the EPA's Final Guidelines for Exposure Assessment to EPA's 2011 Exposure Factors Handbook.

§ 250.605. Sources of toxicity information

The updates to § 250.605(a)(3) (relating to sources of toxicity information) add the EPA's Office of Pesticide Programs Human Health Benchmarks for Pesticides and the EPA's PPRTV Appendix databases to the toxicity value source hierarchy.

§ 250.707. Statistical tests

The term "Statewide health standard" is changed to "MSC" in the amendment to § 250.707(b)(1)(ii) (relating to statistical tests) for clarification.

A new clause (D) is added to § 250.707(b)(1)(iii) clarifying when or whether a vapor intrusion analysis is necessary for sites with small petroleum releases where full site characterization is not performed.

Appendix A, Tables 1—7

Amendments to the "Medium-Specific Concentrations" tables update the MSCs for certain regulated substances. Updates to footnotes are necessary to help explain some of the changes to the MSCs. Numeric values are calculated for several new substances, including PFOS, PFOA and PFBS in groundwater and soil, and total polychlorinated biphenyls in soil. Ingestion-based numeric values all decreased slightly due to the increase in water ingestion rate under § 250.306(d) from 2 L/day to 2.4 L/day. Other numeric value changes are mostly attributed to updates in toxicity values in Tables 5A and 5B. However, corrections to the numeric value calculation process caused some numeric values to change.

The update to the definition of a "volatile compound" caused some of the values to change because the new definition includes the consideration of Henry's law constant and molecular weight. Additionally, some of the numeric value changes are due to rounding adjustments. When the Department calculates the numeric MSC values for inclusion in Chapter 250, some values are rounded during one of the early calculation steps instead of at the end of the calculation. To be consistent, the rounding procedure is updated so that all rounding occurs at the final value calculation step. Elimination of the rounding of transfer factors also causes changes to the numeric values. Transfer factors used for the calculation of inhalation numeric values from soil are calculated and listed in Table 5A. The transfer factors previously in Table 5A were rounded inconsistently. To be consistent with the other rounding corrections, these values are no longer rounded because they are calculated and used in the early stages of the numeric value calculation process.

In the amendments, information is updated on the "Threshold of Regulation Compounds" table (Table 6) by the removal of compounds that now have numeric values calculated on other tables.

In the proposed rulemaking, amendments to the "Default Values for Calculating MSCs for Lead" table (Table 7) would have updated the input parameters for use in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children for residential exposure. Amendments for nonresidential exposure updated the model input parameters for the Adult Lead Model. References for both models were also updated. These amendments resulted in proposed updates to the lead residential and nonresidential direct contact values provided in Table 4A. However, as discussed in the summary for § 250.306 and further in section F of this preamble, this final-form rulemaking is rescinding the proposed changes to the lead models and will leave the existing regulation in place. Accordingly, this final-form rulemaking is rescinding the proposed changes to Table 7 and the proposed updates to the lead residential and nonresidential direct contact values in Table 4A and will leave the existing values in place. The Department intends to propose a separate rulemaking addressing the calculation of the ingestion numeric values for lead in soil to ensure the Department is using the most current science regarding lead toxicity. This will allow the public the opportunity to comment on these changes.

For this final-form rulemaking, an error was identified in Table 3B regarding use of the footnote "NA" for the generic values for PFAS chemicals. This footnote refers to the soil buffer distance option which is not related to the PFAS values. To correct this, the footnote symbol for the PFOS, PFOA and PFBS generic values was changed from "NA" to "N/A" and described it as "soil to groundwater values cannot be calculated for these compounds."

Several changes are made to Table 5A for this final-form rulemaking. First, five Aroclors were inadvertently proposed to be removed from Table 5A. This error is corrected. Secondly, it was noted that although surrogate toxicity values are noted in Table 5A, the chemical used

as the surrogate was not identified. The names of the surrogates used in Table 5A are added as footnotes. Additionally, after the publication of the proposed rulemaking, the Department noted that the EPA removed the MERPHOS OXIDE oral reference dose (RfDO) from its IRIS toxicity value database. Consequentially, the Department replaced the MERPHOS OXIDE IRIS value in Table 5A with the toxicity value from ATSDR. This resulted in changes to the MERPHOS OXIDE numeric values in Tables 1, 3A and 3B. Lastly, the EPA announced the publication of a new toxicity assessment for PFBS on April 8, 2021, which included an updated toxicity value that differed from what was used in the proposed rulemaking. Consequently, the PFBS toxicity value is amended in this final-form rulemaking to use the most current and accurate science to calculate the newly proposed MSC values, as required by § 250.11. This change substantially lowered the proposed MSCs for PFBS between the proposed rulemaking and final-form rulemaking. This change in toxicity values in Table 5A follows the established hierarchy and process the Department uses for selecting toxicity values described in § 250.605. This change in Table 5A resulted in the MSCs for PFBS in Tables 1, 3A and 3B to decrease between the proposed rulemaking and final-form rulemaking.

It was noted that in Table 5B, a surrogate footnote was provided even though no surrogates are used in this table. Therefore, the surrogate footnote is removed from Table 5B for this final-form rulemaking.

F. *Summary of Comments and Responses on the Proposed Rulemaking*

Notice of the Chapter 250 proposed rulemaking, and the accompanying public comment period, was published at 50 Pa.B. 1011, 1016 (February 15, 2020). The Board's public comment period opened on February 15, 2020, and closed on April 30, 2020.

During the public comment period, the Board received 140 comment documents from 128 individuals/organizations including the Independent Regulatory Review Commission (IRRC) which submitted comments on June 1, 2020. Ninety-seven percent of the commentators expressed concern with the proposed increase in the non-residential numeric value for lead in surface soil in Table 4A. This increase was a result of the proposed amendments to § 250.306(e) which updated the models used to calculate blood lead levels that are applied to the corresponding lead numeric value calculations and updates to the model input parameters in Table 7. Commentators provided various reasons for their concerns, but the main theme of their concerns was that the Department was using outdated science to calculate the soil lead numeric values, specifically the use of a target blood lead level (TBLL) of 10 µg/dL. Many of the commentators recommended changing the TBLL from 10 µg/dL to 5 µg/dL.

While the Department agrees that a TBLL of 5 µg/dL represents the most current science regarding lead toxicity, changing the value from 10 µg/dL to 5 µg/dL in this final-form rulemaking without having presented this change in the proposed rulemaking denies the public the necessary opportunity to provide comment on this change. However, in recognition of the recent scientific research indicating the potential for significant adverse health effects of a blood lead level of 10 µg/dL, the Board has rescinded the proposed changes to the lead models and the resulting changes in the residential and non-residential direct contact numeric values for lead and plans to recalculate these numeric values using a target blood lead level of 5 µg/dL in a separate proposed rulemaking. This recalclation will bring the direct contact numeric values more in line with the current lead toxicity science and with other State and Federal public health agencies. Providing this change in a separate proposed rulemaking will allow for the necessary public comment process required by the Commonwealth Documents Law (45 P.S. §§ 1102—1208).

Other comments regarding the MSC table values were provided to the Department including concerns with increasing numeric values, concerns with decreasing numeric values, potential impacts to plants and wildlife, concerns with the minimum threshold MSCs, potential increases in the cost of cleanups, concerns with the current vanadium soil numeric values and concerns with transparency in the MSC calculation process. The Department's responses to these comments explain the various reasons why MSC values can increase or decrease during rulemakings and how the Department makes a concerted effort to make the MSC calculation process as clear and transparent as possible. Other concerns from commentators are discussed in detail in the Comment and Response Document that accompanies this final-form rulemaking.

Several commentators expressed concerns with the addition of the PFAS numeric values for groundwater and soil. The general consensus was that it will be difficult for remediators to address PFAS contamination when there is so much uncertainty with the current science of these contaminants and a lack of consensus among states and the Federal agencies as to the appropriate accurate cleanup standard or standards. Although the science is still evolving, the Department believes these new MSCs will provide remediators a means of addressing PFOS, PFOA and PFBS groundwater and soil contamination in this Commonwealth. This change benefits the public by reducing exposure to these harmful contaminants. This change also benefits remediators because it provides flexible options for them to navigate through the Act 2 cleanup process.

Detailed responses to all the public comments are provided in the Comment and Response Document that accompanies this final-form rulemaking.

H. *Benefits, Costs and Compliance*

Benefits

In enacting Act 2, the General Assembly found and declared among its policy goals that "[p]ublic health and environmental hazards cannot be eliminated without clear, predictable environmental remediation standards and a process for developing those standards," that "[a]ny remediation standards adopted by this Commonwealth must provide for the protection of public health and the environment," and that "[c]leanup plans should be based on actual risk that contamination on the site may pose to public health and the environment, taking into account its current and future use and the degree to which contamination can spread offsite and expose the public or the environment to risk." See 35 P.S. § 6026.102 regarding declaration of policy.

To effectuate this, the General Assembly authorized the Board and the Department to develop standards and methods to effectuate those goals. 35 P.S. §§ 6026.104 and 6026.303. The Department's regulatory structure, as authorized under Act 2 and as implemented by Chapter 250, provides those important benefits articulated in the General Assembly's declaration of policy.

The amendments to the MSCs in this final-form rulemaking serve both the public and the regulated commu-

nity because they provide MSCs based on the most up-to-date health and scientific information for substances that cause cancer or have other toxic effects on human health. The Board first published Chapter 250 regulations in 1997 at 27 Pa.B. 4181 (August 16, 1997). The General Assembly recognized in section 104(a) of Act 2 (35 P.S. § 6026.104(a)), that these standards must be updated over time as better science becomes available and as the need for clarification or enhancement of the program becomes apparent.

Potential contamination of soil and groundwater from accidental spills and unlawful disposal can impact almost any resident of this Commonwealth. Many of the chemical substances addressed in this final-form rulemaking are systemic toxicants or carcinogens as defined under Act 2 and, in some cases, are widespread in use. Examples of substances that contain toxic or carcinogenic properties include gasoline and other petroleum products, solvents, elements used in the manufacture of metals and alloys, pesticides and some dielectric fluids previously contained in transformers and capacitors. Releases of regulated substances not only pose a threat to the environment, but also could affect the health of the general public if inhaled or ingested. New research on many of these substances is ongoing and provides the basis for protection of the residents of this Commonwealth through site cleanup requirements.

Although most of the changes to soil numeric values in this final-form rulemaking decrease the numeric values, 17% of the values have increased. Increases in values reflect updated information related to exposure limitations to the substances and acknowledge that a higher standard is better representative of those substances' exposure threshold.

An additional benefit of this final-form rulemaking is the promulgation of soil and groundwater MSCs for PFOS, PFOA and PFBS. Establishing these MSCs allows remediators to address groundwater and soil contamination and thereby lessen public exposure to the contaminants. This also benefits remediators wishing to remediate contaminated sites, who tend to be owners, operators or purchasers—or their contractors—of properties and facilities including, or at or near, military bases, municipalities and other locations that used or stored firefighting foam. The EPA reports that contamination from these chemicals has also been associated with manufacturing textiles, food packaging, personal care products, and other materials such as cookware that are resistant to water, grease and stains. See Fact Sheet, EPA, PFOA & PFOS Drinking Water Health Advisories (November 2016) (available at https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf).

Finally, remediators will benefit from the amendments that clarify many of the administrative elements of Act 2, making for a more efficient and streamlined Act 2 remediation process.

The benefits of this final-form rulemaking are difficult to quantify because, unlike other statutory or permitting schemes, Act 2 does not prevent contamination but instead provides remediators with a variety of options to address sites that have already been contaminated. In that sense, this final-form rulemaking, consistent with Act 2, benefits the public because it can lead to more efficient and more expedient remediation and reuse of contaminated areas.

Compliance costs

Financially and economically, the Department believes that any potential impact to the regulated community would be insignificant. Under this final-form rulemaking, the MSC values for many regulated substances are amended for a variety of reasons. The two most common reasons for amendments are Federal agency (including the EPA and United States Department of Health Agency for Toxic Substances and Disease Registry) changes in toxicity values that are used in calculating MSCs and a change in the EPA's underlying assumption of a person's average daily consumption of water from 2 L/day to 2.4 L/day. The soil numeric values represent a decrease for approximately 83% of the values and an increase for 17% of the values. For groundwater, the changes reflect a decrease for approximately 92% of the values and an increase in approximately 8% of the values. Lowering the values may indicate a more stringent cleanup is required at a site and increasing the values may indicate a less stringent cleanup is required at a site. The number of completed remediations vary each year. On average, remediators apply the Act 2 remediation standard to approximately 800 contaminated properties across this Commonwealth. The Department does not expect that these amendments will impact the number of remediations voluntarily completed or the number that must be completed as a result of Department enforcement actions.

The amendments to Statewide health standard MSCs will not affect the cleanup options available to remediators under other cleanup standards. Persons conducting remediation under Act 2 may choose from three different cleanup standards: background, Statewide health or site-specific.

The Department does not expect that this final-form rulemaking, as it relates to new MSCs for PFOA, PFOS and PFBS, will create additional costs. Act 2 does not create liability for, or the obligation to, address contamination for these and other chemicals. Instead, that obligation comes from other environmental statutes, including The Clean Streams Law and the Solid Waste Management Act (35 P.S. §§ 6018.101—6018.1003). Act 2 provides remediators with options to remediate contamination. Having these new MSCs will allow remediators to address PFOS, PFOA and PFBS groundwater and soil contamination. This will benefit the public by lessening their exposure to these contaminants.

Compliance assistance plan

The Land Recycling Program will disseminate information concerning these updates using the Department web site and e-mails to environmental consultants involved in the program.

Paperwork requirements

This final-form rulemaking will not result in any additional forms or reports, beyond those that are already required by Act 2 and Chapter 250.

I. *Pollution Prevention*

The Federal Pollution Prevention Act of 1990 (42 U.S.C.A. §§ 13101—13109) established a National policy that promotes pollution prevention as the preferred means for achieving state environmental protection goals. The Department encourages pollution prevention, which is the reduction or elimination of pollution at its source, through the substitution of environmentally friendly materials, more efficient use of raw materials and the incorporation of energy efficiency strategies. Pollution prevention practices can provide greater environmental

protection with greater efficiency because they can result in significant cost savings to facilities that permanently achieve or move beyond compliance.

Act 2 encourages cleanup plans that have as a goal, remedies which treat, destroy or remove regulated substances whenever technically and economically feasible. This final-form rulemaking will provide the necessary Statewide health standard MSCs for remediators to remove contamination or eliminate exposure, where appropriate. This final-form rulemaking reflects the most up-to-date science, especially as it relates to the characterization and removal of contamination that exceeds Act 2 MSCs. During the remediation of a contaminated site, potential sources of pollution are often removed to attain the Act 2 standards, eliminating or minimizing the potential for continued migration of the sources of pollution to other areas.

J. *Sunset Review*

The Board is not establishing a sunset date for this final-form rulemaking because it is needed for the Department to carry out its statutory authority.

K. *Regulatory Review*

Under section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on January 27, 2020, the Department submitted a copy of the notice of proposed rulemaking, published at 50 Pa.B. 1011, to IRRC and the Chairpersons of the House and Senate Environmental Resources and Energy Committees for review and comment.

Under section 5(c) of the Regulatory Review Act, IRRC and the Committees were provided with copies of the comments received during the public comment period, as well as other documents when requested. In preparing the final-form rulemaking, the Department has considered all comments from IRRC, the House and Senate Committees and the public.

Under section 5.1(j.2) of the Regulatory Review Act (71 P.S. § 745.5a(j.2)), on September 22, 2021, the final-form rulemaking was deemed approved by the House and Senate Committees. Under section 5.1(e) of the Regulatory Review Act, IRRC met on September 23, 2021, and approved the final-form rulemaking.

L. *Findings of the Board*

The Board finds that:

(1) Public notice of the proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 (P.L. 769, No. 240) (45 P.S. §§ 1201 and 1202), referred to as the Commonwealth Documents Law, and regulations promulgated thereunder at 1 Pa. Code §§ 7.1 and 7.2 (relating to notice of proposed rulemaking required; and adoption of regulations).

(2) A public comment period was provided as required by law, and all comments were considered.

(3) This final-form rulemaking does not enlarge the purpose of the proposed rulemaking published at 50 Pa.B. 1011.

(4) These regulations are necessary and appropriate for the administration and enforcement of the authorizing acts identified in section C of this order.

M. *Order of the Board*

The Board, acting under the authorizing statutes, orders that:

(a) The regulations of the Department, 25 Pa. Code Chapter 250, are amended by amending §§ 250.1, 250.4, 250.6, 250.10, 250.304—250.308, 250.311, 250.402, 250.404, 250.409, 250.410, 250.503, 250.603, 250.605 and 250.707 and adding §§ 250.12 and 250.412 to read as set forth in Annex A, with ellipses referring to the existing text of the regulations.

(b) The Chairperson of the Board shall submit this final-form regulation to the Office of General Counsel and the Office of Attorney General for review and approval as to legality and form, as required by law.

(c) The Chairperson of the Board shall submit this final-form regulation to the IRRC and the Senate and House Environmental Resources and Energy Committees as required by the Regulatory Review Act.

(d) The Chairperson of the Board shall certify this final-form regulation and deposit it with the Legislative Reference Bureau, as required by law.

(e) This final-form regulation shall take effect immediately upon publication in the *Pennsylvania Bulletin*.

PATRICK McDONNELL,
Chairperson

(*Editor's Note*: See 51 Pa.B. 6494 (October 9, 2021) for IRRC's approval order.)

Fiscal Note: Fiscal note 7-552 remains valid for the final adoption of the subject regulations.

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION

PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION

Subpart D. ENVIRONMENTAL HEALTH AND SAFETY

ARTICLE VI. GENERAL HEALTH AND SAFETY

CHAPTER 250. ADMINISTRATION OF LAND RECYCLING PROGRAM

Subchapter A. GENERAL PROVISIONS

§ 250.1. Definitions.

* * * * *

MCL—Maximum contaminant level.

MDL—Method detection limit—The instrument-specific minimum measured concentration of a substance that can be reported with 99% confidence to be distinguishable from the method blank result.

MSC—Medium-specific concentration.

* * * * *

TF—Transfer factor.

Volatile compound—A chemical compound with either a boiling point less than 200° centigrade at 1 atmosphere or a Henry's law constant greater than or equal to 1×10^{-5} atm−m^3/mol and a molecular weight less than 200 g/mol, where:

atm = standard atmosphere

m^3 = cubic meter

mol = mole

g = gram

g/mol = molar mass

§ 250.4. Limits related to PQLs.

(a) The PQLs shall be selected from the PQLs or EQLs specified by the EPA in the most current version of the EPA's drinking water or solid waste analytical methods.

(b) For regulated substances when PQLs or EQLs set by the EPA exceed an MCL or HAL or have a health risk that is greater (less protective) than the risk levels set in sections 303(c) and 304(b) and (c) of the act (35 P.S. §§ 6026.303(c) and 6026.304(b) and (c)) and for substances when no EQL has been established by the EPA, the PQL shall be established by the methodologies in paragraph (1) or (2).

(1) A level set by multiplying 3.18 by the published method detection limit (MDL) of the most recently approved EPA methodology.

(2) A level set by multiplying 3.18 by the instrument-specific MDL. If multiple instruments are used, then the PQL is set by averaging the instrument-specific MDLs and multiplying that value by 3.18.

(c) For regulated substances which have no limits related to PQLs identified in subsection (b)(1) or (2), a person shall demonstrate attainment under the site-specific standard or the background standard.

(d) When a minimum threshold MSC is used as a Statewide health standard, the minimum threshold MSC is the Statewide health standard regardless of whether it is higher or lower than a quantitation limit established by this section.

(e) Nothing in this section restricts the selection of valid and generally accepted methods to be used to analyze samples of environmental media.

§ 250.6. Public participation.

* * * * *

(c) If a public involvement plan has been initiated, the person proposing remediation shall, at a minimum, include the following three measures in the plan to involve the public in the development and review of the remedial investigation report, risk assessment report, cleanup plan and final report:

(1) Provide public access at convenient locations for document review.

(2) Designate a single contact person to address questions from the community.

(3) Use a location near the remediation site for any public hearings and meetings that may be part of the public involvement plan.

(d) If a public involvement plan has been requested, the person proposing the remediation shall notify the Department and submit the plan to the municipality and the Department prior to its implementation.

§ 250.10. Measurement of regulated substances in media.

* * * * *

(d) For groundwater where monitoring is being performed at a drinking water well, samples for metals analysis shall be field acidified and unfiltered in accordance with the most current version of *Land Recycling Program Technical Guidance Manual, Appendix A: Groundwater Monitoring Guidance*, Department of Environmental Protection, document number 261-0300-101, or in accordance with an alternative sampling method that accurately measures regulated substances in groundwater.

* * * * *

§ 250.12. Professional seal.

Reports submitted to satisfy this subchapter containing information or analysis that constitutes professional geologic or engineering work as defined by the Engineer, Land Surveyor and Geologist Registration Law (63 P.S. §§ 148—158.2) must be sealed by a professional geologist or engineer who is in compliance with that statute.

Subchapter C. STATEWIDE HEALTH STANDARDS

§ 250.304. MSCs for groundwater.

* * * * *

(c) The MSCs for regulated substances contained in groundwater in aquifers used or currently planned to be used for drinking water or for agricultural purposes are the MCLs as established by the Department or the EPA in § 109.202 (relating to State MCLs, MRDLs and treatment technique requirements). For regulated substances where no MCL has been established, the MSCs are the Lifetime Health Advisory Levels (HAL) set forth in Drinking Water Standards and Health Advisories (DWSHA), EPA Office of Water Publication No. EPA 822-F-18-001 (March 2018 or as revised), except for substances designated in the DWSHA with cancer descriptor (L) "Likely to be carcinogenic to humans" or (L/N) "Likely to be carcinogenic above a specific dose but not likely to be carcinogenic below that dose because a key event in tumor formation does not occur below that dose." New or revised MCLs or HALs promulgated by the Department or the EPA shall become effective immediately for any demonstration of attainment completed after the date the new or revised MCLs or HALs become effective.

* * * * *

(g) The references referred to in subsection (f) are:

(1) Lide, D. R., ed. 1996. *CRC Handbook of Chemistry and Physics*, 77th Edition. CRC Press.

* * * * *

(18) Riddick, J. A., et al. 1986. *Organic Solvents; Physical Properties & Methods of Purification. Techniques of Chemistry.* 11th Edition. New York, NY: Wiley-Interscience.

(19) ATSDR (Agency for Toxic Substances and Disease Registry). 2015. *Toxicological Profile for Perfluoroalkyls. Draft for Public Comment.* Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. Accessed May 2016. http://www.atsdr.cdc.gov/ToxProfiles/tp200.pdf.

(20) Hekster, F.M., R.W. Laane, and P. de Voogt. 2003. *Environmental and toxicity effects of perfluoroalkylated substances. Reviews of Environmental Contamination and Toxicology* 179:99—121.

(21) HSDB (Hazardous Substances Data Bank). 2012. U.S. National Library of Medicine, Bethesda, MD. Accessed May 2016. http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.

(22) Kauck, E.A., and A.R. Diesslin. 1951. *Some properties of perfluorocarboxylic acids. Industrial & Engineering Chemistry Research* 43(10):2332—2334.

(23) SRC (Syracuse Research Corporation). 2016. PHYSPROP Database. Accessed May 2016. http://www.srcinc.com/what-we-do/environmental/scientific-databases.html.

(24) OECD (Organisation for Economic Co-operation and Development). 2002. *Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts.* ENV/JM/RD (2002) 17/FINAL. Report of the Environment Directorate, Joint Meeting of the Chemicals Committee and the Working Party on Chemicals, Pesticides and Biotechnology, Co-operation on Existing Chemicals, Paris, November 21, 2002.

§ 250.305. MSCs for soil.

* * * * *

(c) For the residential standard, the MSC for regulated substances contained in soil is one of the following:

(1) The lowest of the following:

(i) The ingestion numeric value throughout the soil column to a depth of up to 15 feet from the existing ground surface as determined by the methodology in § 250.306 (relating to ingestion numeric values), using the appropriate default residential exposure assumptions contained in § 250.306(d).

* * * * *

(g) A person conducting a remediation of soils contaminated with one or more substances having a secondary MCL, but no toxicological properties listed in Appendix A, Table 5B, will not be required to comply with either the direct contact pathway or the soil-to-groundwater pathway requirements for those substances. The substances shall be subject to the requirements of § 250.311(a) through (f) (relating to evaluation of ecological receptors) with respect to evaluation of ecological receptors.

§ 250.306. Ingestion numeric values.

* * * * *

(d) The default exposure assumptions used to calculate the ingestion numeric values are as follows:

Term		*Residential Systemic*[1]	*Carcinogens*[2,6]	*Nonresidential (Onsite Worker)*
THQ	Target Hazard Quotient	1	N/A	1
RfD_o	Oral Reference Dose (mg/kg-day)	Chemical-specific	N/A	Chemical-specific
BW	Body Weight (kg) Soil Groundwater	 15 80	N/A	 80 80
AT_{nc}	Averaging Time for systemic toxicants (yr) Soil Groundwater	 6 30	 N/A N/A	 25 25
Abs	Absorption (unitless)[3]	1	1	1
EF	Exposure Frequency (d/yr) Soil Groundwater	 250 350	 250 350	 180 250
ED	Exposure Duration (yr) Soil Groundwater	 6 30	 N/A N/A	 25 25
IngR	Ingestion Rate Soil (mg/day) GW (L/day)	 100 2.4	 N/A N/A	 50 1.2
CF	Conversion Factor Soil (kg/mg) GW (unitless)	 1×10^{-6} 1	 1×10^{-6} 1	 1×10^{-6} 1
TR	Target Risk	N/A	1×10^{-5}	1×10^{-5}
CSF_o	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	N/A	Chemical-specific	Chemical-specific
AT_c	Averaging Time for carcinogens (yr)	N/A	70	70
IFadj[4]	Ingestion Factor Soil (mg-yr/kg-day) GW (L-yr/kg day)	N/A	 55 1.2	 15.6 0.38
AIFadj[5]	Combined Age-Dependent Adjustment Factor and Ingestion Factor Soil (mg-yr/kg-day) GW (L-yr/kg-day)	N/A	 241 3.45	N/A
$CSFo_k$	TCE oral cancer slope factor for kidney cancer $(mg/kg/day)^{-1}$		9.3×10^{-3}	
$CSFo_l$	TCE oral cancer slope factor for non-Hodgkin lymphoma and liver cancer $(mg/kg/day)^{-1}$		3.7×10^{-2}	

Notes:

* * * * *

[4] The Ingestion Factor for the residential scenario is calculated using the equation If adj = $ED_c \times IR_c/BW_c + ED_a \times IR_a/BW_a$, where ED_c = 6 yr, IR_c = 100 mg/day for soils and 1 L/day for groundwater, BW_c = 15 kg, ED_a = 24 yr, IR_a = 50 mg/day for soils and 2.4 L/day for groundwater, and BW_a = 80 kg. The ingestion factor for the nonresidential scenario is calculated using the equation If adj = ED × IR/BW, where ED = 25 yr, IR = 50 mg/day for soils and 1.2 L/day for groundwater, and BW = 80 kg.

[5] The Combined Age-Dependent Adjustment Factor and Ingestion Factor (AIFadj) for the residential scenario is calculated using the equation AIFadj = $[(ADAF_{<2} \times ED_{<2}) + (ADAF_{2\text{-}6} \times ED_{2\text{-}6})] \times IR_c / BW_c + [(ADAF_{>6\text{-}16} \times ED_{>6\text{-}16} + (ADAF_{>16} \times ED_{>16})] \times IR_a / BW_a$, where $ADAF_{<2} = 10$, $ED_{<2} = 2$ yr, $ADAF_{2\text{-}6} = 3$, $ED_{2\text{-}6} = 4$ yr, $IR_c = 100$mg/day for soils and 1 L/day for groundwater, $BW_c = 15$ kg, $ADAF_{>6\text{-}16} = 3$, $ED_{>6\text{-}16} = 10$ yr, $ADAF_{>16} = 1$, $ED_{>16} = 14$ yr, $IR_a = 50$ mg/day for soils and 2.4 L/day for groundwater, and $BW_a = 80$ kg.

* * * * *

(e) The residential ingestion numeric value for lead in soil was developed using the Uptake Biokinetic (UBK) Model for Lead (version 0.4) developed by the EPA (U.S. Environmental Protection Agency. (1990) Uptake Biokinetic (UBK) Model for Lead (version 0.4). U.S. EPA/ECAO. August 1990, in lieu of the algorithms presented in subsections (a) and (b). Default input values are identified in Appendix A, Table 7. Because the UBK model is applicable only to children, the nonresidential ingestion numeric value was calculated according to the method developed by the Society for Environmental Geochemistry and Health (Wixson, B. G. (1991)). The Society for Environmental Geochemistry and Health (SEGH) Task Force Approach to the Assessment of Lead in Soil. *Trace Substances in Environmental Health.* (11-20), using the following equations:

$$S = \frac{1000\left[\left(\frac{T}{G^n}\right) - B\right]}{\delta}$$

Table 7 identifies each of the variables in this equation.

§ 250.307. Inhalation numeric values.

* * * * *

(g) For a regulated substance which is a carcinogen and is a volatile compound, the numeric value for the inhalation of volatiles from groundwater shall be calculated by using the appropriate residential or nonresidential exposure assumptions from subsection (h) according to the following equations:

(1) For regulated substances not identified as a mutagen in § 250.301(b):

$$MSC = \frac{TR \times AT_c \times 365 \text{ days/year} \times 24 \text{ hr/day}}{IUR \times ET \times EF \times ED \times TF \times CF}$$

* * * * *

§ 250.308. Soil to groundwater pathway numeric values.

(a) A person may use the soil-to-groundwater pathway numeric values listed in Appendix A, Tables 3B and 4B, as developed using the methods contained in paragraph (1), (2) or (4), may use a concentration in soil at the site which does not produce a leachate in excess of the MSC for groundwater contained in Appendix A, Tables 1 and 2, when subjected to the Synthetic Precipitation Leaching Procedure (Method 1312 of SW-846, Test Methods for Evaluating Solid Waste, promulgated by the U.S. EPA), or may use the soil-to-groundwater pathway soil buffer criteria in subsection (b) or may use the soil-to-groundwater pathway equivalency demonstration in subsection (d).

(1) A value which is 100 times the applicable MSC for groundwater identified in § 250.304(c) or (d) (relating to MSCs for groundwater), expressed as milligrams per kilogram of soil.

(2) For organic compounds, a generic value determined not to produce a concentration in groundwater in the aquifer in excess of the MSC for groundwater as calculated by the equation in paragraph (3).

(i) For soil not in the zone of groundwater saturation, the generic value shall be calculated by the equation in paragraph (3).

(ii) For soil in the zone of groundwater saturation, the generic numeric value is 1/10th of the generic value calculated by the equation in paragraph (3).

* * * * *

§ 250.311. Evaluation of ecological receptors.

* * * * *

(b) For purposes of determining impacts on ecological receptors, no additional evaluation is required if the remediation attains a level equal to 1/10th of the value in Appendix A, Tables 3 and 4 or, for substances identified in § 250.305(g), 1/10th of the physical limitation identified in § 250.305(b), except for constituents of potential ecological concern identified in Table 8, or if the criteria in paragraph (1), (2) or (3) are met. Information that supports a determination that no additional evaluation is required shall be documented in the final report.

* * * * *

Subchapter D. SITE-SPECIFIC STANDARD

§ 250.402. Human health and environmental protection goals.

* * * * *

(d) If a person is using the site-specific standard to protect ecological receptors under this subchapter or as a result of selecting § 250.311(e)(4) when ecological receptors cannot be evaluated under the Statewide health standard, the following shall be performed:

* * * * *

(3) Implementation of the selected remedy, which may include mitigation measures under § 250.311(f), that is protective of the ecological receptors.

§ 250.404. Pathway identification and elimination.

(a) The person shall use Department or Department-approved EPA or ASTM guidance to identify any potential current and future exposure pathways for both human receptors and environmental receptors identified in § 250.402 (relating to human health and environmental protection goals).

* * * * *

§ 250.409. Risk assessment report.

The risk assessment report shall conform to this subchapter and Subchapter F (relating to exposure and risk determinations), and shall include the following unless not required under § 250.405 (relating to when to perform a risk assessment):

(1) Except when submitted in combination with a remedial investigation report, a risk assessment report that uses site characterization information from an approved remedial investigation report to describe the potential adverse effects, including the evaluation of ecological receptors, under both current and planned future conditions caused by the presence of regulated substances in the absence of any further control, remediation or mitigation measures.

* * * * *

§ 250.410. Cleanup plan.

* * * * *

(c) When a person proposes a remedy that relies on access to properties owned by third parties, for remediation or monitoring, documentation of cooperation or agreement shall be submitted as part of the cleanup plan.

(d) A cleanup plan is required when an institutional or engineering control is used as a remedy to address current and future exposure pathways or exposure pathways that existed prior to submitting an NIR.

(e) A cleanup plan is not required and no remedy is required to be proposed or completed if no current or future exposure pathways exist.

§ 250.412. Combined reports.

A person does not need prior Department approval of a remedial investigation report if the remedial investigation report is submitted together with either a risk assessment report or a cleanup plan.

Subchapter E. SIA STANDARDS

§ 250.503. Remediation requirements.

* * * * *

(e) A person that changes the use of the property from nonresidential to residential, or changes the use of the property to create substantial changes in exposure conditions to contamination that existed prior to the person's reuse shall notify the Department of the changes and may be required to amend the baseline environmental report and implement a remediation plan to address any new imminent, direct or immediate threats to human health and the environment resulting from the changes.

* * * * *

Subchapter F. EXPOSURE AND RISK DETERMINATIONS

§ 250.603. Exposure factors for site-specific standards.

(a) A risk assessment for the site-specific standard shall use site-specific exposure factors under the EPA's *Exposure Factors Handbook: 2011 Edition*, 2011 (EPA/600/R-090/052F) or exposure factors used in the development of the Statewide health standards identified in Subchapter C (relating to Statewide health standards).

* * * * *

§ 250.605. Sources of toxicity information.

(a) For site-specific standards, the person shall use appropriate reference doses, reference concentrations, cancer slope factors and unit risk factors identified in Subchapter C (relating to Statewide health standards), unless the person can demonstrate that published data, available from one of the following sources, provides more current reference doses, reference concentrations, cancer slope factors or unit risk factors:

(1) Integrated Risk Information System (IRIS).

(2) United States Environmental Protection Agency, National Center for Environmental Assessment (NCEA) Provisional Peer-Reviewed Toxicity Values (PPRTV).

(3) Other sources:

(i) Health Effects Assessment Summary Tables (HEAST).

(ii) Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profiles.

(iii) California EPA, California Cancer Potency Factors and Chronic Reference Exposure Levels.

(iv) EPA criteria documents, including drinking water criteria documents, drinking water health advisory summaries, ambient water quality criteria documents and air quality criteria documents.

(v) EPA Human Health Benchmarks for Pesticides (HHBP).

(vi) EPA PPRTV Appendix.

(b) If no toxicity values are available from sources identified in subsection (a), the person may use the background standard or meet one of the following:

(1) Develop for the Department's review in the risk assessment report one of the following:

(i) Chemical-specific toxicity values in accordance with the methods in the most current EPA guidelines or protocols, approved by the Department, using corroborated peer-reviewed data published in a scientific journal, if they exist.

(ii) Toxicity values developed from appropriately justified surrogates.

(2) Use the minimum threshold medium-specific concentration, as the site-specific standard, with an assumed risk of 1×10^{-5} for purposes of calculating cumulative risk for the regulated substances identified in Appendix A, Table 6.

Subchapter G. DEMONSTRATION OF ATTAINMENT

§ 250.707. Statistical tests.

* * * * *

(b) The following statistical tests may be accepted by the Department to demonstrate attainment of the Statewide health standard. The statistical test for soil shall apply to each distinct area of contamination. The statistical test for groundwater will apply to each compliance monitoring well. Testing shall be performed individually for each regulated substance identified in the final report site investigation as being present at the site for which a person wants relief from liability under the act. The application of a statistical method must meet the criteria in subsection (d).

(1) For soil attainment determination at each distinct area of contamination, subparagraph (i), (ii) or (iii) shall be met in addition to the attainment requirements in §§ 250.702 and 250.703 (relating to attainment requirements; and general attainment requirements for soil).

(i) Seventy-five percent of all samples, which shall be randomly collected in a single event from the site, shall be equal to or less than the Statewide health standard or the limit related to PQLs with no individual sample exceeding ten times the Statewide health standard.

(ii) As applied in accordance with EPA approved methods on statistical analysis of environmental data, as identified in subsection (e), the 95% UCL of the arithmetic mean shall be at or below the MSC.

(iii) For sites with a petroleum release where full site characterization, as defined in § 250.204(b) (relating to final report), has not been done in association with an excavation remediation, attainment of the Statewide health standard shall be demonstrated using the following procedure:

(A) For sites regulated under Chapter 245 (relating to administration of the storage tank and spill prevention program) where there is localized contamination as de-

fined in the document "Closure Requirements for Underground Storage Tank Systems" (DEP technical document 2530-BK-DEP2008), samples shall be taken in accordance with that document.

(B) For sites not covered by clause (A), including all sites being remediated under an NIR under this chapter, samples shall be taken from the bottom and sidewalls of the excavation in a biased fashion that concentrates on areas where any remaining contamination above the Statewide health standard would most likely be found. The samples shall be taken from these suspect areas based on visual observation and the use of field instruments. If a sufficient number of samples has been collected from all suspect locations and the minimum number of samples has not been collected, or if there are no suspect areas, the locations to meet the minimum number of samples shall be based on a random procedure. The number of sample points required shall be determined in the following way:

(I) For 250 cubic yards or less of excavated contaminated soil, five samples shall be collected.

(II) For each additional 100 cubic yards of excavated contaminated soil, one sample shall be collected.

(III) For excavations involving more than 1,000 cubic yards of contaminated soil, the remediator shall identify the number and locations of samples in a confirmatory sampling plan submitted to the Department. The remediator shall obtain the Department's approval of the confirmatory sampling plan prior to conducting attainment sampling.

(IV) Where water is encountered in the excavation and no obvious contamination is observed or indicated, soil samples collected just above the soil/water interface shall be equal to or less than the applicable Statewide health MSC determined by § 250.308(a)(2)(ii) (relating to soil to groundwater pathway numeric values).

(V) Where water is encountered in the excavation and no obvious contamination is observed or indicated, a minimum of two samples shall be collected from the water surface in the excavation.

(VI) For sites where there is a release to surface soils resulting in excavation of 50 cubic yards or less of contaminated soil, samples shall be collected as described in this clause, except that two samples shall be collected.

(C) All sample results shall be equal to or less than the applicable Statewide health MSC as determined using Tables 1—4 and 6 in Appendix A.

(D) A vapor intrusion analysis is not necessary if the requirements of § 250.707(b)(1)(iii) are met in addition to the following:

(I) At least one soil sample is collected on the sidewall nearest an inhabited building within the appropriate proximity distance to a potential vapor intrusion source and there are not substantially higher field instrument readings elsewhere.

(II) Observations of obvious contamination and the use of appropriate field screening instruments verify that contamination has not contacted or penetrated the foundation of an inhabited building.

(III) Groundwater contamination has not been identified as a potential vapor intrusion concern.

(2) For groundwater attainment determination at each compliance monitoring well, subparagraph (i) or (ii) shall be met in addition to the attainment requirements in § 250.702 and § 250.704 (relating to general attainment requirements for groundwater).

* * * * *

Appendix A

Table 1—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Groundwater

Regulated Substance	*CASRN*	*Used Aquifers*				*Nonuse Aquifers*	
		TDS ≤ 2500 mg/L		*TDS > 2500 mg/L*			
		R	*NR*	*R*	*NR*	*R*	*NR*
ACENAPHTHENE	83-32-9	2,100 G	3,800 S	3,800 S	3,800 S	3,800 S	3,800 S
ACENAPHTHYLENE	208-96-8	2,100 G	5,800 G	16,000 S	16,000 S	16,000 S	16,000 S
ACEPHATE	30560-19-1	42 G	120 G	4,200 G	12,000 G	42 G	120 G
ACETALDEHYDE	75-07-0	19 N	79 N	1,900 N	7,900 N	19 N	79 N
ACETONE	67-64-1	31,000 G	88,000 G	3,100,000 G	8,800,000 G	310,000 G	880,000 G
ACETONITRILE	75-05-8	130 N	530 N	13,000 N	53,000 N	1,300 N	5,300 N
ACETOPHENONE	98-86-2	3,500 G	9,700 G	350,000 G	970,000 G	3,500 G	9,700 G
ACETYLAMINOFLUORENE, 2- (2AAF)	53-96-3	0.17 G	0.72 G	17 G	72 G	170 G	720 G
ACROLEIN	107-02-8	0.042 N	0.18 N	4.2 N	18 N	0.42 N	1.8 N
ACRYLAMIDE	79-06-1	0.19 N	2.5 N	19 N	250 N	0.19 N	2.5 N
ACRYLIC ACID	79-10-7	2.1 N	8.8 N	210 N	880 N	210 N	880 N
ACRYLONITRILE	107-13-1	0.72 N	3.7 N	72 N	370 N	72 N	370 N
ALACHLOR	15972-60-8	2 M	2 M	200 M	200 M	2 M	2 M
ALDICARB	116-06-3	3 M	3 M	300 M	300 M	3,000 M	3,000 M
ALDICARB SULFONE	1646-88-4	2 M	2 M	200 M	200 M	2 M	2 M
ALDICARB SULFOXIDE	1646-87-3	4 M	4 M	400 M	400 M	4 M	4 M
ALDRIN	309-00-2	0.038 G	0.16 G	3.8 G	16 G	20 S	20 S
ALLYL ALCOHOL	107-18-6	0.21 N	0.88 N	21 N	88 N	21 N	88 N
AMETRYN	834-12-8	60 H	60 H	6,000 H	6,000 H	60 H	60 H
AMINOBIPHENYL, 4-	92-67-1	0.031 G	0.13 G	3.1 G	13 G	31 G	130 G
AMITROLE	61-82-5	0.69 G	2.9 G	69 G	290 G	690 G	2,900 G
AMMONIA	7664-41-7	30,000 H	30,000 H	3,000,000 H	3,000,000 H	30,000 H	30,000 H
AMMONIUM SULFAMATE	7773-06-0	2,000 H	2,000 H	200,000 H	200,000 H	2,000 H	2,000 H
ANILINE	62-53-3	2.1 N	8.8 N	210 N	880 N	2.1 N	8.8 N
ANTHRACENE	120-12-7	66 S	66 S	66 S	66 S	66 S	66 S
ATRAZINE	1912-24-9	3 M	3 M	300 M	300 M	3 M	3 M
AZINPHOS-METHYL (GUTHION)	86-50-0	52 G	150 G	5,200 G	15,000 G	52 G	150 G
BAYGON (PROPOXUR)	114-26-1	3 H	3 H	300 H	300 H	3,000 H	3,000 H
BENOMYL	17804-35-2	270 G	1,100 G	2,000 S	2,000 S	270 G	1,100 G
BENTAZON	25057-89-0	200 H	200 H	20,000 H	20,000 H	200 H	200 H
BENZENE	71-43-2	5 M	5 M	500 M	500 M	500 M	500 M
BENZIDINE	92-87-5	0.00092 G	0.012 G	0.092 G	1.2 G	0.92 G	12 G

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Regulated Substance	*CASRN*	*Used Aquifers*				*Nonuse Aquifers*	
		TDS ≤ 2500 mg/L		*TDS > 2500 mg/L*			
		R	*NR*	*R*	*NR*	*R*	*NR*
BENZO[A]ANTHRACENE	56-55-3	0.3 G	3.9 G	11 S	11 S	11 S	11 S
BENZO[A]PYRENE	50-32-8	0.2 M	0.2 M	3.8 S	3.8 S	3.8 S	3.8 S
BENZO[B]FLUORANTHENE	205-99-2	0.18 G	1.2 S	1.2 S	1.2 S	1.2 S	1.2 S
BENZO[GHI]PERYLENE	191-24-2	0.26 S	0.26 S	0.26 S	0.26 S	0.26 S	0.26 S
BENZO[K]FLUORANTHENE	207-08-9	0.18 G	0.55 S	0.55 S	0.55 S	0.55 S	0.55 S
BENZOIC ACID	65-85-0	140,000 G	390,000 G	2,700,000 S	2,700,000 S	140,000 G	390,000 G
BENZOTRICHLORIDE	98-07-7	0.05 G	0.21 G	5 G	21 G	5 G	21 G
BENZYL ALCOHOL	100-51-6	3,500 G	9,700 G	350,000 G	970,000 G	3,500 G	9,700 G
BENZYL CHLORIDE	100-44-7	1 N	5.1 N	100 N	510 N	100 N	510 N
BETA PROPIOLACTONE	57-57-8	0.012 N	0.063 N	1.2 N	6.3 N	0.12 N	0.63 N
BHC, ALPHA-	319-84-6	0.1 G	0.43 G	10 G	43 G	100 G	430 G
BHC, BETA-	319-85-7	0.36 G	1.5 G	36 G	100 S	100 S	100 S
BHC, GAMMA (LINDANE)	58-89-9	0.2 M	0.2 M	20 M	20 M	200 M	200 M
BIPHENYL, 1,1-	92-52-4	0.84 N	3.5 N	84 N	350 N	84 N	350 N
BIS(2-CHLOROETHOXY)METHANE	111-91-1	100 G	290 G	10,000 G	29,000 G	100 G	290 G
BIS(2-CHLOROETHYL)ETHER	111-44-4	0.15 N	0.76 N	15 N	76 N	15 N	76 N
BIS(2-CHLORO-ISOPROPYL)ETHER	108-60-1	300 H	300 H	30,000 H	30,000 H	30,000 H	30,000 H
BIS(CHLOROMETHYL)ETHER	542-88-1	0.00079 N	0.004 N	0.079 N	0.4 N	0.079 N	0.4 N
BIS[2-ETHYLHEXYL] PHTHALATE	117-81-7	6 M	6 M	290 S	290 S	290 S	290 S
BISPHENOL A	80-05-7	1,700 G	4,900 G	120,000 S	120,000 S	120,000 S	120,000 S
BROMACIL	314-40-9	70 H	70 H	7,000 H	7,000 H	70 H	70 H
BROMOBENZENE	108-86-1	0.06 H	0.06 H	6 H	6 H	0.06 H	0.06 H
BROMOCHLOROMETHANE	74-97-5	90 H	90 H	9,000 H	9,000 H	90 H	90 H
BROMODICHLOROMETHANE (THM)	75-27-4	80 M	80 M	8,000 M	8,000 M	80 M	80 M
BROMOMETHANE	74-83-9	10 H	10 H	1,000 H	1,000 H	1,000 H	1,000 H
BROMOXYNIL	1689-84-5	6.3 G	26 G	630 G	2,600 G	6.3 G	26 G
BROMOXYNIL OCTANOATE	1689-99-2	6.3 G	26 G	80 S	80 S	80 S	80 S
BUTADIENE, 1,3-	106-99-0	1.1 G	4.5 G	110 G	450 G	110 G	450 G
BUTYL ALCOHOL, N-	71-36-3	3,500 G	9,700 G	350,000 G	970,000 G	35,000 G	97,000 G
BUTYLATE	2008-41-5	400 H	400 H	40,000 H	40,000 H	400 H	400 H
BUTYLBENZENE, N-	104-51-8	1,700 G	4,900 G	15,000 S	15,000 S	1,700 G	4,900 G
BUTYLBENZENE, SEC-	135-98-8	3,500 G	9,700 G	17,000 S	17,000 S	3,500 G	9,700 G

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		TDS ≤ 2500 mg/L		*TDS > 2500 mg/L*			
		R	*NR*	*R*	*NR*	*R*	*NR*
BUTYLBENZENE, TERT-	98-06-6	3,500 G	9,700 G	30,000 S	30,000 S	3,500 G	9,700 G
BUTYLBENZYL PHTHALATE	85-68-7	340 G	1,400 G	2,700 S	2,700 S	2,700 S	2,700 S
CAPTAN	133-06-2	280 G	500 S	500 S	500 S	500 S	500 S
CARBARYL	63-25-2	3,500 G	9,700 G	120,000 S	120,000 S	120,000 S	120,000 S
CARBAZOLE	86-74-8	33 G	140 G	1,200 S	1,200 S	33 G	140 G
CARBOFURAN	1563-66-2	40 M	40 M	4,000 M	4,000 M	40 M	40 M
CARBON DISULFIDE	75-15-0	1,500 N	6,200 N	150,000 N	620,000 N	1,500 N	6,200 N
CARBON TETRACHLORIDE	56-23-5	5 M	5 M	500 M	500 M	50 M	50 M
CARBOXIN	5234-68-4	700 H	700 H	70,000 H	70,000 H	700 H	700 H
CHLORAMBEN	133-90-4	100 H	100 H	10,000 H	10,000 H	100 H	100 H
CHLORDANE	57-74-9	2 M	2 M	56 S	56 S	56 S	56 S
CHLORO-1,1-DIFLUOROETHANE, 1-	75-68-3	110,000 N	440,000 N	1,400,000 S	1,400,000 S	110,000 N	440,000 N
CHLORO-1-PROPENE, 3- (ALLYL CHLORIDE)	107-05-1	2.1 N	8.8 N	210 N	880 N	210 N	880 N
CHLOROACETALDEHYDE	107-20-0	2.4 G	10 G	240 G	1,000 G	2.4 G	10 G
CHLOROANILINE, P-	106-47-8	3.3 G	14 G	330 G	1,400 G	3.3 G	14 G
CHLOROBENZENE	108-90-7	100 M	100 M	10,000 M	10,000 M	10,000 M	10,000 M
CHLOROBENZILATE	510-15-6	5.9 G	25 G	590 G	2,500 G	5,900 G	13,000 S
CHLOROBUTANE, 1-	109-69-3	1,400 G	3,900 G	140,000 G	390,000 G	1,400 G	3,900 G
CHLORODIBROMOMETHANE (THM)	124-48-1	80 M	80 M	8,000 M	8,000 M	8,000 M	8,000 M
CHLORODIFLUOROMETHANE	75-45-6	110,000 N	440,000 N	2,900,000 S	2,900,000 S	110,000 N	440,000 N
CHLOROETHANE	75-00-3	21,000 N	88,000 N	2,100,000 N	5,700,000 S	2,100,000 N	5,700,000 S
CHLOROFORM (THM)	67-66-3	80 M	80 M	8,000 M	8,000 M	800 M	800 M
CHLORONAPHTHALENE, 2-	91-58-7	2,800 G	7,800 G	12,000 S	12,000 S	2,800 G	7,800 G
CHLORONITROBENZENE, P-	100-00-5	4.2 N	18 N	420 N	1,800 N	4.2 N	18 N
CHLOROPHENOL, 2-	95-57-8	40 H	40 H	4,000 H	4,000 H	40 H	40 H
CHLOROPRENE	126-99-8	0.16 N	0.83 N	16 N	83 N	16 N	83 N
CHLOROPROPANE, 2-	75-29-6	210 N	880 N	21,000 N	88,000 N	210 N	880 N
CHLOROTHALONIL	1897-45-6	38 G	160 G	600 S	600 S	38 G	160 G
CHLOROTOLUENE, O-	95-49-8	100 H	100 H	10,000 H	10,000 H	100 H	100 H
CHLOROTOLUENE, P-	106-43-4	100 H	100 H	10,000 H	10,000 H	100 H	100 H
CHLORPYRIFOS	2921-88-2	2 H	2 H	200 H	200 H	2 H	2 H
CHLORSULFURON	64902-72-3	690 G	1,900 G	69,000 G	190,000 G	690 G	1,900 G

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		R	*NR*	*R*	*NR*	*R*	*NR*
CHLORTHAL-DIMETHYL (DACTHAL) (DCPA)	1861-32-1	70 H	70 H	500 S	500 S	500 S	500 S
CHRYSENE	218-01-9	1.8 G	1.9 S	1.9 S	1.9 S	1.9 S	1.9 S
CRESOL(S)	1319-77-3	1,300 N	5,300 N	130,000 N	530,000 N	130,000 N	530,000 N
CRESOL, DINITRO-O-,4,6-	534-52-1	2.8 G	7.8 G	280 G	780 G	280 G	780 G
CRESOL, O- (METHYLPHENOL, 2-)	95-48-7	1,700 G	4,900 G	170,000 G	490,000 G	170,000 G	490,000 G
CRESOL, M (METHYLPHENOL, 3-)	108-39-4	1,700 G	4,900 G	170,000 G	490,000 G	1,700,000 G	2,500,000 S
CRESOL, P (METHYLPHENOL, 4-)	106-44-5	170 G	490 G	17,000 G	49,000 G	170,000 G	490,000 G
CRESOL, P-CHLORO-M-	59-50-7	3,500 G	9,700 G	350,000 G	970,000 G	3,500 G	9,700 G
CROTONALDEHYDE	4170-30-3	0.34 G	1.4 G	34 G	140 G	34 G	140 G
CROTONALDEHYDE, TRANS-	123-73-9	0.34 G	1.4 G	34 G	140 G	34 G	140 G
CUMENE (ISOPROPYL BENZENE)	98-82-8	840 N	3,500 N	50,000 S	50,000 S	50,000 S	50,000 S
CYANAZINE	21725-46-2	1 H	1 H	100 H	100 H	1 H	1 H
CYCLOHEXANE	110-82-7	13,000 N	53,000 N	55,000 S	55,000 S	13,000 N	53,000 N
CYCLOHEXANONE	108-94-1	1,500 N	6,200 N	150,000 N	620,000 N	1,500 N	6,200 N
CYFLUTHRIN	68359-37-5	1 S	1 S	1 S	1 S	1 S	1 S
CYROMAZINE	66215-27-8	17,000 G	49,000 G	1,700,000 G	4,900,000 G	17,000 G	49,000 G
DDD, 4,4'-	72-54-8	2.7 G	11 G	160 S	160 S	160 S	160 S
DDE, 4,4'-	72-55-9	1.9 G	8 G	40 S	40 S	40 S	40 S
DDT, 4,4'-	50-29-3	1.9 G	5.5 S	5.5 S	5.5 S	5.5 S	5.5 S
DI(2-ETHYLHEXYL)ADIPATE	103-23-1	400 M	400 M	40,000 M	40,000 M	200,000 S	200,000 S
DIALLATE	2303-16-4	11 G	45 G	1,100 G	4,500 G	11,000 G	40,000 S
DIAMINOTOLUENE, 2,4-	95-80-7	0.16 G	0.68 G	16 G	68 G	160 G	680 G
DIAZINON	333-41-5	1 H	1 H	100 H	100 H	1 H	1 H
DIBENZO[A,H]ANTHRACENE	53-70-3	0.052 G	0.6 S	0.6 S	0.6 S	0.6 S	0.6 S
DIBENZOFURAN	132-64-9	35 G	97 G	3,500 G	4,500 S	3,500 G	4,500 S
DIBROMO-3-CHLOROPROPANE, 1,2-	96-12-8	0.2 M	0.2 M	20 M	20 M	20 M	20 M
DIBROMOBENZENE, 1,4-	106-37-6	350 G	970 G	20,000 S	20,000 S	350 G	970 G
DIBROMOETHANE, 1,2- (ETHYLENE DIBROMIDE)	106-93-4	0.05 M	0.05 M	5 M	5 M	5 M	5 M
DIBROMOMETHANE	74-95-3	8.4 N	35 N	840 N	3,500 N	840 N	3,500 N
DIBUTYL PHTHALATE, N-	84-74-2	3,500 G	9,700 G	350,000 G	400,000 S	400,000 S	400,000 S
DICAMBA	1918-00-9	4,000 H	4,000 H	400,000 H	400,000 H	4,000 H	4,000 H
DICHLOROACETIC ACID (HAA)	79-43-6	60 M	60 M	6,000 M	6,000 M	60 M	60 M

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		R	*NR*	*R*	*NR*	*R*	*NR*
DICHLORO-2-BUTENE, 1,4-	764-41-0	0.012 N	0.06 N	1.2 N	6 N	0.012 N	0.06 N
DICHLORO-2-BUTENE, TRANS-1,4-	110-57-6	0.012 N	0.06 N	1.2 N	6 N	0.012 N	0.06 N
DICHLOROBENZENE, 1,2-	95-50-1	600 M	600 M	60,000 M	60,000 M	60,000 M	60,000 M
DICHLOROBENZENE, 1,3-	541-73-1	600 H	600 H	60,000 H	60,000 H	60,000 H	60,000 H
DICHLOROBENZENE, P-	106-46-7	75 M	75 M	7,500 M	7,500 M	7,500 M	7,500 M
DICHLOROBENZIDINE, 3,3'-	91-94-1	1.4 G	6 G	140 G	600 G	1,400 G	3,100 S
DICHLORODIFLUOROMETHANE (FREON 12)	75-71-8	1,000 H	1,000 H	100,000 H	100,000 H	100,000 H	100,000 H
DICHLOROETHANE, 1,1-	75-34-3	31 N	160 N	3,100 N	16,000 N	310 N	1,600 N
DICHLOROETHANE, 1,2-	107-06-2	5 M	5 M	500 M	500 M	50 M	50 M
DICHLOROETHYLENE, 1,1-	75-35-4	7 M	7 M	700 M	700 M	70 M	70 M
DICHLOROETHYLENE, CIS-1,2-	156-59-2	70 M	70 M	7,000 M	7,000 M	700 M	700 M
DICHLOROETHYLENE, TRANS-1,2-	156-60-5	100 M	100 M	10,000 M	10,000 M	1,000 M	1,000 M
DICHLOROMETHANE (METHYLENE CHLORIDE)	75-09-2	5 M	5 M	500 M	500 M	500 M	500 M
DICHLOROPHENOL, 2,4-	120-83-2	20 H	20 H	2,000 H	2,000 H	20,000 H	20,000 H
DICHLOROPHENOXYACETIC ACID, 2,4- (2,4-D)	94-75-7	70 M	70 M	7,000 M	7,000 M	70,000 M	70,000 M
DICHLOROPROPANE, 1,2-	78-87-5	5 M	5 M	500 M	500 M	50 M	50 M
DICHLOROPROPENE, 1,3-	542-75-6	6.5 G	27 G	650 G	2,700 G	650 G	2,700 G
DICHLOROPROPIONIC ACID, 2,2- (DALAPON)	75-99-0	200 M	200 M	20,000 M	20,000 M	20,000 M	20,000 M
DICHLORVOS	62-73-7	2.2 G	9.4 G	220 G	940 G	2.2 G	9.4 G
DICYCLOPENTADIENE	77-73-6	0.63 N	2.6 N	63 N	260 N	0.63 N	2.6 N
DIELDRIN	60-57-1	0.041 G	0.17 G	4.1 G	17 G	41 G	170 S
DIETHYL PHTHALATE	84-66-2	28,000 G	78,000 G	1,100,000 S	1,100,000 S	1,100,000 S	1,100,000 S
DIFLUBENZURON	35367-38-5	200 S	200 S	200 S	200 S	200 S	200 S
DIISOPROPYL METHYLPHOSPHONATE	1445-75-6	600 H	600 H	60,000 H	60,000 H	600 H	600 H
DIMETHOATE	60-51-5	76 G	210 G	7,600 G	21,000 G	76,000 G	210,000 G
DIMETHOXYBENZIDINE, 3,3-	119-90-4	0.41 G	1.7 G	41 G	170 G	410 G	1,700 G
DIMETHRIN	70-38-2	36 S	36 S	36 S	36 S	36 S	36 S
DIMETHYLAMINOAZOBENZENE, P-	60-11-7	0.14 G	0.59 G	14 G	59 G	140 G	590 G
DIMETHYLANILINE, N,N-	121-69-7	24 G	100 G	2,400 G	10,000 G	2,400 G	10,000 G
DIMETHYLBENZIDINE, 3,3-	119-93-7	0.059 G	0.25 G	5.9 G	25 G	59 G	250 G
DIMETHYL METHYLPHOSPHONATE	756-79-6	100 H	100 H	10,000 H	10,000 H	100 H	100 H
DIMETHYLPHENOL, 2,4-	105-67-9	690 G	1,900 G	69,000 G	190,000 G	690,000 G	1,900,000 G

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		R	*NR*	*R*	*NR*	*R*	*NR*
DINITROBENZENE, 1,3-	99-65-0	1 H	1 H	100 H	100 H	1,000 H	1,000 H
DINITROPHENOL, 2,4-	51-28-5	69 G	190 G	6,900 G	19,000 G	69,000 G	190,000 G
DINITROTOLUENE, 2,4-	121-14-2	2.1 G	8.8 G	210 G	880 G	2,100 G	8,800 G
DINITROTOLUENE, 2,6- (2,6-DNT)	606-20-2	0.43 G	1.8 G	43 G	180 G	430 G	1,800 G
DINOSEB	88-85-7	7 M	7 M	700 M	700 M	7,000 M	7,000 M
DIOXANE, 1,4-	123-91-1	6.5 G	27 G	650 G	2,700 G	65 G	270 G
DIPHENAMID	957-51-7	200 H	200 H	20,000 H	20,000 H	200 H	200 H
DIPHENYLAMINE	122-39-4	3,500 G	9,700 G	300,000 S	300,000 S	300,000 S	300,000 S
DIPHENYLHYDRAZINE, 1,2-	122-66-7	0.22 N	1.1 N	22 N	110 N	22 N	110 N
DIQUAT	85-00-7	20 M	20 M	2,000 M	2,000 M	20 M	20 M
DISULFOTON	298-04-4	0.7 H	0.7 H	70 H	70 H	700 H	700 H
DITHIANE, 1,4-	505-29-3	80 H	80 H	8,000 H	8,000 H	80 H	80 H
DIURON	330-54-1	69 G	190 G	6,900 G	19,000 G	69 G	190 G
ENDOSULFAN	115-29-7	210 G	480 S	480 S	480 S	480 S	480 S
ENDOSULFAN I (APLHA)	959-98-8	210 G	500 S	500 S	500 S	210 G	500 S
ENDOSULFAN II (BETA)	33213-65-9	210 G	450 S	450 S	450 S	210 G	450 S
ENDOSULFAN SULFATE	1031-07-8	120 S	120 S	120 S	120 S	120 S	120 S
ENDOTHALL	145-73-3	100 M	100 M	10,000 M	10,000 M	100 M	100 M
ENDRIN	72-20-8	2 M	2 M	200 M	200 M	2 M	2 M
EPICHLOROHYDRIN	106-89-8	2.1 N	8.8 N	210 N	880 N	210 N	880 N
ETHEPHON	16672-87-0	170 G	490 G	17,000 G	49,000 G	170 G	490 G
ETHION	563-12-2	17 G	49 G	850 S	850 S	17 G	49 G
ETHOXYETHANOL, 2- (EGEE)	110-80-5	420 N	1,800 N	42,000 N	180,000 N	42,000 N	180,000 N
ETHYL ACETATE	141-78-6	150 N	620 N	15,000 N	62,000 N	15,000 N	62,000 N
ETHYL ACRYLATE	140-88-5	14 G	57 G	1,400 G	5,700 G	1,400 G	5,700 G
ETHYL BENZENE	100-41-4	700 M	700 M	70,000 M	70,000 M	70,000 M	70,000 M
ETHYL DIPROPYLTHIOCARBAMATE, S- (EPTC)	759-94-4	1,700 G	4,900 G	170,000 G	370,000 S	1,700 G	4,900 G
ETHYL ETHER	60-29-7	6,900 G	19,000 G	690,000 G	1,900,000 G	6,900 G	19,000 G
ETHYL METHACRYLATE	97-63-2	630 N	2,600 N	63,000 N	260,000 N	630 N	2,600 N
ETHYLENE CHLORHYDRIN	107-07-3	690 G	1,900 G	69,000 G	190,000 G	690 G	1,900 G
ETHYLENE GLYCOL	107-21-1	14,000 H	14,000 H	1,400,000 H	1,400,000 H	1,400,000 H	1,400,000 H
ETHYLENE THIOUREA (ETU)	96-45-7	2.8 G	7.8 G	280 G	780 G	2,800 G	7,800 G

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Regulated Substance	*CASRN*	*Used Aquifers*				*Nonuse Aquifers*	
		TDS ≤ 2500 mg/L		*TDS > 2500 mg/L*			
		R	*NR*	*R*	*NR*	*R*	*NR*
ETHYLP-NITROPHENYL PHENYLPHOSPHOROTHIOATE	2104-64-5	0.35 G	0.97 G	35 G	97 G	0.35 G	0.97 G
FENAMIPHOS	22224-92-6	0.7 H	0.7 H	70 H	70 H	0.7 H	0.7 H
FENVALERATE (PYDRIN)	51630-58-1	85 S	85 S	85 S	85 S	85 S	85 S
FLUOMETURON	2164-17-2	90 H	90 H	9,000 H	9,000 H	90 H	90 H
FLUORANTHENE	206-44-0	260 S	260 S	260 S	260 S	260 S	260 S
FLUORENE	86-73-7	1,400 G	1,900 S	1,900 S	1,900 S	1,900 S	1,900 S
FLUOROTRICHLOROMETHANE (FREON 11)	75-69-4	2,000 H	2,000 H	200,000 H	200,000 H	200,000 H	200,000 H
FONOFOS	944-22-9	10 H	10 H	1,000 H	1,000 H	10 H	10 H
FORMALDEHYDE	50-00-0	1,000 H	1,000 H	100,000 H	100,000 H	100,000 H	100,000 H
FORMIC ACID	64-18-6	0.63 N	2.6 N	63 N	260 N	6.3 N	26 N
FOSETYL-AL	39148-24-8	87,000 G	240,000 G	8,700,000 G	24,000,000 G	87,000 G	240,000 G
FURAN	110-00-9	35 G	97 G	3,500 G	9,700 G	3,500 G	9,700 G
FURFURAL	98-01-1	19 G	78 G	1,900 G	7,800 G	19 G	78 G
GLYPHOSATE	1071-83-6	700 M	700 M	70,000 M	70,000 M	700 M	700 M
HEPTACHLOR	76-44-8	0.4 M	0.4 M	40 M	40 M	180 S	180 S
HEPTACHLOR EPOXIDE	1024-57-3	0.2 M	0.2 M	20 M	20 M	200 M	200 M
HEXACHLOROBENZENE	118-74-1	1 M	1 M	6 S	6 S	6 S	6 S
HEXACHLOROBUTADIENE	87-68-3	8.4 G	35 G	840 G	2,900 S	2,900 S	2,900 S
HEXACHLOROCYCLOPENTADIENE	77-47-4	50 M	50 M	1,800 S	1,800 S	1,800 S	1,800 S
HEXACHLOROETHANE	67-72-1	1 H	1 H	100 H	100 H	100 H	100 H
HEXANE	110-54-3	1,500 N	5,800 G	9,500 S	9,500 S	1,500 N	5,800 G
HEXAZINONE	51235-04-2	400 H	400 H	40,000 H	40,000 H	400 H	400 H
HEXYTHIAZOX (SAVEY)	78587-05-0	500 S	500 S	500 S	500 S	500 S	500 S
HMX	2691-41-0	400 H	400 H	5,000 S	5,000 S	400 H	400 H
HYDRAZINE/HYDRAZINE SULFATE	302-01-2	0.01 N	0.051 N	1 N	5.1 N	0.1 N	0.51 N
HYDROQUINONE	123-31-9	11 G	45 G	1,100 G	4,500 G	11,000 G	45,000 G
INDENO[1,2,3-CD]PYRENE	193-39-5	0.18 G	2.3 G	18 G	62 S	62 S	62 S
IPRODIONE	36734-19-7	15 G	62 G	1,500 G	6,200 G	15 G	62 G
ISOBUTYL ALCOHOL	78-83-1	10,000 G	29,000 G	1,000,000 G	2,900,000 G	1,000,000 G	2,900,000 G
ISOPHORONE	78-59-1	100 H	100 H	10,000 H	10,000 H	100,000 H	100,000 H
ISOPROPYL METHYLPHOSPHONATE	1832-54-8	700 H	700 H	70,000 H	70,000 H	700 H	700 H
KEPONE	143-50-0	0.065 G	0.27 G	6.5 G	27 G	65 G	270 G

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		TDS ≤ 2500 mg/L		*TDS > 2500 mg/L*			
		R	*NR*	*R*	*NR*	*R*	*NR*
MALATHION	121-75-5	500 H	500 H	50,000 H	50,000 H	140,000 S	140,000 S
MALEIC HYDRAZIDE	123-33-1	4,000 H	4,000 H	400,000 H	400,000 H	4,000 H	4,000 H
MANEB	12427-38-2	11 G	45 G	1,100 G	4,500 G	11 G	45 G
MERPHOS OXIDE	78-48-8	17 G	49 G	1,700 G	2,300 S	17 G	49 G
METHACRYLONITRILE	126-98-7	3.5 G	9.7 G	350 G	970 G	3.5 G	9.7 G
METHAMIDOPHOS	10265-92-6	1.7 G	4.9 G	170 G	490 G	1.7 G	4.9 G
METHANOL	67-56-1	42,000 N	180,000 N	4,200,000 N	18,000,000 N	4,200,000 N	18,000,000 N
METHOMYL	16752-77-5	200 H	200 H	20,000 H	20,000 H	200 H	200 H
METHOXYCHLOR	72-43-5	40 M	40 M	45 S	45 S	45 S	45 S
METHOXYETHANOL, 2-	109-86-4	42 N	180 N	4,200 N	18,000 N	420 N	1,800 N
METHYL ACETATE	79-20-9	35,000 G	97,000 G	3,500,000 G	9,700,000 G	35,000 G	97,000 G
METHYL ACRYLATE	96-33-3	42 N	180 N	4,200 N	18,000 N	4,200 N	18,000 N
METHYL CHLORIDE	74-87-3	30 H	30 H	3,000 H	3,000 H	3,000 H	3,000 H
METHYL ETHYL KETONE	78-93-3	4,000 H	4,000 H	400,000 H	400,000 H	400,000 H	400,000 H
METHYL HYDRAZINE	60-34-4	0.042 N	0.18 N	4.2 N	18 N	0.42 N	1.8 N
METHYL ISOBUTYL KETONE	108-10-1	2,800 G	7,800 G	280,000 G	780,000 G	280,000 G	780,000 G
METHYL ISOCYANATE	624-83-9	2.1 N	8.8 N	210 N	880 N	2.1 N	8.8 N
METHYL N-BUTYL KETONE	591-78-6	63 N	260 N	6,300 N	26,000 N	63 N	260 N
METHYL METHACRYLATE	80-62-6	1,500 N	6,200 N	150,000 N	620,000 N	150,000 N	620,000 N
METHYL METHANESULFONATE	66-27-3	6.6 G	27 G	660 G	2,700 G	6.6 G	27 G
METHYL PARATHION	298-00-0	1 H	1 H	100 H	100 H	1,000 H	1,000 H
METHYL STYRENE (MIXED ISOMERS)	25013-15-4	84 N	350 N	8,400 N	35,000 N	84 N	350 N
METHYL TERT-BUTYL ETHER (MTBE)	1634-04-4	20	20	2,000	2,000	200	200
METHYLCHLOROPHENOXYACETIC ACID (MCPA)	94-74-6	30 H	30 H	3,000 H	3,000 H	30,000 H	30,000 H
METHYLENE BIS(2-CHLOROANILINE), 4,4'-	101-14-4	2.1 G	27 G	210 G	2,700 G	2.1 G	27 G
METHYLNAPHTHALENE, 2-	91-57-6	6.3 N	26 N	630 N	2,600 N	6.3 N	26 N
METHYLSTYRENE, ALPHA	98-83-9	2,400 G	6,800 G	240,000 G	560,000 S	2,400 G	6,800 G
METOLACHLOR	51218-45-2	700 H	700 H	70,000 H	70,000 H	700 H	700 H
METRIBUZIN	21087-64-9	70 H	70 H	7,000 H	7,000 H	70 H	70 H
MEVINPHOS	7786-34-7	0.87 G	2.4 G	87 G	240 G	0.87 G	2.4 G
MONOCHLOROACETIC ACID (HAA)	79-11-8	60 H	60 H	6,000 H	6,000 H	60 H	60 H
NAPHTHALENE	91-20-3	100 H	100 H	10,000 H	10,000 H	10,000 H	10,000 H

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Regulated Substance	*CASRN*	*Used Aquifers*				*Nonuse Aquifers*	
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		R	*NR*	*R*	*NR*	*R*	*NR*
NAPHTHYLAMINE, 1-	134-32-7	0.36 G	1.5 G	36 G	150 G	36 G	150 G
NAPHTHYLAMINE, 2-	91-59-8	0.36 G	1.5 G	36 G	150 G	360 G	1,500 G
NAPROPAMIDE	15299-99-7	4,200 G	12,000 G	70,000 S	70,000 S	4,200 G	12,000 G
NITROANILINE, O-	88-74-4	0.11 N	0.44 N	11 N	44 N	0.11 N	0.44 N
NITROANILINE, P-	100-01-6	33 G	140 G	3,300 G	14,000 G	33 G	140 G
NITROBENZENE	98-95-3	1.2 N	6.3 N	120 N	630 N	120 N	630 N
NITROGUANIDINE	556-88-7	700 H	700 H	70,000 H	70,000 H	700 H	700 H
NITROPHENOL, 2-	88-75-5	280 G	780 G	28,000 G	78,000 G	28,000 G	78,000 G
NITROPHENOL, 4-	100-02-7	60 H	60 H	6,000 H	6,000 H	6,000 H	6,000 H
NITROPROPANE, 2-	79-46-9	0.018 N	0.093 N	1.8 N	9.3 N	0.18 N	0.93 N
NITROSODIETHYLAMINE, N-	55-18-5	0.00045 N	0.0058 N	0.045 N	0.58 N	0.0045 N	0.058 N
NITROSODIMETHYLAMINE, N-	62-75-9	0.0014 N	0.018 N	0.14 N	1.8 N	0.014 N	0.18 N
NITROSO-DI-N-BUTYLAMINE, N-	924-16-3	0.031 N	0.16 N	3.1 N	16 N	3.1 N	16 N
NITROSODI-N-PROPYLAMINE, N-	621-64-7	0.025 N	0.13 N	2.5 N	13 N	0.25 N	1.3 N
NITROSODIPHENYLAMINE, N-	86-30-6	19 N	96 N	1,900 N	9,600 N	1,900 N	9,600 N
NITROSO-N-ETHYLUREA, N-	759-73-9	0.0079 G	0.1 G	0.79 G	10 G	7.9 G	100 G
OCTYL PHTHALATE, DI-N-	117-84-0	350 G	970 G	3,000 S	3,000 S	3,000 S	3,000 S
OXAMYL (VYDATE)	23135-22-0	200 M	200 M	20,000 M	20,000 M	200 M	200 M
PARAQUAT	1910-42-5	30 H	30 H	3,000 H	3,000 H	30 H	30 H
PARATHION	56-38-2	1 G	2.9 G	100 G	290 G	1 G	2.9 G
PCBS, TOTAL (POLYCHLORINATED BIPHENYLS) (AROCLORS)	1336-36-3	0.5 M	0.5 M	50 M	50 M	0.5 M	0.5 M
PCB-1016 (AROCLOR)	12674-11-2	2.4 G	6.8 G	240 G	250 S	2.4 G	6.8 G
PCB-1221 (AROCLOR)	11104-28-2	0.33 G	1.4 G	33 G	140 G	0.33 G	1.4 G
PCB-1232 (AROCLOR)	11141-16-5	0.33 G	1.4 G	33 G	140 G	0.33 G	1.4 G
PCB-1242 (AROCLOR)	53469-21-9	0.33 G	1.4 G	33 G	100 S	0.33 G	1.4 G
PCB-1248 (AROCLOR)	12672-29-6	0.33 G	1.4 G	33 G	54 S	0.33 G	1.4 G
PCB-1254 (AROCLOR)	11097-69-1	0.69 G	1.9 G	57 S	57 S	0.69 G	1.9 G
PCB-1260 (AROCLOR)	11096-82-5	0.33 G	1.4 G	33 G	80 S	0.33 G	1.4 G
PEBULATE	1114-71-2	1,700 G	4,900 G	92,000 S	92,000 S	1,700 G	4,900 G
PENTACHLOROBENZENE	608-93-5	28 G	78 G	740 S	740 S	740 S	740 S
PENTACHLOROETHANE	76-01-7	7.2 G	30 G	720 G	3,000 G	7.2 G	30 G
PENTACHLORONITROBENZENE	82-68-8	2.5 G	10 G	250 G	440 S	440 S	440 S

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		R	*NR*	*R*	*NR*	*R*	*NR*
PENTACHLOROPHENOL	87-86-5	1 M	1 M	100 M	100 M	1,000 M	1,000 M
PERFLUOROBUTANE SULFONATE (PFBS)	375-73-5	10 G	29 G	1,000 G	2,900 G	10 G	29 G
PERFLUOROOCTANE SULFONATE (PFOS)	1763-23-1	0.07 H	0.07 H	7 H	7 H	0.07 H	0.07 H
PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	0.07 H	0.07 H	7 H	7 H	0.07 H	0.07 H
PHENACETIN	62-44-2	300 G	1,200 G	30,000 G	120,000 G	300,000 G	760,000 S
PHENANTHRENE	85-01-8	1,100 S	1,100 S	1,100 S	1,100 S	1,100 S	1,100 S
PHENOL	108-95-2	2,000 H	2,000 H	200,000 H	200,000 H	200,000 H	200,000 H
PHENYL MERCAPTAN	108-98-5	35 G	97 G	3,500 G	9,700 G	35 G	97 G
PHENYLENEDIAMINE, M-	108-45-2	210 G	580 G	21,000 G	58,000 G	210,000 G	580,000 G
PHENYLPHENOL, 2-	90-43-7	340 G	1,400 G	34,000 G	140,000 G	340,000 G	700,000 S
PHORATE	298-02-2	6.9 G	19 G	690 G	1,900 G	6.9 G	19 G
PHTHALIC ANHYDRIDE	85-44-9	42 N	180 N	4,200 N	18,000 N	4,200 N	18,000 N
PICLORAM	1918-02-1	500 M	500 M	50,000 M	50,000 M	500 M	500 M
PROMETON	1610-18-0	400 H	400 H	40,000 H	40,000 H	400 H	400 H
PRONAMIDE	23950-58-5	2,600 G	7,300 G	15,000 S	15,000 S	2,600 G	7,300 G
PROPACHLOR	1918-16-7	0.1 H	0.1 H	10 H	10 H	10 H	10 H
PROPANIL	709-98-8	170 G	490 G	17,000 G	49,000 G	170 G	490 G
PROPANOL, 2- (ISOPROPYL ALCOHOL)	67-63-0	420 N	1,800 N	42,000 N	180,000 N	420 N	1,800 N
PROPAZINE	139-40-2	10 H	10 H	1,000 H	1,000 H	10 H	10 H
PROPHAM	122-42-9	100 H	100 H	10,000 H	10,000 H	100 H	100 H
PROPYLBENZENE, N-	103-65-1	2,100 N	8,800 N	52,000 S	52,000 S	2,100 N	8,800 N
PROPYLENE OXIDE	75-56-9	2.7 G	11 G	270 G	1,100 G	2.7 G	11 G
PYRENE	129-00-0	130 S	130 S	130 S	130 S	130 S	130 S
PYRETHRUM	8003-34-7	350 S	350 S	350 S	350 S	350 S	350 S
PYRIDINE	110-86-1	35 G	97 G	3,500 G	9,700 G	350 G	970 G
QUINOLINE	91-22-5	0.22 G	0.91 G	22 G	91 G	220 G	910 G
QUIZALOFOP (ASSURE)	76578-14-8	300 S	300 S	300 S	300 S	300 S	300 S
RDX	121-82-4	2 H	2 H	200 H	200 H	2 H	2 H
RESORCINOL	108-46-3	69,000 G	190,000 G	6,900,000 G	19,000,000 G	69,000 G	190,000 G
RONNEL	299-84-3	1,700 G	4,900 G	40,000 S	40,000 S	1,700 G	4,900 G
SIMAZINE	122-34-9	4 M	4 M	400 M	400 M	4 M	4 M
STRYCHNINE	57-24-9	10 G	29 G	1,000 G	2,900 G	10,000 G	29,000 G

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		R	*NR*	*R*	*NR*	*R*	*NR*
STYRENE	100-42-5	100 M	100 M	10,000 M	10,000 M	10,000 M	10,000 M
TEBUTHIURON	34014-18-1	500 H	500 H	50,000 H	50,000 H	500 H	500 H
TERBACIL	5902-51-2	90 H	90 H	9,000 H	9,000 H	90 H	90 H
TERBUFOS	13071-79-9	0.4 H	0.4 H	40 H	40 H	0.4 H	0.4 H
TETRACHLOROBENZENE, 1,2,4,5-	95-94-3	10 G	29 G	580 S	580 S	580 S	580 S
TETRACHLORODIBENZO-P-DIOXIN, 2,3,7,8- (TCDD)	1746-01-6	0.00003 M	0.00003 M	0.003 M	0.003 M	0.019 S	0.019 S
TETRACHLOROETHANE, 1,1,1,2-	630-20-6	70 H	70 H	7,000 H	7,000 H	7,000 H	7,000 H
TETRACHLOROETHANE, 1,1,2,2-	79-34-5	0.84 N	4.3 N	84 N	430 N	84 N	430 N
TETRACHLOROETHYLENE (PCE)	127-18-4	5 M	5 M	500 M	500 M	50 M	50 M
TETRACHLOROPHENOL, 2,3,4,6-	58-90-2	1,000 G	2,900 G	100,000 G	180,000 S	180,000 S	180,000 S
TETRAETHYL LEAD	78-00-2	0.0035 G	0.0097 G	0.35 G	0.97 G	3.5 G	9.7 G
TETRAETHYLDITHIOPYROPHOSPHATE	3689-24-5	17 G	49 G	1,700 G	4,900 G	17 G	49 G
TETRAHYDROFURAN	109-99-9	25 N	130 N	2,500 N	13,000 N	25 N	130 N
THIOFANOX	39196-18-4	10 G	29 G	1,000 G	2,900 G	10 G	29 G
THIRAM	137-26-8	520 G	1,500 G	30,000 S	30,000 S	520 G	1,500 G
TOLUENE	108-88-3	1,000 M	1,000 M	100,000 M	100,000 M	100,000 M	100,000 M
TOLUIDINE, M-	108-44-1	41 G	170 G	4,100 G	17,000 G	41 G	170 G
TOLUIDINE, O	95-53-4	41 G	170 G	4,100 G	17,000 G	41,000 G	170,000 G
TOLUIDINE, P-	106-49-0	22 G	91 G	2,200 G	9,100 G	22 G	91 G
TOXAPHENE	8001-35-2	3 M	3 M	300 M	300 M	3 M	3 M
TRIALLATE	2303-17-5	0.91 G	3.8 G	91 G	380 G	0.91 G	3.8 G
TRIBROMOMETHANE (BROMOFORM) (THM)	75-25-2	80 M	80 M	8,000 M	8,000 M	8,000 M	8,000 M
TRICHLORO-1,2,2-TRIFLUOROETHANE, 1,1,2-	76-13-1	11,000 N	44,000 N	170,000 S	170,000 S	170,000 S	170,000 S
TRICHLOROACETIC ACID (HAA)	76-03-9	60 M	60 M	6,000 M	6,000 M	60 M	60 M
TRICHLOROBENZENE, 1,2,4-	120-82-1	70 M	70 M	7,000 M	7,000 M	7,000 M	7,000 M
TRICHLOROBENZENE, 1,3,5-	108-70-3	40 H	40 H	4,000 H	4,000 H	40 H	40 H
TRICHLOROETHANE, 1,1,1-	71-55-6	200 M	200 M	20,000 M	20,000 M	2,000 M	2,000 M
TRICHLOROETHANE, 1,1,2-	79-00-5	5 M	5 M	500 M	500 M	50 M	50 M
TRICHLOROETHYLENE (TCE)	79-01-6	5 M	5 M	500 M	500 M	50 M	50 M
TRICHLOROPHENOL, 2,4,5-	95-95-4	3,500 G	9,700 G	350,000 G	970,000 G	1,000,000 S	1,000,000 S
TRICHLOROPHENOL, 2,4,6-	88-06-2	35 G	97 G	3,500 G	9,700 G	35,000 G	97,000 G
TRICHLOROPHENOXYACETIC ACID, 2,4,5- (2,4,5-T)	93-76-5	70 H	70 H	7,000 H	7,000 H	70,000 H	70,000 H

All concentrations in µg/L M = Maximum Contaminant Level N = Inhalation
R = Residential H = Lifetime health advisory level S = Aqueous solubility cap
NR = Non-Residential G = Ingestion
THMs—The values listed for trihalomethanes (THMs) are the total for all THMs combined.
HAAs—The values listed for haloacetic acids (HAAs) are the total for all HAAs combined.
PFOA and PFOS values listed are for individual or total combined.

Appendix A

Table 1—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Groundwater

Regulated Substance	*CASRN*	*Used Aquifers*				*Nonuse Aquifers*	
		TDS ≤ 2500 mg/L		*TDS > 2500 mg/L*			
		R	*NR*	*R*	*NR*	*R*	*NR*
TRICHLOROPHENOXYPROPIONIC ACID, 2,4,5- (2,4,5-TP)	93-72-1	50 M	50 M	5,000 M	5,000 M	50 M	50 M
TRICHLOROPROPANE, 1,1,2-	598-77-6	170 G	490 G	17,000 G	49,000 G	170 G	490 G
TRICHLOROPROPANE, 1,2,3-	96-18-4	40 H	40 H	4,000 H	4,000 H	4,000 H	4,000 H
TRICHLOROPROPENE, 1,2,3-	96-19-5	0.63 N	2.6 N	63 N	260 N	0.63 N	2.6 N
TRIETHYLAMINE	121-44-8	15 N	62 N	1,500 N	6,200 N	15 N	62 N
TRIETHYLENE GLYCOL	112-27-6	69,000 G	190,000 G	6,900,000 G	19,000,000 G	69,000 G	190,000 G
TRIFLURALIN	1582-09-8	10 H	10 H	1,000 H	1,000 H	10 H	10 H
TRIMETHYLBENZENE, 1,3,4- (TRIMETHYLBENZENE, 1,2,4-)	95-63-6	130 N	530 N	13,000 N	53,000 N	13,000 N	53,000 N
TRIMETHYLBENZENE, 1,3,5-	108-67-8	130 N	530 N	13,000 N	49,000 S	130 N	530 N
TRINITROGLYCEROL (NITROGLYCERIN)	55-63-0	5 H	5 H	500 H	500 H	500 H	500 H
TRINITROTOLUENE, 2,4,6-	118-96-7	2 H	2 H	200 H	200 H	2 H	2 H
VINYL ACETATE	108-05-4	420 N	1,800 N	42,000 N	180,000 N	420 N	1,800 N
VINYL BROMIDE (BROMOETHENE)	593-60-2	1.5 N	7.8 N	150 N	780 N	15 N	78 N
VINYL CHLORIDE	75-01-4	2 M	2 M	200 M	200 M	20 M	20 M
WARFARIN	81-81-2	10 G	29 G	1,000 G	2,900 G	10,000 G	17,000 S
XYLENES (TOTAL)	1330-20-7	10,000 M	10,000 M	180,000 S	180,000 S	180,000 S	180,000 S
ZINEB	12122-67-7	1,700 G	4,900 G	10,000 S	10,000 S	1,700 G	4,900 G

All concentrations in µg/L M = Maximum Contaminant Level N = Inhalation
R = Residential H = Lifetime health advisory level S = Aqueous solubility cap
NR = Non-Residential G = Ingestion
THMs—The values listed for trihalomethanes (THMs) are the total for all THMs combined.
HAAs—The values listed for haloacetic acids (HAAs) are the total for all HAAs combined.
PFOA and PFOS values listed are for individual or total combined.

Appendix A

Table 2—Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Groundwater

Regulated Substance	*CASRN*	*Used Aquifers*				*Nonuse Aquifers*	
		TDS ≤ 2500 mg/L		*TDS > 2500 mg/L*			
		R	*NR*	*R*	*NR*	*R*	*NR*
ANTIMONY	7440-36-0	6 M	6 M	600 M	600 M	6,000 M	6,000 M
ARSENIC	7440-38-2	10 M	10 M	1,000 M	1,000 M	10,000 M	10,000 M
ASBESTOS (fibers/L)	12001-29-5	7,000,000 M	7,000,000 M	7,000,000 M	7,000,000 M	7,000,000 M	7,000,000 M
BARIUM AND COMPOUNDS	7440-39-3	2,000 M	2,000 M	200,000 M	200,000 M	2,000,000 M	2,000,000 M
BERYLLIUM	7440-41-7	4 M	4 M	400 M	400 M	4,000 M	4,000 M
BORON AND COMPOUNDS	7440-42-8	6,000 H	6,000 H	600,000 H	600,000 H	6,000,000 H	6,000,000 H
CADMIUM	7440-43-9	5 M	5 M	500 M	500 M	5,000 M	5,000 M
CHROMIUM (TOTAL)	7440-47-3	100 M	100 M	10,000 M	10,000 M	100,000 M	100,000 M
COBALT	7440-48-4	10 G	29 G	1,000 G	2,900 G	10,000 G	29,000 G
COPPER	7440-50-8	1,000 M	1,000 M	100,000 M	100,000 M	1,000,000 M	1,000,000 M
CYANIDE, FREE	57-12-5	200 M	200 M	20,000 M	20,000 M	200,000 M	200,000 M
FLUORIDE	16984-48-8	4,000 M	4,000 M	400,000 M	400,000 M	4,000,000 M	4,000,000 M
LEAD	7439-92-1	5 M	5 M	500 M	500 M	5,000 M	5,000 M
LITHIUM	7439-93-2	69 G	190 G	6,900 G	19,000 G	69,000 G	190,000 G
MANGANESE	7439-96-5	300 H	300 H	30,000 H	30,000 H	300,000 H	300,000 H
MERCURY	7439-97-6	2 M	2 M	200 M	200 M	2,000 M	2,000 M
MOLYBDENUM	7439-98-7	40 H	40 H	4,000 H	4,000 H	40,000 H	40,000 H
NICKEL	7440-02-0	100 H	100 H	10,000 H	10,000 H	100,000 H	100,000 H
NITRATE NITROGEN	14797-55-8	10,000 M	10,000 M	1,000,000 M	1,000,000 M	10,000,000 M	10,000,000 M
NITRITE NITROGEN	14797-65-0	1,000 M	1,000 M	100,000 M	100,000 M	1,000,000 M	1,000,000 M
PERCHLORATE	7790-98-9	15 H	15 H	1,500 H	1,500 H	15,000 H	15,000 H
SELENIUM	7782-49-2	50 M	50 M	5,000 M	5,000 M	50,000 M	50,000 M
SILVER	7440-22-4	100 H	100 H	10,000 H	10,000 H	100,000 H	100,000 H
STRONTIUM	7440-24-6	4,000 H	4,000 H	400,000 H	400,000 H	4,000,000 H	4,000,000 H
THALLIUM	7440-28-0	2 M	2 M	200 M	200 M	2,000 M	2,000 M
TIN	7440-31-5	21,000 G	58,000 G	2,100,000 G	5,800,000 G	21,000,000 G	58,000,000 G
VANADIUM	7440-62-2	2.4 G	6.8 G	240 G	680 G	2,400 G	6,800 G
ZINC AND COMPOUNDS	7440-66-6	2,000 H	2,000 H	200,000 H	200,000 H	2,000,000 H	2,000,000 H

All concentrations in µg/L (except asbestos)
M = Maximum Contaminant Level
H = Lifetime Health Advisory Level
SMCL = Secondary Maximum Contaminant Level
G = Ingestion
N = Inhalation
PA State MCL adopted as MSC for Copper and Lead

R = Residential
NR = Nonresidential

Appendix A

Table 2—Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Groundwater

SECONDARY CONTAMINANTS			
REGULATED SUBSTANCE	*CASRN*	*SMCL*	*UNITS*
ALUMINUM	7429-90-5	200	µg/L
CHLORIDE	7647-14-5	250,000	µg/L
IRON	7439-89-6	300	µg/L
SULFATE	7757-82-6	250,000	µg/L

All concentrations in µg/L (except asbestos)
M = Maximum Contaminant Level
H = Lifetime Health Advisory Level
SMCL = Secondary Maximum Contaminant Level
G = Ingestion
N = Inhalation
PA State MCL adopted as MSC for Copper and Lead
R = Residential
NR = Nonresidential

Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
A. Direct Contact Numeric Values

REGULATED SUBSTANCE	*CASRN*	*Residential 0—15 feet*		*Nonresidential*			
				Surface Soil 0—2 feet		*Subsurface Soil 2—15 feet*	
ACENAPHTHENE	83-32-9	13,000	G	190,000	C	190,000	C
ACENAPHTHYLENE	208-96-8	13,000	G	190,000	C	190,000	C
ACEPHATE	30560-19-1	260	G	3,800	G	190,000	C
ACETALDEHYDE	75-07-0	170	N	710	N	820	N
ACETONE	67-64-1	10,000	C	10,000	C	10,000	C
ACETONITRILE	75-05-8	1,100	N	4,700	N	5,500	N
ACETOPHENONE	98-86-2	10,000	C	10,000	C	10,000	C
ACETYLAMINOFLUORENE, 2- (2AAF)	53-96-3	4.9	G	24	G	190,000	C
ACROLEIN	107-02-8	0.38	N	1.6	N	1.8	N
ACRYLAMIDE	79-06-1	1.7	N	22	N	25	N
ACRYLIC ACID	79-10-7	19	N	79	N	91	N
ACRYLONITRILE	107-13-1	6.5	N	33	N	37	N
ALACHLOR	15972-60-8	330	G	1,600	G	190,000	C
ALDICARB	116-06-3	220	G	3,200	G	190,000	C
ALDICARB SULFONE	1646-88-4	220	G	3,200	G	190,000	C
ALDICARB SULFOXIDE	1646-87-3	220	G	3,200	G	190,000	C
ALDRIN	309-00-2	1.1	G	5.4	G	190,000	C
ALLYL ALCOHOL	107-18-6	1.9	N	7.9	N	9.1	N
AMETRYN	834-12-8	2,000	G	29,000	G	190,000	C
AMINOBIPHENYL, 4-	92-67-1	0.89	G	4.3	G	190,000	C
AMITROLE	61-82-5	20	G	97	G	190,000	C
AMMONIA	7664-41-7	9,600	N	10,000	C	10,000	C
AMMONIUM SULFAMATE	7773-06-0	44,000	G	190,000	C	190,000	C
ANILINE	62-53-3	19	N	79	N	90	N
ANTHRACENE	120-12-7	66,000	G	190,000	C	190,000	C
ATRAZINE	1912-24-9	81	G	400	G	190,000	C
AZINPHOS-METHYL (GUTHION)	86-50-0	330	G	4,800	G	190,000	C
BAYGON (PROPOXUR)	114-26-1	880	G	13,000	G	190,000	C
BENOMYL	17804-35-2	7,800	G	38,000	G	190,000	C
BENTAZON	25057-89-0	6,600	G	96,000	G	190,000	C
BENZENE	71-43-2	57	N	280	N	330	N
BENZIDINE	92-87-5	0.018	G	0.4	G	190,000	C
BENZO[A]ANTHRACENE	56-55-3	6.1	G	130	G	190,000	C
BENZO[A]PYRENE	50-32-8	4.2	G	91	G	190,000	C
BENZO[B]FLUORANTHENE	205-99-2	3.5	G	76	G	190,000	C
BENZO[GHI]PERYLENE	191-24-2	13,000	G	190,000	C	190,000	C
BENZO[K]FLUORANTHENE	207-08-9	3.5	G	76	G	190,000	C
BENZOIC ACID	65-85-0	190,000	C	190,000	C	190,000	C
BENZOTRICHLORIDE	98-07-7	1.4	G	7	G	10,000	C
BENZYL ALCOHOL	100-51-6	10,000	C	10,000	C	10,000	C
BENZYL CHLORIDE	100-44-7	9	N	45	N	52	N
BETA PROPIOLACTONE	57-57-8	0.11	N	0.55	N	0.63	N
BHC, ALPHA	319-84-6	3	G	14	G	190,000	C
BHC, BETA-	319-85-7	10	G	51	G	190,000	C
BHC, GAMMA (LINDANE)	58-89-9	17	G	83	G	190,000	C
BIPHENYL, 1,1-	92-52-4	8.2	N	34	N	40	N
BIS(2-CHLOROETHOXY)METHANE	111-91-1	660	G	9,600	G	10,000	C
BIS(2-CHLOROETHYL)ETHER	111-44-4	1.3	N	6.7	N	7.6	N
BIS(2-CHLORO-ISOPROPYL)ETHER	108-60-1	44	N	220	N	250	N
BIS(CHLOROMETHYL)ETHER	542-88-1	0.0071	N	0.036	N	0.041	N
BIS[2-ETHYLHEXYL] PHTHALATE	117-81-7	1,300	G	6,500	G	10,000	C
BISPHENOL A	80-05-7	11,000	G	160,000	G	190,000	C

All concentrations in mg/kg
G—Ingestion
N—Inhalation
C—Cap

Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
A. Direct Contact Numeric Values

REGULATED SUBSTANCE	*CASRN*	*Residential 0—15 feet*		*Nonresidential*			
				Surface Soil 0—2 feet		*Subsurface Soil 2—15 feet*	
BROMACIL	314-40-9	22,000	G	190,000	C	190,000	C
BROMOBENZENE	108-86-1	1,100	N	4,700	N	5,400	N
BROMOCHLOROMETHANE	74-97-5	760	N	3,200	N	3,600	N
BROMODICHLOROMETHANE	75-27-4	12	N	60	N	69	N
BROMOMETHANE	74-83-9	95	N	400	N	460	N
BROMOXYNIL	1689-84-5	180	G	880	G	190,000	C
BROMOXYNIL OCTANOATE	1689-99-2	180	G	880	G	190,000	C
BUTADIENE, 1,3-	106-99-0	15	N	74	N	85	N
BUTYL ALCOHOL, N-	71-36-3	10,000	C	10,000	C	10,000	C
BUTYLATE	2008-41-5	10,000	C	10,000	C	10,000	C
BUTYLBENZENE, N-	104-51-8	10,000	C	10,000	C	10,000	C
BUTYLBENZENE, SEC-	135-98-8	10,000	C	10,000	C	10,000	C
BUTYLBENZENE, TERT-	98-06-6	10,000	C	10,000	C	10,000	C
BUTYLBENZYL PHTHALATE	85-68-7	9,800	G	10,000	C	10,000	C
CAPTAN	133-06-2	8,100	G	40,000	G	190,000	C
CARBARYL	63-25-2	22,000	G	190,000	C	190,000	C
CARBAZOLE	86-74-8	930	G	4,600	G	190,000	C
CARBOFURAN	1563-66-2	1,100	G	16,000	G	190,000	C
CARBON DISULFIDE	75-15-0	10,000	C	10,000	C	10,000	C
CARBON TETRACHLORIDE	56-23-5	75	N	370	N	430	N
CARBOXIN	5234-68-4	22,000	G	190,000	C	190,000	C
CHLORAMBEN	133-90-4	3,300	G	48,000	G	190,000	C
CHLORDANE	57-74-9	53	G	260	G	190,000	C
CHLORO-1,1-DIFLUOROETHANE, 1-	75-68-3	10,000	C	10,000	C	10,000	C
CHLORO-1-PROPENE, 3- (ALLYL CHLORIDE)	107-05-1	19	N	80	N	92	N
CHLOROACETALDEHYDE	107-20-0	69	G	340	G	10,000	C
CHLOROACETOPHENONE, 2-	532-27-4	190,000	C	190,000	C	190,000	C
CHLOROANILINE, P-	106-47-8	93	G	460	G	190,000	C
CHLOROBENZENE	108-90-7	950	N	3,900	N	4,500	N
CHLOROBENZILATE	510-15-6	170	G	830	G	190,000	C
CHLOROBUTANE, 1-	109-69-3	8,800	G	10,000	C	10,000	C
CHLORODIBROMOMETHANE	124-48-1	220	G	1,100	G	10,000	C
CHLORODIFLUOROMETHANE	75-45-6	10,000	C	10,000	C	10,000	C
CHLOROETHANE	75-00-3	10,000	C	10,000	C	10,000	C
CHLOROFORM	67-66-3	19	N	96	N	110	N
CHLORONAPHTHALENE, 2-	91-58-7	18,000	G	190,000	C	190,000	C
CHLORONITROBENZENE, P-	100-00-5	39	N	160	N	180	N
CHLOROPHENOL, 2-	95-57-8	1,100	G	10,000	C	10,000	C
CHLOROPRENE	126-99-8	1.5	N	7.4	N	8.5	N
CHLOROPROPANE, 2-	75-29-6	1,900	N	7,900	N	9,100	N
CHLOROTHALONIL	1897-45-6	1,100	G	5,400	G	190,000	C
CHLOROTOLUENE, O-	95-49-8	4,400	G	10,000	C	10,000	C
CHLOROTOLUENE, P-	106-43-4	4,400	C	10,000	C	10,000	C
CHLORPYRIFOS	2921-88-2	220	G	3,200	G	190,000	C
CHLORSULFURON	64902-72-3	4,400	G	64,000	G	190,000	C
CHLORTHAL-DIMETHYL (DACTHAL) (DCPA)	1861-32-1	2,200	G	32,000	G	190,000	C
CHRYSENE	218-01-9	35	G	760	G	190,000	C
CRESOL(S)	1319-77-3	10,000	C	10,000	C	10,000	C
CRESOL, 4,6-DINITRO-O-	534-52-1	18	G	260	G	190,000	C
CRESOL, O- (2-METHYLPHENOL)	95-48-7	11,000	G	160,000	G	190,000	C
CRESOL, M- (3-METHYLPHENOL)	108-39-4	10,000	C	10,000	C	10,000	C
CRESOL, P- (4-METHYLPHENOL)	106-44-5	1,100	G	16,000	G	190,000	C

All concentrations in mg/kg
G—Ingestion
N—Inhalation
C—Cap

Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
A. Direct Contact Numeric Values

REGULATED SUBSTANCE	*CASRN*	*Residential 0—15 feet*		*Nonresidential*			
				Surface Soil 0—2 feet		*Subsurface Soil 2—15 feet*	
CRESOL, P-CHLORO-M-	59-50-7	22,000	G	190,000	G	190,000	C
CROTONALDEHYDE	4170-30-3	9.8	G	48	G	10,000	C
CROTONALDEHYDE, TRANS-	123-73-9	9.8	G	48	G	10,000	C
CUMENE (ISOPROPYL BENZENE)	98-82-8	7,600	N	10,000	C	10,000	C
CYANAZINE	21725-46-2	22	G	110	G	190,000	C
CYCLOHEXANE	110-82-7	10,000	C	10,000	C	10,000	C
CYCLOHEXANONE	108-94-1	10,000	C	10,000	C	10,000	C
CYFLUTHRIN	68359-37-5	5,500	G	80,000	G	190,000	C
CYROMAZINE	66215-27-8	110,000	G	190,000	C	190,000	C
DDD, 4,4'-	72-54-8	78	G	380	G	190,000	C
DDE, 4,4'-	72-55-9	55	G	270	G	190,000	C
DDT, 4,4'-	50-29-3	55	G	270	G	190,000	C
DI(2-ETHYLHEXYL)ADIPATE	103-23-1	10,000	C	10,000	C	10,000	C
DIALLATE	2303-16-4	300	G	1,500	G	10,000	C
DIAMINOTOLUENE, 2,4-	95-80-7	4.7	G	23	G	190,000	C
DIAZINON	333-41-5	150	G	2,200	G	10,000	C
DIBENZO[A,H]ANTHRACENE	53-70-3	1	G	22	G	190,000	C
DIBENZOFURAN	132-64-9	220	G	3,200	G	190,000	C
DIBROMO-3-CHLOROPROPANE, 1,2-	96-12-8	0.029	N	0.37	N	0.42	N
DIBROMOBENZENE, 1,4-	106-37-6	2,200	G	32,000	G	190,000	C
DIBROMOETHANE, 1,2- (ETHYLENE DIBROMIDE)	106-93-4	0.74	N	3.7	N	4.2	N
DIBROMOMETHANE	74-95-3	76	N	310	N	360	N
DIBUTYL PHTHALATE, N-	84-74-2	10,000	C	10,000	C	10,000	C
DICAMBA	1918-00-9	6,600	G	96,000	G	190,000	C
DICHLOROACETIC ACID	76-43-6	370	G	1,800	G	10,000	C
DICHLORO-2-BUTENE, 1,4-	764-41-0	0.11	N	0.52	N	0.6	N
DICHLORO-2-BUTENE, TRANS-1,4-	110-57-6	0.11	N	0.52	N	0.6	N
DICHLOROBENZENE, 1,2-	95-50-1	3,800	N	10,000	C	10,000	C
DICHLOROBENZENE, 1,3-	541-73-1	10,000	C	10,000	C	10,000	C
DICHLOROBENZENE, P-	106-46-7	40	N	200	N	230	N
DICHLOROBENZIDINE, 3,3'-	91-94-1	41	G	200	G	190,000	C
DICHLORODIFLUOROMETHANE (FREON 12)	75-71-8	1,900	N	8,000	N	9,100	N
DICHLOROETHANE, 1,1-	75-34-3	280	N	1,400	N	1,600	N
DICHLOROETHANE, 1,2-	107-06-2	17	N	85	N	98	N
DICHLOROETHYLENE, 1,1-	75-35-4	3,800	N	10,000	C	10,000	C
DICHLOROETHYLENE, CIS-1,2-	156-59-2	440	G	6,400	G	10,000	C
DICHLOROETHYLENE, TRANS-1,2-	156-60-5	4,400	G	10,000	C	10,000	C
DICHLOROMETHANE (METHYLENE CHLORIDE)	75-09-2	1,300	G	10,000	C	10,000	C
DICHLOROPHENOL, 2,4-	120-83-2	660	G	9,600	G	190,000	C
DICHLOROPHENOXYACETIC ACID, 2,4- (2,4-D)	94-75-7	2,200	G	32,000	G	190,000	C
DICHLOROPROPANE, 1,2-	78-87-5	0.12	N	0.6	N	0.69	N
DICHLOROPROPENE, 1,3-	542-75-6	110	N	550	N	640	N
DICHLOROPROPIONIC ACID, 2,2- (DALAPON)	75-99-0	6,600	G	10,000	C	10,000	C
DICHLORVOS	62-73-7	64	G	310	G	10,000	C
DICYCLOPENTADIENE	77-73-6	5.7	N	24	N	27	N
DIELDRIN	60-57-1	1.2	G	5.7	G	190,000	C
DIETHANOLAMINE	111-42-2	440	G	6,400	G	10,000	C
DIETHYL PHTHALATE	84-66-2	10,000	C	10,000	C	10,000	C
DIFLUBENZURON	35367-38-5	4,400	G	64,000	G	190,000	C
DIISOPROPYL METHYLPHOSPHONATE	1445-75-6	10,000	C	10,000	C	10,000	C
DIMETHOATE	60-51-5	480	G	7,000	G	190,000	C
DIMETHOXYBENZIDINE, 3,3-	119-90-4	12	G	57	G	190,000	C

All concentrations in mg/kg
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Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
A. Direct Contact Numeric Values

REGULATED SUBSTANCE	*CASRN*	*Residential 0—15 feet*		*Nonresidential*			
				Surface Soil 0—2 feet		*Subsurface Soil 2—15 feet*	
DIMETHRIN	70-38-2	66,000	G	190,000	C	190,000	C
DIMETHYLAMINOAZOBENZENE, P-	60-11-7	4	G	20	G	190,000	C
DIMETHYLANILINE, N,N-	121-69-7	440	G	3,400	G	10,000	C
DIMETHYLBENZIDINE, 3,3-	119-93-7	1.7	G	8.3	G	190,000	C
DIMETHYL METHYLPHOSPHONATE	756-79-6	10,000	C	10,000	C	10,000	C
DIMETHYLPHENOL, 2,4-	105-67-9	4,400	G	10,000	C	10,000	C
DINITROBENZENE, 1,3-	99-65-0	22	G	320	G	190,000	C
DINITROPHENOL, 2,4-	51-28-5	440	G	6,400	G	190,000	C
DINITROTOLUENE, 2,4-	121-14-2	60	G	290	G	190,000	C
DINITROTOLUENE, 2,6- (2,6-DNT)	606-20-2	12	G	61	G	190,000	C
DINOSEB	88-85-7	220	G	3,200	G	190,000	C
DIOXANE, 1,4-	123-91-1	89	N	440	N	510	N
DIPHENAMID	957-51-7	6,600	G	96,000	G	190,000	C
DIPHENYLAMINE	122-39-4	22,000	G	190,000	C	190,000	C
DIPHENYLHYDRAZINE, 1,2-	122-66-7	2.1	N	10	N	12	N
DIQUAT	85-00-7	480	G	7,000	G	190,000	C
DISULFOTON	298-04-4	8.8	G	130	G	10,000	C
DITHIANE, 1,4-	505-29-3	2,200	G	32,000	G	190,000	C
DIURON	330-54-1	440	G	6,400	G	190,000	C
ENDOSULFAN	115-29-7	1,300	G	19,000	G	190,000	C
ENDOSULFAN I (ALPHA)	959-98-8	1,300	G	19,000	G	190,000	C
ENDOSULFAN II (BETA)	33213-65-9	1,300	G	19,000	G	190,000	C
ENDOSULFAN SULFATE	1031-07-8	1,300	G	19,000	G	190,000	C
ENDOTHALL	145-73-3	4,400	G	64,000	G	190,000	C
ENDRIN	72-20-8	66	G	960	G	190,000	C
EPICHLOROHYDRIN	106-89-8	19	N	79	N	91	N
ETHEPHON	16672-87-0	1,100	G	16,000	G	190,000	C
ETHION	563-12-2	110	G	1,600	G	10,000	C
ETHOXYETHANOL, 2- (EGEE)	110-80-5	3,800	N	10,000	C	10,000	C
ETHYL ACETATE	141-78-6	1,300	N	5,500	N	6,300	N
ETHYL ACRYLATE	140-88-5	150	N	630	N	720	N
ETHYL BENZENE	100-41-4	180	N	880	N	1,000	N
ETHYL DIPROPYLTHIOCARBAMATE, S- (EPTC)	759-94-4	10,000	C	10,000	C	10,000	C
ETHYL ETHER	60-29-7	10,000	C	10,000	C	10,000	C
ETHYL METHACRYLATE	97-63-2	5,700	N	10,000	C	10,000	C
ETHYLENE CHLORHYDRIN	107-07-3	4,400	G	10,000	C	10,000	C
ETHYLENE GLYCOL	107-21-1	7,600	N	10,000	C	10,000	C
ETHYLENE THIOUREA (ETU)	96-45-7	18	G	260	G	190,000	C
ETHYLP-NITROPHENYL PHENYLPHOSPHOROTHIOATE	2104-64-5	2.2	G	32	G	190,000	C
FENAMIPHOS	22224-92-6	55	G	800	G	190,000	C
FENVALERATE (PYDRIN)	51630-58-1	5,500	G	10,000	C	10,000	C
FLUOMETURON	2164-17-2	2,900	G	42,000	G	190,000	C
FLUORANTHENE	206-44-0	8,800	G	130,000	G	190,000	C
FLUORENE	86-73-7	8,800	G	130,000	G	190,000	C
FLUOROTRICHLOROMETHANE (FREON 11)	75-69-4	10,000	C	10,000	C	10,000	C
FONOFOS	944-22-9	440	G	6,400	G	10,000	C
FORMALDEHYDE	50-00-0	34	N	170	N	200	N
FORMIC ACID	64-18-6	5.7	N	24	N	27	N
FOSETYL-AL	39148-24-8	190,000	C	190,000	C	190,000	C
FURAN	110-00-9	220	G	3,200	G	10,000	C
FURFURAL	98-01-1	530	G	2,600	G	4,500	N

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REGULATED SUBSTANCE	*CASRN*	*Residential 0—15 feet*		*Nonresidential*			
				Surface Soil 0—2 feet		*Subsurface Soil 2—15 feet*	
GLYPHOSATE	1071-83-6	22,000	G	190,000	C	190,000	C
HEPTACHLOR	76-44-8	4.1	G	20	G	190,000	C
HEPTACHLOR EPOXIDE	1024-57-3	2	G	10	G	190,000	C
HEXACHLOROBENZENE	118-74-1	12	G	57	G	190,000	C
HEXACHLOROBUTADIENE	87-68-3	220	G	1,200	G	10,000	C
HEXACHLOROCYCLOPENTADIENE	77-47-4	1,300	G	10,000	C	10,000	C
HEXACHLOROETHANE	67-72-1	46	N	230	N	270	N
HEXANE	110-54-3	10,000	C	10,000	C	10,000	C
HEXAZINONE	51235-04-2	7,300	G	110,000	G	190,000	C
HEXYTHIAZOX (SAVEY)	78587-05-0	5,500	G	80,000	G	190,000	C
HMX	2691-41-0	11,000	G	160,000	G	190,000	C
HYDRAZINE/HYDRAZINE SULFATE	302-01-2	0.091	N	0.45	N	0.52	N
HYDROQUINONE	123-31-9	310	G	1,500	G	190,000	C
INDENO[1,2,3-CD]PYRENE	193-39-5	3.5	G	76	G	190,000	C
IPRODIONE	36734-19-7	420	G	2,100	G	190,000	C
ISOBUTYL ALCOHOL	78-83-1	10,000	C	10,000	C	10,000	C
ISOPHORONE	78-59-1	10,000	C	10,000	C	10,000	C
ISOPROPYL METHYLPHOSPHONATE	1832-54-8	10,000	C	10,000	C	10,000	C
KEPONE	143-50-0	1.9	G	9.1	G	190,000	C
MALATHION	121-75-5	4,400	G	10,000	C	10,000	C
MALEIC HYDRAZIDE	123-33-1	110,000	G	190,000	C	190,000	C
MANEB	12427-38-2	310	G	1,500	G	190,000	C
MERPHOS OXIDE	78-48-8	110	G	1,600	G	10,000	C
METHACRYLONITRILE	126-98-7	22	G	320	G	2,700	N
METHAMIDOPHOS	10265-92-6	11	G	160	G	190,000	C
METHANOL	67-56-1	10,000	C	10,000	C	10,000	C
METHOMYL	16752-77-5	5,500	G	80,000	G	190,000	C
METHOXYCHLOR	72-43-5	1,100	G	16,000	G	190,000	C
METHOXYETHANOL, 2-	109-86-4	380	N	1,600	N	1,800	N
METHYL ACETATE	79-20-9	10,000	C	10,000	C	10,000	C
METHYL ACRYLATE	96-33-3	380	N	1,600	N	1,800	N
METHYL CHLORIDE	74-87-3	250	N	1,200	N	1,400	N
METHYL ETHYL KETONE	78-93-3	10,000	C	10,000	C	10,000	C
METHYL HYDRAZINE	60-34-4	0.38	N	1.6	N	1.8	N
METHYL ISOBUTYL KETONE	108-10-1	10,000	C	10,000	C	10,000	C
METHYL ISOCYANATE	624-83-9	19	N	79	N	91	N
METHYL N-BUTYL KETONE (2-HEXANONE)	591-78-6	570	N	2,400	N	2,700	N
METHYL METHACRYLATE	80-62-6	10,000	C	10,000	C	10,000	C
METHYL METHANESULFONATE	66-27-3	190	G	920	G	10,000	C
METHYL PARATHION	298-00-0	55	G	800	G	190,000	C
METHYL STYRENE (MIXED ISOMERS)	25013-15-4	760	N	3,100	N	3,600	N
METHYL TERT-BUTYL ETHER (MTBE)	1634-04-4	1,700	N	8,500	N	9,800	N
METHYLCHLOROPHENOXYACETIC ACD (MCPA)	94-74-6	110	G	1,600	C	190,000	C
METHYLENE BIS(2-CHLOROANILINE), 4,4'-	101-14-4	42	G	910	G	190,000	C
METHYLNAPHTHALENE, 2-	91-57-6	57	N	240	N	270	N
METHYLSTYRENE, ALPHA	98-83-9	10,000	C	10,000	C	10,000	C
METOLACHLOR	51218-45-2	10,000	C	10,000	C	10,000	C
METRIBUZIN	21087-64-9	5,500	G	80,000	G	190,000	C
MEVINPHOS	7786-34-7	5.5	G	80	G	190,000	C
MONOCHLOROACETIC ACID	79-11-8	440	G	6,400	G	190,000	C
NAPHTHALENE	91-20-3	13	N	66	N	77	N
NAPHTHYLAMINE, 1-	134-32-7	10	G	51	G	190,000	C

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REGULATED SUBSTANCE	*CASRN*	*Residential 0—15 feet*		*Nonresidential*			
				Surface Soil 0—2 feet		*Subsurface Soil 2—15 feet*	
NAPHTHYLAMINE, 2-	91-59-8	10	G	51	G	190,000	C
NAPROPAMIDE	15299-99-7	26,000	G	190,000	C	190,000	C
NITROANILINE, O-	88-74-4	0.95	N	3.9	N	4.5	N
NITROANILINE, P-	100-01-6	880	G	4,600	G	190,000	C
NITROBENZENE	98-95-3	11	N	55	N	63	N
NITROGUANIDINE	556-88-7	22,000	G	190,000	C	190,000	C
NITROPHENOL, 2-	88-75-5	1,800	G	26,000	G	190,000	C
NITROPHENOL, 4-	100-02-7	1,800	G	26,000	G	190,000	C
NITROPROPANE, 2-	79-46-9	0.16	N	0.82	N	0.94	N
NITROSODIETHYLAMINE, N-	55-18-5	0.0041	N	0.051	N	0.059	N
NITROSODIMETHYLAMINE, N-	62-75-9	0.012	N	0.16	N	0.18	N
NITROSO-DI-N-BUTYLAMINE, N-	924-16-3	0.28	N	1.4	N	1.6	N
NITROSODI-N-PROPYLAMINE, N-	621-64-7	0.22	N	1.1	N	1.3	N
NITROSODIPHENYLAMINE, N-	86-30-6	170	N	860	N	990	N
NITROSO-N-ETHYLUREA, N-	759-73-9	0.16	G	3.4	G	190,000	C
OCTYL PHTHALATE, DI-N-	117-84-0	2,200	G	10,000	C	10,000	C
OXAMYL (VYDATE)	23135-22-0	5,500	G	80,000	G	190,000	C
PARAQUAT	1910-42-5	990	G	14,000	G	190,000	C
PARATHION	56-38-2	6.6	G	96	G	10,000	C
PCBS, TOTAL (POLYCHLORINATED BIPHENYLS) (AROCLORS)	1336-36-3	9.3	G	46	G	190,000	C
PCB-1016 (AROCLOR)	12674-11-2	15	G	220	G	10,000	C
PCB-1221 (AROCLOR)	11104-28-2	4.7	N	23	N	27	N
PCB-1232 (AROCLOR)	11141-16-5	9.3	G	46	G	10,000	C
PCB-1242 (AROCLOR)	53469-21-9	9.3	G	46	G	10,000	C
PCB-1248 (AROCLOR)	12672-29-6	9.3	G	46	G	10,000	C
PCB-1254 (AROCLOR)	11097-69-1	4.4	G	64	G	10,000	C
PCB-1260 (AROCLOR)	11096-82-5	9.3	G	46	G	190,000	C
PEBULATE	1114-71-2	10,000	C	10,000	C	10,000	C
PENTACHLOROBENZENE	608-93-5	180	G	2,600	G	190,000	C
PENTACHLOROETHANE	76-01-7	210	G	1,000	G	10,000	C
PENTACHLORONITROBENZENE	82-68-8	72	G	350	G	190,000	C
PENTACHLOROPHENOL	87-86-5	47	G	230	G	190,000	C
PERFLUOROBUTANE SULFONATE (PFBS)	375-73-5	66	G	960	G	10,000	C
PERFLUOROOCTANE SULFONATE (PFOS)	1763-23-1	4.4	G	64	G	190,000	C
PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	4.4	G	64	G	190,000	C
PHENACETIN	62-44-2	8,500	G	41,000	G	190,000	C
PHENANTHRENE	85-01-8	66,000	G	190,000	C	190,000	C
PHENOL	108-95-2	3,800	N	16,000	N	18,000	N
PHENYL MERCAPTAN	108-98-5	220	G	3,200	G	10,000	C
PHENYLENEDIAMINE, M-	108-45-2	1,300	G	19,000	G	190,000	C
PHENYLPHENOL, 2-	90-43-7	9,600	G	47,000	G	190,000	C
PHORATE	298-02-2	44	G	640	G	10,000	C
PHTHALIC ANHYDRIDE	85-44-9	380	N	1,600	N	1,800	N
PICLORAM	1918-02-1	15,000	G	190,000	C	190,000	C
PROMETON	1610-18-0	3,300	G	48,000	G	190,000	C
PRONAMIDE	23950-58-5	17,000	G	190,000	C	190,000	C
PROPACHLOR	1918-16-7	2,900	G	42,000	G	190,000	C
PROPANIL	709-98-8	1,100	G	16,000	G	190,000	C
PROPANOL, 2- (ISOPROPYL ALCOHOL)	67-63-0	3,800	N	10,000	C	10,000	C
PROPAZINE	139-40-2	4,400	G	10,000	C	10,000	C
PROPHAM	122-42-9	4,400	G	64,000	G	190,000	C

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				Surface Soil 0—2 feet		*Subsurface Soil 2—15 feet*	
PROPYLBENZENE, N-	103-65-1	10,000	C	10,000	C	10,000	C
PROPYLENE OXIDE	75-56-9	78	G	380	G	690	N
PYRENE	129-00-0	6,600	G	96,000	G	190,000	C
PYRETHRUM	8003-34-7	220	G	3,200	G	10,000	C
PYRIDINE	110-86-1	220	G	3,200	G	10,000	C
QUINOLINE	91-22-5	6.2	G	30	G	10,000	C
QUIZALOFOP (ASSURE)	76578-14-8	2,000	G	29,000	G	190,000	C
RDX	121-82-4	230	G	1,100	G	190,000	C
RESORCINOL	108-46-3	190,000	C	190,000	C	190,000	C
RONNEL	299-84-3	11,000	G	160,000	G	190,000	C
SIMAZINE	122-34-9	160	G	760	G	190,000	C
STRYCHNINE	57-24-9	66	G	960	G	190,000	C
STYRENE	100-42-5	10,000	C	10,000	C	10,000	C
TEBUTHIURON	34014-18-1	15,000	G	190,000	C	190,000	C
TERBACIL	5902-51-2	2,900	G	42,000	G	190,000	C
TERBUFOS	13071-79-9	5.5	G	80	G	10,000	C
TETRACHLOROBENZENE, 1,2,4,5-	95-94-3	66	G	960	G	190,000	C
TETRACHLORODIBENZO-P-DIOXIN, 2,3,7,8- (TCDD)	1746-01-6	0.00014	G	0.0007	G	190,000	C
TETRACHLOROETHANE, 1,1,1,2-	630-20-6	60	N	300	N	340	N
TETRACHLOROETHANE, 1,1,2,2-	79-34-5	7.6	N	38	N	44	N
TETRACHLOROETHYLENE (PCE)	127-18-4	760	N	3,200	N	3,600	N
TETRACHLOROPHENOL, 2,3,4,6-	58-90-2	6,600	G	96,000	G	190,000	C
TETRAETHYL LEAD	78-00-2	0.022	G	0.32	G	10,000	C
TETRAETHYLDITHIOPYROPHOSPHATE	3689-24-5	110	G	1,600	G	10,000	C
TETRAHYDROFURAN	109-99-9	230	N	1,100	N	1,300	N
THIOFANOX	39196-18-4	66	G	960	G	190,000	C
THIRAM	137-26-8	3,300	G	48,000	G	190,000	C
TOLUENE	108-88-3	10,000	C	10,000	C	10,000	C
TOLUIDINE, M-	108-44-1	1,200	G	5,700	G	10,000	C
TOLUIDINE, O-	95-53-4	1,200	G	5,700	G	10,000	C
TOLUIDINE, P-	106-49-0	620	G	3,000	G	190,000	C
TOXAPHENE	8001-35-2	17	G	83	G	190,000	C
TRIALLATE	2303-17-5	26	G	130	G	10,000	C
TRIBROMOMETHANE (BROMOFORM)	75-25-2	400	N	2,000	N	2,300	N
TRICHLORO-1,2,2-TRIFLUOROETHANE, 1,1,2-	76-13-1	10,000	C	10,000	C	10,000	C
TRICHLOROACETIC ACID	76-03-9	270	G	1,300	G	190,000	C
TRICHLOROBENZENE, 1,2,4-	120-82-1	39	N	160	N	190	N
TRICHLOROBENZENE, 1,3,5-	108-70-3	46	N	190	N	230	N
TRICHLOROETHANE, 1,1,1-	71-55-6	10,000	C	10,000	C	10,000	C
TRICHLOROETHANE, 1,1,2-	79-00-5	3.8	N	16	N	18	N
TRICHLOROETHYLENE (TCE)	79-01-6	38	N	160	N	180	N
TRICHLOROPHENOL, 2,4,5-	95-95-4	22,000	G	190,000	C	190,000	C
TRICHLOROPHENOL, 2,4,6-	88-06-2	220	G	3,200	G	190,000	C
TRICHLOROPHENOXYACETIC ACID, 2,4,5- (2,4,5-T)	93-76-5	2,200	G	32,000	G	190,000	C
TRICHLOROPHENOXYPROPIONIC ACID, 2,4,5-(2,4,5-TP)(SILVEX)	93-72-1	1,800	G	26,000	G	190,000	C
TRICHLOROPROPANE, 1,1,2-	598-77-6	1,100	G	10,000	C	10,000	C
TRICHLOROPROPANE, 1,2,3-	96-18-4	0.14	G	3.0	G	27	N
TRICHLOROPROPENE, 1,2,3-	96-19-5	5.7	N	24	N	27	N
TRIETHYLAMINE	121-44-8	130	N	550	N	630	N
TRIETHYLENE GLYCOL	112-27-6	10,000	C	10,000	C	10,000	C
TRIFLURALIN	1582-09-8	1,700	G	12,000	G	190,000	C

All concentrations in mg/kg
G—Ingestion
N—Inhalation
C—Cap

Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
A. Direct Contact Numeric Values

REGULATED SUBSTANCE	*CASRN*	*Residential 0—15 feet*		*Nonresidential*			
				Surface Soil 0—2 feet		*Subsurface Soil 2—15 feet*	
TRIMETHYLBENZENE, 1,3,4- (TRIMETHYLBENZENE, 1,2,4-)	95-63-6	1,100	N	4,700	N	5,400	N
TRIMETHYLBENZENE, 1,3,5-	108-67-8	1,100	N	4,700	N	5,400	N
TRINITROGLYCEROL (NITROGLYCERIN)	55-63-0	22	G	320	G	10,000	C
TRINITROTOLUENE, 2,4,6-	118-96-7	110	G	1,600	G	190,000	C
VINYL ACETATE	108-05-4	3,800	N	10,000	C	10,000	C
VINYL BROMIDE (BROMOETHENE)	593-60-2	14	N	70	N	80	N
VINYL CHLORIDE	75-01-4	0.93	G	61	G	290	N
WARFARIN	81-81-2	66	G	960	G	190,000	C
XYLENES (TOTAL)	1330-20-7	1,900	N	7,900	N	9,100	N
ZINEB	12122-67-7	11,000	G	160,000	G	190,000	C

All concentrations in mg/kg
G—Ingestion
N—Inhalation
C—Cap

Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	CASRN	Used Aquifers												Nonuse Aquifers						Soil Buffer Distance (feet)
		TDS ≤ 2500 mg/L						TDS > 2500 mg/L												
		Residential			Nonresidential			Residential			Nonresidential			Residential			Nonresidential			
		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		
ACENAPHTHENE	83-32-9	210	2,600	E	380	4,700	E	380	4,700	E	380	4,700	E	380	4,700	E	380	4,700	E	15
ACENAPHTHYLENE	208-96-8	210	2,400	E	580	6,600	E	1,600	18,000	E	1,600	18,000	E	1,600	18,000	E	1,600	18,000	E	15
ACEPHATE	30560-19-1	4.2	0.5	E	12	1.4	E	420	50	E	1,200	140	E	4.2	0.5	E	12	1.4	E	NA
ACETALDEHYDE	75-07-0	1.9	0.23	E	7.9	0.96	E	190	23	E	790	96	E	1.9	0.23	E	7.9	0.96	E	NA
ACETONE	67-64-1	3,100	350	E	8,800	980	E	10,000	10,000	C	10,000	10,000	C	10,000	3,500	E	10,000	9,800	E	NA
ACETONITRILE	75-05-8	13	1.5	E	53	6	E	1,300	150	E	5,300	600	E	130	15	E	530	60	E	NA
ACETOPHENONE	98-86-2	350	190	E	970	520	E	10,000	10,000	C	10,000	10,000	C	350	190	E	970	520	E	NA
ACETYLAMINOFLUORENE, 2- (2AAF)	53-96-3	0.017	0.07	E	0.072	0.3	E	1.7	7	E	7.2	30	E	17	70	E	72	300	E	20
ACROLEIN	107-02-8	0.0042	0.00047	E	0.018	0.002	E	0.42	0.047	E	1.8	0.2	E	0.042	0.0047	E	0.18	0.02	E	NA
ACRYLAMIDE	79-06-1	0.019	0.0033	E	0.25	0.043	E	1.9	0.33	E	25	4.3	E	0.019	0.0033	E	0.25	0.043	E	NA
ACRYLIC ACID	79-10-7	0.21	0.039	E	0.88	0.16	E	21	3.9	E	88	16	E	21	3.9	E	88	16	E	NA
ACRYLONITRILE	107-13-1	0.072	0.01	E	0.37	0.051	E	7.2	1	E	37	5.1	E	7.2	1	E	37	5.1	E	NA
ALACHLOR	15972-60-8	0.2	0.077	E	0.2	0.077	E	20	7.7	E	20	7.7	E	0.2	0.077	E	0.2	0.077	E	NA
ALDICARB	116-06-3	0.3	0.05	E	0.3	0.05	E	30	5	E	30	5	E	300	50	E	300	50	E	NA
ALDICARB SULFONE	1646-88-4	0.2	0.027	E	0.2	0.027	E	20	2.7	E	20	2.7	E	0.2	0.027	E	0.2	0.027	E	NA
ALDICARB SULFOXIDE	1646-87-3	0.4	0.045	E	0.4	0.045	E	40	4.5	E	40	4.5	E	0.4	0.045	E	0.4	0.045	E	NA
ALDRIN	309-00-2	0.0038	0.46	E	0.016	1.9	E	0.38	46	E	1.6	190	E	2	240	E	2	240	E	10
ALLYL ALCOHOL	107-18-6	0.021	0.0025	E	0.088	0.01	E	2.1	0.25	E	8.8	1	E	2.1	0.25	E	8.8	1	E	NA
AMETRYN	834-12-8	6	6.5	E	6	6.5	E	600	650	E	600	650	E	6	6.5	E	6	6.5	E	NA
AMINOBIPHENYL, 4-	92-67-1	0.0031	0.0012	E	0.013	0.005	E	0.31	0.12	E	1.3	0.5	E	3.1	1.2	E	13	5	E	NA
AMITROLE	61-82-5	0.069	0.028	E	0.29	0.12	E	6.9	2.8	E	29	12	E	69	28	E	290	120	E	NA
AMMONIA	7664-41-7	3,000	360	E	3,000	360	E	10,000	10,000	C	10,000	10,000	C	3,000	360	E	3,000	360	E	NA
AMMONIUM SULFAMATE	7773-06-0	200	24	E	200	24	E	20,000	2,400	E	20,000	2,400	E	200	24	E	200	24	E	NA
ANILINE	62-53-3	0.21	0.12	E	0.88	0.52	E	21	12	E	88	52	E	0.21	0.12	E	0.88	0.52	E	NA
ANTHRACENE	120-12-7	6.6	350	E	6.6	350	E	6.6	350	E	6.6	350	E	6.6	350	E	6.6	350	E	10
ATRAZINE	1912-24-9	0.3	0.13	E	0.3	0.13	E	30	13	E	30	13	E	0.3	0.13	E	0.3	0.13	E	NA
AZINPHOS-METHYL (GUTHION)	86-50-0	5.2	5.9	E	15	17	E	520	590	E	1,500	1,700	E	5.2	5.9	E	15	17	E	NA
BAYGON (PROPOXUR)	114-26-1	0.3	0.057	E	0.3	0.057	E	30	5.7	E	30	5.7	E	300	57	E	300	57	E	NA
BENOMYL	17804-35-2	27	130	E	110	530	E	200	970	E	200	970	E	27	130	E	110	530	E	20
BENTAZON	25057-89-0	20	2.9	E	20	2.9	E	2,000	290	E	2,000	290	E	20	2.9	E	20	2.9	E	NA
BENZENE	71-43-2	0.5	0.13	E	0.5	0.13	E	50	13	E	50	13	E	50	13	E	50	13	E	NA

[1] For other options see § 250.308 (relating to soil to groundwater pathway numeric values).
All concentrations in mg/kg
E—Number calculated by the soil to groundwater equation in § 250.308
C—Cap
NA—The soil buffer distance option is not available for this substance
N/A—Soil to groundwater values cannot be calculated for these compounds

Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	CASRN	Used Aquifers												Nonuse Aquifers						Soil Buffer Distance (feet)
		TDS ≤ 2500 mg/L						TDS > 2500 mg/L												
		Residential			Nonresidential			Residential			Nonresidential			Residential			Nonresidential			
		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		
BENZIDINE	92-87-5	0.000092	0.12	E	0.0012	1.6	E	0.0092	12	E	0.12	160	E	0.092	120	E	1.2	1,600	E	5
BENZO[A]ANTHRACENE	56-55-3	0.03	26	E	0.39	340	E	1.1	960	E	1.1	960	E	1.1	960	E	1.1	960	E	5
BENZO[A]PYRENE	50-32-8	0.02	46	E	0.02	46	E	0.38	860	E	0.38	860	E	0.38	860	E	0.38	860	E	5
BENZO[B]FLUORANTHENE	205-99-2	0.018	25	E	0.12	170	E	0.12	170	E	0.12	170	E	0.12	170	E	0.12	170	E	5
BENZO[GHI]PERYLENE	191-24-2	0.026	180	E	0.026	180	E	0.026	180	E	0.026	180	E	0.026	180	E	0.026	180	E	5
BENZO[K]FLUORANTHENE	207-08-9	0.018	200	E	0.055	610	E	0.055	610	E	0.055	610	E	0.055	610	E	0.055	610	E	5
BENZOIC ACID	65-85-0	14,000	2,700	E	39,000	7,500	E	190,000	52,000	E	190,000	52,000	E	14,000	2,700	E	39,000	7,500	E	NA
BENZOTRICHLORIDE	98-07-7	0.005	0.012	E	0.021	0.051	E	0.5	1.2	E	2.1	5.1	E	0.5	1.2	E	2.1	5.1	E	30
BENZYL ALCOHOL	100-51-6	350	130	E	970	350	E	10,000	10,000	C	10,000	10,000	C	350	130	E	970	350	E	NA
BENZYL CHLORIDE	100-44-7	0.1	0.059	E	0.51	0.3	E	10	5.9	E	51	30	E	10	5.9	E	51	30	E	NA
BETA PROPIOLACTONE	57-57-8	0.0012	0.00015	E	0.0063	0.00076	E	0.12	0.015	E	0.63	0.076	E	0.012	0.0015	E	0.063	0.0076	E	NA
BHC, ALPHA	319-84-6	0.01	0.046	E	0.043	0.2	E	1	4.6	E	4.3	20	E	10	46	E	43	200	E	20
BHC, BETA-	319-85-7	0.036	0.21	E	0.15	0.88	E	3.6	21	E	10	59	E	10	59	E	10	59	E	15
BHC, GAMMA (LINDANE)	58-89-9	0.02	0.072	E	0.02	0.072	E	2	7.2	E	2	7.2	E	20	72	E	20	72	E	20
BIPHENYL, 1,1-	92-52-4	0.084	0.37	E	0.35	1.5	E	8.4	37	E	35	150	E	8.4	37	E	35	150	E	20
BIS(2-CHLOROETHOXY) METHANE	111-91-1	10	2.6	E	29	7.6	E	1,000	260	E	2,900	760	E	10	2.6	E	29	7.6	E	NA
BIS(2-CHLOROETHYL)ETHER	111-44-4	0.015	0.0045	E	0.076	0.023	E	1.5	0.45	E	7.6	2.3	E	1.5	0.45	E	7.6	2.3	E	NA
BIS(2-CHLORO-ISOPROPYL)ETHER	108-60-1	30	8	E	30	8	E	3,000	800	E	3,000	800	E	3,000	800	E	3,000	800	E	NA
BIS(CHLOROMETHYL)ETHER	542-88-1	0.000079	0.000012	E	0.0004	0.00006	E	0.0079	0.0012	E	0.04	0.006	E	0.0079	0.0012	E	0.04	0.006	E	NA
BIS[2-ETHYLHEXYL] PHTHALATE	117-81-7	0.6	130	E	0.6	130	E	29	6,300	E	29	6,300	E	29	6,300	E	29	6,300	E	10
BISPHENOL A	80-05-7	170	660	E	490	1,900	E	12,000	46,000	E	12,000	46,000	E	12,000	46,000	E	12,000	46,000	E	20
BROMACIL	314-40-9	7	1.8	E	7	1.8	E	700	180	E	700	180	E	7	1.8	E	7	1.8	E	NA
BROMOBENZENE	108-86-1	0.006	0.0047	E	0.006	0.0047	E	0.6	0.47	E	0.6	0.47	E	0.006	0.0047	E	0.006	0.0047	E	NA
BROMOCHLOROMETHANE	74-97-5	9	1.6	E	9	1.6	E	900	160	E	900	160	E	9	1.6	E	9	1.6	E	NA
BROMODICHLORO METHANE (THM)	75-27-4	8	2.7	E	8	2.7	E	800	270	E	800	270	E	8	2.7	E	8	2.7	E	NA
BROMOMETHANE	74-83-9	1	0.54	E	1	0.54	E	100	54	E	100	54	E	100	54	E	100	54	E	NA

[1] For other options see § 250.308 (relating to soil to groundwater pathway numeric values).
All concentrations in mg/kg
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Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	CASRN	Used Aquifers												Nonuse Aquifers						Soil Buffer Distance (feet)
		TDS ≤ 2500 mg/L						TDS > 2500 mg/L												
		Residential			Nonresidential			Residential			Nonresidential			Residential			Nonresidential			
		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		
BROMOXYNIL	1689-84-5	0.63	0.54	E	2.6	2.2	E	63	54	E	260	220	E	0.63	0.54	E	2.6	2.2	E	NA
BROMOXYNIL OCTANOATE	1689-99-2	0.63	28	E	2.6	120	E	8	360	E	8	360	E	8	360	E	8	360	E	15
BUTADIENE, 1,3-	106-99-0	0.11	0.045	E	0.45	0.19	E	11	4.5	E	45	19	E	11	4.5	E	45	19	E	NA
BUTYL ALCOHOL, N-	71-36-3	350	42	E	970	120	E	10,000	4,200	E	10,000	10,000	C	3,500	420	E	9,700	1,200	E	NA
BUTYLATE	2008-41-5	40	58	E	40	58	E	4,000	5,800	E	4,000	5,800	E	40	58	E	40	58	E	30
BUTYLBENZENE, N-	104-51-8	170	1,100	E	490	3,100	E	1,500	9,500	E	1,500	9,500	E	170	1,100	E	490	3,100	E	15
BUTYLBENZENE, SEC-	135-98-8	350	820	E	970	2,300	E	1,700	4,000	E	1,700	4,000	E	350	820	E	970	2,300	E	30
BUTYLBENZENE, TERT-	98-06-6	350	630	E	970	1,800	E	3,000	5,400	E	3,000	5,400	E	350	630	E	970	1,800	E	30
BUTYLBENZYL PHTHALATE	85-68-7	34	2,900	E	140	10,000	C	270	10,000	C	270	10,000	C	270	10,000	C	270	10,000	C	10
CAPTAN	133-06-2	28	17	E	50	31	E	50	31	E	50	31	E	50	31	E	50	31	E	NA
CARBARYL	63-25-2	350	210	E	970	570	E	12,000	7,000	E	12,000	7,000	E	12,000	7,000	E	12,000	7,000	E	NA
CARBAZOLE	86-74-8	3.3	21	E	14	89	E	120	760	E	120	760	E	3.3	21	E	14	89	E	15
CARBOFURAN	1563-66-2	4	0.87	E	4	0.87	E	400	87	E	400	87	E	4	0.87	E	4	0.87	E	NA
CARBON DISULFIDE	75-15-0	150	130	E	620	530	E	10,000	10,000	C	10,000	10,000	C	150	130	E	620	530	E	NA
CARBON TETRACHLORIDE	56-23-5	0.5	0.26	E	0.5	0.26	E	50	26	E	50	26	E	5	2.6	E	5	2.6	E	NA
CARBOXIN	5234-68-4	70	53	E	70	53	E	7,000	5,300	E	7,000	5,300	E	70	53	E	70	53	E	NA
CHLORAMBEN	133-90-4	10	1.6	E	10	1.6	E	1,000	160	E	1,000	160	E	10	1.6	E	10	1.6	E	NA
CHLORDANE	57-74-9	0.2	49	E	0.2	49	E	5.6	1,400	E	5.6	1,400	E	5.6	1,400	E	5.6	1,400	E	10
CHLORO-1,1-DIFLUOROETHANE, 1-	75-68-3	10,000	1,800	E	10,000	7,300	E	10,000	10,000	C	10,000	10,000	C	10,000	1,800	E	10,000	7,300	E	NA
CHLORO-1-PROPENE, 3- (ALLYL CHLORIDE)	107-05-1	0.21	0.049	E	0.88	0.2	E	21	4.9	E	88	20	E	21	4.9	E	88	20	E	NA
CHLOROACETALDEHYDE	107-20-0	0.24	0.029	E	1	0.12	E	24	2.9	E	100	12	E	0.24	0.029	E	1	0.12	E	NA
CHLOROANILINE, P-	106-47-8	0.33	0.42	E	1.4	1.8	E	33	42	E	140	180	E	0.33	0.42	E	1.4	1.8	E	NA
CHLOROBENZENE	108-90-7	10	6.1	E	10	6.1	E	1,000	610	E	1,000	610	E	1,000	610	E	1,000	610	E	NA
CHLOROBENZILATE	510-15-6	0.59	3.9	E	2.5	17	E	59	390	E	250	1,700	E	590	3,900	E	1,300	8,600	E	15
CHLOROBUTANE, 1-	109-69-3	140	220	E	390	610	E	10,000	10,000	C	10,000	10,000	C	140	220	E	390	610	E	30
CHLORODIBROMO METHANE (THM)	124-48-1	8	2.5	E	8	2.5	E	800	250	E	800	250	E	800	250	E	800	250	E	NA
CHLORODIFLUORO METHANE (THM)	75-45-6	10,000	2,800	E	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	2,800	E	10,000	10,000	C	NA
CHLOROETHANE	75-00-3	2,100	450	E	8,800	1,900	E	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	NA
CHLOROFORM (THM)	67-66-3	8	2	E	8	2	E	800	200	E	800	200	E	80	20	E	80	20	E	NA
CHLORONAPHTHALENE, 2-	91-58-7	280	6,000	E	780	17,000	E	1,200	26,000	E	1,200	26,000	E	280	6,000	E	780	17,000	E	15

[1] For other options see § 250.308 (relating to soil to groundwater pathway numeric values).
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Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	CASRN	Used Aquifers												Nonuse Aquifers						Soil Buffer Distance (feet)
		TDS ≤ 2500 mg/L						TDS > 2500 mg/L												
		Residential			Nonresidential			Residential			Nonresidential			Residential			Nonresidential			
		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		
CHLORONITROBENZENE, P-	100-00-5	0.42	0.55	E	1.8	2.4	E	42	55	E	180	240	E	0.42	0.55	E	1.8	2.4	E	NA
CHLOROPHENOL, 2-	95-57-8	4	4.4	E	4	4.4	E	400	440	E	400	440	E	4	4.4	E	4	4.4	E	NA
CHLOROPRENE	126-99-8	0.016	0.0038	E	0.083	0.02	E	1.6	0.38	E	8.3	2	E	1.6	0.38	E	8.3	2	E	NA
CHLOROPROPANE, 2-	75-29-6	21	16	E	88	67	E	2,100	1,600	E	8,800	6,700	E	21	16	E	88	67	E	NA
CHLOROTHALONIL	1897-45-6	3.8	9.7	E	16	41	E	60	150	E	60	150	E	3.8	9.7	E	16	41	E	30
CHLOROTOLUENE, O-	95-49-8	10	20	E	10	20	E	1,000	2,000	E	1,000	2,000	E	10	20	E	10	20	E	30
CHLOROTOLUENE, P-	106-43-4	10	10	E	10	10	E	1,000	1,000	E	1,000	1,000	E	10	10	E	10	10	E	NA
CHLORPYRIFOS	2921-88-2	0.2	2.3	E	0.2	2.3	E	20	230	E	20	230	E	0.2	2.3	E	0.2	2.3	E	15
CHLORSULFURON	64902-72-3	69	9.6	E	190	26	E	6,900	960	E	19,000	2,600	E	69	9.6	E	190	26	E	NA
CHLORTHAL-DIMETHYL (DACTHAL) (DCPA)	1861-32-1	7	110	E	7	110	E	50	820	E	50	820	E	50	820	E	50	820	E	15
CHRYSENE	218-01-9	0.18	220	E	0.19	230	E	0.19	230	E	0.19	230	E	0.19	230	E	0.19	230	E	5
CRESOL(S)	1319-77-3	130	23	E	530	92	E	10,000	2,300	E	10,000	9,200	E	10,000	2,300	E	10,000	9,200	E	NA
CRESOL, 4,6-DINITRO-O-	534-52-1	0.28	0.21	E	0.78	0.59	E	28	21	E	78	59	E	28	21	E	78	59	E	NA
CRESOL, O- (2-METHYLPHENOL)	95-48-7	170	28	E	490	81	E	17,000	2,800	E	49,000	8,100	E	17,000	2,800	E	49,000	8,100	E	NA
CRESOL, M- (3-METHYLPHENOL)	108-39-4	170	34	E	490	97	E	10,000	3,400	E	10,000	9,700	E	10,000	10,000	C	10,000	10,000	C	NA
CRESOL, P- (4-METHYLPHENOL)	106-44-5	17	4	E	49	11	E	1,700	400	E	4,900	1,100	E	17,000	4,000	E	49,000	11,000	E	NA
CRESOL, P-CHLORO-M-	59-50-7	350	720	E	970	2,000	E	35,000	72,000	E	97,000	190,000	C	350	720	E	970	2,000	E	30
CROTONALDEHYDE	4170-30-3	0.034	0.0043	E	0.14	0.018	E	3.4	0.43	E	14	1.8	E	3.4	0.43	E	14	1.8	E	NA
CROTONALDEHYDE, TRANS-	123-73-9	0.034	0.0043	E	0.14	0.018	E	3.4	0.43	E	14	1.8	E	3.4	0.43	E	14	1.8	E	NA
CUMENE (ISOPROPYL BENZENE)	98-82-8	84	600	E	350	2,500	E	5,000	10,000	C	5,000	10,000	C	5,000	10,000	C	5,000	10,000	C	15
CYANAZINE	21725-46-2	0.1	0.061	E	0.1	0.061	E	10	6.1	E	10	6.1	E	0.1	0.061	E	0.1	0.061	E	NA
CYCLOHEXANE	110-82-7	1,300	1,700	E	5,300	6,900	E	5,500	7,200	E	5,500	7,200	E	1,300	1,700	E	5,300	6,900	E	NA
CYCLOHEXANONE	108-94-1	150	41	E	620	170	E	10,000	4,100	E	10,000	10,000	C	150	41	E	620	170	E	NA
CYFLUTHRIN	68359-37-5	0.1	33	E	0.1	33	E	0.1	33	E	0.1	33	E	0.1	33	E	0.1	33	E	10
CYROMAZINE	66215-27-8	1,700	5,300	E	4,900	15,000	E	170,000	190,000	C	190,000	190,000	C	1,700	5,300	E	4,900	15,000	E	20
DDD, 4,4'-	72-54-8	0.27	30	E	1.1	120	E	16	1,800	E	16	1,800	E	16	1,800	E	16	1,800	E	10
DDE, 4,4'-	72-55-9	0.19	41	E	0.8	170	E	4	870	E	4	870	E	4	870	E	4	870	E	10
DDT, 4,4'-	50-29-3	0.19	110	E	0.55	330	E	0.55	330	E	0.55	330	E	0.55	330	E	0.55	330	E	5

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B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	*CASRN*	*Used Aquifers*												*Nonuse Aquifers*						*Soil Buffer Distance (feet)*
		TDS ≤ 2500 mg/L						*TDS > 2500 mg/L*												
		Residential			*Nonresidential*			*Residential*			*Nonresidential*			*Residential*			*Nonresidential*			
		100 X GW MSC	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		
DI(2-ETHYLHEXYL)ADIPATE	103-23-1	40	10,000	C	40	10,000	C	4,000	10,000	C	4,000	10,000	C	10,000	10,000	C	10,000	10,000	C	5
DIALLATE	2303-16-4	1.1	0.64	E	4.5	2.6	E	110	64	E	450	260	E	1,100	640	E	4,000	2,300	E	NA
DIAMINOTOLUENE, 2,4-	95-80-7	0.016	0.0032	E	0.068	0.014	E	1.6	0.32	E	6.8	1.4	E	16	3.2	E	68	14	E	NA
DIAZINON	333-41-5	0.1	0.14	E	0.1	0.14	E	10	14	E	10	14	E	0.1	0.14	E	0.1	0.14	E	30
DIBENZO[A,H] ANTHRACENE	53-70-3	0.0052	23	E	0.06	270	E	0.06	270	E	0.06	270	E	0.06	270	E	0.06	270	E	5
DIBENZOFURAN	132-64-9	3.5	90	E	9.7	250	E	350	9,000	E	450	12,000	E	350	9,000	E	450	12,000	E	15
DIBROMO-3-CHLOROPROPANE, 1,2-	96-12-8	0.02	0.0092	E	0.02	0.0092	E	2	0.92	E	2	0.92	E	2	0.92	E	2	0.92	E	NA
DIBROMOBENZENE, 1,4-	106-37-6	35	140	E	97	400	E	2,000	8,200	E	2,000	8,200	E	35	140	E	97	400	E	20
DIBROMOETHANE, 1,2-(ETHYLENE DIBROMIDE)	106-93-4	0.005	0.0012	E	0.005	0.0012	E	0.5	0.12	E	0.5	0.12	E	0.5	0.12	E	0.5	0.12	E	NA
DIBROMOMETHANE	74-95-3	0.84	0.32	E	3.5	1.4	E	84	32	E	350	140	E	84	32	E	350	140	E	NA
DIBUTYL PHTHALATE, N-	84-74-2	350	1,400	E	970	4,000	E	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	20
DICAMBA	1918-00-9	400	45	E	400	45	E	40,000	4,500	E	40,000	4,500	E	400	45	E	400	45	E	NA
DICHLOROACETIC ACID (HAA)	76-43-6	6	0.79	E	6	0.79	E	600	79	E	600	79	E	6	0.79	E	6	0.79	E	NA
DICHLORO-2-BUTENE, 1,4-	764-41-0	0.0012	0.00067	E	0.006	0.0034	E	0.12	0.067	E	0.6	0.34	E	0.0012	0.00067	E	0.006	0.0034	E	NA
DICHLORO-2-BUTENE, TRANS-1,4-	110-57-6	0.0012	0.00078	E	0.006	0.0039	E	0.12	0.078	E	0.6	0.39	E	0.0012	0.00078	E	0.006	0.0039	E	NA
DICHLOROBENZENE, 1,2-	95-50-1	60	59	E	60	59	E	6,000	5,900	E	6,000	5,900	E	6,000	5,900	E	6,000	5,900	E	NA
DICHLOROBENZENE, 1,3-	541-73-1	60	61	E	60	61	E	6,000	6,100	E	6,000	6,100	E	6,000	6,100	E	6,000	6,100	E	NA
DICHLOROBENZENE, P-	106-46-7	7.5	10	E	7.5	10	E	750	1,000	E	750	1,000	E	750	1,000	E	750	1,000	E	30
DICHLOROBENZIDINE, 3,3'-	91-94-1	0.14	7.7	E	0.6	33	E	14	770	E	60	3,300	E	140	7,700	E	310	17,000	E	10
DICHLORODIFLUORO-METHANE (FREON 12)	75-71-8	100	100	E	100	100	E	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	NA
DICHLOROETHANE, 1,1-	75-34-3	3.1	0.75	E	16	3.9	E	310	75	E	1,600	390	E	31	7.5	E	160	39	E	NA
DICHLOROETHANE, 1,2-	107-06-2	0.5	0.1	E	0.5	0.1	E	50	10	E	50	10	E	5	1	E	5	1	E	NA
DICHLOROETHYLENE, 1,1-	75-35-4	0.7	0.19	E	0.7	0.19	E	70	19	E	70	19	E	7	1.9	E	7	1.9	E	NA
DICHLOROETHYLENE, CIS-1,2-	156-59-2	7	1.6	E	7	1.6	E	700	160	E	700	160	E	70	16	E	70	16	E	NA
DICHLOROETHYLENE, TRANS-1,2-	156-60-5	10	2.3	E	10	2.3	E	1,000	230	E	1,000	230	E	100	23	E	100	23	E	NA
DICHLOROMETHANE (METHYLENE CHLORIDE)	75-09-2	0.5	0.076	E	0.5	0.076	E	50	7.6	E	50	7.6	E	50	7.6	E	50	7.6	E	NA

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B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	CASRN	Used Aquifers												Nonuse Aquifers						Soil Buffer Distance (feet)
		TDS ≤ 2500 mg/L						TDS > 2500 mg/L												
		Residential			Nonresidential			Residential			Nonresidential			Residential			Nonresidential			
		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		
DICHLOROPHENOL, 2,4-	120-83-2	2	1	E	2	1	E	200	100	E	200	100	E	2,000	1,000	E	2,000	1,000	E	NA
DICHLOROPHENOXY ACETIC ACID, 2,4- (2,4-D)	94-75-7	7	1.8	E	7	1.8	E	700	180	E	700	180	E	7,000	1,800	E	7,000	1,800	E	NA
DICHLOROPROPANE, 1,2-	78-87-5	0.5	0.11	E	0.5	0.11	E	50	11	E	50	11	E	5	1.1	E	5	1.1	E	NA
DICHLOROPROPENE, 1,3-	542-75-6	0.65	0.12	E	2.7	0.48	E	65	12	E	270	48	E	65	12	E	270	48	E	NA
DICHLOROPROPIONIC ACID, 2,2- (DALAPON)	75-99-0	20	5.3	E	20	5.3	E	2,000	530	E	2,000	530	E	2,000	530	E	2,000	530	E	NA
DICHLORVOS	62-73-7	0.22	0.052	E	0.94	0.22	E	22	5.2	E	94	22	E	0.22	0.052	E	0.94	0.22	E	NA
DICYCLOPENTADIENE	77-73-6	0.063	0.13	E	0.26	0.56	E	6.3	13	E	26	56	E	0.063	0.13	E	0.26	0.56	E	30
DIELDRIN	60-57-1	0.0041	0.11	E	0.017	0.47	E	0.41	11	E	1.7	47	E	4.1	110	E	17	470	E	15
DIETHYL PHTHALATE	84-66-2	2,800	880	E	7,800	2,400	E	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	NA
DIFLUBENZURON	35367-38-5	20	52	E	20	52	E	20	52	E	20	52	E	20	52	E	20	52	E	20
DIISOPROPYL METHYLPHOSPHONATE	1445-75-6	60	8.2	E	60	8.2	E	6,000	820	E	6,000	820	E	60	8.2	E	60	8.2	E	NA
DIMETHOATE	60-51-5	7.6	2.9	E	21	8.1	E	760	290	E	2,100	810	E	7,600	2,900	E	21,000	8,100	E	NA
DIMETHOXYBENZIDINE, 3,3-	119-90-4	0.041	0.14	E	0.17	0.57	E	4.1	14	E	17	57	E	41	140	E	170	570	E	20
DIMETHRIN	70-38-2	3.6	240	E	3.6	240	E	3.6	240	E	3.6	240	E	3.6	240	E	3.6	240	E	10
DIMETHYLAMINOAZO BENZENE, P-	60-11-7	0.014	0.037	E	0.059	0.15	E	1.4	3.7	E	5.9	15	E	14	37	E	59	150	E	20
DIMETHYLANILINE, N,N-	121-69-7	2.4	1.3	E	10	5.6	E	240	130	E	1,000	560	E	240	130	E	1,000	560	E	NA
DIMETHYLBENZIDINE, 3,3-	119-93-7	0.0059	0.33	E	0.025	1.4	E	0.59	33	E	2.5	140	E	5.9	330	E	25	1,400	E	10
DIMETHYL METHYLPHOSPHONATE	756-79-6	10	1.2	E	10	1.2	E	1,000	120	E	1,000	120	E	10	1.2	E	10	1.2	E	NA
DIMETHYLPHENOL, 2,4-	105-67-9	69	30	E	190	83	E	6,900	3,000	E	10,000	8,300	E	10,000	10,000	C	10,000	10,000	C	NA
DINITROBENZENE, 1,3-	99-65-0	0.1	0.049	E	0.1	0.049	E	10	4.9	E	10	4.9	E	100	49	E	100	49	E	NA
DINITROPHENOL, 2,4-	51-28-5	6.9	0.78	E	19	2.1	E	690	78	E	1,900	210	E	6,900	780	E	19,000	2,100	E	NA
DINITROTOLUENE, 2,4-	121-14-2	0.21	0.05	E	0.88	0.21	E	21	5	E	88	21	E	210	50	E	880	210	E	NA
DINITROTOLUENE, 2,6- (2,6-DNT)	606-20-2	0.043	0.013	E	0.18	0.053	E	4.3	1.3	E	18	5.3	E	43	13	E	180	53	E	NA
DINOSEB	88-85-7	0.7	0.29	E	0.7	0.29	E	70	29	E	70	29	E	700	290	E	700	290	E	NA
DIOXANE, 1,4-	123-91-1	0.65	0.085	E	2.7	0.35	E	65	8.5	E	270	35	E	6.5	0.85	E	27	3.5	E	NA
DIPHENAMID	957-51-7	20	12	E	20	12	E	2,000	1,200	E	2,000	1,200	E	20	12	E	20	12	E	NA
DIPHENYLAMINE	122-39-4	350	210	E	970	570	E	30,000	18,000	E	30,000	18,000	E	30,000	18,000	E	30,000	18,000	E	NA
DIPHENYLHYDRAZINE, 1,2-	122-66-7	0.022	0.039	E	0.11	0.19	E	2.2	3.9	E	11	19	E	2.2	3.9	E	11	19	E	30
DIQUAT	85-00-7	2	0.24	E	2	0.24	E	200	24	E	200	24	E	2	0.24	E	2	0.24	E	NA

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		TDS ≤ 2500 mg/L						TDS > 2500 mg/L						Residential			Nonresidential			
		Residential			Nonresidential			Residential			Nonresidential									
		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		
DISULFOTON	298-04-4	0.07	0.18	E	0.07	0.18	E	7	18	E	7	18	E	70	180	E	70	180	E	20
DITHIANE, 1,4-	505-29-3	8	1.3	E	8	1.3	E	800	130	E	800	130	E	8	1.3	E	8	1.3	E	NA
DIURON	330-54-1	6.9	5.9	E	19	16	E	690	590	E	1,900	1,600	E	6.9	5.9	E	19	16	E	NA
ENDOSULFAN	115-29-7	21	110	E	48	250	E	48	250	E	48	250	E	48	250	E	48	250	E	15
ENDOSULFAN I (ALPHA)	959-98-8	21	110	E	50	260	E	50	260	E	50	260	E	21	110	E	50	260	E	15
ENDOSULFAN II (BETA)	33213-65-9	21	120	E	45	260	E	45	260	E	45	260	E	21	120	E	45	260	E	15
ENDOSULFAN SULFATE	1031-07-8	12	70	E	12	70	E	12	70	E	12	70	E	12	70	E	12	70	E	15
ENDOTHALL	145-73-3	10	4.1	E	10	4.1	E	1,000	410	E	1,000	410	E	10	4.1	E	10	4.1	E	NA
ENDRIN	72-20-8	0.2	5.5	E	0.2	5.5	E	20	550	E	20	550	E	0.2	5.5	E	0.2	5.5	E	15
EPICHLOROHYDRIN	106-89-8	0.21	0.042	E	0.88	0.17	E	21	4.2	E	88	17	E	21	4.2	E	88	17	E	NA
ETHEPHON	16672-87-0	17	2	E	49	5.7	E	1,700	200	E	4,900	570	E	17	2	E	49	5.7	E	NA
ETHION	563-12-2	1.7	37	E	4.9	110	E	85	1,900	E	85	1,900	E	1.7	37	E	4.9	110	E	15
ETHOXYETHANOL, 2- (EGEE)	110-80-5	42	5.9	E	180	25	E	4,200	590	E	10,000	2,500	E	4,200	590	E	10,000	2,500	E	NA
ETHYL ACETATE	141-78-6	15	3.9	E	62	16	E	1,500	390	E	6,200	1,600	E	1,500	390	E	6,200	1,600	E	NA
ETHYL ACRYLATE	140-88-5	1.4	0.54	E	5.7	2.2	E	140	54	E	570	220	E	140	54	E	570	220	E	NA
ETHYL BENZENE	100-41-4	70	46	E	70	46	E	7,000	4,600	E	7,000	4,600	E	7,000	4,600	E	7,000	4,600	E	NA
ETHYL DIPROPYL THIOCARBAMATE, S- (EPTC)	759-94-4	170	120	E	490	350	E	10,000	10,000	C	10,000	10,000	C	170	120	E	490	350	E	NA
ETHYL ETHER	60-29-7	690	190	E	1,900	530	E	10,000	10,000	C	10,000	10,000	C	690	190	E	1,900	530	E	NA
ETHYL METHACRYLATE	97-63-2	63	10	E	260	43	E	6,300	1,000	E	10,000	4,300	E	63	10	E	260	43	E	NA
ETHYLENE CHLORHYDRIN	107-07-3	69	7.9	E	190	22	E	6,900	790	E	10,000	2,200	E	69	7.9	E	190	22	E	NA
ETHYLENE GLYCOL	107-21-1	1,400	170	E	1,400	170	E	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	NA
ETHYLENE THIOUREA (ETU)	96-45-7	0.28	0.031	E	0.78	0.087	E	28	3.1	E	78	8.7	E	280	31	E	780	87	E	NA
ETHYLP-NITROPHENYL PHENYLPHOSPHORO THIOATE	2104-64-5	0.035	0.11	E	0.097	0.3	E	3.5	11	E	9.7	30	E	0.035	0.11	E	0.097	0.3	E	20
FENAMIPHOS	22224-92-6	0.07	0.06	E	0.07	0.06	E	7	6	E	7	6	E	0.07	0.06	E	0.07	0.06	E	NA
FENVALERATE (PYDRIN)	51630-58-1	8.5	94	E	8.5	94	E	8.5	94	E	8.5	94	E	8.5	94	E	8.5	94	E	15
FLUOMETURON	2164-17-2	9	2.5	E	9	2.5	E	900	250	E	900	250	E	9	2.5	E	9	2.5	E	NA
FLUORANTHENE	206-44-0	26	3,200	E	26	3,200	E	26	3,200	E	26	3,200	E	26	3,200	E	26	3,200	E	10
FLUORENE	86-73-7	140	2,800	E	190	3,800	E	190	3,800	E	190	3,800	E	190	3,800	E	190	3,800	E	15
FLUOROTRICHLORO METHANE (FREON 11)	75-69-4	200	87	E	200	87	E	10,000	8,700	E	10,000	8,700	E	10,000	8,700	E	10,000	8,700	E	NA

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All concentrations in mg/kg
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Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	CASRN	Used Aquifers												Nonuse Aquifers						Soil Buffer Distance (feet)
		TDS ≤ 2500 mg/L						TDS > 2500 mg/L												
		Residential			Nonresidential			Residential			Nonresidential			Residential			Nonresidential			
		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		
FONOFOS	944-22-9	1	2.9	E	1	2.9	E	100	290	E	100	290	E	1	2.9	E	1	2.9	E	20
FORMALDEHYDE	50-00-0	100	12	E	100	12	E	10,000	1,200	E	10,000	1,200	E	10,000	1,200	E	10,000	1,200	E	NA
FORMIC ACID	64-18-6	0.063	0.0071	E	0.26	0.029	E	6.3	0.71	E	26	2.9	E	0.63	0.071	E	2.6	0.29	E	NA
FOSETYL-AL	39148-24-8	8,700	7,700	E	24,000	21,000	E	190,000	190,000	C	190,000	190,000	C	8,700	7,700	E	24,000	21,000	E	NA
FURAN	110-00-9	3.5	1.5	E	9.7	4.2	E	350	150	E	970	420	E	350	150	E	970	420	E	NA
FURFURAL	98-01-1	1.9	0.24	E	7.8	0.99	E	190	24	E	780	99	E	1.9	0.24	E	7.8	0.99	E	NA
GLYPHOSATE	1071-83-6	70	620	E	70	620	E	7,000	62,000	E	7,000	62,000	E	70	620	E	70	620	E	15
HEPTACHLOR	76-44-8	0.04	0.68	E	0.04	0.68	E	4	68	E	4	68	E	18	310	E	18	310	E	15
HEPTACHLOR EPOXIDE	1024-57-3	0.02	1.1	E	0.02	1.1	E	2	110	E	2	110	E	20	1,100	E	20	1,100	E	10
HEXACHLOROBENZENE	118-74-1	0.1	0.96	E	0.1	0.96	E	0.6	5.8	E	0.6	5.8	E	0.6	5.8	E	0.6	5.8	E	15
HEXACHLOROBUTADIENE	87-68-3	0.84	10	E	3.5	42	E	84	1,000	E	290	3,400	E	290	3,400	E	290	3,400	E	15
HEXACHLOROCYCLO PENTADIENE	77-47-4	5	91	E	5	91	E	180	3,300	E	180	3,300	E	180	3,300	E	180	3,300	E	15
HEXACHLOROETHANE	67-72-1	0.1	0.56	E	0.1	0.56	E	10	56	E	10	56	E	10	56	E	10	56	E	15
HEXANE	110-54-3	150	1,400	E	580	5,300	E	950	8,700	E	950	8,700	E	150	1,400	E	580	5,300	E	15
HEXAZINONE	51235-04-2	40	8.5	E	40	8.5	E	4,000	850	E	4,000	850	E	40	8.5	E	40	8.5	E	NA
HEXYTHIAZOX (SAVEY)	78587-05-0	50	820	E	50	820	E	50	820	E	50	820	E	50	820	E	50	820	E	15
HMX	2691-41-0	40	4.8	E	40	4.8	E	500	60	E	500	60	E	40	4.8	E	40	4.8	E	NA
HYDRAZINE/HYDRAZINE SULFATE	302-01-2	0.001	0.00011	E	0.0051	0.00057	E	0.1	0.011	E	0.51	0.057	E	0.01	0.0011	E	0.051	0.0057	E	NA
HYDROQUINONE	123-31-9	1.1	0.15	E	4.5	0.61	E	110	15	E	450	61	E	1,100	150	E	4,500	610	E	NA
INDENO[1,2,3-CD]PYRENE	193-39-5	0.018	1,400	E	0.23	18,000	E	1.8	140,000	E	6.2	190,000	C	6.2	190,000	C	6.2	190,000	C	5
IPRODIONE	36734-19-7	1.5	4.3	E	6.2	18	E	150	430	E	620	1,800	E	1.5	4.3	E	6.2	18	E	20
ISOBUTYL ALCOHOL	78-83-1	1,000	260	E	2,900	760	E	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	NA
ISOPHORONE	78-59-1	10	1.9	E	10	1.9	E	1,000	190	E	1,000	190	E	10,000	1,900	E	10,000	1,900	E	NA
ISOPROPYL METHYLPHOSPHONATE	1832-54-8	70	8.1	E	70	8.1	E	7,000	810	E	7,000	810	E	70	8.1	E	70	8.1	E	NA
KEPONE	143-50-0	0.0065	0.89	E	0.027	3.7	E	0.65	89	E	2.7	370	E	6.5	890	E	27	3,700	E	10
MALATHION	121-75-5	50	170	E	50	170	E	5,000	10,000	C	5,000	10,000	C	10,000	10,000	C	10,000	10,000	C	20
MALEIC HYDRAZIDE	123-33-1	400	47	E	400	47	E	40,000	4,700	E	40,000	4,700	E	400	47	E	400	47	E	NA
MANEB	12427-38-2	1.1	0.12	E	4.5	0.51	E	110	12	E	450	51	E	1.1	0.12	E	4.5	0.51	E	NA
MERPHOS OXIDE	78-48-8	1.7	230	E	4.9	650	E	170	10,000	C	230	10,000	C	1.7	230	E	4.9	650	E	10

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B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	*CASRN*	*Used Aquifers*												*Nonuse Aquifers*						*Soil Buffer Distance (feet)*
		TDS ≤ 2500 mg/L						*TDS > 2500 mg/L*												
		Residential			*Nonresidential*			*Residential*			*Nonresidential*			*Residential*			*Nonresidential*			
		100 X GW MSC	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		
METHACRYLONITRILE	126-98-7	0.35	0.057	E	0.97	0.16	E	35	5.7	E	97	16	E	0.35	0.057	E	0.97	0.16	E	NA
METHAMIDOPHOS	10265-92-6	0.17	0.021	E	0.49	0.061	E	17	2.1	E	49	6.1	E	0.17	0.021	E	0.49	0.061	E	NA
METHANOL	67-56-1	4,200	500	E	10,000	2,100	E	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	NA
METHOMYL	16752-77-5	20	3.2	E	20	3.2	E	2,000	320	E	2,000	320	E	20	3.2	E	20	3.2	E	NA
METHOXYCHLOR	72-43-5	4	630	E	4	630	E	4.5	710	E	4.5	710	E	4.5	710	E	4.5	710	E	10
METHOXYETHANOL, 2-	109-86-4	4.2	0.48	E	18	2	E	420	48	E	1,800	200	E	42	4.8	E	180	20	E	NA
METHYL ACETATE	79-20-9	3,500	650	E	9,700	1,800	E	10,000	10,000	C	10,000	10,000	C	3,500	650	E	9,700	1,800	E	NA
METHYL ACRYLATE	96-33-3	4.2	1	E	18	4.5	E	420	100	E	1,800	450	E	420	100	E	1,800	450	E	NA
METHYL CHLORIDE	74-87-3	3	0.38	E	3	0.38	E	300	38	E	300	38	E	300	38	E	300	38	E	NA
METHYL ETHYL KETONE	78-93-3	400	76	E	400	76	E	10,000	7,600	E	10,000	7,600	E	10,000	7,600	E	10,000	7,600	E	NA
METHYL HYDRAZINE	60-34-4	0.0042	0.00048	E	0.018	0.002	E	0.42	0.048	E	1.8	0.2	E	0.042	0.0048	E	0.18	0.02	E	NA
METHYL ISOBUTYL KETONE	108-10-1	280	43	E	780	120	E	10,000	4,300	E	10,000	10,000	C	10,000	4,300	E	10,000	10,000	C	NA
METHYL ISOCYANATE	624-83-9	0.21	0.029	E	0.88	0.12	E	21	2.9	E	88	12	E	0.21	0.029	E	0.88	0.12	E	NA
METHYL N-BUTYL KETONE (2-HEXANONE)	591-78-6	6.3	1.6	E	26	6.4	E	630	160	E	2,600	640	E	6.3	1.6	E	26	6.4	E	NA
METHYL METHACRYLATE	80-62-6	150	20	E	620	84	E	10,000	2,000	E	10,000	8,400	E	10,000	2,000	E	10,000	8,400	E	NA
METHYL METHANESULFONATE	66-27-3	0.66	0.082	E	2.7	0.34	E	66	8.2	E	270	34	E	0.66	0.082	E	2.7	0.34	E	NA
METHYL PARATHION	298-00-0	0.1	0.21	E	0.1	0.21	E	10	21	E	10	21	E	100	210	E	100	210	E	30
METHYL STYRENE (MIXED ISOMERS)	25013-15-4	8.4	47	E	35	200	E	840	4,700	E	3,500	10,000	C	8.4	47	E	35	200	E	15
METHYL TERT-BUTYL ETHER (MTBE)	1634-04-4	2	0.28	E	2	0.28	E	200	28	E	200	28	E	20	2.8	E	20	2.8	E	NA
METHYLCHLOROPHENOXYACETIC ACID (MCPA)	94-74-6	3	1.2	E	3	1.2	E	300	120	E	300	120	E	3,000	1,200	E	3,000	1,200	E	NA
METHYLENE BIS(2-CHLOROANILINE), 4,4'-	101-14-4	0.21	1.6	E	2.7	21	E	21	160	E	270	2,100	E	0.21	1.6	E	2.7	21	E	15
METHYLNAPHTHALENE, 2-	91-57-6	0.63	25	E	2.6	100	E	63	2,500	E	260	10,000	E	0.63	25	E	2.6	100	E	15
METHYLSTYRENE, ALPHA	98-83-9	240	420	E	680	1,200	E	10,000	10,000	C	10,000	10,000	C	240	420	E	680	1,200	E	30
METOLACHLOR	51218-45-2	70	40	E	70	40	E	7,000	4,000	E	7,000	4,000	E	70	40	E	70	40	E	NA
METRIBUZIN	21087-64-9	7	2.4	E	7	2.4	E	700	240	E	700	240	E	7	2.4	E	7	2.4	E	NA
MEVINPHOS	7786-34-7	0.087	0.019	E	0.24	0.053	E	8.7	1.9	E	24	5.3	E	0.087	0.019	E	0.24	0.053	E	NA
MONOCHLOROACETIC ACID (HAA)	79-11-8	6	0.67	E	6	0.67	E	600	67	E	600	67	E	6	0.67	E	6	0.67	E	NA
NAPHTHALENE	91-20-3	10	25	E	10	25	E	1,000	2,500	E	1,000	2,500	E	1,000	2,500	E	1,000	2,500	E	30

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REGULATED SUBSTANCE	CASRN	Used Aquifers												Nonuse Aquifers						Soil Buffer Distance (feet)
		TDS ≤ 2500 mg/L						TDS > 2500 mg/L												
		Residential			Nonresidential			Residential			Nonresidential			Residential			Nonresidential			
		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		
NAPHTHYLAMINE, 1-	134-32-7	0.036	0.29	E	0.15	1.2	E	3.6	29	E	15	120	E	3.6	29	E	15	120	E	15
NAPHTHYLAMINE, 2-	91-59-8	0.036	0.012	E	0.15	0.049	E	3.6	1.2	E	15	4.9	E	36	12	E	150	49	E	NA
NAPROPAMIDE	15299-99-7	420	970	E	1,200	2,800	E	7,000	16,000	E	7,000	16,000	E	420	970	E	1,200	2,800	E	30
NITROANILINE, O-	88-74-4	0.011	0.002	E	0.044	0.0079	E	1.1	0.2	E	4.4	0.79	E	0.011	0.002	E	0.044	0.0079	E	NA
NITROANILINE, P-	100-01-6	3.3	0.49	E	14	2.1	E	330	49	E	1,400	210	E	3.3	0.49	E	14	2.1	E	NA
NITROBENZENE	98-95-3	0.12	0.052	E	0.63	0.27	E	12	5.2	E	63	27	E	12	5.2	E	63	27	C	NA
NITROGUANIDINE	556-88-7	70	7.8	E	70	7.8	E	7,000	780	E	7,000	780	E	70	7.8	E	70	7.8	E	NA
NITROPHENOL, 2-	88-75-5	28	5.7	E	78	16	E	2,800	570	E	7,800	1,600	E	2,800	570	E	7,800	1,600	E	NA
NITROPHENOL, 4-	100-02-7	6	4.1	E	6	4.1	E	600	410	E	600	410	E	600	410	E	600	410	E	NA
NITROPROPANE, 2-	79-46-9	0.0018	0.00029	E	0.0093	0.0015	E	0.18	0.029	E	0.93	0.15	E	0.018	0.0029	E	0.093	0.015	E	NA
NITROSODIETHYLAMINE, N-	55-18-5	0.000045	0.0000079	E	0.00058	0.0001	E	0.0045	0.00079	E	0.058	0.01	E	0.00045	0.000079	E	0.0058	0.001	E	NA
NITROSODIMETHYLAMINE, N-	62-75-9	0.00014	0.000019	E	0.0018	0.00024	E	0.014	0.0019	E	0.18	0.024	E	0.0014	0.00019	E	0.018	0.0024	E	NA
NITROSO-DI-N-BUTYLAMINE, N-	924-16-3	0.0031	0.0038	E	0.016	0.02	E	0.31	0.38	E	1.6	2	E	0.31	0.38	E	1.6	2	E	NA
NITROSODI-N-PROPYLAMINE, N-	621-64-7	0.0025	0.00035	E	0.013	0.0018	E	0.25	0.035	E	1.3	0.18	E	0.025	0.0035	E	0.13	0.018	E	NA
NITROSODIPHENYLAMINE, N-	86-30-6	1.9	3	E	9.6	15	E	190	300	E	960	1,500	E	190	300	E	960	1,500	E	30
NITROSO-N-ETHYLUREA, N-	759-73-9	0.00079	0.000091	E	0.01	0.0012	E	0.079	0.0091	E	1	0.12	E	0.79	0.091	E	10	1.2	E	NA
OCTYL PHTHALATE, DI-N-	117-84-0	35	10,000	C	97	10,000	C	300	10,000	C	300	10,000	C	300	10,000	C	300	10,000	C	5
OXAMYL (VYDATE)	23135-22-0	20	2.6	E	20	2.6	E	2,000	260	E	2,000	260	E	20	2.6	E	20	2.6	E	NA
PARAQUAT	1910-42-5	3	120	E	3	120	E	300	12,000	E	300	12,000	E	3	120	E	3	120	E	15
PARATHION	56-38-2	0.1	0.59	E	0.29	1.7	E	10	59	E	29	170	E	0.1	0.59	E	0.29	1.7	E	15
PCBS, TOTAL (POLYCHLORINATED BIPHENLYS) (AROCLORS)	1336-36-3	0.05	9.8	E	0.05	9.8	E	5	980	E	5	980	E	0.05	9.8	E	0.05	9.8	E	10
PCB-1016 (AROCLOR)	12674-11-2	0.24	66	E	0.68	190	E	24	6,600	E	25	6,900	E	0.24	66	E	0.68	190	E	10
PCB-1221 (AROCLOR)	11104-28-2	0.033	0.16	E	0.14	0.68	E	3.3	16	E	14	68	E	0.033	0.16	E	0.14	0.68	E	20
PCB-1232 (AROCLOR)	11141-16-5	0.033	0.13	E	0.14	0.54	E	3.3	13	E	14	54	E	0.033	0.13	E	0.14	0.54	E	20
PCB-1242 (AROCLOR)	53469-21-9	0.033	4	E	0.14	17	E	3.3	400	E	10	1,200	E	0.033	4	E	0.14	17	E	10
PCB-1248 (AROCLOR)	12672-29-6	0.033	16	E	0.14	67	E	3.3	1,600	E	5.4	2,600	E	0.033	16	E	0.14	67	E	10
PCB-1254 (AROCLOR)	11097-69-1	0.069	140	E	0.19	380	E	5.7	10,000	C	5.7	10,000	C	0.069	140	E	0.19	380	E	5
PCB-1260 (AROCLOR)	11096-82-5	0.033	150	E	0.14	630	E	3.3	15,000	E	8	36,000	E	0.033	150	E	0.14	630	E	5

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REGULATED SUBSTANCE	*CASRN*	*Used Aquifers*												*Nonuse Aquifers*						*Soil Buffer Distance (feet)*
		TDS ≤ 2500 mg/L						*TDS > 2500 mg/L*												
		Residential			*Nonresidential*			*Residential*			*Nonresidential*			*Residential*			*Nonresidential*			
		100 X GW MSC	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		
PEBULATE	1114-71-2	170	290	E	490	830	E	9,200	10,000	C	9,200	10,000	C	170	290	E	490	830	E	30
PENTACHLOROBENZENE	608-93-5	2.8	220	E	7.8	620	E	74	5,900	E	74	5,900	E	74	5,900	E	74	5,900	E	10
PENTACHLOROETHANE	76-01-7	0.72	3.5	E	3	15	E	72	350	E	300	1,500	E	0.72	3.5	E	3	15	E	20
PENTACHLORO NITROBENZENE	82-68-8	0.25	5	E	1	20	E	25	500	E	44	870	E	44	870	E	44	870	E	15
PENTACHLOROPHENOL	87-86-5	0.1	5	E	0.1	5	E	10	500	E	10	500	E	100	5,000	E	100	5,000	E	10
PERFLUOROBUTANE SULFONATE (PFBS)	375-73-5	1	N/A		2.9	N/A		100	N/A		290	N/A		1	N/A		2.9	N/A		NA
PERFLUOROOCTANE SULFONATE (PFOS)	1763-23-1	0.007	N/A		0.007	N/A		0.7	N/A		0.7	N/A		0.007	N/A		0.007	N/A		NA
PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	0.007	N/A		0.007	N/A		0.7	N/A		0.7	N/A		0.007	N/A		0.007	N/A		NA
PHENACETIN	62-44-2	30	12	E	120	46	E	3,000	1,200	E	12,000	4,600	E	30,000	12,000	E	76,000	29,000	E	NA
PHENANTHRENE	85-01-8	110	10,000	E	110	10,000	E	110	10,000	E	110	10,000	E	110	10,000	E	110	10,000	E	10
PHENOL	108-95-2	200	33	E	200	33	E	20,000	3,300	E	20,000	3,300	E	20,000	3,300	E	20,000	3,300	E	NA
PHENYL MERCAPTAN	108-98-5	3.5	5.3	E	9.7	15	E	350	530	E	970	1,500	E	3.5	5.3	E	9.7	15	E	30
PHENYLENEDIAMINE, M-	108-45-2	21	3	E	58	8.2	E	2,100	300	E	5,800	820	E	21,000	3,000	E	58,000	8,200	E	NA
PHENYLPHENOL, 2-	90-43-7	34	490	E	140	2,000	E	3,400	49,000	E	14,000	190,000	C	34,000	190,000	C	70,000	190,000	C	15
PHORATE	298-02-2	0.69	1.5	E	1.9	4.1	E	69	150	E	190	410	E	0.69	1.5	E	1.9	4.1	E	30
PHTHALIC ANHYDRIDE	85-44-9	4.2	1.3	E	18	5.6	E	420	130	E	1,800	560	E	420	130	E	1,800	560	C	NA
PICLORAM	1918-02-1	50	7.4	E	50	7.4	E	5,000	740	E	5,000	740	E	50	7.4	E	50	7.4	E	NA
PROMETON	1610-18-0	40	39	E	40	39	E	4,000	3,900	E	4,000	3,900	E	40	39	E	40	39	E	NA
PRONAMIDE	23950-58-5	260	160	E	730	450	E	1,500	920	E	1,500	920	E	260	160	E	730	450	E	NA
PROPACHLOR	1918-16-7	0.01	0.0046	E	0.01	0.0046	E	1	0.46	E	1	0.46	E	1	0.46	E	1	0.46	E	NA
PROPANIL	709-98-8	17	8.7	E	49	25	E	1,700	870	E	4,900	2,500	E	17	8.7	E	49	25	E	NA
PROPANOL, 2- (ISOPROPYL ALCOHOL)	67-63-0	42	7.3	E	180	31	E	4,200	730	E	10,000	3,100	E	42	7.3	E	180	31	E	NA
PROPAZINE	139-40-2	1	0.5	E	1	0.5	E	100	50	E	100	50	E	1	0.5	E	1	0.5	E	NA
PROPHAM	122-42-9	10	2.4	E	10	2.4	E	1,000	240	E	1,000	240	E	10	2.4	E	10	2.4	E	NA
PROPYLBENZENE, N-	103-65-1	210	400	E	880	1,700	E	5,200	9,900	E	5,200	9,900	E	210	400	E	880	1,700	E	30
PROPYLENE OXIDE	75-56-9	0.27	0.047	E	1.1	0.19	E	27	4.7	E	110	19	E	0.27	0.047	E	1.1	0.19	E	NA
PYRENE	129-00-0	13	2,200	E	13	2,200	E	13	2,200	E	13	2,200	E	13	2,200	E	13	2,200	E	10
PYRETHRUM	8003-34-7	35	4.4	E	35	4.4	E	35	4.4	E	35	4.4	E	35	4.4	E	35	4.4	E	NA

[1] For other options see § 250.308 (relating to soil to groundwater pathway numeric values).
All concentrations in mg/kg
E—Number calculated by the soil to groundwater equation in § 250.308
C—Cap
NA—The soil buffer distance option is not available for this substance
N/A—Soil to groundwater values cannot be calculated for these compounds

Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	CASRN	Used Aquifers												Nonuse Aquifers								Soil Buffer Distance (feet)
		TDS ≤ 2500 mg/L						TDS > 2500 mg/L						Residential				Nonresidential				
		Residential			Nonresidential			Residential			Nonresidential											
		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value			100 X GW MSC	Generic Value			
PYRIDINE	110-86-1	3.4	0.39	E	9.7	1.1	E	350	39	E	970	110	E	35	3.9	E		97	11	E		NA
QUINOLINE	91-22-5	0.022	0.074	E	0.091	0.31	E	2.2	7.4	E	9.1	31	E	22	74	E		91	310	E		20
QUIZALOFOP (ASSURE)	76578-14-8	30	47	E	30	47	E	30	47	E	30	47	E	30	47	E		30	47	E		30
RDX	121-82-4	0.2	0.057	E	0.2	0.057	E	20	5.7	E	20	5.7	E	0.2	0.057	E		0.2	0.057	E		NA
RESORCINOL	108-46-3	6,900	800	E	19,000	2,200	E	190,000	80,000	E	190,000	190,000	C	6,900	800	E		19,000	2,200	E		NA
RONNEL	299-84-3	170	270	E	490	760	E	4,000	6,200	E	4,000	6,200	E	170	270	E		490	760	E		30
SIMAZINE	122-34-9	0.4	0.15	E	0.4	0.15	E	40	15	E	40	15	E	0.4	0.15	E		0.4	0.15	E		NA
STRYCHNINE	57-24-9	1	0.81	E	2.9	2.4	E	100	81	E	290	240	E	1,000	810	E		2,900	2,400	E		NA
STYRENE	100-42-5	10	24	E	10	24	E	1,000	2,400	E	1,000	2,400	E	1,000	2,400	E		1,000	2,400	E		30
TEBUTHIURON	34014-18-1	50	83	E	50	83	E	5,000	8,300	E	5,000	8,300	E	50	83	E		50	83	E		30
TERBACIL	5902-51-2	9	2.2	E	9	2.2	E	900	220	E	900	220	E	9	2.2	E		9	2.2	E		NA
TERBUFOS	13071-79-9	0.04	0.055	E	0.04	0.055	E	4	5.5	E	4	5.5	E	0.04	0.055	E		0.04	0.055	E		30
TETRACHLOROBENZENE, 1,2,4,5-	95-94-3	1	4.6	E	2.9	13	E	58	270	E	58	270	E	58	270	E		58	270	E		20
TETRACHLORODIBENZO-P-DIOXIN, 2,3,7,8- (TCDD)	1746-01-6	0.000003	0.032	E	0.000003	0.032	E	0.0003	3.2	E	0.0003	3.2	E	0.0019	20	E		0.0019	20	E		5
TETRACHLOROETHANE, 1,1,1,2-	630-20-6	7	18	E	7	18	E	700	1,800	E	700	1,800	E	700	1,800	E		700	1,800	E		30
TETRACHLOROETHANE, 1,1,2,2-	79-34-5	0.084	0.026	E	0.43	0.13	E	8.4	2.6	E	43	13	E	8.4	2.6	E		43	13	E		NA
TETRACHLOROETHYLENE (PCE)	127-18-4	0.5	0.43	E	0.5	0.43	E	50	43	E	50	43	E	5	4.3	E		5	4.3	E		NA
TETRACHLOROPHENOL, 2,3,4,6-	58-90-2	100	1,600	E	290	4,500	E	10,000	160,000	E	18,000	190,000	C	18,000	190,000	C		18,000	190,000	C		15
TETRAETHYL LEAD	78-00-2	0.00035	0.0043	E	0.00097	0.012	E	0.035	0.43	E	0.097	1.2	E	0.35	4.3	E		0.97	12	E		15
TETRAETHYLDITHIO PYROPHOSPHATE	3689-24-5	1.7	2.5	E	4.9	7.3	E	170	250	E	490	730	E	1.7	2.5	E		4.9	7.3	E		30
TETRAHYDROFURAN	109-99-9	2.5	0.55	E	13	2.8	E	250	55	E	1,300	280	E	2.5	0.55	E		13	2.8	E		NA
THIOFANOX	39196-18-4	1	0.11	E	2.9	0.32	E	100	11	E	290	32	E	1	0.11	E		2.9	0.32	E		NA
THIRAM	137-26-8	52	140	E	150	390	E	3,000	7,800	E	3,000	7,800	E	52	140	E		150	390	E		20
TOLUENE	108-88-3	100	44	E	100	44	E	10,000	4,400	E	10,000	4,400	E	10,000	4,400	E		10,000	4,400	E		NA
TOLUIDINE, M-	108-44-1	4.1	1.9	E	17	7.8	E	410	190	E	1,700	780	E	4.1	1.9	E		17	7.8	E		NA
TOLUIDINE, O-	95-53-4	4.1	4.7	E	17	19	E	410	470	E	1,700	1,900	E	4,100	4,700	E		10,000	10,000	C		NA

[1] For other options see § 250.308 (relating to soil to groundwater pathway numeric values).
All concentrations in mg/kg
E—Number calculated by the soil to groundwater equation in § 250.308
C—Cap
NA—The soil buffer distance option is not available for this substance
N/A—Soil to groundwater values cannot be calculated for these compounds

Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	CASRN	Used Aquifers												Nonuse Aquifers						Soil Buffer Distance (feet)
		TDS ≤ 2500 mg/L						TDS > 2500 mg/L												
		Residential			Nonresidential			Residential			Nonresidential			Residential			Nonresidential			
		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		100 X GW MSC	Generic Value		
TOLUIDINE, P-	106-49-0	2.2	2	E	9.1	8.3	E	220	200	E	910	830	E	2.2	2	E	9.1	8.3	E	NA
TOXAPHENE	8001-35-2	0.3	1.2	E	0.3	1.2	E	30	120	E	30	120	E	0.3	1.2	E	0.3	1.2	E	20
TRIALLATE	2303-17-5	0.091	0.47	E	0.38	1.9	E	9.1	47	E	38	190	E	0.091	0.47	E	0.38	1.9	E	15
TRIBROMOMETHANE (BROMOFORM) (THM)	75-25-2	8	3.5	E	8	3.5	E	800	350	E	800	350	E	800	350	E	800	350	E	NA
TRICHLORO-1,2,2-TRIFLUOROETHANE, 1,1,2-	76-13-1	1,100	3,400	E	4,400	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	20
TRICHLOROACETIC ACID (HAA)	76-03-9	6	0.97	E	6	0.97	E	600	97	E	600	97	E	6	0.97	E	6	0.97	E	NA
TRICHLOROBENZENE, 1,2,4-	120-82-1	7	27	E	7	27	E	700	2,700	E	700	2,700	E	700	2,700	E	700	2,700	E	20
TRICHLOROBENZENE, 1,3,5-	108-70-3	4	31	E	4	31	E	400	3,100	E	400	3,100	E	4	31	E	4	31	E	15
TRICHLOROETHANE, 1,1,1-	71-55-6	20	7.2	E	20	7.2	E	2,000	720	E	2,000	720	E	200	72	E	200	72	E	NA
TRICHLOROETHANE, 1,1,2-	79-00-5	0.5	0.15	E	0.5	0.15	E	50	15	E	50	15	E	5	1.5	E	5	1.5	E	NA
TRICHLOROETHYLENE (TCE)	79-01-6	0.5	0.17	E	0.5	0.17	E	50	17	E	50	17	E	5	1.7	E	5	1.7	E	NA
TRICHLOROPHENOL, 2,4,5-	95-95-4	350	2,100	E	970	5,900	E	35,000	190,000	C	97,000	190,000	C	100,000	190,000	C	100,000	190,000	C	15
TRICHLOROPHENOL, 2,4,6-	88-06-2	3.5	10	E	9.7	28	E	350	1,000	E	970	2,800	E	3,500	10,000	E	9,700	28,000	E	20
TRICHLOROPHENOXY ACETIC ACID, 2,4,5- (2,4,5-T)	93-76-5	7	1.5	E	7	1.5	E	700	150	E	700	150	E	7,000	1,500	E	7,000	1,500	E	NA
TRICHLOROPHENOXY PROPIONIC ACID, 2,4,5-(2,4,5-TP)(SILVEX)	93-72-1	5	22	E	5	22	E	500	2,200	E	500	2,200	E	5	22	E	5	22	E	20
TRICHLOROPROPANE, 1,1,2-	598-77-6	17	2.9	E	49	8.4	E	1,700	290	E	4,900	840	E	17	2.9	E	49	8.4	E	NA
TRICHLOROPROPANE, 1,2,3-	96-18-4	4	3.2	E	4	3.2	E	400	320	E	400	320	E	400	320	E	400	320	E	NA
TRICHLOROPROPENE, 1,2,3-	96-19-5	0.063	0.037	E	0.26	0.15	E	6.3	3.7	E	26	15	E	0.063	0.037	E	0.26	0.15	E	NA
TRIETHYLAMINE	121-44-8	1.5	0.36	E	6.2	1.5	E	150	36	E	620	150	E	1.5	0.36	E	6.2	1.5	E	NA
TRIETHYLENE GLYCOL	112-27-6	6,900	870	E	10,000	2,400	E	10,000	10,000	C	10,000	10,000	C	6,900	870	E	10,000	2,400	E	NA
TRIFLURALIN	1582-09-8	1	1.9	E	1	1.9	E	100	190	E	100	190	E	1	1.9	E	1	1.9	E	30
TRIMETHYLBENZENE, 1,3,4- (TRIMETHYLBENZENE, 1,2,4-)	95-63-6	13	73	E	53	300	E	1,300	7,300	E	5,300	10,000	C	1,300	7,300	E	5,300	10,000	C	15
TRIMETHYLBENZENE, 1,3,5-	108-67-8	13	23	E	53	93	E	1,300	2,300	E	4,900	8,600	E	13	23	E	53	93	E	30
TRINITROGLYCEROL (NITROGLYCERIN)	55-63-0	0.5	0.2	E	0.5	0.2	E	50	20	E	50	20	E	50	20	E	50	20	E	NA
TRINITROTOLUENE, 2,4,6-	118-96-7	0.2	0.023	E	0.2	0.023	E	20	2.3	E	20	2.3	E	0.2	0.023	E	0.2	0.023	E	NA

[1] For other options see § 250.308 (relating to soil to groundwater pathway numeric values).
All concentrations in mg/kg
E—Number calculated by the soil to groundwater equation in § 250.308
C—Cap
NA—The soil buffer distance option is not available for this substance
N/A—Soil to groundwater values cannot be calculated for these compounds

Appendix A
Table 3—Medium-Specific Concentrations (MSCs) for Organic Regulated Substances in Soil
B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	*CASRN*	*Used Aquifers*										*Nonuse Aquifers*						*Soil Buffer Distance (feet)*
		TDS ≤ 2500 mg/L				*TDS > 2500 mg/L*												
		Residential			*Nonresidential*			*Residential*			*Nonresidential*			*Residential*			*Nonresidential*		
		100 X GW MSC	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*		*100 X GW MSC*	*Generic Value*	
VINYL ACETATE	108-05-4	42	5	E	180	21	E	4,200	500	E	10,000	2,100	E	42	5	E	180	21	E	NA
VINYL BROMIDE (BROMOETHENE)	593-60-2	0.15	0.073	E	0.78	0.38	E	15	7.3	E	78	38	E	1.5	0.73	E	7.8	3.8	E	NA
VINYL CHLORIDE	75-01-4	0.2	0.027	E	0.2	0.027	E	20	2.7	E	20	2.7	E	2	0.27	E	2	0.27	E	NA
WARFARIN	81-81-2	1	2.4	E	2.9	6.9	E	100	240	E	290	690	E	1,000	2,400	E	1,700	4,100	E	30
XYLENES (TOTAL)	1330-20-7	1,000	990	E	1,000	990	E	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	10,000	10,000	C	NA
ZINEB	12122-67-7	170	27	E	490	78	E	1,000	160	E	1,000	160	E	170	27	E	490	78	E	NA

[1] For other options see § 250.308 (relating to soil to groundwater pathway numeric values).
All concentrations in mg/kg
E—Number calculated by the soil to groundwater equation in § 250.308
C—Cap
NA—The soil buffer distance option is not available for this substance
N/A—Soil to groundwater values cannot be calculated for these compounds

Appendix A
Table 4—Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil
A. Direct Contact Numeric Values

REGULATED SUBSTANCE	*CASRN*	*Residential MSC 0—15 feet*		*Nonresidential MSCs*			
				Surface Soil 0—2 feet		*Subsurface Soil 2—15 feet*	
ALUMINUM	7429-90-5	190,000	C	190,000	C	190,000	C
ANTIMONY	7440-36-0	88	G	1,300	G	190,000	C
ARSENIC	7440-38-2	12	G	61	G	190,000	C
BARIUM AND COMPOUNDS	7440-39-3	44,000	G	190,000	C	190,000	C
BERYLLIUM	7440-41-7	440	G	6,400	G	190,000	C
BORON AND COMPOUNDS	7440-42-8	44,000	G	190,000	C	190,000	C
CADMIUM	7440-43-9	110	G	1,600	G	190,000	C
CHROMIUM III	16065-83-1	190,000	C	190,000	C	190,000	C
CHROMIUM VI	18540-29-9	37	G	180	G	140,000	N
COBALT	7440-48-4	66	G	960	G	190,000	N
COPPER	7440-50-8	7,200	G	100,000	G	190,000	C
CYANIDE, FREE	57-12-5	130	G	1,900	G	190,000	C
FLUORIDE	16984-48-8	8,800	G	130,000	G	190,000	C
IRON	7439-89-6	150,000	G	190,000	C	190,000	C
LEAD	7439-92-1	500	U	1,000	S	190,000	C
LITHIUM	7439-93-2	440	G	6,400	G	190,000	C
MANGANESE	7439-96-5	31,000	G	190,000	C	190,000	C
MERCURY	7439-97-6	35	G	510	G	190,000	C
MOLYBDENUM	7439-98-7	1,100	G	16,000	G	190,000	C
NICKEL	7440-02-0	4,400	G	64,000	G	190,000	C
PERCHLORATE	7790-98-9	150	G	2,200	G	190,000	C
SELENIUM	7782-49-2	1,100	G	16,000	G	190,000	C
SILVER	7440-22-4	1,100	G	16,000	G	190,000	C
STRONTIUM	7440-24-6	130,000	G	190,000	C	190,000	C
THALLIUM	7440-28-0	2.2	G	32	G	190,000	C
TIN	7440-31-5	130,000	G	190,000	C	190,000	C
VANADIUM	7440-62-2	15	G	220	G	190,000	C
ZINC	7440-66-6	66,000	G	190,000	C	190,000	C

All concentrations in mg/kg
G—Ingestion
N—Inhalation
C—Cap
U—UBK Model
S—SEGH Model

Appendix A
Table 4—Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil
B. Soil to Groundwater Numeric Values[1]

REGULATED SUBSTANCE	*CASRN*	*Used Aquifers*								*Nonuse Aquifers*				*Soil Buffer Distance (feet)*
		TDS ≤ 2500 mg/L				*TDS > 2500 mg/L*								
		R		*NR*		*R*		*NR*		*R*		*NR*		
		100 X GW MSC	*Generic Value*	*100 X GW MSC*	*Generic Value*	*100 X GW MSC*	*Generic Value*	*100 X GW MSC*	*Generic Value*	*100 X GW MSC*	*Generic Value*	*100 X GW MSC*	*Generic Value*	
ANTIMONY	7440-36-0	0.6	27	0.6	27	60	2,700	60	2,700	600	27,000	600	27,000	15
ARSENIC	7440-38-2	1	29	1	29	100	2,900	100	2,900	1,000	29,000	1,000	29,000	15
BARIUM AND COMPOUNDS	7440-39-3	200	8,200	200	8,200	20,000	190,000	20,000	190,000	190,000	190,000	190,000	190,000	15
BERYLLIUM	7440-41-7	0.4	320	0.4	320	40	32,000	40	32,000	400	190,000	400	190,000	10
BORON AND COMPOUNDS	7440-42-8	600	1,900	600	1,900	60,000	190,000	60,000	190,000	190,000	190,000	190,000	190,000	30
CADMIUM	7440-43-9	0.5	38	0.5	38	50	3,800	50	3,800	500	38,000	500	38,000	15
CHROMIUM (III)	16065-83-1	10	190,000	10	190,000	1,000	190,000	1,000	190,000	10,000	190,000	10,000	190,000	5
CHROMIUM (VI)	18540-29-9	10	190	10	190	1,000	19,000	1,000	19,000	10,000	190,000	10,000	190,000	15
COBALT	7440-48-4	1	45	2.9	130	100	4,500	290	13,000	1,000	45,000	2,900	130,000	15
COPPER	7440-50-8	100	43,000	100	43,000	10,000	190,000	10,000	190,000	100,000	190,000	100,000	190,000	10
CYANIDE, FREE	57-12-5	20	200	20	200	2,000	20,000	2,000	20,000	20,000	190,000	20,000	190,000	20
FLUORIDE	16984-48-8	400	44	400	44	40,000	4,400	40,000	4,400	190,000	44,000	190,000	44,000	NA
LEAD	7439-92-1	0.5	450	0.5	450	50	45,000	50	45,000	500	190,000	500	190,000	10
LITHIUM	7439-93-2	6.9	2,100	19	5,700	690	190,000	1,900	190,000	6,900	190,000	19,000	190,000	10
MANGANESE	7439-96-5	30	2,000	30	2,000	3,000	190,000	3,000	190,000	30,000	190,000	30,000	190,000	15
MERCURY	7439-97-6	0.2	10	0.2	10	20	1,000	20	1,000	200	10,000	200	10,000	15
MOLYBDENUM	7439-98-7	4	650	4	650	400	65,000	400	65,000	4,000	190,000	4,000	190,000	15
NICKEL	7440-02-0	10	650	10	650	1,000	65,000	1,000	65,000	10,000	190,000	10,000	190,000	15
PERCHLORATE	7790-98-9	1.5	0.17	1.5	0.17	150	17	150	17	1,500	170	1,500	170	NA
SELENIUM	7782-49-2	5	26	5	26	500	2,600	500	2,600	5,000	26,000	5,000	26,000	20
SILVER	7440-22-4	10	84	10	84	1,000	8,400	1,000	8,400	10,000	84,000	10,000	84,000	20
STRONTIUM	7440-24-6	400	44	400	44	40,000	4,400	40,000	4,400	190,000	44,000	190,000	44,000	NA
THALLIUM	7440-28-0	0.2	14	0.2	14	20	1,400	20	1,400	200	14,000	200	14,000	15
TIN	7440-31-5	2,100	190,000	5,800	190,000	190,000	190,000	190,000	190,000	190,000	190,000	190,000	190,000	10
VANADIUM	7440-62-2	0.24	240	0.68	680	24	24,000	68	68,000	240	190,000	680	190,000	5
ZINC	7440-66-6	200	12,000	200	12,000	20,000	190,000	20,000	190,000	190,000	190,000	190,000	190,000	15

[1]For other options see § 250.308 (relating to soil to groundwater pathway numeric values).
All concentrations in mg/kg
R—Residential
NR—Non-Residential
NA—Not Applicable

Appendix A
Table 5—Physical and Toxicological Properties
A. Organic Regulated Substances

Regulated Substance	*CAS*	*RfDo (mg/kg-d)*		*CSFo $(mg/kg\text{-}d)^{-1}$*		*RfCi (mg/m^3)*		*IUR $(\mu g/m^3)^{-1}$*		*Koc*	*VOC?*	*Aqueous Sol (mg/L)*	*Aqueous Sol Reference[1]*	*TF Vol from Surface Soil*	*TF Vol from Subsurface Soil*	*Organic Liquid*	*Boiling Point (degrees C)*	*Degradation Coefficient (K) (yr^{-1})*
ACENAPHTHENE	83-32-9	0.06	I							4900	X	3.8	1,5,6	17220	20833		279	1.24
ACENAPHTHYLENE	208-96-8	0.06	S^1							4500	X	16.1	5,6,7	16493	19776		280	2.11
ACEPHATE	30560-19-1	0.0012	O							3		818000	6				340	
ACETALDEHYDE	75-07-0					0.009	I	0.0000022	I	4.1	X	1000000	1	13010	14945	X	20	
ACETONE	67-64-1	0.9	I			31	D			0.31	X	1000000	1	13007	14942	X	56	18.07
ACETONITRILE	75-05-8					0.06	I			0.5	X	1000000	1	13020	14958	X	82	4.50
ACETOPHENONE	98-86-2	0.1	I							170		5500	1			X	203	
ACETYLAMINO-FLUORENE, 2- (2AAF)	53-96-3			3.8	C			0.0013	C	1600		10.13	7				303	0.69
ACROLEIN	107-02-8	0.0005	I			0.00002	I			0.56	X	208000	1,2,4	13012	14948	X	53	4.50
ACRYLAMIDE	79-06-1	0.002	I	0.5	I	0.006	I	0.0001	I	25	X	2151000	4	12981	14906		193	
ACRYLIC ACID	79-10-7	0.5	I			0.001	I			29	X	1000000	2	12978	14902	X	141	1.39
ACRYLONITRILE	107-13-1	0.04	D	0.54	I	0.002	I	0.000068	I	11	X	73500	1	13004	14939	X	77	5.50
ALACHLOR	15972-60-8	0.01	I	0.056	C					110		140	2				378	
ALDICARB	116-06-3	0.001	I							22		6000	2				287	0.40
ALDICARB SULFONE	1646-88-4	0.001	I							10		8000	5				317	
ALDICARB SULFOXIDE	1646-87-3	0.001	M							0.22		330000	5				307	
ALDRIN	309-00-2	0.00003	I	17	I			0.0049	I	48000		0.02	4,5,6				330	0.22
ALLYL ALCOHOL	107-18-6	0.005	I			0.0001	X			3.2	X	1000000	2	13003	14937	X	97	18.07
AMETRYN	834-12-8	0.009	I							389		185	5				345	
AMINOBIPHENYL, 4-	92-67-1			21	C			0.006	C	110		1200	5				302	18.07
AMITROLE	61-82-5			0.94	C			0.00027	C	120		280000	4				258	0.69
AMMONIA	7664-41-7	0.85	H			0.5	I			3	X	310000	2,5,7	13098	15059	X	-33	
AMMONIUM SULFAMATE	7773-06-0	0.2	I							3		2160000	10				603	
ANILINE	62-53-3	0.007	P	0.0057	I	0.001	I	0.0000016	C	190	X	33800	1	12959	14876	X	184	
ANTHRACENE	120-12-7	0.3	I							21000	X	0.066	1,5,6,7,8,9	30838	44562		340	0.28
ATRAZINE	1912-24-9	0.035	I	0.23	C					130		70	2,4,5				313	
AZINPHOS-METHYL (GUTHION)	86-50-0	0.0015	O			0.01	D			407.4		31.5	1, 2				421	
BAYGON (PROPOXUR)	114-26-1	0.004	I							31		2000	2,4,5				decomp.	4.50
BENOMYL	17804-35-2	0.05	I	0.0024	O					1,900		2	5				520	
BENTAZON	25057-89-0	0.03	I							13		500	2				415	
BENZENE	71-43-2	0.004	I	0.055	I	0.03	I	0.0000078	I	58	X	1780.5	1,2,3,4	13053	15000	X	81	0.35
BENZIDINE	92-87-5	0.003	I	230	I			0.067	I	530,000		520	1,2,4				400	15.81
BENZO[A]ANTHRACENE	56-55-3			0.7	X			0.00011	C	350000		0.011	1,5,6				438	0.19
BENZO[A]PYRENE	50-32-8	0.0003	I	1	I	0.000002	I	0.0006	I	910000		0.0038	1,5,6				495	0.24
BENZO[B]FLUORANTHENE	205-99-2			1.2	C			0.00011	C	550000		0.0012	5,6,7				357	0.21
BENZO[GHI]PERYLENE	191-24-2	0.06	S^1							2800000		0.00026	1,5,6				500	0.19
BENZO[K]FLUORANTHENE	207-08-9			1.2	C			0.00011	C	4400000		0.00055	5,6,7				480	0.06

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S^2 Trans-Crotonaldehyde surrogate
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S^6 4-Nitrophenol surrogate
S^7 Total PCBS surrogate
S^8 Anthracene surrogate
S^9 O-Toluidine surrogate
S^{10} 1,2,4-Trichlorobenzene surrogate

Appendix A
Table 5—Physical and Toxicological Properties
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Regulated Substance	*CAS*	*RfDo (mg/kg-d)*		*CSFo (mg/kg-d)$^{-1}$*		*RfCi (mg/m^3)*		*IUR (µg/m^3)$^{-1}$*		*Koc*	*VOC?*	*Aqueous Sol (mg/L)*	*Aqueous Sol Reference[1]*	*TF Vol from Surface Soil*	*TF Vol from Subsurface Soil*	*Organic Liquid*	*Boiling Point (degrees C)*	*Degradation Coefficient (K) (yr^{-1})*
BENZOIC ACID	65-85-0	4	I							32	X	2700	2,3,4,5	12985	14913		249	
BENZOTRICHLORIDE	98-07-7			13	I					920	X	53	1,5,13	13494	15606	X	221	121413.60
BENZYL ALCOHOL	100-51-6	0.1	P							100		40000	1,2,3			X	205	
BENZYL CHLORIDE	100-44-7	0.002	P	0.17	I	0.001	P	0.000049	C	190	X	493	1	12940	14846	X	179	20.90
BETA PROPIOLACTONE	57-57-8			14	C			0.004	C	4	X	370000	2	13008	14937	X	162	0.01
BHC, ALPHA	319-84-6	0.008	D	6.3	I			0.0018	I	1800		1.7	4,5,6,7				288	0.94
BHC, BETA-	319-85-7			1.8	I			0.00053	I	2300		0.1	6				304	1.02
BHC, GAMMA (LINDANE)	58-89-9	0.0003	I	1.1	C			0.00031	C	1400		7.3	4,5,6				323	1.05
BIPHENYL, 1,1-	92-52-4	0.05	I	0.008	I	0.0004	X			1,700	X	7.2	1	14027	16325		255	18.07
BIS(2-CHLORO ETHOXY)METHANE	111-91-1	0.003	P							61		100500	4,6,7,9,10,11			X	218	
BIS(2-CHLOROETHYL)ETHER	111-44-4			1.1	I			0.00033	I	76	X	10200	1,4,5	12942	14849	X	179	0.69
BIS(2-CHLORO-ISOPROPYL)ETHER	108-60-1	0.04	I	0.07	H			0.00001	H	62	X	1700	5	12947	14856	X	189	0.69
BIS(CHLOROMETHYL)ETHER	542-88-1			220	I			0.062	I	16	X	22000	6	12992	14922	X	105	57270.57
BIS[2-ETHYLHEXYL]PHTHALATE	117-81-7	0.02	I	0.014	I			0.0000024	C	87000		0.285	4,5,6			X	384	0.65
BISPHENOL A	80-05-7	0.05	I							1,500		120	4				220	0.69
BROMACIL	314-40-9	0.1	M							58		815	2				421	
BROMOBENZENE	108-86-1	0.008	I			0.06	I			268	X	445	1,2	12954	14866	X	156.1	
BROMOCHLOROMETHANE	74-97-5	0.01	M			0.04	X			27	X	16700	4	13007	14942	X	68	
BROMODICHLOROMETHANE	75-27-4	0.02	I	0.062	I			0.000037	C	93	X	4500	6	12984	14910	X	87	
BROMOMETHANE	74-83-9	0.0014	I			0.005	I			170	X	17500	2	13039	14981	X	4	6.66
BROMOXYNIL	1689-84-5	0.015	O	0.103	O					300		130	2				329	
BROMOXYNIL OCTANOATE	1689-99-2	0.015	O	0.103	O					18,000		0.08	12				414	5.75
BUTADIENE, 1,3-	106-99-0			0.6	C	0.002	I	0.00003	I	120	X	735	1	13115	15041	X	-4.5	4.50
BUTYL ALCOHOL, N-	71-36-3	0.1	I							3.2	X	74000	1	12998	14930	X	118	4.68
BUTYLATE	2008-41-5	0.05	I							540	X	45	2	13430	15519	X	138	
BUTYLBENZENE, N-	104-51-8	0.05	P							2,500	X	15	1,6,7	12943	14851	X	183	
BUTYLBENZENE, SEC-	135-98-8	0.1	X							890	X	17	1,6,7	12983	14910	X	174	
BUTYLBENZENE, TERT-	98-06-6	0.1	X							680	X	30	1,6,7	12979	14904	X	169	
BUTYLBENZYL PHTHALATE	85-68-7	0.2	I	0.0019	P					34000		2.69	4,5,6			X	370	1.39
CAPTAN	133-06-2	0.13	I	0.0023	C			0.00000066	C	200		0.5	4				259	589.39
CARBARYL	63-25-2	0.1	I							190		120	2,4,5				315	4.22
CARBAZOLE	86-74-8			0.02	H					2,500		1.2	1,5,6				355	
CARBOFURAN	1563-66-2	0.005	I							43		700	2				311	
CARBON DISULFIDE	75-15-0	0.1	I			0.7	I			300	X	2100	1,2,3	13022	14961	X	46	
CARBON TETRACHLORIDE	56-23-5	0.004	I	0.07	I	0.1	I	0.000006	I	160	X	795	1,2,3	13117	15083	X	77	0.07
CARBOXIN	5234-68-4	0.1	I							260		170	5,6,8				407	

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Appendix A
Table 5—Physical and Toxicological Properties
A. Organic Regulated Substances

Regulated Substance	*CAS*	*RfDo (mg/kg-d)*		*CSFo $(mg/kg\text{-}d)^{-1}$*		*RfCi (mg/m^3)*		*IUR $(\mu g/m^3)^{-1}$*		*Koc*	*VOC?*	*Aqueous Sol (mg/L)*	*Aqueous Sol Reference[1]*	*TF Vol from Surface Soil*	*TF Vol from Subsurface Soil*	*Organic Liquid*	*Boiling Point (degrees C)*	*Degradation Coefficient (K) (yr^{-1})*
CHLORAMBEN	133-90-4	0.015	I							20		700	2				210	
CHLORDANE	57-74-9	0.0005	I	0.35	I	0.0007	I	0.0001	I	98000		0.056	4,5,7				351	0.09
CHLORO-1,1-DIFLUOROETHANE, 1-	75-68-3					50	I			22	X	1400	4	13117	15041	X	-9	
CHLORO-1-PROPENE, 3- (ALLYL CHLORIDE)	107-05-1			0.021	C	0.001	I	0.000006	C	48	X	3300	1,3,5,7,10	13142	15116	X	45	18.07
CHLOROACETALDEHYDE	107-20-0			0.27	X					3.2	X	1000000	9	13004	14938	X	85	
CHLOROACETOPHENONE, 2-	532-27-4					0.00003	I			76		1100	3				247	4.50
CHLOROANILINE, P-	106-47-8	0.004	I	0.2	P					460	X	3900	1	13139	15127		232	
CHLOROBENZENE	108-90-7	0.02	I			0.05	P			200	X	490	3	12992	14922	X	132	0.84
CHLOROBENZILATE	510-15-6	0.02	I	0.11	C			0.000031	C	2600		13	4				415	3.60
CHLOROBUTANE, 1-	109-69-3	0.04	P							580	X	680	1,2,3,4	13007	14942	X	79	
CHLORODIBROMOMETHANE	124-48-1	0.02	I	0.084	I					83	X	4200	4,6,7,9	12973	14895	X	116	1.39
CHLORODIFLUOROMETHANE	75-45-6					50	I			59	X	2899	4	13141	15113	X	-41	
CHLOROETHANE	75-00-3					10	I			42	X	5700	1	13101	15038	X	12	4.50
CHLOROFORM	67-66-3	0.01	I	0.031	C	0.3	C	0.000023	I	56	X	8000	1,2,3	13044	14988	X	61	0.01
CHLORONAPHTHALENE, 2-	91-58-7	0.08	I							8500	X	11.7	1	19021	23532		256	
CHLORONITROBENZENE, P-	100-00-5	0.0007	P	0.06	P	0.002	P			480	X	220	1	13190	15196		242	
CHLOROPHENOL, 2-	95-57-8	0.005	I							400	X	24000	1,3,4	13053	15009	X	175	
CHLOROPRENE	126-99-8	0.02	H			0.02	I	0.0003	I	50	X	1736	9	13116	15075	X	59	0.69
CHLOROPROPANE, 2-	75-29-6					0.1001	H			260	X	3100	1,3,5	13055	15002	X	47	
CHLOROTHALONIL	1897-45-6	0.015	I	0.017	C					980		0.6	2				350	
CHLOROTOLUENE, O-	95-49-8	0.02	I							760	X	422	1,4,5	12941	14848	X	159	
CHLOROTOLUENE, P-	106-43-4	0.02	X							375	X	106	12	12961	14877	X	162	
CHLORPYRIFOS	2921-88-2	0.001	D							4600		1.12	2,4,6,7				377	
CHLORSULFURON	64902-72-3	0.02	O							11		192	2,5,6,8,9				531	
CHLORTHAL-DIMETHYL (DACTHAL) (DCPA)	1861-32-1	0.01	I							6,500		0.5	2,5,7				360	1.37
CHRYSENE	218-01-9			0.12	C			0.000011	C	490000		0.0019	1				448	0.13
CRESOL(S)	1319-77-3	0.1	D			0.06	C			25	X	20000	2	12976	14899	X	139	5.16
CRESOL, DINITRO-O-, 4,6-	534-52-1	0.00008	X							257	X	150	4	13025	14970		312	6.02
CRESOL, O- (METHYLPHENOL, 2-)	95-48-7	0.05	I							22	X	2500	3,5,6	12974	14896		191	18.07
CRESOL, M (METHYLPHENOL, 3-)	108-39-4	0.05	I							35		2500	2			X	202	5.16
CRESOL, P (METHYLPHENOL, 4-)	106-44-5	0.005	H							49		22000	6				202	9.03
CRESOL, P-CHLORO-M-	59-50-7	0.1	X							780		3846	2				235	
CROTONALDEHYDE	4170-30-3	0.001	S^2	1.9	S^2					5.6	X	180000	3	12998	14931	X	104	18.07
CROTONALDEHYDE, TRANS-	123-73-9	0.001	P	1.9	H					6.1	X	156000	1	13006	14940	X	104	18.07
CUMENE (ISOPROPYL BENZENE)	98-82-8	0.1	I			0.4	I			2800	X	50	1,5,6	12940	14846	X	152	15.81

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CYANAZINE	21725-46-2	0.002	H	0.84	H					199		171	2,5				369	
CYCLOHEXANE	110-82-7					6	I			479	X	55	1,2,4,5,6	13140	15112	X	81	
CYCLOHEXANONE	108-94-1	5	I			0.7	P			66	X	36500	1,2,4,5	12949	14858	X	157	
CYFLUTHRIN	68359-37-5	0.025	I							130,000		0.001	2				448	
CYROMAZINE	66215-27-8	0.5	O							1,200		11000	12				222	
DDD, 4,4'-	72-54-8	0.003	X	0.24	I			0.000069	C	44000		0.16	5,6,7				350	0.02
DDE, 4,4'-	72-55-9	0.0003	X	0.34	I			0.000097	C	87000		0.04	5				348	0.02
DDT, 4,4'-	50-29-3	0.0005	I	0.34	I			0.000097	I	240000		0.0055	5,6,7				260	0.02
DI(2-ETHYLHEXYL)ADIPATE	103-23-1	0.6	I	0.0012	I					47,000,000		200	5			X	214	4.50
DIALLATE	2303-16-4			0.061	H					190		40	2,4,6,8			X	328	1.39
DIAMINOTOLUENE, 2,4-	95-80-7			4	C			0.0011	C	36		7470	4				292	0.69
DIAZINON	333-41-5	0.0007	D							500		50	2,4,6,8			X	306	
DIBENZO[A,H]ANTHRACENE	53-70-3			4.1	C			0.0012	C	1800000		0.0006	1,5,6				524	0.13
DIBENZOFURAN	132-64-9	0.001	X							10233	X	4.48	1,6,7,9	23885	31445		287	7.23
DIBROMO-3-CHLOROPROPANE, 1,2-	96-12-8	0.0002	P	0.8	P	0.0002	I	0.006	P	140	X	1000	4	12946	14856	X	196	0.69
DIBROMOBENZENE, 1,4-	106-37-6	0.01	I							1,600		20	1				220	
DIBROMOETHANE, 1,2- (ETHYLENE DIBROMIDE)	106-93-4	0.009	I	2	I	0.009	I	0.0006	I	54	X	4150	1,2,3,5	12972	14893	X	131	2.11
DIBROMOMETHANE	74-95-3	0.01	H			0.004	X			110	X	11400	1	12948	14858	X	96	4.50
DIBUTYL PHTHALATE, N-	84-74-2	0.1	I							1600		400	1,2,3			X	340	11.00
DICAMBA	1918-00-9	0.03	I							0.27		5600	4,5,6,8,10				329	
DICHLOROACETIC ACID	76-43-6	0.004	I	0.05	I					8.1	X	1000000	1	12994	14924	X	194	
DICHLORO-2-BUTENE, 1,4-	764-41-0							0.0042	P	180	X	850	9	12943	14851	X	156	
DICHLORO-2-BUTENE, TRANS-1,4-	110-57-6							0.0042	P	215	X	850	9	12940	14847	X	155	
DICHLOROBENZENE, 1,2-	95-50-1	0.09	I			0.2	H			350	X	147	1,4,5,6,7	12946	14855	X	180	0.69
DICHLOROBENZENE, 1,3-	541-73-1	0.09	M							360	X	106	1	12942	14849	X	173	0.69
DICHLOROBENZENE, P-	106-46-7	0.07	D	0.0054	C	0.8	I	0.000011	C	510	X	82.9	1	12943	14850		174	0.69
DICHLOROBENZIDINE, 3,3'-	91-94-1			0.45	I			0.00034	C	22000		3.11	4,5,6				368	0.69
DICHLORODIFLUOROMETHANE (FREON 12)	75-71-8	0.2	I			0.1	X			360	X	280	1	13115	15041	X	-30	0.69
DICHLOROETHANE, 1,1-	75-34-3	0.2	P	0.0057	C	0.5	H	0.0000016	C	52	X	5000	2	13051	14998	X	57	0.16
DICHLOROETHANE, 1,2-	107-06-2	0.006	X	0.091	I	0.007	P	0.000026	I	38	X	8412	1,2,3,4	13010	14945	X	83	0.07
DICHLOROETHYLENE, 1,1-	75-35-4	0.05	I			0.2	I			65	X	2500	1,4,5	13145	15119	X	32	0.19
DICHLOROETHYLENE, CIS-1,2-	156-59-2	0.002	I							49	X	3500	1	13037	14979	X	60	0.01
DICHLOROETHYLENE, TRANS-1,2-	156-60-5	0.02	I							47	X	6300	1	13053	15000	X	48	0.01
DICHLOROMETHANE (METHYLENE CHLORIDE)	75-09-2	0.006	I	0.002	I	0.6	I	0.00000001	I	16	X	20000	1,2,3	13071	15023	X	40	4.50

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Regulated Substance	*CAS*	*RfDo (mg/kg-d)*		*CSFo (mg/kg-d)$^{-1}$*		*RfCi (mg/m^3)*		*IUR (µg/m^3)$^{-1}$*		*Koc*	*VOC?*	*Aqueous Sol (mg/L)*	*Aqueous Sol Reference[1]*	*TF Vol from Surface Soil*	*TF Vol from Subsurface Soil*	*Organic Liquid*	*Boiling Point (degrees C)*	*Degradation Coefficient (K) (yr^{-1})*
DICHLOROPHENOL, 2,4-	120-83-2	0.003	I							160		4500	1				210	5.88
DICHLOROPHENOXYACETIC ACID, 2,4-(2,4-D)	94-75-7	0.01	I							59		677	4,5,6,7,10				215	1.39
DICHLOROPROPANE, 1,2-	78-87-5	0.04	P	0.037	P	0.004	I	0.0037	P	47	X	2700	1,3,4	13016	14954	X	96	0.10
DICHLOROPROPENE, 1,3-	542-75-6	0.03	I	0.1	I	0.02	I	0.000004	I	27	X	2700	6	13038	14981	X	108	22.38
DICHLOROPROPIONIC ACID, 2,2-(DALAPON)	75-99-0	0.03	I							62	X	500000	5	12949	14860	X	190	2.11
DICHLORVOS	62-73-7	0.0005	I	0.29	I	0.0005	I	0.000083	C	50		10000	2,4,5			X	234	
DICYCLOPENTADIENE	77-73-6	0.008	P			0.0003	X			810	X	40	5	12957	14870		167	
DIELDRIN	60-57-1	0.00005	I	16	I			0.0046	I	11000		0.17	4,5,6				385	0.12
DIETHANOLAMINE	111-42-2	0.002	P			0.0002	P			4		1000000	2,3,9			X	269	
DIETHYL PHTHALATE	84-66-2	0.8	I							81		1080	4,5,6			X	298	2.25
DIFLUBENZURON	35367-38-5	0.02	I							1,000		0.2	2				201	
DIISOPROPYL METHYLPHOSPHONATE	1445-75-6	0.08	I							10	X	160000	9	12978	14903	X	190	
DIMETHOATE	60-51-5	0.0022	O							110		25000	4				361	2.26
DIMETHOXYBENZIDINE, 3,3-	119-90-4			1.6	P					1,300		60	9				331	0.69
DIMETHRIN	70-38-2	0.3	M							27,000		0.036	13				353	
DIMETHYLAMINOAZOBENZENE, P-	60-11-7			4.6	C			0.0013	C	1000		13.6	7				335	4.50
DIMETHYLANILINE, N,N-	121-69-7	0.002	I	0.027	P					180	X	1200	5,6,7,9	12944	14852	X	192	0.69
DIMETHYLBENZIDINE, 3,3-	119-93-7			11	P					22,000		1300	10				300	18.07
DIMETHYL METHYLPHOSPHONATE	756-79-6	0.06	P	0.0017	P					5	X	1000000	14	12998	14930	X	181	
DIMETHYLPHENOL, 2,4-	105-67-9	0.02	I							130		7869	1,4,6,7			X	211	18.07
DINITROBENZENE, 1,3-	99-65-0	0.0001	I							150		523	3,5,6,7				291	0.69
DINITROPHENOL, 2,4-	51-28-5	0.002	I							0.79		5600	2,4,5,6,7				332	0.48
DINITROTOLUENE, 2,4-	121-14-2	0.002	I	0.31	C			0.000089	C	51		270	4,5,6				300	0.69
DINITROTOLUENE, 2,6- (2,6-DNT)	606-20-2	0.0003	X	1.5	P					74		200	6				300	0.69
DINOSEB	88-85-7	0.001	I							120		50	5				223	1.03
DIOXANE, 1,4-	123-91-1	0.03	I	0.1	I	0.03	I	0.000005	I	7.8	X	1000000	5	12996	14928	X	101	0.69
DIPHENAMID	957-51-7	0.03	I							200		260	5				210	
DIPHENYLAMINE	122-39-4	0.1	O							190		300	3				302	4.50
DIPHENYLHYDRAZINE, 1,2-	122-66-7			0.8	I			0.00022	I	660	X	0.252	6	13375	15446		309	0.69
DIQUAT	85-00-7	0.0022	I							2.6		700000	5				355	
DISULFOTON	298-04-4	0.00004	I							1000		25	4,5,6			X	332	6.02
DITHIANE, 1,4-	505-29-3	0.01	I							22.7	X	3000	15	12976	14899		199	
DIURON	330-54-1	0.002	I							300		42	2,4,5				354	
ENDOSULFAN	115-29-7	0.006	I							2,000		0.48	4				401	2.78
ENDOSULFAN I (ALPHA)	959-98-8	0.006	S[3]							2000		0.5	6				401	

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ENDOSULFAN II (BETA)	33213-65-9	0.006	S[3]							2300		0.45	6				390	
ENDOSULFAN SULFATE	1031-07-8	0.006	S[3]							2300		0.117	7,9				409	
ENDOTHALL	145-73-3	0.02	I							120		100000	2				350	
ENDRIN	72-20-8	0.0003	I							11000		0.23	4,6,7,9				245	
EPICHLOROHYDRIN	106-89-8	0.006	P	0.0099	I	0.001	I	0.0000012	I	35	X	65800	1,3,4	12972	14893	X	116	4.50
ETHEPHON	16672-87-0	0.005	I							2		1240000	12				201	
ETHION	563-12-2	0.0005	I							8700		0.85	4,6,9,10			X	415	
ETHOXYETHANOL, 2- (EGEE)	110-80-5	0.09	P			0.2	I			12	X	1000000	2	13100	15040	X	136	4.50
ETHYL ACETATE	141-78-6	0.9	I			0.07	P			59	X	80800	1,2,3,4,5,6	12963	14881	X	77	18.07
ETHYL ACRYLATE	140-88-5	0.005	P	0.048	H	0.008	P			110	X	15000	1,2,6	12951	14863	X	100	18.07
ETHYL BENZENE	100-41-4	0.1	I	0.011	C	1	I	0.0000025	C	220	X	161	1,3,4	13004	15000	X	136	1.11
ETHYL DIPROPYLTHIOCARBAMATE, S-(EPTC)	759-94-4	0.05	O							240	X	365	2	13056	15014	X	127	
ETHYL ETHER	60-29-7	0.2	I							68	X	60400	1	12982	14908	X	35	
ETHYL METHACRYLATE	97-63-2	0.09	H			0.3	P			22	X	4635.5	9,10	12991	14921	X	117	
ETHYLENE CHLORHYDRIN	107-07-3	0.02	P							1	X	1000000	9	13006	14941	X	128	
ETHYLENE GLYCOL	107-21-1	2	I			0.4	C			4.4	X	1000000	2	13004	14938	X	198	10.54
ETHYLENE THIOUREA (ETU)	96-45-7	0.00008	I	0.045	C			0.000013	C	0.23		20000	2				347	4.50
ETHYL P-NITROPHENYL PHENYLPHOSPHORO THIOATE	2104-64-5	0.00001	I							1,200		3.1	4				215	
FENAMIPHOS	22224-92-6	0.00025	I							300		329	2				390	
FENVALERATE (PYDRIN)	51630-58-1	0.025	I							4,400		0.085	5			X	300	
FLUOMETURON	2164-17-2	0.013	I							68		97.5	2,5,6,8				318	
FLUORANTHENE	206-44-0	0.04	I							49000		0.26	1,5,6				375	0.29
FLUORENE	86-73-7	0.04	I							7900	X	1.9	1	20155	25294		298	2.11
FLUOROTRICHLOROMETHANE (FREON 11)	75-69-4	0.3	I			0.7	H			130	X	1090	1,4,5,6	13107	15060	X	24	0.35
FONOFOS	944-22-9	0.002	I							1100		13	5,6,8			X	324	
FORMALDEHYDE	50-00-0	0.2	I	0.021	C	0.009	C	0.000013	I	3.6	X	55000	1	13046	14990	X	-21	18.07
FORMIC ACID	64-18-6	0.9	P			0.0003	X			0.54	X	1000000	2	12940	14846	X	101	18.07
FOSETYL-AL	39148-24-8	2.5	O							310		120000	2				464	
FURAN	110-00-9	0.001	I							130	X	10000	1	13019	14956	X	31	2.25
FURFURAL	98-01-1	0.003	I	0.0349	O	0.05	H			6.3	X	91000	1,2,3	12998	14930	X	162	
GLYPHOSATE	1071-83-6	0.1	I							3500		12000	1,5,6				417	
HEPTACHLOR	76-44-8	0.0005	I	4.5	I			0.0013	I	6800		0.18	4,6,7				310	46.84
HEPTACHLOR EPOXIDE	1024-57-3	0.000013	I	9.1	I			0.0026	I	21000		0.311	4,6,7,9				341	0.23

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HEXACHLOROBENZENE	118-74-1	0.0008	I	1.6	I			0.00046	I	3800		0.006	1,4,5				319	0.06
HEXACHLOROBUTADIENE	87-68-3	0.001	P	0.078	I			0.000022	I	4700		2.89	4,5,6,7			X	215	0.69
HEXACHLOROCYCLOPENTADIENE	77-47-4	0.006	I			0.0002	I			7200		1.8	5,6,7			X	239	4.50
HEXACHLOROETHANE	67-72-1	0.0007	I	0.04	I	0.03	I	0.000011	C	2200	X	50	1	14825	17421		187	0.69
HEXANE	110-54-3	0.06	H			0.7	I			3600	X	9.5	1,5,6	13105	15056	X	69	
HEXAZINONE	51235-04-2	0.033	I							41		330000	1,2				408	
HEXYTHIAZOX (SAVEY)	78587-05-0	0.025	I							6,500		0.5	2				539	
HMX	2691-41-0	0.05	I							4		5	16				436	
HYDRAZINE/HYDRAZINE SULFATE	302-01-2			3	I	0.00003	P	0.0049	I	0.0053	X	1000000	2	13026	14966	X	114	18.07
HYDROQUINONE	123-31-9	0.04	P	0.06	P					10		70000	2,3,5				285	18.07
INDENO[1,2,3-CD]PYRENE	193-39-5			1.2	C			0.00011	C	31000000		0.062	5				536	0.17
IPRODIONE	36734-19-7	0.04	I	0.0439	O					1,100		13	2				545	
ISOBUTYL ALCOHOL	78-83-1	0.3	I							60	X	81000	1,2,3,4,5	12954	14866	X	108	17.57
ISOPHORONE	78-59-1	0.2	I	0.00095	I	2	C			31		12000	2,4,5			X	215	4.5
ISOPROPYL METHYLPHOSPHONATE	1832-54-8	0.1	I							1.84		50000	13			X	230	
KEPONE	143-50-0	0.0003	I	10	I			0.0046	C	55000		7.6	4				350	0.17
MALATHION	121-75-5	0.02	I							1300		143	4			X	351	2.46
MALEIC HYDRAZIDE	123-33-1	0.5	I							2.8		6000	4				260	
MANEB	12427-38-2	0.005	I	0.0601	O					1		23	9,13				351	
MERPHOS OXIDE	78-48-8	0.0005	D							53,000		2.3	8,10,12			X	392	
METHACRYLONITRILE	126-98-7	0.0001	I			0.03	P			21	X	25700	1	12994	14925	X	90	
METHAMIDOPHOS	10265-92-6	0.00005	I							5		2000000	5				223	
METHANOL	67-56-1	2	I			20	I			2.8	X	1000000	2	13025	14964	X	65	36.14
METHOMYL	16752-77-5	0.025	I							20		58000	2				228	
METHOXYCHLOR	72-43-5	0.005	I							63000		0.045	4,5,6				346	0.69
METHOXYETHANOL, 2-	109-86-4	0.005	P			0.02	I			1	X	1000000	2	13141	15115	X	124	4.50
METHYL ACETATE	79-20-9	1	X							30	X	243500	4,5,6	12982	14908	X	57	
METHYL ACRYLATE	96-33-3	0.03	H			0.02	P			55	X	52000	1,2,5	12971	14892	X	70	18.07
METHYL CHLORIDE	74-87-3			0.013	H	0.09	I	0.0000018	H	6	X	6180	1,2,3,4	13103	15038	X	-24	4.50
METHYL ETHYL KETONE	78-93-3	0.6	I			5	I			32	X	275000	1,2,3,4,5	12974	14897	X	80	2.57
METHYL HYDRAZINE	60-34-4	0.001	P			0.00002	X	0.001	X	1	X	1000000	2	13011	14947	X	88	5.27
METHYL ISOBUTYL KETONE	108-10-1	0.08	H			3	I			17	X	19550	1,2,4,5	12983	14910	X	117	18.07
METHYL ISOCYANATE	624-83-9					0.001	C			10	X	100000	7	13021	14959	X	40	
METHYL N-BUTYL KETONE (2-HEXANONE)	591-78-6	0.005	I			0.03	I			54	X	17500	1	12955	14868	X	128	
METHYL METHACRYLATE	80-62-6	1.4	I			0.7	I			10	X	15600	1	13001	14934	X	100	4.50
METHYL METHANESULFONATE	66-27-3			0.099	C			0.000028	C	5.2		200000	2			X	203	

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Regulated Substance	*CAS*	*RfDo (mg/kg-d)*		*CSFo $(mg/kg\text{-}d)^{-1}$*		*RfCi (mg/m^3)*		*IUR $(\mu g/m^3)^{-1}$*		*Koc*	*VOC?*	*Aqueous Sol (mg/L)*	*Aqueous Sol Reference[1]*	*TF Vol from Surface Soil*	*TF Vol from Subsurface Soil*	*Organic Liquid*	*Boiling Point (degrees C)*	*Degradation Coefficient (K) (yr^{-1})*
METHYL PARATHION	298-00-0	0.00025	I							790		25	4,5,6				348	3.61
METHYL STYRENE (MIXED ISOMERS)	25013-15-4	0.006	H			0.04	H			2,200	X	89	9	12945	14853	X	163	
METHYL TERT-BUTYL ETHER (MTBE)	1634-04-4			0.0018	C	3	I	0.00000026	C	12	X	45000	1,2,4,6	13014	14950	X	55	0.69
METHYLCHLOROPHENOXYACETIC ACID (MCPA)	94-74-6	0.0005	I							112		1000	5,6,8,9				287	1.39
METHYLENE BIS(2-CHLOROANILINE), 4,4'-	101-14-4	0.002	P	0.1	P			0.00043	C	3,000		13.9	10				379	
METHYLNAPHTHALENE, 2-	91-57-6	0.004	I			0.003	S[4]			16000	X	25	1	12955	14870		241	
METHYLSTYRENE, ALPHA	98-83-9	0.07	H							660	X	560	9	12942	14850	X	165	
METOLACHLOR	51218-45-2	0.15	I							182	X	530	1,5	13035	14985	X	100	
METRIBUZIN	21087-64-9	0.025	I							95		1200	1,5				367	
MEVINPHOS	7786-34-7	0.000025	O							44	X	600000	6	12947	14856			
MONOCHLOROACETIC ACID	79-11-8	0.002	H							0.24	X	858000	17	13008	14943		189	
NAPHTHALENE	91-20-3	0.02	I	0.12	C	0.003	I	0.000034	C	950	X	30	3	13284	15323		218	0.98
NAPHTHYLAMINE, 1-	134-32-7			1.8	S[5]					3200	X	1690	2	15517	18386		301	0.69
NAPHTHYLAMINE, 2-	91-59-8			1.8	C					87		6.4	6				306	0.69
NAPROPAMIDE	15299-99-7	0.12	O							880		70	2				399	
NITROANILINE, O-	88-74-4	0.01	X			0.00005	X			27	X	1200	6	12967	14886		284	
NITROANILINE, P-	100-01-6	0.004	P	0.02	P	0.006	P			15		800	2				332	
NITROBENZENE	98-95-3	0.002	I			0.009	I	0.00004	I	130	X	2000	2	12940	14847	X	211	0.64
NITROGUANIDINE	556-88-7	0.1	I							0.13		4400	9				231	
NITROPHENOL, 2-	88-75-5	0.008	S[6]							37	X	2100	1,2,3,4,5,6	12966	14884		215	9.01
NITROPHENOL, 4-	100-02-7	0.008	M							230	X	16000	2	12960	14878		279	25.81
NITROPROPANE, 2-	79-46-9					0.02	I	0.0027	H	20	X	16700	1,3,4,5	12984	14911	X	120	0.69
NITROSODIETHYLAMINE, N-	55-18-5			150	I			0.043	I	26	X	93000	10	12974	14896	X	176	0.69
NITROSODIMETHYLAMINE, N-	62-75-9	0.000008	P	51	I	0.00004	X	0.014	I	8.5	X	1000000	2	13001	14934	X	154	0.69
NITROSO-DI-N-BUTYLAMINE, N-	924-16-3			5.4	I			0.0016	I	450	X	1200	9, 10, 11	13008	14946	X	235	0.69
NITROSODI-N-PROPYLAMINE, N-	621-64-7			7	I			0.002	C	11	X	9900	6	12986	14914	X	206	0.69
NITROSODIPHENYLAMINE, N-	86-30-6			0.0049	I			0.0000026	C	580	X	35	1	13148	15140		269	3.72
NITROSO-N-ETHYLUREA, N-	759-73-9			27	C			0.0077	C	2		13000	9				223	1734.48
OCTYL PHTHALATE, DI-N-	117-84-0	0.01	P							980000000		3	5			X	234	0.69
OXAMYL (VYDATE)	23135-22-0	0.025	I							7.1		280000	2				334	
PARAQUAT	1910-42-5	0.0045	I							16200		660000	6,8				352	
PARATHION	56-38-2	0.00003	O							2300		20	2,4,5,6,7			X	375	
PCBS, TOTAL (POLYCHLORINATED BIPHENYLS) (AROCLORS)	1336-36-3			2	I			0.0001	I	78100		0.0505	10,13				360	
PCB-1016 (AROCLOR)	12674-11-2	0.00007	I							110000		0.25	5			X	325	

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S^6 4-Nitrophenol surrogate
S^7 Total PCBS surrogate
S^8 Anthracene surrogate
S^9 O-Toluidine surrogate
S^{10} 1,2,4-Trichlorobenzene surrogate

Appendix A
Table 5—Physical and Toxicological Properties
A. Organic Regulated Substances

Regulated Substance	*CAS*	*RfDo (mg/kg-d)*		*CSFo (mg/kg-d)$^{-1}$*		*RfCi (mg/m^3)*		*IUR (µg/m^3)$^{-1}$*		*Koc*	*VOC?*	*Aqueous Sol (mg/L)*	*Aqueous Sol Reference[1]*	*TF Vol from Surface Soil*	*TF Vol from Subsurface Soil*	*Organic Liquid*	*Boiling Point (degrees C)*	*Degradation Coefficient (K) (yr^{-1})*
PCB-1221 (AROCLOR)	11104-28-2			2	S[7]			0.0001	S[7]	1900	X	0.59	5	13810	16032	X	275	
PCB-1232 (AROCLOR)	11141-16-5			2	S[7]			0.0001	S[7]	1500		1.45	7			X	290	
PCB-1242 (AROCLOR)	53469-21-9			2	S[7]			0.0001	S[7]	48000		0.1	5			X	325	
PCB-1248 (AROCLOR)	12672-29-6			2	S[7]			0.0001	S[7]	190000		0.054	7,9,11			X	340	
PCB-1254 (AROCLOR)	11097-69-1	0.00002	I							810000		0.057	5			X	365	
PCB-1260 (AROCLOR)	11096-82-5			2	S[7]			0.0001	S[7]	1800000		0.08	5				385	
PEBULATE	1114-71-2	0.05	H							630		92	5			X	303	
PENTACHLOROBENZENE	608-93-5	0.0008	I							32000		0.74	1,5,6,7				277	0.37
PENTACHLOROETHANE	76-01-7			0.09	P					1905	X	480	1,3	13120	15102	X	160	
PENTACHLORONITROBENZENE	82-68-8	0.003	I	0.26	H					7900		0.44	4,6,8				328	0.36
PENTACHLOROPHENOL	87-86-5	0.005	I	0.4	I			0.0000051	C	20000		14	1,2,4,5				310	0.17
PERFLUOROBUTANE SULFONATE (PFBS)	375-73-5	0.0003	P							61.7		56600	9			X	211	
PERFLUOROOCTANE SULFONATE (PFOS)	1763-23-1	0.00002	M	0.07	M					2.57		680	19,20,21,22,23				258	
PERFLUOROOCTANOIC ACID (PFOA)	335-67-1	0.00002	M							2.06		9500	24				192	
PHENACETIN	62-44-2			0.0022	C			0.00000063	C	110		763	2,3,9				341	4.50
PHENANTHRENE	85-01-8	0.3	S[8]							38000	X	1.1	1,4,5	41808	70721		341	0.63
PHENOL	108-95-2	0.3	I			0.2	C			22	X	84300	1,2,3,4	12977	14901		182	36.14
PHENYL MERCAPTAN	108-98-5	0.001	P							562	X	653	5,9	13039	14989	X	170	
PHENYLENEDIAMINE, M-	108-45-2	0.006	I							12		351000	3				286	4.50
PHENYLPHENOL, 2-	90-43-7			0.00194	H					5,700		700	5				280	18.07
PHORATE	298-02-2	0.0002	O							810		50	2			X	319	
PHTHALIC ANHYDRIDE	85-44-9	2	I			0.02	C			79	X	6170	2	13018	14956		285	13490.40
PICLORAM	1918-02-1	0.07	I							15		430	2				373	
PROMETON	1610-18-0	0.015	I							346		750	2,5				347	
PRONAMIDE	23950-58-5	0.075	I							200		15	2				321	
PROPACHLOR	1918-16-7	0.013	I							139	X			12952	14865		110	1.73
PROPANIL	709-98-8	0.005	I							160		225	2				355	
PROPANOL, 2- (ISOPROPYL ALCOHOL)	67-63-0	2	P			0.2	P			25	X	1000000	2	12981	14906	X	82	
PROPAZINE	139-40-2	0.02	I							155		8.6	1,5			X	318	
PROPHAM	122-42-9	0.02	I							51		250	5				257	
PROPYLBENZENE, N-	103-65-1	0.1	X			1	X			720	X	52	6	12971	14891	X	159	
PROPYLENE OXIDE	75-56-9	0.001	O	0.24	I	0.03	I	0.0000037	I	25	X	405000	1	13239	15057	X	34	
PYRENE	129-00-0	0.03	I							68000		0.132	1				393	0.07
PYRETHRUM	8003-34-7	0.044	O							5.62	X	0.35	13			X	170	
PYRIDINE	110-86-1	0.001	I							0.0066	X	1000000	2	13142	15114	X	115	18.07

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Appendix A
Table 5—Physical and Toxicological Properties
A. Organic Regulated Substances

Regulated Substance	*CAS*	*RfDo (mg/kg-d)*		*CSFo $(mg/kg\text{-}d)^{-1}$*		*RfCi (mg/m^3)*		*IUR $(\mu g/m^3)^{-1}$*		*Koc*	*VOC?*	*Aqueous Sol (mg/L)*	*Aqueous Sol Reference[1]*	*TF Vol from Surface Soil*	*TF Vol from Subsurface Soil*	*Organic Liquid*	*Boiling Point (degrees C)*	*Degradation Coefficient (K) (yr^{-1})*
QUINOLINE	91-22-5			3	I					1,300		60000	1,3,5			X	238	12.65
QUIZALOFOP (ASSURE)	76578-14-8	0.009	I							580		0.3	2				220	
RDX	121-82-4	0.004	I	0.08	I					70		59.9	1,9				353	
RESORCINOL	108-46-3	2	TE							2		717000					280	
RONNEL	299-84-3	0.05	H							580		40	2				349	
SIMAZINE	122-34-9	0.005	I	0.12	H					110		5	5				225	
STRYCHNINE	57-24-9	0.0003	I							280		143	5				270	4.50
STYRENE	100-42-5	0.2	I			1	I			910	X	300	5	12942	14850	X	145	1.20
TEBUTHIURON	34014-18-1	0.07	I							620		2500	2				394	
TERBACIL	5902-51-2	0.013	I							53		710	2				396	
TERBUFOS	13071-79-9	0.000025	H							510		5	6			X	332	
TETRACHLOROBENZENE, 1,2,4,5-	95-94-3	0.0003	I							1,800		0.583	1,5,6,7				245	0.69
TETRACHLORODIBENZO-P-DIOXIN, 2,3,7,8- (TCDD)	1746-01-6	0.0000000007	I	130000	C	0.00000004	C	38	C	4300000		0.0000193	6				412	0.21
TETRACHLOROETHANE, 1,1,1,2-	630-20-6	0.03	I	0.026	I			0.0000074	I	980	X	1100	1	12990	14921	X	131	3.79
TETRACHLOROETHANE, 1,1,2,2-	79-34-5	0.02	I	0.2	I			0.000058	I	79	X	2860	2	12957	14871	X	147	0.56
TETRACHLOROETHYLENE (PCE)	127-18-4	0.006	I	0.0021	I	0.04	I	0.00000026	I	300	X	162	1,2,3,4,5	13017	14955	X	121	0.03
TETRACHLOROPHENOL, 2,3,4,6-	58-90-2	0.03	I							6200		183	6				288	0.69
TETRAETHYL LEAD	78-00-2	0.0000001	I							4900		0.8	5			X	202	4.50
TETRAETHYLDITHIOPYROPHOSPHATE	3689-24-5	0.0005	I							550		25	2			X	349	
TETRAHYDROFURAN	109-99-9	0.9	I	0.0076	I	2	I	0.00000194	I	43	X	300000	1,6,7	12970	14891	X	66	
THIOFANOX	39196-18-4	0.0003	H							0.022		5200	9				280	
THIRAM	137-26-8	0.015	O							1000		30	4				339	
TOLUENE	108-88-3	0.08	I			5	I			130	X	532.4	1,2,3,4	13016	14953	X	111	9.01
TOLUIDINE, M-	108-44-1			0.016	S[9]			0.000051	S	140		15030	6			X	203	
TOLUIDINE, O-	95-53-4			0.016	P			0.000051	C	410		15000	1,3,5			X	200	18.07
TOLUIDINE, P-	106-49-0	0.004	X	0.03	P					320		7410	1,2,3				200	
TOXAPHENE	8001-35-2	0.00009	P	1.1	I			0.00032	I	1500		3	2,4,5				432	
TRIALLATE	2303-17-5	0.025	O	0.717	O					2,000		4	5			X	343	
TRIBROMOMETHANE (BROMOFORM)	75-25-2	0.02	I	0.0079	I			0.0000011	I	130	X	3050	1,2,3,4	12942	14849	X	149	0.69
TRICHLORO-1,2,2-TRIFLUOROETHANE, 1,1,2-	76-13-1	30	I			5	P			1,200	X	170	1	13064	15014	X	48	0.35
TRICHLOROACETIC ACID	76-03-9	0.02	I	0.07	I					20	X	1200000	2,3,5,9	13291	15077		196	
TRICHLOROBENZENE, 1,2,4-	120-82-1	0.01	I	0.029	P	0.002	P			1500	X	44.4	1,4,6,7	13217	15233	X	213	0.69
TRICHLOROBENZENE, 1,3,5-	108-70-3	0.006	M			0.002	S[10]			3100	X	5.8	5	15677	18611		208	
TRICHLOROETHANE, 1,1,1-	71-55-6	2	I			5	I			100	X	1495	1,4,5,6	13116	15082	X	74	0.05
TRICHLOROETHANE, 1,1,2-	79-00-5	0.004	I	0.057	I	0.0002	X	0.000016	I	76	X	4420	1	12982	14909	X	114	0.03

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TRICHLOROETHYLENE (TCE)	79-01-6	0.0005	I	0.046	I	0.002	I	0.000004	I	93	X	1100	1	13070	15022	X	87	0.02
TRICHLOROPHENOL, 2,4,5-	95-95-4	0.1	I							2400		1000	1,2,4				246	0.14
TRICHLOROPHENOL, 2,4,6-	88-06-2	0.001	P	0.011	I			0.0000031	I	1100		850	1,2,4,5				246	0.14
TRICHLOROPHENOXYACETIC ACID, 2,4,5- (2,4,5-T)	93-76-5	0.01	I							43		278	2,4,5				279	1.39
TRICHLOROPHENOXYPROPIONIC ACID, 2,4,5- (2,4,5-TP)(SILVEX)	93-72-1	0.008	I							1700		140	2				353	
TRICHLOROPROPANE, 1,1,2-	598-77-6	0.005	I							24	X	2700	14	13145	15119	X	117	
TRICHLOROPROPANE, 1,2,3-	96-18-4	0.004	I	30	I	0.0003	I			280	X	1896	1,4,6	12974	14896	X	157	0.35
TRICHLOROPROPENE, 1,2,3-	96-19-5	0.003	X			0.0003	P			190	X	2700	14	13047	14992	X	142	
TRIETHYLAMINE	121-44-8					0.007	I			51	X	55000	1,4	12951	14862	X	90	
TRIETHYLENE GLYCOL	112-27-6	2	P							6		1000000	12			X	285	
TRIFLURALIN	1582-09-8	0.0075	I	0.0077	I					720		4	2,5,6,7				382	
TRIMETHYLBENZENE, 1,3,4- (TRIMETHYLBENZENE, 1,2,4-)	95-63-6	0.01	I			0.06	I			2,200	X	56	1	12978	14904	X	169	4.50
TRIMETHYLBENZENE, 1,3,5-	108-67-8	0.01	I			0.06	I			660	X	48.9	1	12961	14876	X	165	
TRINITROGLYCEROL (NITROGLYCERIN)	55-63-0	0.0001	P	0.017	P					116	X	1800	2,3,5	12941	14848	X	190	18.07
TRINITROTOLUENE, 2,4,6-	118-96-7	0.0005	I	0.03	I					1		100	2				240	
VINYL ACETATE	108-05-4	1	H			0.2	I			2.8	X	20000	1	13017	14955	X	73	
VINYL BROMIDE (BROMOETHENE)	593-60-2					0.003	I	0.000032	H	150	X	4180	12	13086	15043	X	16	0.09
VINYL CHLORIDE	75-01-4	0.003	I	1.5	I	0.1	I	0.0000088	I	10	X	2700	1	13109	15040	X	-13	0.09
WARFARIN	81-81-2	0.0003	I							910		17	4				356	4.50
XYLENES (TOTAL)	1330-20-7	0.2	I			0.1	I			350	X	175	13	12982	14909	X	140	0.69
ZINEB	12122-67-7	0.05	I							19		10	4				474	

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Appendix A
Table 5—Physical and Toxicological Properties
B. Inorganic Regulated Substances

Regulated Substance	*CAS*	*RfDo (mg/kg-d)*		*CSFo $(mg/kg-d)^{-1}$*		*RfCi (mg/m^3)*		*IUR $(ug/m^3)^{-1}$*		*Kd*
ALUMINUM	7429-90-5	1	P			0.005	P			9.9
ANTIMONY	7440-36-0	0.0004	I							45
ARSENIC	7440-38-2	0.0003	I	1.5	I	0.000015	C	0.0043	I	29
BARIUM AND COMPOUNDS	7440-39-3	0.2	I			0.0005	H			41
BERYLLIUM	7440-41-7	0.002	I			0.00002	I	0.0024	I	790
BORON AND COMPOUNDS	7440-42-8	0.2	I			0.02	H			3
CADMIUM	7440-43-9	0.0005	I			0.00001	D	0.0018	I	75
CHROMIUM III	16065-83-1	1.5	I							1,800,000
CHROMIUM VI	18540-29-9	0.003	I	0.5	C	0.000008	I	0.012	I	19
COBALT	7440-48-4	0.0003	P			0.000006	P	0.009	P	45
COPPER	7440-50-8	0.0325	H							430
CYANIDE, FREE	57-12-5	0.0006	I			0.0008	I			9.9
FLUORIDE	16984-48-8	0.04	C			0.013	C			
IRON	7439-89-6	0.7	P							25
LEAD	7439-92-1			0.0085	C			0.000012	C	900
LITHIUM	7439-93-2	0.002	P							300
MANGANESE	7439-96-5	0.14	I			0.00005	I			65
MERCURY	7439-97-6	0.00016	C			0.0003	I			52
MOLYBDENUM	7439-98-7	0.005	I			0.002	D			20
NICKEL	7440-02-0	0.02	I			0.00009	D	0.00024	Is	65
NITRATE NITROGEN	14797-55-8	1.6	I							
NITRITE NITROGEN	14797-65-0	0.1	I							
PERCHLORATE	7790-98-9	0.0007	I							0
SELENIUM	7782-49-2	0.005	I			0.02	C			5
SILVER	7440-22-4	0.005	I							8.3
STRONTIUM	7440-24-6	0.6	I							
THALLIUM	7440-28-0	0.00001	X							71
TIN	7440-31-5	0.6	H							250
VANADIUM	7440-62-2	0.00007	P			0.0001	D			1,000
ZINC	7440-66-6	0.3	I							62

Toxicity Value Sources:
C = California EPA Cancer Potency Factor
D = ATSDR Minimal Risk Level
H = Health Effects Assessment Summary Table (HEAST)
I = Integrated Risk Information System (IRIS)
P = EPA Provisional Peer-Reviewed Toxicity Value
X = EPA Provisional Peer-Reviewed Toxicity Value Appendix

Appendix A

Table 6—Threshold of Regulation Compounds

REGULATED SUBSTANCE	*CASRN*	*ALL AQUIFER GROUNDWATER MSC (µg/L)*	*Residential Soil MSC (mg/kg) 0—15 feet*	*Non-Residential Soil MSCs*		*Soil to Groundwater[1] (mg/kg)*
				Surface Soil (mg/kg) 0—2 feet	*Subsurface Soil (mg/kg) 2—15 feet*	
ACETIC ACID	64-19-7	5	100	100	100	0.5
ACETIC ANHYDRIDE	108-24-7	5	100	100	100	0.5
AMYL ACETATE, N-	628-63-7	5	100	100	100	0.5
AMYL ACETATE, SEC-	626-38-0	5	100	100	100	0.5
ANTU (ALPHA-NAPHTHYLTHIOUREA)	86-88-4	5	100	100	100	0.5
BHC, DELTA	319-86-8	5	100	100	100	0.5
BROMOPHENYL PHENYL ETHER, 4-	101-55-3	5	100	100	100	0.5
BUTYL ACETATE, N-	123-86-4	5	100	100	100	0.5
BUTYL ACETATE, SEC-	105-46-4	5	100	100	100	0.5
BUTYL ACETATE, TERT-	540-88-5	5	100	100	100	0.5
BUTYLAMINE, N-	109-73-9	5	100	100	100	0.5
CALCIUM CHROMATE	13765-19-0	5	100	100	100	0.5
CALCIUM CYANAMIDE	156-62-7	5	100	100	100	0.5
CARBONYL FLUORIDE	353-50-4	5	100	100	100	0.5
CATECHOL	120-80-9	5	100	100	100	0.5
CHLOROETHYL VINYL ETHER, 2-	110-75-8	5	100	100	100	0.5
CHLOROPHENYL PHENYL ETHER, 4-	7005-72-3	5	100	100	100	0.5
DECABORANE	17702-41-9	5	100	100	100	0.5
DIETHYLAMINE	109-89-7	5	100	100	100	0.5
DIGLYCIDYL ETHER (DGE)	2238-07-5	5	100	100	100	0.5
DIMETHYL PHTHALATE	131-11-3	5	100	100	100	0.5
DIMETHYL SULFATE	77-78-1	5	100	100	100	0.5
DIMETHYLPHENETHYLAMINE, ALPHA, ALPHA-	122-09-8	5	100	100	100	0.5
DIOXATHION	78-34-2	5	100	100	100	0.5
ETHYL METHANESULFONATE	62-50-0	5	100	100	100	0.5
ETHYLAMINE	75-04-7	5	100	100	100	0.5
FAMPHUR	52-85-7	5	100	100	100	0.5
FENSULFOTHION	115-90-2	5	100	100	100	0.5

Appendix A

Table 6—Threshold of Regulation Compounds

REGULATED SUBSTANCE	*CASRN*	*ALL AQUIFER GROUNDWATER MSC (µg/L)*	*Residential Soil MSC (mg/kg) 0—15 feet*	*Non-Residential Soil MSCs*		*Soil to Groundwater[1] (mg/kg)*
				Surface Soil (mg/kg) 0—2 feet	*Subsurface Soil (mg/kg) 2—15 feet*	
HEXACHLOROPROPENE	1888-71-7	5	100	100	100	0.5
IODOMETHANE	74-88-4	5	100	100	100	0.5
ISOAMYL ACETATE	123-92-2	5	100	100	100	0.5
ISOBUTYL ACETATE	110-19-0	5	100	100	100	0.5
ISODRIN	465-73-6	5	100	100	100	0.5
ISOPHORONE DIISOCYANATE	4098-71-9	5	100	100	100	0.5
ISOSAFROLE	120-58-1	5	100	100	100	0.5
LITHIUM HYDRIDE	7580-67-8	5	100	100	100	0.5
MANGANESE CYCLOPENTADIENYL TRICARBONYL	12079-65-1	5	100	100	100	0.5
METHYL ISOAMYL KETONE	110-12-3	5	100	100	100	0.5
METHYL MERCAPTAN	74-93-1	5	100	100	100	0.5
METHYLAMINE	74-89-5	5	100	100	100	0.5
MONOCROTOPHOS	6923-22-4	5	100	100	100	0.5
NAPHTHOQUINONE, 1,4-	130-15-4	5	100	100	100	0.5
NITRIC ACID	7697-37-2	5	100	100	100	0.5
NITROQUINOLINE-1-OXIDE, 4-	56-57-5	5	100	100	100	0.5
OSMIUM TETROXIDE	20816-12-0	5	100	100	100	0.5
PENTABORANE	19624-22-7	5	100	100	100	0.5
PERCHLOROMETHYL MERCAPTAN	594-42-3	5	100	100	100	0.5
PICOLINE, 2-	109-06-8	5	100	100	100	0.5
PROPANOL, 1-	71-23-8	5	100	100	100	0.5
PROPIONIC ACID	79-09-4	5	100	100	100	0.5
PROPIONITRILE (ETHYL CYANIDE)	107-12-0	5	100	100	100	0.5
PROPYLENE IMINE	75-55-8	5	100	100	100	0.5
QUINONE (p-BENZOQUINONE)	106-51-4	5	100	100	100	0.5
SELENIUM HEXAFLUORIDE	7783-79-1	5	100	100	100	0.5
SODIUM BISULFITE	7631-90-5	5	100	100	100	0.5
SULFIDE	18496-25-8	5	100	100	100	0.5

Appendix A

Table 6—Threshold of Regulation Compounds

REGULATED SUBSTANCE	*CASRN*	*ALL AQUIFER GROUNDWATER MSC (µg/L)*	*Residential Soil MSC (mg/kg) 0—15 feet*	*Non-Residential Soil MSCs*		*Soil to Groundwater[1] (mg/kg)*
				Surface Soil (mg/kg) 0—2 feet	*Subsurface Soil (mg/kg) 2—15 feet*	
SULFUR MONOCHLORIDE	10025-67-9	5	100	100	100	0.5
SULFURIC ACID	7664-93-9	5	100	100	100	0.5
TELLURIUM	13494-80-9	5	100	100	100	0.5
TELLURIUM HEXAFLUORIDE	7783-80-4	5	100	100	100	0.5
TEPP (TETRAETHYL PYROPHOSPHATE)	107-49-3	5	100	100	100	0.5
TETRANITROMETHANE	509-14-8	5	100	100	100	0.5
THIONAZIN	297-97-2	5	100	100	100	0.5
TRIETHYLPHOSPHOROTHIOATE, O,O,O-	126-68-1	5	100	100	100	0.5

[1] The value in the table is 100 time the groundwater MSC.
The option to use the SPLP is also available to calculate the soil to groundwater numeric value (See § 250.310 (relating to minimum threshold MSCs))

Appendix A
Table 7—Default Values for Calculating Medium-Specific Concentrations for Lead

Input Values Used in UBK Model for Lead (for residential exposure scenario)			
Geometric Standard Deviation (GSD)	1.42 (default)	Drinking water intake	Model default
Outdoor air lead concentration	0.2 μg/m^3 (default)	Soil lead level	495 μg/g
Indoor air lead concentration (% of outdoor)	30	Indoor dust lead level	495 μg/g
Time spent outdoors	Model default	Soil/dust ingestion weighting factor (%)	45
Ventilation rate	Model default	Paint lead intake	Model default
Lung absorption	Model default	Maternal contribution method	Infant model
Dietary lead intake	Model default	Mother's blood lead at birth	7.5 μg/dL blood (model default)
GI method/bioavailability	Non-linear	Target blood lead level	10 μg/dL blood
Lead concentration in drinking water	4.00 μg/L (default)		

Input Values Used in SEGH Equation (for nonresidential exposure scenario)	
Concentration of lead in soil (S)	987 μg/g
Target blood lead level in adults (T)	20 μg/dL blood
Geometric standard deviation of blood lead distribution (G)	1.4
Baseline blood lead level in target population (B)	4 μg/dL blood
Number of standard deviations corresponding to degree of protection required for the target population (n)	1.645 (for 95% of population)
Slope of blood lead to soil lead relationship (δ)	7.5 μg/dL blood per μg/g soil

REFERENCE

WIXSON, B.G. (1991). The Society for Environmental Geochemistry and Health (SEGH) Task Force Approach to the Assessment of Lead in Soil. Trace Substances in Environmental Health. 11—20.

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