Occurrence Estimation Methodology and Occurrence Findings Report for the Six-Year Review of Existing National Primary Drinking Water Regulations

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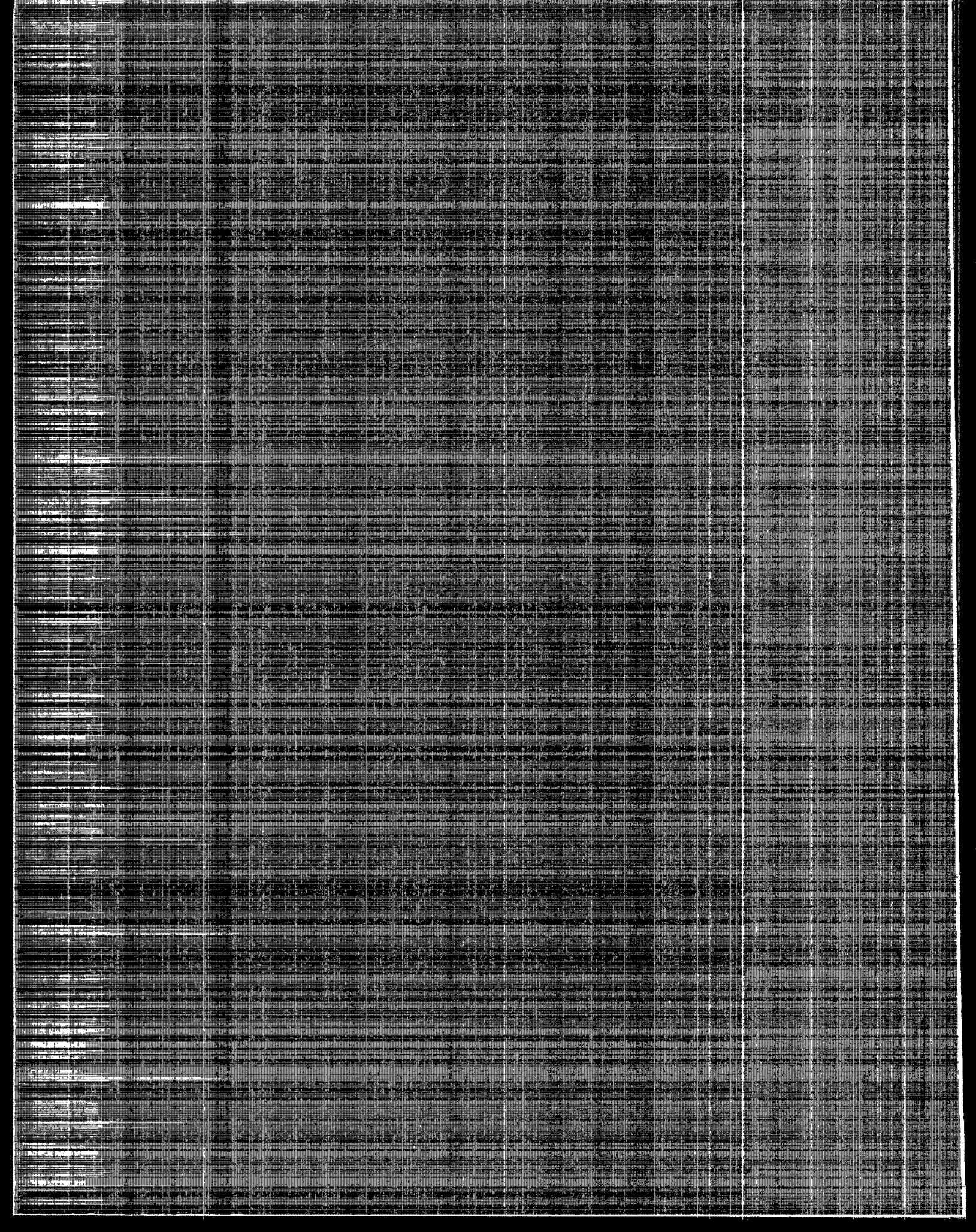

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This report is issued in support of the preliminary revise/not revise decisions for the Six-Year Review Notice of Intent. It is intended for public comment and does not represent final agency policy. EPA expects to issue a final version of this report with the publication of the final notice in 2002, reflecting corrections due to public comment on the preliminary notice and the supporting documents.

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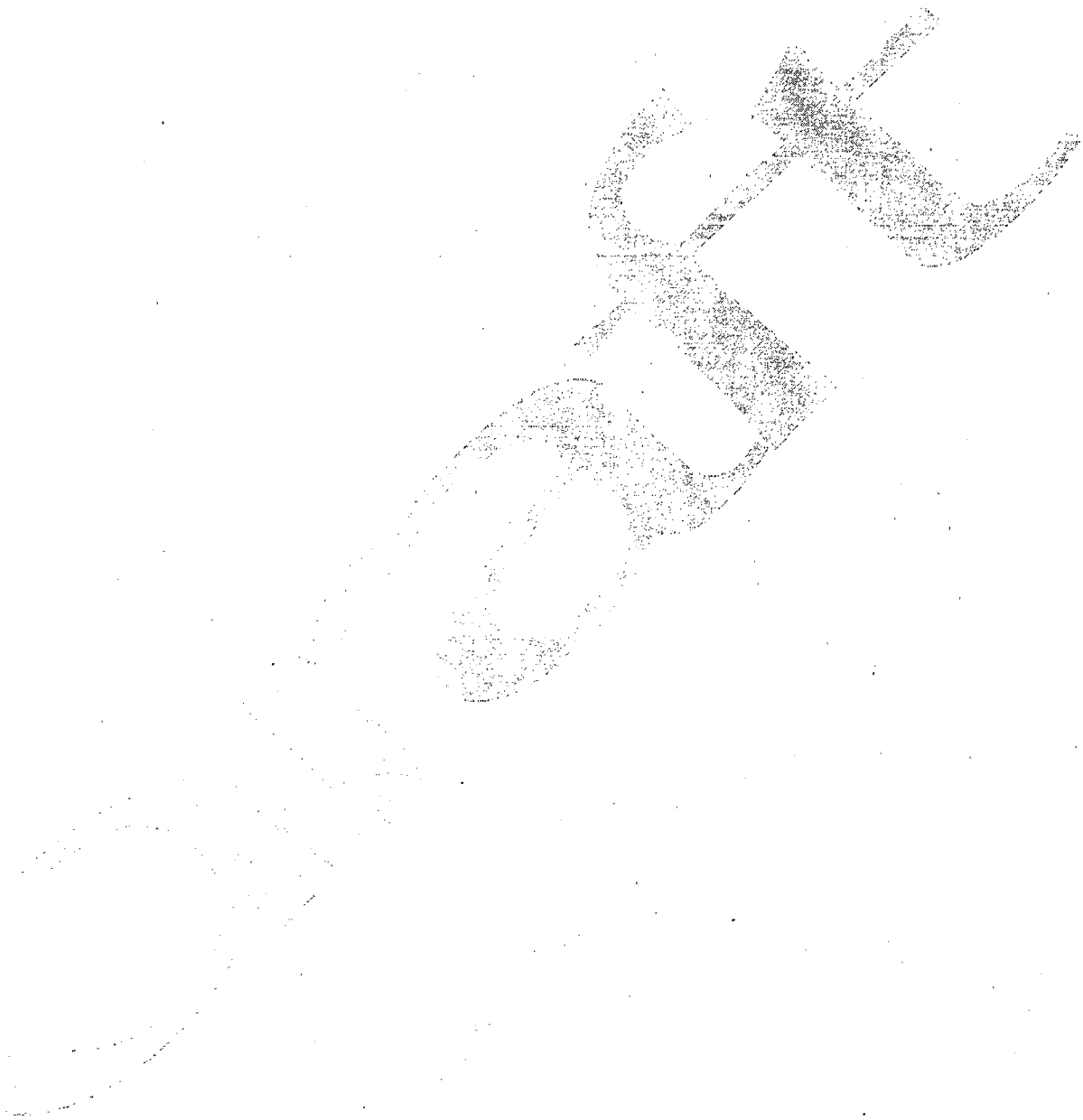

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ABBREVIATIONS

1,2-Dibromo-3-chloropropane (DBCP)

Chemical Abstract Services (CAS)

Chemical Monitoring Reform (CMR)

Community Water System (CWS)

Cumulative Density Function (CDF)

Environmental Protection Agency (EPA)

Ethylene Dibromide (EDB)

File Transfer Protocol (FTP)

Ground Water (GW)

Ground Water - Purchased (GWP)

Ground Water Under Direct Influence (GUDI)

Ground Water Under Direct Influence - Purchased (GUP)

Inorganic Chemical (IOC)

Maximum Contaminant Level (MCL)

micrograms per liter (µg/L)

milligrams per liter (mg/L)

Minimum Reporting Level (MRL)

National Contaminant Occurrence Database (NCOD)

National Primary Drinking Water Regulations (NPDWRs)

National Water Quality Assessment Program (NAWQA)

Non-Transient Non-Community Water System (NTNCWS)

Office of Ground Water and Drinking Water (OGWDW)

Percentage of Systems with Exceedances (>MCL)

Percentage of Systems with Detections (>MRL)

Public Water System (PWS)

Public Water System Identifier (PWSID)

Safe Drinking Water Act (SDWA)

Safe Drinking Water Information System (SDWIS)

Surface Water (SW)

Surface Water - Purchased (SWP)

Synthetic Organic Chemical (SOC)

Toxics Release Inventory (TRI)

Transient Non-Community Water System (TNCWS)

United States Geological Survey (USGS)

Unregulated Contaminant Information System (URCIS)

Unregulated Contaminant Monitoring Regulation (UCMR)

Volatile Organic Chemical (VOC)

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EXECUTIVE SUMMARY

The 1996 Amendments to the Safe Drinking Water Act require that EPA shall, not less often than every six years, review and revise, as appropriate, each national primary drinking water regulation promulgated by the Agency. This report presents an overview of the contaminant occurrence data, data management, and statistical methods used to develop national contaminant occurrence estimations generated in support of EPA's Six-Year Review of National Primary Drinking Water Regulations. Using the data and methods described, estimations of national occurrence and preliminary assessments of exposure are derived, evaluated and presented.

The contaminant occurrence data used are public water system compliance monitoring results reported to and contained in State data sets. A data management approach, consisting of the development of a 16-State cross-section, enables statistical estimations that are indicative of national occurrence of contaminants in public drinking water systems. The Safe Drinking Water Act compliance monitoring data in the 16-State national cross-section represent more than 13 million analytical results from approximately 41,000 public water systems. Although the 16-State national cross-section is not, in a formal sense, statistically representative, the analyses based on the cross-section does indicate a central tendency of contaminant occurrence.

A two stage analytical approach has been developed for this evaluation of the national occurrence of regulated contaminants. The first stage of analysis, referred to as the "Stage 1 analysis," provides a straight-forward evaluation of occurrence for all regulated contaminants. In this Stage 1 analysis, the data sources, data quality, and data characteristics were assessed, and the data were used to conduct simple and conservative non-parametric assessments for a broad evaluation of contaminant occurrence.

The subsequent "Stage 2 analysis" is a more rigorous parametric statistical estimation based on probabilistic modeling. The Stage 2 analyses enables estimations of the national number of public drinking water systems, and the population served by those systems, that have an estimated mean concentration (of a particular subject contaminant) that exceeds a specified threshold concentration of interest. The Stage 2 analyses yield detailed, stratified (assessed according to source water type and system size) occurrence estimations using a Bayesian-based hierarchical model estimation method. This method provides estimates of numbers of systems, and population served by those systems, with system mean concentrations exceeding specified contaminant threshold concentrations, and includes quantified error for the estimation procedures.

In the process of developing this two stage analytical approach for the Six-Year Review, the full approach was peer-reviewed, assessed relative to another significant drinking water contaminant occurrence estimation method, and evaluated with synthetic (simulated) data sets designed to assess the log-normal and constant variance assumptions made at the system level regarding the national distribution of system means. Assessments suggest the Bayesian-based hierarchical model and the 16-State national cross-section of compliance monitoring data used for the Six-Year Review occurrence estimations are appropriate.

I. INTRODUCTION

This report presents a detailed review of the contaminant occurrence data used and the statistical methods developed to estimate regulated contaminant occurrence in public drinking water systems. These regulated contaminant occurrence estimates are generated in support of the Environmental Protection Agency's Six-Year Review of National Primary Drinking Water Regulations (NPDWRs). This "Six-Year Review" assesses the potential revision of regulations for regulated contaminants. The contaminant occurrence data used for the Six-Year Review's statistical estimations are Safe Drinking Water Act (SDWA) compliance monitoring data (documenting occurrence of regulated contaminants in public drinking water systems). Using the data and statistical methods described, estimations of national occurrence and preliminary assessments of exposure are derived, evaluated, described and presented.

The contaminant occurrence estimations conducted for the Six-Year Review represent a long-term, detailed, and comprehensive undertaking of data acquisition, quality analysis, editing and formatting. This extensive data management work was conducted concurrently with the development of a two-stage contaminant occurrence estimation approach. The first stage of analysis comprises a simple, straight-forward assessment that provides a broad overview of contaminant occurrence. The second stage of analysis is a more rigorous, statistical approach that provides detailed estimates of occurrence with quantified error of estimation (enabling measures of the certainty of the estimates made). The detailed descriptions of these data and estimation methods are presented in the following sections and appendices of this report.

I.A. Purpose and Scope

The United States Environmental Protection Agency (EPA) Office of Ground Water and Drinking Water (OGWDW) is responsible for implementing the provisions of the Safe Drinking Water Act (SDWA). Under SDWA, OGWDW develops regulations to address the public health risks from contaminated drinking water and develops related programs to protect ground water and surface water supplies. The 1996 Amendments to SDWA require that EPA shall, not less often than every six years, review and revise, as appropriate, each national primary drinking water regulation (NPDWR) promulgated by the Agency. The SDWA specifies that revision of a national primary drinking water regulation shall maintain or provide for greater protection of public health. Any revision of the regulations will be partially dependent on contaminant occurrence findings, and on the re-evaluation of the public's exposure to the contaminants and the potential adverse health effects from that exposure. The purpose of this report is to present an overview of the contaminant occurrence data, data management, and statistical methods used to develop national contaminant occurrence estimations generated. Estimations of national occurrence and preliminary assessments of exposure are derived, evaluated and presented using the data and methods described.

I.B. Sources of Data Used for Analysis

State data sets, comprising SDWA compliance monitoring data from public water systems (PWSs), were the primary data sources for this analysis. An approach was developed to construct a national cross-section of State data sets that contain contaminant occurrence data that would be indicative or representative of national contaminant occurrence. Data from 16 States were selected and used in the national cross-section of State data sets. The States were selected to represent the national range of pollution potential, and hydrologic and geographic diversity. The SDWA compliance monitoring data in the 16-State national cross-section represent more than 13 million analytical results from approximately 41,000 PWSs. Analytical results based on the cross-section are therefore indicative (though not statistically representative) of national occurrence. In other terms, the analyses based on the cross-section data should indicate a central tendency of occurrence in part based on the size of the cross-section data set and how the cross-section was constructed. (Construction of the cross-section is discussed in Section II.)

I.C. Data Analysis

A two stage analytical approach has been developed for this evaluation of the national occurrence of regulated contaminants. The first stage ("Stage 1") analysis provides a straight-forward evaluation of occurrence for all regulated contaminants. In the Stage 1 analysis, the compliance monitoring analytical results data for all regulated contaminants for the cross-section states were compiled in contaminant-specific data sets. (The quality of these data were assessed in extensive and comprehensive detail.) Then, for each contaminant, these analytical occurrence data were used to simply count the percent of public water systems that recorded *at least one analytical result* that exceeds a specified threshold concentration. With these results, general assessments such as relative rankings of the contaminants' occurrence provides a broad characterization of contaminant occurrence. The Stage 1 analyses generate occurrence estimates that are clear and easy to understand, were developed through rudimentary analytical techniques, and provide conservative estimates of occurrence. (Stage 1 analysis methods are described in more detail in below in Section IV.)

In part based on the findings of the Stage 1 analysis, EPA selected a set of contaminants for which more rigorous parametric statistical estimations, the Stage 2 analyses, were warranted as a next step. In the Stage 2 approach, estimates can be made for the number of public drinking water systems nationally, and the population served by those systems, that are expected to have a particular mean contaminant concentration present at levels exceeding any specified threshold (or thresholds) of concern to EPA. The Stage 2 analyses yield detailed, stratified occurrence estimations, employ a Bayesian-based hierarchical model estimation method, provide estimates of numbers of systems and population served by those systems with system mean concentrations exceeding specified contaminant threshold concentrations, and include quantified error for the estimation procedures. (The Stage 2 analysis is described in more detail below in Section VI.)

II. DEVELOPING A NATIONAL CROSS-SECTION OF STATES

Currently, there is no complete analytical record of contaminants in drinking water from public water systems collected under SDWA that can be processed for a comprehensive national overview of occurrence and exposure. EPA's Safe Drinking Water Information System (SDWIS) maintains a variety of water system inventory and operation information, as well as compliance program information. For most contaminants, the only analytical results filed in SDWIS are those related to violations of a Maximum Contaminant Level (MCL). The analytical results from monitoring of the Phase rule chemicals, and most other contaminants, are stored in individual State databases. In the past, there has been no feasible way to access these data to construct a national sample except through analyzing data sets from the individual States.

EPA previously completed a study reviewing the occurrence of regulated contaminants in public drinking water systems using data sets voluntarily provided by eight States. These data used in the development of an initial analysis of a national cross-section of contaminant occurrence. The results of this prior work, and the report generated *(A Review of Contaminant Occurrence in Public Water Systems*, EPA #816-R-99-006, referred to as the "CMR Report"), have been widely reviewed by EPA stakeholders and were also peer-reviewed. This report and study approach have generated wide and very positive support by stakeholders and peer-reviewers alike.

Data sets from eight States were selected for a detailed national cross-section analysis in the CMR Report. For the analyses in the CMR Report, eight States were selected for use in a national analysis as providing the best data quality and completeness, and for providing a balanced national cross-section of occurrence data using a relative ranking of States based on pollution potential and geographic coverage. The data sets from these same eight States provide the basis for analyses conducted for this current report. Described in the following sections are the evaluations and procedure used in selecting the eight initial cross-section States that together provide contaminant occurrence data compiled to be indicative (representative) of contaminant occurrence nationally.

II.A. Pollution Potential Indicators

Many past EPA and USGS studies have shown that some simple measures, such as population (or population density) are closely associated with pollution[1]. This is intuitively (as well as empirically) apparent, since it is human activity and its related land use –be it manufacturing or agriculture– that is the source of most pollutants, particularly the organic chemicals. In the CMR Report, various demographic and other factors were evaluated as independent measures or indicators of pollution potential.

More than thirty-five different factors are potentially useful as indicators of each State's[2] pollution potential were considered for the CMR analyses. The factors ranged from Census data on manufacturing, agriculture, and population density, to indices such as EPA's Section 106 allocation factors or the *1991-1992 Green Index: A State by State Guide to the Nation's Environmental Health (prepared by the Institute for Southern Studies)* (Hall and Kerr, 1993). Two methods were considered for evaluating the States' comparable pollution potential. The first was the development of a singular numerical index, incorporating factors such as manufacturing in the State, total pounds of chemicals released, and pesticides used, into a comprehensive ranking for each State. However, such a ranking for all sources requires various factors to be weighted, and the meaning of the resultant number can be difficult to understand, as well as argumentative.

A second, simpler method, evaluating the pollution potential of the States, was adopted for the CMR analyses. The primary factors used indicated the potential pollution from manufacturing and agriculture in each State. States were then ranked from 1 to 50 for each factor. This method does not, of course, avoid all of the problems discussed above, but it does provide a simple, practical evaluation of the range of pollution potential conditions represented by the States.

In general, manufacturing/industrial activities (typically associated with population density) are considered the major sources of many VOCs (degreasers, solvents, petroleum compounds). Most SOCs are pesticides, and agriculture is the largest user of these compounds. While IOCs can have various uses in manufacturing, they also occur naturally. Ambient concentrations of IOCs also can be enhanced by mining or other diffuse activities. Natural geologic sources of IOCs were not directly considered in the assessment for representativeness, in part because whole States needed to be evaluated and such sources are often localized. However, by including geographic or spatial coverage across the United States as a factor (e.g., from New Jersey to Montana), a range of geologic conditions (as well as a range of hydrogeologic and climatic variability) were inherently included in this cross-section development.

II.A.1. Manufacturing Indicators

Numerous factors were considered as potential indicators of manufacturing-related pollution, including EPA's Toxics Release Inventory (TRI) (including total releases, releases per square mile, and releases excluding air releases), the number of manufacturing establishments, the number of manufacturing establishments per square mile, the number of manufacturing employees, the value added by manufacturers, and the value added per capita. This information was taken directly from the *1995 Annual Survey of Manufactures* (USDOC, 1997), the *1992 Census of Manufactures* (USDOC, 1996), and the *1995 Toxics Release Inventory* (USEPA, 2001). All factors were each considered in terms of their inherent value as pollution potential indicators, their range and variance (in providing a relative ranking of the States), and their inter-relationships.

The total TRI releases per square mile, number of manufacturing establishments per square mile, and value added per capita were considered the three most useful indicators. The TRI was considered useful

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[1] For example, the most recent report is Squillace *et al.*, 1999.

[2] Data were analyzed on a Statewide basis so any determination of representativeness was based on whether the States, for which information was available, were representative of the nation as a whole. There are problems, of course, with using States (large, diverse entities) to determine representativeness; however, it was not practical to break the data down any further.

because it is a measure of how many pounds of toxic chemicals are released within the State. While there are problems with the TRI (e.g., some inconsistent release estimation techniques; omission of many small establishments, or those with releases below specified thresholds), it is valid to use as a direct indicator of potential pollutants released. The number of manufacturing establishments takes into account how many factories are actually engaged in manufacturing and thus how many establishments potentially contribute to pollution. By breaking down the number of manufacturing establishments per square mile, the size of the State is also taken into account. The final factor that was considered to be viable was the value added by manufacturers per capita. Initially this seemed to be a well-suited measure because of the presumed correlation between value added and the level of production (and by-product pollution) within the State. The problem with this measure (and also with the measure of number of manufacturing establishments per square mile), is that it does not take into account the variation in pollution released by different industries. For example, an industry that adds a lot of value to a product may cause little pollution while another industry that does not add much value may contribute more pollution.

The data clearly showed a close correlation between the number of manufacturing establishments per square mile and the population density in each State, as well as a clear linear association with the total TRI pounds released/square mile, number of manufacturing employees, and total value added. Hence, the number of manufacturing establishments per square mile was used as the primary indicator because it is a simple measure of how many establishments are actually engaged in manufacturing and thus are potentially polluting sources of drinking water. The TRI total pounds released per square mile was used as a secondary factor in determining representativeness. Squillace *et al.* (1999) found a significant correlation between VOC occurrence in ambient ground water and population density in a USGS national NAWQA study. As noted, population density and manufacturing density are highly correlated. Manufacturing density and TRI data were used in this ranking because they were considered more direct measures of pollution potential for this study.

II.A.2. Agricultural Indicators

There is no complete measure of pesticide usage by States that is readily available. Thus, a variety of factors were considered to assess potential organic chemical pollution from agriculture in each State. These included the percent of the State's population that is classified as rural, the percent of land in the State that is crop land, the percent of land that is grassland pasture and rangeland (a possible inverse indicator), and total farm agricultural chemical expenses. Like the manufacturing factors, these agricultural variables were considered in terms of their value in indicating potential sources of pollution and were plotted against one another to determine how closely they are correlated.

Of these factors, total farm agricultural chemical expenses was considered to be the best indicator of potential pollution. The percent of the State's population that lives in rural areas does not necessarily relate to agricultural chemical use or crop land. There is, of course, a correlation between crop land and agricultural chemical use. However, there are notable exceptions such as Florida and California which use a large amount of agricultural chemicals despite having more limited crop land area. While there are some incomplete surveys of pesticide use, the *1992 Census of Agriculture* (USDOC, 1994) measure of dollars spent on agricultural chemicals was a more consistent and complete measure.

In summary, three specific measures were selected as reasonable indicators of pollution potential. These measures, the number of manufacturing facilities per square mile (to reflect the range of potential VOC occurrence), total expenditures on farm agricultural chemicals (to reflect the range of potential SOC occurrence), and Toxics Release Inventory (TRI) releases (in total pounds) per square mile (to reflect the releases of any type of chemical into the environment) were used to assess the pollution potential characteristics of the States. Additionally, in the development of a nationally representative group of States (discussed in the following section), a geographic distribution of States is also considered (to reflect the range of hydrologic and climatic conditions, and geologically-influenced, potential IOC occurrence).

II.B. Representativeness of the Selected State Data Sets

Most of the data used in this review were provided voluntarily by States. Obviously, constructing a "representative" sample from such data can be problematic, so additional data were requested from a few States to broaden the spatial coverage of the analysis. In all, 14 States originally provided data for review. While 14 of 50 States is a substantial sample, it is not necessarily representative. While the data from all these 14 States could have simply been aggregated to compute a composite occurrence value for a contaminant, the resulting group of States would have significantly over-represented Midwestern "Cornbelt" States. (The sample would contain Kansas, Missouri, Iowa, Illinois, Indiana, and Ohio, accounting for over 40% of the 14 States represented. These six cornbelt States use a relatively large amount of row-crop herbicides relative to non-agricultural States, so for the group of 14 States the resulting "pollution potential"for agricultural chemicals would be over-represented). Hence, various means were evaluated to enable the construction of a grouping of the available State data sets that would provide a reasonable first view of national occurrence based on a representative cross-section of States.

As described in the previous section, two broad factors were considered in the assessment of a nationally representative compilation of State data sets: geographic or spatial diversity, and pollution potential. Consideration of States that collectively provide a geographic diversity was one means by which to include contaminant occurrence data from the wide, and national, range of climatic and hydrologic conditions across the United States. The representative group of State data sets was also selected to represent the range of pollution potential (reflecting the likely range of high, medium, and low contaminant occurrence) across the various regions and States of the United States.

The 50 States' pollution potential indicators (described above) were ranked from highest to lowest. These ranked lists of States were then divided into four quartiles. The rankings were reviewed to assess if States could be selected in approximate balance from each quartile. The primary ranking indicator was the number of manufacturing establishments per square mile, but total farm agricultural expenditures and TRI releases were also considered to contribute further to insuring that the occurrence data from the selected States were, collectively, representative or indicative of national occurrence. This cross-section selection process was used to select the initial 8 State cross-section, and the compliance monitoring data from these initial 8 cross-section States provides a broad distribution geographically and across the pollution potential rankings.

The quartile division of the States selected to approximate the national cross-section are summarized in Table II.B.1. The compliance monitoring contaminant occurrence data from these eight States collectively provide a balanced cross-section, based on relative rankings for pollution potential (i.e., the potential for contaminant occurrence),geographic coverage, and data quality and completeness. The eight initial cross-section States represent over 25% of the U.S. population using PWSs, and over 20% of the PWSs nationally.

Table II.B.1. Initial Eight Cross-Section States with Ranking of Pollution Potential Indicators

Quartiles for Rank-Order of All States Based on Manufacturing Ranking	Initial Eight States in National Cross-Section	National Ranking of Pollution Potential Indicators		
		Manufacturing[1]	Agriculture[2]	TRI Releases[3]
1	NJ	2	37	8
	IL	10	2	11
	CA	11	1	38
2	MI	13	18	16
	AL	25	26	7
3	OR	34	22	39
4	NM	44	40	40
	MT	48	34	34

1) the number of manufacturing facilities per square mile, 2) total expenditures on farm agricultural chemicals, and 3) Toxics Release Inventory (TRI) releases (in total pounds) per square mile. For more detailed description of the development of the national cross-section and of the rankings, see *A Review of Contaminant Occurrence in Public Water Systems* (EPA, 1999; EPA #816-R-99-006).

Different presentations of the pollution potential rankings, distribution and representative nature of the States used in the occurrence analyses are illustrated in Figures II.B.2 and II.B.3. The dual assessment of manufacturing and agriculture pollution potential indicators shown in Figure II.B.2. illustrate the balanced distribution of the 8 cross-section States across the four quartiles of both of those indicators. The map presented in Figure II.B.3 shows the geographic distribution of the cross-section States. The distribution across pollution potential quartiles (Figure II.B.2) and geographically (Figure II.B.3) suggests that the cross-section States should provide a representative indication of the potential range and occurrence of VOC, SOC, and IOC contamination in PWSs nationally.

Figure II.B.2. Distribution of State Rankings of Manufacturing Establishments/ Sq. Mile vs. Farm Ag. Chemical Expenses (Cross-Section States Highlighted)

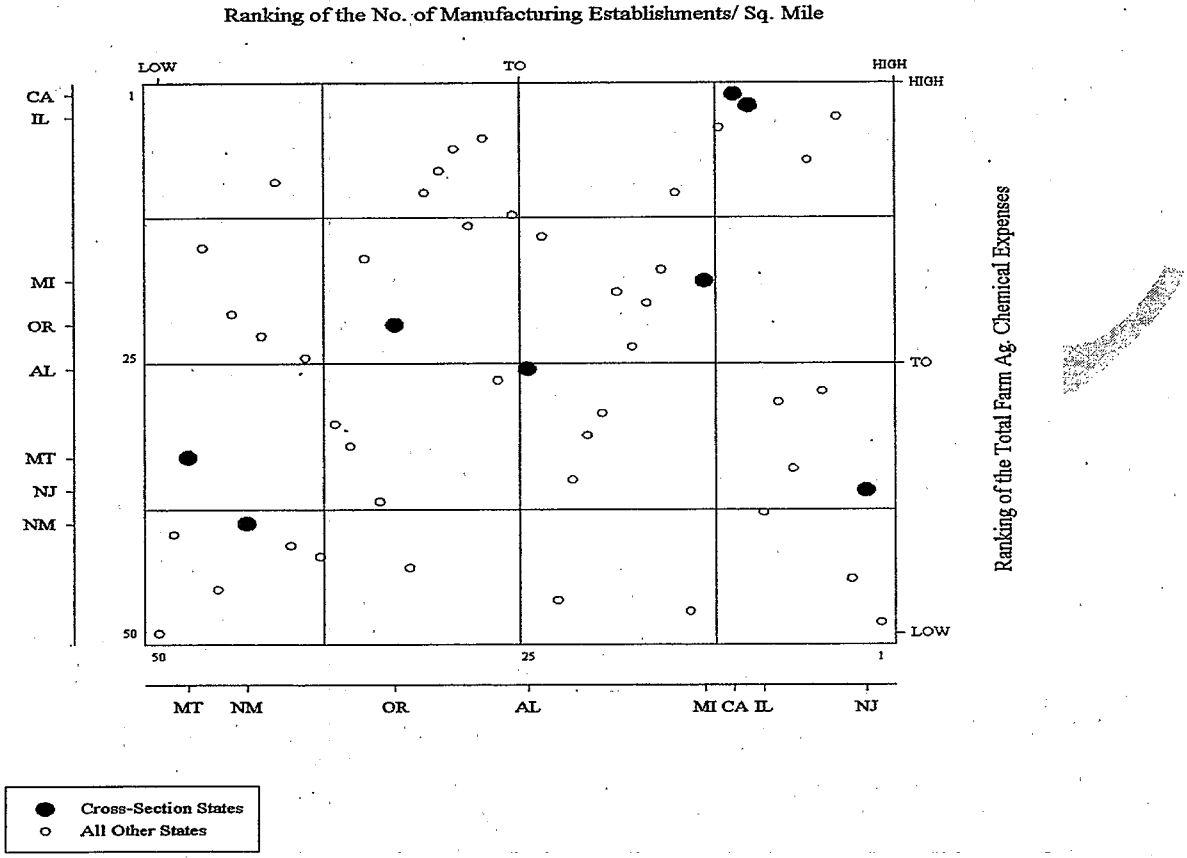
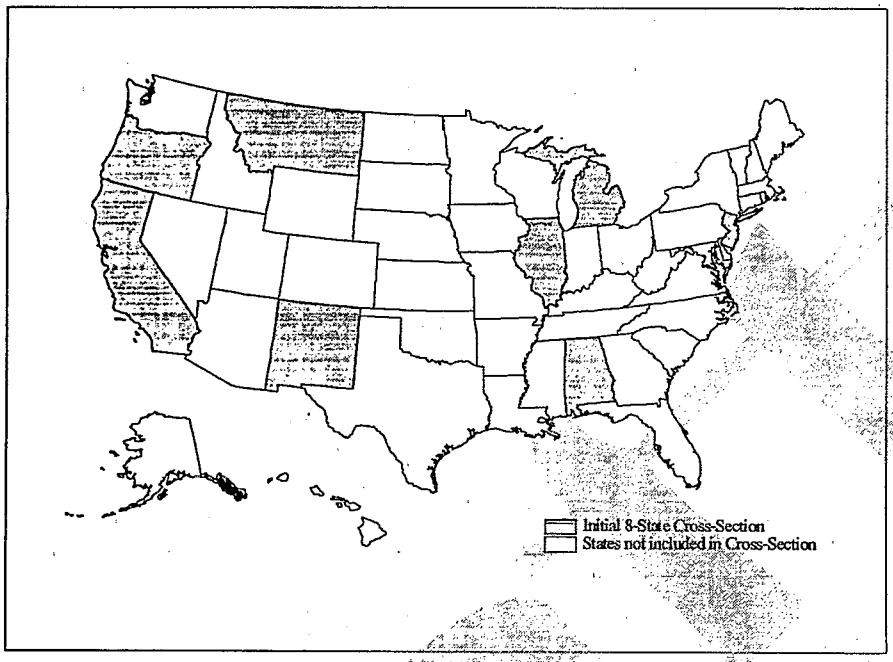


Figure II.B.3. Map of the Initial 8 Cross-Section States



The data from these eight cross-section States were used to compute aggregate occurrence values (i.e., the percentage of water systems that had a detection of contaminant X) as an approximation of national occurrence. While the data from the cross-section States cannot be stated to be "statistically representative," their distribution should provide a clear indication of central tendency.

III. INITIAL EIGHT STATE DATA SETS

The group of eight State data sets used for analysis in this report reflects a national cross-section of States that is indicative (though not strictly statistically representative) of national contaminant occurrence. Table III.A.1 provides a general description of monitoring data provided by these eight States (number of records, time period of data, etc.). Details describing general data quality are discussed in Sections III.A., III.B., and III.C.

III.A. Description of Data

The initial eight State data sets are comprised of SDWA compliance monitoring data from public drinking water systems. As summarized in Table III.A.1, these data represent approximately 10 million analytical results from nearly 22,000 public water systems. In most cases, the initial State data sets contained additional data that were not included in analyses either because they were not appropriate or because they posed various data quality problems (e.g., invalid PWSID or contaminant codes, missing significant data elements such as source water type or system type) that prevented analysis of adequate quality, specificity, or accuracy.

Various State data sets included data from different time periods (see Table III.A.1). However, the majority of data are from 1993 and later (which coincides with the beginning of Phase II/V monitoring). Initial screening of the data showed that most data quality problems were in pre-1993 data. Therefore, in some of the data sets, results gathered before 1993 were eliminated from these analyses. More than 80% of all data utilized in this report are from 1993 or later; this proportion is even greater for most synthetic organic chemicals (SOCs). More than 92% of all data used for this analysis are from 1990 or later.

Therefore, only about 8% of the total records are for years prior to 1990. Beyond these generalities, though, the amount of problematic data was quite small in the State data sets selected for use in the cross-section, and there was no apparent or particular systemic data problem. Therefore, all data collected prior to 1993 used for this analysis that met the necessary data quality conditions for this analysis were retained. Based on these considerations, we felt that retaining these results would not compromise the consistency of the data.

The State data sets represent State primacy agency SDWA monitoring results as provided by the States. The data represent the analytical results for Non-Purchased Community Water Systems (CWSs) and Non-Purchased Non-Transient Non-Community Water Systems (NTNCWSs) that are required to monitor for the Phase II/V chemicals. Some States included data from Transient Non-Community Water Systems (TNCWSs), but these systems are not required to monitor for the Phase II/V contaminants. The TNCWSs' data are almost exclusively for nitrate, which is not included in these discussions.

Table III.A.1. Initial 8 State Data Sets Used for Analyses

State	Contaminant Groups Represented [1]	Number of Analytical Results	Number of PWSs Represented	Time Period
Alabama	IOCs, SOCs, VOCs, O	708,569	731	1985-1998
California	IOCs, SOCs, VOCs, O	3,897,362	6,414	1984-1998
Illinois	IOCs, SOCs, VOCs, O	2,967,946	1,392	1987-1997
Michigan [2]	SOCs, VOCs, O	685,721	3,252	1993-1997
Montana	IOCs, SOCs, VOCs, O	276,675	1,786	1993-1998
New Jersey	IOCs, SOCs, VOCs, O	980,915	4,503	1993-1998
New Mexico	IOCs, SOCs, VOCs, O	266,262	1,299	1992-1996
Oregon	IOCs, SOCs, VOCs, O	169,521	2,345	1990-1998
Initial Eight Cross-Section State TOTAL	**IOCs, SOCs, VOCs, O**	**9,952,971**	**21,722**	**1984-1998**

These State data sets were initially developed for the analyses conducted in the CMR Report and were used for the analyses in this current report.

1) IOCs = the 13 regulated inorganic chemicals; SOCs = the 30 regulated synthetic organic chemicals; VOCs = the 21 regulated volatile organic chemicals; O = Other regulated or unregulated chemicals.

2) No IOC data were originally available from the State of Michigan, and therefore no Michigan data were used in Stage 1 analyses for IOCs. However, subsequently, Michigan compliance monitoring data were acquired for the IOCs fluoride, beryllium, chromium, mercury and thallium. These data were checked and edited for quality added to the cross-section data set, and included in the later Stage 2 analyses.

III.B. Data Management

There are many issues regarding the management of very large data sets for a project such as this. Selection of appropriate State data sets and significant management of the data (handling, editing, formatting, "cleaning", etc.) was necessary before any analysis could be conducted. The primary objective regarding the data used in these contaminant occurrence analyses was development of a consistent and repeatable data management approach that would allow valid comparisons between and among the various data sets, and allow the data to be jointly evaluated to provide an overview of occurrence patterns at the national level.

For the most part, the States that volunteered data did not reorganize or reformat data, but simply transmitted the data in whatever manner was easiest. Data were transferred using three main media: file transfer protocol (FTP), e-mail, and diskettes (including zip-disks or CD-ROM). These transfers were of very large databases, often several megabytes in size, and transmission was often complicated. The data were received in a number of file types, including spreadsheet, database, and image files. Many of the data sets were received "as is" and had not been formatted by the State in any way. For example, while the Phase II/V compliance data from 1993-1995 were of greatest interest, in many cases it was easier for the State to simply transmit their entire data set, which generally contained information on all chemical contaminants (in addition to the Phase II/V), over a greater span of years.

After receipt, an initial review of the information in each data set was performed. Each data set was unique in format, layout, custom codes, and data element usage. In most cases, the data were not accompanied by a protocol outlining each variable. In every instance, follow-up with a State contact was necessary to decipher variable headings or contaminant codes. When all variables were understood, a formatting plan was developed for the data. Nearly all of the data sets required some type of formatting to facilitate analysis. Data formatting problems varied from one data set to another.

All statistical analyses were conducted in SAS® statistical software. Data formatting problems were corrected in Microsoft® Excel with the aid of specialized programs written in Visual Basic® or were corrected directly in SAS® before the analysis began[3]. Data management and formatting was the most time consuming and labor intensive part of the data analysis. Each data set presented unique challenges. While analysis of the data was consistent from one data set to another, each data set required some unique editing and filtering because of differences among basic data elements.

III.C. Data Quality Issues

There are numerous data quality issues inherent to a study where very large data sets of differing format and quality are assembled from many States to be used to characterize contaminant occurrence in the nation's public water systems. The quality and dependability of the data used in the contaminant occurrence analyses directly affect the quality and dependability of the results of the analyses conducted. Therefore, many of the data quality issues are reviewed in detail below as a preface to understanding the analytical results and the processes required before the analytical results could be generated.

This study only used data from State primacy agencies-official data from the regulated drinking water program. All such analytical results are generated by laboratories that are certified for drinking water programs, which assumes the use of various quality-assurance and quality control procedures. Certainly data problems exist, but efforts have been taken to reduce the problems and increase the dependability and quality of the State occurrence data used in these analyses.

Every State data set reviewed for this study contained unique data elements or unique treatment of common elements. Even after initial screening and conversion to uniform formats and data set structure, unique factors were always uncovered during data analysis. Many of the confounding factors were resolved only through direct consultation with the States. As a general rule, when errors or ambiguities in various data elements could not be resolved, those particular data elements were not included in the analyses to avoid problematic results or results based on data of questionable quality. This data quality measure eliminated relatively very few observations (compared to the thousands of analytical results included in the data sets).

Each data set was reviewed to ensure it contained the basic data elements (data fields) necessary to conduct a consistent analysis for this study. These elements were reviewed with State (data source) contacts both before and after data were received to ensure consistent and appropriate interpretations. While the presence of such elements enables the various data sets to be analyzed in a similar manner,

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[3] SAS is a registered trademark of the SAS Institute, Inc. Excel and Visual Basic are trademarks of the Microsoft Corporation.

each also may be used in unique ways by the individual States/sources. A few key issues are summarized below. For a complete summary of data editing, please refer to the *First Stage Occurrence and Exposure Report for Six-Year Review* (Cadmus, 2000).

Any issues within the analytical results data elements affect fundamental data processing procedures before any statistical processing can even begin. Very few databases contained the Minimum Reporting Level (MRL) field for a contaminant/method combination. (The Minimum Reporting Level is the lowest level that can be reliably achieved within specified limits of precision and accuracy under routine laboratory operating conditions.) The actual analytical results generally comprise multiple fields, and one critical component in such databases is how analytical results with values that are less than the MRL are recorded. The State data sets vary widely in how these "less than the MRL" values (sometimes referred to as "non-detections" or "no-detects") are recorded. Some record a "<" symbol in one field and then the actual MRL concentration value in a corresponding field while others simply enter zero in the results field. Other States record an "ND" (non-detection/no detect) or some other code and many indicate a mixed usage that required careful editing and attention to detail to correctly resolve.

System and sample data elements also required some time-consuming editing. Many States data sets contained no, or only incomplete, source water type and population records. (Both of these data elements are essential for these analyses.) When these data elements were not reported, the data set was linked with the Needs Survey sample frame which provided the source water type and population information (as linked by common PWSID) for many PWSs. However, information for all systems could not always be determined from the Needs Survey. Observations whose source water type could not be determined were not included in the analysis.

III.C.1. Other Data Use and Editing Issues

When computing basic occurrence statistics, such as the number or percent of samples or systems with detections of a given contaminant, the value (or concentration) of the Minimum Reporting Level (MRL) can have important consequences. For example, the lower the MRL, the greater the number of detections. Multiple MRLs arise because of many reasons. Improvement in analytical methods over time can result in a lowering of the MRL. Within reason, MRLs can even vary from laboratory to laboratory using the same method, can vary with sample batch, etc. There can be more dramatic variation when different methods are used for the same contaminant. Within the drinking water program, methods have become well standardized so this was not a major issue for this study, particularly for the SOCs and VOCs. However, the use of multiple MRLs within a State was not uncommon.

Another general data quality issue that can affect a large-scale summary of results is the different sampling schedules that may be used by different PWSs. A PWS with a known contaminant problem usually has to sample more frequently than a PWS that has never detected the contaminant. Obviously, the results of a simple computation of the percentage of samples with detections (or other statistics) can be skewed by the more frequent sampling results reported by the contaminated site. Therefore, this analysis is focused on occurrence at the system level (rather than on a total sample basis), which avoids the skewness inherent in the sample data, particularly over the multi-year period covered.

Systems sampling schedules vary, generally ranging from annually to monthly by contaminant. Data are generally available for one sample monthly per system for IOCs. The range of sampling frequencies for IOC records for all systems is between 1 and more than 2,000 samples per month. Data are generally available for three samples per month per system for SOCs. The range of sampling frequencies for SOC records for all systems is between 1 and more than 1,600 samples per month. Data are generally available for four samples per month per system for VOCs. The range of sampling frequencies for VOC records for all systems is between 1 and more than 24,000 samples per month. The reduced number of systems sampling for SOC data, as compared to IOCs and VOCs, may relate to state waivers for pesticides and herbicides.

Also, as noted above, the data used in this analysis were limited to only those data with confirmed water source and sampling type information. Only standard SDWA compliance samples were used; "special" samples, or "investigation" samples (investigating a contaminant problem that would bias results), or samples of unknown type were not used in the analysis. Various quality control and review checks were made of the results, including review by the States providing the data. Many of the most problematic data quality problems encountered occurred with older data (especially, pre-1990 or 1993). In some cases, as noted, these were simply eliminated from the analysis.

All of these data management and editing procedures were performed to make the results as reliable and consistent as possible, and to ensure that they clearly were standard SDWA compliance samples. Also, elimination of data with inconsistent elements helps to ensure that the analysis is relatively repeatable, for future consideration and applications of the data.

IV. STAGE 1 ANALYSIS

The initial step in estimating the occurrence of regulated contaminants, the Stage 1 analysis, develops general occurrence assessments which are more straight-forward and conservative than the subsequent Stage 2 (full probability) analysis. The Stage 1 analyses were conducted according to source water type, therefore separately for surface water systems, ground water systems, and then for all (surface and ground water) systems combined. The analyses were also grouped according to general contaminant groupings (IOCs, SOCs, and VOCs). Stage 1 analyses were conducted on the compliance monitoring data sets from the initial eight cross-section States at the system-level (not sample-level). The initial eight cross-section States, which in aggregate are indicative of national occurrence, are Alabama, California, Illinois, Michigan, Montana, New Jersey, New Mexico, and Oregon.

Stage 1 analysis provides a conservative assessment of occurrence by simply counting (then calculating the percentages of) public water systems (and total population served by public water systems) with *at least one analytical result* that exceeds a concentration equal to the MRL, ½ MCL, and the MCL for each particular contaminant. These Stage 1 analyses are essentially based, therefore, on the single maximum analytical value recorded at each public water system. Assessed relative to MCLs, which reflect public health considerations for long-term exposure to contaminants in drinking water, the Stage 1 analysis is conservative –cautious regarding public health concerns– in the sense that they are descriptive statistics based on peak, rather than long-term mean, concentrations of contaminants.

Using these findings, the contaminants were then ranked, from highest to lowest, based on the percentage of systems with at least one analytical result greater than the MRL, ½ MCL, and the MCL for each particular contaminant. (These rankings were conducted separately for the percent of systems and for the population served by those systems.) There are inherent vulnerability, occurrence pattern, and some regulatory differences between surface water-supplied and ground water-supplied PWSs, so occurrence rankings were conducted separately according to source water type, for surface water (SW) systems and ground water (GW) systems. Contaminant occurrence rankings were also conducted separately for three general contaminant groupings: Inorganic Chemicals (IOCs), Synthetic Organic Chemicals (SOCs), and Volatile Organic Chemicals (VOCs). The contaminant group classifications relate partly to the contaminants' sources, fate, and transport, to their chemical properties and general methods of laboratory analyses, and to regulatory requirements that vary somewhat according to these contaminant groupings. For IOC occurrence rankings, arsenic was not evaluated since it is being evaluated and addressed separately through the new arsenic rule. There were too few data to evaluate for asbestos (an IOC), nitrate/nitrite (IOCs), and dioxin (an SOC). Therefore, these contaminants were also excluded from all occurrence rankings.

The "highest ranking contaminants" were defined as being the contaminants which occur in the highest percentage of public water systems (based on at least one analytical result) at a concentration greater than the MCL ("% > MCL"). The "lowest ranking concentrations" were defined as the contaminants which occur in the lowest percentage of public water systems at any concentration greater than the Minimum

Reporting Level ("% > MRL"). The high to low occurrence rank-ordering list of contaminants was then divided into quartiles. The "top quartile contaminants" were the upper 25% of the highest occurrence contaminants, and the "bottom quartile contaminants" were the lower 25% of the lowest occurrence contaminants. (It should be noted that the different contaminant groups -IOC, SOC, and VOC- have different total numbers of contaminants so the respective quartiles contain different numbers of contaminants.)

These rankings served to develop an overview pattern of high, medium, or low occurrence for each contaminant, as well as to identify each contaminant's occurrence relative to the other contaminants. Similar estimates based on the population served by PWSs provides a "Stage 1" preliminary characteristic of exposure potential.

There are additional, more involved statistical methods that can be applied to analyze limited data, such as those comprising the cross-section State data sets. However, for these initial analyses, a simple approach was developed to be clear and repeatable, resulting in aggregate numbers that could be easily understood, and that would rank the occurrence of the contaminants, from high (frequent occurrence at levels greater than the MCL) to low (infrequent occurrence at any level greater than the MRL).

IV.A. Summary of Contaminant Occurrence Ranking Findings

Table IV.A.1. lists the Stage 1 analysis "high occurrence" contaminants, as based on the percent of systems and population served by all systems (ground and surface) with at least one analytical result greater than the MCL. The percent systems and percent population "> MCL" indicates the proportion of all cross-section State public water supply systems or population-served by systems with any analytical results exceeding the concentration value of the MCL. (Note: This does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four consecutive quarterly confirmation samples as required by the primacy States.) Most contaminants ranked as high occurrence based on the percent systems were also ranked as high occurrence based on the percent population served. These contaminants are indicated in italics in the table.

Table IV.A.1. Stage 1 Analysis - High Occurrence Contaminants Ranked by MCL for All (Combined) Surface Water and Ground Water Systems in the Eight Cross-Section States

Contaminant (MCL in mg/L)	Percent Systems > MCL	Contaminant (MCL in mg/L)	Percent Pop. Served by Systems > MCL
Inorganic Chemicals [a]			
Fluoride (4.0)	1.41%	*Fluoride (4.0)*	7.31%
Cadmium (0.005)	0.69%	Chromium (0.1)	1.06%
Thallium (0.002)	0.45%	*Cadmium (0.005)*	0.54%
Synthetic Organic Chemicals [b]			
Bis(2-ethylhexyl)phthalate [c] (0.006)	2.17%	*Ethylene Dibromide (0.00005)*	17.17%
1,2-Dibromo-3-chloropropane (0.0002)	1.95%	*1,2-Dibromo-3-chloropropane (0.0002)*	16.07%
Atrazine (0.003)	0.94%	*Bis(2-ethylhexyl)phthalate [c] (0.006)*	2.74%
Ethylene Dibromide (0.00005)	0.92%	*Atrazine (0.003)*	1.39%
Lindane (0.0002)	0.11%	*Lindane (0.0002)*	0.86%
Toxaphene (0.004)	0.09%	*PCBs (0.0005)*	0.49%

Contaminant (MCL in mg/L)	Percent Systems > MCL	Contaminant (MCL in mg/L)	Percent Pop. Served by Systems > MCL
PCBs (0.0005)	0.08%	Endrin (0.002)	0.35%
Volatile Organic Chemicals			
Tetrachloroethylene (0.005)	1.18%	*Tetrachloroethylene (0.005)*	22.24%
Trichloroethylene (0.005)	0.94%	*Trichloroethylene (0.005)*	21.11%
Dichloromethane[d] (0.005)	0.74%	*Dichloromethane[d] (0.005)*	15.00%
1,1-Dichloroethylene (0.007)	0.25%	1,2-Dichloroethane (0.005)	14.09%
Carbon Tetrachloride (0.005)	0.24%	*1,1-Dichloroethylene (0.007)*	13.59%
Benzene (0.005)	0.23%	*Carbon Tetrachloride (0.005)*	12.44%

a) Too few data to evaluate asbestos. Arsenic was not evaluated. b) Too few data to evaluate dioxin. Generally Phase II/V compliance monitoring data sets wereused and these contained too few data to evaluate nitrate/nitrite. c) The high occurrences of phthalate are, in part, considered false positives related to sample contamination by plastics and laboratory analytical problems. d) The high occurrences of dichloromethane are, in part, considered to be false positives related to laboratory analytical problems.

Contaminants in italics are in top rank category for both percent system and percent population measures. Rankings are based on data from the eight cross-section States of AL, CA, IL, MI, MTNJ, NM, and OR.

Table IV.A.2. lists the Stage 1 analysis "low occurrence" contaminants, as based on the proportion of all cross-section State systems or population-served by systems with at least one analytical result exceeding the concentration value of the Minimum Reporting Level (MRL). (Note that the contaminant concentration value of a minimum reporting level is a characteristic of the analytical method employed to conduct the laboratory analysis for any particular contaminant. The actual analytical concentration of an MRL, therefore, generally differs for different contaminants. There can also be several different approved analytical methods for analysis of the same contaminant, and therefore, multiple MRLs for even a single contaminant. Given this, the occurrence measures presented in Table IV.A.2 are relative to the variable MRLs, with each MRL representing the lowest level that can be reliably achieved within specified limits of precision and accuracy under routine laboratory operating conditions.) Most contaminants ranked as low occurrence based on the percent systems were also ranked as low occurrence based on the percent population served. These contaminants are indicated in italics.

Table IV.A.2. Stage 1 Analysis - Low Occurrence Contaminants Ranked by MRL for All (Combined) Surface Water and Ground Water Systems in the Eight Cross-Section States

Contaminant (MCL in mg/L)	Percent Systems > MRL	Contaminant (MCL in mg/L)	Percent Pop. Served by Systems > MRL
Inorganic Chemicals [a]			
Antimony (0.006)	3.24%	*Cyanide (0.2)*	3.35%
Cyanide (0.2)	2.38%	*Beryllium (0.004)*	3.24%
Beryllium (0.004)	2.10%	Thallium (0.002)	2.29%
Synthetic Organic Chemicals [b]			
PCBs (0.0005)	0.20%	*PCBs (0.0005)*	0.57%
Carbofuran (0.003)	0.16%	Heptachlor (0.0004)	0.34%

Contaminant (MCL in mg/L)	Percent Systems > MRL	Contaminant (MCL in mg/L)	Percent Pop. Served by Systems > MRL
Carbofuran (0.04)	0.11%	Heptachlor Epoxide (0.0002)	0.16%
Glyphosate (0.7)	0.10%	*Oxamyl (0.2)*	0.10%
Oxamyl (0.2)	0.09%	*Hexachlorobenzene (0.001)*	0.09%
Chlordane (0.002)	0.05%	*Glyphosate (0.7)*	0.02%
Hexachlorobenzene (0.001)	0.04%	*Chlordane (0.002)*	0.01%
Volatile Organic Chemicals			
1,2-Dichloropropane (0.005)	1.12%	1,4-Dichlorobenzene (0.075)	6.50%
1,2,4-Trichlorobenzene (0.07)	1.08%	o-Dichlorobenzene (0.6)	5.28%
1,1,2-Trichloroethane (0.005)	1.00%	*Vinyl Chloride (0.002)*	4.92%
trans-1,2-Dichloroethylene (0.1)	0.80%	*1,2,4-Trichlorobenzene (0.07)*	2.76%
Vinyl Chloride (0.002)	0.64%	Styrene (0.1)	2.69%

a) Too few data to evaluate asbestos. Arsenic was not evaluated. b) Too few data to evaluate dioxin. Generally Phase II/V compliance monitoring data sets wereused and these contained too few data to evaluate nitrate/nitrite.

Contaminants in italics are in bottom rank category for both percent system and percent population measures.
Rankings are based on data from the eight cross-section States of AL, CA, IL, MI, MTNJ, NM, and OR.

Stage 1 analyses were also generated separately by ground and surface source water type. Contaminants were ranked based on the proportion of systems (and population served by systems) with any analytical results greater than the MCL, ½ MCL, and MRL for each source water type. The same lists of high and low occurrence contaminants (included in Tables IV.A.1 and IV.A.2) were determined by all the ranking approaches (i.e., ground water ranking, surface water ranking, or combined ground and surface water ranking) for the eight cross-section States data sets. See Appendix A for summary tables of Stage 1 occurrence findings for all regulated contaminants. For a detailed review of the Stage 1 analytical approach and a presentation of the complete Stage 1 analytical findings, please refer to the report titled *First Stage Occurrence and Exposure Report for Six-Year Review* (Cadmus, 2000).

Fluoride was consistently ranked as the highest occurrence IOC on most or all of the various ranking approaches. Chromium and cadmium were also consistently ranked high in many of the ranking approaches. Antimony and mercury were occasionally ranked with high occurrence.

For low occurrence of IOCs, beryllium was the most consistent contaminant of low ranking occurrence. Antimony, cyanide and thallium were also commonly ranked as low occurrence contaminants on the various ranking approaches.

Note there are seemingly contradictory occurrence findings for antimony since it occurs on both the high occurrence list (based on percent of analytical results above the MCL) and low occurrence list (based on percent of analytical results above the MRL). These two occurrence measures can be simultaneous and are valid. In the case of antimony, the MCL is relatively close to the MRL, so when an analytical concentration is detected for antimony (above the MRL), the detection is more likely to also be above the MCL. Antimony is detected relatively infrequently compared to other IOCs; its presence is infrequently identified above the MRL making it a "low occurrence contaminant." Yet on those few occasions when antimony is detected, it is often detected at concentrations greater than the MCL. A large proportion of antimony results exceed its MCL, relative to the other IOCs' detections exceeding their respective MCLs. By this measure, antimony is also considered a "high occurrence contaminant." This apparent occurrence contradiction is also possible present in the findings for several other contaminants (e.g., the

VOC vinyl chloride). These subtly differences in occurrence measures must be noted when considering what type of occurrence assessment and conclusions are to be made.

Ethylene dibromide (EDB), 1,2-dibromo-3-chloropropane (DBCP), and bis(2-ethylhexyl)phthalate (DEHP) were consistently ranked as the highest occurrence SOCs on most or all of the ranking approaches. The next most frequent contaminant was atrazine, which was ranked high in many of the ranking approaches. (Atrazine occurrence is being considered separately under other occurrence and exposure analyses.) This was followed by benzo[a]pyrene, diquat, and endrin, which were occasionally ranked with high occurrence. The high occurrences of phthalate are, in part, considered false positives related to sample contamination by plastics and laboratory analytical problems[4].

Carbofuran, glyphosate, chlordane, oxamyl, hexachlorocyclopentadiene, carbofuran, hexachlorobenzene, and PCBs were consistently ranked as the lowest occurrence SOCs.

Dichloromethane, tetrachloroethylene, and trichloroethylene were consistently ranked as the highest occurrence VOCs on most or all of the separate ranking approaches. The next most frequent contaminant was 1,1-dichloroethylene which was ranked high in many of the ranking approaches. This was followed by carbon tetrachloride, 1,1,1-trichloroethane, and, to a lessor degree, vinyl chloride and 1,4-dichlorobenzene, which were occasionally ranked with high occurrence. Note that the high occurrences of dichloromethane are, in part, considered false positives related to laboratory analytical problems.

For low occurrence of VOCs, 1,2-dichloropropane, 1,2,4-trichlorobenzene, vinyl chloride, styrene, and o-dichlorobenzene were the most consistent contaminants of low rank occurrence based on the various ranking approaches.

IV.B. Comparison of State Data and URCIS Stage 1 Findings

As an additional evaluation of the national "representativeness" of the initial eight cross-section States, occurrence analyses from the cross-section States' were compared to similar occurrence analyses aggregated from another cross-section of compliance monitoring data - the Unregulated Contaminant Information System (URCIS) 24-State Cross-Section. The URCIS data set includes information on sixty regulated and unregulated VOCs, and two regulated SOCs from a total of 40 U.S. States or Territories. (A group of 24 URCIS States was selected from the URCIS database, using the same cross-section development approach described in Section II.) The majority of the data are from the first round of required unregulated contaminant monitoring from 1987 through 1992. It is important to note that because of the age of the data, in relation to rapid improvements made in data processing systems, the quality of data received by EPA for URCIS is highly variable.

The URCIS data are from an earlier time period than are the data for this current study (which mostly date from 1993 to 1997). The URCIS data also are largely limited to occurrence monitoring results for volatile organic chemicals (VOCs). Nonetheless, in aggregation and for (non-parametric) rank order determination of highest and lowest occurrence of VOC contaminants, the comparison to the URCIS data provides an additional evaluation of the use of the cross-section States for broad occurrence assessments indicative of national occurrence. The comparison is qualitative, but still provides information for comparative assessments of, for example, the relative occurrence of the different VOCs across different time periods and different (yet presumably nationally-balanced) cross-sections of States.

URCIS VOC occurrence findings were ranked according to systems and population served, and then compared to the initial eight cross-section State data occurrence findings for VOCs. A general summary of the determined high and low occurrence contaminants based on these rankings is described below.

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[4] The false positive issue was informally evaluated. The issue was discussed with several national laboratories, and available State occurrence data was evaluated over time. The opinions of the laboratory staff contacted corresponded to the evaluation of the occurrence data; there appears to be no distinct time period or date after which occurrence data on phthalates can clearly be considered free of false positives.

For a detailed description of the URCIS rankings, please refer to Section 4.5, in *First Stage Occurrence and Exposure Report for Six-Year Review* (Cadmus, 2000).

High and low contaminant occurrence rankings, based on the number of systems and population served, were conducted separately for surface water-supplied and ground water-supplied systems using URCIS Round 1 data from a group of 24 States. Generally, there was agreement between the findings of high and low occurrence contaminants for both systems and population served rankings and for surface and ground water systems. The URCIS rankings were also in general agreement with the rankings of the eight cross-section States' data. Again, please note that the high occurrences of dichloromethane are, in part, considered false positives related to analytical problems.

The high occurrence VOCs common to *both* surface and ground water systems ranked by the proportion of systems with at least one analytical result greater than the MCL were 1,1-dichloroethylene, dichloromethane, tetrachloroethylene, and trichloroethylene. The low occurrence VOCs common to *both* surface and ground water systems ranked by proportion of systems were vinyl chloride, o-dichlorobenzene, and 1,2,4- trichlorobenzene.

Based on the proportion of population served by systems with at least one analytical result greater than the MCL, the high occurrence VOCs common to *both* surface and ground water systems were 1,1-dichloroethylene, dichloromethane, tetrachloroethylene, and trichloroethylene. The low occurrence VOCs common to *both* surface and ground water systems ranked by population served were styrene and 1,2,4- trichlorobenzene.

As an additional comparison, tetrachloroethylene Stage 1 occurrence findings from the URCIS 24-State cross-section were directly compared to the 8-State cross-section tetrachloroethylene findings. As Table IV.B.1 illustrates, the percent of systems and population served by systems estimated to exceed each threshold was comparable for both cross-sections, though the 8-State cross-section occurrence findings were consistently higher than those based on URCIS data. A relatively small percentage of systems had any analytical results that exceeded the MCL and ½ MCL for both cross-sections (less than 3% for ground and/or surface water).

The percentages of population served by systems with at least one analytical result of tetrachloroethylene exceeding the MCL, ½ MCL, and MRL were also comparable. The proportion of population served by ground water systems in the 8-State cross-section that exceeded the MCL, ½ MCL, and MRL equaled 32%, 37%, and 47%, respectively. This compares to approximately 18%, 25%, and 34% of population served by systems in the URCIS 24-State cross-section that had at least one analytical result greater than the MCL, ½ MCL, and MRL, respectively. The proportion of population served by surface water systems exceeding each threshold also compares favorably between each cross-section. A relatively small percentage of population served by systems had any analytical results that exceeded the MCL and ½ MCL for both cross-sections (less than 5% for either cross-section). There is a dramatic increase in the percent of population served by surface water systems with any analytical detections (> MRL) for both cross-sections.

Table IV.B.1. Stage 1 Analysis Comparison of Tetrachloroethylene Occurrence in Different Cross-Sections

Source Water Type	Threshold	Percent of Systems Exceeding Threshold		Percent of Population Served by Systems Exceeding Threshold	
		Initial 8-State Cross-Section	URCIS 24-State Cross-Section	Initial 8-State Cross-Section	URCIS 24-State Cross-Section
Ground Water	MCL	1.2%	0.9%	32.1%	17.7%
	½ MCL	1.9%	1.5%	37.3%	25.3%
	MRL	4.5%	3.4%	46.7%	33.7%
Surface Water	MCL	1.7%	0.7%	3.2%	2.1%
	½ MCL	2.9%	1.0%	4.9%	3.5%
	MRL	8.7%	2.7%	29.0%	17.5%

The MCL for tetrachloroethylene is 0.005 mg/L. One-half the MCL is 0.0025 mg/L. The Minimum Reporting Level (MRL) is variable.

V. FULL SIXTEEN STATE DATA SETS AND CROSS-SECTION

The coverage suggests that the initial eight cross-section State data sets are indicative of national occurrence and the aggregate size of the data sets is substantial (representing approximately 10 million analytical results from nearly 22,000 PWSs). Nonetheless, the addition of data from other States would contribute to more nationally representative occurrence analyses and greater confidence in the conclusions derived from the analyses.

Consideration was first made regarding the expanded use of State data sets that were already in hand (i.e., the 6 out of the 14 data sets not used in the initial 8-State cross-section). For example, Indiana's data set had been previously volunteered, and was available for use. The data set, which is quite complete and of satisfactory quality, was carefully considered for addition to the national cross-section (as long as other State data sets were added from other quartiles for balance).

While other State data that was in hand were used in some of the non-parametric descriptive statistics for the CMR Report (such as determination of range of contaminant occurrence), most were not usable for expanding the national cross-section of State data. For instance, Iowa had a adequate and complete data set [5], but using Iowa data would over-represent the Midwestern "Cornbelt" states, with Illinois and possibly Indiana already included in the national cross-section of State data. Other data sets that were in-hand (those from Kansas, Massachusetts, Missouri, and Ohio) were seriously incomplete, biased, or not functionally suitable for expanding the national cross-section. The acquisition of additional State data sets to expand the national cross-section in a balanced and representative way was conducted using the same pollution potential quartile distribution and geographic diversity criteria that were used to develop the balanced and representative initial (8-State) cross-section. (As with the selection of the initial 8 cross-section states, consideration of the additional cross-section states was based primarily on the ranking indicator of the number of manufacturing establishments per square mile, but total farm

[5] For the CMR Report, contaminant occurrence results from Iowa were included, but the Iowa data set was not directly used. Iowa has a published report that provided the necessary occurrence figures, which provided occurrence information without conducting additional analyses. Therefore, the actual Iowa data set has not yet been procured, but likely could be, if necessary.

agricultural expenditures and TRI releases were also considered to insure that the occurrence data from the selected States were, collectively, representative or indicative of national occurrence.)

Maintaining a geographic balance, to the extent possible, also contributes to an aggregate data set that is more representative of the variety of geographic conditions present nationally. Regarding this balance, further representation from the New England area, the southeast and south-central States would contribute to balancing an expanded national coverage. Based on the consideration of States' pollution potential rankings, how they best fit into the quartile distribution, and how their spatial or geographic coverage contributed to a representative national cross-section of States, the suggested States considered for addition to the national cross-section contaminant occurrence data set were:

Quartile 1) Rhode Island, Pennsylvania, Florida;
Quartile 2) Indiana, New Hampshire, Tennessee, South Carolina, Vermont;
Quartile 3) Kentucky, Minnesota, Texas, Mississippi, West Virginia, Oklahoma; and
Quartile 4) Utah, Nebraska, South Dakota.

As new State data sets were added to the initial group of eight cross-section States, the data sets were added in specific groups to further build the cross-section sample in a balanced manner. Based on data availability and quality, the additional group of eight States added to the cross-section were: Florida - Quartile 1; Indiana, South Carolina, and Vermont - Quartile 2; Kentucky, and Texas - Quartile 3; Nebraska, and South Dakota - Quartile 4. A summary of these additional eight State data sets is presented in Table V.1.

Table V.1. Additional State Data Sets Used for Analyses

State	Contaminant Groups Represented [1]	Number of Analytical Results	Number of PWSs Represented	Time Period [2]
Florida	IOCs, SOCs, VOCs	713,543	6,297	1993-1997
Indiana	IOCs, SOCs, VOCs, O	257,428	1,488	1982-1997
Kentucky	IOCs, SOCs, VOCs, O	177,070	570	1993-1997
Nebraska	IOCs, SOCs, VOCs	189,959	1,555	1993-1999
South Carolina	IOCs, SOCs, VOCs	501,286	2,352	1989-2000
South Dakota	IOCs, SOCs, VOCs	55,526	965	1990-2000
Texas	IOCs, SOCs, VOCs	947,615	5,350	1990-2000
Vermont	IOCs, SOCs, VOCs, O	248,438	873	1987-2000
Total	**IOCs, SOCs, VOCs, O**	**3,090,865**	**19,450**	**1982-2000**

1) IOCs = the 13 regulated inorganic chemicals; SOCs = the 30 regulated synthetic organic chemicals; VOCs = the 21 regulated volatile organic chemicals; O = Other regulated or unregulated chemicals.
2) Data from 1999 and 2000 were excluded from analysis. Most data sets contained complete data only through 1998.

Table V.2. shows quartile rankings for the 16 States contained in the national cross-section. Figure V.2. shows the distribution of the initial eight cross-section States along with additional eight cross-section States. The distribution is broad and relatively uniform across all quartiles of the manufacturing and agriculture pollution potential indicators (note that the manufacturing pollution potential indicator was the primary ranking factor with agricultural and TRI indicators considered in a secondary sense). Figure V.3. is a map illustrating the geographic distribution of the initial eight cross-section States, as well as the additional eight cross-section States

Table V.2. National Cross-Section States with Ranking of Pollution Potential Indicators

Quartiles for Rank-Order of All States Based on Manufacturing Ranking	States in *Initial* 8-State National Cross-Section	National Ranking of Pollution Potential Indicators			States in *Additional* 8-State National Cross-Section	National Ranking of Pollution Potential Indicators		
		Manu-facturing[1]	Agri-culture[2]	TRI Releases[3]		Manu-facturing[1]	Agri-culture[2]	TRI Releases[3]
1	NJ	2	37	8	FL	12	4	13
	IL	10	2	11				
	CA	11	1	38				
2	MI	13	18	16	IN	15	7	6
	AL	25	26	7	SC	21	32	10
					VT	23	47	45
3	OR	34	22	39	KY	27	27	21
					TX	30	6	20
4	NM	44	40	40	NE	42	9	41
	MT	48	34	34	SD	45	21	49

Figure V.2. Distribution of State Ranking for Manufacturing Establishments/ Sq. Mile vs. Farm Ag. Chemical Expenses (Highlighting Initial 8 & Additional 8 Cross-Section States)

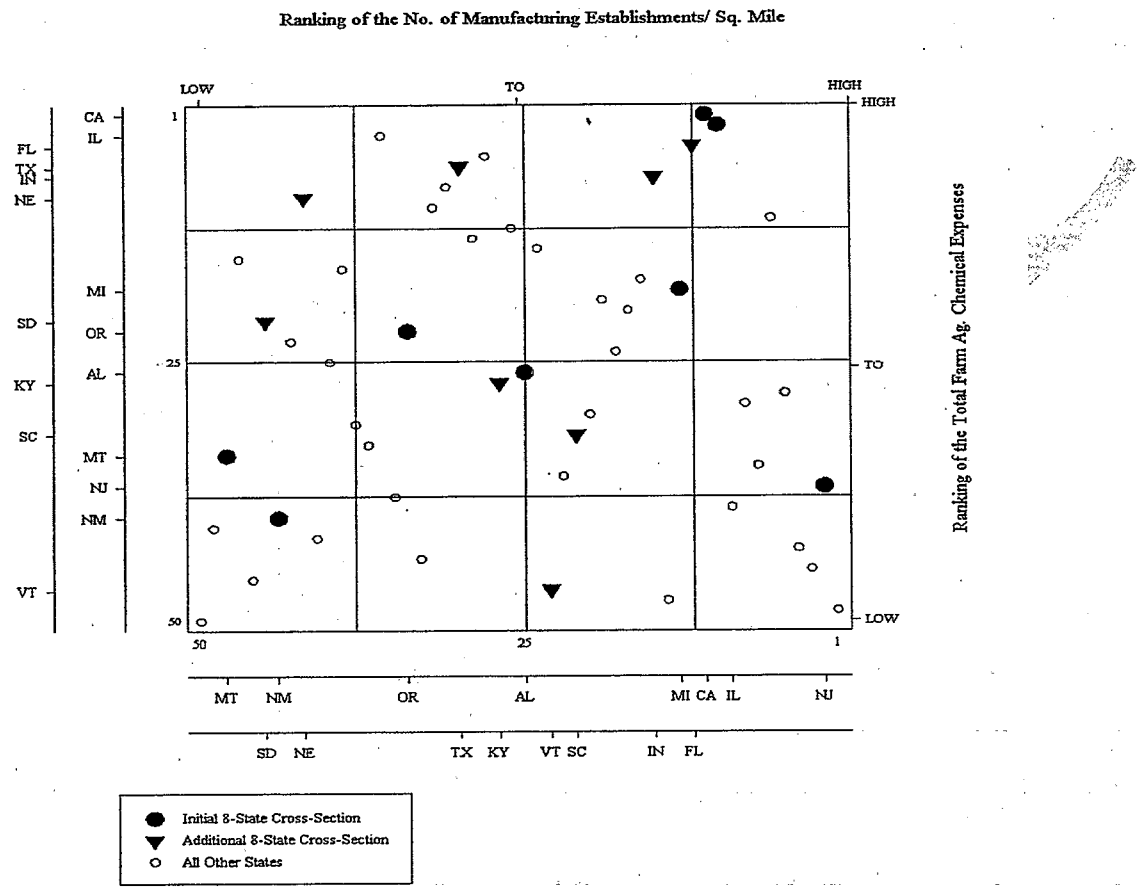
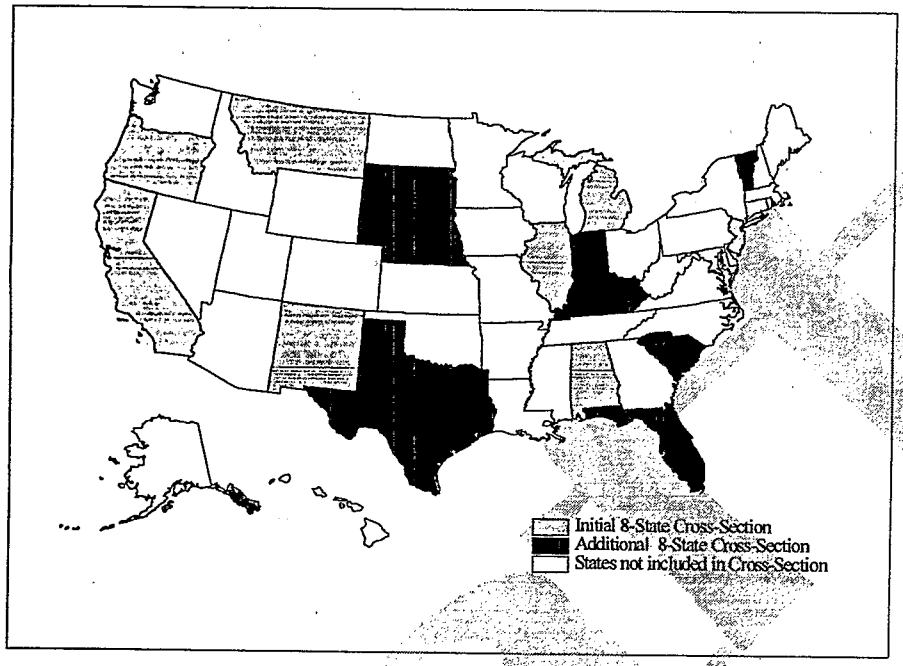


Figure V.3. Map of the 16 Cross-Section States



V.A. Data Use and Editing

Similar to the initial eight cross-section States, a considerable amount of data editing was necessary for the additional eight cross-section States. Each data set was reviewed to ensure it contained the basic data elements necessary to conduct a consistent analysis for this study. These elements were reviewed with State contacts to ensure consistent and appropriate interpretations. Once data quality issues were resolved, each data set was converted into a consistent format.

A common data quality issue of the additional eight States related to data that appeared to have been recorded or mislabeled in incorrect units. In many State databases, analytical results are presented as integers in one column with a corresponding column to identify how many decimal points are associated with that integer (analytical result). Since these data are often hard-entered by a data entry person, there is a large potential for error. If the "decimal point" column is incorrectly entered (even off by one), the analytical results are recorded in the data set in the wrong units. In many cases, detailed double-checking with the analytical results for similar contaminants in other States showed that the analytical results appeared to be incorrect (either too low or too high) by a constant factor of 1,000. The interpretation was that the data were (mistakenly) recorded in µg/L in the database, but actually represented data in mg/L (or vice versa). These data corrections were somewhat straightforward after identifying, reviewing, and cross-checking the analytical results. The criteria for excluding outliers included evaluating the data on an individual basis. Other data that appeared to be in incorrect units, but were not off by the typical factor of 1,000, were either left in the database or excluded from analysis, depending on how much of an outlier it was.

Values evaluated were both high and low value outliers, therefore by removing incorrect values, both large and small questionable values were removed. Because this analysis is focused on occurrence at the system level (calculating a mean concentration value for each system for a given contaminant), rather than on a total sample basis, we were able to avoid the skewness inherent in the sample data. Therefore, it is believed that the small amount of outlier data that may remain in the database does not influence the final estimates Less than 0.02% of the total number records were identified as analytical results recorded

in the incorrect units. Less than 0.25% of the analytical results were identified and changed to non-detections. Of the total number of records excluded from analysis, only 0.002% of the total data were removed as suspected or confirmed outliers.

V.B. Comparison of 8-State vs. 16-State National Cross-Sections

To further evaluate the representativeness of the cross-section, occurrence analyses from the 8-State cross-section were compared to occurrence analyses from the 16-State cross-section. For the group of 30 contaminants to be analyzed with Stage 2 (Stage 2 analyses are described in detail in Section VI.A), the percent of systems (and population served by systems) with at least one analytical result greater than the MCL and MRL in the eight States were compared to the same measures for the 16-State cross-section. The 8-State and 16-State Stage 1 findings were quite similar. Generally, the contaminants found with high, medium or low relative occurrence based on the 8-State data sets Stage 1 analyses were the same contaminants with high, medium or low occurrence, respectively, based on the 16-State data set. The ranking from highest to lowest occurrence was not identical in the 8-State and 16-State data sets but, for this simple non-parametric evaluation, the dissimilarities were small.

Table V.B.1 compares the 8-State and 16-State cross-sections based on the percent of systems. The percentages are generally consistent between the two cross-sections. For the most part, the proportion of systems with analytical detections (i.e., "% Systems > MRL") is higher for the 8-State cross-section than the 16-State cross-section. With the exception of the IOCs and a few SOCs, the proportion of systems with at least one analytical result greater than the MCL (i.e., "% Systems > MCL") is also higher for the 8-State cross-section than the 16-State cross-section.

The greatest discrepancy between the 8-State and 16-State proportion of systems with analytical detections is seen in the contaminant mercury. The 16-State percentage of systems with analytical detection of mercury is slightly greater than 3.5 times the 8-State percentage of systems with analytical detection of mercury. Based on the proportion of systems with at least one analytical result greater than the MCL, the greatest discrepancy between the 8-State and 16-State cross-section is seen in the contaminant chromium. The percentage of systems in the 8 States with at least one analytical result greater than the MCL for chromium is approximately 5 times the percentage of systems in the 16 States with at least one analytical result greater than the MCL for chromium.

Table V.B.1. Comparison of Stage 1 Analyses for 8-State vs. 16-State National Cross-Sections Based on the Percent of Systems

Contaminant	MCL (mg/L)	% Systems > MRL		% Systems > MCL	
		8 States	16 States	8 States	16 States
IOCs					
Beryllium	0.004	2.10%	3.32%	0.520%	0.217%
Chromium	0.1	13.0%	18.3%	0.620%	0.127%
Fluoride	4	73.8%	83.8%	3.90%	1.28%
Mercury	0.002	4.90%	17.3%	0.850%	0.263%
Thallium	0.002	3.41%	4.22%	1.33%	0.679%
SOCs					
Alachlor	0.002	0.900%	0.670%	0.0500%	0.0420%
Bis(2-ethylhexyl)phthalate	0.006	12.1%	12.5%	2.17%	2.20%

Contaminant	MCL (mg/L)	% Systems > MRL		% Systems > MCL	
		8 States	16 States	8 States	16 States
Carbofuran	0.04	0.110%	0.0600%	0.000%	0.000%
Chlordane	0.002	0.0500%	0.120%	0.000%	0.0150%
1,2-Dibromo-3-	0.0002	2.86%	1.61%	1.95%	0.912%
Diquat	0.02	1.06%	0.490%	0.0600%	0.0220%
Glyphosate	0.7	0.100%	0.100%	0.000%	0.000%
Heptachlor	0.0004	0.220%	0.0800%	0.0200%	0.00700%
Heptachlor Epoxide	0.0002	0.210%	0.0900%	0.0300%	0.028%
Hexachlorobenzene	0.001	0.0400%	0.0900%	0.000%	0.00700%
Hexachlorocyclopentadiene	0.05	0.910%	0.890%	0.000%	0.000%
Oxamyl	0.2	0.0900%	0.0800%	0.000%	0.000%
Picloram	0.5	0.850%	0.410%	0.000%	0.000%
Simazine	0.004	2.81%	1.80%	0.0900%	0.0550%
Toxaphene	0.003	0.160%	0.0800%	0.0200%	0.00700%
VOCs					
Benzene	0.005	1.54%	1.31%	0.235%	0.189%
Carbon Tetrachloride	0.005	2.06%	1.99%	0.240%	0.204%
1,4-Dichlorobenzene	0.075	2.26%	1.76%	0.000%	0.000%
1,2-Dichloroethane	0.005	1.53%	1.31%	0.160%	0.126%
1,1-Dichloroethylene	0.007	2.03%	1.58%	0.301%	0.236%
Dichloromethane	0.005	11.8%	8.59%	0.740%	0.669%
1,2-Dichloropropane	0.005	1.12%	0.670%	0.130%	0.0680%
Tetrachloroethylene	0.005	4.63%	3.36%	1.18%	0.778%
1,1,2-Trichloroethane	0.005	1.00%	0.620%	0.0700%	0.0400%
Trichloroethylene	0.005	3.55%	2.61%	0.940%	0.647%

Note: All percentages are shown to three significant figures.

Table V.B.2 compares the 8-State and 16-State cross-sections based on the percent of population served by systems. The percentages are generally consistent between the two cross-sections. For the IOCs, the proportion of population served by systems "> MRL" is always smaller for the 8-State cross-section than the 16-State cross-section. However, the proportion of population served by systems "> MCL" is generally larger for the 8-State cross-section than the 16-State cross-section for the IOCs. For the SOCs, the proportion of population served by systems "> MRL" and "> MCL" is generally higher for the 8-State cross-section than the 16-State cross-section. For the VOCs, the proportion of population served by systems "> MRL" and "> MCL" is always higher for the 8-State cross-section than the 16-State cross-section.

The greatest discrepancy between the 8-State and 16-State proportion of population served by systems with analytical detections is seen in the contaminant chlordane. The 16-State percentage of systems with analytical detection of chlordane is about 16 times the 8-State percentage of systems with analytical detection of chlordane. Based on the proportion of systems with at least one analytical result greater than the MCL, the greatest discrepancy between the 8-State and 16-State cross-section is seen in the contaminant beryllium. The percentage of systems in the 16 States with at least one analytical result greater than the MCL for beryllium is more than 12 times the percentage of systems in the 8 States with at least one analytical result greater than the MCL for beryllium.

Table V.B.2. Comparison of Stage 1 Analyses for 8-State vs. 16-State National Cross-Sections Based on the Percent of Population Served by Systems

Contaminant	MCL (mg/L)	% Population Served by Systems > MRL		% Population Served by Systems > MCL	
		8 States	16 States	8 States	16 States
IOCs					
Beryllium	0.004	3.24%	6.65%	0.0500%	0.621%
Chromium	0.1	25.4%	28.7%	1.06%	0.666%
Fluoride	4	96.2%	96.9%	7.31%	4.56%
Mercury	0.002	5.58%	21.6%	0.410%	0.276%
Thallium	0.002	2.29%	6.49%	0.190%	1.85%
SOCs					
Alachlor	0.002	1.31%	2.55%	0.130%	0.259%
Bis(2-ethylhexyl)phthalate	0.006	32.6%	28.0%	2.74%	3.19%
Carbofuran	0.04	0.940%	0.5400%	0.000%	0.000%
Chlordane	0.002	0.0100%	0.160%	0.000%	0.0000000477%
1,2-Dibromo-3-	0.0002	18.2%	13.5%	16.1%	11.4%
Diquat	0.02	0.980%	0.760%	0.330%	0.208%
Glyphosate	0.7	0.0200%	0.0400%	0.000%	0.000%
Heptachlor	0.0004	0.340%	0.190%	0.0000000699%	0.0000000398%
Heptachlor Epoxide	0.0002	0.160%	0.100%	0.0300%	0.0290%
Hexachlorobenzene	0.001	0.0900%	0.330%	0.000%	0.0400%
Hexachlorocyclopentadiene	0.05	3.54%	2.28%	0.000%	0.000%
Oxamyl	0.2	0.100%	0.170%	0.000%	0.000%
Picloram	0.5	0.970%	0.580%	0.000%	0.000%
Simazine	0.004	9.51%	11.2%	0.0700%	0.0470%
Toxaphene	0.003	1.47%	0.850%	0.230%	0.131%
VOCs					
Benzene	0.005	17.4%	12.0%	0.701%	0.518%
Carbon Tetrachloride	0.005	19.7%	14.8%	12.4%	7.35%

Contaminant	MCL (mg/L)	% Population Served by Systems > MRL		% Population Served by Systems > MCL	
		8 States	16 States	8 States	16 States
1,4-Dichlorobenzene	0.075	6.50%	4.38%	0.000%	0.000%
1,2-Dichloroethane	0.005	19.3%	12.3%	14.1%	8.40%
1,1-Dichloroethylene	0.007	24.1%	16.0%	13.6%	8.69%
Dichloromethane	0.005	44.0%	28.6%	15.0%	9.50%
1,2-Dichloropropane	0.005	17.9%	11.1%	1.30%	1.18%
Tetrachloroethylene	0.005	36.3%	27.2%	22.2%	13.5%
1,1,2-Trichloroethane	0.005	16.7%	10.4%	11.8%	6.97%
Trichloroethylene	0.005	37.3%	25.0%	21.1%	13.3%

Note: All percentages are shown to three significant figures.

The occurrence findings in Tables V.B.1 and V.B.2 are broadly consistent between the two cross-sections regarding contaminant occurrence rankings and "orders of magnitude" values (note there are a few possible exceptions). The 16-State cross-section contains twice as much data as the 8-State cross-section while also covering a broader range geographically and across pollution potential indicators. Therefore, all additional analyses were conducted on the full 16-State cross-section.

VI. STAGE 2 ANALYSIS

The goal of Stage 2 analysis is to estimate the number of PWSs with contaminant mean concentration values greater than a specified threshold for each source water type and system size. Thus, it is necessary to calculate a mean concentration value for each system for a given contaminant. However, it is very difficult to calculate a simple arithmetic mean since most PWS compliance monitoring analytical observations are non-detections. Such concentrations are generally reported as "less than MRL" rather than as actual numerical values. The numerical concentration value of a non-detection lies somewhere between zero and the specified Minimum Reporting Level. (The Minimum Reporting Level represents the lowest level that can be reliably achieved within specified limits of precision and accuracy under routine laboratory operating conditions.) Historically, three approaches have been commonly used to determine the mean of such data: assume non-detection data are equal to zero, assume all non-detection data are equal to half the MRL, or assume all non-detection data are equal to the MRL. An arithmetic mean is then calculated using these fabricated numbers together with values above the MRL. While these methods are widely used, they all "introduce a bias and result in erroneous estimates of the mean and standard deviation" (Porter et. al., as cited in Travis and Land, 1990). Setting all non-detections equal to zero likely underestimates the true analytical value of the sample, and setting all non-detections equal to the MRL or half the MRL likely over estimates the true analytical value.

VI.A. Preparation of State Data for the Stage 2 Analysis

The contaminant occurrence rankings (described in Section IV) provided a preliminary means by which EPA began to assess the occurrence of regulated contaminants considered for Six-Year Review. The more rigorous Stage 2 analysis was conducted on 30 of these contaminants. The development of formal exposure estimates for these contaminants requires several intermediate data management and analysis steps prior to conducting any parametric statistical analyses. A summary of the data editing necessary to enable Stage 2 analysis is described below.

As previously noted, no IOC data were originally available from the State of Michigan. As part of the preparation for Stage 2 analysis, Michigan State data management staff were contacted. Compliance monitoring data were acquired for fluoride, beryllium, chromium, mercury, and thallium. The data were checked and edited for quality, and were added to the cross-section data set.

Once the 16-State cross-section was established (including Michigan IOC data), the data still required further computational manipulation prior to estimating national occurrence (and exposure). Stage 1 analysis is based on the proportion of systems with at least one analytical result greater than a specified threshold. The complete distribution of the analytical results is not of interest. Stage 2 analysis, however, is based on the proportion of systems with a mean concentration value greater than a specified threshold. The mean concentration value is affected by all observations (including non-detections and detections less than the specified health threshold). Therefore, each analytical record for each contaminant had to be checked to prepare the data for Stage 2 analysis.

The distribution of analytical results for all 30 contaminants for each of the 16 states was closely reviewed. Many data quality issues appeared that were not discovered in the first round of data quality review. For example, South Dakota data contained 91 analytical detections for beryllium. Fifty-six of these detections were equal to 0.0005. It is very unusual to have such a large proportion (62%) of analytical detections all equal to the same value. Since 0.0005 mg/L is well below the MCL for beryllium (0.004 mg/L), these data would not affect Stage 1 analysis. However, so many analytical results equal to the same concentration value would greatly influence the mean concentration value used in Stage 2 analysis. After consultation with state data management staff in South Dakota, it was determined that these analytical results were actually non-detections. Apparently, the values were simply entered into the database at the MRL, and no flag was included to specify whether the result was a detection or non-detection.

Decisions also had to be made on how to quantitatively include non-detection data. Some states record the Minimum Reporting Level (MRL) in the analytical result column and also include a "<" in a corresponding column to flag the record as a non-detection. Other states simply include a zero in the analytical result column to signify a non-detection. Although non-detection data were not a concern in the initial occurrence analyses, they pose a problem within Stage 2 analysis where mean concentration values are estimated for each system. In order to estimate a mean concentration value for each system, a non-zero MRL must be included for all analytical results that were reported either as zero or alphanumerically as "non-detection" or "ND," etc. (The method used to estimate mean concentration values for each system is described in Section VI.D.) A convention was developed to set all such records equal to "less-than" the state's non-zero modal MRL[6] wherever possible. For the states that set all non-detections equal to zero, the non-detections were set equal to "less than" the non-zero modal MRL for all 16 states. (Note: This is not the same type of substitution method described in the first paragraph of this Section. When non-detection values are set equal to the non-zero modal MRL, they are still considered "less-than" that non-zero modal MRL. The substitution method mentioned early simply set the non-detection values equal to the MRL, as if that were the true numerical concentration value.)

The final element of the Stage 2 data quality analysis is related to the source water type and population served for each system. For the Stage 2 analysis, it was necessary to define each system in a unique source water type/population size strata. Systems using both ground and surface water, and systems using ground water under direct influence of surface water, were included with surface water data. Systems with more than one population served specified in the original data were included using the largest population served value. Because these data management decisions were not conducted for the Stage 1 analysis, some very slight differences (based on the very few number of systems so affected) may occur between Stage 1 and Stage 2 findings.

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[6] The "non-zero modal MRL" refers to the most commonly occurring MRL, other than zero, for each contaminant in the 16-State cross-section data.

Table VI.A.1. describes the occurrence data from the 16-State cross-section data set used for Stage 2 analysis. For each contaminant, this table includes the Maximum Contaminant Level (MCL) concentration values, as well as the total number of analyses, systems, and population served by systems that have data represented in the 16 cross-section States. All population numbers were rounded to the nearest hundred. This table also lists the range of Minimum Reporting Levels (MRL) concentration values used for the convention of substituting for the "non-detection" data. As illustrated, these values ranged from 0 to as high as 100 mg/L. For the Stage 2 analysis, the non-zero modal MRL (also included in Table VI.A.1) was substituted for all non-detection data that were originally equal to zero.

Table VI.A.1. Contaminant Occurrence Data From the 16-State Cross-Section Used in Stage 2 Analysis

Contaminant	Total Number of Analyses	Total Number of Systems	Total Population Served by Systems	MCL (mg/L)	Non-Zero Modal MRL (mg/L)	Range of MRLs (mg/L)
IOCs						
Beryllium	47,761	18,933	104,573,700	0.004	0.001	0 - 1
Chromium	65,437	19,695	105,380,000	0.1	0.01	0 - 5
Fluoride	93,062	20,803	107,075,700	4	0.1	0 - 100
Mercury	64,764	18,995	105,096,700	0.002	0.001	0 - 0.5
Thallium	46,959	17,972	104,291,600	0.002	0.001	0 - 2.2
SOCs						
Alachlor	58,700	14,330	95,678,600	0.002	0.0002	0 - 0.2
Bis(2-ethylhexyl)phthalate	41,052	9,418	78,293,000	0.006	0.0006	0 - 0.2
Carbofuran	51,994	13,925	94,338,000	0.04	0.0009	0 - 0.9
Chlordane	59,689	13,184	97,459,900	0.002	0.0002	0 - 0.2
1,2-Dibromo-3-	98,559	14,042	87,727,200	0.0002	0.00002	0 - 0.5
Diquat	36,443	9,159	73,602,900	0.02	0.0004	0 - 0.4
Glyphosate	33,957	7,862	70,081,900	0.7	0.006	0 - 6
Heptachlor	57,489	14,245	96,563,400	0.0004	0.00004	0 - 0.1
Heptachlor Epoxide	57,731	14,133	96,222,900	0.0002	0.00002	0 - 0.1
Hexachlorobenzene	52,931	14,011	94,035,300	0.001	0.0001	0 - 0.1
Hexachlorocyclopentadiene	52,614	13,922	93,429,200	0.05	0.005	0 - 0.1
Oxamyl	47,664	13,157	92,345,800	0.2	0.002	0 - 2
Picloram	46,323	12,907	93,235,500	0.5	0.0001	0 - 0.2
Simazine	68,176	14,533	98,178,100	0.004	0.001	0 - 0.1
Toxaphene	52,429	13,805	95,108,100	0.003	0.001	0 - 2.2
VOCs						
Benzene	188,811	23,266	110,866,600	0.005	0.0005	0 - 0.5
Carbon Tetrachloride	182,944	23,028	110,605,500	0.005	0.0005	0 - 0.5

Contaminant	Total Number of Analyses	Total Number of Systems	Total Population Served by Systems	MCL (mg/L)	Non-Zero Modal MRL (mg/L)	Range of MRLs (mg/L)
1,4-Dichlorobenzene	123,229	18,961	72,994,500	0.075	0.0005	0 - 0.5
1,2-Dichloroethane	180,631	23,038	110,794,100	0.005	0.0005	0 - 1
1,1-Dichloroethylene	170,411	19,101	106,607,600	0.007	0.0005	0 - 0.5
Dichloromethane	170,899	21,530	110,146,100	0.005	0.0005	0 - 0.62
1,2-Dichloropropane	180,920	21,988	110,450,100	0.005	0.0005	0 - 0.5
Tetrachloroethylene	195,239	22,362	110,557,800	0.005	0.0005	0 - 0.5
1,1,2-Trichloroethane	173,927	22,284	110,366,500	0.005	0.0005	0 - 0.5
Trichloroethylene	201,235	23,035	110,612,900	0.005	0.0005	0 - 0.5

The reduced number of systems sampling for SOC data, as compared to IOCs and VOCs, may relate to state waivers for pesticides and herbicides.

VI.B. Previous Occurrence Estimation Methods

In the past, several estimation procedures have been implemented to estimate system mean concentrations when non-detection data are present. Each method has a unique way of handling non-detection data, characterizing the data's distribution, and generating occurrence estimates. The occurrence estimation approach developed for and used in this report reflects, to some degree, an evolution of analytical approaches. Previously, EPA had developed an approach to estimate radon occurrence in drinking water, as well as another approach to estimate arsenic occurrence in drinking water.

Multiple data sets, containing different proportions of non-detection data, were used in the radon analysis. (These are described in detail in *Methods, Occurrence, and Monitoring Document for Radon in Drinking Water*; USEPA, 2000a.) A log-normal distribution assumption was primarily used to generate system mean concentration values. When data sets contained less than 5% non-detection data, the log mean (natural log of the geometric mean) and log standard deviation (natural log of the geometric standard deviation) were the primary statistics used. When the data contained a higher proportion of non-detection data, the log mean and log variance parameters were estimated by a maximum likelihood estimation (MLE) method, which involves the iterative calculation of log likelihood ratios while updating the estimates of the non-detection values of the data until the likelihood ratio is optimized within specified limits. To calculate the proportion of systems above radon levels and the confidence limits on the proportions, two different approaches were employed: a distributional approach and a non-distributional approach. The distributional approach simply applied the known properties of the cumulative normal distribution to the estimated log mean and log standard deviation of radon occurrence in a given population of sources/systems to estimate the proportion that would be expected to be above the potential regulatory level. A non-distributional approach was used when the fits of the radon distributions to log-normal distributions were not very good. This method calculated the upper and lower confidence limits on the estimated proportion of systems above a certain level. This method, which is based on counts of actual systems/sources above specified levels, makes no assumptions about the underlying shape of the distribution of radon levels.

The arsenic analysis used five steps for estimating national occurrence. First, system arithmetic means were calculated using a method called "Regression on Ordered Statistics (ROS)", developed by Helsel and Cohn (1988). This approach, which assumes that the underlying distribution of occurrence data are reasonably well characterized by a log-normal distribution, "fills-in" values for non-detection data based on the values of the detection data. Although MLE (described above for radon) is an alternative method

for estimating the log-normal distribution parameters, its approach was somewhat more computationally involved than the ROS method. In comparing methods for estimating distributional parameters, Helsel and Gilliom (1988) found that the MLE method was preferred for estimating percentile values for non-detection water quality data, but that the regression methods (such as ROS) were preferred for estimating the distributional parameters (mean and standard deviation). For this reason, and the relative ease of calculation compared with MLE approaches, the ROS method was used in estimating arsenic occurrence. Once the system means were generated, State exceedance probability distributions for ground water and surface water were calculated. Weighted sums of the exceedance probabilities generated for each state were then used to develop regional exceedance probability distributions for ground water and surface water. National exceedance probability distributions were developed as the weighted sum of the exceedance probability distributions derived for each Region. Finally, the estimated numbers of systems exceeding levels of interest were generated as the product of the national probability distributions and the total number of ground water or surface water systems. For a detailed description of the protocol, refer to *Arsenic Occurrence in Public Drinking Water Supplies* (USEPA, 2000b).

The arsenic "ROS approach" for estimating occurrence and exposure was used for preliminary estimations in this Six-Year Review of contaminant occurrence estimation. However, since this occurrence modeling approach could not provide a complete quantitative estimation of statistical error, alternative modeling approaches were considered, and an approach using a Bayesian-based modeling approach was subsequently developed. As part of the Bayesian-based model validation, a detailed comparison was made assessing the Bayesian-based model performance relative to the that of the ROS approach.

VI.C. General Description of Bayesian Statistics

Bayesian statistics are named after an English mathematician, Thomas Bayes, who first used probability inductively and established a mathematical basis for probability inference. The Bayesian approach is based on the concept that more may be known about an actual situation than is contained in the data from a single experiment regarding that situation. Bayesian methods, for example, can be used to combine results and information from several different, but related situations or experiments. This type of approach considers not only what information is contained in the specific situation (or data) directly being assessed, but what outside expertise or information might also contribute to an understanding of the situation being assessed (such as an assessment of the likelihood of an event occurring). The Bayesian view of probability is related to a "degree of belief" and measures the feasibility of an event occurring in the context of incomplete knowledge.

Bayesian inference is best suited to problems that involve making decisions under uncertainty. Bayes's Theorem begins with a statement of what is known prior to performing the experiment. (In the context of statistical modeling, this prior knowledge is typically in the form of a probability density function, a mathematical expression that defines the likelihood of an event occurring.) The prior knowledge, or "prior," can be based on the results of other experiments, on expert opinion, or actual existing data. The Bayesian analytical approach is designed to start with a statement of initial (or "prior") knowledge, and then use that knowledge and related information to improve upon the initial state of knowledge.

In the context of statistical estimations of contaminant occurrence, a "prior" is first specified and could be the analytical monitoring results of contaminant occurrence at a public water system. The prior is then supplemented with the inclusion of a likelihood function, which mathematically presents the distribution of similar, relate data. The modeling process then revises the prior distribution based on this additional (likelihood) information to generate an updated estimate (the "posterior" distribution). This "posterior" distribution represents what is now believed about the original parameter (the "prior") in light of the supplemental data. This updating process is repeated again and again in an iterative process; the posterior from one distribution becomes the prior for the next, and so on. This updating proceeds until the model "converges" (meaning that two successive estimates of the repeated updating process are equal, and no further updating is necessary). Sections VI.D. - VI.G. summarize the Bayesian-based

estimation model. A more detailed, technical description of the Bayesian model, and its programming code, are included in Appendix B.

VI.D. Estimating System Mean Concentrations

The general Stage 2 approach is to use the available 16-State cross-section data to model contaminant concentrations in drinking water as a function of system characteristics, such as source water type and system size. As stated above, Bayesian methods allow various sources of variability and uncertainty in occurrence to be explicitly quantified. For these analyses, a Bayesian-based hierarchical model is fit to characterize uncertainty in the estimates.

The model is based on the assumption that each system is log-normally distributed with an unknown mean and unknown variance. It is a common assumption that water data follow a log normal distribution[7]. The "priors" in this analysis are for the means and variance. For each system, a constant variance, but non-constant mean, is assumed. Once the prior distribution has been established, a two-level statistical model is built. The lower level features the observed concentrations (analytical detections and non-detections), which are treated as coming from a log-normal distribution. The upper level features the unknown parameters of the log-normal probability distribution of each system, whose values are estimated based on the detections and non-detections. Thus, the Bayesian-based approach allows the model to produce a conditional distribution of the unknown features of interest (system mean and standard deviation) as a function of the known data (both detections and non-detections). (Although actual numerical values are unknown for the non-detections, they are known to be less than the MRL.)

By pooling evidence from many observations for thousands of PWSIDs, this model estimates the mean concentration and standard deviation for each system using a Bayesian-based approach. An advantage of this model is that it allows for "borrowing of strength" in estimation between neighboring strata (Lockwood *et al.*, 2001). In particular, when a stratum (e.g., the all ground water systems serving less than 500 people) has either no or very few observations, its parameter estimates are shrunk toward the nearest strata that have data (e.g., the all ground water systems serving between 501-3,301 people). Thus, this process improves estimates for entire strata. Uncertainty about the estimated system mean concentration and standard deviation are summarized in their respective posterior probability distributions. In other words, instead of a fixed point estimate of a system mean concentration and standard deviation, each estimated system mean concentration, as well as standard deviation, is presented as a probability distribution.

A historical limitation of using Bayesian methods was that analytical solutions for the required computations were available for a limited number of parameters (Qian, 2001). The amount of parameters in this analysis exceeded this limit, making it impossible to generate estimates by use of Bayes' Theorem. However, the advent of fast and inexpensive computing has promoted the development of several methods of performing Bayesian inference (Qian, 2001). The method used for this analysis is based on Monte Carlo sampling.

The Monte Carlo method is, in general terms, any technique using random numbers to model some sort of a process. (This technique works particularly well when the process is one where the underlying probability distributions are known, but the results are more difficult to determine.) During a Monte Carlo simulation, the value used for each variable is selected randomly from the defined probability distribution. Many simulations are then performed and the desired result is taken as an average over the number of observations (which may be a single observation or perhaps millions of observations).

A Markov chain Monte Carlo (MCMC) method was used for this analysis. Markov chain Monte Carlo (MCMC) is an important technique used by Bayesian practitioners to sample from the posterior distribution. MCMC generates a chain that converges, in distribution, on the posterior parameter

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[7] Ott, W.R. 1995. *Environmental Statistics and Data Analysis.* Lewis Publishers, Boca Raton.

distribution, that can be regarded as a sample from the posterior distribution (Qian *et al.*, 2001). Using these samples, it is then possible to calculate the statistics of interest (mean concentration and standard deviation). This technique also provides a means to generate a random sequence of model output that may be used to make inferences about the model uncertainties that derive from measurement uncertainties.

VI.E. Estimation of Probabilities of Threshold Exceedance

Approximately 500 Monte Carlo simulations[8], using the stratum-level mean and standard deviation as model input, then estimate the number of systems for each source water type and system-size category that are expected to exceed each specified concentration threshold. The estimated number of systems that exceed each threshold for a given stratum is then divided by the total number of systems in that stratum, resulting in the percent of systems estimated to exceed a specified threshold for a specific stratum (the estimated mean "probability of threshold exceedance").

The estimates for population served exceedances are generated in a similar manner. In the process of the system exceedance estimation steps, the actual population served by each system in the data set is formally (mathematically) connected (or "attached") to each system. Therefore, when the Monte Carlo simulations are run to estimate the number of systems for each source water type and system-size category that are expected to exceed each specified concentration threshold, there are corresponding population served values along with the system number estimates. So, the estimated population served by systems that exceed each threshold for a given stratum is then divided by the total population served in that stratum, resulting in the percent of population estimated to be served by systems with a mean concentration that exceeds a specified concentration threshold for a specific stratum (the estimated mean "probability of threshold exceedance").

VI.F. Credible Intervals

In Bayesian analysis, credible intervals are generated to quantify the uncertainty of each estimated mean probability of exceedance. A Bayesian credible interval defines the range of values within which the true value of the parameter is believed to occur. The actual upper and lower numeric values of the credible interval are referred to as the "upper credible bound" and the "lower credible bound," respecitvely. Because the probability of exceedance is estimated using approximately 500 Monte Carlo simulations, there exists 500, instead of one, estimates of the probability. A credible interval is the central region within which a specified percentage of the posterior density lies equally within the distribution (e.g., the 95% CI would be the region of the posterior density which lies between 2.5% and 97.5%). Thus, a 90% credible interval is an interval between the 5th and 95th percentiles of the 500 Monte Carlo values of probability of exceedance.

The Bayesian "credible interval" probability that the actual parameter lies within the interval is different from standard definition of "confidence interval", which is based on (hypothetical) repeated experiments. Because the credible interval directly relates to the distribution of the actual data, this interval may or may not include the mean, depending on the skewness of the estimated distribution. In other words, the credible interval is not an interval around the mean (like the more traditional confidence interval). The traditional statistical ("frequentist") 90% confidence interval is an interval that will contain the true value of the mean 90% of the time. For a particular study, a confidence interval provides qualitative information since they are really a measure of how precise an estimated effect is. If a confidence interval is wide, the estimated mean is less reliable. In contrast, a Bayesian credible interval, has the precise probabilistic meaning. In our case, a 90% credible interval of the exceedance probability is interpreted as a 90% probability that the true value of the exceedance probability lies in the interval.

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[8] To test the number of Monte Carlo simulations necessary for this analysis, preliminary model runs were conducted using 500 simulations, 1,000 simulations, and 2,000 simulations. Expanding the amount of simulations did not alter the results. Thus, 500 simulations proved adequate and were used for computational reasons.

For some extremely skewed estimated distributions, it is possible that the Monte Carlo estimated 5th and 95th percentiles are the same. For example, several estimates of the probability of a system mean exceeding a given threshold have an upper 90% credible bound of zero and a lower 90% credible bound also equal to zero, but a mean ("best estimate") probability of exceedance NOT equal to zero. This is because the probability of a threshold exceedance is evaluated by several Monte Carlo samples and at least 95% of the samples are equal to zero. Under such a situation, one should conclude that the chance is less than 5% to have an exceedance probability that is greater than zero.

Also note that the credible intervals for estimates of the totals (total ground water, total surface water, and total combined ground plus surface water) are always narrower than the credible intervals for each individual stratum. Because the estimates, and the associated standard errors, of the totals are based on a much larger sample size, the standard errors for totals are less and the credible intervals are narrower than for the individual stratum.

VI.G. Using the Occurrence Probability Estimates to Obtain National Occurrence Estimates

Once the probability of exceedance has been estimated through Stage 2 analysis, a straight-forward extrapolation can be used to estimate national occurrence[9]. The total national number of systems (or population served by systems) estimated to exceed a specified threshold is generated by multiplying the representative cross-section probability of exceedance by the national numbers for systems (and population served by systems) documented in the *Water Industry Baseline Handbook, Second Edition - 2000* (USEPA, 2000c). The total number of ground and surface water community water systems (CWSs) plus non-transient, non-community water systems (NTNCWSs) in the Baseline Handbook is 65,030, and the total population served by ground and surface water CWSs plus NTNCWSs is 213,008,182 persons. (The handbook presents the system and population served numbers stratified by source water type and population served size categories as well.) To derive the national occurrence estimate for a specific threshold/source water type/population served size category, the national number of PWSs (or population served by PWSs) from the handbook is simply multiplied by the probability of exceedance (a percentage) estimated by the statistical model. (The process of generating the probabilities of exceedance are described in Section VI.E.).

Table VI.G.1. illustrates the calculation of national estimates of exceedance. For example, to estimate the number of systems nationally expected to have mean concentration values of fluoride exceeding 4 mg/L for ground water systems serving 500 people or less, the best estimate probability of exceedance (0.5895%) is multiplied by the total number of ground water systems nationally that serve 500 people or less (43,498 systems). The resulting estimate equals 256 systems (43,498*0.005895=256). The national estimate of population exposed to a given contaminant is extrapolated in a similar fashion (i.e., the probability of exceedance is multiplied by the total population served nationally).

Table VI.G.1. Calculating National Estimates of Exceedance

Population-Served Size Category	Total Number of Systems Nationally [1]	Probability of Exceedance			National Estimate of Exceedance		
		Best Estimate	Lower 95% CB	Upper 95% CB	Best Estimate[2]	Lower 95% CB	Upper 95% CB
≤ 500	43,498	0.5895%	0.4881%	0.6878%	256	212	299
501 - 3,300	12,158	0.4803%	0.3283%	0.6313%	58	40	77
3,301 - 10,000	2,405	0.6018%	0.2988%	0.8964%	14	7	22
10,001 - 50,000	1,190	0.1355%	0.0000%	0.3484%	2	0	4

[9] Extrapolation is the estimation of unknown values by extending or projecting from known values.

> 50,000	189	0.0160%	0.0000%	0.0000%	0	0	0
GW Total[2]	59,440	0.5496%	0.4685%	0.4685%	327	278	378

1. System inventory data from the *Water Industry Baseline Handbook, Second Edition - 2000* (USEPA, 2000c).
2. Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

The estimated number of systems and population served by systems in the 16 States were also extrapolated from the Stage 2 probabilities of exceedance. To generate the 16-State estimates, the probabilities of exceedance were simply multiplied by the total number of systems (or population served by systems) with 16-State data for that particular contaminant/source water type/system size. (For the total number of systems and population served by systems for each contaminant, please refer to Table VI.A.1.)

VI.H. Summary of Occurrence Estimations

The Stage 2 analytical findings are summarized below. The complete Stage 2 analytical findings, presented in Appendix C, include estimated contaminant mean concentrations, the statistical best estimates of exceeding contaminant concentration thresholds, and both the 90% and 95% credible intervals for the best estimates. All findings presented in Appendix C are stratified by source water type and system size (based on population-served), presented for multiple contaminant concentration thresholds. These findings also include a single aggregate result for each contaminant/threshold (which provides a mean concentration, best estimate for exceeding that threshold, and the 90% and 95% credible intervals for the best estimate aggregated across all system sizes for all water source types). Additionally, the best estimates (and credible intervals) have been used to extrapolate to national values. These national extrapolations (including both stratified and aggregate values) present the modeled best estimates for the national number of systems, and the population served by those systems, that are expected to exceed the specified threshold concentrations for each of the 30 contaminants evaluated.

The Stage 2 best estimate findings (based on the 16-State national cross-section data) are presented in comparison to the Stage 1 (16-State) findings in Table VI.H.1. The findings are presented as the percent of systems, and population-served by those systems, that exceed the current MCL for each contaminant. Note that this table compares the two different types of analytical findings of the Stage 1 (non-parametric "peak" concentration values) and the Stage 2 (parametric mean concentration values) analyses. This comparison is included as a general, qualitative evaluation of the Stage 2 model, enabling assessments of, for example, the relative rankings of occurrence of contaminants in Stage 1 compared to Stage 2. Also, for a given contaminant and concentration threshold, Stage 1 findings (e.g., the "percent of systems with at least a single sample analytical result greater than the MCL") should be greater than the corresponding Stage 2 estimates (e.g., the "percent of systems with an estimated mean concentration greater than the MCL"). Following these occurrence measurement differences, Stage 1 analyses can be described as conservative, roughly assessing "peak" concentrations in systems as compared to the mean concentrations, roughly assessing "long-term" contaminant concentrations, used in the Stage 2 analyses.

Although Stage 1 findings are generally greater than Stage 2 findings, there can be exceptions to this general rule. For example, the Stage 1 findings for systems with 1,2-dibromo-3-chloropropane greater than the MCL is less than the Stage 2 estimates. Exceptions to the general rule can legitimately occur and result from technical aspects of the Bayesian-based modeling procedure itself. This is partly due to a phenomenon referred to as "Bayesian shrinkage," where the higher and lower values of the range of estimated values shift (or shrink) toward the mean, thereby increasing the lower values and decreasing the higher values. Also, in the Bayesian-based hierarchical model developed for the Stage 2 analyses, a Monte Carlo simulation step is used to estimate the number of systems with mean concentrations above a specified threshold concentration. The input for this Monte Carlo step is the estimated system mean concentration and variance about the mean estimate. A high variance can affect the Monte Carlo simulation results which, in turn, affects the final Stage 2 results.

Table VI.H.1. Comparison of Aggregate Stage 1 and Stage 2 Analytical Results Based on the 16-State National Cross-Section - Percent of Systems and Population Served by Systems Greater than the MCL

Contaminant	MCL (mg/L)	% Systems > MCL		% Population-Served by Systems > MCL	
		Stage 1	Stage 2	Stage 1	Stage 2
IOCs					
Beryllium	0.004	0.217%	0.0781%	0.621%	0.0208%
Chromium	0.1	0.127%	0.00424%	0.666%	0.00139%
Fluoride	4	1.28%	0.511%	4.56%	0.0897%
Mercury	0.002	0.263%	0.0672%	0.276%	0.00627%
Thallium	0.002	0.679%	0.283%	1.85%	0.0743%
SOCs					
Alachlor	0.002	0.0419%	0.000%	0.259%	0.000%
Bis(2-ethylhexyl)phthalate	0.006	2.20%	0.256%	3.19%	0.119%
Carbofuran	0.04	0.000%	0.000%	0.000%	0.000%
Chlordane	0.002	0.0152%	0.000%	0.000477%	0.000%
1,2-Dibromo-3-chloropropane	0.0002	0.912%	1.41%	11.4%	2.60%
Diquat	0.02	0.0218%	0.000%	0.208%	0.000%
Glyphosate	0.7	0.000%	0.000%	0.000%	0.000%
Heptachlor	0.0004	0.00702%	0.000%	0.000398%	0.000%
Heptachlor Epoxide	0.0002	0.0283%	0.000%	0.0291%	0.000%
Hexachlorobenzene	0.001	0.00714%	0.000%	0.0399%	0.000%
Hexachlorocyclopentadiene	0.05	0.000%	0.000%	0.000%	0.000%
Oxamyl	0.2	0.000%	0.000%	0.000%	0.000%
Picloram	0.5	0.000%	0.000%	0.000%	0.000%
Simazine	0.004	0.0550%	0.000%	0.0469%	0.000%
Toxaphene	0.003	0.00724%	0.000%	0.131%	0.000%
VOCs					
Benzene	0.005	0.189%	0.0313%	0.518%	0.00947%
Carbon Tetrachloride	0.005	0.204%	0.0159%	7.35%	0.0316%
1,4-Dichlorobenzene	0.075	0.000%	0.000%	0.000%	0.000%
1,2-Dichloroethane	0.005	0.126%	0.00479%	8.40%	0.000331%

Contaminant	MCL (mg/L)	% Systems > MCL		% Population-Served by Systems > MCL	
		Stage 1	Stage 2	Stage 1	Stage 2
1,1-Dichloroethylene	0.007	0.236%	0.0911%	8.69%	0.331%
Dichloromethane	0.005	0.669%	0.0131%	9.50%	0.119%
1,2-Dichloropropane	0.005	0.0682%	0.00358%	1.18%	0.0358%
Tetrachloroethylene	0.005	0.778%	0.202%	13.5%	0.685%
1,1,2-Trichloroethane	0.005	0.0404%	0.000%	6.97%	0.000%
Trichloroethylene[1]	0.005	0.647%	0.236%	13.3%	8.19%

Note that this table provides a qualitiative comparison between the diferent estimation approaches of the Stage 1 (non-parametric "peak" concentration values) and the Stage 2 (parametric mean concentration values) analyses. Therefore, two diferent types of statistical measures are being compared here.

All percentages are shown to three significant figures.

1. The low percentage of systems with trichloroethylene MCL exceedances, as compared to the very higher percentage of population served by those systems with trichloroethylene MCL exceedances, is the result of a few systems with MCL exceedances that serve very lge populations.

Based on the generated Stage 2 probability of exceedance percentages, national extrapolations can be calculated. The Stage 2 probability of exceedance percentages are multiplied by the known national total number of systems, and population served by systems (based on national PWS inventory information from the Baseline Handbook). The result is an extrapolated national estimate of the number of systems (Table VI.H.2), and population served by systems (Table VI.H.3), that are expected to exceed the MCL. In general, 1,2-dibromo-3-chloropropane has the largest number of systems estimated to exceed the MCL (almost 200 systems in the 16 States, and over 900 systems nationally). The second largest number of systems estimated to exceed the MCL was for fluoride (just over 100 systems in the 16 States, and over 300 systems nationally). Trichloroethylene had, by far, the largest estimated population served by systems exceeding the MCL (over 9 million people in the 16 States, and approximately 17 million people nationally). The next largest population potentially exposed to a contaminant greater than the MCL was 1,2-dibromo-3-chloropropane (approximately 2.3 million people in the 16 States and about 5.5 million people nationally). For 14 of the 30 contaminants, zero systems were estimated to exceed the MCL in the 16 States and nationally. Range estimates (based on the 95% credible bounds around the best estimate) for the number of systems, and population served by those systems, are also included in Tables VI.H.2 and VI.H.3.

Table VI.H.2. Best Estimate and Range of the Number of Systems Exceeding the MCL in the 16 Cross-Section States and Nationally

Contaminant	MCL (in mg/L)	Best Estimate of Systems Estimated to Exceed the MCL		Range Estimate of Systems Estimated to Exceed the MCL	
		16 States	National	16 States	National
IOCs					
Beryllium	0.004	15	51	7 - 24	24 - 82
Chromium	0.1	1	3	0 - 3	0 - 10
Fluoride	4	106	332	91 - 123	284 - 385

Contaminant	MCL (in mg/L)	Best Estimate of Systems Estimated to Exceed the MCL		Range Estimate of Systems Estimated to Exceed the MCL	
		16 States	National	16 States	National
Mercury	0.002	13	44	8 - 18	27 - 62
Thallium	0.002	51	184	35 - 66	127 - 239
SOCs					
Alachlor	0.002	0	0	0 - 0	0 - 0
Bis(2-ethylhexyl)phthalate	0.006	24	166	14 - 37	97 - 256
Carbofuran	0.04	0	0	0 - 0	0 - 0
Chlordane	0.002	0	0	0 - 0	0 - 0
1,2-Dibromo-3-chloropropane	0.0002	199	920	171 - 231	792 - 1,070
Diquat	0.02	0	0	0 - 0	0 - 0
Glyphosate	0.7	0	0	0 - 0	0 - 0
Heptachlor	0.0004	0	0	0 - 0	0 - 0
Heptachlor Epoxide	0.0002	0	0	0 - 0	0 - 0
Hexachlorobenzene	0.001	0	0	0 - 0	0 - 0
Hexachlorocyclopentadiene	0.05	0	0	0 - 0	0 - 0
Oxamyl	0.2	0	0	0 - 0	0 - 0
Picloram	0.5	0	0	0 - 0	0 - 0
Simazine[1]	0.004	0	1	0 - 0	0 - 0
Toxaphene	0.003	0	0	0 - 0	0 - 0
VOCs					
Benzene	0.005	7	20	4 - 12	11 - 34
Carbon Tetrachloride	0.005	4	10	2 - 5	6 - 14
1,4-Dichlorobenzene	0.075	0	0	0 - 0	0 - 0
1,2-Dichloroethane	0.005	1	3	0 - 3	0 - 8
1,1-Dichloroethylene	0.007	17	59	13 - 23	44 - 78
Dichloromethane	0.005	3	9	1 - 6	3 - 18
1,2-Dichloropropane	0.005	1	2	0 - 2	0 - 6
Tetrachloroethylene	0.005	45	132	37 - 53	108 - 154
1,1,2-Trichloroethane	0.005	0	0	0 - 0	0 - 0
Trichloroethylene	0.005	54	154	47 - 63	133 - 178

The estimates for the number of systems in the 16 States and nationally are both based on the same modeled best estimate. The 16-State values are obtained by multiplying the probability of exceedance by the actual number of systems in the 16-State cross-section for each particular contaminant. The national values are obtained by multiplying the same probability of exceedance by the total number of systems nationally based on inventory numbers identified in the *Water Industry Baseline Handbook* (USEPA, 2000c). The range of values are based on the 95% credible bounds around the best estimate.

Note: All system values are rounded to the nearest whole system.

1. Model output resulted in an estimate of less than half a system; however the fraction was rounded up to 1.

Table VI.H.3. Best Estimate and Range of the Population-Served by Systems Exceeding the MCL in the 16 Cross-Section States and Nationally

Contaminant	MCL (in mg/L)	Best Estimate of Population Served by Systems Estimated to Exceed the MCL		Range Estimate of Population Served by Systems Estimated to Exceed the MCL	
		16 States	National	16 States	National
IOCs					
Beryllium	0.004	21,800	44,400	2,900 - 81,700	5,900 - 166,300
Chromium	0.1	1,500	3,000	0 - 8,400	0 - 16,900
Fluoride	4	96,000	191,000	59,400 - 151,300	118,200 - 301,000
Mercury	0.002	6,600	13,400	1,000 - 23,400	2,000 - 47,400
Thallium	0.002	77,500	158,300	16,300 - 256,900	33,300 - 524,600
SOCs					
Alachlor	0.002	0	0	0 - 0	0 - 0
Bis(2-ethylhexyl)phthalate	0.006	93,400	254,100	14,600 - 284,500	39,700 - 774,100
Carbofuran	0.04	0	0	0 - 0	0 - 0
Chlordane	0.002	0	0	0 - 0	0 - 0
1,2-Dibromo-3-chloropropane	0.0002	2,278,300	5,531,800	1,853,700 - 3,307,300	4,500,900 - 8,030,400
Diquat	0.02	0	0	0 - 0	0 - 0
Glyphosate	0.7	0	0	0 - 0	0 - 0
Heptachlor	0.0004	0	0	0 - 0	0 - 0
Heptachlor Epoxide	0.0002	0	0	0 - 0	0 - 0
Hexachlorobenzene	0.001	0	0	0 - 0	0 - 0
Hexachlorocyclopentadiene	0.05	0	0	0 - 0	0 - 0
Oxamyl	0.2	0	0	0 - 0	0 - 0
Picloram	0.5	0	0	0 - 0	0 - 0
Simazine	0.004	100	200	0 - 0	0 - 0
Toxaphene	0.003	0	0	0 - 0	0 - 0
VOCs					
Benzene	0.005	10,500	20,200	2,100 - 33,200	4,000 - 63,800
Carbon Tetrachloride	0.005	35,000	67,400	800 - 47,500	1,500 - 91,400
1,4-Dichlorobenzene	0.075	0	0	0 - 0	0 - 0
1,2-Dichloroethane	0.005	400	700	0 - 800	0 - 1,500

Contaminant	MCL (in mg/L)	Best Estimate of Population Served by Systems Estimated to Exceed the MCL		Range Estimate of Population Served by Systems Estimated to Exceed the MCL	
		16 States	National	16 States	National
1,1-Dichloroethylene	0.007	352,700	704,600	340,400 - 381,100	678,900 - 760,000
Dichloromethane	0.005	131,200	253,700	200 - 275,300	300 - 532,300
1,2-Dichloropropane	0.005	39,500	76,200	0 - 142,000	0 - 273,900
Tetrachloroethylene	0.005	757,200	1,458,900	519,700 - 965,100	1,001,400 - 1,859,300
1,1,2-Trichloroethane	0.005	0	0	0 - 0	0 - 0
Trichloroethylene	0.005	9,062,500	17,451,800	8,828,000 - 9,302,500	17,000,200 - 17,914,000

The estimates for the number of systems in the 16 States and nationally are both based on the same modeled best estimate. The 16-State values are obtained by multiplying the probability of exceedance by the actual number of systems in the 16-State cross-section for each particular contaminant. The national values are obtained by multiplying the same probability of exceedance by the total number of systems nationally based on inventory numbers identified in the *Water Industry Baseline Handbook* (USEPA, 2000c). The range of values are based on the 95% credible bounds around the best estimate.

Note: All population values are rounded to the nearest hundred.

VI.I. Stage 2 Model Verification

Several approaches for model verification were undertaken. The first verification assessment (comparing estimated mean concentrations) partially assesses both the modeling process and a key component of the cross-section construction. A simulation (synthetic) data study was also conducted to compare the Bayesian-based approach to the "ROS" method, and to test the assumption of constant variance and log-normality at the system level for the national distribution of system means.

To partially assess the modeling process and a key component of the cross-section construction, the mean concentration values for select contaminants were estimated for groups of top quartile and bottom quartile States. (For a description of how quartiles are determined, please see Section II.B.) The cross-section development approach presumes that the top quartile States have a higher pollution potential than the bottom quartile States, and, therefore, the estimated mean concentrations for the top quartile States should be greater than those for the bottom quartile States. The estimated mean concentration values for the top quartile States were always higher than the mean concentration for the bottom quartile States with the lone exception of heptachlor (a very low occurrence SOC).

Table VI.I.1. Stage 2 Comparison of Top Quartile and Bottom Quartile States' Mean Concentration Values

Contaminant Name	Mean Concentration (in mg/L)	
	Top Quartile States	Bottom Quartile States
IOC[1]		
Fluoride	0.70753270	0.33453498
SOC[2]		
Alachlor	0.00000693	0.00000099
Carbofuran	0.00000170	0.00000113

Contaminant Name	Mean Concentration (in mg/L)	
	Top Quartile States	Bottom Quartile States
Diquat	0.00001604	0.00000771
Glyphosate	0.00002159	0.00001268
Heptachlor	0.00000012	0.00000027
Heptachlor Epoxide	0.00000006	0.00000004
Hexachlorobenzene	0.00000039	0.00000022
Oxamyl	0.00000506	0.00000173
Picloram	0.00000572	0.00000148
VOC[3]		
1,4-Dichlorobenzene	0.00005578	0.00001358
Tetrachloroethylene	0.00029685	0.00004846

1. IOC - Ranking based on CDC Fluoridation Census - Top Quartile States = IN, IL, KY, SD; Bottom Quartile States = CA, NJ, MT, OR.
2. SOC - Ranking based on Total Farm Ag. Chemical Expenses - Top Quartile States = CA, FL, IL, TX; Bottom Quartile States = MT, NJ, NM, VT.
3. VOC - Ranking Based on Number of Manufacturing Establishments / Sq. Mile - Top Quartile States = CA, FL, IL, NJ; Bottom Quartile States = MT, NE, NM, SD.

A rigorous, quantitative model verification was conducted through a simulation study, using six simulated (synthetic) data sets. This study was designed to explore the impact of the log-normal, as well as the constant variance, assumption made on the system level for the national distribution of system means. In addition, the Bayesian-based hierarchical modeling approach was compared to the Regression on Ordered Statistics (ROS) plotting position method.

The six simulated data sets were divided into three groups. The first group was designed to emphasize the comparison of the Bayesian and ROS methods. The second group was generated to evaluate the constant variance assumption. Finally, the third group of simulated data sets tested the impact of a log-normal assumption at the system level on the national distribution of system means. Please refer to Appendix B for details regarding the simulated data study.

Both the simulated study and the mixture model indicated that the Bayesian-based hierarchical model used for the study is appropriate. The simulated study showed that the prior assumptions about the contaminant distribution do not have an undue influence on the posterior estimate of the national distribution of system means. The mixture model study showed that using a log-normal distribution at the system level is appropriate. When the log-normal assumption is not used, the estimated national distribution has a slightly larger variance, which may result in an overestimate of the exceedance probabilities.

Another direct verification of the model consists of a traditional bounding analysis. A bounding analysis enables an assessment of how well the model estimates system mean concentrations, and by inference, how well the model estimates values for the non-detection values used in the mean concentration estimations. (Non-detections typically comprise a significant proportion of drinking water analytical records for any particular contaminant.) For the bounding analysis, EPA generated a data set based on the raw analytical results for each contaminant. In this data set, a "lower bound" was generated by substituting the value of 0 (zero) for all non-detections, and an "upper bound" was generated by substituting a value equal to the non-zero modal MRL for all non-detections. For additional comparative detail, a value equal to ½ the MRL was also substituted for all non-detection records for each contaminant assessed.

Fifteen contaminants were assessed with this bounding analysis. For all contaminants, the modeled system mean concentration was 'bracketed' by the bounding values, with the lower bound below and the upper bound above the modeled values. In all cases except for fluoride, the bounding value substituting ½ MRL for non-detections also was above the modeled system mean. A complete graphical presentation of the bounding analysis is included in Appendix D. (Also included in the graphs in Appendix D are the 90% Credible Bounds of model prediction.)

VI.J. Stage 2 Model Validation

Another assessment of the model is based on the comparison of the modeled occurrence estimations to other known measures of contaminant occurrence in drinking water. In the next section, the Stage 2 occurrence estimates for fluoride conducted for the Six-Year Review were assessed relative to system fluoridation findings reported in the US Department of Health and Human Services Centers for Disease Control and Prevention (CDC) *Fluoridation Census 1992.* Additional information was provided by the CDC regarding the unpublished *Fluoridation Census 2000.* And in the following section, a general assessment of the Stage 2 model findings relative to MCL violation records in SDWIS/FED was conducted.

VI.J.1. Centers for Disease Control and Prevention *Fluoridation Census*

This section provides a general comparative assessment between the Six-Year Review's Stage 2 national fluoride occurrence estimates (based on the 16-State national cross-section) primarily with public water system fluoridation findings reported in the Centers for Disease Control and Prevention (CDC) *Fluoridation Census 1992* as well as with findings provided by CDC staff from the unpublished *Fluoridation Census 2000* (CDC, 2002). A rigorous and direct comparison cannot be made between the CDC *Fluoridation Census 1992* (or *2000*) findings and the EPA-OGWDW's Six-Year Review statistical model estimations. The CDC census findings report the voluntary provision of qualitative/semi-quantitative information from public drinking water systems that identify if a particular system is operating as a fluoridating system (with either natural or "adjusted" concentrations of fluoride within the optimum range of fluoride). The OGWDW Six-Year Review Stage 2 findings are quantitative, parametric statistical estimations of fluoride occurrence based on compliance monitoring analytical results of fluoride concentrations in public drinking water systems from the 16-State cross-section (with the results from the 16-State cross-section then extrapolated to national occurrence estimates).

Despite the significant differences in the underlying sources of fluoride occurrence information, the comparison between the CDC and OGWDW Stage 2 findings is informative. The comparison suggests that the Stage 2 modeled national estimates are valid, broadly reflecting and correlating with the general fluoride concentrations implied by the fluoridation census findings when considering details of the differences between the census and statistical estimation approaches. Details of the comparative assessment are included below.

The CDC periodically conducts a national fluoridation census which records the total national number of public water systems, and population served by those systems, that operate with natural or adjusted levels of fluoride in drinking water at optimum levels. The "optimum range" of fluoride in drinking water (regarding prevention of dental cavities) is from 0.7 mg/L to 1.2 mg/L (although a system can be considered to be operating as a fluoridating system if it operates within the broader "control range" of fluoride concentrations from 0.6 mg/L to 1.7 mg/L)[10]. To complete the fluoridation census, States

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[10] The optimum amount of fluoride in drinking water at PWSs is the range of fluoride that assists in the prevention of dental cavities. The specific optimum level of fluoride for a given PWS is generally inversely proportional to temperature. It is assumed that individuals drink more water in warmer climates and higher temperatures. The ingestion of fluoride via drinking water is directly related to the volume of water consumed. Therefore, since high temperatures result in consumption of higher volumes of water, the amount of fluoride considered optimal is at the low end of the optimal range (0.7 mg/L) in warmer regions (or warmer seasons) and at the high end of the optimum range (1.2 mg/L) in cooler regions (or cooler seasons). For example, the optimum level of fluoride for PWSs in southern Florida is 0.7 mg/L and for PWSs in Maine is 1.2 mg/L. The "control range" recommended by CDC for the optimum concentration is 0.1 mg/L below to 0.5 mg/L above the

voluntarily report: the name, location, and public water system identification number of each fluoridated water system; the population served by each system; whether the system operates with adjusted, or natural, levels of fluoride; the chemical used for fluoridation, if adjusted; and whether or not the system purchased water. However, no quantitative analytical results are presented, no information is provided for systems with fluoride occurrence less than 0.7 mg/L (the low end of the optimum range), and the source water type is not specified. Therefore, the implication is that all systems that reported as fluoridating (i.e., allsystemslisted in the CDC census) are considered for comparison purposes to have a minimum (average) fluoride concentration of 0.7 mg/L, the low end of the optimum fluoridation range.

Table VI.J.1.a shows a comparison between the quantitative results based on the 16-State cross-section data and the qualitative reported findings of the CDC *Fluoridation Census 1992* and the unpublished CDC *Fluoridation Census 2000*. The table specifically presents the Stage 2 modeled estimates based on the Six-Year Review 16-State cross-section compared to the number of fluoridating systems (and population served by those systems) as reported to the CDC.

Table VI.J.1.a. Comparison of the National Extrapolations of the Stage 2 Modeled Estimates with the CDC Fluoridation Census Findings

Stage 2 Modeled Estimates based on Compliance Monitoring Results of the 16-State Cross-Section					CDC Fluoridation Census 1992 and unpublished 2000 [1] Findings	
Fluoride Threshold (mg/L)	Total Number of Systems Nationally Estimated to Exceed Threshold		Total Population Served by Systems Nationally Estimated to Exceed Threshold		Total Number of Systems Fluoridating	Total Population Served by Systems Fluoridating
	Best Estimate	Range	Best Estimate	Range		
4	332	284 - 385	191,000	118,200 - 301,000	145 [1]	152,527 [1]
2	1,885	1,769 - 2,000	1,978,600	1,505,100 - 3,293,100	746 [1]	849,591 [1]
0.7	13,390	13,156 - 13,624	57,022,300 [2]	51,803,600 - 61,346,400 [2]	14,496 [3]	141,107,164 [3]

For a detailed description of how the Stage 2 modeled estimations are derived, please refer to Section VI.A. through VI.H. of this report.

1. The number of systems and population-served by systems with reported fluoride concentrations greater than 2 mg/L and 4 mg/L were provided by the CDC from the unpublished *Fluoridation Census 2000*. (These measures of fluoride occurrence relative to these specific fluoride thresholds are not included in the 1992 or earlier census publications.)
2. There were no compliance monitoring records for fluoride for the Chicago Water System in the State of Illinois' compliance monitoring data set. Therefore, since Illinois is one of the states in the 16-state cross-section and the Chicago Water System is known to fluoridate, the Stage 2 modeled estimates presented here do not reflect the population served by the fluoridated water provided by the Chicago Water System (and its consecutive systems). (The Chicago Water System fluoride were requested, but were received after the Stage 2 modeled estimates were generated for this draft report.)
3. This estimate includes public water systems that operate within the "control range" of optimum fluoride concentrations. Therefore, this estimate includes systems that maintain fluoride concentrations as low as 0.6 mg/L while the Stage 2 model estimates are based on the 0.7 mg/L fluoride concentration values which is the low end of the optimum (rather than control) range.

The CDC *Fluoridation Census 1992* indicates that a total of 14,496 public water systems, serving 141,107,164 people, report that they operate as a fluoridated system[11]. In comparison, the Stage 2 national occurrence estimates based on the 16-State cross-section indicate a total of 13,390 systems, serving 57,022,300 people, with estimated mean concentrations of fluoride greater than 0.7 mg/L. (For a

optimum.

[11] The system and population totals listed here are equal to the exact system and population summations of the 50 States. These total sums do not equal the sums presented in the CDC *Fluoridation Census 1992*, in part due to the inclusion of the District of Columbia.

detailed presentation of Stage 2 modeled estimations of fluoride occurrence, please refer to Appendix C, Tables C.16.f and C.16.n). A system with a mean concentration of fluoride greater than 0.7 mg/L is approximately equivalent to a "fluoridated" system (in the CDC census) that reports operation at optimum fluoride levels, though systems are included in the CDC census as fluoridating if systems operate within the broader control range and above 0.6 mg/L fluoride.

The differences between the national estimates for fluoridating systems (CDC–14,496 PWSs and national cross-section–13,390 PWSs) and population served by fluoridating systems (CDC–141,107,164 people and national cross-section–57,022,300 people) appear to relate to several factors. First, the lack of fluoride occurrence data from the Chicago Water System certainly results in an underestimate for the model estimated number of systems, and population served by those systems. (Fluoride data for Chicago were not included in the original compliance monitoring data sets obtained directly from the state of Illinois. Fluoride compliance monitoring data are reported to the state's public health agency. These fluoride data were subsequently requested, but were received after the Stage 2 estimations prepared for this draft report.)

The size distribution of fluoridating systems (based on population served size categories) is a second factor influencing the difference in population served between the State data and the CDC census data. Table VI.J.1.b illustrates the distribution of fluoridating systems based on six population served size categories. Although the number of systems serving 1,000 people or less is similar in the State data and CDC data (2,824 and 2,540 respectively), this equals a much larger percentage of the smallest systems in the cross-section data set (66%) than are represented in the CDC census (only 42%). Therefore, the cross-section data set (comprised of compliance monitoring data records acquired directly from the States) has a proportionately larger amount of the smallest systems than does the CDC census (based on voluntary reporting of which systems fluoridate). This differing system size profile can result in a smaller population served by a similar number of systems (as is the case for the national extrapolations based on the cross-section data).

Table VI.J.1.b. Distribution of Fluoridating Systems in the 16 Cross-Section States and the CDC Fluoridation Census 1992

Population Served	Number of Systems that Fluoridate - State Data [1]	Percent of State Total Number of Fluoridating Systems	Number of Systems that Fluoridate - CDC Data [2]	Percent of CDC Total Number of Fluoridating Systems
≤ 1,000	2,824	66%	2,540	42%
1,001 - 5,000	750	18%	1,983	33%
5,001 - 10,000	244	6%	578	10%
10,001 - 50,000	347	8%	716	12%
50,001 - 100,000	54	1%	103	2%
> 100,000	42	1%	79	1%
Total	**4,261**	**100%**	**5,999**	**100%**

1. The State data results of "number of systems that fluoridate" are derived by using the cross-section data, calculating a simple arithmetic mean fluoride concentration for each system in a particular population served system size category, and then counting all systems with a mean concentration greater than 0.7 mg/L (which represents the low end of the range of optimum fluoride concentration for fluoridation).
2. CDC "number of systems that fluoridate" are derived from qualitative reported findings of the CDC 1992 *Fluoridation Census.*

A third factor influencing the system number and population differences between the CDC and national cross-section estimates relates to systems that report as "fluoridated systems." In the CDC *Fluoridation*

Census 1992, systems that operate within the control range (of optimum fluoride concentration) of 0.6 mg/L and 1.7 mg/L are considered to fluoridate. The Stage 2 statistical estimations and related national extrapolations were based on a fluoride concentration threshold of 0.7 mg/L (the low end of the optimum, not the control, range of fluoride levels). Therefore, the Six-Year Review Stage 2 estimates of systems with estimated mean concentrations of fluoride greater than 0.7 mg/L will likely be lower the CDC census number of systems reporting to operate within the control range (between 0.6 mg/L and 1.7 mg/L fluoride).

Other factors relate to the type of systems included in EPA's Six-Year Review and the CDC fluoridation census. The Six-Year Review, based on compliance monitoring, does not include analytical results for consecutive systems. Because consecutive systems compliance monitoring requirements are at the discretion of the individual States, the consecutive system compliance monitoring record is not uniform from state to state. Therefore, systems identified as consecutive (or, synonymously, as "purchased") were removed in the raw data sets prior to Stage 2 estimations. The CDC fluoridation census does include consecutive systems. (CDC estimates that there may be approximately 1,696 consecutive systems serving a population of 12,850,000 in the 16 states that comprise the 16-State cross-section used in this Six-Year Review analysis.) Also, while the Six-Year Review 16-State cross-section (compliance monitoring) data does include monitoring results from non-transient non-community water systems (NTNCWSs), the CDC does not include NTNCWs in the fluoridation census.

In summary, given the differences between the CDC census numbers and the EPA model estimates, rigorous and systematic comparisons cannot be directly made between the two assessments of fluoride occurrence in public water systems. However, general comparisons suggest that the EPA Six-Year Stage 2 modeling approach is valid in that it tracks relatively closely to CDC voluntarily reported qualitative census findings. These comparisons are closer still when the underlying differences between the CDC census findings and the Six-Year Review model estimates are considered.

The comparison of the number of systems estimated by the Six-Year model to have an estimated mean fluoride concentration greater than 0.7 mg/L compared to the number of systems reporting to the CDC census as fluoridating exhibits the largest difference between the two fluoride occurrence assessments. However, the two differing estimates are likely much closer when considering that: the CDC fluoridating systems include systems operating with the "control range" (as low as 0.6 mg/L); the Six-Year Review estimates did note have data for the Chicago Water System, and; the Six-Year Review estimates generally do not include consecutive systems.

The comparison between the Six-Year Review model estimates and the unpublished 2000 Census numbers for systems with fluoride concentrations above 2 mg/L and 4 mg/L are generally good. For example, relative to 4 mg/L, the Six-Year Review model estimates are not dramatically higher than the CDC estimates, especially when comparing the total population served. The EPA system numbers are modeled estimates, and therefore, it is appropriate to consider the estimated range of results rather than the single "best estimate." The modeled estimates indicate that from 118,200 people to 301,000 people could be served by systems with a mean fluoride concentration greater than 4 mg/L. The CDC estimate (of approximately 153,000 people) falls into this range. The other comparisons with the unpublished 2000 CDC census findings, while not within the statistical model estimate ranges, are relatively similar (not orders of magnitude apart) given the differences between the two (CDC and EPA) sources of information/data. The differences in hundreds of systems or hundreds of thousands of population served by systems can be interpreted as somewhat close when considered relative to the total US population or the total US population served by fluoridated water.

VI.J.2. SDWIS Comparison

A preliminary comparison of Stage 2 model findings to MCL violation records in the Safe Drinking Water Information System (SDWIS) was conducted. Due to many qualifying factors, this must be regarded as a very general, indirect comparison. A primary reason inhibiting a direct comparison is the somewhat incomplete State reporting to the SDWIS database over the time frame of interest (roughly

1993-1999). Also, the method for calculating a contaminant's concentration in a system is somewhat different for the Stage 2 analysis as compared to MCL violation determinations. A brief description of some key topics related to MCL compliance information is presented below to provide background on SDWIS MCL violation data.

For systems that monitor more frequently than annually, compliance with the MCL is determined by a running annual average of results from all samples taken at each sampling point. If this contaminant mean concentration exceeds the MCL, then the system is out of compliance. For systems that monitor annually or less frequently, if the level of a contaminant at any sampling point exceeds the MCL, the system is out of compliance with the MCL.

More systems have MCL exceedances than actual MCL violations. A system with an MCL violation always has an MCL exceedance. However, a system with an MCL exceedance may not always incur an MCL violation. For example, if a system on quarterly monitoring has one quarter in which the concentration is above the MCL, but the running annual average of this high sample result and the three preceding quarters are below the MCL, the system would have an MCL exceedance but not an MCL violation. Also, if the State requires a confirmation sample, compliance with the MCL is calculated using the average of the routine and confirmation sample. If the average is below the MCL, the system would have an exceedance but not an MCL violation.

Many States experienced delays in implementation of the Phase II/V rule. In some cases, approval of State primacy took many years. Laboratory capacity, resource and staffing levels, and waivers were recurring issues. States are required to report MCL violations to SDWIS. However, delays in determining MCL violations and reporting them to SDWIS were commonplace. States had to create new databases or modify existing databases for Phase II/V compliance tracking and reporting. As a result, many States had delays in reporting chemical violation data to SDWIS. Underreporting of violations for chemicals may still be an issue for some States. SDWIS has the capability of storing data on MCL exceedances; however, reporting of these is optional.

When comparing the modeled national occurrence estimates to the SDWIS MCL violation data, one must also consider the different time frames at hand. The SDWIS MCL violation data are roughly from 1993-1999. The Stage 2 estimate is based on compliance monitoring analytical results predominantly between 1992 and 1997. (Potentially more than five years of monitoring results are used to estimate a single system mean concentration). The Stage 2 estimated number of systems with a mean concentration greater than the MCL (based on data for many years) is an approximation of, though not directly comparable to, the number of SDWIS MCL violations for a single year.

Table VI.J.2.a compares the reported SDWIS MCL violations (between January 1, 1993 and December 31, 1999) to the Stage 2 estimates of mean concentration MCL exceedances for beryllium, chromium, fluoride, and tetrachloroethylene. Based on the qualifying factors described above, it is not surprising that the Stage 2 estimates are higher than the reported SDWIS MCL violations (with the exception of chromium). Even given the inherent differences between the SDWIS MCL violation records and the Stage 2 analytical findings measured relative to the MCL, the comparison between the two assessments of occurrence are reasonably comparable, providing additional measures that suggest a validation of the Stage 2 modeling approach.

Table VI.J.2.a. Preliminary Comparison of Stage 2 Analytical Findings and SDWIS MCL Violation Information

Contaminant (MCL in mg/L)	Number of Systems	
	SDWIS MCL Violations	Stage 2 Estimates of Mean Concentration Greater than the MCL
Beryllium (0.004)	17	51
Chromium (0.1)	9	3
Fluoride (4)	247	332
Tetrachloroethylene (0.005)	128	132

VII. CONCLUSION

A broad evaluation of regulated contaminant occurrence in public drinking water systems has been conducted in support of the Six-Year Review of National Primary Drinking Water Regulations. Safe Drinking Water Act compliance monitoring analytical results reported to the States provided the occurrence data used in the occurrence estimates. States were evaluated through a methodology that included a ranking of States' based on measures of pollution potential, dividing States into quartiles based on these rankings, and then selecting States that equally represent the four pollution potential quartiles. By also considering geographic distribution of the selected States, a "cross-section" of States was selected to reflect a national representation of pollution potentials and climatic/hydrologic differences.

The analyses presented in this report are based on compliance monitoring data from the 16 selected cross-section States, which include: Alabama, California, Florida, Illinois, Indiana, Kentucky, Michigan, Montana, Nebraska, New Jersey, New Mexico, Oregon, South Carolina, South Dakota, Texas, and Vermont. These data have undergone extensive quality review and editing, including discussions with State data management staff. This 16-State national cross-section represents the largest compliance monitoring data set compiled to date by the USEPA.

The 16-State cross-section contains compliance monitoring data for the following: 5 inorganic contaminants with occurrence data from approximately 18,000 to 21,000 public water systems (depending on the particular contaminant) that serve an approximate total of 105,000,000 people; 15 synthetic organic contaminants with occurrence data from approximately 8,000 to 14,000 public water systems (depending on the particular contaminant) that serve an approximate total of 90,000,000 people, and; 10 volatile organic contaminants with occurrence data from approximately 19,000 to 23,000 public water systems (depending on the particular contaminant) that serve an approximate total of 106,000,000 people. For comparison, the total number of (non-purchased) public water systems nationally is approximately 65,000 and the total population served by these public water systems is approximately 213,000,000.

A two stage occurrence assessment approach was developed to evaluation the assembled 16-State cross-section occurrence data. The first stage of analysis (Stage 1) provides a straight-forward, non-parametric, and preliminary assessment of occurrence. The primary Stage 1 measure is a simple statistical count (and calculation of the percentage) of PWSs with *at least one analytical result* that exceeds a specified contaminant concentration threshold. These initial statistics were developed for each contaminant according to water system source water type.

For the second stage of analysis (Stage 2), a Bayesian-based hierarchical model was developed for use to generate detailed, stratified national occurrence estimates from the 16-State cross-section data. This statistical estimation method has been peer-reviewed, has been assessed relative to another drinking water contaminant occurrence estimation method (the Regression on Ordered Statistics, ROS), and has been evaluated with simulated data sets designed to assess the impact of the log-normal, as well as the constant variance, assumption made on the system level regarding the national distribution of system means.

All model assessments suggest the Bayesian-based hierarchical model used for the occurrence estimations in this report is appropriate. The peer-review generally supported the use and application of the model. Compared to the Regression on Ordered Statistics/ROS (part of the simulated data study), the Bayesian-based model estimates system means that are closer to the true system means of the simulated data sets. The simulated study also showed that the assumption of log-normal contaminant distribution does not have an undue influence on the estimate of the national distribution of system means. When the log-normal assumption is not used, the estimated national distribution has a slightly larger variance, which may result in an overestimate of the exceedance probabilities. The detailed evaluations of the Bayesian-based model suggest that the occurrence estimations, based on the 16-State cross-section of public water system compliance monitoring, are valid.

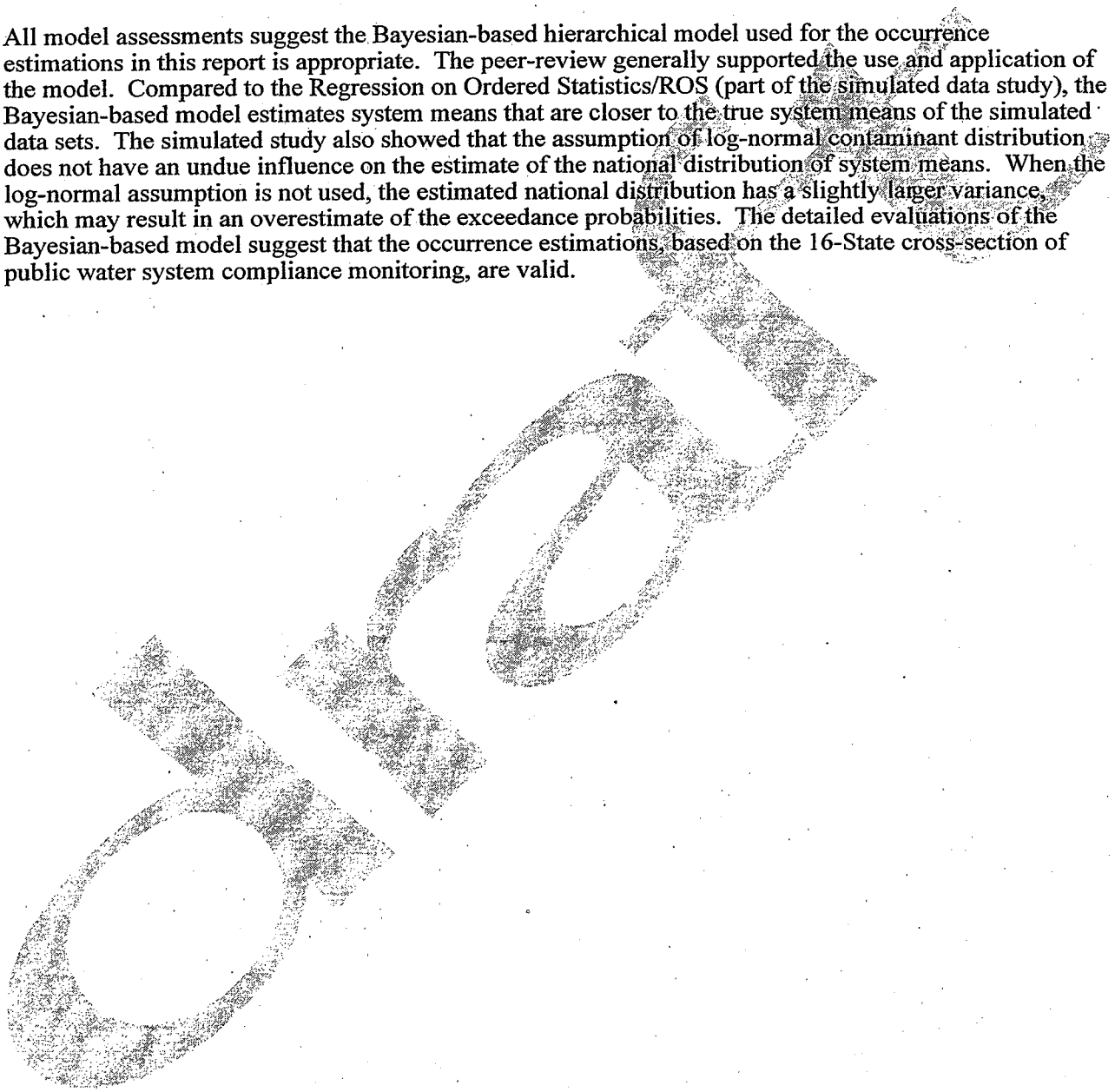

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Table A.1.a. Summary of Occurrence of IOC Regulated Contaminants in Surface Water Systems from the Initial Eight Cross-Section States - Based on Systems

Inorganic Chemicals (MCL in mg/L)	Surface Water Systems				
	Number of Analyses in Cross-Section	Number of Systems in Cross-Section	% Systems > MRL	% Systems > 0.5 MCL	% Systems > MCL
Antimony (0.006)	2,932	561	4.10%	0.89%	0.36%
Arsenic (0.05)	5,601	686	13.70%	1.02%	0.87%
Barium (2.0)	5,425	680	49.85%	0.59%	0.44%
Beryllium (0.004)	2,924	558	2.51%	0.54%	0.00%
Cadmium (0.005)	5,351	682	5.13%	1.47%	0.29%
Chromium (0.10)	5,346	681	11.75%	0.73%	0.44%
Cyanide (0.20)	2,326	489	5.52%	1.02%	0.41%
Fluoride (4.0)	8,186	685	79.12%	2.19%	1.17%
Mercury (0.002)	5,329	680	8.82%	1.76%	0.74%
Selenium (0.05)	5,339	682	10.70%	0.15%	0.00%
Thallium (0.002)	2,928	558	2.69%	0.90%	0.18%

Too few data to evaluate asbestos.

" % > MCL " indicates the proportion of systems with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples or confirmation samples as required by the primacy State.

Table A.1.b. Summary of Occurrence of IOC Regulated Contaminants in Ground Water Systems from the Initial Eight Cross-Section States - Based on Systems

Inorganic Chemicals (MCL in mg/L)	Ground Water Systems				
	Number of Analyses in Cross-Section	Number of Systems in Cross-Section	% Systems > MRL	% Systems > 0.5 MCL	% Systems > MCL
Antimony (0.006)	17,752	5,099	3.10%	1.27%	0.43%
Arsenic (0.05)	37,975	6,644	19.25%	1.67%	0.98%
Barium (2.0)	36,507	6,665	48.03%	0.80%	0.24%
Beryllium (0.004)	17,591	5,095	2.02%	0.51%	0.24%
Cadmium (0.005)	36,037	6,669	4.74%	1.39%	0.72%
Chromium (0.10)	36,157	6,671	13.07%	0.61%	0.27%
Cyanide (0.20)	13,389	4,067	1.97%	0.44%	0.25%
Fluoride (4.0)	44,023	6,968	73.39%	4.02%	1.42%
Mercury (0.002)	35,824	6,637	4.41%	0.74%	0.39%
Selenium (0.05)	36,189	6,636	8.54%	0.39%	0.23%
Thallium (0.002)	17,623	5,089	3.46%	1.36%	0.47%

Too few data to evaluate asbestos.

" % > MCL " indicates the proportion of systems with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples of confirmation samples as required by the primacy States.

Table A.2.a. Summary of Occurrence of IOC Regulated Contaminants in Surface Water Systems from the Initial Eight Cross-Section States - Based on Population Served

Inorganic Chemicals (MCL in mg/L)	Surface Water Systems					
	Number of Analyses in Cross-Section	Number of Systems in Cross-Section	Total Population Served by Systems	% Population Served by Systems > MRL	% Population Served by Systems > 1/2 MCL	% Population Served by Systems > MCL
Fluoride (4.0)	8,021	641	40,956,768	94.47%	5.76%	5.69%
Arsenic (0.05)	5,380	646	40,662,132	8.86%	1.19%	1.05%
Chromium (0.10)	5,176	642	40,621,592	10.61%	3.85%	0.41%
Barium (2.0)	5,251	641	40,619,748	76.56%	0.31%	0.28%
Mercury (0.002)	5,159	641	40,596,090	5.47%	0.30%	0.14%
Antimony (0.006)	2,827	532	38,871,834	4.71%	2.00%	0.10%
Cadmium (0.005)	5,181	643	40,652,812	6.20%	0.65%	0.07%
Cyanide (0.20)	2,243	467	33,238,140	3.39%	0.59%	0.02%
Selenium (0.05)	5,165	642	40,621,592	8.03%	0.57%	0.00%
Beryllium (0.004)	2,819	529	38,764,439	4.08%	0.16%	0.00%
Thallium (0.002)	2,815	529	38,766,394	2.14%	1.41%	0.00%

Too few data to evaluate asbestos.

" % > MCL " indicates the proportion of population served with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples of confirmation samples as required by the primacy States.

Table A.2.b. Summary of Occurrence of IOC Regulated Contaminants in Ground Water Systems from the Initial Eight Cross-Section States - Based on Population Served

Inorganic Chemicals (MCL in mg/L)	Ground Water Systems					
	Number of Analyses in Cross-Section	Number of Systems in Cross-Section	Total Population Served by Systems	% Population Served by Systems > MRL	% Population Served by Systems > 1/2 MCL	% Population Served by Systems > MCL
Fluoride (4.0)	39,940	6,184	38,473,294	97.10%	11.88%	8.14%
Arsenic (0.05)	34,630	6,221	38,496,759	12.29%	5.05%	3.63%
Chromium (0.10)	33,035	6,253	38,678,416	29.98%	23.15%	1.68%
Selenium (0.05)	33,042	6,219	38,471,623	3.98%	0.85%	0.81%
Cadmium (0.005)	32,914	6,251	38,678,035	2.97%	0.96%	0.78%
Barium (2.0)	33,342	6,245	38,656,452	81.46%	0.97%	0.51%
Mercury (0.002)	32,670	6,221	38,495,894	3.70%	1.10%	0.50%
Cyanide (0.20)	12,738	3,904	33,517,398	2.06%	0.50%	0.40%
Antimony (0.006)	16,692	4,866	36,692,016	1.59%	1.03%	0.36%
Thallium (0.002)	16,582	4,865	36,763,051	1.50%	0.54%	0.31%
Beryllium (0.004)	16,565	4,877	36,822,894	0.99%	0.34%	0.08%

Too few data to evaluate asbestos.

" % > MCL " indicates the proportion of population served with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples of confirmation samples as required by the primacy States.

Table A.3.a. Summary of Occurrence of SOC Regulated Contaminants in Surface Water Systems from the Initial Eight Cross-Section States - Based on Systems

Synthetic Organic Chemicals (MCL in mg/L)	Surface Water Systems				
	Number of Analyses in Cross-Section	Number of Systems in Cross-Section	% Systems > MRL	% Systems > 0.5 MCL	% Systems > MCL
Atrazine (0.003)	4,786	550	20.91%	12.91%	10.55%
Ethylene Dibromide (0.00005)	9,252	585	4.62%	4.27%	3.59%
bis(2-ethylhexyl) phthalate (0.006)	3,175	289	28.37%	3.11%	2.08%
1,2-Dibromo-3-chloropropane (0.0002)	7,610	585	5.81%	1.88%	1.54%
Simazine (0.004)	4,590	528	15.91%	2.65%	1.14%
Lindane (0.0002)	5,046	624	1.28%	0.48%	0.48%
Alachlor (0.002)	4,289	535	7.48%	1.68%	0.37%
PCBs (0.0005)	2,990	426	0.47%	0.23%	0.23%
Toxaphene (0.003)	3,721	545	0.73%	0.18%	0.18%
2,4-D (0.07)	4,329	620	10.97%	0.32%	0.16%
Endrin (0.002)	5,060	625	2.08%	0.16%	0.16%
Methoxychlor (0.04)	5,025	625	0.96%	0.16%	0.16%
2,4,5-TP (0.05)	4,274	621	1.77%	0.00%	0.00%
Benzo[a]pyrene (0.0002)	3,479	459	0.44%	0.00%	0.00%
bis(2-ethylhexyl) adipate (0.4)	3,085	416	6.73%	0.00%	0.00%
Carbofuran (0.04)	3,157	523	0.76%	0.00%	0.00%
Chlordane (0.002)	4,372	496	0.00%	0.00%	0.00%
Dalapon (0.2)	3,044	443	8.80%	0.00%	0.00%
Dinoseb (0.007)	3,160	491	2.24%	0.00%	0.00%
Diquat (0.02)	2,233	401	2.74%	0.00%	0.00%
Endothall (0.1)	2,096	399	0.25%	0.00%	0.00%
Glyphosate (0.7)	2,158	406	0.00%	0.00%	0.00%
Heptachlor (0.0004)	4,438	529	0.19%	0.00%	0.00%
Heptachlor Epoxide (0.0002)	4,391	521	0.38%	0.00%	0.00%
Hexachlorobenzene (0.001)	4,059	521	0.38%	0.00%	0.00%
Hexachlorocyclopentadiene (0.05)	3,813	518	8.88%	0.00%	0.00%
Oxamyl (0.2)	2,716	493	0.00%	0.00%	0.00%
Pentachlorophenol (0.001)	3,212	496	3.23%	0.40%	0.00%
Picloram (0.5)	3,156	493	3.45%	0.00%	0.00%

Too few data to evaluate dioxin.

The high rates of phthalate and adipate are, in part, considered false positives related to sample contamination by plastics and analytical problems.

"% > MCL" indicates the proportion of systems with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples or confirmation samples as required by the primacy State.

Table A.3.b. Summary of Occurrence of SOC Regulated Contaminants in Ground Water Systems from the Initial Eight Cross-Section States - Based on Systems

Synthetic Organic Chemicals (MCL in mg/L)	Ground Water Systems				
	Number of Analyses in Cross-Section	Number of Systems in Cross-Section	% Systems > MRL	% Systems > 0.5 MCL	% Systems > MCL
bis(2-ethylhexyl) phthalate (0.006)	17,705	3,039	10.50%	3.52%	2.17%
1,2-Dibromo-3-chloropropane (0.0002)	65,119	7,683	2.66%	2.32%	1.99%
Ethylene Dibromide (0.00005)	81,902	7,819	1.02%	0.90%	0.73%
Atrazine (0.003)	37,180	6,242	2.15%	0.26%	0.08%
Lindane (0.0002)	31,469	5,946	0.25%	0.12%	0.07%
Diquat (0.02)	18,099	3,142	0.83%	0.10%	0.06%
PCBs (0.0005)	15,605	3,193	0.16%	0.09%	0.06%
Pentachlorophenol (0.001)	22,227	4,921	0.81%	0.14%	0.06%
Endrin (0.002)	31,180	5,922	0.25%	0.07%	0.05%
Benzo[a]pyrene (0.0002)	19,996	3,985	0.43%	0.18%	0.05%
Dinoseb (0.007)	21,846	5,090	0.45%	0.06%	0.04%
Heptachlor Epoxide (0.0002)	27,457	5,356	0.19%	0.04%	0.04%
Endothall (0.1)	15,566	3,231	0.22%	0.06%	0.03%
Heptachlor (0.0004)	28,170	5,463	0.22%	0.09%	0.02%
Alachlor (0.002)	27,726	5,547	0.25%	0.05%	0.02%
2,4,5-TP (0.05)	28,859	5,614	0.75%	0.00%	0.00%
2,4-D (0.07)	30,787	5,887	1.22%	0.02%	0.00%
bis(2-ethylhexyl) adipate (0.4)	15,888	3,270	7.13%	0.00%	0.00%
Carbofuran (0.04)	25,599	5,725	0.05%	0.00%	0.00%
Chlordane (0.002)	29,431	5,081	0.06%	0.00%	0.00%
Dalapon (0.2)	19,297	3,656	0.85%	0.00%	0.00%
Glyphosate (0.7)	17,901	2,682	0.11%	0.00%	0.00%
Hexachlorobenzene (0.001)	23,416	5,194	0.00%	0.00%	0.00%
Hexachlorocyclopentadiene (0.05)	22,667	5,103	0.10%	0.00%	0.00%
Methoxychlor (0.04)	30,591	5,698	0.21%	0.00%	0.00%
Oxamyl (0.2)	21,415	4,912	0.10%	0.00%	0.00%
Picloram (0.5)	20,984	4,598	0.57%	0.00%	0.00%
Simazine (0.004)	36,429	6,019	1.63%	0.03%	0.00%
Toxaphene (0.003)	26,780	5,672	0.11%	0.02%	0.00%

Too few data to evaluate dioxin.

The high rates of phthalate and adipate are, in part, considered false positives related to sample contamination by plastics and analytical problems.

"% > MCL" indicates the proportion of systems with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples or confirmation samples as required by the primacy State.

Table A.4.a. Summary of Occurrence of SOC Regulated Contaminants in Surface Water Systems from the Initial Eight Cross-Section States - Based on Population Served

Synthetic Organic Chemicals (MCL in mg/L)	Surface Water Systems					
	Number of Analyses in Cross-Section	Number of Systems in Cross-Section	Total Population Served by Systems	% Population Served by Systems > MRL	% Population Served by Systems > 1/2 MCL	% Population Served by Systems > MCL
1,2-Dibromo-3-chloropropane (0.0002)	7,541	575	36,775,874	25.31%	23.01%	22.75%
Ethylene Dibromide (0.00005)	9,183	575	36,287,757	6.18%	5.33%	5.27%
Atrazine (0.003)	4,723	541	33,612,243	11.46%	2.95%	1.90%
Lindane (0.0002)	4,957	608	35,324,374	1.44%	1.26%	1.26%
PCBs (0.0005)	2,925	415	29,555,126	0.79%	0.78%	0.78%
bis(2-ethylhexyl) phthalate (0.006)	3,109	281	27,404,128	38.28%	0.58%	0.54%
Toxaphene (0.003)	3,689	535	32,869,028	2.33%	0.38%	0.38%
Methoxychlor (0.04)	4,937	609	35,324,603	1.61%	0.35%	0.35%
2,4-D (0.07)	4,252	605	42,897,324	3.55%	0.29%	0.29%
Alachlor (0.002)	4,223	525	32,593,972	1.99%	0.34%	0.22%
Endrin (0.002)	4,971	609	35,351,865	1.97%	0.19%	0.19%
Simazine (0.004)	4,525	519	33,549,549	7.95%	0.25%	0.11%
Dalapon (0.2)	2,970	434	27,826,964	2.60%	0.00%	0.00%
Diquat (0.02)	2,162	393	27,318,992	0.32%	0.00%	0.00%
Endothall (0.1)	2,033	392	27,214,510	0.13%	0.00%	0.00%
Glyphosate (0.7)	2,094	399	27,914,653	0.00%	0.00%	0.00%
bis(2-ethylhexyl) adipate (0.4)	3,029	410	13,288,441	1.96%	0.00%	0.00%
Oxamyl (0.2)	2,649	484	29,396,354	0.00%	0.00%	0.00%
Picloram (0.5)	3,089	484	29,556,415	0.57%	0.00%	0.00%
Dinoseb (0.007)	3,094	482	29,262,719	0.69%	0.00%	0.00%
Hexachlorocyclopentadiene (0.05)	3,749	510	29,434,915	6.11%	0.00%	0.00%
Carbofuran (0.04)	3,090	514	29,981,346	1.66%	0.00%	0.00%
Heptachlor (0.0004)	4,360	517	32,662,080	0.02%	0.00%	0.00%
Heptachlor Epoxide (0.0002)	4,313	509	32,429,919	0.09%	0.00%	0.00%
2,4,5-TP (0.05)	4,197	606	42,916,224	1.29%	0.00%	0.00%
Hexachlorobenzene (0.001)	3,995	513	29,761,430	0.16%	0.00%	0.00%
Benzo[a]pyrene (0.0002)	3,415	451	28,549,179	0.82%	0.00%	0.00%
Pentachlorophenol (0.001)	3,146	487	29,398,501	0.98%	0.02%	0.00%
Chlordane (0.002)	4,297	484	33,712,241	0.00%	0.00%	0.00%

Too few data to evaluate dioxin.

"% > MCL" indicates the proportion of population served with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples or confirmation samples as required by the primacy States.

Table A.4.b. Summary of Occurrence of SOC Regulated Contaminants in Ground Water Systems from the Initial Eight Cross-Section States - Based on Population Served

Synthetic Organic Chemicals (MCL in mg/L)	Ground Water Systems					
	Number of Analyses in Cross-Section	Number of Systems in Cross-Section	Total Population Served by Systems	% Population Served by Systems > MRL	% Population Served by Systems > 1/2 MCL	% Population Served by Systems > MCL
Ethylene Dibromide (0.00005)	78,182	7,344	38,913,299	24.26%	23.09%	22.78%
1,2-Dibromo-3-chloropropane (0.0002)	60,295	7,092	39,436,663	5.74%	5.37%	4.73%
bis(2-ethylhexyl) phthalate (0.006)	16,253	2,833	29,160,368	14.68%	6.20%	3.75%
Diquat (0.02)	16,948	3,032	30,156,678	1.25%	0.52%	0.51%
Benzo[a]pyrene (0.0002)	18,900	3,789	31,745,303	0.77%	0.54%	0.45%
Atrazine (0.003)	34,161	5,765	38,443,753	7.48%	1.34%	0.38%
Endrin (0.002)	28,872	5,567	38,892,442	0.73%	0.37%	0.36%
Lindane (0.0002)	29,142	5,585	38,918,871	0.24%	0.15%	0.13%
Heptachlor Epoxide (0.0002)	25,588	5,072	36,651,094	0.15%	0.05%	0.05%
Dinoseb (0.007)	20,480	4,731	35,740,628	0.43%	0.09%	0.04%
PCBs (0.0005)	14,522	3,090	30,011,043	0.15%	0.08%	0.04%
Endothall (0.1)	14,687	3,036	26,637,191	1.02%	0.06%	0.00%
Alachlor (0.002)	25,881	5,236	35,705,526	0.16%	0.07%	0.00%
Pentachlorophenol (0.001)	21,038	4,699	35,878,071	1.74%	0.02%	0.00%
Heptachlor (0.0004)	26,194	5,178	36,995,500	0.48%	0.42%	0.00%
Methoxychlor (0.04)	28,484	5,443	38,797,783	0.57%	0.00%	0.00%
Toxaphene (0.003)	24,944	5,308	37,117,798	0.09%	0.05%	0.00%
Dalapon (0.2)	18,261	3,545	31,911,316	1.13%	0.00%	0.00%
Glyphosate (0.7)	16,636	2,551	30,628,529	0.03%	0.00%	0.00%
bis(2-ethylhexyl) adipate (0.4)	15,422	3,224	7,240,096	23.88%	0.00%	0.00%
Oxamyl (0.2)	20,078	4,599	32,426,769	0.15%	0.00%	0.00%
Simazine (0.004)	33,204	5,368	38,246,225	7.07%	0.01%	0.00%
Picloram (0.5)	19,923	4,484	34,481,953	0.98%	0.00%	0.00%
Hexachlorocyclopentadiene (0.05)	21,447	4,896	34,548,177	0.11%	0.00%	0.00%
Carbofuran (0.04)	23,939	5,338	35,250,302	0.00%	0.00%	0.00%
2,4-D (0.07)	28,632	5,520	38,976,761	1.37%	0.00%	0.00%
2,4,5-TP (0.05)	27,067	5,372	38,796,035	1.23%	0.00%	0.00%
Hexachlorobenzene (0.001)	22,113	4,980	34,829,449	0.00%	0.00%	0.00%
Chlordane (0.002)	27,226	4,741	37,511,301	0.02%	0.00%	0.00%

Too few data to evaluate dioxin.

"% > MCL" indicates the proportion of population served with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples or confirmation samples as required by the primacy State.

Table A.5.a. Summary of Occurrence of VOC Regulated Contaminants in Surface Water Systems from the Initial Eight Cross-Section States - Based on Systems

Volatile Organic Chemicals (MCL in mg/L)	Surface Water Systems				
	Number of Analyses in Cross-Section	Number of Systems in Cross-Section	% Systems > MRL	% Systems > 0.5 MCL	% Systems > MCL
Dichloromethane (0.005)	9,598	633	24.33%	8.85%	3.00%
Tetrachloroethylene (0.005)	12,270	690	8.70%	2.90%	1.74%
Trichloroethylene (0.005)	12,701	704	7.81%	2.13%	0.71%
Vinyl chloride (0.002)	10,630	699	3.00%	0.29%	0.29%
1,2-Dichloroethane (0.005)	10,581	702	3.28%	0.28%	0.28%
1,2-Dichloropropane (0.005)	9,783	684	3.07%	0.29%	0.15%
Benzene (0.005)	10,414	698	4.15%	0.57%	0.14%
1,1-Dichloroethylene (0.007)	11,615	702	3.42%	0.43%	0.14%
Carbon Tetrachloride (0.005)	10,434	700	8.43%	0.57%	0.00%
Chlorobenzene (0.1)	6,789	529	8.13%	0.00%	0.00%
cis-1,2-Dichloroethylene (0.07)	9,829	688	3.78%	0.00%	0.00%
Ethyl benzene (0.7)	9,860	684	6.43%	0.00%	0.00%
o-Dichlorobenzene (0.6)	6,682	529	3.21%	0.00%	0.00%
1,4-Dichlorobenzene (0.075)	6,706	490	5.71%	0.00%	0.00%
Styrene (0.1)	9,552	683	3.22%	0.00%	0.00%
Toluene (1.0)	9,847	685	10.80%	0.00%	0.00%
trans-1,2-Dichloroethylene (0.1)	8,184	603	2.49%	0.00%	0.00%
1,1,1-Trichloroethane (0.2)	10,756	700	8.14%	0.00%	0.00%
1,1,2-Trichloroethane (0.005)	9,884	685	5.69%	0.44%	0.00%
1,2,4-Trichlorobenzene (0.07)	8,719	628	2.87%	0.00%	0.00%
Xylenes (10.0)	9,724	680	11.91%	0.00%	0.00%

"% > MCL" indicates the proportion of systems with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples or confirmation samples as required by the primacy State.

Table A.5.b. Summary of Occurrence of VOC Regulated Contaminants in Ground Water Systems from the Initial Eight Cross-Section States - Based on Systems

Volatile Organic Chemicals (MCL in mg/L)	Ground Water Systems				
	Number of Analyses in Cross-Section	Number of Systems in Cross-Section	% Systems > MRL	% Systems > 0.5 MCL	% Systems > MCL
Tetrachloroethylene (0.005)	129,348	11,751	4.46%	1.86%	1.20%
Trichloroethylene (0.005)	133,026	12,402	3.37%	1.47%	0.96%
Dichloromethane (0.005)	105,825	10,965	11.00%	1.74%	0.61%
Carbon Tetrachloride (0.005)	116,057	12,402	1.69%	0.39%	0.25%
1,1-Dichloroethylene (0.007)	115,205	12,403	1.64%	0.40%	0.25%
Benzene (0.005)	111,554	12,383	1.19%	0.38%	0.23%
1,2-Dichloroethane (0.005)	113,116	12,411	1.42%	0.33%	0.15%
1,2-Dichloropropane (0.005)	105,751	10,476	0.98%	0.26%	0.12%
Vinyl chloride (0.002)	110,603	12,392	0.50%	0.15%	0.09%
1,1,2-Trichloroethane (0.005)	109,026	11,708	0.73%	0.13%	0.07%
cis-1,2-Dichloroethylene (0.07)	102,666	9,361	1.94%	0.10%	0.03%
Toluene (1.0)	108,967	11,703	3.61%	0.02%	0.02%
1,1,1-Trichloroethane (0.2)	113,868	12,405	3.39%	0.02%	0.02%
trans-1,2-Dichloroethylene (0.1)	103,547	11,358	0.70%	0.02%	0.01%
Xylenes (10.0)	107,591	11,631	3.97%	0.01%	0.01%
Ethyl benzene (0.7)	109,027	11,698	2.10%	0.01%	0.01%
Chlorobenzene (0.1)	52,259	6,318	1.00%	0.00%	0.00%
o-Dichlorobenzene (0.6)	51,508	6,299	1.19%	0.00%	0.00%
1,4-Dichlorobenzene (0.075)	49,505	6,192	1.97%	0.02%	0.00%
Styrene (0.1)	96,171	7,994	1.20%	0.00%	0.00%
1,2,4-Trichlorobenzene (0.07)	90,603	7,374	0.91%	0.00%	0.00%

"% > MCL" indicates the proportion of systems with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples or confirmation samples as required by the primacy States.

Table A.6.a. Summary of Occurrence of VOC Regulated Contaminants in Surface Water Systems from the Initial Eight Cross-Section States - Based on Population Served

Volatile Organic Chemicals (MCL in mg/L)	Surface Water Systems					
	Number of Analyses	Number of Systems	Total Population Served by Systems	% Population Served by Systems > MRL	% Population Served by Systems > 1/2 MCL	% Population Served by Systems > MCL
Vinyl chloride (0.002)	10,495	676	39,822,670	6.14%	3.44%	3.44%
1,2-Dichloroethane (0.005)	10,446	679	40,104,511	5.75%	3.25%	3.25%
Tetrachloroethylene (0.005)	12,136	667	40,120,168	29.01%	4.91%	3.18%
Dichloromethane (0.005)	9,464	610	39,735,767	49.66%	20.66%	1.92%
Trichloroethylene (0.005)	12,566	681	40,163,388	31.78%	22.34%	1.32%
1,2-Dichloropropane (0.005)	9,649	661	39,780,006	2.89%	0.20%	0.17%
1,1-Dichloroethylene (0.007)	11,480	679	39,977,500	4.60%	0.35%	0.17%
Benzene (0.005)	10,279	675	39,815,370	2.41%	0.72%	0.01%
1,2,4-Trichlorobenzene (0.07)	8,595	605	39,444,625	2.51%	0.00%	0.00%
cis-1,2-Dichloroethylene (0.07)	9,696	665	39,887,447	5.95%	0.00%	0.00%
Xylenes (10.0)	9,590	657	39,311,533	20.07%	0.00%	0.00%
o-Dichlorobenzene (0.6)	6,605	523	17,803,174	5.06%	0.00%	0.00%
1,4-Dichlorobenzene (0.075)	6,629	484	17,526,833	6.30%	0.00%	0.00%
trans-1,2-Dichloroethylene (0.1)	8,127	586	37,314,132	2.01%	0.00%	0.00%
1,1,1-Trichloroethane (0.2)	10,621	677	39,877,321	11.62%	0.00%	0.00%
Carbon Tetrachloride (0.005)	10,299	677	39,973,520	5.66%	0.03%	0.00%
1,1,2-Trichloroethane (0.005)	9,749	662	39,780,122	4.76%	0.21%	0.00%
Chlorobenzene (0.1)	6,712	523	17,803,690	9.77%	0.00%	0.00%
Toluene (1.0)	9,712	662	39,951,706	10.97%	0.00%	0.00%
Ethyl benzene (0.7)	9,725	661	39,772,606	3.08%	0.00%	0.00%
Styrene (0.1)	9,428	660	39,772,706	2.34%	0.00%	0.00%

"% > MCL" indicates the proportion of population served with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples of confirmation samples as required by the primacy States.

Table A.6.b. Summary of Occurrence of VOC Regulated Contaminants in Ground Water Systems from the Initial Eight Cross-Section States - Based on Population Served

Volatile Organic Chemicals (MCL in mg/L)	Ground Water Systems					
	Number of Analyses	Number of Systems	Total Population Served by Systems	% Population Served by Systems > MRL	% Population Served by Systems > 1/2 MCL	% Population Served by Systems > MCL
Tetrachloroethylene (0.005)	116,766	9,423	43,883,073	46.68%	37.25%	32.14%
Trichloroethylene (0.005)	120,512	10,078	44,091,721	45.88%	33.36%	30.49%
Dichloromethane (0.005)	95,239	8,639	43,562,902	37.53%	23.34%	20.51%
1,1-Dichloroethylene (0.007)	104,657	10,077	44,089,203	31.79%	21.98%	19.94%
Carbon Tetrachloride (0.005)	105,019	10,074	44,089,695	24.11%	19.62%	18.40%
1,2-Dichloroethane (0.005)	102,497	10,081	44,095,527	23.37%	19.33%	17.94%
1,1,2-Trichloroethane (0.005)	98,442	9,387	43,847,546	20.41%	18.19%	17.54%
1,2-Dichloropropane (0.005)	96,181	8,833	43,677,151	23.92%	4.67%	1.77%
Benzene (0.005)	100,888	10,066	44,086,485	23.61%	1.78%	1.03%
Vinyl chloride (0.002)	100,074	10,073	44,087,462	1.73%	0.85%	0.82%
1,1,1-Trichloroethane (0.2)	103,165	10,076	42,701,428	36.26%	0.11%	0.11%
cis-1,2-Dichloroethylene (0.07)	94,709	8,372	43,551,622	32.59%	0.42%	0.11%
Xylenes (10.0)	97,254	9,323	43,374,987	28.35%	0.00%	0.00%
Ethyl benzene (0.7)	98,393	9,385	43,847,474	24.55%	0.00%	0.00%
Toluene (1.0)	98,338	9,387	43,852,683	29.60%	0.00%	0.00%
1,2,4-Trichlorobenzene (0.07)	83,593	7,020	43,063,532	1.79%	0.00%	0.00%
o-Dichlorobenzene (0.6)	50,969	6,244	11,560,698	4.99%	0.00%	0.00%
1,4-Dichlorobenzene (0.075)	48,966	6,137	11,466,073	6.00%	0.00%	0.00%
trans-1,2-Dichloroethylene (0.1)	93,536	9,089	42,059,111	22.84%	0.00%	0.00%
Chlorobenzene (0.1)	51,720	6,263	11,572,759	3.72%	0.00%	0.00%
Styrene (0.1)	89,276	7,724	43,333,336	1.86%	0.00%	0.00%

"% > MCL" indicates the proportion of population served with any analytical results exceeding the concentration value of the MCL; it does not necessarily indicate an MCL violation. An MCL violation occurs when the MCL is exceeded by the average results from four quarterly samples of confirmation samples as required by the primacy States.

Detailed Description of the Stage 2 Bayesian-Based Hierarchical Model

The Hierarchical Modeling Approach for Estimating National Distributions of Contaminant Concentrations in Public Water Systems

I. INTRODUCTION

The goal of this analysis is to estimate contaminant occurrence in public water systems (PWSs) nationally by estimating system mean contaminant concentrations, as well as the probability that those estimated system means will exceed specified health thresholds. However, it is difficult to measure contaminant occurrence in drinking water because concentrations are generally quite low. As a result, concentration values below the Minimum Reporting Level (MRL) are common. (The Minimum Reporting Level is the lowest level that can be reliably achieved within specified limits of precision and accuracy under routine laboratory operating conditions.) When a concentration is below the MRL (a "non-detection"), the exact concentration value is only known to be less than that specified MRL. When the underlying probability distribution of the contaminant concentration is of interest, a non-detection contributes less information than an exactly measured value (a "detection") does. Nevertheless, it has information that cannot be disregarded when estimating the probabilistic distribution parameters.

Historically, many different methods have been used for estimating distribution parameters when non-detection data are present. The simplest method is to replace all non-detection values by a specific number (e.g., zero, ½ the MRL, or the MRL). However, this substitution method is unreliable, since it likely underestimates occurrence (when zero is used) and likely overestimates occurrence (when ½ the MRL or the MRL is used).

Alternatively, Gilliom and Helsel (1986) and Helsel and Gilliom (1986) proposed a regression on ordered statistics (ROS) method for estimating the mean and variance of a log-normal distribution. The ROS method is based on the fact that a straight line is formed when plotting the quantiles of a normally distributed random variable (with mean m and variance s^2) against the same quantiles of a standard normal random variate. The intercept of the line is m and the slope of the line is s. ROS was the method used by the Environmental Protection Agency (EPA) to estimate PWS mean concentrations of arsenic in drinking water (USEPA, 2000a).

Another frequently used method for estimating distribution parameters of data containing non-detection values is the maximum likelihood estimator (MLE). As in the conventional MLE, the likelihood of a detection (a value above the MRL) is the corresponding density value. For a non-detection, the likelihood is evaluated as the probability of observing a value that is less than the MRL, or the cumulative density of the MRL. For a given family of probability distributions, both the probability density and the cumulative density can be (in principle) explicitly expressed as a function of the probability distribution parameters. By assuming observations are independent random samples from the same distribution (or Independently, Identically Distributed, i.i.d.), the likelihood function is the product of the likelihoods of all observations. The MLE is the estimator that maximizes the likelihood function. However, the presence of non-detections makes computation of the MLE more difficult. A commonly used computational method is the Expectation-Maximization (EM) algorithm (Tanner, 1991). The MLE

method was used in EPA's radon analysis to generate system mean concentration values (USEPA, 2000b).

Because both the ROS and MLE methods assume observations are i.i.d., when used for estimating the national distribution, it is necessary to apply both methods separately for each PWS, since it is a reasonable assumption that the contaminant concentration distribution varies from system to system. Those separately estimated system means are then pooled to form the national distribution of system means. Separately estimating distribution parameters for each PWS may lead to a biased estimate of the national distribution of system means, because (1) uncertainty of the estimated system means varies from system to system due to differences in sample size and other factors; systems with a large sample size will have much less uncertainty than systems with a small sample size and (2) systems with a large number of non-detection values may be excluded since their distribution parameters may not be adequately estimated, which will result in over-estimate of the contaminant mean concentration. In addition, because the national distribution of system means is the primary target, it is less important whether the distribution parameters for each system can be estimated or not.

Drinking water contaminant occurrence data exhibit a hierarchical structure. In other words, it is possible to imagine that there is a "super" probability distribution that governs the mean concentrations, as well as the variance, of PWSs in the United States. These means and variances determine the magnitude and spread of contaminant concentrations observed from each system. This national distribution is on the top, which generates a series of system distributions of concentration values. Thus, the data can be seen as having a two level structure: the top level is the national distribution, and the bottom level is the collection of system distributions. When analyzing hierarchically structured data, a hierarchical modeling approach is preferred (Gelman *et al.*, 1995). This appendix presents a hierarchical model for estimating the national distribution of system mean contaminant concentrations. The model is inherently Bayesian because (1) the mean concentration of an unknown system is treated as a random variable and (2) (non-informative) prior distributions for all parameters are used in the numerical procedure.

II. METHOD

Bayesian methods are currently experiencing an increasing popularity in the sciences as a means of probabilistic inference (Malakoff, 1999). Among their advantages are the ability to incorporate prior information, the ease of incorporation into a formal decision analytic context, the explicit handling of uncertainty, and the straightforward ability to assimilate new information in contexts such as adaptive management. In some problems, a Bayesian approach has been shown to lead to very different conclusions than a classical approach (Ludwig, 1996; Al-Khatib *et al.*, 2001). Introduction to Bayesian statistics and decision theory can be found in Box and Tiao (1973) and Bernardo and Smith (1994).

Under the Bayesian paradigm, random variables are inferred by using probability distributions. Since distributions have unknown parameters, it is necessary to infer the distributions of parameters at many levels. If linkages among the data at various levels in the hierarchical structure can be assumed, than information at the various levels can be used to support the parameter estimation at higher levels, or within the same level. Such hierarchical thinking helps in understanding multiple parameter problems, and also plays an important role in developing computational strategies.

Perhaps even more important in practice is that non-hierarchical models are usually inappropriate for hierarchical data: with few parameters, they usually cannot fit large data sets accurately, whereas with many parameters, they tend to "overfit" such data in the sense of producing models that fit the existing data well but lead to inferior predictions for new data. In contrast, hierarchical models can have enough parameters to fit the data well, while using a population distribution to structure some dependence into parameters, thereby avoiding problems of overfitting. Details of the Bayesian-based hierarchical modeling approach can be found in Gelman, *et al.* (1995) and Congdon (2001).

The model is based on the assumption that each contaminant concentration distribution at the system level can be approximated by a log-normal distribution. The national distribution is then estimated as a mixture of system distributions. The model is summarized in Equation 1:

$$\begin{aligned} y_{ijk} &\sim N(\mu_{ij}, \tau_1) I(,S) \\ \mu_{ij} &= \mu + \alpha_i + b_{ij} \\ \mu, \alpha_i, b_{ij} &\sim N(0, \tau_{2,3,4}) \\ \tau_{1:4} &\sim Gamma(0.01, 0.01) \end{aligned} \qquad (1)$$

where y_{ijk} is the k^{th} observed concentration value (in logarithm) from system i, in strata j, μ_{ij} is the mean and τ_1 is the precision (or the inverse of variance, $1/\sigma^2$). The notation $I(,S)$ indicates the corresponding concentration value is less than S or non-detection. For a detection, S is set to be infinity. The mean μ_{ij} is modeled as the sum of three normal random variables, representing the grand mean (μ), the strata adjustment (α_j), and the system adjustment (b_{ij}). The prior distributions μ, α_j, and b_{ij} are normal distributions with mean 0 and unknown variances. By selecting a widely dispersed prior distribution for the precision parameters (*Gamma* (0.01, 0.01), the prior distributions used here are essentially flat and non-informative.

The objective of the model is to estimate the posterior distributions of μ, α_j, b_{ij}, and τ_1. It should be noted an *á priori* constant precision τ_1 is used. This constant variance assumption is necessary because many systems in the data have only one observation. However, this prior constant variance assumption will not result in a constant posterior variance for all systems. This is because the mean μ_{ij} is modeled as a random variable. In another words, the posterior distribution of y_{ijk} is estimated by:

$$y_{ijk} \sim \int_{\mu_{ij}} \int_{\tau_1} N\left(\mu_{ij}, \tau_1\right) \pi\left(\mu_{ij} | Y\right) \pi\left(\tau_1 | Y\right) d\mu_{ij} d\tau_1$$

where $\pi(\mu_{ij}|Y)$ and $\pi(\tau_1|Y)$ are the posterior distributions of the system mean and precision, respectively. Unless two systems have exactly the same posterior distribution of the mean, two systems will have different posterior variance. This setting will also result in the separation of between and within system variances. In addition, by modeling the mean as another normal random variable, the resulting log-concentration distribution is more robust against unusually large concentration values.

Intuitively, a two-level statistical model is built, reflecting all the sources of variability and uncertainty. The lower level features the observed concentration values (both detections and non-detections). Those observed log concentrations are treated as though they come from a normal distribution. When the concentration value is below the MRL, its value is uncertain and is imputed based on the fact that the value is known to be below a given value (i.e., below the MRL). The upper level features those (for the most part, completely uncertain) features of the model that govern groups of or perhaps all of the observations, about which information may be learned by pooling the evidence from many observations at thousands of PWSs. The upper level of the model uses widely-dispersed normal distributions to model μ, α_j, and b_{ij}, and widely-dispersed gamma distribution to model τ_1 to reflect broad uncertainty about them.

A Markov chain Monte Carlo simulation (MCMC) method (Gilks, *et al.*, 1996) is used for simultaneously estimating the distribution parameters by sampling the parameters from their joint posterior distribution. The MCMC is implemented using a freely available software WinBUGS (Spiegelhalter, *et al.*, 1996). The national distribution, as well as the probabilities of exceeding certain thresholds, are estimated in the same Monte Carlo simulation. The MCMC method allows the sampling of μ_{ij} and τ_1 from their joint posterior distribution.

Since the PWSs included in the 16-State cross-section data set are a representative sample of PWSs nationally, the system means estimated for these systems are considered to be a sample from the national system mean distribution. (Since it is assumed that the concentration values follow a log-normal distribution at the system level, the arithmetic system mean, m_{ij}, is calculated from the generated log-normal mean μ_{ij} and variance τ_1, i.e., $m_{ij} = \exp[\mu_{ij} + 0.5/\tau_1]$.) For each set of system mean concentrations, an empirical cumulative distribution function (CDF) of the national distribution, as well as probabilities of system mean concentrations exceeding certain thresholds, can be estimated. By repeated sampling of the system means, there exists many empirical cumulative distribution functions (CDFs) of the national distribution and many estimates of the exceedance probabilities. These empirical CDFs are used to summarize the national distribution, as well as the uncertainty about the distribution. Note that the estimated means and variances are based on log-transformed concentration values. Thus, it is necessary to obtain the system means in the original metric.

Comparing the samples of system means to a threshold value, many samples of the proportion of systems with a mean concentration value exceeding the threshold are obtained. (These proportions are samples of the probability of a system mean exceeding the threshold.) If the MCMC process produces 500 pairs of random samples of μ_{ij} and τ_1, there exists 500 empirical CDFs of the national distribution, 500 random samples of the arithmetic system mean, and hence, 500 exceedence probabilities for each threshold. From these 500 probabilities, the mean, median, and the 2.5th and 97.5th percentiles (or the 95% credible interval) can be calculated to summarize the uncertainty on the quantity.

It is worthwhile to discuss the method of presenting uncertainty used by a Bayesian. The Bayesian method treats an unknown parameter as a random variable. The uncertainty of the parameter is reflected in the estimated posterior distribution. This posterior distribution is a combination of uncertainty about the data, the prior knowledge, and maybe the model. A 95% credible interval is interval between the 2.5th and 97.5th percentiles of the posterior distribution. This interval may or may not include the mean, depending on the skewness of the posterior distribution. In other words, the credible interval is not an interval of the mean (such as the frequentist confidence interval). For some extremely skewed posterior distributions, it is quite possible that the Monte Carlo estimated 2.5th and 97.5th percentiles are the same.

For example, the several estimates of the probability of system mean exceeding a given threshold have a lower 90% credible bound of zero, as well as an upper 90% credible bound of zero. This is because the posterior distribution of the probability is evaluated by Monte Carlo samples and at least 95% of the samples are equal to zero. Under such a situation, one should conclude that the chance is less than or equal to 5% to have an exceedence probability that is larger than zero.

III. EVALUATION OF THE MODEL

Various tests were performed to evaluate the proposed model. A simulation study, conducted with six simulated data sets, was designed to explore the impact of the log-normal, as well as the constant variance, assumption made on the system level. In addition, the Bayesian hierarchical modeling approach was compared to the ROS plotting position method.

The six synthetic (or simulated) data sets were divided into three groups. The first group emphasized the comparison of the Bayesian and ROS methods. The second group of the simulated data sets were generated to evaluate the constant variance assumption. Finally, the third group of simulated data sets tested the impact of a log-normal assumption at the system level on the national distribution of system means.

The ROS method was compared to the Bayesian-based model by applying both methods to a series of synthetic data sets. The two synthetic data sets in the first group were constructed to represent both a high and low information case. The high information case was modeled after the fluoride data set, where approximately 80% of the total observations were detections. The low information case was modeled after the thallium data set, where only about 2% of the total observations were detections.

The fluoride-like and thallium-like data sets were generated, each containing the same number of PWSs and the same number of observations per PWS, as contained in the actual 16-State cross-section data set for fluoride and thallium, respectively. A number of system means were generated from a log-normal distribution. These means, along with a constant variance, were used to generate a number of log-concentration values for each system. These generated log-concentration values were censored (i.e., considered non-detections) at a fixed value: log(0.11) for the fluoride-like data and log(0.001) for the thallium-like data. This operation resulted in about 25% of the values below MRL of 0.11 for fluoride, and almost 90% of the values below the MRL of 0.001 for thallium. The system means of the simulated high information data sets were generated to approximately followed a log-normal distribution, $N(-1.15, 1.33)$, while the system means of the simulated low information data sets were generated to approximately followed a log-normal distribution, $N(-10, 2.4)$.

The second group of the simulated data sets were generated to evaluate the constant variance assumption. It is worth mentioning that although a constant variance was used to specify the model, the constant variance is the Bayesian prior model specification. However, the posterior variance of each system is not necessarily the same for all systems. However, two simulated data sets were produced to evaluate the constant variance assumption. Again, one data set was modeled after the 16-State fluoride data and the other modeled after the 16-State thallium data. The system means were generated in the same way as in the first group and the system variance were generated from an inverse gamma distribution.

The third group of simulated data sets tested the impact of a log-normal assumption at the system level on the national distribution of system means. Instead of using a normal distribution to generate log-concentration values for each system, two other distributions were used: (1) a Weibull distribution and (2) a 50-50 mixture of log-normal and Weibull distributions. The Weibull distribution was chosen because it is a feasible probability distribution for water quality data and it has the largest tail area difference from the log-normal distribution (Ott, 1995). Both data sets were modeled after the 16-state fluoride data. Again, a log-normal distribution was used to generate the mean and an inverse gamma distribution was used to generate the variance for each system. The mean and variance were used to calculate the scale parameter of the Weibull distribution. The shape parameter was fixed at 2, which resulted in a skewed distribution.

Tables 1-3 summarize the six synthetic data sets. Table 1 presents general summary statistics describing each of the six synthetic data sets. The simulated system means and variances for each data set are described Tables 2 and 3, respectively.

Table 1. Summary Statistics of the Six Synthetic Data Sets

High/Low Information	Distribution Assumption	Minimum	25th Percentile	Median	Mean	75th Percentile	Maximum	% Non-Detections
High	Constant Variance	0.11	0.2389	0.4668	0.9881	1.019	66.98	20.3%
Low	Constant Variance	0.001	0.00163	0.002975	0.01554	0.007449	6.179	86.4%
High	Variable Variance	0.11	0.2317	0.4339	0.8627	0.9282	88.45	20.0%
Low	Variable Variance	0.001	0.001618	0.002989	0.02073	0.007388	35.92	87.6%
High	Weibull	0.11	0.2422	0.4659	0.9149	0.9735	47.79	19.2%
High	Mixed Distribution	0.11	0.2502	0.4892	0.9744	1.041	69.87	19.0%

Table 2. Summary Statistics of Simulated System Means

High/Low Information	Distribution Assumption	Minimum	1st Quarter	Median	Mean	3rd Quarter	Maximum
High	Constant Variance	-5.698	-1.94	-1.156	-1.159	-0.3816	2.959
Low	Constant Variance	-20.12	-11.6	-9.981	-9.993	-8.375	0.2593

High/Low Information	Distribution Assumption	Minimum	1st Quarter	Median	Mean	3rd Quarter	Maximum
High	Variable Variance	-5.323	-1.941	-1.17	-1.152	-0.3642	3.356
Low	Variable Variance	-19.26	-11.59	-9.984	-9.994	-8.378	-1.279
High	Weibull	0.00158	0.184	0.4022	0.7867	0.8839	31.72
High	Mixed Distribution	0.003666	0.185	0.4026	0.7896	0.8829	34.38

Table 3. Summary Statistics of Simulated System Variances

High/Low Information	Distribution Assumption	Minimum	1st Quarter	Median	Mean	3rd Quarter	Maximum
High[1]	Constant Variance			0.49			
Low[1]	Constant Variance			2.25			
High	Variable Variance	0.04	0.16	0.21	0.24	0.28	1.91
Low	Variable Variance	0.32	1.33	1.86	2.20	2.66	20.81
High	Weibull	0.001	0.10	0.21	0.41	0.46	16.58
High	Mixed Distribution	0.002	0.10	0.21	0.41	0.46	17.97

1. These two data sets have a constant variance. Therefore, summary statistics, other than the median, could not be generated.

Simulation results are presented in Figures 1 - 6. The national distribution estimated by the Bayesian-based hierarchical model was almost identical to the true distribution (Figure 1), while the ROS plotting position method yielded a distribution with slightly larger variance and smaller median. Although the ROS plotting method yielded an estimate that was very close to the true CDF, the ROS method is unable to quantify the uncertainty in the estimated CDF. When the log-normal distribution was used at the system level, results similar to Figure 1 were obtained. (These results, however, are not shown.) A numerical summary of the simulated results is not presented since the graphical presentation clearly indicates that the Bayesian-based model tracks most closely to the true distribution. In addition, the assumptions of log-normality and constant variance made in the model do not appear to influence the results.

Figure 1. High Information-Constant Variance Synthetic Data Set

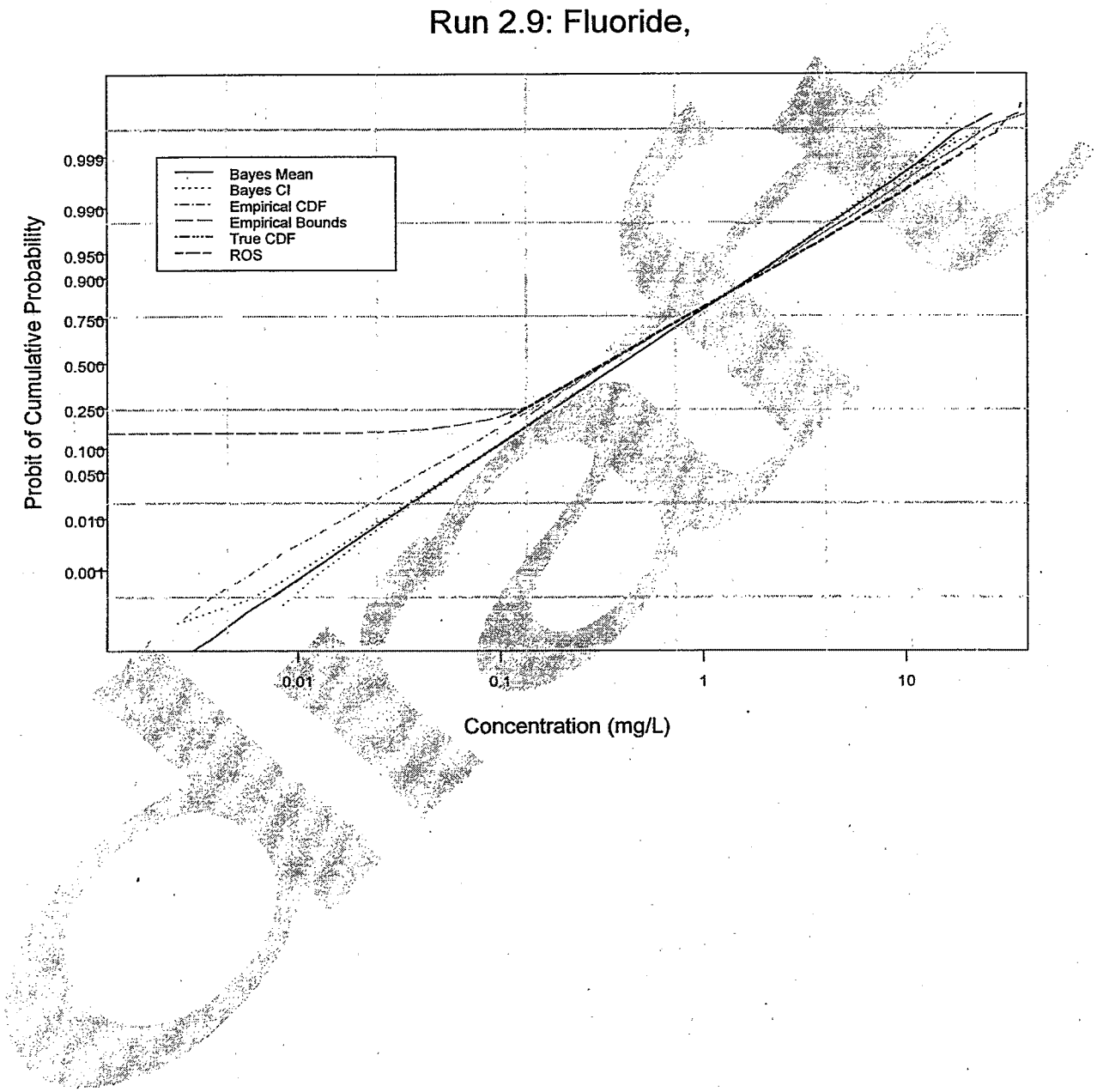


Figure 2. Low Information-Constant Variance Synthetic Data Set

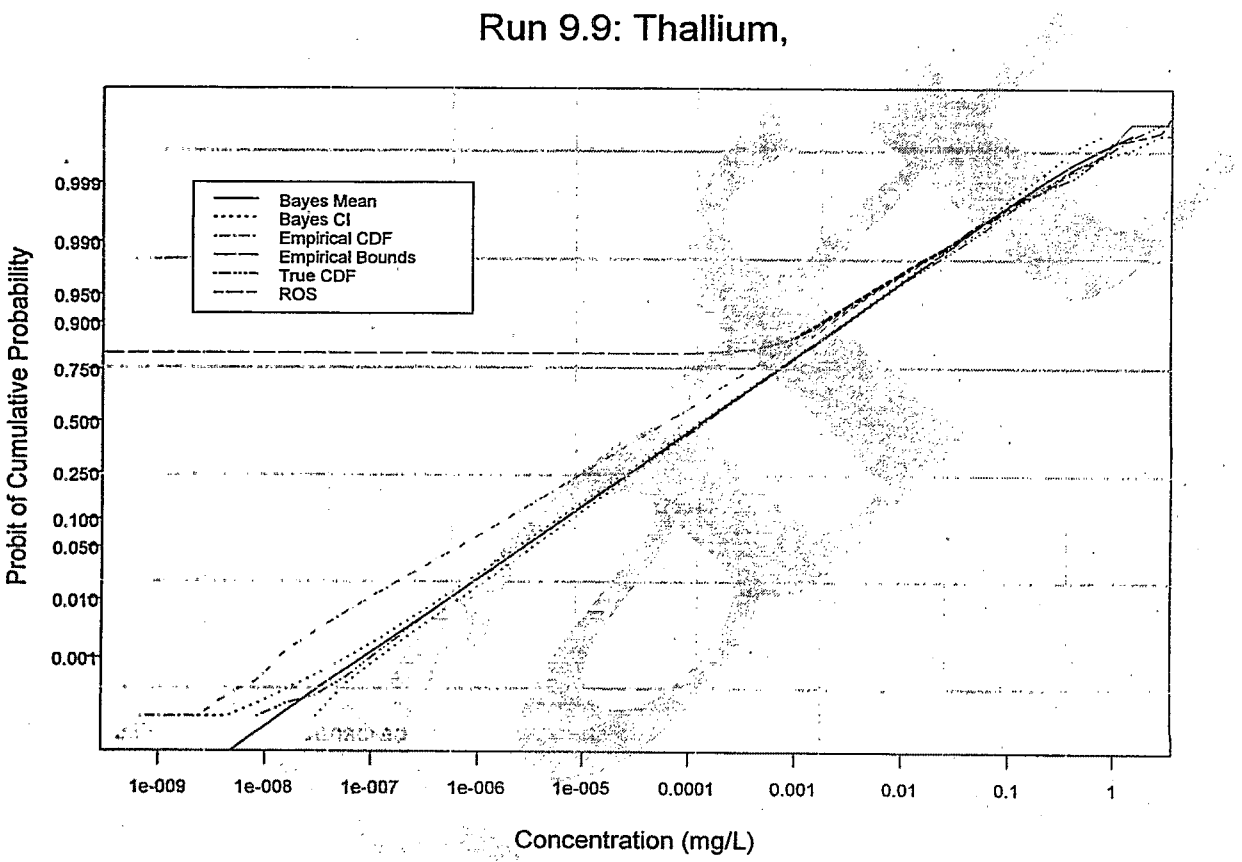


Figure 3. High Information-Variable Variance Synthetic Data Set

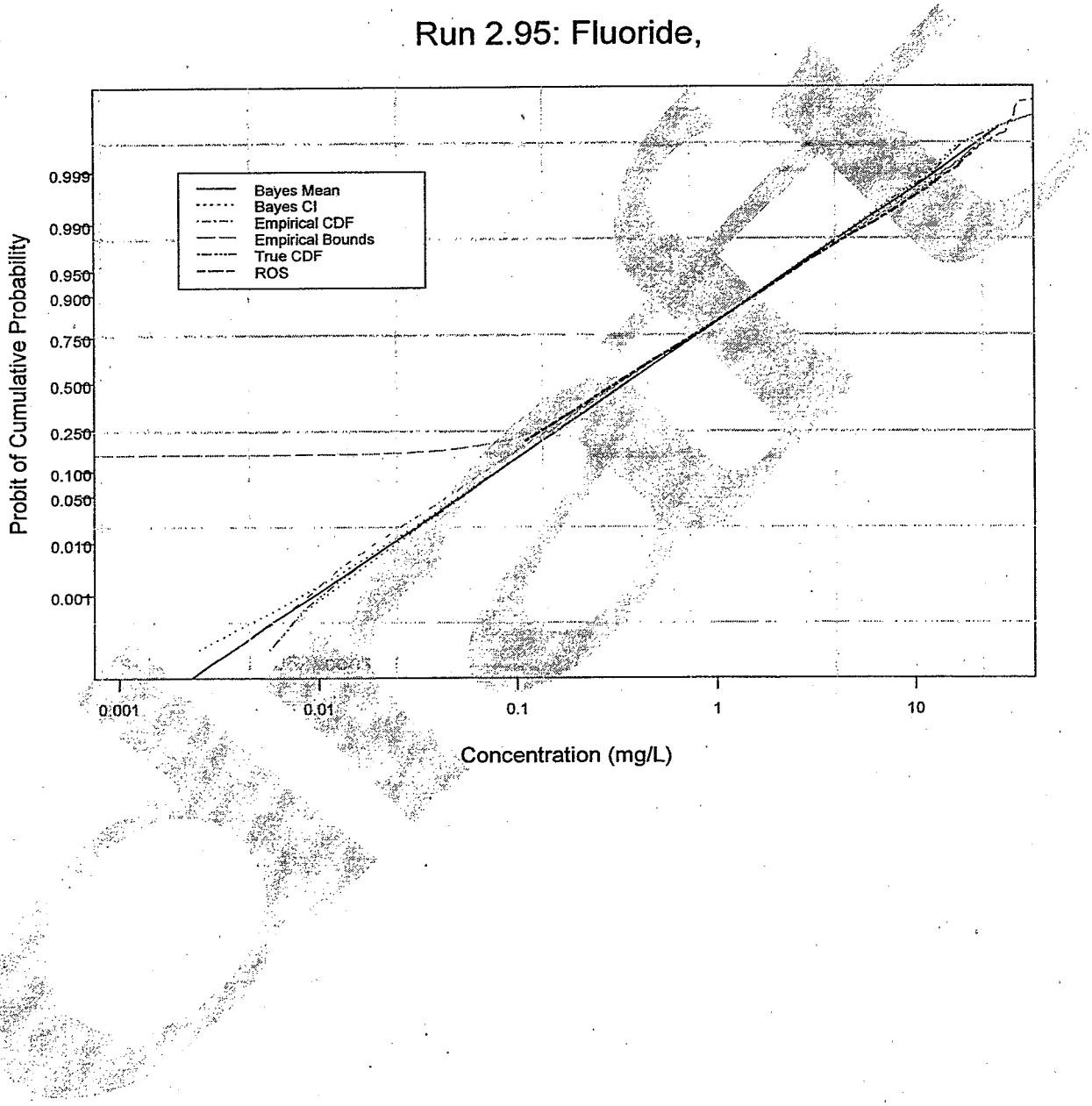


Figure 4. Low Information-Variable Variance Synthetic Data Set

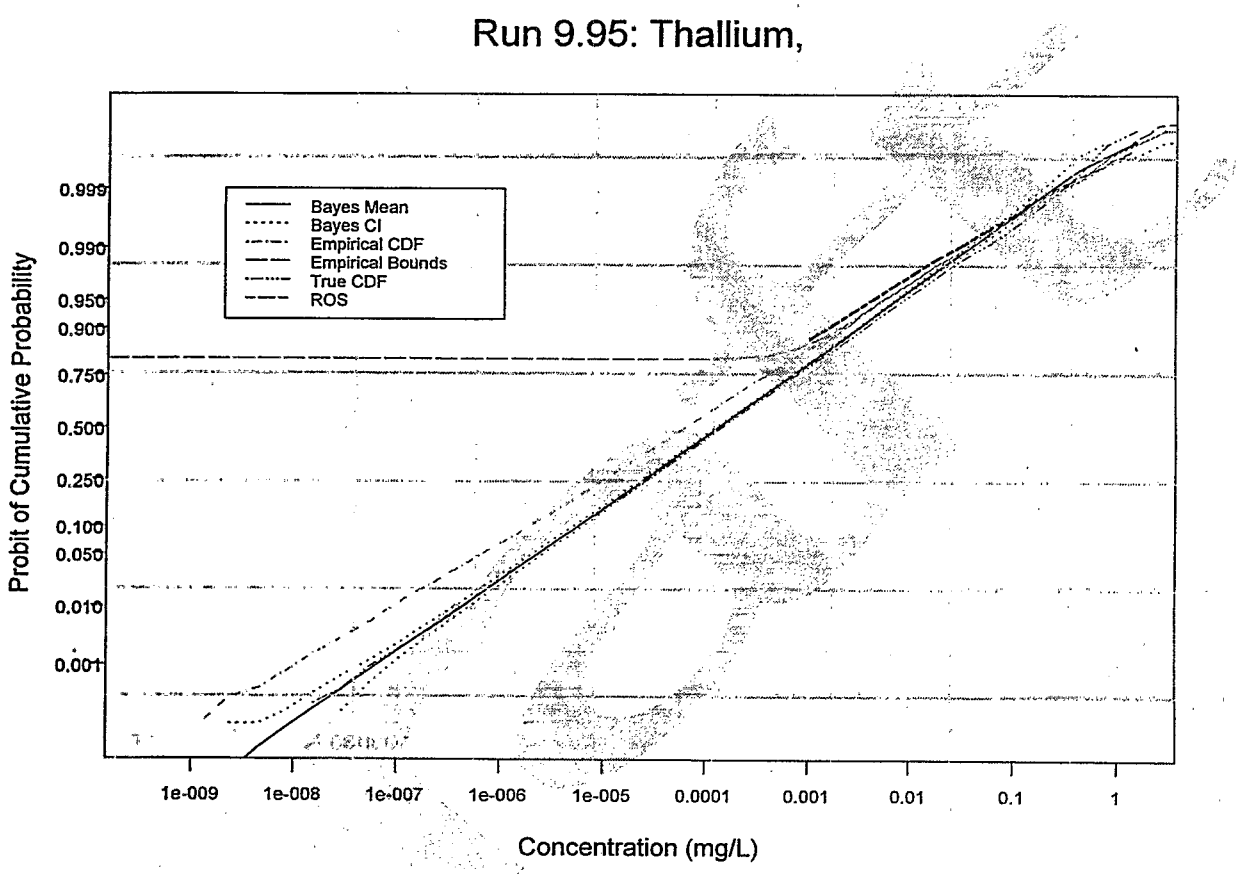


Figure 5. High Information-Weibull Distribution Synthetic Data Set

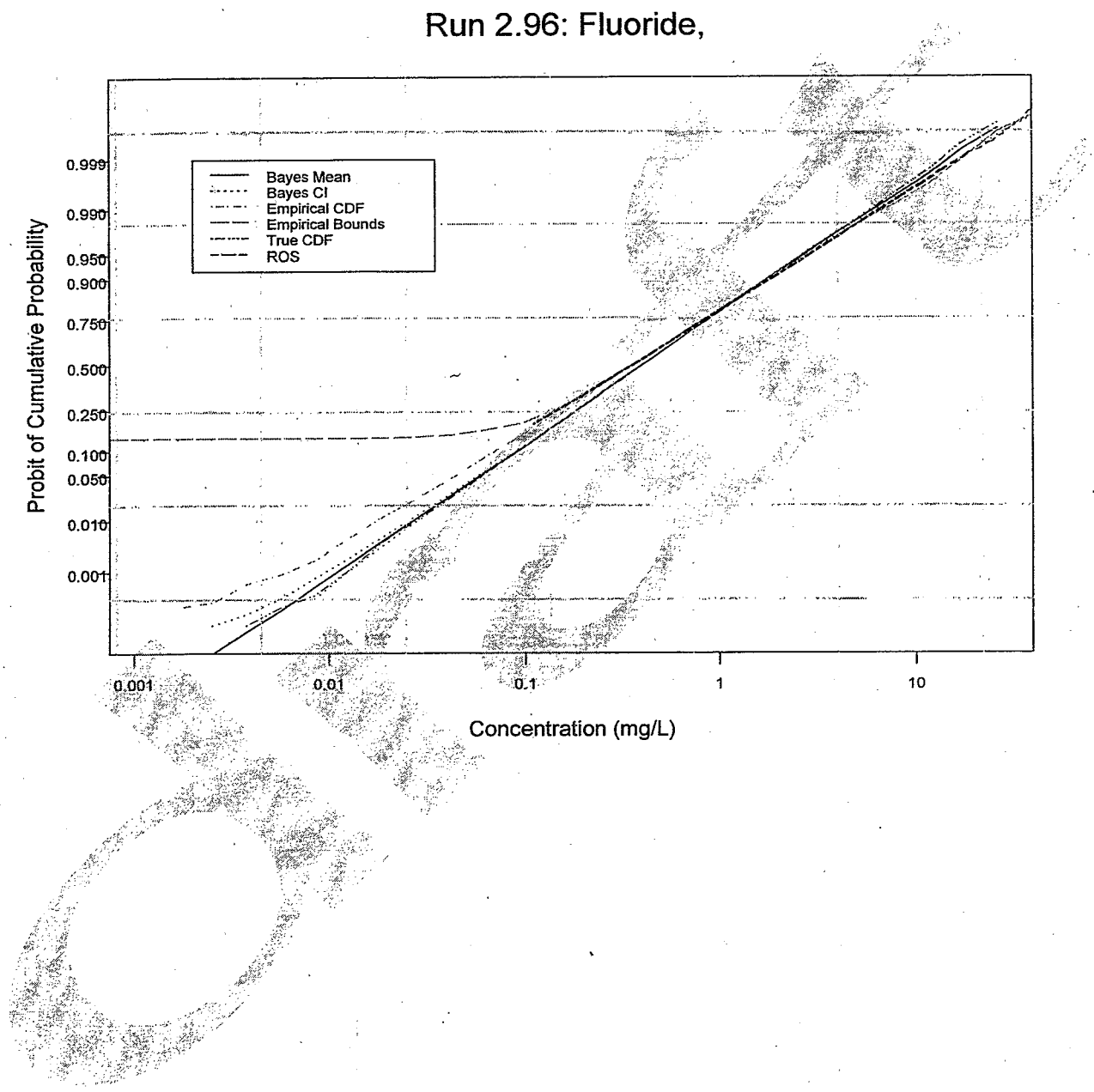
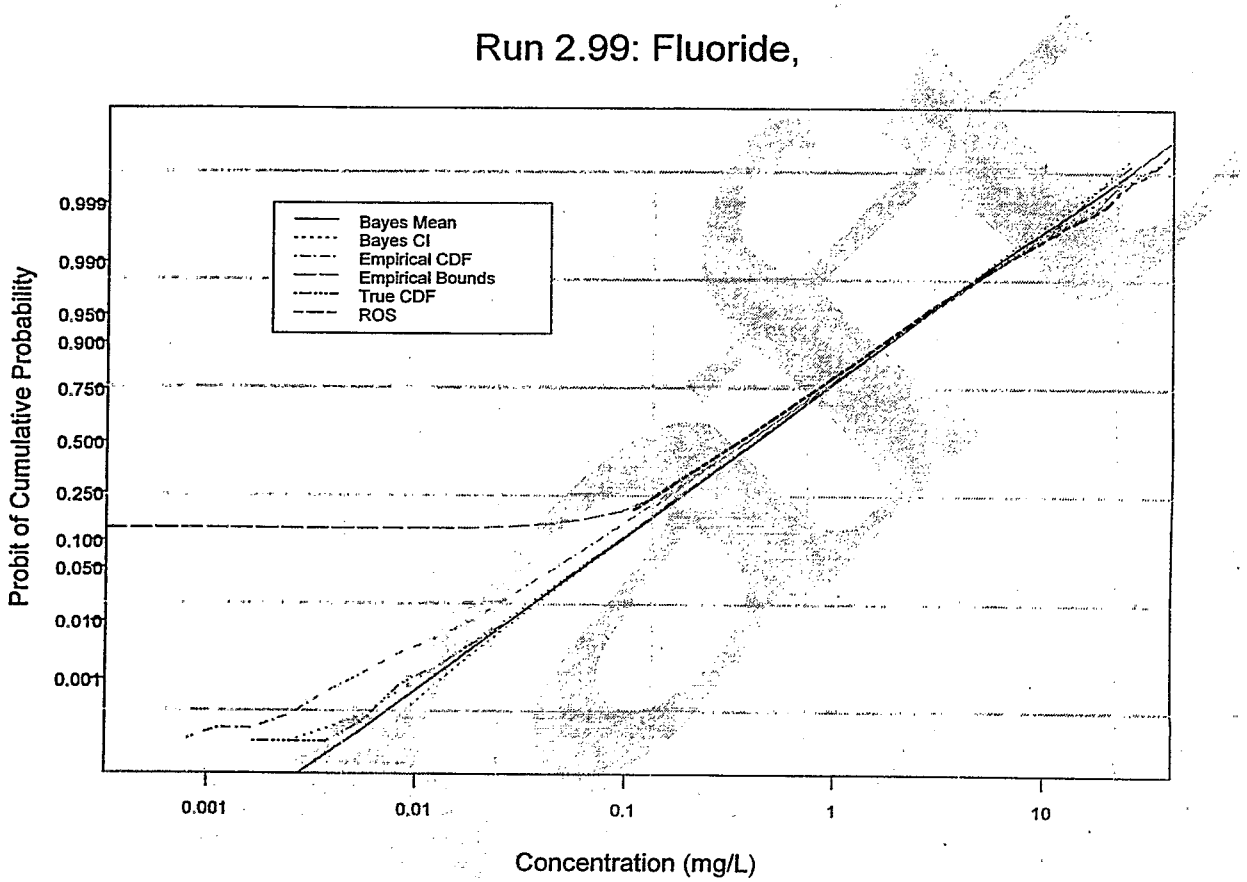


Figure 6. High Information-Mixed Distribution Synthetic Data Set



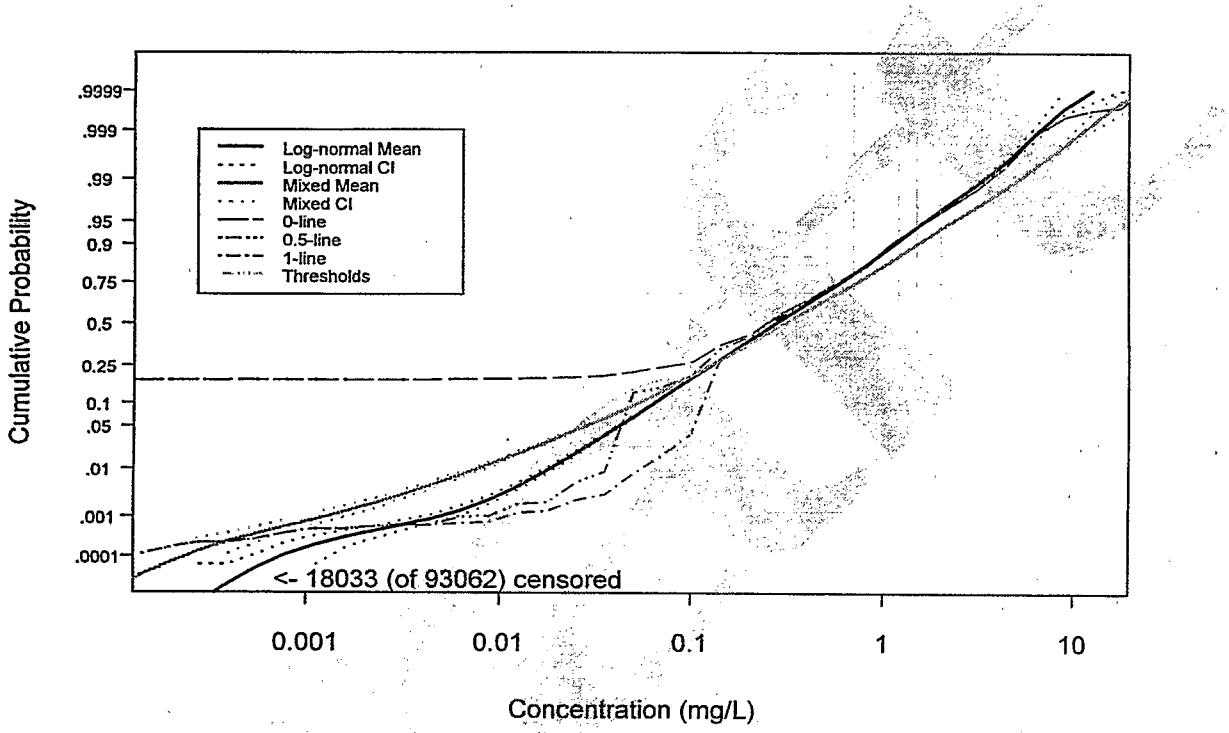
The second evaluation of the proposed model involved a test of the assumption of log-normality. This assumption was tested using the 16-State fluoride data set. While the log-normal distribution is commonly used in analyzing environmental data and one can argue its adequacy on both empirical and physical basis (Ott, 1995). It is, however, an assumption that is rarely tested. A mixture of two normal distributions was used at the system level to determine whether a better model can be found without using log-normal distribution at the system level. In other words, the first line of equation (1) was replaced by:

$$y_{ijk} \sim p \times N(\mu_{ij}^1, \tau_1^1) + (1-p) \times N(\mu_{ij}^2, \tau_1^2)$$

where $0 < p < 1$ is a weight of the two normal distributions, estimated in the same MCMC simulation. This setting is based on the results in Ferguson (1983), which demonstrated that an arbitrary distribution can be modeled by a mixture of normal distributions. As with all non-parametric methods, the mixture of the normal distribution approach is less efficient than the appropriate parametric method when the underlying distribution is known. The shaded curve in Figure 7 shows the national distribution of system mean fluoride concentrations predicted by the mixture-of-normal-distributions model. This distribution exhibits an inflated variance and is apparently not in agreement with the data (also see Table 4). This comparison, therefore, indicates that the log-normality assumption is appropriate for the drinking water contaminant occurrence data used in this study.

The estimated national distribution of system mean fluoride concentrations is presented using a cumulative distribution function (CDF) (see Figure 7). In the figure, the black solid line is the median, and the black dotted lines represent the 95% credible interval (which is very narrow due to large sample size). The estimated CDF is compared to three empirical CDFs calculated from system means where all non-detection values have been substituted with (1) 0 (the 0-line), (2) half the modal MRL (the 0.5-line), and (3) the modal MRL (the 1-line). The shaded curve is the mixture distribution model output.

Figure 7. Mixture of Normal Distributions Model



This graphical comparison is favorable since the four CDFs converge at higher concentration values where non-detection values are less likely to occur. Since the substitutions occur at the lower end of the distribution, the differences among the four CDFs, therefore, appear at the left tail of the distribution. When examining the MRLs, it is important to note that the majority of the MRL values are equal to 0.1 mg/L. This is reflected in the figure as the widest gap between the model estimated CDF and the 1-line. The second most occurring MRL value is 0.2 mg/L, where the 1-line diverted from the model estimated CDF slightly. As expected, the estimated CDF is bounded by the 0- and 1- lines, and is close to the 0.5-line.

Table 4 presents a comparison of selected percentiles of the estimated national distribution, based on model prediction, to three empirical CDFs, based on the substitutions. As expected, the difference between the model predicted and the empirical percentiles are mainly in the lower half of the distribution.

Table 4. Comparison of Selected Percentiles (mg/L) of Five Estimated National Distributions of System Mean Fluoride Concentrations

Estimated National Distribution	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
Low [1]	0	0	0.08	0.21	0.59	1.10	1.68
Middle [2]	0.05	0.05	0.10	0.23	0.60	1.10	1.68
High [3]	0.10	0.10	0.13	0.24	0.60	1.10	1.68
Mixed [4]	0.03	0.05	0.13	0.30	0.74	1.51	2.34
Model Prediction	0.05	0.07	0.13	0.27	0.60	1.11	1.57

1. The "low" estimated national distribution was calculated from system means where all non-detection values were substituted with zero.
2. The "middle" estimated national distribution was calculated from system means where all non-detection values were substituted with 1/2 the modal MRL.
3. The "high" estimated national distribution was calculated from system means where all non-detection values were substituted with the modal MRL.
4. The "mixed" estimated national distribution was calculated using a mixture of two normal distributions at the system level.

In conclusion, both the simulated study and the mixture model indicated that the Bayesian-based hierarchical model used for the study is appropriate. The simulated study showed that the prior assumptions about the contaminant distribution do not have an undue influence on the posterior estimate of the national distribution of system means. The mixture model study showed that using a log-normal distribution at the system level is appropriate. When the log-normal assumption is not used, the estimated national distribution has a slightly larger variance, which may result in an overestimate of the exceedance probabilities.

IV. NATIONAL DISTRIBUTIONS OF 15 CONTAMINANT CONCENTRATIONS

The estimated national distributions of system means are presented in Appendix D for 15 select contaminants. Similar to Figure 1, each figure includes the estimated CDF (the median and the 90% credible interval), the detected observations, and the various health thresholds for which the probabilities of exceedance are estimated. Also presented for each contaminant are the estimated probabilities of system mean concentration exceeding each threshold (along with their corresponding 90% and 95% credible intervals). These probabilities are estimated for 10 different types of systems classified based on source water type and population served size category.

Most of the contaminant occurrence data have a very high rate of non-detections. Therefore, no statistical method can result in unbiased estimate of the national distribution. However, the objective of the project is to estimate the percent of PWSs with a mean concentrations above specified health thresholds. It is, therefore, important to evaluate the accuracy of these probabilities. As demonstrated in the evaluation presented in Section III, the estimated distribution percentiles are very close to the same percentiles of the actual observations when the concentration values are above the MRL. In other words,

one should have confidence in the portion of the estimated cumulative distribution containing detections.

A large number of non-detections can certainly make the estimated probability distribution unreliable. However, a large number of non-detections can also indicate a strong confidence on the low probability of a system mean exceeding the MRL. In this regard, when evaluating the uncertainty of the estimated probabilities of threshold exceedance, the specified thresholds and the relevant MRLs should be compared. If the MRLs are well below the threshold of concern, the uncertainty on the probability will be small. The CDF plots presented in Appendix D show that thresholds for all contaminants are well above their respective MRLs. As a result, estimates of the exceedance probabilities can be regarded as reliable. With the exception of fluoride, which has a non-detection rate of 21%, the remaining 14 contaminants have non-detection rates above 90%, including 2 contaminants with non-detection rates between 90% and 92%, 2 contaminants with rates between 97% and 98%, and 10 contaminants with rates close to 99.9%.

V. DISCUSSION

There are three advantages of using the hierarchical modeling approach in this study. First, the log-normal assumption has much less of an impact on the final estimate of the national distribution. This can be explained in two levels: (1) The national distribution is expressed as a mixture of many log-normal distributions, and the resulting national distribution is not subject to the log-normality assumption. This flexibility makes the model prediction more realistic; (2) At the system level, the log-normality is conditional on the system mean, and the system mean is modeled as a sum of two random variables. As a consequence, the log-normal assumption at the system level is also relaxed.

The second advantage of the hierarchical approach is the relatively light computational burden. This is because the hierarchical model produces the national distribution in one model run, while for the ROS plotting position method to be used properly, mean concentration distribution for each water supply system has to be estimated separately.

The third advantage of using the hierarchical modeling approach is its Bayesian feature that allows combining information from all systems. This is a desired feature because not all the water supply systems have the same amount of data and some systems have all measurements below the MRL. As a result, if the national distribution were estimated based on individual system distributions as in the ROS plotting position method, uncertainty in estimated individual system distributions would vary significantly.

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ADDENDUM

This addendum includes the WinBUGS program of the hierarchical model, as well as the S-Plus programs used for creating input files and processing output from the hierarchical model. These programs are included for review purpose only. They are not to be distributed without written consent from the developer.

A. The WinBUGS Program of the Hierarchical Model

```
# Song S. Qian, 30 March 2001, revised 17 April 2001, 25 May 2001
# National distribution of regulated contaminants concentrations.
# A hierarchical modeling for normally distributed data containing detections and non-detections
#
# Data:
#       y - contaminant concentrations (sorted by system id)
#       n - length of y
#       cj - minimum reporting levels (if detection cj = exp(1000))
#       pwsid - public water system id
#       strata - M (10) level strata indicating source water type and population served
#       mstrata - strata id of each system
#               npwsid - incremental # of observations in water systems
#               cr - water quality criteria
#       K - length of cr
#
# Output to be monitored:
#       beta - slope of strata
#       prob - prob. of system mean exceeding cr (for each strata)
#       cdf - cdf of the system mean distribution
#       cbar - system means
#               cbarsys - mean of cbar
#       cbarstrata - mean concentrations in each strata
model{
        for (i in 1:n){
                y[i] ~ dnorm(mu[i], tau)I(, cj[i]);
                mu[i] <- mu1[pwsid[i]] + beta[strata[i]] ;
        }
        for (i in 1:M){
                beta[i] ~ dnorm(0, prec[2]);
                cbarstrata[i] <-sum(cbarst[1:L, i])/nstrata[i];
        }
        for (l in 1:L){
                mu1[l] ~ dnorm(0, prec[3]);
                cbar[l] <- exp(mu1[l] + beta[mstrata[l]] + 0.5/tau);
                for (k in 1:K){
                        exced[k, l] <- step(cbar[l] - cr[k]);
                }
                for (k in 1:(CUTS[3] + 1)){
                        cdfsys[l,k] <- step(cut[k] - cbar[l]);
                }
```

```
                for (j in 1:M){
                        cbarst[l, j] <- cbar[l] * equals(mstrata[l], j);
                }
        }
        for (k in 1:K){
                for (i in 1:L){
                        for (j in 1:M){
                                ex[k, i, j] <- exced[k, i] * equals(mstrata[i], j);
                        }
                }
                for (j in 1:M){
                        prob[j, k] <- sum(ex[k,1:L, j])/nstrata[j];
                }
                probAll[k] <- sum(ex[k,,])/L;
                probG[k] <- (sum(ex[k,,1])+sum(ex[k,,2])+sum(ex[k,,3])+sum(ex[k,,4])+sum(ex[k,,5]))/nG;
                probS[k] <- (sum(ex[k,,6])+sum(ex[k,,7])+sum(ex[k,,8])+sum(ex[k,,9])+sum(ex[k,,10]))/nS;
        }
        for (i in 1:3){
    prec[i] ~dgamma(0.01, 0.01);
  }
        for (k in 0:CUTS[3]){
                cut[k+1] <- pow(10, CUTS[1] + k*CUTS[2]);
                cdf[k+1] <- mean(cdfsys[1:L, k+1]);  # mean of system means
        }
        tau ~ dgamma(0.01, 0.01);
        sigma <- sqrt(1/tau);
  cbarsys <- mean(cbar[1:L]);
}
```

B. S-Plus Program for Creating the BUGS Input Data Files

```
# creating input data files for BUGS run
# Necessary inputs for function bugs.in:
#               y[i]: concentration data log-transformed.
#               source[i]: type of source water 1 or 2
#               pops[i]: population served 1, ..., 5
#               cj[i]: minimum reporting levels (log-transformed).
# Initial values:
#               y[i]: non-detection y values, use 0.5*cj
#               e[i]: residuals: rep(0, n)
#               prec[1:4]: precision of ei, beta1, beta2, mu1
#               beta1[j], beta2[k], rep(0, I), rep(0, K); I: # of source type, K: number of population category
#               mu1[l]: rep(0, L); L: # of systems
#               tau: 0.1
to2 <- function(n)   { if(n<10) paste("0",as.character(n),sep="") else
                        as.character(n) }
```

```
#####################################
# Input Data                        #
#####################################

pops.fun <- function(x){
        ifelse(x<=500,          1, x)->x
        ifelse(x>500  & x<=3300,  2, x)->x
        ifelse(x>3300  & x<=10000, 3, x)->x
        ifelse(x>10000 & x<=50000, 4, x)->x
        ifelse(x>50000,         5, x)->x
        return(x)
}
bugs.in <- function(run = 0, base = "c:\\users\\song\\cadmus\\occurrence",
        infile = Flu, contaminant = "Fluoride", cuts=c(-4, 2), ncuts=40,
        cr=c(4, 2, 0.5, 0.1)){
                # This version sorts the data by system id (pwsid)
                # for calculating both strata means and systems means.
                # cuts: concentration range where CDF will be estimated
                # cr: critical values in original scale
        rundir <- paste(base, "runs", to2(run), sep="\\")
# input data
        oo <- order(infile$PWSID)
        infile <- infile[oo,]
        y <- log(infile$VALUE)
        n <- length(y)
        m <- sum(infile$DETECT==1)
        y[infile$DETECT==0] <- NA
        source <- as.numeric(ordered(infile$SOURCE)) # 1=G, 2=S
        I <- length(unique(source))
        pops <- pops.fun(infile$POPSERV)
        strata <- paste(source, pops, sep=".")
        M <- length(unique(strata))
        strata <- as.numeric(ordered(strata))
        pwsid <- as.numeric(ordered(infile$PWSID))
        L <- length(unique(pwsid))
        npwsid <- as.vector(table(ordered(infile$PWSID)))
        mstrata <- strata[cumsum(npwsid)]
        nstrata <- as.vector(table(mstrata))
        if(sum(nstrata)!=L)stop("number of systems not equal")
        J <- length(nstrata)
        nG <- length(unique(pwsid[source==1]))
        nS <- length(unique(pwsid[source==2]))
        if(L!=(nG+nS))stop("S+G!=All")
        cj <- log(infile$VALUE)
        cj[infile$DETECT==1] <- 1000
        bugs.dat <- list(n=n, M=M, K=length(cr), L=L, y=y, cj=cj, strata=strata, nstrata = nstrata, mstrata=mstrata,
                pwsid=pwsid, npwsid=c(0,cumsum(npwsid)), CUTS=c(cuts[1], (cuts[2]-cuts[1])/ncuts, ncuts),
                cr=cr, nS=nS, nG=nG)
# initial values
        yi <- 0.5*cj
        yi[infile$DETECT==1] <- NA
```

```
        mu1 <- rep(0, L)
        beta <- rep(0, M)
        tau <- 0.01
        bugs.ini <- list(y=yi, mu1=mu1, beta=beta, tau=tau, prec=rep(0.01, 3), tt = rep(0, n))
# log file
        bugs.log <- list(run=run, contaminant=contaminant, rundir=rundir,
                                CUTS=c(cuts[1], (cuts[2]-cuts[1])/ncuts, ncuts), cr=cr, K=length(cr),
nstrata=nstrata)
# BUGS files
 dput(bugs.dat, paste(rundir,"occdat.txt",sep="\\"));
 dput(bugs.ini, paste(rundir,"occini.txt",sep="\\"));
 dput(bugs.log, paste(rundir,"occlog.txt",sep="\\"));
invisible()
}
```

C. S-Plus Program for Processing the BUGS Output Data Files

```
# Routines for plotting CDF's and saving summary statistics.
#
# Gamma priors on s.d. scale
fsig  <- function(s, a, t) { return(fs <- 2 * exp(-t/s^2) / s^(2*a+1)); }
pfsig <- function(a, t, lab=NA, hi=0) {
        md <- sqrt(t/(a + 0.5));
    if(a>.5) {mu <- sqrt(t)*exp(lgamma(a - 0.5)-lgamma(a)); }
    else { mu <- Inf; }
        if(a>1) { sd <- sqrt(t/(a-1)-mu^2); }
    else { sd<-Inf; }
    hi <- max(hi,3*md);
        x <- seq(0, hi,,101);
        y <- fsig(x, a, t);
    if(is.na(lab)) {lab <- paste("sd = 1/sqrt(t) if t~Ga(",
      signif(a,2),",", signif(t,2),")",sep="") }
        plot(x, y, type = "l", axes=F, ylab="Prob Density", xlab=lab);
    axis(side=1);
    abline(v=0);
    if(a>.5) { abline(v=mu); }
    list(mode=md, mean=mu, sdev=sd);
}
if(!exists("ps.colors.hsb")) source("c:/users/song/cadmus/water/bugs/hsb.q");
# Finds (approximate) quantiles from cdf vector
p2q <- function(x, cdf, p, cut=c(-6,.25,40), con) {
        if(missing(con)||is.null(con))  con <- c(-5:2)
    if(missing(x))    x <- log(10)*seq(cut[1],,cut[2],1+cut[3]);
    if(missing(cdf)) cdf <- pnorm(x);
    if(missing(p))    p <- .01*c(5,10,25,50,75,80,90,95);
    xj <- seq(nx <- length(x));
    np <- length(p<-c(p));
    q  <- rep(NA,np);
    for(i in 1:np) {
     j <- sum(cdf<=p[i]);
```

```
    if((j==1)||(j==nx))
      q[i] <- x[j];
    else
      q[i] <- x[j] + (x[j+1]-x[j])*(p[i]-cdf[j])/(cdf[j+1]-cdf[j]);
  }
        nc <- length(con)
        pc <- rep(NA, nc)
        for (i in 1:nc){
                j <- sum(x <= log(10)*con[i])
                if ((j == 1) || (j == nc))
                        pc[i] <- cdf[j]
                else
                        pc[i] <- cdf[j] + (cdf[j+1]-cdf[j])*(con[i]-x[j])/(x[j+1]-x[j])
        }
  myj <- round(1+(con-cut[1])/cut[2]);
  myj[myj<1] <- 1; myj[myj>cut[3]] <- 1+cut[3];
  invisible(list(p1=p,      q1=signif(exp(q),3),
        p2=cdf[myj], q2=exp(x[myj]),
        p3=pc,     q3=signif(10^(con),3),
        y=cdf, x=exp(x)));
}
# Plot posterior cdf from BUGS run of EPA data:
 my.cdf <-
function(run = 0, base = "c:/users/song/cadmus/occurrence", ps = T, wmf = F, infile=Flu, ifname="Flu",
Con=NULL, unit="mg/L")
{
        rundir <- paste(base, "runs", to2(run), sep = "/")
        print(paste("Using directory ", rundir, ".", sep = ""))
        psw <- dget(paste(rundir, "occlog.txt", sep = "/"))
        run <- psw$run
        cr <- psw$cr
        mycon <- psw$contaminant
        mytitle <- paste("Run ", run, ": ", mycon, ", ", sep = "")
        new.wmf <- function(n, name = "", dir = rundir){
                if (wmf) {
                        fname <- paste(dir, "/", name, to2(n), ".wmf", sep = "")
                        win.printer(file=fname, height=6, width=8, format="metafile")
                        print(paste("Writing Windows Meta file ", fname, sep = ""))

                }
        }
        new.ps <- function(n, name = "", dir = rundir)
        {
                if(ps) {
                        fname <- paste(dir, "/", name, to2(n), ".ps", sep = "")
                        postscript(fname, hori = T, colors = ps.colors.hsb[c("black", "white", "RoyalBlue1",
"red1", "purple",
                                "green4", "yellow2"),  ])
                        print(paste("Writing postscript file ", fname, sep = ""))
                }
        }
```

```
mswcol <- 1;
rawcol <- 6        # Green for empirical stuff
ps.off <- function()
{
        if(ps) {
                dev.off()
        }
}
wmf.off <- function()
{
        if(wmf) {
                dev.off()
        }
}
cdf <- read.table(paste(rundir, "cdf.txt", sep = "/"), head = T, sep = "\t")

prob <- read.table(paste(rundir, "prob.txt", sep = "/"), head = T, sep = "\t")
probG <- read.table(paste(rundir, "probG.txt", sep = "/"), head = T, sep = "\t")
probS <- read.table(paste(rundir, "probS.txt", sep = "/"), head = T, sep = "\t")
probAll <- read.table(paste(rundir, "probAll.txt", sep = "/"), head = T, sep = "\t")
cbarstrata <- read.table(paste(rundir, "cbarstrata.txt", sep = "/"), head = T, sep = "\t")
cbarsys <- read.table(paste(rundir, "cbarsys.txt", sep = "/"), head = T, sep = "\t")
cbarG <- sum(cbarstrata$mean[1: 5]*psw$nstrata[1: 5])/sum(psw$nstrata[1: 5])
cbarS <- sum(cbarstrata$mean[6:10]*psw$nstrata[6:10])/sum(psw$nstrata[6:10])
cbarG.sd <- sum(cbarstrata$sd[1: 5]*psw$nstrata[1: 5])/sum(psw$nstrata[1: 5])
cbarS.sd <- sum(cbarstrata$sd[6:10]*psw$nstrata[6:10])/sum(psw$nstrata[6:10])
K <- psw$K
mean.prob <- rbind(matrix(prob$mean, ncol=K, nrow=10, byrow=T), probG$mean, probS$mean,
                                        probAll$mean)
prob2.5 <- rbind(matrix(prob$X2.5, ncol=K, nrow=10, byrow=T), probG$X2.5, probS$X2.5,
probAll$X2.5)
prob97.5 <- rbind(matrix(prob$X97.5, ncol=K, nrow=10, byrow=T), probG$X97.5, probS$X97.5,
                                        probAll$X97.5)
prob5 <- rbind(matrix(prob$X5.0, ncol=K, nrow=10, byrow=T), probG$X5.0, probS$X5.0, probAll$X5.0)
prob95 <- rbind(matrix(prob$X95.0, ncol=K, nrow=10, byrow=T), probG$X95.0, probS$X95.0,
                                        probAll$X95.0)

out.table <- data.frame(mean.conc=c(cbarstrata$mean, cbarG, cbarS, cbarsys$mean),
                                                                sd.mean = c(cbarstrata$sd, cbarG.sd,
cbarS.sd, cbarsys$sd));
nm <- names(out.table)
for (i in 1:K){
        out.table <- cbind(out.table, mean.prob[,i], prob2.5[, i], prob97.5[,i], prob5[, i], prob95[,i])
        nm <- c(nm, paste("prob.MCL", i, sep=""), paste("CI95L", i, sep="."), paste("CI95H", i, sep="."),

         paste("CI90L", i, sep="."), paste("CI90H", i, sep="."))
}
names(out.table) <- nm
ncut <- psw$CUTS[3] + 1
cdf.raw <- rep(0, ncut)
temp <- p2q(cdf = cdf$mean, cut = psw$CUT, con=Con)
```

```
        new.ps(run, "cdf", rundir)
        new.wmf(run, "cdf", rundir)
        x <- log(10) * seq(psw$CUTS[1],  , psw$CUTS[2], psw$CUTS[3] + 1)
        xx <- log(10) * psw$CUTS[2] + x  # Trailing edge of step
        xat <- log(10) * seq(psw$CUTS[1], psw$CUTS[1] + psw$CUTS[2] * psw$CUTS[3])
        xlab <- as.character(signif(10^seq(psw$CUTS[1], psw$CUTS[1] + psw$CUTS[2] * psw$CUTS[3]), 1))
        plot(x, cdf$mean, type = "n", axes = F, xlab = paste("Concentration (", unit, ")",sep=""), ylab =
"Cumulative Probability", ylim=c(-0.04, 1))
        disclaimer <- paste("Draft for Discussion:", substring(date(), 4, 10), ",", substring(date(), 20), sep = "")
        stamp(disclaimer)
        axis(side = 1, at = xat, labels = xlab)
        axis(side = 2, at = seq(0, 1,  , 11))
        lines(x, cdf$mean, col = mswcol, lwd = 2)   #  Mean
        lines(x, cdf$X5.0, col = mswcol, lty = 2)   #  5%
        lines(x, cdf$X95.0, col = mswcol, lty = 2)  # 95%
        old.ht <- 1000000000
        xraw <- log(infile$VALUE)
        nraw <- length(xraw)
        xraw.clean <- xraw[infile$DETECT==1]

        segments(log(cr), rep(0, length(cr)), log(cr), rep(1, length(cr)), col=3)
        nok <- length(xraw.clean) # Eliminates 0's, NA's and non-detections
        nzip <- sum(infile$DETECT==0)   # number of non-detections
        ntot <- nraw
        xtem <- jitter(xraw.clean)
        segments(xtem, rep(-0.02, nok), xtem, rep(0, nok), col = rawcol)
        text(xat[1] + 4, -0.04, paste("<- ", nzip, " (of ", ntot, ") non-detection", sep = ""), col = rawcol)
        title(mytitle)
        ps.off()
        wmf.off()
        sink(paste(rundir, "/cdf", to2(run), ".out", sep = ""))
        print("Estimated Quantiles")
        pred.quant <- temp$q1
        print(rbind(temp$p1,temp$q1));
        print("Quantiles of the Raw Data")
        print(quantile(infile$VALUE, prob=c(0.05, 0.1, 0.25, 0.5, 0.75, 0.8, 0.9, 0.95)))
        print(rbind(temp$q3,temp$p3));
        print(paste("Run: ", psw$run, ", Contaminant: ", psw$contaminant, sep = ""))
        print(disclaimer)
        sink()
        invisible(out.table)
}
```

Table C.1.a. Alachlor - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.002 mg/L			Threshold = 0.0002 mg/L		
Ground Water	< 500	0.00000293	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0126%**	0.000% - 0.0358%	0.000% - 0.0358%
	501 - 3,300	0.00000395	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0451%**	0.000% - 0.132%	0.000% - 0.0989%
	3,301 - 10,000	0.00000268	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.109%**	0.000% - 0.244%	0.000% - 0.122%
	10,001 - 50,000	0.00000243	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0217%**	0.000% - 0.191%	0.000% - 0.191%
	> 50,000	0.00000129	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000311	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0266%**	0.00774% - 0.0542%	0.00774% - 0.0465%
Surface Water	< 500	0.00000936	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.399%**	0.000% - 0.719%	0.360% - 0.719%
	501 - 3,300	0.0000185	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.691%**	0.000% - 1.47%	0.245% - 1.23%
	3,301 - 10,000	0.0000118	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0970%**	0.000% - 0.752%	0.000% - 0.376%
	10,001 - 50,000	0.0000100	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0526%**	0.000% - 0.321%	0.000% - 0.321%
	> 50,000	0.0000108	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.146%**	0.000% - 0.671%	0.000% - 0.671%
	Total	0.0000128	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.323%**	0.0708% - 0.566%	0.142% - 0.495%
All Systems - Combined Ground & Surface Water		0.00000406	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0559%**	0.0279% - 0.0907%	0.0279% - 0.0837%

All estimates presented as percentages are expressed to three significant figures.

Table C.1.b. Alachlor - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.1.c. Alachlor - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	5	0	16	0	16
	501 - 3,300	5	0	16	0	12
	3,301 - 10,000	3	0	6	0	3
	10,001 - 50,000	1	0	2	0	2
	> 50,000	0	0	0	0	0
	GW Total	16	5	32	5	28
Surface Water	≤ 500	6	0	11	6	11
	501 - 3,300	12	0	25	4	21
	3,301 - 10,000	1	0	8	0	4
	10,001 - 50,000	1	0	3	0	3
	> 50,000	1	0	3	0	3
	SW Total	18	4	32	8	28
Total Ground & Surface Water		36	18	59	18	54

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.1.d. Alachlor - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.002 mg/L			Threshold = 0.0002 mg/L		
Ground Water	< 500	0.00000293	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.00657%**	0.000% - 0.0363%	0.000% - 0.0310%
	501 - 3,300	0.00000395	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0534%**	0.000% - 0.139%	0.000% - 0.124%
	3,301 - 10,000	0.00000268	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.178%**	0.000% - 0.379%	0.000% - 0.303%
	10,001 - 50,000	0.00000243	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0375%**	0.000% - 0.286%	0.000% - 0.207%
	> 50,000	0.00000129	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.00227%**	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000311	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0385%**	0.00383% - 0.112%	0.00985% - 0.105%
Surface Water	< 500	0.00000936	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.152%**	0.000% - 1.01%	0.0479% - 0.770%
	501 - 3,300	0.0000185	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.840%**	0.0859% - 1.85%	0.115% - 1.68%
	3,301 - 10,000	0.0000118	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.155%**	0.000% - 0.831%	0.000% - 0.612%
	10,001 - 50,000	0.0000100	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0692%**	0.000% - 0.627%	0.000% - 0.479%
	> 50,000	0.0000108	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0862%**	0.000% - 0.376%	0.000% - 0.376%
	Total	0.0000128	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0956%**	0.00250% - 0.408%	0.00360% - 0.343%
All Systems - Combined Ground & Surface Water		0.00000406	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.0716%**	0.0104% - 0.258%	0.0123% - 0.225%

All estimates presented as percentages are expressed to three significant figures.

Table C.1.e. Alachlor - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.1.f. Alachlor - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	400	0	2,400	0	2,000
	501 - 3,300	8,300	0	21,600	0	19,300
	3,301 - 10,000	24,600	0	52,100	0	41,700
	10,001 - 50,000	10,000	0	70,000	0	50,500
	> 50,000	0	0	0	0	0
	GW Total	33,000	3,300	96,200	8,400	90,100
Surface Water	≤ 500	400	0	2,900	100	2,300
	501 - 3,300	23,700	2,400	52,300	3,200	47,300
	3,301 - 10,000	9,400	0	50,600	0	37,300
	10,001 - 50,000	15,100	0	137,000	0	104,700
	> 50,000	83,000	0	362,400	0	362,400
	SW Total	121,700	3,200	519,700	4,600	437,000
Total Ground & Surface Water		152,500	22,100	548,700	26,100	479,700

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.2.a. Benzene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0005 mg/L			Threshold = 0.0004 mg/L		
Ground Water	< 500	0.0000153	0.0216%	0.00664% - 0.0399%	0.0133% - 0.0332%	0.194%	0.120% - 0.286%	0.126% - 0.272%	0.247%	0.153% - 0.352%	0.159% - 0.339%
	501 - 3,300	0.0000201	0.0723%	0.0216% - 0.130%	0.0433% - 0.108%	0.325%	0.216% - 0.454%	0.216% - 0.433%	0.399%	0.260% - 0.562%	0.281% - 0.541%
	3,301 - 10,000	0.0000269	0.0446%	0.000% - 0.172%	0.000% - 0.172%	0.890%	0.600% - 1.20%	0.686% - 1.12%	1.01%	0.686% - 1.37%	0.772% - 1.29%
	10,001 - 50,000	0.0000247	0.0148%	0.000% - 0.151%	0.000% - 0.151%	0.972%	0.754% - 1.21%	0.754% - 1.21%	1.06%	0.754% - 1.36%	0.754% - 1.36%
	> 50,000	0.00000823	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0331%	0.000% - 0.614%	0.000% - 0.614%	0.0687%	0.000% - 0.614%	0.000% - 0.614%
	Total	0.0000172	0.0332%	0.0138% - 0.0554%	0.0185% - 0.0508%	0.282%	0.198% - 0.369%	0.208% - 0.360%	0.344%	0.249% - 0.452%	0.258% - 0.438%
Surface Water	< 500	0.00000543	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0277%	0.000% - 0.288%	0.000% - 0.288%	0.0478%	0.000% - 0.288%	0.000% - 0.288%
	501 - 3,300	0.0000141	0.00710%	0.000% - 0.222%	0.000% - 0.000%	0.255%	0.000% - 0.887%	0.000% - 0.665%	0.351%	0.000% - 0.887%	0.000% - 0.887%
	3,301 - 10,000	0.0000143	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.137%	0.000% - 0.676%	0.000% - 0.676%	0.220%	0.000% - 1.01%	0.000% - 0.676%
	10,001 - 50,000	0.0000168	0.00772%	0.000% - 0.297%	0.000% - 0.000%	0.605%	0.297% - 1.19%	0.297% - 1.19%	0.759%	0.297% - 1.48%	0.297% - 1.19%
	> 50,000	0.00000959	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0570%	0.000% - 0.606%	0.000% - 0.606%	0.120%	0.000% - 0.606%	0.000% - 0.606%
	Total	0.0000123	0.00363%	0.000% - 0.0627%	0.000% - 0.0627%	0.237%	0.0627% - 0.501%	0.0627% - 0.439%	0.323%	0.125% - 0.627%	0.125% - 0.564%
All Systems - Combined Ground & Surface Water		0.0000168	0.0312%	0.0172% - 0.0516%	0.0172% - 0.0473%	0.279%	0.198% - 0.370%	0.206% - 0.352%	0.343%	0.245% - 0.456%	0.258% - 0.434%

All estimates presented as percentages are expressed to three significant figures.

Table C.2.b. Benzene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	9	3	17	6	14
	501 - 3,300	9	3	16	5	13
	3,301 - 10,000	1	0	4	0	4
	10,001 - 50,000	0	0	2	0	2
	> 50,000	0	0	0	0	0
	GW Total	20	8	33	11	30
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	4	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	3	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	4	0	4
Total Ground & Surface Water		20	11	34	11	31

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.2.c. Benzene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	84	52	124	55	118
	501 - 3,300	40	26	55	26	53
	3,301 - 10,000	21	14	29	17	27
	10,001 - 50,000	12	9	14	9	14
	> 50,000	0	0	1	0	1
	GW Total	168	118	219	123	214
Surface Water	≤ 500	1	0	4	0	4
	501 - 3,300	4	0	15	0	11
	3,301 - 10,000	1	0	7	0	7
	10,001 - 50,000	6	3	11	3	11
	> 50,000	1	0	2	0	2
	SW Total	13	4	28	4	25
Total Ground & Surface Water		181	129	240	134	229

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.2.d. Benzene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0004 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	108	66	153	69	147
	501 - 3,300	49	32	68	34	66
	3,301 - 10,000	24	17	33	19	31
	10,001 - 50,000	13	9	16	9	16
	> 50,000	0	0	1	0	1
	GW Total	204	148	269	154	261
Surface Water	≤ 500	1	0	4	0	4
	501 - 3,300	6	0	15	0	15
	3,301 - 10,000	2	0	10	0	7
	10,001 - 50,000	7	3	14	3	11
	> 50,000	1	0	2	0	2
	SW Total	18	7	35	7	32
Total Ground & Surface Water		223	159	296	168	282

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.2.e. Benzene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0005 mg/L			Threshold = 0.0004 mg/L		
Ground Water	< 500	0.0000153	0.0303%	0.0148% - 0.0517%	0.0185% - 0.0490%	0.222%	0.135% - 0.327%	0.148% - 0.309%	0.277%	0.169% - 0.403%	0.187% - 0.380%
	501 - 3,300	0.0000201	0.0683%	0.0231% - 0.120%	0.0376% - 0.114%	0.354%	0.216% - 0.504%	0.235% - 0.478%	0.432%	0.272% - 0.621%	0.294% - 0.594%
	3,301 - 10,000	0.0000269	0.0497%	0.000% - 0.202%	0.000% - 0.202%	1.03%	0.671% - 1.37%	0.743% - 1.34%	1.16%	0.805% - 1.57%	0.857% - 1.49%
	10,001 - 50,000	0.0000247	0.0135%	0.000% - 0.150%	0.000% - 0.150%	0.962%	0.677% - 1.31%	0.677% - 1.26%	1.05%	0.677% - 1.41%	0.677% - 1.36%
	> 50,000	0.00000823	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0238%	0.000% - 0.323%	0.000% - 0.274%	0.0484%	0.000% - 0.433%	0.000% - 0.369%
	Total	0.0000172	0.0204%	0.00407% - 0.0629%	0.00546% - 0.0557%	0.481%	0.340% - 0.632%	0.360% - 0.616%	0.546%	0.399% - 0.758%	0.417% - 0.707%
Surface Water	< 500	0.00000543	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0264%	0.000% - 0.399%	0.000% - 0.175%	0.0473%	0.000% - 0.638%	0.000% - 0.399%
	501 - 3,300	0.0000141	0.00405%	0.000% - 0.130%	0.000% - 0.000%	0.214%	0.000% - 0.817%	0.000% - 0.657%	0.309%	0.000% - 1.05%	0.000% - 0.860%
	3,301 - 10,000	0.0000143	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.134%	0.000% - 0.768%	0.000% - 0.629%	0.214%	0.000% - 1.03%	0.000% - 0.867%
	10,001 - 50,000	0.0000168	0.00448%	0.000% - 0.172%	0.000% - 0.000%	0.404%	0.151% - 1.04%	0.151% - 0.922%	0.525%	0.151% - 1.20%	0.151% - 1.11%
	> 50,000	0.00000959	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0266%	0.000% - 0.286%	0.000% - 0.143%	0.0472%	0.000% - 0.451%	0.000% - 0.266%
	Total	0.0000123	0.000625%	0.000% - 0.0220%	0.000% - 0.00163%	0.0805%	0.0194% - 0.283%	0.0210% - 0.206%	0.117%	0.0244% - 0.451%	0.0322% - 0.315%
All Systems - Combined Ground & Surface Water		0.0000168	0.00947%	0.00188% - 0.0300%	0.00244% - 0.0258%	0.260%	0.176% - 0.389%	0.183% - 0.353%	0.309%	0.211% - 0.514%	0.222% - 0.445%

All estimates presented as percentages are expressed to three significant figures.

Table C.2.f. Benzene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	2,000	1,000	3,400	1,200	3,200
	501 - 3,300	10,600	3,600	18,600	5,800	17,600
	3,301 - 10,000	6,800	0	27,800	0	27,800
	10,001 - 50,000	0	0	36,600	0	36,600
	> 50,000	0	0	0	0	0
	GW Total	17,500	3,500	53,900	4,700	47,700
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	3,700	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	37,500	0	0
	> 50,000	0	0	0	0	0
	SW Total	800	0	28,000	0	2,100
Total Ground & Surface Water		20,200	4,000	63,800	5,200	54,800

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.2.g. Benzene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	14,400	8,800	21,300	9,600	20,100
	501 - 3,300	54,900	33,600	78,200	36,600	74,200
	3,301 - 10,000	142,200	92,400	188,500	102,300	185,100
	10,001 - 50,000	235,200	165,500	321,200	165,500	307,200
	> 50,000	0	0	82,300	0	69,800
	GW Total	412,100	291,700	541,300	308,000	527,500
Surface Water	≤ 500	100	0	1,200	0	500
	501 - 3,300	6,000	0	23,000	0	18,500
	3,301 - 10,000	8,200	0	46,700	0	38,300
	10,001 - 50,000	88,400	33,000	226,400	33,000	201,400
	> 50,000	25,600	0	275,000	0	137,200
	SW Total	102,500	24,700	359,800	26,700	262,000
Total Ground & Surface Water		553,400	374,000	828,800	389,800	750,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.2.h. Benzene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0004 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	18,000	11,000	26,200	12,100	24,700
	501 - 3,300	67,000	42,300	96,300	45,700	92,200
	3,301 - 10,000	160,300	110,900	215,800	118,000	204,600
	10,001 - 50,000	256,900	165,500	345,100	165,500	332,200
	> 50,000	0	0	110,200	0	93,800
	GW Total	468,200	341,800	649,200	356,900	605,600
Surface Water	≤ 500	100	0	1,900	0	1,200
	501 - 3,300	8,700	0	29,700	0	24,200
	3,301 - 10,000	13,000	0	62,900	0	52,800
	10,001 - 50,000	114,700	33,000	262,400	33,000	243,200
	> 50,000	45,400	0	434,300	0	256,100
	SW Total	148,500	31,100	574,200	40,900	401,500
Total Ground & Surface Water		658,000	449,900	1,095,300	472,500	948,500

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.3.a. Beryllium - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.01 mg/L			Threshold = 0.004 mg/L			Threshold = 0.001 mg/L		
Ground Water	< 500	0.0000797	0.00956%	0.000% - 0.0335%	0.000% - 0.0251%	0.0878%	0.0335% - 0.151%	0.0418% - 0.142%	1.16%	0.929% - 1.39%	0.962% - 1.36%
	501 - 3,300	0.0000638	0.00481%	0.000% - 0.0261%	0.000% - 0.0261%	0.0666%	0.000% - 0.157%	0.000% - 0.131%	0.875%	0.575% - 1.23%	0.627% - 1.15%
	3,301 - 10,000	0.0000662	0.0181%	0.000% - 0.102%	0.000% - 0.102%	0.129%	0.000% - 0.306%	0.000% - 0.306%	0.894%	0.510% - 1.43%	0.510% - 1.33%
	10,001 - 50,000	0.0000911	0.00308%	0.000% - 0.000%	0.000% - 0.000%	0.0408%	0.000% - 0.343%	0.000% - 0.171%	1.62%	0.856% - 2.57%	1.03% - 2.40%
	> 50,000	0.0000940	0.00121%	0.000% - 0.000%	0.000% - 0.000%	0.0277%	0.000% - 0.602%	0.000% - 0.000%	1.27%	0.000% - 3.01%	0.000% - 2.41%
	Total	0.0000760	0.00870%	0.000% - 0.0229%	0.000% - 0.0229%	0.0833%	0.0400% - 0.137%	0.0514% - 0.126%	1.10%	0.908% - 1.29%	0.942% - 1.26%
Surface Water	< 500	0.0000446	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0117%	0.000% - 0.325%	0.000% - 0.000%	0.439%	0.000% - 1.30%	0.000% - 1.30%
	501 - 3,300	0.0000530	0.000481%	0.000% - 0.000%	0.000% - 0.000%	0.0111%	0.000% - 0.240%	0.000% - 0.000%	0.734%	0.240% - 1.44%	0.240% - 1.44%
	3,301 - 10,000	0.0000699	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0107%	0.000% - 0.380%	0.000% - 0.000%	0.639%	0.000% - 1.90%	0.000% - 1.52%
	10,001 - 50,000	0.0000778	0.00202%	0.000% - 0.000%	0.000% - 0.000%	0.0303%	0.000% - 0.337%	0.000% - 0.337%	1.07%	0.000% - 2.36%	0.337% - 2.02%
	> 50,000	0.0000627	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.823%	0.000% - 2.14%	0.000% - 2.14%
	Total	0.0000604	0.000562%	0.000% - 0.000%	0.000% - 0.000%	0.0140%	0.000% - 0.0702%	0.000% - 0.0702%	0.731%	0.351% - 1.19%	0.421% - 1.12%
All Systems - Combined Ground & Surface Water		0.0000748	0.00809%	0.000% - 0.0211%	0.000% - 0.0211%	0.0781%	0.0370% - 0.127%	0.0475% - 0.116%	1.07%	0.882% - 1.25%	0.914% - 1.23%

All estimates presented as percentages are expressed to three significant figures.

Table C.3.b. Beryllium - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.01 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	4	0	15	0	11
	501 - 3,300	1	0	3	0	3
	3,301 - 10,000	1	0	2	0	2
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	5	0	14	0	14
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	0	0	0
Total Ground & Surface Water		5	0	14	0	14

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.3.c. Beryllium - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.004 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	38	15	66	18	62
	501 - 3,300	8	0	19	0	16
	3,301 - 10,000	3	0	7	0	7
	10,001 - 50,000	1	0	4	0	2
	> 50,000	0	0	1	0	0
	GW Total	50	24	81	31	75
Surface Water	≤ 500	0	0	5	0	0
	501 - 3,300	1	0	4	0	0
	3,301 - 10,000	0	0	4	0	0
	10,001 - 50,000	1	0	3	0	3
	> 50,000	0	0	0	0	0
	SW Total	1	0	4	0	4
Total Ground & Surface Water		51	24	82	31	76

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.3.d. Beryllium - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	505	404	604	419	590
	501 - 3,300	106	70	149	76	140
	3,301 - 10,000	21	12	34	12	32
	10,001 - 50,000	19	10	31	12	29
	> 50,000	2	0	6	0	5
	GW Total	653	540	764	560	750
Surface Water	≤ 500	7	0	20	0	20
	501 - 3,300	13	4	25	4	25
	3,301 - 10,000	6	0	19	0	15
	10,001 - 50,000	10	0	22	3	19
	> 50,000	3	0	9	0	9
	SW Total	41	20	67	24	63
Total Ground & Surface Water		696	574	814	594	801

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.3.e. Beryllium - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.01 mg/L			Threshold = 0.004 mg/L			Threshold = 0.001 mg/L		
Ground Water	< 500	0.0000797	0.0112%	0.000% - 0.0449%	0.000% - 0.0387%	0.0985%	0.0304% - 0.187%	0.0380% - 0.162%	1.25%	0.949% - 1.54%	1.02% - 1.51%
	501 - 3,300	0.0000638	0.00506%	0.000% - 0.0445%	0.000% - 0.0437%	0.0658%	0.000% - 0.167%	0.000% - 0.150%	0.869%	0.551% - 1.22%	0.610% - 1.18%
	3,301 - 10,000	0.0000662	0.0165%	0.000% - 0.114%	0.000% - 0.114%	0.121%	0.000% - 0.304%	0.000% - 0.284%	0.799%	0.408% - 1.31%	0.469% - 1.22%
	10,001 - 50,000	0.0000911	0.00260%	0.000% - 0.000%	0.000% - 0.000%	0.0372%	0.000% - 0.335%	0.000% - 0.210%	1.68%	0.680% - 2.87%	0.844% - 2.64%
	> 50,000	0.0000940	0.000603%	0.000% - 0.000%	0.000% - 0.000%	0.0146%	0.000% - 0.301%	0.000% - 0.000%	1.02%	0.000% - 2.58%	0.000% - 2.35%
	Total	0.0000760	0.00403%	0.000% - 0.0255%	0.000% - 0.0153%	0.0430%	0.00586% - 0.174%	0.00787% - 0.142%	1.17%	0.595% - 1.96%	0.646% - 1.89%
Surface Water	< 500	0.0000446	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0106%	0.000% - 0.130%	0.000% - 0.000%	0.408%	0.000% - 1.44%	0.000% - 1.21%
	501 - 3,300	0.0000530	0.000830%	0.000% - 0.000%	0.000% - 0.000%	0.0151%	0.000% - 0.357%	0.000% - 0.000%	0.989%	0.357% - 2.02%	0.357% - 1.82%
	3,301 - 10,000	0.0000699	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0101%	0.000% - 0.225%	0.000% - 0.000%	0.633%	0.000% - 1.93%	0.000% - 1.66%
	10,001 - 50,000	0.0000778	0.00187%	0.000% - 0.000%	0.000% - 0.000%	0.0254%	0.000% - 0.368%	0.000% - 0.241%	1.06%	0.000% - 2.26%	0.169% - 2.09%
	> 50,000	0.0000627	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.210%	0.000% - 0.885%	0.000% - 0.793%
	Total	0.0000604	0.000227%	0.000% - 0.000%	0.000% - 0.000%	0.00341%	0.000% - 0.0427%	0.000% - 0.0280%	0.330%	0.0558% - 0.911%	0.0854% - 0.808%
All Systems - Combined Ground & Surface Water		0.0000748	0.00190%	0.000% - 0.0128%	0.000% - 0.00720%	0.0208%	0.00278% - 0.0781%	0.00380% - 0.0632%	0.699%	0.356% - 1.18%	0.417% - 1.07%

All estimates presented as percentages are expressed to three significant figures.

Table C.3.f. Beryllium - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds(Threshold = 0.01 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	700	0	2,900	0	2,500
	501 - 3,300	800	0	6,900	0	6,800
	3,301 - 10,000	3,300	0	15,800	0	15,800
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	3,500	0	21,900	0	13,100
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	300	0	0	0	0
Total Ground & Surface Water		4,100	0	27,200	0	15,300

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.3.g. Beryllium - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.004 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	6,400	2,000	12,100	2,500	10,600
	501 - 3,300	10,200	0	25,900	0	23,300
	3,301 - 10,000	16,700	0	41,900	0	39,100
	10,001 - 50,000	10,000	0	81,900	0	51,400
	> 50,000	0	0	76,700	0	0
	GW Total	36,800	5,000	148,700	6,700	121,700
Surface Water	≤ 500	0	0	400	0	0
	501 - 3,300	500	0	10,100	0	0
	3,301 - 10,000	0	0	13,700	0	0
	10,001 - 50,000	10,000	0	80,500	0	52,700
	> 50,000	0	0	0	0	0
	SW Total	4,300	0	54,400	0	35,600
Total Ground & Surface Water		44,400	5,900	166,300	8,100	134,500

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.3.h. Beryllium - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds(Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	81,000	61,600	100,000	66,100	98,000
	501 - 3,300	134,900	85,500	188,800	94,800	182,900
	3,301 - 10,000	110,100	56,200	180,100	64,600	168,400
	10,001 - 50,000	410,600	166,200	701,200	206,300	645,500
	> 50,000	260,000	0	657,400	0	598,200
	GW Total	1,002,500	509,700	1,681,900	555,100	1,616,800
Surface Water	≤ 500	1,200	0	4,200	0	3,500
	501 - 3,300	27,900	10,100	56,900	10,100	51,300
	3,301 - 10,000	38,500	0	117,200	0	100,900
	10,001 - 50,000	231,400	0	494,100	37,000	455,600
	> 50,000	201,900	0	851,900	0	763,100
	SW Total	419,500	71,000	1,159,600	108,700	1,028,400
Total Ground & Surface Water		1,489,600	758,500	2,519,900	887,400	2,283,400

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.4.a. Bis(2-ethylhexyl)phthalate - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.006 mg/L			Threshold = 0.003 mg/L			Threshold = 0.0006 mg/L		
Ground Water	< 500	0.000287	0.305%	0.147% - 0.479%	0.166% - 0.442%	1.05%	0.681% - 1.40%	0.773% - 1.36%	10.5%	9.30% - 11.7%	9.43% - 11.5%
	501 - 3,300	0.000231	0.155%	0.000% - 0.343%	0.0490% - 0.294%	0.715%	0.392% - 1.13%	0.441% - 1.03%	8.50%	7.20% - 9.99%	7.39% - 9.74%
	3,301 - 10,000	0.000251	0.155%	0.000% - 0.525%	0.000% - 0.525%	0.719%	0.175% - 1.58%	0.175% - 1.40%	9.98%	7.71% - 12.4%	8.06% - 12.1%
	10,001 - 50,000	0.000276	0.443%	0.000% - 0.969%	0.000% - 0.726%	1.07%	0.484% - 1.70%	0.484% - 1.70%	9.22%	6.78% - 11.6%	7.26% - 11.4%
	> 50,000	0.000208	0.121%	0.000% - 0.758%	0.000% - 0.758%	0.785%	0.000% - 2.27%	0.000% - 1.52%	6.64%	3.03% - 10.6%	3.79% - 9.85%
	Total	0.000269	0.263%	0.151% - 0.396%	0.163% - 0.373%	0.944%	0.698% - 1.23%	0.722% - 1.20%	9.85%	8.93% - 10.8%	9.07% - 10.7%
Surface Water	< 500	0.000382	0.350%	0.000% - 1.23%	0.000% - 1.23%	1.42%	0.000% - 3.68%	0.000% - 3.07%	16.3%	9.82% - 23.9%	11.0% - 22.1%
	501 - 3,300	0.000274	0.107%	0.000% - 0.995%	0.000% - 0.498%	0.705%	0.000% - 1.99%	0.000% - 1.99%	11.5%	6.97% - 16.4%	7.96% - 15.4%
	3,301 - 10,000	0.000226	0.0323%	0.000% - 0.769%	0.000% - 0.000%	0.277%	0.000% - 1.54%	0.000% - 1.54%	9.44%	4.62% - 14.6%	5.39% - 13.9%
	10,001 - 50,000	0.000333	0.262%	0.000% - 0.926%	0.000% - 0.926%	1.41%	0.463% - 2.78%	0.463% - 2.32%	13.8%	10.2% - 17.6%	10.7% - 17.1%
	> 50,000	0.000351	0.111%	0.000% - 0.855%	0.000% - 0.855%	0.889%	0.000% - 3.42%	0.000% - 2.56%	15.6%	10.3% - 22.2%	10.3% - 21.4%
	Total	0.000314	0.184%	0.000% - 0.484%	0.000% - 0.484%	0.988%	0.363% - 1.69%	0.484% - 1.57%	13.3%	10.8% - 15.7%	11.4% - 15.4%
All Systems - Combined Ground & Surface Water		0.000273	0.256%	0.149% - 0.393%	0.159% - 0.372%	0.948%	0.690% - 1.24%	0.733% - 1.20%	10.2%	9.22% - 11.1%	9.45% - 11.0%

All estimates presented as percentages are expressed to three significant figures.

Table C.4.b. Bis(2-ethylhexyl)phthalate - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.006 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	132	64	208	72	192
	501 - 3,300	19	0	42	6	36
	3,301 - 10,000	4	0	13	0	13
	10,001 - 50,000	5	0	12	0	9
	> 50,000	0	0	1	0	1
	GW Total	156	90	235	97	221
Surface Water	≤ 500	5	0	19	0	19
	501 - 3,300	2	0	17	0	8
	3,301 - 10,000	1	0	8	0	0
	10,001 - 50,000	2	0	9	0	9
	> 50,000	1	0	3	0	3
	SW Total	10	0	27	0	27
Total Ground & Surface Water		166	97	256	104	242

Estimates are generated seperately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.4.c. Bis(2-ethylhexyl)phthalate - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.003 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	456	296	609	336	592
	501 - 3,300	87	48	137	54	125
	3,301 - 10,000	17	4	38	4	34
	10,001 - 50,000	13	6	20	6	20
	> 50,000	1	0	4	0	3
	GW Total	561	415	733	429	713
Surface Water	≤ 500	22	0	57	0	47
	501 - 3,300	12	0	34	0	34
	3,301 - 10,000	3	0	16	0	16
	10,001 - 50,000	13	4	26	4	22
	> 50,000	4	0	14	0	10
	SW Total	55	20	95	27	88
Total Ground & Surface Water		616	449	808	476	780

Estimates are generated seperately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.4.d. Bis(2-ethylhexyl)phthalate - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0006 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	4,554	4,044	5,085	4,100	5,020
	501 - 3,300	1,033	875	1,214	899	1,184
	3,301 - 10,000	240	185	299	194	291
	10,001 - 50,000	110	81	138	86	135
	> 50,000	13	6	20	7	19
	GW Total	5,856	5,307	6,420	5,390	6,354
Surface Water	≤ 500	251	151	368	170	340
	501 - 3,300	196	119	280	136	263
	3,301 - 10,000	96	47	148	54	140
	10,001 - 50,000	129	95	164	99	160
	> 50,000	63	41	89	41	86
	SW Total	745	601	879	636	859
Total Ground & Surface Water		6,607	5,993	7,199	6,145	7,147

Estimates are generated seperately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.4.c. Bis(2-ethylhexyl)phthalate - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.006 mg/L			Threshold = 0.003 mg/L			Threshold = 0.0006 mg/L		
Ground Water	< 500	0.000287	0.299%	0.133% - 0.524%	0.160% - 0.452%	1.00%	0.647% - 1.38%	0.702% - 1.31%	10.2%	8.91% - 11.6%	9.15% - 11.4%
	501 - 3,300	0.000231	0.164%	0.000% - 0.378%	0.0217% - 0.339%	0.720%	0.399% - 1.17%	0.432% - 1.06%	8.89%	7.47% - 10.4%	7.68% - 10.2%
	3,301 - 10,000	0.000251	0.151%	0.000% - 0.515%	0.000% - 0.459%	0.688%	0.119% - 1.58%	0.166% - 1.40%	10.2%	7.97% - 12.7%	8.26% - 12.4%
	10,001 - 50,000	0.000276	0.407%	0.000% - 0.998%	0.000% - 0.938%	1.09%	0.280% - 1.84%	0.394% - 1.75%	9.25%	6.67% - 12.0%	7.07% - 11.4%
	> 50,000	0.000208	0.0678%	0.000% - 0.409%	0.000% - 0.342%	0.410%	0.000% - 1.28%	0.000% - 0.999%	4.98%	1.69% - 9.72%	2.17% - 8.88%
	Total	0.000269	0.189%	0.0215% - 0.463%	0.0411% - 0.414%	0.676%	0.326% - 1.19%	0.369% - 1.02%	7.22%	5.45% - 9.92%	5.69% - 9.27%
Surface Water	< 500	0.000382	0.510%	0.000% - 2.36%	0.000% - 1.85%	1.84%	0.000% - 4.76%	0.000% - 4.19%	17.7%	10.5% - 25.7%	11.6% - 24.5%
	501 - 3,300	0.000274	0.0839%	0.000% - 0.757%	0.000% - 0.591%	0.558%	0.000% - 1.96%	0.000% - 1.59%	11.3%	6.70% - 16.1%	7.45% - 15.5%
	3,301 - 10,000	0.000226	0.0278%	0.000% - 0.477%	0.000% - 0.000%	0.251%	0.000% - 1.32%	0.000% - 1.25%	9.16%	4.60% - 14.1%	5.45% - 13.3%
	10,001 - 50,000	0.000333	0.182%	0.000% - 0.997%	0.000% - 0.760%	1.00%	0.222% - 2.50%	0.222% - 2.21%	12.3%	8.17% - 17.0%	8.94% - 16.1%
	> 50,000	0.000351	0.0575%	0.000% - 0.475%	0.000% - 0.356%	0.595%	0.000% - 3.19%	0.000% - 2.15%	11.6%	5.07% - 19.3%	6.32% - 18.2%
	Total	0.000314	0.0712%	0.000% - 0.426%	0.000% - 0.311%	0.634%	0.0312% - 3.00%	0.0461% - 2.03%	11.6%	5.81% - 18.2%	7.01% - 17.2%
All Systems - Combined Ground & Surface Water		0.000273	0.119%	0.0186% - 0.363%	0.0230% - 0.304%	0.652%	0.220% - 2.02%	0.241% - 1.50%	9.82%	6.20% - 13.9%	7.00% - 13.3%

All estimates presented as percentages are expressed to three significant figures.

Table C.4.f. Bis(2-ethylhexyl)phthalate - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.006 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	19,400	8,600	34,100	10,400	29,400
	501 - 3,300	25,400	0	58,700	3,400	52,700
	3,301 - 10,000	20,800	0	71,000	0	63,200
	10,001 - 50,000	99,600	0	243,900	0	229,100
	> 50,000	0	0	104,100	0	87,000
	GW Total	161,500	18,400	396,400	35,200	354,800
Surface Water	≤ 500	1,500	0	6,900	0	5,400
	501 - 3,300	2,400	0	21,300	0	16,600
	3,301 - 10,000	3,300	0	29,000	0	0
	10,001 - 50,000	39,700	0	217,900	0	166,100
	> 50,000	55,300	0	457,300	0	342,600
	SW Total	90,600	0	542,400	0	395,900
Total Ground & Surface Water		254,100	39,700	774,100	49,100	647,100

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.4.g. Bis(2-ethylhexyl)phthalate - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.003 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	65,100	42,100	89,600	45,600	85,000
	501 - 3,300	111,800	61,900	181,200	67,000	164,100
	3,301 - 10,000	94,700	16,400	218,000	22,800	192,400
	10,001 - 50,000	266,200	68,500	450,700	96,400	428,500
	> 50,000	104,300	0	324,400	0	254,100
	GW Total	579,600	278,900	1,019,600	316,100	876,500
Surface Water	≤ 500	5,400	0	13,900	0	12,200
	501 - 3,300	15,700	0	55,300	0	44,700
	3,301 - 10,000	15,300	0	80,300	0	75,800
	10,001 - 50,000	218,500	48,400	547,000	48,400	482,500
	> 50,000	572,500	0	3,067,400	0	2,073,800
	SW Total	807,500	39,700	3,824,900	58,700	2,583,500
Total Ground & Surface Water		1,387,700	468,600	4,300,600	513,100	3,184,500

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.4.h. Bis(2-ethylhexyl)phthalate - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0006 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	665,500	578,800	755,200	594,600	740,200
	501 - 3,300	1,380,100	1,160,500	1,619,500	1,193,100	1,583,800
	3,301 - 10,000	1,407,300	1,097,800	1,754,300	1,136,900	1,702,000
	10,001 - 50,000	2,261,600	1,630,500	2,942,800	1,726,800	2,796,200
	> 50,000	1,267,300	429,500	2,471,800	552,900	2,260,400
	GW Total	6,187,900	4,668,800	8,498,800	4,878,700	7,939,300
Surface Water	≤ 500	51,700	30,600	75,200	34,000	71,800
	501 - 3,300	319,100	189,000	453,500	209,800	436,300
	3,301 - 10,000	557,500	279,600	859,700	331,400	808,600
	10,001 - 50,000	2,696,600	1,785,300	3,706,200	1,952,500	3,522,600
	> 50,000	11,149,100	4,881,300	18,543,300	6,080,000	17,503,500
	SW Total	14,795,300	7,391,300	23,198,900	8,919,200	21,900,200
Total Ground & Surface Water		20,911,000	13,202,200	29,522,900	14,904,200	28,223,600

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.5.a. Carbofuran - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.040 mg/L			Threshold = 0.007 mg/L			Threshold = 0.004 mg/L		
Ground Water	< 500	0.0000142	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000172%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000223	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000175	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000725	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000311	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000162	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000112%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.0000292	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000500	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000490%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000191	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000429	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000139	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000349	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000144%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.0000181	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000115%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.5.b. Carbofuran - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.040 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.5.c. Carbofuran - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.007 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.5.d. Carbofuran - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.004 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.5.e. Carbofuran - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.040 mg/L			Threshold = 0.007 mg/L			Threshold = 0.004 mg/L		
Ground Water	< 500	0.0000142	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000247%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000223	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000175	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000725	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000311	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000162	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00000806%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.0000292	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000500	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000171%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000191	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000429	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000139	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000349	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00000217%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.0000181	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00000461%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.5.f. Carbofuran - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.040 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.5.g. Carbofuran - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.007 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.5.h. Carbofuran - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.004 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.6.a. Carbon Tetrachloride - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0025 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000126	0.00820%	0.00672% - 0.0135%	0.00672% - 0.0135%	0.0142%	0.00672% - 0.0269%	0.00672% - 0.0269%	0.106%	0.0605% - 0.161%	0.0672% - 0.155%
	501 - 3,300	0.0000239	0.0367%	0.0218% - 0.0435%	0.0218% - 0.0435%	0.0535%	0.0435% - 0.0871%	0.0435% - 0.0871%	0.316%	0.174% - 0.457%	0.218% - 0.435%
	3,301 - 10,000	0.0000179	0.000690%	0.000% - 0.000%	0.000% - 0.000%	0.0192%	0.000% - 0.0863%	0.000% - 0.0863%	0.324%	0.173% - 0.604%	0.173% - 0.518%
	10,001 - 50,000	0.0000324	0.112%	0.000% - 0.151%	0.000% - 0.151%	0.161%	0.151% - 0.301%	0.151% - 0.301%	0.708%	0.602% - 0.904%	0.602% - 0.904%
	> 50,000	0.0000310	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	1.67%	1.23% - 2.45%	1.23% - 1.84%
	Total	0.0000160	0.0171%	0.00932% - 0.0233%	0.00932% - 0.0233%	0.0273%	0.0186% - 0.0373%	0.0186% - 0.0373%	0.193%	0.140% - 0.242%	0.149% - 0.238%
Surface Water	< 500	0.0000134	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00175%	0.000% - 0.000%	0.000% - 0.000%	0.0566%	0.000% - 0.292%	0.000% - 0.292%
	501 - 3,300	0.0000309	0.000452%	0.000% - 0.000%	0.000% - 0.000%	0.00406%	0.000% - 0.000%	0.000% - 0.000%	0.410%	0.000% - 0.903%	0.000% - 0.903%
	3,301 - 10,000	0.0000289	0.000683%	0.000% - 0.000%	0.000% - 0.000%	0.00137%	0.000% - 0.000%	0.000% - 0.000%	0.230%	0.000% - 1.02%	0.000% - 0.683%
	10,001 - 50,000	0.0000253	0.000606%	0.000% - 0.000%	0.000% - 0.000%	0.00303%	0.000% - 0.000%	0.000% - 0.000%	0.320%	0.000% - 0.909%	0.000% - 0.909%
	> 50,000	0.0000486	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00242%	0.000% - 0.000%	0.000% - 0.000%	1.94%	1.21% - 3.03%	1.21% - 2.42%
	Total	0.0000274	0.000381%	0.000% - 0.000%	0.000% - 0.000%	0.00267%	0.000% - 0.0635%	0.000% - 0.000%	0.441%	0.254% - 0.699%	0.254% - 0.635%
All Systems - Combined Ground & Surface Water		0.0000168	0.0159%	0.00869% - 0.0217%	0.00869% - 0.0217%	0.0256%	0.0174% - 0.0347%	0.0174% - 0.0347%	0.210%	0.161% - 0.265%	0.169% - 0.256%

All estimates presented as percentages are expressed to three significant figures.

Table C.6.b. Carbon Tetrachloride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	4	3	6	3	6
	501 - 3,300	4	3	5	3	5
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	1	0	2	0	2
	> 50,000	0	0	0	0	0
	GW Total	10	6	14	6	14
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	0	0	0
Total Ground & Surface Water		10	6	14	6	14

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.6.c. Carbon Tetrachloride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0025 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	6	3	12	3	12
	501 - 3,300	6	5	11	5	11
	3,301 - 10,000	1	0	2	0	2
	10,001 - 50,000	2	2	4	2	4
	> 50,000	0	0	0	0	0
	GW Total	16	11	22	11	22
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	4	0	0
Total Ground & Surface Water		17	11	23	11	23

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.6.d. Carbon Tetrachloride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	46	26	70	29	67
	501 - 3,300	38	21	56	26	53
	3,301 - 10,000	8	4	15	4	12
	10,001 - 50,000	8	7	11	7	11
	> 50,000	3	2	5	2	3
	GW Total	115	83	144	89	141
Surface Water	≤ 500	1	0	4	0	4
	501 - 3,300	7	0	15	0	15
	3,301 - 10,000	2	0	10	0	7
	10,001 - 50,000	3	0	8	0	8
	> 50,000	8	5	12	5	10
	SW Total	25	14	39	14	36
Total Ground & Surface Water		137	105	172	110	167

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.6.e. Carbon Tetrachloride - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0025 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000126	0.00866%	0.00681% - 0.0159%	0.00681% - 0.0159%	0.0159%	0.00681% - 0.0366%	0.00681% - 0.0321%	0.124%	0.0598% - 0.195%	0.0680% - 0.185%
	501 - 3,300	0.0000239	0.0189%	0.0104% - 0.0220%	0.0104% - 0.0220%	0.0367%	0.0220% - 0.0894%	0.0220% - 0.0828%	0.286%	0.164% - 0.431%	0.191% - 0.408%
	3,301 - 10,000	0.0000179	0.000476%	0.000% - 0.000%	0.000% - 0.000%	0.0133%	0.000% - 0.0608%	0.000% - 0.0608%	0.307%	0.118% - 0.584%	0.118% - 0.552%
	10,001 - 50,000	0.0000324	0.234%	0.000% - 0.313%	0.000% - 0.313%	0.335%	0.313% - 0.626%	0.313% - 0.626%	1.06%	0.962% - 1.34%	0.962% - 1.28%
	> 50,000	0.0000310	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.915%	0.691% - 1.62%	0.691% - 1.22%
	Total	0.0000160	0.0705%	0.00158% - 0.0950%	0.00172% - 0.0942%	0.104%	0.0938% - 0.191%	0.0938% - 0.187%	0.764%	0.627% - 1.05%	0.633% - 0.907%
Surface Water	< 500	0.0000134	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00188%	0.000% - 0.000%	0.000% - 0.000%	0.0500%	0.000% - 0.490%	0.000% - 0.382%
	501 - 3,300	0.0000309	0.000263%	0.000% - 0.000%	0.000% - 0.000%	0.00180%	0.000% - 0.000%	0.000% - 0.000%	0.349%	0.000% - 0.985%	0.000% - 0.870%
	3,301 - 10,000	0.0000289	0.000886%	0.000% - 0.000%	0.000% - 0.000%	0.00183%	0.000% - 0.000%	0.000% - 0.000%	0.256%	0.000% - 1.03%	0.000% - 0.916%
	10,001 - 50,000	0.0000253	0.000333%	0.000% - 0.000%	0.000% - 0.000%	0.00160%	0.000% - 0.000%	0.000% - 0.000%	0.201%	0.000% - 0.742%	0.000% - 0.600%
	> 50,000	0.0000486	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00133%	0.000% - 0.000%	0.000% - 0.000%	15.3%	14.9% - 16.7%	14.9% - 15.9%
	Total	0.0000274	0.0000713%	0.000% - 0.000%	0.000% - 0.000%	0.00139%	0.000% - 0.00104%	0.000% - 0.000%	12.7%	12.4% - 13.9%	12.4% - 13.2%
All Systems - Combined Ground & Surface Water		0.0000168	0.0316%	0.000707% - 0.0429%	0.000772% - 0.0422%	0.0474%	0.0420% - 0.0865%	0.0420% - 0.0842%	7.37%	7.16% - 8.00%	7.18% - 7.71%

All estimates presented as percentages are expressed to three significant figures.

Table C.6.f. Carbon Tetrachloride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	600	400	1,000	400	1,000
	501 - 3,300	2,900	1,600	3,400	1,600	3,400
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	57,100	0	76,500	0	76,500
	> 50,000	0	0	0	0	0
	GW Total	60,400	1,400	81,400	1,500	80,700
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	<100	0	0	0	0
Total Ground & Surface Water		67,400	1,500	91,400	1,600	89,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.6.g. Carbon Tetrachloride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0025 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	1,000	400	2,400	400	2,100
	501 - 3,300	5,700	3,400	13,900	3,400	12,900
	3,301 - 10,000	3,300	0	8,400	0	8,400
	10,001 - 50,000	81,900	76,500	153,100	76,500	153,100
	> 50,000	0	0	0	0	0
	GW Total	89,300	80,400	163,300	80,400	160,000
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1,800	0	1,300	0	0
Total Ground & Surface Water		101,100	89,500	184,300	89,500	179,300

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.6.h. Carbon Tetrachloride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	8,100	3,900	12,700	4,400	12,000
	501 - 3,300	44,500	25,500	66,900	29,700	63,300
	3,301 - 10,000	42,200	16,200	80,400	16,200	76,000
	10,001 - 50,000	259,800	235,100	327,300	235,100	312,400
	> 50,000	232,800	175,700	410,900	175,700	310,900
	GW Total	654,600	537,200	902,200	542,700	777,000
Surface Water	≤ 500	100	0	1,400	0	1,100
	501 - 3,300	9,800	0	27,800	0	24,500
	3,301 - 10,000	15,600	0	62,700	0	55,800
	10,001 - 50,000	43,900	0	162,100	0	131,100
	> 50,000	14,711,400	14,355,200	16,078,600	14,355,200	15,298,700
	SW Total	16,221,400	15,788,500	17,698,400	15,801,200	16,832,600
Total Ground & Surface Water		15,705,100	15,245,000	17,042,800	15,298,200	16,414,400

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.7.a. Chlordane - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.002 mg/L			Threshold = 0.001 mg/L			Threshold = 0.0002 mg/L		
Ground Water	< 500	0.00000334	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000158%	0.000% - 0.000%	0.000% - 0.000%	0.0563%	0.0394% - 0.0920%	0.0394% - 0.0788%
	501 - 3,300	0.00000320	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0149%	0.000% - 0.0732%	0.000% - 0.0732%
	3,301 - 10,000	0.00000421	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0100%	0.000% - 0.125%	0.000% - 0.125%
	10,001 - 50,000	0.00000338	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000711%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.00000331	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000337	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000101%	0.000% - 0.000%	0.000% - 0.000%	0.0403%	0.0253% - 0.0591%	0.0253% - 0.0591%
Surface Water	< 500	0.00000190	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000810%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000000917	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000000497	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000211	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000680%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.00000222	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000143	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000301%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.00000317	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000910%	0.000% - 0.000%	0.000% - 0.000%	0.0363%	0.0228% - 0.0531%	0.0228% - 0.0531%

All estimates presented as percentages are expressed to three significant figures.

Table C.7.b. Chlordane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.7.c. Chlordane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.7.d. Chlordane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	25	17	40	17	34
	501 - 3,300	2	0	9	0	9
	3,301 - 10,000	0	0	3	0	3
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	24	15	35	15	35
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	0	0	0
Total Ground & Surface Water		24	15	35	15	35

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.7.e. Chlordane - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.002 mg/L			Threshold = 0.001 mg/L			Threshold = 0.0002 mg/L		
Ground Water	< 500	0.00000334	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000119%	0.000% - 0.000%	0.000% - 0.000%	0.0485%	0.0322% - 0.0789%	0.0322% - 0.0731%
	501 - 3,300	0.00000320	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0111%	0.000% - 0.0570%	0.000% - 0.0492%
	3,301 - 10,000	0.00000421	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00777%	0.000% - 0.103%	0.000% - 0.0728%
	10,001 - 50,000	0.00000338	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000463%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.00000331	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000337	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00000350%	0.000% - 0.000%	0.000% - 0.000%	0.00346%	0.000945% - 0.0166%	0.000945% - 0.0116%
Surface Water	< 500	0.00000190	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000555%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000000917	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000000497	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000211	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000399%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.00000222	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000143	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000479%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.00000317	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00000146%	0.000% - 0.000%	0.000% - 0.000%	0.00147%	0.000394% - 0.00701%	0.000394% - 0.00486%

All estimates presented as percentages are expressed to three significant figures.

Table C.7.f. Chlordane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.7.g. Chlordane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.7.h. Chlordane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	3,200	2,100	5,100	2,100	4,800
	501 - 3,300	1,700	0	8,900	0	7,600
	3,301 - 10,000	0	0	14,200	0	10,000
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	3,000	800	14,200	800	9,900
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	<100	0	0	0	0
Total Ground & Surface Water		3,100	800	14,900	800	10,400

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.8.a. Chromium - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.1 mg/L			Threshold = 0.07 mg/L			Threshold = 0.05 mg/L		
Ground Water	< 500	0.00124	0.00376%	0.000% - 0.0157%	0.000% - 0.0157%	0.0117%	0.000% - 0.0315%	0.000% - 0.0315%	0.0312%	0.00787% - 0.0630%	0.00787% - 0.0551%
	501 - 3,300	0.00189	0.00754%	0.000% - 0.0535%	0.000% - 0.0268%	0.0245%	0.000% - 0.0802%	0.000% - 0.0802%	0.0721%	0.000% - 0.161%	0.000% - 0.161%
	3,301 - 10,000	0.00119	0.00607%	0.000% - 0.101%	0.000% - 0.101%	0.0176%	0.000% - 0.101%	0.000% - 0.101%	0.0388%	0.000% - 0.202%	0.000% - 0.101%
	10,001 - 50,000	0.000819	0.00242%	0.000% - 0.000%	0.000% - 0.000%	0.00727%	0.000% - 0.173%	0.000% - 0.000%	0.0177%	0.000% - 0.173%	0.000% - 0.173%
	> 50,000	0.000676	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00135	0.00459%	0.000% - 0.0165%	0.000% - 0.0165%	0.0144%	0.000% - 0.0385%	0.000% - 0.0275%	0.0393%	0.0110% - 0.0716%	0.0165% - 0.0661%
Surface Water	< 500	0.000759	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00114%	0.000% - 0.000%	0.000% - 0.000%	0.00456%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000997	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00136%	0.000% - 0.000%	0.000% - 0.000%	0.00680%	0.000% - 0.227%	0.000% - 0.000%
	3,301 - 10,000	0.000994	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00444%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.000763	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000641%	0.000% - 0.000%	0.000% - 0.000%	0.00128%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.000617	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000856	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000786%	0.000% - 0.000%	0.000% - 0.000%	0.00406%	0.000% - 0.0655%	0.000% - 0.0655%
All Systems - Combined Ground & Surface Water		0.00132	0.00424%	0.000% - 0.0152%	0.000% - 0.0152%	0.0133%	0.000% - 0.0355%	0.000% - 0.0254%	0.0366%	0.0152% - 0.0660%	0.0152% - 0.0609%

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.02 mg/L			Threshold = 0.01 mg/L		
Ground Water	< 500	0.00124	0.310%	0.205% - 0.417%	0.228% - 0.401%	1.35%	1.10% - 1.60%	1.13% - 1.55%
	501 - 3,300	0.00189	0.759%	0.508% - 1.07%	0.535% - 0.990%	2.98%	2.35% - 3.61%	2.49% - 3.50%
	3,301 - 10,000	0.00119	0.310%	0.000% - 0.607%	0.101% - 0.607%	1.27%	0.607% - 1.92%	0.708% - 1.82%
	10,001 - 50,000	0.000819	0.213%	0.000% - 0.519%	0.000% - 0.519%	0.764%	0.346% - 1.38%	0.346% - 1.21%
	> 50,000	0.000676	0.00886%	0.000% - 0.000%	0.000% - 0.000%	0.220%	0.000% - 0.633%	0.000% - 0.633%
	Total	0.00135	0.396%	0.292% - 0.501%	0.308% - 0.479%	1.65%	1.40% - 1.89%	1.45% - 1.85%
Surface Water	< 500	0.000759	0.0803%	0.000% - 0.570%	0.000% - 0.285%	0.526%	0.000% - 1.43%	0.000% - 1.14%
	501 - 3,300	0.000997	0.129%	0.000% - 0.454%	0.000% - 0.454%	0.713%	0.000% - 1.59%	0.227% - 1.36%
	3,301 - 10,000	0.000994	0.0511%	0.000% - 0.370%	0.000% - 0.370%	0.433%	0.000% - 1.48%	0.000% - 1.11%
	10,001 - 50,000	0.000763	0.0212%	0.000% - 0.321%	0.000% - 0.321%	0.296%	0.000% - 0.962%	0.000% - 0.962%
	> 50,000	0.000617	0.00395%	0.000% - 0.000%	0.000% - 0.000%	0.0974%	0.000% - 0.658%	0.000% - 0.658%
	Total	0.000856	0.0696%	0.000% - 0.262%	0.000% - 0.197%	0.474%	0.131% - 0.786%	0.197% - 0.721%
All Systems - Combined Ground & Surface Water		0.00132	0.371%	0.274% - 0.467%	0.289% - 0.447%	1.56%	1.33% - 1.78%	1.38% - 1.75%

All estimates presented as percentages are expressed to three significant figures.

Table C.8.b. Chromium - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.1 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	2	0	7	0	7
	501 - 3,300	1	0	7	0	3
	3,301 - 10,000	0	0	2	0	2
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	3	0	10	0	10
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		3	0	10	0	10

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.8.c. Chromium - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.07 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	5	0	14	0	14
	501 - 3,300	3	0	10	0	10
	3,301 - 10,000	1	0	2	0	2
	10,001 - 50,000	0	0	2	0	0
	> 50,000	0	0	0	0	0
	GW Total	9	0	23	0	16
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	0	0	0
Total Ground & Surface Water		9	0	23	0	17

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.8.d. Chromium - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.05 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	14	3	27	3	24
	501 - 3,300	9	0	20	0	20
	3,301 - 10,000	1	0	5	0	2
	10,001 - 50,000	1	0	2	0	2
	> 50,000	0	0	0	0	0
	GW Total	23	7	43	10	39
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	4	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	4	0	4
Total Ground & Surface Water		24	10	43	10	40

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.8.e. Chromium - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.02 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	135	89	181	99	175
	501 - 3,300	92	62	130	65	120
	3,301 - 10,000	7	0	15	2	15
	10,001 - 50,000	3	0	6	0	6
	> 50,000	0	0	0	0	0
	GW Total	236	173	298	183	285
Surface Water	≤ 500	1	0	9	0	4
	501 - 3,300	2	0	8	0	8
	3,301 - 10,000	1	0	4	0	4
	10,001 - 50,000	0	0	3	0	3
	> 50,000	0	0	0	0	0
	SW Total	4	0	15	0	11
Total Ground & Surface Water		241	178	304	188	291

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.8.f. Chromium - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.01 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	585	479	695	493	675
	501 - 3,300	362	286	439	302	426
	3,301 - 10,000	30	15	46	17	44
	10,001 - 50,000	9	4	16	4	14
	> 50,000	1	0	1	0	1
	GW Total	980	834	1,122	864	1,099
Surface Water	≤ 500	8	0	22	0	18
	501 - 3,300	12	0	27	4	23
	3,301 - 10,000	4	0	15	0	11
	10,001 - 50,000	3	0	9	0	9
	> 50,000	1	0	3	0	3
	SW Total	26	7	44	11	40
Total Ground & Surface Water		1,013	865	1,156	895	1,139

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.8.g. Chromium - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.1 mg/L			Threshold = 0.07 mg/L			Threshold = 0.05 mg/L		
Ground Water	< 500	0.00124	0.00427%	0.000% - 0.0266%	0.000% - 0.0215%	0.0120%	0.000% - 0.0438%	0.000% - 0.0374%	0.0326%	0.00140% - 0.0768%	0.00323% - 0.0685%
	501 - 3,300	0.00189	0.00748%	0.000% - 0.0607%	0.000% - 0.0455%	0.0234%	0.000% - 0.0963%	0.000% - 0.0804%	0.0680%	0.000% - 0.175%	0.000% - 0.161%
	3,301 - 10,000	0.00119	0.00666%	0.000% - 0.124%	0.000% - 0.0745%	0.0188%	0.000% - 0.124%	0.000% - 0.124%	0.0397%	0.000% - 0.198%	0.000% - 0.143%
	10,001 - 50,000	0.000819	0.00493%	0.000% - 0.000%	0.000% - 0.000%	0.0156%	0.000% - 0.394%	0.000% - 0.000%	0.0383%	0.000% - 0.394%	0.000% - 0.394%
	> 50,000	0.000676	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00135	0.00325%	0.000% - 0.0186%	0.000% - 0.0157%	0.00987%	0.000% - 0.113%	0.000% - 0.0281%	0.0248%	0.00124% - 0.130%	0.00254% - 0.125%
Surface Water	< 500	0.000759	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00120%	0.000% - 0.000%	0.000% - 0.000%	0.00568%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00100	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000727%	0.000% - 0.000%	0.000% - 0.000%	0.00425%	0.000% - 0.0744%	0.000% - 0.000%
	3,301 - 10,000	0.000994	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00436%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.000763	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000785%	0.000% - 0.000%	0.000% - 0.000%	0.00133%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.000617	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000856	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000104%	0.000% - 0.000%	0.000% - 0.000%	0.000336%	0.000% - 0.00182%	0.000% - 0.000655%
All Systems - Combined Ground & Surface Water		0.00132	0.00139%	0.000% - 0.00793%	0.000% - 0.00670%	0.00427%	0.000% - 0.0481%	0.000% - 0.0125%	0.0108%	0.000580% - 0.0559%	0.00113% - 0.0536%

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.02 mg/L			Threshold = 0.01 mg/L		
Ground Water	< 500	0.00124	0.323%	0.187% - 0.473%	0.215% - 0.445%	1.38%	1.09% - 1.67%	1.14% - 1.63%
	501 - 3,300	0.00189	0.746%	0.462% - 1.09%	0.486% - 1.04%	3.00%	2.35% - 3.70%	2.48% - 3.57%
	3,301 - 10,000	0.00119	0.283%	0.000% - 0.618%	0.0650% - 0.564%	1.18%	0.550% - 1.84%	0.675% - 1.75%
	10,001 - 50,000	0.000819	0.325%	0.000% - 0.665%	0.000% - 0.638%	0.868%	0.458% - 1.48%	0.493% - 1.31%
	> 50,000	0.000676	0.00984%	0.000% - 0.000%	0.000% - 0.000%	0.242%	0.000% - 0.812%	0.000% - 0.812%
	Total	0.00135	0.228%	0.0959% - 0.357%	0.109% - 0.337%	0.893%	0.635% - 1.32%	0.664% - 1.27%
Surface Water	< 500	0.000759	0.0767%	0.000% - 0.625%	0.000% - 0.545%	0.516%	0.000% - 1.64%	0.000% - 1.45%
	501 - 3,300	0.000997	0.124%	0.000% - 0.637%	0.000% - 0.510%	0.691%	0.000% - 1.62%	0.0714% - 1.51%
	3,301 - 10,000	0.000994	0.0535%	0.000% - 0.497%	0.000% - 0.394%	0.448%	0.000% - 1.43%	0.000% - 1.31%
	10,001 - 50,000	0.000763	0.0221%	0.000% - 0.358%	0.000% - 0.190%	0.313%	0.000% - 1.16%	0.000% - 0.975%
	> 50,000	0.000617	0.00112%	0.000% - 0.000%	0.000% - 0.000%	0.0333%	0.000% - 0.363%	0.000% - 0.184%
	Total	0.000856	0.00667%	0.000% - 0.0532%	0.000% - 0.0335%	0.0866%	0.00604% - 0.358%	0.00981% - 0.221%
All Systems - Combined Ground & Surface Water		0.00132	0.101%	0.0447% - 0.159%	0.0479% - 0.149%	0.431%	0.298% - 0.649%	0.307% - 0.611%

All estimates presented as percentages are expressed to three significant figures.

Table C.8.h. Chromium - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.1 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	300	0	1,700	0	1,400
	501 - 3,300	1,200	0	9,400	0	7,100
	3,301 - 10,000	0	0	17,100	0	10,300
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	2,800	0	15,900	0	13,500
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		3,000	0	16,900	0	14,300

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.8.i. Chromium - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.07 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	800	0	2,800	0	2,400
	501 - 3,300	3,600	0	15,000	0	12,500
	3,301 - 10,000	3,300	0	17,100	0	17,100
	10,001 - 50,000	0	0	96,400	0	0
	> 50,000	0	0	0	0	0
	GW Total	8,500	0	96,600	0	24,100
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	100	0	0	0	0
Total Ground & Surface Water		9,100	0	102,400	0	26,600

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.8.j. Chromium - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.05 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	2,100	<100	5,000	200	4,500
	501 - 3,300	10,600	0	27,200	0	25,000
	3,301 - 10,000	5,500	0	27,300	0	19,600
	10,001 - 50,000	10,000	0	96,400	0	96,400
	> 50,000	0	0	0	0	0
	GW Total	21,200	1,100	111,600	2,200	107,300
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	2,100	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	400	0	2,300	0	800
Total Ground & Surface Water		22,900	1,200	119,000	2,400	114,100

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.8.k. Chromium - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.02 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	21,000	12,100	30,800	14,000	28,900
	501 - 3,300	115,800	71,700	169,700	75,400	161,000
	3,301 - 10,000	39,000	0	85,100	9,000	77,700
	10,001 - 50,000	79,400	0	162,500	0	156,000
	> 50,000	0	0	0	0	0
	GW Total	195,500	82,200	306,000	93,500	288,700
Surface Water	≤ 500	200	0	1,800	0	1,600
	501 - 3,300	3,500	0	17,900	0	14,400
	3,301 - 10,000	3,300	0	30,300	0	24,000
	10,001 - 50,000	0	0	78,200	0	41,600
	> 50,000	0	0	0	0	0
	SW Total	8,500	0	67,700	0	42,700
Total Ground & Surface Water		215,600	95,200	338,900	102,100	316,500

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.8.l. Chromium - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.01 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	89,900	70,800	108,500	74,100	105,900
	501 - 3,300	466,300	364,900	574,800	385,400	554,200
	3,301 - 10,000	162,900	75,700	253,500	92,900	241,500
	10,001 - 50,000	212,200	112,000	362,000	120,500	321,200
	> 50,000	61,600	0	206,500	0	206,500
	GW Total	764,900	544,200	1,129,300	568,800	1,083,900
Surface Water	≤ 500	1,500	0	4,800	0	4,300
	501 - 3,300	19,500	0	45,800	2,000	42,600
	3,301 - 10,000	27,200	0	87,100	0	79,400
	10,001 - 50,000	68,300	0	252,600	0	213,000
	> 50,000	50,000	0	349,800	0	176,800
	SW Total	110,200	7,700	455,400	12,500	281,800
Total Ground & Surface Water		917,000	634,100	1,382,400	653,300	1,301,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.9.a. 1,2-Dibromo-3-chloropropane - 16 Cross-Section States - Mean Concentration, Best Estimate, Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.0002 mg/L			Threshold = 0.0001 mg/L			Threshold = 0.00002 mg/L		
Ground Water	< 500	0.000288	1.24%	0.994% - 1.51%	1.02% - 1.48%	1.72%	1.39% - 2.08%	1.46% - 2.01%	3.72%	3.10% - 4.27%	3.20% - 4.20%
	501 - 3,300	0.000182	1.39%	1.03% - 1.83%	1.10% - 1.76%	1.89%	1.41% - 2.52%	1.48% - 2.41%	3.92%	3.03% - 5.41%	3.10% - 5.24%
	3,301 - 10,000	0.0000481	1.92%	1.42% - 2.72%	1.42% - 2.59%	2.54%	1.81% - 3.62%	1.94% - 3.36%	5.03%	3.49% - 6.73%	3.88% - 6.34%
	10,001 - 50,000	0.0000971	2.74%	2.03% - 3.51%	2.22% - 3.33%	3.63%	2.77% - 4.44%	2.96% - 4.25%	6.21%	4.81% - 7.76%	4.99% - 7.58%
	> 50,000	0.000137	3.27%	2.11% - 4.93%	2.11% - 4.23%	4.00%	2.82% - 5.63%	2.82% - 5.63%	6.20%	4.23% - 9.16%	4.23% - 8.45%
	Total	0.000241	1.40%	1.19% - 1.61%	1.22% - 1.59%	1.91%	1.65% - 2.18%	1.68% - 2.15%	3.97%	3.41% - 4.52%	3.52% - 4.44%
Surface Water	< 500	0.0000653	2.25%	0.000% - 4.71%	0.588% - 4.71%	3.57%	0.588% - 7.06%	1.18% - 6.47%	8.89%	3.53% - 14.7%	4.12% - 13.5%
	501 - 3,300	0.00000502	0.251%	0.000% - 1.07%	0.000% - 1.07%	0.490%	0.000% - 1.79%	0.000% - 1.43%	1.76%	0.357% - 4.29%	0.357% - 3.57%
	3,301 - 10,000	0.0000239	1.63%	0.500% - 3.50%	0.500% - 3.00%	2.32%	1.00% - 4.00%	1.00% - 4.00%	4.91%	2.00% - 8.00%	2.50% - 7.50%
	10,001 - 50,000	0.0000133	1.18%	0.389% - 2.34%	0.389% - 2.34%	1.93%	0.778% - 3.50%	0.778% - 3.50%	6.16%	3.11% - 9.34%	3.89% - 8.56%
	> 50,000	0.000739	4.83%	3.94% - 6.30%	3.94% - 6.30%	5.53%	3.94% - 7.87%	3.94% - 7.87%	9.29%	5.51% - 13.4%	6.30% - 12.6%
	Total	0.000111	1.64%	1.06% - 2.32%	1.16% - 2.22%	2.33%	1.55% - 3.19%	1.64% - 3.00%	5.56%	4.06% - 7.06%	4.45% - 6.87%
All Systems - Combined Ground & Surface Water		0.000231	1.41%	1.22% - 1.65%	1.25% - 1.60%	1.94%	1.70% - 2.21%	1.72% - 2.17%	4.09%	3.53% - 4.63%	3.66% - 4.55%

All estimates presented as percentages are expressed to three significant figures.

Table C.9.b. 1,2-Dibromo-3-chloropropane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	539	432	659	442	644
	501 - 3,300	169	126	222	134	214
	3,301 - 10,000	46	34	65	34	62
	10,001 - 50,000	33	24	42	26	40
	> 50,000	6	4	9	4	8
	GW Total	830	709	959	726	946
Surface Water	≤ 500	35	0	72	9	72
	501 - 3,300	4	0	18	0	18
	3,301 - 10,000	17	5	35	5	30
	10,001 - 50,000	11	4	22	4	22
	> 50,000	19	16	25	16	25
	SW Total	92	59	130	65	124
Total Ground & Surface Water		920	792	1,070	810	1,042

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.9.c. 1,2-Dibromo-3-chloropropane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	749	603	905	633	875
	501 - 3,300	230	172	306	180	293
	3,301 - 10,000	61	44	87	47	81
	10,001 - 50,000	43	33	53	35	51
	> 50,000	8	5	11	5	11
	GW Total	1,136	978	1,298	1,001	1,275
Surface Water	≤ 500	55	9	108	18	99
	501 - 3,300	8	0	30	0	24
	3,301 - 10,000	23	10	40	10	40
	10,001 - 50,000	18	7	33	7	33
	> 50,000	22	16	32	16	32
	SW Total	130	86	178	92	168
Total Ground & Surface Water		1,263	1,102	1,436	1,120	1,408

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.9.d. 1,2-Dibromo-3-chloropropane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.00002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	1,616	1,348	1,855	1,393	1,825
	501 - 3,300	477	369	658	377	637
	3,301 - 10,000	121	84	162	93	152
	10,001 - 50,000	74	57	92	59	90
	> 50,000	12	8	17	8	16
	GW Total	2,360	2,025	2,687	2,093	2,641
Surface Water	≤ 500	137	54	226	63	208
	501 - 3,300	30	6	73	6	61
	3,301 - 10,000	50	20	81	25	76
	10,001 - 50,000	57	29	87	36	80
	> 50,000	37	22	54	25	51
	SW Total	311	227	395	249	384
Total Ground & Surface Water		2,658	2,297	3,010	2,380	2,960

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.9.c. 1,2-Dibromo-3-chloropropane - 16 Cross-Section States - Mean Concentration, Best Estimate, Credible Intervals Based on the Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.0002 mg/L			Threshold = 0.0001 mg/L			Threshold = 0.00002 mg/L		
Ground Water	< 500	0.000288	1.21%	0.905% - 1.55%	0.940% - 1.49%	1.70%	1.34% - 2.13%	1.39% - 2.03%	3.68%	2.99% - 4.35%	3.08% - 4.24%
	501 - 3,300	0.000182	1.48%	1.11% - 1.96%	1.17% - 1.88%	1.97%	1.52% - 2.63%	1.56% - 2.49%	3.99%	3.07% - 5.54%	3.14% - 5.30%
	3,301 - 10,000	0.0000481	2.21%	1.63% - 3.02%	1.72% - 2.90%	2.82%	2.10% - 3.89%	2.16% - 3.64%	5.25%	3.78% - 6.85%	4.03% - 6.64%
	10,001 - 50,000	0.0000971	2.82%	1.94% - 3.80%	2.09% - 3.62%	3.94%	3.12% - 4.78%	3.27% - 4.63%	6.35%	4.93% - 7.93%	5.10% - 7.69%
	> 50,000	0.000137	4.41%	3.48% - 6.41%	3.48% - 5.62%	5.04%	3.97% - 8.17%	3.97% - 6.93%	7.05%	4.57% - 15.9%	4.84% - 14.7%
	Total	0.000241	3.27%	2.71% - 4.20%	2.77% - 3.80%	4.03%	3.40% - 5.38%	3.45% - 4.96%	6.21%	4.92% - 9.98%	5.06% - 9.46%
Surface Water	< 500	0.0000653	2.31%	0.000% - 5.69%	0.0971% - 5.18%	3.61%	0.410% - 8.32%	0.771% - 7.16%	8.87%	3.17% - 15.2%	3.84% - 14.5%
	501 - 3,300	0.00000502	0.255%	0.000% - 1.20%	0.000% - 0.926%	0.503%	0.000% - 1.76%	0.000% - 1.59%	1.77%	0.206% - 4.12%	0.374% - 3.66%
	3,301 - 10,000	0.0000239	1.83%	0.330% - 3.59%	0.596% - 3.29%	2.55%	1.10% - 4.41%	1.10% - 4.16%	5.21%	2.41% - 8.38%	2.98% - 7.87%
	10,001 - 50,000	0.0000133	0.910%	0.197% - 2.14%	0.197% - 1.97%	1.63%	0.409% - 3.25%	0.547% - 3.05%	5.81%	3.03% - 8.95%	3.45% - 8.29%
	> 50,000	0.000739	2.26%	1.71% - 4.49%	1.71% - 4.08%	2.75%	1.71% - 5.90%	1.71% - 4.82%	5.37%	2.24% - 15.7%	2.55% - 10.9%
	Total	0.000111	2.07%	1.51% - 3.97%	1.52% - 3.56%	2.58%	1.60% - 5.24%	1.66% - 4.33%	5.39%	2.74% - 14.2%	2.97% - 9.85%
All Systems - Combined Ground & Surface Water		0.000231	2.60%	2.11% - 3.77%	2.16% - 3.46%	3.22%	2.49% - 4.96%	2.53% - 4.60%	5.75%	3.99% - 10.4%	4.18% - 8.84%

All estimates presented as percentages are expressed to three significant figures.

Table C.9.f. 1,2-Dibromo-3-chloropropane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	78,700	58,800	100,700	61,100	96,700
	501 - 3,300	229,000	172,400	304,700	182,100	291,800
	3,301 - 10,000	304,700	223,800	416,300	236,600	399,900
	10,001 - 50,000	688,300	473,200	929,000	511,100	885,800
	> 50,000	1,121,000	884,900	1,631,200	884,900	1,428,900
	GW Total	2,799,200	2,319,400	3,600,300	2,371,700	3,251,600
Surface Water	≤ 500	6,800	0	16,600	300	15,100
	501 - 3,300	7,200	0	33,900	0	26,100
	3,301 - 10,000	111,200	20,100	218,600	36,200	200,300
	10,001 - 50,000	198,700	43,000	466,500	43,000	430,300
	> 50,000	2,179,800	1,642,500	4,323,900	1,642,500	3,928,200
	SW Total	2,630,600	1,920,100	5,052,300	1,939,200	4,530,300
Total Ground & Surface Water		5,531,800	4,500,900	8,030,400	4,594,600	7,376,500

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.9.g. 1,2-Dibromo-3-chloropropane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	110,500	87,000	138,500	90,100	131,900
	501 - 3,300	305,700	235,700	408,200	241,900	386,000
	3,301 - 10,000	388,200	288,500	535,800	297,400	501,700
	10,001 - 50,000	963,500	762,600	1,168,800	798,000	1,132,600
	> 50,000	1,283,300	1,009,300	2,077,400	1,009,300	1,764,200
	GW Total	3,454,700	2,912,300	4,608,000	2,952,600	4,246,400
Surface Water	≤ 500	10,600	1,200	24,300	2,300	20,900
	501 - 3,300	14,200	0	49,600	0	44,800
	3,301 - 10,000	155,200	66,800	268,000	66,800	253,100
	10,001 - 50,000	355,300	89,400	710,900	119,400	667,200
	> 50,000	2,646,700	1,642,500	5,680,400	1,642,500	4,635,800
	SW Total	3,290,100	2,034,700	6,674,500	2,112,300	5,513,200
Total Ground & Surface Water		6,867,400	5,299,600	10,571,600	5,382,700	9,802,600

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.9.h. 1,2-Dibromo-3-chloropropane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.00002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	239,300	194,000	282,600	200,000	275,700
	501 - 3,300	618,900	476,700	860,700	488,000	822,700
	3,301 - 10,000	722,300	519,800	943,700	555,400	914,800
	10,001 - 50,000	1,552,300	1,205,700	1,937,800	1,245,600	1,878,400
	> 50,000	1,793,200	1,163,800	4,048,000	1,230,400	3,729,900
	GW Total	5,321,700	4,213,000	8,546,700	4,338,900	8,104,600
Surface Water	≤ 500	25,900	9,300	44,500	11,200	42,300
	501 - 3,300	50,000	5,800	116,200	10,500	103,200
	3,301 - 10,000	316,800	146,900	509,600	181,200	479,100
	10,001 - 50,000	1,269,000	662,600	1,955,800	753,000	1,811,300
	> 50,000	5,173,100	2,157,600	15,086,900	2,451,300	10,475,100
	SW Total	6,861,600	3,486,200	18,029,400	3,777,800	12,542,900
Total Ground & Surface Water		12,252,200	8,507,500	22,216,800	8,903,700	18,829,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.10.a. 1,4-Dichlorobenzene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervalss Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.075 mg/L			Threshold = 0.005 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000239	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000400%	0.000% - 0.00833%	0.000% - 0.000%	0.153%	0.100% - 0.225%	0.108% - 0.208%
	501 - 3,300	0.0000209	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0356%	0.000% - 0.0995%	0.000% - 0.0746%
	3,301 - 10,000	0.0000183	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0129%	0.000% - 0.101%	0.000% - 0.101%
	10,001 - 50,000	0.0000223	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.118%	0.000% - 0.400%	0.000% - 0.400%
	> 50,000	0.0000302	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0268%	0.000% - 1.03%	0.000% - 0.000%
	Total	0.0000229	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000273%	0.000% - 0.00568%	0.000% - 0.000%	0.117%	0.0738% - 0.170%	0.0795% - 0.153%
Surface Water	< 500	0.0000195	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0216%	0.000% - 0.338%	0.000% - 0.338%
	501 - 3,300	0.0000301	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.197%	0.000% - 0.514%	0.000% - 0.514%
	3,301 - 10,000	0.0000277	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0233%	0.000% - 0.388%	0.000% - 0.388%
	10,001 - 50,000	0.0000181	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0128%	0.000% - 0.338%	0.000% - 0.000%
	> 50,000	0.0000364	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0692%	0.000% - 0.935%	0.000% - 0.935%
	Total	0.0000252	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0746%	0.000% - 0.223%	0.000% - 0.149%
All Systems - Combined Ground & Surface Water		0.0000231	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000253%	0.000% - 0.00527%	0.000% - 0.000%	0.114%	0.0738% - 0.164%	0.0791% - 0.153%

All estimates presented as percentages are expressed to three significant figures.

Table C.10.b. 1,4-Dichlorobenzene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.075 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.10.c. 1,4-Dichlorobenzene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	4	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	3	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	3	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.10.d. 1,4-Dichlorobenzene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	66	43	98	47	91
	501 - 3,300	4	0	12	0	9
	3,301 - 10,000	0	0	2	0	2
	10,001 - 50,000	1	0	5	0	5
	> 50,000	0	0	2	0	0
	GW Total	69	44	101	47	91
Surface Water	≤ 500	1	0	5	0	5
	501 - 3,300	3	0	9	0	9
	3,301 - 10,000	0	0	4	0	4
	10,001 - 50,000	0	0	3	0	0
	> 50,000	0	0	4	0	4
	SW Total	4	0	12	0	8
Total Ground & Surface Water		74	48	106	51	99

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

Table C.10.e. 1,4-Dichlorobenzene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervalss Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.075 mg/L			Threshold = 0.0050 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000239	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000838%	0.000% - 0.00139%	0.000% - 0.000%	0.149%	0.0912% - 0.221%	0.103% - 0.209%
	501 - 3,300	0.0000209	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0341%	0.000% - 0.119%	0.000% - 0.103%
	3,301 - 10,000	0.0000183	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0114%	0.000% - 0.121%	0.000% - 0.0780%
	10,001 - 50,000	0.0000223	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.107%	0.000% - 0.454%	0.000% - 0.372%
	> 50,000	0.0000302	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0168%	0.000% - 0.382%	0.000% - 0.000%
	Total	0.0000229	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00000416%	0.000% - 0.0000691%	0.000% - 0.000%	0.0505%	0.00580% - 0.187%	0.00709% - 0.143%
Surface Water	< 500	0.0000195	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0189%	0.000% - 0.377%	0.000% - 0.0755%
	501 - 3,300	0.0000301	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.162%	0.000% - 0.529%	0.000% - 0.443%
	3,301 - 10,000	0.0000277	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0237%	0.000% - 0.442%	0.000% - 0.257%
	10,001 - 50,000	0.0000181	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0107%	0.000% - 0.207%	0.000% - 0.000%
	> 50,000	0.0000364	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0258%	0.000% - 0.229%	0.000% - 0.229%
	Total	0.0000252	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0255%	0.000% - 0.193%	0.000% - 0.177%
All Systems - Combined Ground & Surface Water		0.0000231	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00000206%	0.000% - 0.0000343%	0.000% - 0.000%	0.0379%	0.00390% - 0.167%	0.00456% - 0.119%

All estimates presented as percentages are expressed to three signigficant figures.

Table C.10.f. 1,4-Dichlorobenzene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.075 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.10.g. 1,4-Dichlorobenzene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	<100	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	<100	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	<100	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.10.h. 1,4-Dichlorobenzene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	9,700	5,900	14,300	6,700	13,600
	501 - 3,300	5,300	0	18,400	0	16,000
	3,301 - 10,000	0	0	16,600	0	10,700
	10,001 - 50,000	26,200	0	110,900	0	90,900
	> 50,000	0	0	97,100	0	0
	GW Total	43,300	5,000	160,000	6,100	122,400
Surface Water	≤ 500	<100	0	1,100	0	200
	501 - 3,300	4,600	0	14,900	0	12,500
	3,301 - 10,000	0	0	26,900	0	15,600
	10,001 - 50,000	0	0	45,100	0	0
	> 50,000	0	0	220,500	0	220,500
	SW Total	32,400	0	245,400	0	225,900
Total Ground & Surface Water		80,700	8,300	355,500	9,700	254,300

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.11.a. 1,2-Dichloroethane - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0025 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000106	0.00738%	0.000% - 0.0202%	0.000% - 0.0134%	0.0206%	0.00672% - 0.0336%	0.00672% - 0.0336%	0.0976%	0.0672% - 0.141%	0.0672% - 0.128%
	501 - 3,300	0.0000131	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00183%	0.000% - 0.0217%	0.000% - 0.0217%	0.162%	0.0870% - 0.261%	0.109% - 0.239%
	3,301 - 10,000	0.0000156	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000345%	0.000% - 0.000%	0.000% - 0.000%	0.154%	0.000% - 0.345%	0.000% - 0.345%
	10,001 - 50,000	0.0000255	0.000904%	0.000% - 0.000%	0.000% - 0.000%	0.130%	0.000% - 0.301%	0.000% - 0.301%	0.711%	0.452% - 0.904%	0.602% - 0.904%
	> 50,000	0.0000186	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00245%	0.000% - 0.000%	0.000% - 0.000%	0.249%	0.000% - 1.23%	0.000% - 0.614%
	Total	0.0000119	0.00514%	0.000% - 0.0140%	0.000% - 0.00932%	0.0187%	0.00932% - 0.0326%	0.00932% - 0.0280%	0.135%	0.0932% - 0.177%	0.103% - 0.168%
Surface Water	< 500	0.00000953	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0245%	0.000% - 0.292%	0.000% - 0.292%
	501 - 3,300	0.00000974	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0262%	0.000% - 0.226%	0.000% - 0.226%
	3,301 - 10,000	0.0000138	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0314%	0.000% - 0.341%	0.000% - 0.341%
	10,001 - 50,000	0.0000137	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000606%	0.000% - 0.000%	0.000% - 0.000%	0.0206%	0.000% - 0.303%	0.000% - 0.303%
	> 50,000	0.0000271	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00602%	0.000% - 0.000%	0.000% - 0.000%	0.707%	0.602% - 1.21%	0.602% - 1.21%
	Total	0.0000131	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000762%	0.000% - 0.000%	0.000% - 0.000%	0.0974%	0.0635% - 0.191%	0.0635% - 0.191%
All Systems - Combined Ground & Surface Water		0.0000120	0.00479%	0.000% - 0.0130%	0.000% - 0.00868%	0.0175%	0.00868% - 0.0304%	0.00868% - 0.0260%	0.132%	0.0955% - 0.174%	0.100% - 0.165%

All estimates presented as percentages are expressed to three significant figures.

Table C.11.b. 1,2-Dichloroethane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	3	0	9	0	6
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	3	0	8	0	6
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		3	0	8	0	6

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.11.c. 1,2-Dichloroethane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0025 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	9	3	15	3	15
	501 - 3,300	1	0	3	0	3
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	2	0	4	0	4
	> 50,000	0	0	0	0	0
	GW Total	11	6	19	6	17
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	0	0	0
Total Ground & Surface Water		11	6	20	6	17

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.11.d. 1,2-Dichloroethane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	42	29	61	29	56
	501 - 3,300	20	11	32	13	29
	3,301 - 10,000	4	0	8	0	8
	10,001 - 50,000	8	5	11	7	11
	> 50,000	1	0	2	0	1
	GW Total	80	55	105	61	100
Surface Water	≤ 500	1	0	4	0	4
	501 - 3,300	1	0	4	0	4
	3,301 - 10,000	0	0	3	0	3
	10,001 - 50,000	0	0	3	0	3
	> 50,000	3	2	5	2	5
	SW Total	5	4	11	4	11
Total Ground & Surface Water		86	62	113	65	107

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.11.e. 1,2-Dichloroethane - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0025 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000106	0.0132%	0.000% - 0.0348%	0.000% - 0.0257%	0.0334%	0.0150% - 0.0522%	0.0150% - 0.0507%	0.120%	0.0750% - 0.165%	0.0818% - 0.162%
	501 - 3,300	0.0000131	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00216%	0.000% - 0.0273%	0.000% - 0.0273%	0.166%	0.0839% - 0.272%	0.0938% - 0.256%
	3,301 - 10,000	0.0000156	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000383%	0.000% - 0.000%	0.000% - 0.000%	0.167%	0.000% - 0.406%	0.000% - 0.358%
	10,001 - 50,000	0.0000255	0.000528%	0.000% - 0.000%	0.000% - 0.000%	0.255%	0.000% - 0.401%	0.000% - 0.401%	0.959%	0.528% - 1.22%	0.674% - 1.15%
	> 50,000	0.0000186	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00107%	0.000% - 0.000%	0.000% - 0.000%	0.137%	0.000% - 0.697%	0.000% - 0.430%
	Total	0.0000119	0.000740%	0.000% - 0.00155%	0.000% - 0.00124%	0.0760%	0.00107% - 0.118%	0.00114% - 0.117%	0.382%	0.212% - 0.616%	0.272% - 0.563%
Surface Water	< 500	0.00000953	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0243%	0.000% - 0.428%	0.000% - 0.163%
	501 - 3,300	0.00000974	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0229%	0.000% - 0.329%	0.000% - 0.178%
	3,301 - 10,000	0.0000138	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0264%	0.000% - 0.333%	0.000% - 0.228%
	10,001 - 50,000	0.0000137	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000371%	0.000% - 0.000%	0.000% - 0.000%	0.0131%	0.000% - 0.188%	0.000% - 0.145%
	> 50,000	0.0000271	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00352%	0.000% - 0.000%	0.000% - 0.000%	0.352%	0.296% - 0.648%	0.296% - 0.648%
	Total	0.0000131	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00297%	0.000% - 0.000%	0.000% - 0.000%	0.296%	0.246% - 0.548%	0.246% - 0.539%
All Systems - Combined Ground & Surface Water		0.0000120	0.000331%	0.000% - 0.000692%	0.000% - 0.000553%	0.0357%	0.000478% - 0.0542%	0.000512% - 0.0526%	0.334%	0.231% - 0.518%	0.259% - 0.473%

All estimates presented as percentages are expressed to three significant figures.

Table C.11.f. 1,2-Dichloroethane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	900	0	2,300	0	1,700
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	600	0	1,300	0	1,100
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		700	0	1,500	0	1,200

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.11.g. 1,2-Dichloroethane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0025 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	2,200	1,000	3,400	1,000	3,300
	501 - 3,300	500	0	4,200	0	4,200
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	62,200	0	98,100	0	98,100
	> 50,000	0	0	0	0	0
	GW Total	65,200	900	101,000	1,000	100,400
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	3,800	0	0	0	0
Total Ground & Surface Water		75,900	1,000	115,400	1,100	112,100

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.11.h. 1,2-Dichloroethane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	7,800	4,900	10,700	5,300	10,500
	501 - 3,300	25,700	13,000	42,200	14,600	39,700
	3,301 - 10,000	23,000	0	55,900	0	49,400
	10,001 - 50,000	234,300	129,000	298,200	164,800	280,600
	> 50,000	50,000	0	177,300	0	109,300
	GW Total	327,200	181,700	527,400	233,300	482,200
Surface Water	≤ 500	<100	0	1,300	0	500
	501 - 3,300	600	0	9,300	0	5,000
	3,301 - 10,000	0	0	20,300	0	13,800
	10,001 - 50,000	0	0	41,100	0	31,600
	> 50,000	338,900	285,100	623,600	285,100	623,600
	SW Total	376,300	313,600	697,500	313,600	686,400
Total Ground & Surface Water		711,900	492,000	1,102,700	551,900	1,008,000

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.12.a. 1,1-Dichloroethylene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.007 mg/L			Threshold = 0.005 mg/L		
Ground Water	< 500	0.0000341	0.0764%	0.0492% - 0.115%	0.0492% - 0.107%	0.0951%	0.0575% - 0.131%	0.0657% - 0.131%
	501 - 3,300	0.0000218	0.0480%	0.000% - 0.110%	0.0274% - 0.110%	0.0725%	0.0274% - 0.137%	0.027% - 0.137%
	3,301 - 10,000	0.0000257	0.105%	0.000% - 0.208%	0.000% - 0.208%	0.136%	0.104% - 0.208%	0.104% - 0.208%
	10,001 - 50,000	0.0000805	0.373%	0.323% - 0.646%	0.323% - 0.485%	0.417%	0.323% - 0.646%	0.323% - 0.646%
	> 50,000	0.000129	0.638%	0.637% - 0.637%	0.637% - 0.637%	0.646%	0.637% - 0.637%	0.637% - 0.637%
	Total	0.0000336	0.0875%	0.0626% - 0.120%	0.0683% - 0.114%	0.109%	0.0740% - 0.148%	0.0797% - 0.142%
Surface Water	< 500	0.0000018	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000065	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00137%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000134	0.000685%	0.000% - 0.000%	0.000% - 0.000%	0.00206%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000466	0.305%	0.302% - 0.302%	0.302% - 0.302%	0.307%	0.302% - 0.302%	0.302% - 0.302%
	> 50,000	0.000161	0.606%	0.606% - 0.606%	0.606% - 0.606%	0.612%	0.606% - 0.606%	0.606% - 0.606%
	Total	0.0000323	0.132%	0.131% - 0.131%	0.131% - 0.131%	0.134%	0.1311% - 0.197%	0.1311% - 0.1311%
All Systems - Combined Ground & Surface Water		0.0000335	0.0911%	0.06807% - 0.120%	0.0733% - 0.115%	0.111%	0.0786% - 0.147%	0.0838% - 0.141%

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.001 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000341	0.304%	0.222% - 0.386%	0.230% - 0.369%	0.544%	0.427% - 0.673%	0.443% - 0.657%
	501 - 3,300	0.0000218	0.316%	0.219% - 0.438%	0.219% - 0.411%	0.511%	0.329% - 0.712%	0.356% - 0.685%
	3,301 - 10,000	0.0000257	0.389%	0.312% - 0.520%	0.312% - 0.520%	0.557%	0.312% - 0.833%	0.312% - 0.728%
	10,001 - 50,000	0.0000805	1.11%	0.646% - 1.62%	0.808% - 1.45%	1.84%	1.29% - 2.42%	1.45% - 2.26%
	> 50,000	0.000129	1.61%	1.27% - 2.55%	1.27% - 2.55%	3.85%	2.55% - 5.10%	3.19% - 5.10%
	Total	0.0000336	0.351%	0.273% - 0.433%	0.285% - 0.415%	0.613%	0.507% - 0.723%	0.524% - 0.711%
Surface Water	< 500	0.0000018	0.00334%	0.000% - 0.000%	0.000% - 0.000%	0.0187%	0.000% - 0.334%	0.000% - 0.334%
	501 - 3,300	0.0000065	0.0429%	0.000% - 0.228%	0.000% - 0.228%	0.133%	0.000% - 0.457%	0.000% - 0.457%
	3,301 - 10,000	0.0000134	0.0616%	0.000% - 0.343%	0.000% - 0.343%	0.354%	0.000% - 1.03%	0.000% - 1.03%
	10,001 - 50,000	0.0000466	0.361%	0.302% - 0.604%	0.302% - 0.604%	0.512%	0.302% - 1.21%	0.302% - 0.906%
	> 50,000	0.000161	2.09%	1.82% - 3.03%	1.82% - 3.03%	4.03%	3.64% - 5.46%	3.64% - 4.85%
	Total	0.0000323	0.329%	0.262% - 0.459%	0.262% - 0.459%	0.657%	0.459% - 0.918%	0.459% - 0.918%
All Systems - Combined Ground & Surface Water		0.0000335	0.350%	0.272% - 0.424%	0.283% - 0.414%	0.616%	0.513% - 0.717%	0.524% - 0.707%

All estimates presented as percentages are expressed to three significant figures.

Table C.12.b. 1,1-Dichloroethylene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.007 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	33	21	50	21	46
	501 - 3,300	6	0	13	3	13
	3,301 - 10,000	3	0	5	0	5
	10,001 - 50,000	1	4	8	4	6
	> 50,000	1	1	1	1	1
	GW Total	52	37	71	41	68
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	3	3	3	3	3
	> 50,000	2	2	2	2	2
	SW Total	1	7	7	7	7
Total Ground & Surface Water		59	44	78	48	75

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.12.c. 1,1-Dichloroethylene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	41	25	57	29	57
	501 - 3,300	1	3	17	3	17
	3,301 - 10,000	3	3	5	3	5
	10,001 - 50,000	5	4	8	4	8
	> 50,000	1	1	1	1	1
	GW Total	65	44	88	47	85
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	3	3	3	3	3
	> 50,000	2	2	2	2	2
	SW Total	7	7	11	7	7
Total Ground & Surface Water		72	51	95	54	92

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.12.d. 1,1-Dichloroethylene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	132	96	168	100	161
	501 - 3,300	38	27	53	27	50
	3,301 - 10,000	9	8	13	8	13
	10,001 - 50,000	13	8	19	10	17
	> 50,000	3	2	5	2	5
	GW Total	209	162	257	169	247
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	1	0	4	0	4
	3,301 - 10,000	1	0	3	0	3
	10,001 - 50,000	3	3	6	3	6
	> 50,000	8	7	12	7	12
	SW Total	18	15	26	15	26
Total Ground & Surface Water		227	177	276	184	269

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.12.e. 1,1-Dichloroethylene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	237	186	293	193	286
	501 - 3,300	62	40	87	43	83
	3,301 - 10,000	13	8	20	8	18
	10,001 - 50,000	22	15	29	17	27
	> 50,000	7	5	10	6	10
	GW Total	364	301	430	311	423
Surface Water	≤ 500	1	0	5	0	5
	501 - 3,300	2	0	8	0	8
	3,301 - 10,000	4	0	10	0	10
	10,001 - 50,000	5	3	11	3	8
	> 50,000	16	15	22	15	19
	SW Total	37	26	51	26	51
Total Ground & Surface Water		401	334	467	340	460

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.12.f. 1,1-Dichloroethylene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.007 mg/L			Threshold = 0.005 mg/L		
Ground Water	< 500	0.0000341	0.0598%	0.0319% - 0.0969%	0.0369% - 0.0898%	0.0750%	0.0476% - 0.1220%	0.0495% - 0.1129%
	501 - 3,300	0.0000218	0.0725%	0.000% - 0.156%	0.0126% - 0.137%	0.106%	0.0498% - 0.218%	0.0498% - 0.192%
	3,301 - 10,000	0.0000257	0.123%	0.000% - 0.247%	0.000% - 0.247%	0.161%	0.122% - 0.247%	0.122% - 0.247%
	10,001 - 50,000	0.0000805	0.612%	0.578% - 0.764%	0.578% - 0.734%	0.638%	0.578% - 0.823%	0.578% - 0.823%
	> 50,000	0.000129	0.440%	0.439% - 0.439%	0.439% - 0.439%	0.446%	0.439% - 0.439%	0.439% - 0.439%
	Total	0.0000336	0.398%	0.370% - 0.459%	0.376% - 0.437%	0.417%	0.385% - 0.479%	0.386% - 0.470%
Surface Water	< 500	0.0000018	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000065	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00134%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000134	0.000725%	0.000% - 0.000%	0.000% - 0.000%	0.00180%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000466	0.453%	0.451% - 0.451%	0.451% - 0.451%	0.454%	0.451% - 0.451%	0.451% - 0.451%
	> 50,000	0.000161	0.269%	0.269% - 0.269%	0.269% - 0.269%	0.272%	0.269% - 0.269%	0.269% - 0.269%
	Total	0.0000323	0.281%	0.280% - 0.280%	0.280% - 0.280%	0.283%	0.280% - 0.291%	0.280% - 0.280%
All Systems - Combined Ground & Surface Water		0.0000335	0.331%	0.319% - 0.357%	0.321% - 0.348%	0.340%	0.325% - 0.380%	0.325% - 0.364%

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.001 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000341	0.261%	0.177% - 0.370%	0.188% - 0.355%	0.483%	0.344% - 0.635%	0.368% - 0.618%
	501 - 3,300	0.0000218	0.406%	0.270% - 0.576%	0.291% - 0.551%	0.603%	0.407% - 0.825%	0.438% - 0.798%
	3,301 - 10,000	0.0000257	0.413%	0.337% - 0.622%	0.337% - 0.559%	0.576%	0.337% - 0.884%	0.337% - 0.826%
	10,001 - 50,000	0.0000805	1.19%	0.771% - 1.79%	0.877% - 1.64%	2.07%	1.54% - 2.74%	1.59% - 2.66%
	> 50,000	0.000129	1.19%	0.912% - 2.06%	0.912% - 2.06%	3.00%	2.06% - 4.24%	2.33% - 3.92%
	Total	0.0000336	0.973%	0.727% - 1.44%	0.748% - 1.33%	2.08%	1.59% - 2.68%	1.65% - 2.54%
Surface Water	< 500	0.0000018	0.00388%	0.000% - 0.000%	0.000% - 0.000%	0.0219%	0.000% - 0.472%	0.000% - 0.0894%
	501 - 3,300	0.0000065	0.0329%	0.000% - 0.347%	0.000% - 0.232%	0.0931%	0.000% - 0.503%	0.000% - 0.427%
	3,301 - 10,000	0.0000134	0.0632%	0.000% - 0.507%	0.000% - 0.436%	0.421%	0.000% - 1.23%	0.000% - 1.17%
	10,001 - 50,000	0.0000466	0.500%	0.451% - 0.859%	0.451% - 0.778%	0.637%	0.451% - 1.35%	0.451% - 1.12%
	> 50,000	0.000161	0.934%	0.667% - 2.05%	0.667% - 1.27%	16.0%	15.6% - 17.3%	15.8% - 16.8%
	Total	0.0000323	0.841%	0.611% - 1.76%	0.611% - 1.13%	13.4%	13.0% - 14.5%	13.2% - 14.1%
All Systems - Combined Ground & Surface Water		0.0000335	0.898%	0.673% - 1.33%	0.681% - 1.16%	8.58%	8.24% - 9.19%	8.28% - 9.00%

All estimates presented as percentages are expressed to three significant figures.

Table C.12.g. 1,1-Dichloroethylene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.007 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	3,900	2,100	6,300	2,400	2,100
	501 - 3,300	11,300	0	24,300	1,900	21,200
	3,301 - 10,000	17,000	0	34,100	0	34,100
	10,001 - 50,000	149,500	141,400	186,600	141,400	179,500
	> 50,000	111,900	111,600	111,600	111,600	111,600
	GW Total	341,000	317,100	392,900	322,400	374,200
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	99,000	98,500	98,500	98,500	98,500
	> 50,000	259,000	259,000	259,000	259,000	259,000
	SW Total	357,400	357,000	357,000	357,000	357,000
Total Ground & Surface Water		704,600	678,900	760,000	684,600	741,700

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.12.h. 1,1-Dichloroethylene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	4,900	3,100	7,900	3,200	7,300
	501 - 3,300	16,500	7,700	33,900	7,700	29,800
	3,301 - 10,000	22,100	16,800	34,100	16,800	34,100
	10,001 - 50,000	156,000	141,400	201,200	141,400	201,200
	> 50,000	113,400	111,600	111,600	111,600	111,600
	GW Total	357,500	329,800	410,500	330,500	402,300
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	99,200	98,500	98,500	98,500	98,500
	> 50,000	261,500	259,000	259,000	259,000	259,000
	SW Total	360,500	357,000	370,600	357,000	357,000
Total Ground & Surface Water		725,100	692,500	808,600	693,100	774,500

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.12.i. 1,1-Dichloroethylene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	17,000	11,500	24,000	12,200	23,100
	501 - 3,300	63,100	41,900	89,500	45,100	85,600
	3,301 - 10,000	56,900	46,400	85,600	46,400	76,900
	10,001 - 50,000	289,900	188,500	437,800	214,500	401,100
	> 50,000	302,300	232,000	522,900	232,000	522,900
	GW Total	833,500	622,600	1,229,500	641,000	1,140,400
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	900	0	9,800	0	6,500
	3,301 - 10,000	3,800	0	30,800	0	26,500
	10,001 - 50,000	109,300	98,500	187,700	98,500	170,000
	> 50,000	898,800	642,300	1,975,600	642,300	1,223,700
	SW Total	1,071,200	778,500	2,243,500	778,500	1,440,100
Total Ground & Surface Water		1,911,700	1,433,800	2,824,500	1,449,500	2,477,300

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.12.j. 1,1-Dichloroethylene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	31,400	22,400	41,200	23,900	40,200
	501 - 3,300	93,700	63,300	128,100	68,000	92,300
	3,301 - 10,000	79,300	46,400	121,700	46,400	113,700
	10,001 - 50,000	506,700	376,700	669,000	389,400	650,200
	> 50,000	764,100	522,900	1,079,800	592,100	997,100
	GW Total	1,777,900	1,364,900	2,298,000	1,416,300	2,178,900
Surface Water	≤ 500	100	0	1,400	0	300
	501 - 3,300	2,600	0	14,200	0	12,000
	3,301 - 10,000	25,600	0	74,700	0	70,900
	10,001 - 50,000	139,300	98,500	295,200	98,500	245,600
	> 50,000	15,433,500	14,981,000	16,656,200	15,202,400	16,136,300
	SW Total	17,087,200	16,603,400	18,424,100	16,781,600	17,889,400
Total Ground & Surface Water		18,265,500	17,543,400	19,566,900	17,637,100	19,170,700

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.13.a. Dichloromethane - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0025 mg/L		
Ground Water	< 500	0.0000715	0.0158%	0.00736% - 0.0368%	0.00736% - 0.0295%	0.0569%	0.0221% - 0.0957%	0.0295% - 0.0884%
	501 - 3,300	0.0000684	0.00957%	0.000% - 0.0447%	0.000% - 0.0447%	0.0605%	0.000% - 0.134%	0.000% - 0.112%
	3,301 - 10,000	0.0000649	0.00263%	0.000% - 0.0876%	0.000% - 0.000%	0.0329%	0.000% - 0.175%	0.000% - 0.0876%
	10,001 - 50,000	0.0000605	0.000303%	0.000% - 0.000%	0.000% - 0.000%	0.0188%	0.000% - 0.151%	0.000% - 0.151%
	> 50,000	0.0000312	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000697	0.0130%	0.00500% - 0.0300%	0.00500% - 0.0250%	0.0546%	0.0250% - 0.0849%	0.0300% - 0.0799%
Surface Water	< 500	0.0000865	0.0342%	0.000% - 0.323%	0.000% - 0.323%	0.188%	0.000% - 0.645%	0.000% - 0.645%
	501 - 3,300	0.0000587	0.00615%	0.000% - 0.236%	0.000% - 0.000%	0.0416%	0.000% - 0.236%	0.000% - 0.236%
	3,301 - 10,000	0.000110	0.0134%	0.000% - 0.352%	0.000% - 0.000%	0.132%	0.000% - 0.704%	0.000% - 0.352%
	10,001 - 50,000	0.000105	0.00426%	0.000% - 0.000%	0.000% - 0.000%	0.130%	0.000% - 0.608%	0.000% - 0.304%
	> 50,000	0.0000953	0.0182%	0.000% - 0.606%	0.000% - 0.000%	0.274%	0.000% - 1.21%	0.000% - 1.21%
	Total	0.0000881	0.0142%	0.000% - 0.0662%	0.000% - 0.0662%	0.133%	0.000% - 0.331%	0.000% - 0.331%
All Systems - Combined Ground & Surface Water		0.0000710	0.0131%	0.00465% - 0.0279%	0.00465% - 0.0232%	0.0601%	0.0325% - 0.0929%	0.0325% - 0.0883%

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.0005 mg/L			Threshold = 0.00025 mg/L		
Ground Water	< 500	0.0000715	1.44%	1.20% - 1.70%	1.23% - 1.66%	4.59%	4.07% - 5.13%	4.15% - 5.04%
	501 - 3,300	0.0000684	1.71%	1.34% - 2.10%	1.39% - 2.01%	5.27%	4.49% - 6.06%	4.65% - 5.95%
	3,301 - 10,000	0.0000649	1.78%	1.14% - 2.45%	1.23% - 2.36%	5.09%	4.12% - 6.22%	4.20% - 6.04%
	10,001 - 50,000	0.0000605	1.64%	0.908% - 2.42%	1.06% - 2.42%	5.14%	3.93% - 6.35%	4.09% - 6.20%
	> 50,000	0.0000312	0.261%	0.000% - 1.23%	0.000% - 1.23%	1.84%	0.614% - 3.68%	0.614% - 3.07%
	Total	0.0000697	1.51%	1.31% - 1.73%	1.33% - 1.69%	4.77%	4.36% - 5.19%	4.42% - 5.12%
Surface Water	< 500	0.0000865	2.56%	1.29% - 4.52%	1.29% - 4.19%	6.79%	3.87% - 10.7%	4.19% - 10.0%
	501 - 3,300	0.0000587	1.27%	0.473% - 2.36%	0.473% - 2.13%	4.12%	2.13% - 6.62%	2.60% - 6.15%
	3,301 - 10,000	0.000110	4.50%	2.47% - 6.69%	2.82% - 6.34%	10.4%	7.04% - 13.7%	7.75% - 13.4%
	10,001 - 50,000	0.000105	3.63%	2.13% - 5.78%	2.43% - 5.17%	9.78%	6.69% - 13.1%	7.30% - 12.5%
	> 50,000	0.0000953	3.90%	2.42% - 5.46%	2.42% - 5.46%	7.91%	5.46% - 10.9%	5.46% - 10.3%
	Total	0.0000881	2.94%	2.25% - 3.84%	2.38% - 3.64%	7.50%	6.22% - 8.93%	6.42% - 8.67%
All Systems - Combined Ground & Surface Water		0.0000710	1.62%	1.41% - 1.84%	1.44% - 1.80%	4.96%	4.54% - 5.37%	4.61% - 5.31%

All estimates presented as percentages are expressed to three significant figures.

Table C.13.b. Dichloromethane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	7	3	16	3	13
	501 - 3,300	1	0	5	0	5
	3,301 - 10,000	0	0	2	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	8	3	18	3	15
Surface Water	≤ 500	1	0	5	0	5
	501 - 3,300	0	0	4	0	0
	3,301 - 10,000	0	0	4	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	1	0	2	0	0
	SW Total	1	0	4	0	4
Total Ground & Surface Water		9	3	18	3	15

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.13.c. Dichloromethane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0025 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	25	10	42	13	38
	501 - 3,300	7	0	16	0	14
	3,301 - 10,000	1	0	4	0	2
	10,001 - 50,000	0	0	2	0	2
	> 50,000	0	0	0	0	0
	GW Total	32	15	50	18	48
Surface Water	≤ 500	3	0	10	0	10
	501 - 3,300	1	0	4	0	4
	3,301 - 10,000	1	0	7	0	4
	10,001 - 50,000	1	0	6	0	3
	> 50,000	1	0	5	0	5
	SW Total	7	0	18	0	18
Total Ground & Surface Water		39	21	60	21	57

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.13.d. Dichloromethane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	625	522	740	535	721
	501 - 3,300	207	163	255	169	245
	3,301 - 10,000	43	27	59	29	57
	10,001 - 50,000	20	11	29	13	29
	> 50,000	1	0	2	0	2
	GW Total	900	778	1,027	793	1,006
Surface Water	≤ 500	39	20	69	20	64
	501 - 3,300	22	8	40	8	36
	3,301 - 10,000	45	25	68	29	64
	10,001 - 50,000	34	20	54	23	48
	> 50,000	16	10	22	10	22
	SW Total	164	126	215	133	203
Total Ground & Surface Water		1,050	918	1,193	936	1,172

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.13.e. Dichloromethane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.00025 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	1,997	1,768	2,233	1,806	2,191
	501 - 3,300	641	546	736	565	723
	3,301 - 10,000	122	99	150	101	145
	10,001 - 50,000	61	47	76	49	74
	> 50,000	3	1	7	1	6
	GW Total	2,833	2,589	3,082	2,625	3,043
Surface Water	≤ 500	104	59	164	64	154
	501 - 3,300	70	36	113	44	105
	3,301 - 10,000	106	71	139	78	135
	10,001 - 50,000	91	62	122	68	116
	> 50,000	32	22	44	22	41
	SW Total	419	348	499	359	485
Total Ground & Surface Water		3,224	2,951	3,495	2,999	3,456

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.13.f. Dichloromethane - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0025 mg/L		
Ground Water	< 500	0.0000715	0.0141%	0.00858% - 0.0341%	0.00858% - 0.0309%	0.0453%	0.0143% - 0.0926%	0.0167% - 0.0844%
	501 - 3,300	0.0000684	0.00865%	0.000% - 0.0516%	0.000% - 0.0412%	0.0601%	0.000% - 0.147%	0.000% - 0.130%
	3,301 - 10,000	0.0000649	0.00255%	0.000% - 0.0603%	0.000% - 0.000%	0.0309%	0.000% - 0.180%	0.000% - 0.132%
	10,001 - 50,000	0.0000605	0.000195%	0.000% - 0.000%	0.000% - 0.000%	0.0193%	0.000% - 0.225%	0.000% - 0.225%
	> 50,000	0.0000312	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000697	0.00203%	0.000357% - 0.0103%	0.000357% - 0.00698%	0.0189%	0.00242% - 0.0815%	0.00323% - 0.0698%
Surface Water	< 500	0.0000865	0.0192%	0.000% - 0.264%	0.000% - 0.150%	0.112%	0.000% - 0.546%	0.000% - 0.382%
	501 - 3,300	0.0000587	0.00512%	0.000% - 0.0826%	0.000% - 0.000%	0.0361%	0.000% - 0.207%	0.000% - 0.207%
	3,301 - 10,000	0.000110	0.0141%	0.000% - 0.378%	0.000% - 0.000%	0.122%	0.000% - 0.606%	0.000% - 0.501%
	10,001 - 50,000	0.000105	0.00434%	0.000% - 0.000%	0.000% - 0.000%	0.113%	0.000% - 0.648%	0.000% - 0.394%
	> 50,000	0.0000953	0.254%	0.000% - 0.539%	0.000% - 0.000%	2.90%	0.000% - 10.7%	0.000% - 10.7%
	Total	0.0000881	0.213%	0.000% - 0.449%	0.000% - 0.0109%	2.44%	0.000% - 8.98%	0.000% - 8.94%
All Systems - Combined Ground & Surface Water		0.0000710	0.119%	0.000159% - 0.250%	0.000159% - 0.00945%	1.36%	0.00221% - 4.99%	0.00331% - 4.96%

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.0005 mg/L			Threshold = 0.00025 mg/L		
Ground Water	< 500	0.0000715	1.45%	1.17% - 1.76%	1.21% - 1.73%	4.77%	4.22% - 5.38%	4.29% - 5.29%
	501 - 3,300	0.0000684	1.66%	1.28% - 2.07%	1.35% - 1.99%	5.13%	4.33% - 5.98%	4.45% - 5.78%
	3,301 - 10,000	0.0000649	1.81%	1.16% - 2.51%	1.22% - 2.41%	5.10%	3.99% - 6.18%	4.12% - 6.07%
	10,001 - 50,000	0.0000605	1.48%	0.793% - 2.37%	0.914% - 2.22%	4.76%	3.54% - 6.13%	3.70% - 5.98%
	> 50,000	0.0000312	0.296%	0.000% - 2.36%	0.000% - 1.39%	1.64%	0.463% - 4.58%	0.463% - 3.89%
	Total	0.0000697	1.06%	0.720% - 1.91%	0.752% - 1.58%	3.56%	2.85% - 4.83%	2.94% - 4.46%
Surface Water	< 500	0.0000865	2.25%	0.656% - 4.61%	0.788% - 4.22%	6.51%	3.32% - 10.4%	3.76% - 9.74%
	501 - 3,300	0.0000587	1.36%	0.344% - 2.60%	0.415% - 2.32%	4.38%	2.24% - 6.90%	2.52% - 6.55%
	3,301 - 10,000	0.000110	4.58%	2.67% - 6.94%	2.90% - 6.43%	10.6%	7.35% - 14.5%	7.81% - 13.7%
	10,001 - 50,000	0.000105	3.54%	1.77% - 5.65%	2.01% - 5.28%	9.67%	6.46% - 13.2%	7.01% - 12.5%
	> 50,000	0.0000953	12.5%	11.3% - 14.1%	11.3% - 13.8%	15.0%	13.4% - 17.6%	13.6% - 16.8%
	Total	0.0000881	11.0%	9.93% - 12.3%	10.0% - 12.1%	14.1%	12.7% - 16.2%	12.9% - 15.6%
All Systems - Combined Ground & Surface Water		0.0000710	6.59%	5.92% - 7.34%	5.98% - 7.21%	9.40%	8.52% - 10.6%	8.66% - 10.4%

All estimates presented as percentages are expressed to three significant figures.

Table C.13.g. Dichloromethane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	900	600	2,200	600	2,000
	501 - 3,300	1,300	0	8,000	0	6,400
	3,301 - 10,000	0	0	8,300	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	1,700	300	8,800	300	6,000
Surface Water	≤ 500	<100	0	800	0	400
	501 - 3,300	0	0	2,300	0	0
	3,301 - 10,000	0	0	23,000	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	244,700	0	518,600	0	0
	SW Total	271,200	0	572,200	0	13,900
Total Ground & Surface Water		253,700	300	532,300	300	20,100

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.13.h. Dichloromethane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0025 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	2,900	900	6,000	1,100	5,500
	501 - 3,300	9,300	0	22,900	0	20,100
	3,301 - 10,000	4,300	0	24,800	0	18,100
	10,001 - 50,000	0	0	54,900	0	54,900
	> 50,000	0	0	0	0	0
	GW Total	16,200	2,100	69,800	2,800	59,800
Surface Water	≤ 500	300	0	1,600	0	1,100
	501 - 3,300	1,000	0	5,800	0	5,800
	3,301 - 10,000	7,400	0	36,900	0	30,500
	10,001 - 50,000	24,800	0	141,700	0	86,200
	> 50,000	2,795,900	0	10,330,700	0	10,263,300
	SW Total	3,106,800	0	11,430,100	0	11,377,900
Total Ground & Surface Water		2,901,200	4,700	10,624,800	7,000	10,560,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.13.i. Dichloromethane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	94,100	75,900	114,300	78,300	112,100
	501 - 3,300	257,300	199,400	320,800	209,900	308,700
	3,301 - 10,000	249,700	159,600	346,000	168,400	332,300
	10,001 - 50,000	361,500	193,900	578,500	223,500	542,100
	> 50,000	75,200	0	601,200	0	354,200
	GW Total	904,800	616,600	1,638,200	644,100	1,351,200
Surface Water	≤ 500	6,600	1,900	13,500	2,300	12,300
	501 - 3,300	38,200	9,700	73,200	11,700	65,300
	3,301 - 10,000	278,400	162,700	422,100	176,100	391,200
	10,001 - 50,000	774,200	385,900	1,234,000	438,100	1,153,800
	> 50,000	12,054,100	10,850,600	13,527,200	10,850,600	13,286,500
	SW Total	14,044,100	12,638,400	15,699,400	12,758,100	15,457,400
Total Ground & Surface Water		14,033,000	12,605,800	15,643,300	12,746,400	15,355,800

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.13.j. Dichloromethane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.00025 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	309,700	274,200	349,600	278,700	344,000
	501 - 3,300	796,900	672,300	927,900	690,500	897,700
	3,301 - 10,000	701,700	549,200	851,000	567,900	836,300
	10,001 - 50,000	1,163,700	865,500	1,498,300	903,100	1,462,600
	> 50,000	416,500	117,900	1,165,800	117,900	990,800
	GW Total	3,052,800	2,439,400	4,136,700	2,514,800	3,819,700
Surface Water	≤ 500	19,000	9,700	30,300	11,000	28,500
	501 - 3,300	123,400	63,100	194,400	71,100	184,600
	3,301 - 10,000	647,400	447,100	880,400	475,000	834,800
	10,001 - 50,000	2,113,300	1,412,500	2,878,000	1,531,200	2,733,700
	> 50,000	14,451,400	12,911,000	16,954,700	13,113,200	16,174,800
	SW Total	17,927,600	16,132,300	20,626,900	16,374,200	19,901,100
Total Ground & Surface Water		20,016,400	18,146,200	22,515,000	18,448,600	22,088,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.14.a. 1,2-Dichloropropane - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0005 mg/L			Threshold = 0.0004 mg/L		
Ground Water	< 500	0.00000978	0.00366%	0.000% - 0.0144%	0.000% - 0.00720%	0.0331%	0.0144% - 0.0576%	0.0216% - 0.0504%	0.0432%	0.0216% - 0.0648%	0.0288% - 0.0648%
	501 - 3,300	0.00000922	0.0000441%	0.000% - 0.000%	0.000% - 0.000%	0.0461%	0.0221% - 0.0882%	0.0221% - 0.0662%	0.0545%	0.0221% - 0.0882%	0.0221% - 0.0882%
	3,301 - 10,000	0.0000100	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0231%	0.000% - 0.0867%	0.000% - 0.0867%	0.0447%	0.000% - 0.173%	0.000% - 0.173%
	10,001 - 50,000	0.0000107	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0182%	0.000% - 0.151%	0.000% - 0.151%	0.0986%	0.000% - 0.303%	0.000% - 0.151%
	> 50,000	0.00000765	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000968	0.00250%	0.000% - 0.00980%	0.000% - 0.00490%	0.0347%	0.0196% - 0.0539%	0.0196% - 0.0490%	0.0472%	0.0245% - 0.0686%	0.0294% - 0.0637%
Surface Water	< 500	0.00000612	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00180%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000945	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0661%	0.000% - 0.223%	0.000% - 0.223%	0.0991%	0.000% - 0.223%	0.000% - 0.223%
	3,301 - 10,000	0.0000129	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00405%	0.000% - 0.000%	0.000% - 0.000%	0.00473%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000950	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00299%	0.000% - 0.000%	0.000% - 0.000%	0.00776%	0.000% - 0.299%	0.000% - 0.000%
	> 50,000	0.0000406	0.169%	0.000% - 0.606%	0.000% - 0.606%	0.607%	0.606% - 0.606%	0.606% - 0.606%	0.609%	0.606% - 0.606%	0.606% - 0.606%
	Total	0.0000127	0.0176%	0.000% - 0.0634%	0.000% - 0.0634%	0.0837%	0.0634% - 0.127%	0.0634% - 0.127%	0.0947%	0.0634% - 0.190%	0.0634% - 0.127%
All Systems - Combined Ground & Surface Water		0.00000989	0.00358%	0.000% - 0.00910%	0.000% - 0.00910%	0.0382%	0.0227% - 0.0546%	0.0227% - 0.0546%	0.0506%	0.0318% - 0.0728%	0.0364% - 0.0682%

All estimates presented as percentages are expressed to three significant figures.

Table C.14.b. 1,2-Dichloropropane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	2	0	6	0	3
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	1	0	6	0	3
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	1	0	2	0	2
	SW Total	1	0	4	0	4
Total Ground & Surface Water		2	0	6	0	6

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.14.c. 1,2-Dichloropropane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	14	6	25	9	22
	501 - 3,300	6	3	11	3	8
	3,301 - 10,000	1	0	2	0	2
	10,001 - 50,000	0	0	2	0	2
	> 50,000	0	0	0	0	0
	GW Total	21	12	32	12	29
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	1	0	4	0	4
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	2	2	2	2	2
	SW Total	5	4	7	4	7
Total Ground & Surface Water		25	15	35	15	35

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.14.d. 1,2-Dichloropropane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0004 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	19	9	28	13	28
	501 - 3,300	7	3	11	3	11
	3,301 - 10,000	1	0	4	0	4
	10,001 - 50,000	1	0	4	0	2
	> 50,000	0	0	0	0	0
	GW Total	28	15	41	17	38
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	2	0	4	0	4
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	3	0	0
	> 50,000	2	2	2	2	2
	SW Total	5	4	11	4	7
Total Ground & Surface Water		33	21	47	24	44

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.14.e. 1,2-Dichloropropane - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0005 mg/L			Threshold = 0.0004 mg/L		
Ground Water	< 500	0.00000978	0.000678%	0.000% - 0.00322%	0.000% - 0.00202%	0.0226%	0.00322% - 0.0533%	0.00490% - 0.0485%	0.0340%	0.00490% - 0.0742%	0.00779% - 0.0650%
	501 - 3,300	0.00000922	0.0000938%	0.000% - 0.000%	0.000% - 0.000%	0.0559%	0.0147% - 0.114%	0.0147% - 0.0880%	0.0657%	0.0147% - 0.123%	0.0147% - 0.114%
	3,301 - 10,000	0.00000998	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0276%	0.000% - 0.128%	0.000% - 0.128%	0.0531%	0.000% - 0.226%	0.000% - 0.161%
	10,001 - 50,000	0.0000107	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0180%	0.000% - 0.147%	0.000% - 0.147%	0.0964%	0.000% - 0.297%	0.000% - 0.150%
	> 50,000	0.00000765	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000968	0.0000401%	0.000% - 0.000136%	0.000% - 0.0000853%	0.0167%	0.00205% - 0.0649%	0.00235% - 0.0573%	0.0446%	0.00466% - 0.0962%	0.00805% - 0.0824%
Surface Water	< 500	0.00000612	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000644%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000945	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0352%	0.000% - 0.119%	0.000% - 0.119%	0.0533%	0.000% - 0.119%	0.000% - 0.119%
	3,301 - 10,000	0.0000129	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00505%	0.000% - 0.000%	0.000% - 0.000%	0.00582%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000950	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00185%	0.000% - 0.000%	0.000% - 0.000%	0.00523%	0.000% - 0.141%	0.000% - 0.000%
	> 50,000	0.0000406	0.0778%	0.000% - 0.280%	0.000% - 0.280%	0.281%	0.280% - 0.280%	0.280% - 0.280%	0.281%	0.280% - 0.280%	0.280% - 0.280%
	Total	0.0000127	0.0645%	0.000% - 0.232%	0.000% - 0.232%	0.234%	0.232% - 0.235%	0.232% - 0.234%	0.235%	0.232% - 0.250%	0.232% - 0.235%
All Systems - Combined Ground & Surface Water		0.00000989	0.0358%	0.000% - 0.129%	0.000% - 0.129%	0.137%	0.130% - 0.158%	0.130% - 0.155%	0.150%	0.131% - 0.179%	0.132% - 0.167%

All estimates presented as percentages are expressed to three significant figures.

Table C.14.f. 1,2-Dichloropropane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	<100	0	200	0	100
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	<100	0	100	0	<100
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	74,900	0	269,300	0	269,300
	SW Total	82,100	0	295,500	0	295,500
Total Ground & Surface Water		76,200	0	273,900	0	273,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.14.g. 1,2-Dichloropropane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	1,500	200	3,500	300	3,200
	501 - 3,300	8,700	2,300	17,700	2,300	13,700
	3,301 - 10,000	3,800	0	17,700	0	17,700
	10,001 - 50,000	0	0	35,900	0	35,900
	> 50,000	0	0	0	0	0
	GW Total	14,300	1,800	55,600	2,000	49,100
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	1,000	0	3,300	0	3,300
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	270,500	269,300	269,300	269,300	269,300
	SW Total	297,900	295,500	298,600	295,500	297,400
Total Ground & Surface Water		292,000	275,800	337,000	276,500	330,000

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.14.h. 1,2-Dichloropropane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0004 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	2,200	300	4,800	500	4,200
	501 - 3,300	10,200	2,300	19,100	2,300	17,700
	3,301 - 10,000	7,300	0	31,200	0	22,200
	10,001 - 50,000	23,600	0	72,600	0	36,700
	> 50,000	0	0	0	0	0
	GW Total	38,200	4,000	82,400	6,900	70,600
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	1,500	0	3,300	0	3,300
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	30,900	0	0
	> 50,000	270,700	269,300	269,300	269,300	269,300
	SW Total	299,000	295,500	318,300	295,500	299,100
Total Ground & Surface Water		319,500	279,700	380,600	281,600	354,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.15.a. Diquat - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.02 mg/L			Threshold = 0.004 mg/L			Threshold = 0.002 mg/L		
Ground Water	< 500	0.0000350	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000304%	0.000% - 0.000%	0.000% - 0.000%	0.00666%	0.000% - 0.0380%	0.000% - 0.0380%
	501 - 3,300	0.0000577	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00265%	0.000% - 0.0509%	0.000% - 0.000%	0.0495%	0.000% - 0.153%	0.000% - 0.153%
	3,301 - 10,000	0.0000667	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00106%	0.000% - 0.000%	0.000% - 0.000%	0.0251%	0.000% - 0.177%	0.000% - 0.177%
	10,001 - 50,000	0.0000790	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00239%	0.000% - 0.000%	0.000% - 0.000%	0.0329%	0.000% - 0.239%	0.000% - 0.239%
	> 50,000	0.000111	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0785%	0.000% - 0.769%	0.000% - 0.769%
	Total	0.0000459	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00101%	0.000% - 0.0120%	0.000% - 0.0120%	0.0204%	0.000% - 0.0600%	0.000% - 0.0480%
Surface Water	< 500	0.0000234	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00472%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000556	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000905%	0.000% - 0.000%	0.000% - 0.000%	0.0172%	0.000% - 0.453%	0.000% - 0.000%
	3,301 - 10,000	0.0000458	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00122%	0.000% - 0.000%	0.000% - 0.000%	0.00976%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000712	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0369%	0.000% - 0.461%	0.000% - 0.461%
	> 50,000	0.0000668	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00215%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000540	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000487%	0.000% - 0.000%	0.000% - 0.000%	0.0173%	0.000% - 0.122%	0.000% - 0.122%
All Systems - Combined Ground & Surface Water		0.0000466	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000961%	0.000% - 0.0109%	0.000% - 0.0109%	0.0202%	0.000% - 0.0546%	0.000% - 0.0437%

All estimates presented as percentages are expressed to three significant figures.

Table C.15.b. Diquat - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.02 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.15.c. Diquat - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.004 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	1	0	6	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	1	0	7	0	7
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	0	0	0
Total Ground & Surface Water		1	0	7	0	7

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.15.d. Diquat - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	3	0	17	0	17
	501 - 3,300	6	0	19	0	19
	3,301 - 10,000	1	0	4	0	4
	10,001 - 50,000	1	0	3	0	3
	> 50,000	0	0	1	0	1
	GW Total	12	0	36	0	29
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	1	0	8	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	1	0	4	0	4
	> 50,000	0	0	0	0	0
	SW Total	1	0	7	0	7
Total Ground & Surface Water		13	0	35	0	28

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.15.e. Diquat - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.02 mg/L			Threshold = 0.004 mg/L			Threshold = 0.002 mg/L		
Ground Water	< 500	0.0000350	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000279%	0.000% - 0.000%	0.000% - 0.000%	0.00718%	0.000% - 0.0594%	0.000% - 0.0475%
	501 - 3,300	0.0000577	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00252%	0.000% - 0.0385%	0.000% - 0.000%	0.0534%	0.000% - 0.208%	0.000% - 0.174%
	3,301 - 10,000	0.0000667	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00108%	0.000% - 0.000%	0.000% - 0.000%	0.0224%	0.000% - 0.214%	0.000% - 0.167%
	10,001 - 50,000	0.0000790	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00239%	0.000% - 0.000%	0.000% - 0.000%	0.0309%	0.000% - 0.364%	0.000% - 0.238%
	> 50,000	0.000111	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0589%	0.000% - 0.803%	0.000% - 0.492%
	Total	0.0000459	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00101%	0.000% - 0.00621%	0.000% - 0.00280%	0.0453%	0.000% - 0.404%	0.000% - 0.247%
Surface Water	< 500	0.0000234	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00470%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000556	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00101%	0.000% - 0.000%	0.000% - 0.000%	0.0237%	0.000% - 0.553%	0.000% - 0.000%
	3,301 - 10,000	0.0000458	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00170%	0.000% - 0.000%	0.000% - 0.000%	0.0100%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000712	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0240%	0.000% - 0.233%	0.000% - 0.233%
	> 50,000	0.0000668	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000313%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000540	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000503%	0.000% - 0.000%	0.000% - 0.000%	0.00356%	0.000% - 0.0275%	0.000% - 0.0275%
All Systems - Combined Ground & Surface Water		0.0000466	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000470%	0.000% - 0.00295%	0.000% - 0.00136%	0.0218%	0.000% - 0.177%	0.000% - 0.109%

All estimates presented as percentages are expressed to three significant figures.

Table C.15.f. Diquat - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.02 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.15.g. Diquat - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.004 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	500	0	6,000	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	900	0	5,300	0	2,400
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	≤100	0	0	0	0
Total Ground & Surface Water		1,000	0	6,300	0	2,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.15.h. Diquat - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	500	0	3,900	0	3,100
	501 - 3,300	8,300	0	32,300	0	27,000
	3,301 - 10,000	3,300	0	29,400	0	22,900
	10,001 - 50,000	10,000	0	89,000	0	58,200
	> 50,000	0	0	204,300	0	125,200
	GW Total	38,800	0	346,000	0	212,000
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	700	0	15,600	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	10,000	0	50,900	0	50,900
	> 50,000	0	0	0	0	0
	SW Total	4,500	0	35,100	0	35,100
Total Ground & Surface Water		46,500	0	376,200	0	232,400

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.16.a. Fluoride - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 4 mg/L			Threshold = 3 mg/L			Threshold = 2 mg/L			Threshold = 1.5 mg/L		
Ground Water	< 500	0.461	0.590%	0.488% - 0.688%	0.496% - 0.673%	1.25%	1.10% - 1.41%	1.12% - 1.39%	3.08%	2.86% - 3.31%	2.88% - 3.28%	5.44%	5.15% - 5.72%	5.22% - 5.67%
	501 - 3,300	0.521	0.480%	0.328% - 0.631%	0.354% - 0.606%	1.13%	0.909% - 1.39%	0.93% - 1.34%	3.17%	2.83% - 3.54%	2.88% - 3.51%	6.08%	5.53% - 6.57%	5.63% - 6.52%
	3,301 - 10,000	0.556	0.602%	0.299% - 0.896%	0.299% - 0.896%	1.28%	0.896% - 1.69%	1.00% - 1.59%	3.04%	2.39% - 3.79%	2.49% - 3.69%	5.90%	4.98% - 6.97%	5.08% - 6.87%
	10,001 - 50,00	0.545	0.136%	0.00% - 0.348%	0.00% - 0.348%	0.623%	0.174% - 1.22%	0.174% - 1.05%	2.17%	1.39% - 2.96%	1.57% - 2.79%	4.65%	3.48% - 5.92%	3.66% - 5.75%
	> 50,000	0.504	0.0160%	0.00% - 0.00%	0.00% - 0.00%	0.0533%	0.000% - 0.667%	0.000% - 0.667%	0.527%	0.000% - 2.00%	0.000% - 1.33%	1.92%	0.000% - 4.00%	0.667% - 3.33%
	Total	0.482	0.550%	0.469% - 0.635%	0.479% - 0.620%	1.20%	1.07% - 1.33%	1.09% - 1.30%	3.05%	2.85% - 3.23%	2.88% - 3.20%	5.55%	5.29% - 5.78%	5.33% - 5.75%
Surface Water	< 500	0.272	0.0693%	0.00% - 0.533%	0.00% - 0.267%	0.230%	0.000% - 0.800%	0.000% - 0.533%	0.805%	0.267% - 1.60%	0.267% - 1.33%	1.68%	0.800% - 2.67%	0.800% - 2.40%
	501 - 3,300	0.399	0.0702%	0.00% - 0.439%	0.00% - 0.219%	0.248%	0.000% - 0.658%	0.000% - 0.439%	0.967%	0.439% - 1.75%	0.439% - 1.54%	2.90%	1.75% - 4.17%	1.97% - 3.95%
	3,301 - 10,000	0.658	0.0206%	0.00% - 0.356%	0.00% - 0.356%	0.113%	0.000% - 0.712%	0.000% - 0.712%	1.22%	0.000% - 2.49%	0.356% - 2.14%	5.71%	3.56% - 8.19%	3.56% - 7.83%
	10,001 - 50,00	0.760	0.0417%	0.00% - 0.312%	0.00% - 0.312%	0.216%	0.000% - 0.935%	0.000% - 0.623%	1.88%	0.623% - 3.43%	0.935% - 3.12%	7.03%	4.67% - 9.66%	4.98% - 9.35%
	> 50,000	0.583	0.00625%	0.00% - 0.00%	0.00% - 0.00%	0.0425%	0.000% - 0.625%	0.000% - 0.625%	0.494%	0.000% - 1.88%	0.000% - 1.25%	2.63%	0.625% - 5.63%	1.25% - 5.00%
	Total	0.506	0.0491%	0.00% - 0.188%	0.00% - 0.126%	0.193%	0.000% - 0.377%	0.063% - 0.377%	1.11%	0.691% - 1.51%	0.753% - 1.51%	3.91%	3.08% - 4.77%	3.20% - 4.65%
All Systems - Combined Ground & Surface Water		0.483	0.511%	0.437% - 0.591%	0.447% - 0.577%	1.12%	1.01% - 1.23%	1.02% - 1.22%	2.90%	2.72% - 3.08%	2.75% - 3.05%	5.42%	5.19% - 5.63%	5.23% - 5.61%

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 1.2 mg/L			Threshold = 0.7 mg/L			Threshold = 0.5 mg/L			Threshold = 0.1 mg/L		
Ground Water	< 500	0.461	8.10%	7.73% - 8.42%	7.82% - 8.39%	18.0%	17.5% - 18.5%	17.7% - 18.4%	26.7%	26.3% - 27.2%	26.3% - 27.2%	80.9%	80.3% - 81.4%	80.4% - 81.3%
	501 - 3,300	0.521	9.77%	9.12% - 10.4%	9.19% - 10.3%	23.1%	22.3% - 23.9%	22.4% - 23.8%	33.6%	32.7% - 34.4%	32.9% - 34.3%	85.4%	84.6% - 86.1%	84.8% - 86.0%
	3,301 - 10,000	0.556	10.0%	8.87% - 11.4%	9.06% - 11.2%	26.0%	24.2% - 27.6%	24.6% - 27.5%	38.0%	36.4% - 39.9%	36.7% - 39.6%	87.1%	86.0% - 88.3%	86.1% - 88.1%
	10,001 - 50,00	0.545	8.82%	7.14% - 10.5%	7.32% - 10.3%	27.3%	25.4% - 29.3%	25.8% - 28.9%	40.2%	38.5% - 42.3%	38.7% - 42.0%	90.3%	89.0% - 91.5%	89.2% - 91.5%
	> 50,000	0.504	4.52%	2.00% - 7.33%	2.67% - 6.67%	21.4%	18.0% - 25.3%	18.7% - 24.7%	41.5%	38.0% - 45.3%	38.7% - 44.7%	92.8%	91.3% - 94.7%	91.3% - 94.0%
	Total	0.482	8.54%	8.24% - 8.80%	8.30% - 8.78%	19.8%	19.4% - 20.2%	19.5% - 20.1%	29.3%	28.8% - 29.7%	28.9% - 29.6%	82.5%	82.1% - 82.9%	82.1% - 82.9%
Surface Water	< 500	0.272	3.09%	1.87% - 4.53%	2.13% - 4.27%	9.52%	7.73% - 11.2%	8.00% - 10.9%	14.4%	12.5% - 16.3%	12.8% - 16.0%	62.2%	58.9% - 65.6%	59.5% - 65.1%
	501 - 3,300	0.399	6.59%	4.83% - 8.55%	5.04% - 8.11%	21.0%	18.9% - 22.8%	19.1% - 22.6%	28.1%	26.1% - 29.8%	26.5% - 29.6%	71.8%	69.3% - 74.6%	69.5% - 74.1%
	3,301 - 10,000	0.658	14.1%	11.0% - 17.4%	11.7% - 16.7%	43.5%	40.2% - 47.0%	40.9% - 46.3%	56.0%	53.7% - 58.4%	54.1% - 58.0%	87.4%	85.1% - 89.3%	85.8% - 89.0%
	10,001 - 50,00	0.760	17.3%	13.7% - 20.6%	14.6% - 20.3%	52.4%	49.2% - 55.5%	50.2% - 55.1%	65.3%	62.9% - 67.6%	63.6% - 67.3%	94.2%	92.8% - 95.3%	93.2% - 95.3%
	> 50,000	0.583	7.61%	4.38% - 11.3%	5.00% - 10.6%	37.0%	33.1% - 41.3%	33.8% - 40.0%	51.1%	48.1% - 53.8%	48.8% - 53.1%	89.5%	87.5% - 91.9%	87.5% - 91.3%
	Total	0.506	9.37%	8.22% - 10.5%	8.48% - 10.4%	30.2%	29.0% - 31.3%	29.3% - 31.1%	39.6%	38.6% - 40.6%	38.7% - 40.4%	78.6%	77.4% - 79.9%	77.6% - 79.6%
All Systems - Combined Ground & Surface Water		0.483	8.60%	8.32% - 8.89%	8.36% - 8.86%	20.6%	20.2% - 21.0%	20.3% - 20.9%	30.0%	29.7% - 30.5%	29.7% - 30.4%	82.2%	81.8% - 82.6%	81.9% - 82.5%

All estimates presented as percentages are expressed to three significant figures.

Table C.16.b. Fluoride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 4.0 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	256	212	299	216	293
	501 - 3,300	58	40	77	43	74
	3,301 - 10,000	14	7	22	7	22
	10,001 - 50,000	2	0	4	0	4
	> 50,000	0	0	0	0	0
	GW Total	327	278	378	285	368
Surface Water	≤ 500	1	0	8	0	4
	501 - 3,300	1	0	7	0	4
	3,301 - 10,000	0	0	4	0	4
	10,001 - 50,000	1	0	3	0	3
	> 50,000	0	0	0	0	0
	SW Total	3	0	11	0	7
Total Ground & Surface Water		332	284	385	291	375

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.16.c. Fluoride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 3.0 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	542	476	615	486	605
	501 - 3,300	138	111	169	114	163
	3,301 - 10,000	31	22	41	24	38
	10,001 - 50,000	7	2	15	2	12
	> 50,000	0	0	1	0	1
	GW Total	711	634	789	650	773
Surface Water	≤ 500	4	0	12	0	8
	501 - 3,300	4	0	11	0	7
	3,301 - 10,000	1	0	7	0	7
	10,001 - 50,000	2	0	9	0	6
	> 50,000	0	0	3	0	3
	SW Total	11	0	21	4	21
Total Ground & Surface Water		728	654	801	666	791

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.16.d. Fluoride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 2.0 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	1,339	1,242	1,441	1,251	1,425
	501 - 3,300	385	344	430	350	427
	3,301 - 10,000	73	57	91	60	89
	10,001 - 50,000	26	17	35	19	33
	> 50,000	1	0	4	0	3
	GW Total	1,812	1,692	1,922	1,714	1,900
Surface Water	≤ 500	12	4	25	4	20
	501 - 3,300	16	7	30	7	26
	3,301 - 10,000	12	0	25	4	22
	10,001 - 50,000	18	6	32	9	29
	> 50,000	2	0	8	0	5
	SW Total	62	39	84	42	84
Total Ground & Surface Water		1,885	1,769	2,000	1,791	1,982

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.16.e. Fluoride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 1.5 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	2,368	2,239	2,487	2,271	2,467
	501 - 3,300	739	672	798	685	792
	3,301 - 10,000	142	120	168	122	165
	10,001 - 50,000	55	41	70	44	68
	> 50,000	4	0	8	1	6
	GW Total	3,297	3,147	3,434	3,169	3,416
Surface Water	≤ 500	26	12	41	12	37
	501 - 3,300	49	30	71	34	67
	3,301 - 10,000	58	36	83	36	79
	10,001 - 50,000	66	44	90	47	87
	> 50,000	11	3	23	5	20
	SW Total	219	172	267	179	260
Total Ground & Surface Water		3,526	3,373	3,664	3,401	3,648

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.16.f. Fluoride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 1.2 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	3,524	3,362	3,664	3,403	3,648
	501 - 3,300	1,187	1,108	1,268	1,118	1,252
	3,301 - 10,000	241	213	273	218	268
	10,001 - 50,000	105	85	124	87	122
	> 50,000	9	4	14	5	13
	GW Total	5,076	4,898	5,233	4,932	5,217
Surface Water	≤ 500	47	29	70	33	66
	501 - 3,300	112	82	146	86	138
	3,301 - 10,000	143	112	176	119	169
	10,001 - 50,000	162	128	192	137	189
	> 50,000	31	18	45	20	43
	SW Total	524	460	586	474	579
Total Ground & Surface Water		5,594	5,408	5,780	5,439	5,761

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.16.g. Fluoride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.7 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	7,838	7,630	8,034	7,677	8,008
	501 - 3,300	2,811	2,714	2,907	2,723	2,889
	3,301 - 10,000	625	582	664	592	661
	10,001 - 50,000	325	303	348	307	344
	> 50,000	40	34	48	35	47
	GW Total	11,769	11,537	11,989	11,591	11,953
Surface Water	≤ 500	146	119	172	123	168
	501 - 3,300	358	322	389	325	385
	3,301 - 10,000	440	407	475	414	468
	10,001 - 50,000	490	460	518	468	515
	> 50,000	149	133	166	136	161
	SW Total	1,688	1,621	1,751	1,635	1,741
Total Ground & Surface Water		13,390	13,156	13,624	13,208	13,591

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.16.h. Fluoride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.5 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	11,627	11,418	11,840	11,453	11,810
	501 - 3,300	4,081	3,973	4,185	3,994	4,167
	3,301 - 10,000	914	874	961	881	953
	10,001 - 50,000	479	458	504	460	500
	> 50,000	78	72	86	73	84
	GW Total	17,386	17,142	17,642	17,190	17,594
Surface Water	≤ 500	221	193	250	197	246
	501 - 3,300	478	445	508	453	505
	3,301 - 10,000	567	544	591	547	587
	10,001 - 50,000	610	588	631	594	628
	> 50,000	206	193	216	196	214
	SW Total	2,213	2,158	2,267	2,165	2,260
Total Ground & Surface Water		19,535	19,288	19,808	19,320	19,737

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.16.i. Fluoride - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.1 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	35,177	34,946	35,394	34,981	35,377
	501 - 3,300	10,377	10,288	10,473	10,304	10,457
	3,301 - 10,000	2,095	2,067	2,122	2,070	2,118
	10,001 - 50,000	1,074	1,059	1,088	1,061	1,088
	> 50,000	175	173	179	173	178
	GW Total	49,032	48,794	49,276	48,824	49,246
Surface Water	≤ 500	955	906	1,008	914	1,000
	501 - 3,300	1,224	1,182	1,271	1,185	1,264
	3,301 - 10,000	885	861	904	868	900
	10,001 - 50,000	879	867	890	870	890
	> 50,000	360	352	369	352	367
	SW Total	4,392	4,327	4,464	4,337	4,450
Total Ground & Surface Water		53,448	53,195	53,695	53,227	53,663

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.16.j. Fluoride - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 4 mg/L			Threshold = 3 mg/L			Threshold = 2 mg/L			Threshold = 1.5 mg/L		
Ground Water	< 500	0.461	0.708%	0.565% - 0.837%	0.590% - 0.829%	1.44%	1.25% - 1.65%	1.27% - 1.61%	3.42%	3.14% - 3.72%	3.19% - 3.67%	5.97%	5.61% - 6.37%	5.65% - 6.31%
	501 - 3,300	0.521	0.457%	0.293% - 0.633%	0.317% - 0.607%	1.10%	0.857% - 1.35%	0.89% - 1.30%	3.13%	2.73% - 3.55%	2.79% - 3.49%	6.05%	5.48% - 6.61%	5.56% - 6.52%
	3,301 - 10,000	0.556	0.672%	0.324% - 1.05%	0.361% - 1.00%	1.40%	0.990% - 1.84%	1.05% - 1.77%	3.23%	2.53% - 4.00%	2.61% - 3.93%	6.18%	5.11% - 7.32%	5.34% - 7.08%
	10,001 - 50,00	0.545	0.102%	0.000% - 0.435%	0.000% - 0.381%	0.575%	0.104% - 1.19%	0.187% - 1.125%	2.12%	1.37% - 3.02%	1.47% - 2.88%	4.29%	3.14% - 5.58%	3.31% - 5.36%
	> 50,000	0.504	0.00718%	0.000% - 0.000%	0.000% - 0.000%	0.0240%	0.000% - 0.304%	0.000% - 0.296%	0.268%	0.000% - 0.979%	0.000% - 0.849%	1.15%	0.000% - 2.51%	0.284% - 2.28%
	Total	0.482	0.208%	0.131% - 0.314%	0.141% - 0.297%	0.556%	0.393% - 0.771%	0.404% - 0.723%	1.68%	1.35% - 2.04%	1.41% - 2.00%	3.52%	2.87% - 4.18%	2.97% - 4.10%
Surface Water	< 500	0.272	0.137%	0.000% - 0.738%	0.000% - 0.660%	0.419%	0.000% - 1.21%	0.000% - 1.20%	1.25%	###### - 2.44%	0.207% - 2.02%	2.14%	0.977% - 3.42%	1.20% - 3.22%
	501 - 3,300	0.399	0.0413%	0.000% - 0.266%	0.000% - 0.202%	0.159%	0.000% - 0.523%	0.000% - 0.499%	0.937%	0.185% - 1.87%	0.202% - 1.73%	3.34%	1.83% - 5.12%	2.00% - 4.82%
	3,301 - 10,000	0.658	0.0205%	0.000% - 0.357%	0.000% - 0.227%	0.104%	0.000% - 0.627%	0.000% - 0.524%	1.12%	0.000% - 2.40%	0.208% - 2.22%	5.60%	3.34% - 8.33%	3.55% - 7.96%
	10,001 - 50,00	0.760	0.0438%	0.000% - 0.547%	0.000% - 0.450%	0.203%	0.000% - 0.902%	0.000% - 0.759%	1.73%	0.523% - 3.36%	0.661% - 3.07%	6.53%	4.00% - 9.49%	4.37% - 8.77%
	> 50,000	0.583	0.00138%	0.000% - 0.000%	0.000% - 0.000%	0.0130%	0.000% - 0.102%	0.000% - 0.102%	0.191%	0.000% - 1.45%	0.000% - 0.766%	1.14%	0.102% - 2.90%	0.210% - 2.66%
	Total	0.506	0.00754%	0.000% - 0.0687%	0.000% - 0.0599%	0.0400%	0.000% - 0.175%	0.000% - 0.126%	0.408%	0.130% - 1.44%	0.152% - 0.947%	1.92%	0.961% - 3.41%	1.07% - 3.15%
All Systems - Combined Ground & Surface Water		0.483	0.0897%	0.0555% - 0.141%	0.0605% - 0.129%	0.252%	0.169% - 0.36%	0.179% - 0.344%	0.929%	0.707% - 1.55%	0.730% - 1.29%	2.58%	1.96% - 3.46%	2.03% - 3.36%

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 1.2 mg/L			Threshold = 0.7 mg/L			Threshold = 0.5 mg/L			Threshold = 0.1 mg/L		
Ground Water	< 500	0.461	8.81%	8.33% - 9.22%	8.46% - 9.17%	19.5%	18.9% - 20.0%	19.0% - 20.0%	28.7%	28.1% - 29.4%	28.2% - 29.3%	82.7%	82.1% - 83.3%	82.2% - 83.2%
	501 - 3,300	0.521	9.76%	9.03% - 10.5%	9.16% - 10.3%	23.3%	22.5% - 24.2%	22.5% - 24.0%	33.7%	32.8% - 34.7%	32.9% - 34.5%	85.2%	84.4% - 86.1%	84.5% - 85.9%
	3,301 - 10,000	0.556	10.3%	9.10% - 11.7%	9.29% - 11.5%	26.6%	24.9% - 28.3%	25.1% - 28.1%	38.6%	37.0% - 40.6%	37.2% - 40.4%	87.3%	86.2% - 88.5%	86.3% - 88.4%
	10,001 - 50,00	0.545	8.01%	6.34% - 9.78%	6.59% - 9.49%	26.9%	25.1% - 28.9%	25.3% - 28.7%	39.5%	37.6% - 41.7%	37.9% - 41.3%	91.3%	89.9% - 92.7%	90.1% - 92.5%
	> 50,000	0.504	3.06%	1.14% - 5.11%	1.44% - 4.85%	23.4%	14.6% - 29.6%	15.1% - 29.0%	44.0%	40.0% - 48.4%	40.9% - 47.5%	93.2%	91.6% - 95.1%	91.8% - 94.9%
	Total	0.482	6.51%	5.59% - 7.57%	5.73% - 7.45%	24.6%	20.8% - 27.4%	21.1% - 27.0%	40.1%	38.3% - 42.0%	38.5% - 41.6%	90.4%	89.6% - 91.3%	89.7% - 91.3%
Surface Water	< 500	0.272	3.32%	1.77% - 4.92%	2.09% - 4.62%	9.08%	7.09% - 11.1%	7.43% - 10.8%	13.6%	11.0% - 16.0%	11.7% - 15.6%	62.5%	58.4% - 66.4%	59.0% - 65.8%
	501 - 3,300	0.399	7.89%	5.68% - 10.3%	5.92% - 9.90%	25.1%	22.5% - 27.4%	23.0% - 27.2%	32.6%	30.4% - 34.5%	30.8% - 34.2%	73.8%	71.1% - 76.5%	71.6% - 76.2%
	3,301 - 10,000	0.658	13.9%	10.7% - 17.0%	11.4% - 16.5%	43.2%	39.9% - 46.5%	40.3% - 46.1%	55.2%	52.6% - 57.7%	53.1% - 57.3%	87.0%	84.6% - 89.2%	85.1% - 88.7%
	10,001 - 50,00	0.760	16.6%	12.8% - 20.1%	13.4% - 19.7%	51.2%	48.2% - 54.5%	48.5% - 53.9%	64.4%	62.0% - 66.9%	62.3% - 66.4%	93.7%	92.3% - 95.0%	92.5% - 94.7%
	> 50,000	0.583	3.75%	1.41% - 7.01%	1.62% - 6.33%	24.6%	21.7% - 27.6%	22.0% - 27.3%	33.7%	30.8% - 37.4%	31.1% - 37.3%	88.3%	84.6% - 92.8%	85.0% - 92.3%
	Total	0.506	5.59%	3.55% - 8.41%	3.73% - 7.84%	28.3%	25.6% - 30.9%	26.0% - 30.5%	37.8%	35.4% - 41.1%	35.7% - 40.9%	88.7%	85.5% - 92.5%	85.9% - 92.1%
All Systems - Combined Ground & Surface Water		0.483	5.96%	4.61% - 7.64%	4.80% - 7.41%	26.8%	24.3% - 28.8%	24.8% - 28.6%	38.8%	37.1% - 40.9%	37.3% - 40.8%	89.4%	87.4% - 91.6%	87.6% - 91.4%

All estimates presented as percentages are expressed to three significant figures.

Table C.16.k. Fluoride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 4.0 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	46,000	36,700	54,400	38,300	53,300
	501 - 3,300	70,900	45,400	98,300	49,300	94,300
	3,301 - 10,000	92,500	44,700	144,500	49,700	138,000
	10,001 - 50,000	25,000	0	106,300	0	93,100
	> 50,000	0	0	0	0	0
	GW Total	178,000	112,000	268,900	120,800	254,800
Surface Water	≤ 500	400	0	2,200	0	1,900
	501 - 3,300	1,200	0	7,500	0	5,700
	3,301 - 10,000	0	0	21,700	0	13,800
	10,001 - 50,000	10,000	0	119,600	0	98,400
	> 50,000	0	0	0	0	0
	SW Total	9,600	0	87,400	0	76,200
Total Ground & Surface Water		191,000	118,200	301,000	128,800	274,600

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.16.l. Fluoride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 3.0 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	93,500	81,000	107,400	82,700	104,800
	501 - 3,300	170,000	133,100	208,800	138,400	201,500
	3,301 - 10,000	192,500	136,400	253,400	143,900	243,300
	10,001 - 50,000	140,500	25,300	290,900	45,700	275,000
	> 50,000	0	0	77,200	0	75,200
	GW Total	476,000	336,300	660,800	346,300	619,300
Surface Water	≤ 500	1,200	0	3,500	0	3,500
	501 - 3,300	4,500	0	14,700	0	14,100
	3,301 - 10,000	6,300	0	38,100	0	31,900
	10,001 - 50,000	44,300	0	197,200	0	165,800
	> 50,000	0	0	97,900	0	97,700
	SW Total	51,000	0	222,400	300	160,400
Total Ground & Surface Water		535,900	360,000	770,500	381,900	733,200

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.16.m. Fluoride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 2.0 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	222,500	204,300	241,500	207,400	238,600
	501 - 3,300	485,700	423,600	550,800	433,700	541,100
	3,301 - 10,000	445,200	348,800	551,200	359,500	540,900
	10,001 - 50,000	519,100	335,800	737,700	359,300	704,900
	> 50,000	68,300	0	249,100	0	216,000
	GW Total	1,436,900	1,159,300	1,747,900	1,209,000	1,711,100
Surface Water	≤ 500	3,700	100	7,100	600	5,900
	501 - 3,300	26,400	5,200	52,700	5,700	48,800
	3,301 - 10,000	68,300	0	146,100	12,700	135,000
	10,001 - 50,000	378,300	114,200	733,100	144,500	670,600
	> 50,000	184,200	0	1,395,100	0	737,000
	SW Total	519,900	164,900	1,832,200	192,900	1,205,800
Total Ground & Surface Water		1,978,600	1,505,100	3,293,100	1,554,300	2,739,300

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.16.n. Fluoride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 1.5 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	387,800	364,500	414,000	367,400	409,900
	501 - 3,300	939,100	851,200	1,027,000	863,300	1,012,700
	3,301 - 10,000	850,300	704,200	1,007,300	734,600	975,500
	10,001 - 50,000	1,048,600	766,300	1,362,600	808,100	1,310,800
	> 50,000	292,300	0	638,400	72,300	579,600
	GW Total	3,014,300	2,460,800	3,581,500	2,543,000	3,511,200
Surface Water	≤ 500	6,300	2,900	10,000	3,500	9,400
	501 - 3,300	94,000	51,500	144,200	56,500	135,700
	3,301 - 10,000	340,800	203,100	506,600	215,700	484,000
	10,001 - 50,000	1,426,300	873,400	2,074,000	955,200	1,917,100
	> 50,000	1,093,700	97,700	2,795,000	202,300	2,564,900
	SW Total	2,445,900	1,223,900	4,341,800	1,359,800	4,014,600
Total Ground & Surface Water		5,487,100	4,164,300	7,374,300	4,313,400	7,146,400

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.16.o. Fluoride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 1.2 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	572,500	541,300	599,100	549,600	596,100
	501 - 3,300	1,516,100	1,402,600	1,628,900	1,421,600	1,605,600
	3,301 - 10,000	1,423,800	1,252,500	1,612,500	1,278,800	1,579,500
	10,001 - 50,000	1,957,800	1,548,600	2,389,200	1,609,500	2,320,000
	> 50,000	779,600	289,300	1,300,600	365,600	1,235,000
	GW Total	5,573,600	4,788,700	6,484,400	4,908,700	6,381,600
Surface Water	≤ 500	9,700	5,200	14,400	6,100	13,500
	501 - 3,300	222,400	160,000	291,400	166,900	279,000
	3,301 - 10,000	847,000	649,800	1,031,300	693,600	1,002,700
	10,001 - 50,000	3,627,500	2,790,500	4,394,500	2,923,800	4,304,900
	> 50,000	3,605,600	1,358,500	6,750,100	1,561,600	6,096,400
	SW Total	7,113,700	4,525,200	10,706,900	4,751,800	9,979,900
Total Ground & Surface Water		12,701,700	9,821,800	16,271,700	10,232,900	15,786,000

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.16.p. Fluoride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.7 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	1,265,900	1,225,700	1,302,300	1,231,500	1,296,500
	501 - 3,300	3,613,300	3,487,500	3,749,900	3,499,900	3,731,300
	3,301 - 10,000	3,660,100	3,423,300	3,899,800	3,461,900	3,870,800
	10,001 - 50,000	6,577,300	6,134,900	7,054,000	6,181,400	7,007,500
	> 50,000	5,958,700	3,702,000	7,536,200	3,839,300	7,365,700
	GW Total	21,112,000	17,847,500	23,485,400	18,061,700	23,091,200
Surface Water	≤ 500	26,600	20,700	32,300	21,700	31,700
	501 - 3,300	708,600	633,300	772,900	649,100	766,400
	3,301 - 10,000	2,629,100	2,427,700	2,828,000	2,452,000	2,806,100
	10,001 - 50,000	11,184,000	10,521,900	11,909,500	10,600,600	11,780,600
	> 50,000	23,703,800	20,882,900	26,611,400	21,162,100	26,284,100
	SW Total	35,969,700	32,646,500	39,305,700	33,143,100	38,770,900
Total Ground & Surface Water		57,022,300	51,803,600	61,346,400	52,762,100	60,856,400

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.16.q. Fluoride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.5 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	1,865,800	1,826,800	1,909,300	1,832,000	1,900,900
	501 - 3,300	5,235,900	5,086,900	5,381,900	5,108,600	5,358,600
	3,301 - 10,000	5,319,500	5,088,100	5,590,700	5,128,100	5,559,100
	10,001 - 50,000	9,661,900	9,185,300	10,199,700	9,263,500	10,099,400
	> 50,000	11,197,500	10,184,800	12,316,900	10,403,600	12,072,700
	GW Total	34,349,800	32,850,400	36,003,400	33,013,200	35,669,300
Surface Water	≤ 500	39,600	32,100	46,800	34,200	45,500
	501 - 3,300	917,400	857,400	971,300	867,800	963,400
	3,301 - 10,000	3,361,000	3,200,400	3,508,300	3,227,800	3,488,200
	10,001 - 50,000	14,068,500	13,541,900	14,612,600	13,618,400	14,509,900
	> 50,000	32,417,100	29,663,500	36,027,500	29,961,900	35,892,700
	SW Total	48,180,300	45,099,000	52,305,700	45,391,900	52,114,700
Total Ground & Surface Water		82,562,000	78,919,500	87,120,300	79,430,800	86,843,400

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.16.r. Fluoride - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.1 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	5,375,700	5,338,000	5,412,100	5,342,600	5,406,900
	501 - 3,300	13,234,200	13,100,700	13,363,100	13,120,900	13,339,800
	3,301 - 10,000	12,022,900	11,863,100	12,181,200	11,887,900	12,168,800
	10,001 - 50,000	22,318,000	21,973,400	22,650,400	22,027,200	22,604,000
	> 50,000	23,700,100	23,315,900	24,186,100	23,346,500	24,132,700
	GW Total	77,482,000	76,762,200	78,218,800	76,865,000	78,184,500
Surface Water	≤ 500	182,700	170,700	194,200	172,500	192,500
	501 - 3,300	2,079,000	2,002,600	2,155,400	2,018,900	2,146,600
	3,301 - 10,000	5,292,800	5,149,200	5,425,500	5,175,400	5,397,500
	10,001 - 50,000	20,469,100	20,171,900	20,751,000	20,217,800	20,698,500
	> 50,000	85,033,400	81,403,700	89,298,500	81,798,400	88,855,700
	SW Total	112,951,300	108,800,500	117,751,500	109,309,800	117,242,200
Total Ground & Surface Water		190,450,600	186,147,900	195,158,100	186,573,900	194,774,700

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.17.a. Glyphosate - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.7 mg/L			Threshold = 0.06 mg/L			Threshold = 0.006 mg/L		
Ground Water	< 500	0.000177	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000898%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000425	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000203	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000431%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000418	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.000152	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000140	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000849%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.000131	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000613	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000266	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000427	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000564	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000105	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.000136	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000763%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.17.b. Glyphosate - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.7 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.17.c. Glyphosate - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.06 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.17.d. Glyphosate - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.006 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.17.e. Glyphosate - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.7 mg/L			Threshold = 0.06 mg/L			Threshold = 0.006 mg/L		
Ground Water	< 500	0.000177	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000171%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000425	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000203	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000314%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000418	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.000152	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000140	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000313%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.000131	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000613	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000266	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000427	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000564	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000105	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.000136	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000138%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.17.f. Glyphosate - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.7 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.17.g. Glyphosate - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.06 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.17.h. Glyphosate - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.006 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.18.a. Heptachlor - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.0004 mg/L			Threshold = 0.0001 mg/L			Threshold = 0.00004 mg/L		
Ground Water	< 500	0.000000711	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000241%	0.000% - 0.000%	0.000% - 0.000%	0.000772%	0.000% - 0.0121%	0.000% - 0.0121%
	501 - 3,300	0.000000822	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00204%	0.000% - 0.0329%	0.000% - 0.0329%
	3,301 - 10,000	0.000000688	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00504%	0.000% - 0.120%	0.000% - 0.000%
	10,001 - 50,000	0.000000589	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.000000407	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000000728	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000156%	0.000% - 0.000%	0.000% - 0.000%	0.00131%	0.000% - 0.00779%	0.000% - 0.00779%
Surface Water	< 500	0.000000582	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000000177	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000000805	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000749%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.000000294	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.000000513	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000000436	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000142%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.000000699	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000140%	0.000% - 0.000%	0.000% - 0.000%	0.00119%	0.000% - 0.00702%	0.000% - 0.00702%

All estimates presented as percentages are expressed to three significant figures.

Table C.18.b. Heptachlor - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0004 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.18.c. Heptachlor - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.18.d. Heptachlor - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.00004 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	1	0	5	0	5
	501 - 3,300	1	0	4	0	4
	3,301 - 10,000	0	0	3	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	1	0	5	0	5
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		1	0	5	0	5

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.18.e. Heptachlor - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.0004 mg/L			Threshold = 0.0001 mg/L			Threshold = 0.00004 mg/L		
Ground Water	< 500	0.000000711	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000179%	0.000% - 0.000%	0.000% - 0.000%	0.000976%	0.000% - 0.0116%	0.000% - 0.00894%
	501 - 3,300	0.000000822	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00284%	0.000% - 0.0494%	0.000% - 0.0494%
	3,301 - 10,000	0.000000688	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00394%	0.000% - 0.0949%	0.000% - 0.000%
	10,001 - 50,000	0.000000589	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.000000407	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000000728	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000000576%	0.000% - 0.000%	0.000% - 0.000%	0.000784%	0.000% - 0.0113%	0.000% - 0.00492%
Surface Water	< 500	0.000000582	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000000177	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000000805	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00119%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.000000294	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.000000513	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000000436	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000341%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.000000699	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000000242%	0.000% - 0.000%	0.000% - 0.000%	0.000350%	0.000% - 0.00476%	0.000% - 0.00247%

All estimates presented as percentages are expressed to three significant figures.

Table C.18.h. Heptachlor - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.00004 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	<100	0	800	0	600
	501 - 3,300	500	0	7,700	0	7,700
	3,301 - 10,000	0	0	13,100	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	700	0	9,700	0	4,200
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		700	0	10,100	0	5,300

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.19.a. Heptachlor Epoxide - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.0002 mg/L			Threshold = 0.0001 mg/L			Threshold = 0.00002 mg/L		
Ground Water	< 500	0.000000474	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000195%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000000751	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000990%	0.000% - 0.0330%	0.000% - 0.000%
	3,301 - 10,000	0.00000108	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0698%	0.000% - 0.241%	0.000% - 0.241%
	10,001 - 50,000	0.000000771	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0221%	0.000% - 0.191%	0.000% - 0.191%
	> 50,000	0.000000363	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000000590	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00583%	0.000% - 0.0236%	0.000% - 0.0157%
Surface Water	< 500	0.0000000821	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000000333	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000000176	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.000000622	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00127%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.000000341	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000000320	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000285%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.000000564	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00528%	0.000% - 0.0212%	0.000% - 0.0142%

All estimates presented as percentages are expressed to three significant figures.

Table C.19.b. Heptachlor Epoxide - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.19.c. Heptachlor Epoxide - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.19.d. Heptachlor Epoxide - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.00002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	4	0	0
	3,301 - 10,000	2	0	6	0	6
	10,001 - 50,000	0	0	2	0	2
	> 50,000	0	0	0	0	0
	GW Total	3	0	14	0	9
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	0	0	0
Total Ground & Surface Water		3	0	14	0	9

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.19.e. Heptachlor Epoxide - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.0002 mg/L			Threshold = 0.0001 mg/L			Threshold = 0.00002 mg/L		
Ground Water	< 500	0.000000474	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000178%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000000751	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000851%	0.000% - 0.0163%	0.000% - 0.000%
	3,301 - 10,000	0.00000108	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0594%	0.000% - 0.220%	0.000% - 0.220%
	10,001 - 50,000	0.000000771	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0145%	0.000% - 0.135%	0.000% - 0.107%
	> 50,000	0.000000363	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000000590	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0114%	0.000% - 0.0570%	0.000% - 0.0416%
Surface Water	< 500	0.0000000821	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000000333	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000000176	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.000000622	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00167%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.000000341	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.000000320	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000215%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.000000564	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00489%	0.000% - 0.0239%	0.000% - 0.0181%

All estimates presented as percentages are expressed to three significant figures.

Table C.19.f. Heptachlor Epoxide - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.19.g. Heptachlor Epoxide - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.19.h. Heptachlor Epoxide - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.00002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	2,500	0	0
	3,301 - 10,000	8,200	0	30,300	0	30,300
	10,001 - 50,000	0	0	33,000	0	26,100
	> 50,000	0	0	0	0	0
	GW Total	9,800	0	48,800	0	35,600
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	300	0	0	0	0
Total Ground & Surface Water		10,400	0	50,800	0	38,600

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.20.a Hexachlorobenzene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.001 mg/L			Threshold = 0.0005 mg/L			Threshold = 0.0001 mg/L		
Ground Water	< 500	0.000000870	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000976%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000183	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00115%	0.000% - 0.0337%	0.000% - 0.000%
	3,301 - 10,000	0.00000159	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000497%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000241	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0590%	0.000% - 0.195%	0.000% - 0.195%
	> 50,000	0.00000476	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0280%	0.000% - 0.699%	0.000% - 0.000%
	Total	0.00000125	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00307%	0.000% - 0.0158%	0.000% - 0.00792%
Surface Water	< 500	0.00000188	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00150%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000000844	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000000977	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000114	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00128%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.00000240	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00420%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000129	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00101%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.00000125	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00287%	0.000% - 0.0143%	0.000% - 0.00714%

All estimates presented as percentages are expressed to three significant figures.

Table C.20.b. Hexachlorobenzene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.20.c. Hexachlorobenzene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.20.d. Hexachlorobenzene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	4	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	1	0	2	0	2
	> 50,000	0	0	1	0	0
	GW Total	2	0	9	0	5
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	0	0	0
Total Ground & Surface Water		2	0	9	0	5

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.20.e. Hexachlorobenzene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.001 mg/L			Threshold = 0.0005 mg/L			Threshold = 0.0001 mg/L		
Ground Water	< 500	0.000000870	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000112%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000183	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00110%	0.000% - 0.0148%	0.000% - 0.000%
	3,301 - 10,000	0.00000159	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000553%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000241	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.100%	0.000% - 0.333%	0.000% - 0.333%
	> 50,000	0.00000476	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0209%	0.000% - 0.462%	0.000% - 0.000%
	Total	0.00000125	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0384%	0.000% - 0.214%	0.000% - 0.0977%
Surface Water	< 500	0.00000188	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00216%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.000000844	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.000000977	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000114	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00194%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.00000240	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00284%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000129	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00260%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.00000125	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0176%	0.000% - 0.0896%	0.000% - 0.0425%

All estimates presented as percentages are expressed to three signigficant figures.

Table C.20.f. Hexachlorobenzene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.20.g. Hexachlorobenzene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.20.h. Hexachlorobenzene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	2,300	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	24,400	0	81,300	0	81,300
	> 50,000	0	0	117,500	0	0
	GW Total	32,900	0	183,100	0	83,700
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	3,300	0	0	0	0
Total Ground & Surface Water		37,600	0	190,900	0	90,500

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.21.a. Hexachlorocyclopentadiene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.05 mg/L			Threshold = 0.04 mg/L			Threshold = 0.005 mg/L		
Ground Water	< 500	0.00000371	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000750	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.00000697	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000331	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000283	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000507	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.0000205	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000529	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000292	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000173	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000214	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000309	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.00000764	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.21.b. Hexachlorocyclopentadiene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.05 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.21.c. Hexachlorocyclopentadiene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.04 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.21.d. Hexachlorocyclopentadiene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.21.e. Hexachlorocyclopentadiene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.05 mg/L			Threshold = 0.04 mg/L			Threshold = 0.005 mg/L		
Ground Water	< 500	0.00000371	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000750	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.00000697	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000331	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000283	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000507	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.0000205	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000529	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000292	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000173	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000214	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000309	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.00000764	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.21.f. Hexachlorocyclopentadiene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.05 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.21.g. Hexachlorocyclopentadiene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.04 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.21.h. Hexachlorocyclopentadiene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.22.a. Mercury - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.002 mg/L			Threshold = 0.001 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.000119	0.0921%	0.0580% - 0.133%	0.0663% - 0.124%	0.452%	0.348% - 0.572%	0.357% - 0.556%	2.46%	2.17% - 2.74%	2.21% - 2.71%
	501 - 3,300	0.000105	0.0328%	0.000% - 0.0814%	0.000% - 0.0814%	0.358%	0.190% - 0.515%	0.217% - 0.515%	2.37%	1.95% - 2.82%	2.01% - 2.74%
	3,301 - 10,000	0.0000957	0.0321%	0.000% - 0.205%	0.000% - 0.102%	0.291%	0.102% - 0.614%	0.102% - 0.614%	1.98%	1.33% - 2.76%	1.43% - 2.66%
	10,001 - 50,000	0.0000904	0.00917%	0.000% - 0.176%	0.000% - 0.000%	0.193%	0.000% - 0.529%	0.000% - 0.529%	1.89%	1.06% - 2.82%	1.24% - 2.65%
	> 50,000	0.0000593	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0119%	0.000% - 0.000%	0.000% - 0.000%	0.513%	0.000% - 1.99%	0.000% - 1.33%
	Total	0.000113	0.0727%	0.0459% - 0.103%	0.0516% - 0.0975%	0.411%	0.321% - 0.504%	0.338% - 0.487%	2.38%	2.13% - 2.62%	2.18% - 2.59%
Surface Water	< 500	0.0000869	0.00894%	0.000% - 0.279%	0.000% - 0.000%	0.100%	0.000% - 0.559%	0.000% - 0.279%	1.12%	0.279% - 2.24%	0.279% - 2.24%
	501 - 3,300	0.0000802	0.00451%	0.000% - 0.000%	0.000% - 0.000%	0.123%	0.000% - 0.451%	0.000% - 0.451%	0.855%	0.225% - 1.58%	0.451% - 1.35%
	3,301 - 10,000	0.0000945	0.00952%	0.000% - 0.366%	0.000% - 0.000%	0.107%	0.000% - 0.366%	0.000% - 0.366%	1.02%	0.000% - 2.20%	0.366% - 1.83%
	10,001 - 50,000	0.0000970	0.00127%	0.000% - 0.000%	0.000% - 0.000%	0.0260%	0.000% - 0.318%	0.000% - 0.318%	0.987%	0.000% - 1.91%	0.318% - 1.91%
	> 50,000	0.0000642	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0363%	0.000% - 0.625%	0.000% - 0.625%	1.40%	0.625% - 2.50%	0.625% - 2.50%
	Total	0.0000860	0.00529%	0.000% - 0.0645%	0.000% - 0.0645%	0.0863%	0.000% - 0.258%	0.000% - 0.194%	1.03%	0.581% - 1.55%	0.645% - 1.42%
All Systems - Combined Ground & Surface Water		0.000111	0.0672%	0.0421% - 0.0948%	0.0474% - 0.0895%	0.385%	0.300% - 0.474%	0.316% - 0.453%	2.27%	2.05% - 2.49%	2.09% - 2.46%

All estimates presented as percentages are expressed to three significant figures.

Table C.22.b. Mercury - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	40	25	58	29	54
	501 - 3,300	4	0	10	0	10
	3,301 - 10,000	1	0	5	0	2
	10,001 - 50,000	1	0	2	0	0
	> 50,000	0	0	0	0	0
	GW Total	43	27	61	31	58
Surface Water	≤ 500	0	0	4	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	4	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	4	0	4
Total Ground & Surface Water		44	27	62	31	58

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.22.c. Mercury - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	197	151	249	155	242
	501 - 3,300	44	23	63	26	63
	3,301 - 10,000	7	2	15	2	15
	10,001 - 50,000	2	0	6	0	6
	> 50,000	0	0	0	0	0
	GW Total	244	191	300	201	290
Surface Water	≤ 500	2	0	9	0	4
	501 - 3,300	2	0	8	0	8
	3,301 - 10,000	1	0	4	0	4
	10,001 - 50,000	1	0	3	0	3
	> 50,000	1	0	3	0	3
	SW Total	5	0	14	0	11
Total Ground & Surface Water		250	195	308	205	294

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.22.d. Mercury - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	1,072	945	1,194	963	1,179
	501 - 3,300	289	237	343	244	333
	3,301 - 10,000	48	32	66	34	64
	10,001 - 50,000	22	13	34	15	31
	> 50,000	1	0	4	0	3
	GW Total	1,416	1,267	1,557	1,298	1,537
Surface Water	≤ 500	17	4	34	4	34
	501 - 3,300	15	4	27	8	23
	3,301 - 10,000	10	0	22	4	19
	10,001 - 50,000	9	0	18	3	18
	> 50,000	6	3	10	3	10
	SW Total	58	32	87	36	79
Total Ground & Surface Water		1,477	1,335	1,619	1,356	1,599

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.22.e. Mercury - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.002 mg/L			Threshold = 0.001 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.000119	0.0822%	0.0409% - 0.141%	0.0437% - 0.132%	0.464%	0.320% - 0.619%	0.340% - 0.593%	2.57%	2.23% - 2.96%	2.26% - 2.89%
	501 - 3,300	0.000105	0.0424%	0.000% - 0.122%	0.000% - 0.108%	0.361%	0.179% - 0.564%	0.213% - 0.528%	2.25%	1.80% - 2.77%	1.87% - 2.66%
	3,301 - 10,000	0.0000957	0.0321%	0.000% - 0.197%	0.000% - 0.126%	0.286%	0.0592% - 0.642%	0.0712% - 0.566%	1.92%	1.23% - 2.73%	1.36% - 2.58%
	10,001 - 50,000	0.0000904	0.00790%	0.000% - 0.142%	0.000% - 0.000%	0.175%	0.000% - 0.546%	0.000% - 0.500%	1.98%	0.963% - 3.15%	1.12% - 2.92%
	> 50,000	0.0000593	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00678%	0.000% - 0.000%	0.000% - 0.000%	0.411%	0.000% - 2.60%	0.000% - 2.15%
	Total	0.000113	0.0147%	0.00224% - 0.0535%	0.00260% - 0.0442%	0.151%	0.0661% - 0.288%	0.0738% - 0.266%	1.36%	0.923% - 2.26%	0.985% - 2.00%
Surface Water	< 500	0.0000869	0.0119%	0.000% - 0.185%	0.000% - 0.000%	0.108%	0.000% - 0.617%	0.000% - 0.463%	1.22%	0.103% - 2.90%	0.245% - 2.55%
	501 - 3,300	0.0000802	0.00498%	0.000% - 0.000%	0.000% - 0.000%	0.128%	0.000% - 0.558%	0.000% - 0.539%	0.952%	0.216% - 1.84%	0.328% - 1.75%
	3,301 - 10,000	0.0000945	0.00884%	0.000% - 0.237%	0.000% - 0.000%	0.103%	0.000% - 0.570%	0.000% - 0.351%	0.978%	0.000% - 2.11%	0.292% - 1.88%
	10,001 - 50,000	0.0000970	0.00100%	0.000% - 0.000%	0.000% - 0.000%	0.0243%	0.000% - 0.328%	0.000% - 0.274%	0.834%	0.000% - 1.81%	0.148% - 1.67%
	> 50,000	0.0000642	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0654%	0.000% - 1.61%	0.000% - 0.168%	1.86%	0.334% - 2.52%	1.61% - 2.36%
	Total	0.0000860	0.000429%	0.000% - 0.00921%	0.000% - 0.00265%	0.0624%	0.000% - 1.36%	0.000% - 0.144%	1.70%	0.473% - 2.27%	1.40% - 2.18%
All Systems - Combined Ground & Surface Water		0.000111	0.00627%	0.000924% - 0.0223%	0.00112% - 0.0183%	0.0987%	0.0308% - 0.853%	0.0348% - 0.164%	1.56%	0.946% - 2.06%	1.30% - 1.95%

All estimates presented as percentages are expressed to three significant figures.

Table C.22.f. Mercury - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	5,300	2,700	9,100	2,800	8,600
	501 - 3,300	6,600	0	18,900	0	16,800
	3,301 - 10,000	4,400	0	27,100	0	17,300
	10,001 - 50,000	10,000	0	34,800	0	0
	> 50,000	0	0	0	0	0
	GW Total	12,600	1,900	45,900	2,200	37,800
Surface Water	≤ 500	0	0	500	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	14,400	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	500	0	11,700	0	3,400
Total Ground & Surface Water		13,400	2,000	47,400	2,400	39,000

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.22.g. Mercury - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	30,200	20,800	40,200	22,100	38,500
	501 - 3,300	56,000	27,800	87,600	33,000	82,000
	3,301 - 10,000	39,400	8,100	88,400	9,800	78,000
	10,001 - 50,000	42,800	0	133,500	0	122,300
	> 50,000	0	0	0	0	0
	GW Total	129,300	56,700	246,600	63,200	227,500
Surface Water	≤ 500	300	0	1,800	0	1,400
	501 - 3,300	3,600	0	15,700	0	15,200
	3,301 - 10,000	6,300	0	34,700	0	21,400
	10,001 - 50,000	10,000	0	71,700	0	59,900
	> 50,000	63,000	0	1,548,200	0	161,700
	SW Total	79,400	0	1,726,500	0	183,400
Total Ground & Surface Water		210,200	65,500	1,817,800	74,200	348,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.22.h. Mercury - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	166,900	144,900	192,400	146,600	187,800
	501 - 3,300	349,700	279,200	430,400	290,700	413,700
	3,301 - 10,000	264,300	169,200	376,200	186,900	355,500
	10,001 - 50,000	484,400	235,300	768,900	273,800	714,700
	> 50,000	104,500	0	661,800	0	548,000
	GW Total	1,163,600	790,600	1,938,100	844,000	1,716,200
Surface Water	≤ 500	3,600	300	8,500	700	7,500
	501 - 3,300	26,800	6,100	51,700	9,200	49,200
	3,301 - 10,000	59,500	0	128,500	17,700	114,600
	10,001 - 50,000	182,200	0	395,100	32,300	363,800
	> 50,000	1,791,700	322,000	2,422,400	1,548,200	2,273,100
	SW Total	2,169,600	601,900	2,894,100	1,780,000	2,773,200
Total Ground & Surface Water		3,327,200	2,015,700	4,390,100	2,767,000	4,157,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.23.a. Oxamyl - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.2 mg/L			Threshold = 0.04 mg/L			Threshold = 0.03 mg/L		
Ground Water	< 500	0.0000246	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000365	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000139	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000411	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000957	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000291	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.0000117	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000130	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000303	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000297	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000283	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000216	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.0000276	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.02 mg/L			Threshold = 0.007 mg/L		
Ground Water	< 500	0.0000246	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000531%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000365	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000139	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000411	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000395%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000957	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000291	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000509%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.0000117	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000130	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000303	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000297	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000283	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000509%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000216	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.0000276	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000456%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.23.b. Oxamyl - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.2 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.23.c. Oxamyl - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.04 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.23.d. Oxamyl - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.03 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.23.e. Oxamyl - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.02 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.23.f. Oxamyl - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.007 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	1	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		1	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.23.g. Oxamyl - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.2 mg/L			Threshold = 0.04 mg/L			Threshold = 0.03 mg/L		
Ground Water	< 500	0.0000246	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000365	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000139	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,00	0.0000411	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000957	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000291	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.0000117	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000130	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000303	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,00	0.0000297	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000283	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000216	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.0000276	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.02 mg/L			Threshold = 0.007 mg/L		
Ground Water	< 500	0.0000246	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000369%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000365	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000139	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,00	0.0000411	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000264%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000957	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000291	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000777%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.0000117	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000130	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000303	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,00	0.0000297	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000283	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000216	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.0000276	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000323%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.23.h. Oxamyl - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.2 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.23.i. Oxamyl - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.04 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.23.j. Oxamyl - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.03 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.23.k. Oxamyl - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.02 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.23.l. Oxamyl - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.007 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	<100	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		<100	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.24.a. Picloram - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 1.00 mg/L			Threshold = 0.50 mg/L			Threshold = 0.05 mg/L		
Ground Water	< 500	0.00000181	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000239	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.00000182	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000307	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.00000130	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000200	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.00000363	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000104	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.00000595	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000370	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.00000302	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000599	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.00000242	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.24.b. Picloram - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 1.00 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.24.c. Picloram - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.50 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.24.d. Picloram - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.05 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.24.e. Picloram - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 1.00 mg/L			Threshold = 0.50 mg/L			Threshold = 0.05 mg/L		
Ground Water	< 500	0.00000181	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000239	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.00000182	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000307	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.00000130	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000200	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.00000363	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000104	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.00000595	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000370	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.00000302	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000599	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.00000242	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.24.f. Picloram - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 1.0 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.24.g. Picloram - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.5 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.24.h. Picloram - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.05 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.25.a. Simazine - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.004 mg/L			Threshold = 0.002 mg/L			Threshold = 0.001 mg/L		
Ground Water	< 500	0.00000408	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000213%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000926	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000702%	0.000% - 0.000%	0.000% - 0.000%	0.0116%	0.000% - 0.0319%	0.000% - 0.0319%
	3,301 - 10,000	0.0000122	0.0%	0.000% - 0.000%	0.000% - 0.000%	0.000233%	0.000% - 0.000%	0.000% - 0.000%	0.000932%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000198	0.000746%	0.000% - 0.000%	0.000% - 0.000%	0.00187%	0.000% - 0.000%	0.000% - 0.000%	0.0183%	0.000% - 0.187%	0.000% - 0.187%
	> 50,000	0.0000315	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00269%	0.000% - 0.000%	0.000% - 0.000%	0.00940%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000680	0.0000305%	0.000% - 0.000%	0.000% - 0.000%	0.000289%	0.000% - 0.00761%	0.000% - 0.000%	0.00382%	0.000% - 0.0152%	0.000% - 0.0152%
Surface Water	< 500	0.0000253	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00159%	0.000% - 0.000%	0.000% - 0.000%	0.0135%	0.000% - 0.397%	0.000% - 0.000%
	501 - 3,300	0.0000439	0.000493%	0.000% - 0.000%	0.000% - 0.000%	0.00640%	0.000% - 0.246%	0.000% - 0.000%	0.120%	0.000% - 0.493%	0.000% - 0.493%
	3,301 - 10,000	0.0000314	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000735%	0.000% - 0.000%	0.000% - 0.000%	0.0118%	0.000% - 0.368%	0.000% - 0.000%
	10,001 - 50,000	0.0000417	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00126%	0.000% - 0.000%	0.000% - 0.000%	0.112%	0.000% - 0.631%	0.000% - 0.316%
	> 50,000	0.0000455	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0213%	0.000% - 0.667%	0.000% - 0.000%
	Total	0.0000378	0.000143%	0.000% - 0.000%	0.000% - 0.000%	0.00258%	0.000% - 0.0716%	0.000% - 0.000%	0.0673%	0.000% - 0.215%	0.000% - 0.143%
All Systems - Combined Ground & Surface Water		0.00000978	0.0000413%	0.000% - 0.000%	0.000% - 0.000%	0.000509%	0.000% - 0.00688%	0.000% - 0.00688%	0.00992%	0.000% - 0.0275%	0.000% - 0.0206%

All estimates presented as percentages are expressed to three significant figures.

Table C.25.b. Simazine - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.004 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	1	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		1	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.25.c. Simazine - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	1	0	5	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	4	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	4	0	0
Total Ground & Surface Water		1	0	4	0	4

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.25.d. Simazine - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	1	0	4	0	4
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	2	0	2
	> 50,000	0	0	0	0	0
	GW Total	2	0	9	0	9
Surface Water	≤ 500	1	0	6	0	0
	501 - 3,300	2	0	8	0	8
	3,301 - 10,000	0	0	4	0	0
	10,001 - 50,000	1	0	6	0	3
	> 50,000	0	0	3	0	0
	SW Total	4	0	12	0	8
Total Ground & Surface Water		6	0	18	0	13

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.25.e. Simazine - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.004 mg/L			Threshold = 0.002 mg/L			Threshold = 0.001 mg/L		
Ground Water	< 500	0.00000408	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000256%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000926	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00151%	0.000% - 0.000%	0.000% - 0.000%	0.0249%	0.000% - 0.0766%	0.000% - 0.0729%
	3,301 - 10,000	0.0000122	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000175%	0.000% - 0.000%	0.000% - 0.000%	0.00106%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000198	0.000835%	0.000% - 0.000%	0.000% - 0.000%	0.00253%	0.000% - 0.000%	0.000% - 0.000%	0.0153%	0.000% - 0.209%	0.000% - 0.106%
	> 50,000	0.0000315	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00191%	0.000% - 0.000%	0.000% - 0.000%	0.00629%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000680	0.000238%	0.000% - 0.000%	0.000% - 0.000%	0.00178%	0.000% - 0.00733%	0.000% - 0.000%	0.00991%	0.000% - 0.0668%	0.000% - 0.0595%
Surface Water	< 500	0.0000253	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00190%	0.000% - 0.000%	0.000% - 0.000%	0.0173%	0.000% - 0.317%	0.000% - 0.000%
	501 - 3,300	0.0000439	0.000855%	0.000% - 0.000%	0.000% - 0.000%	0.00855%	0.000% - 0.222%	0.000% - 0.000%	0.145%	0.000% - 0.576%	0.000% - 0.433%
	3,301 - 10,000	0.0000314	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000718%	0.000% - 0.000%	0.000% - 0.000%	0.0119%	0.000% - 0.278%	0.000% - 0.000%
	10,001 - 50,000	0.0000417	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000976%	0.000% - 0.000%	0.000% - 0.000%	0.0897%	0.000% - 0.415%	0.000% - 0.304%
	> 50,000	0.0000455	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0159%	0.000% - 0.172%	0.000% - 0.000%
	Total	0.0000378	0.0000106%	0.000% - 0.000%	0.000% - 0.000%	0.000253%	0.000% - 0.00382%	0.000% - 0.000%	0.0268%	0.000% - 0.147%	0.000% - 0.0830%
All Systems - Combined Ground & Surface Water		0.00000978	0.000107%	0.000% - 0.000%	0.000% - 0.000%	0.000897%	0.000% - 0.00310%	0.000% - 0.00220%	0.0197%	0.000% - 0.105%	0.000% - 0.0692%

All estimates presented as percentages are expressed to three significant figures.

Table C.25.f. Simazine - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.004 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	200	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		200	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.25.g. Simazine - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	1,500	0	6,300	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	6,300	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	300	0	4,900	0	0
Total Ground & Surface Water		1,900	0	6,600	0	4,700

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.25.h. Simazine - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	3,900	0	11,900	0	11,300
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	51,000	0	25,800
	> 50,000	0	0	0	0	0
	GW Total	8,500	0	57,200	0	51,000
Surface Water	≤ 500	<100	0	900	0	0
	501 - 3,300	4,100	0	16,200	0	12,200
	3,301 - 10,000	0	0	16,900	0	0
	10,001 - 50,000	19,600	0	90,700	0	66,500
	> 50,000	0	0	165,800	0	0
	SW Total	34,200	0	187,300	0	105,600
Total Ground & Surface Water		41,900	0	223,900	0	147,400

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.26.a. Tetrachloroethylene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000536	**0.147%**	0.105% - 0.189%	0.112% - 0.182%	**1.13%**	0.996% - 1.28%	1.00% - 1.26%
	501 - 3,300	0.0000456	**0.140%**	0.0659% - 0.198%	0.0878% - 0.198%	**1.32%**	1.08% - 1.56%	1.12% - 1.52%
	3,301 - 10,000	0.0000797	**0.354%**	0.173% - 0.520%	0.260% - 0.520%	**2.27%**	1.82% - 2.77%	1.91% - 2.68%
	10,001 - 50,000	0.000279	**1.00%**	0.754% - 1.36%	0.754% - 1.36%	**8.21%**	7.39% - 9.05%	7.54% - 8.90%
	> 50,000	0.000488	**1.37%**	1.23% - 1.84%	1.23% - 1.84%	**13.1%**	11.0% - 15.3%	11.7% - 14.7%
	Total	0.0000639	**0.194%**	0.154% - 0.231%	0.164% - 0.226%	**1.56%**	1.43% - 1.68%	1.45% - 1.66%
Surface Water	< 500	0.0000499	**0.148%**	0.000% - 0.602%	0.000% - 0.602%	**1.12%**	0.301% - 2.11%	0.602% - 1.81%
	501 - 3,300	0.0000253	**0.00948%**	0.000% - 0.226%	0.000% - 0.000%	**1.08%**	0.452% - 1.81%	0.452% - 1.81%
	3,301 - 10,000	0.0000153	**0.00137%**	0.000% - 0.000%	0.000% - 0.000%	**0.479%**	0.000% - 1.02%	0.000% - 1.02%
	10,001 - 50,000	0.000131	**0.580%**	0.300% - 0.601%	0.300% - 0.601%	**3.89%**	3.30% - 4.81%	3.30% - 4.51%
	> 50,000	0.000314	**1.51%**	0.602% - 1.81%	1.21% - 1.81%	**9.62%**	8.43% - 11.5%	8.43% - 10.8%
	Total	0.0000817	**0.317%**	0.191% - 0.447%	0.255% - 0.447%	**2.48%**	2.17% - 2.87%	2.23% - 2.81%
All Systems - Combined Ground & Surface Water		0.0000651	**0.202%**	0.166% - 0.237%	0.170% - 0.233%	**1.62%**	1.50% - 1.74%	1.51% - 1.72%

All estimates presented as percentages are expressed to three significant figures.

Table C.26.b. Tetrachloroethylene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	64	46	82	49	79
	501 - 3,300	17	8	24	11	24
	3,301 - 10,000	9	4	12	6	12
	10,001 - 50,000	12	9	16	9	16
	> 50,000	3	2	3	2	3
	GW Total	115	91	137	97	134
Surface Water	≤ 500	2	0	9	0	9
	501 - 3,300	1	0	4	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	5	3	6	3	6
	> 50,000	6	2	7	5	7
	SW Total	18	11	25	14	25
Total Ground & Surface Water		132	108	154	110	151

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.26.c. Tetrachloroethylene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	493	433	558	436	546
	501 - 3,300	160	131	190	136	184
	3,301 - 10,000	55	44	67	46	65
	10,001 - 50,000	98	88	108	90	106
	> 50,000	25	21	29	22	28
	GW Total	925	849	997	860	989
Surface Water	≤ 500	17	5	32	9	28
	501 - 3,300	18	8	31	8	31
	3,301 - 10,000	5	0	10	0	10
	10,001 - 50,000	36	31	45	31	42
	> 50,000	39	34	46	34	44
	SW Total	139	121	161	125	157
Total Ground & Surface Water		1,053	974	1,134	983	1,120

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.26.d. Tetrachloroethylene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000536	**0.187%**	0.133% - 0.237%	0.144% - 0.231%	**1.12%**	0.952% - 1.29%	0.978% - 1.26%
	501 - 3,300	0.0000456	**0.129%**	0.0507% - 0.233%	0.0565% - 0.212%	**1.48%**	1.21% - 1.80%	1.25% - 1.72%
	3,301 - 10,000	0.0000797	**0.312%**	0.167% - 0.450%	0.219% - 0.450%	**2.24%**	1.78% - 2.74%	1.86% - 2.67%
	10,001 - 50,000	0.000279	**1.28%**	0.763% - 1.88%	0.788% - 1.77%	**10.0%**	9.07% - 11.0%	9.23% - 10.8%
	> 50,000	0.000488	**0.963%**	0.871% - 1.61%	0.871% - 1.29%	**9.57%**	8.04% - 11.7%	8.32% - 11.2%
	Total	0.0000639	**0.833%**	0.642% - 1.10%	0.659% - 1.04%	**7.36%**	6.72% - 8.32%	6.78% - 8.05%
Surface Water	< 500	0.0000499	**0.135%**	0.000% - 0.524%	0.000% - 0.475%	**1.03%**	0.106% - 2.34%	0.262% - 2.02%
	501 - 3,300	0.0000253	**0.0110%**	0.000% - 0.263%	0.000% - 0.000%	**1.14%**	0.496% - 2.03%	0.506% - 1.84%
	3,301 - 10,000	0.0000153	**0.00180%**	0.000% - 0.000%	0.000% - 0.000%	**0.621%**	0.000% - 1.33%	0.000% - 1.17%
	10,001 - 50,000	0.000131	**1.01%**	0.454% - 1.06%	0.454% - 1.06%	**4.75%**	4.12% - 5.67%	4.21% - 5.50%
	> 50,000	0.000314	**0.526%**	0.101% - 0.774%	0.202% - 0.575%	**18.7%**	17.6% - 21.6%	17.6% - 21.3%
	Total	0.0000817	**0.565%**	0.218% - 0.777%	0.302% - 0.617%	**16.2%**	15.2% - 18.6%	15.2% - 18.3%
All Systems - Combined Ground & Surface Water		0.0000651	**0.685%**	0.470% - 0.873%	0.541% - 0.816%	**12.2%**	11.5% - 13.7%	11.6% - 13.5%

All estimates presented as percentages are expressed to three significant figures.

Table C.26.e. Tetrachloroethylene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	12,100	8,600	15,400	9,400	15,000
	501 - 3,300	20,000	7,900	36,100	8,800	32,900
	3,301 - 10,000	43,000	23,000	62,000	30,100	62,000
	10,001 - 50,000	313,600	186,500	459,500	192,600	431,600
	> 50,000	245,000	221,600	410,400	221,600	328,500
	GW Total	713,800	550,200	944,200	564,600	886,800
Surface Water	≤ 500	400	0	1,500	0	1,400
	501 - 3,300	500	0	7,400	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	221,400	99,100	232,100	99,100	232,100
	> 50,000	506,200	97,100	745,000	194,000	554,000
	SW Total	719,500	278,000	989,800	383,900	785,900
Total Ground & Surface Water		1,458,900	1,001,400	1,859,300	1,151,300	1,739,000

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.26.f. Tetrachloroethylene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	72,700	61,900	83,900	63,600	82,100
	501 - 3,300	229,700	188,000	279,500	193,800	266,600
	3,301 - 10,000	308,700	244,800	377,000	255,400	367,400
	10,001 - 50,000	2,446,600	2,215,900	2,683,700	2,255,000	2,637,300
	> 50,000	2,435,900	2,045,900	2,987,000	2,116,600	2,852,200
	GW Total	6,307,000	5,756,100	7,131,300	5,812,600	6,897,400
Surface Water	≤ 500	3,000	300	6,800	800	5,900
	501 - 3,300	32,200	14,000	57,100	14,300	51,700
	3,301 - 10,000	37,800	0	80,800	0	71,100
	10,001 - 50,000	1,036,900	900,500	1,239,000	918,900	1,201,900
	> 50,000	17,975,200	16,906,500	20,834,700	16,906,500	20,507,400
	SW Total	20,563,200	19,340,900	23,720,900	19,379,100	23,338,900
Total Ground & Surface Water		26,029,600	24,559,800	29,096,900	24,751,600	28,649,600

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.27.a. Thallium - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.002 mg/L			Threshold = 0.001 mg/L		
Ground Water	< 500	0.000113	**0.340%**	0.226% - 0.452%	0.244% - 0.434%	**1.34%**	1.09% - 1.60%	1.12% - 1.56%
	501 - 3,300	0.0000925	**0.213%**	0.0796% - 0.371%	0.106% - 0.345%	**0.987%**	0.690% - 1.33%	0.716% - 1.27%
	3,301 - 10,000	0.0000738	**0.159%**	0.000% - 0.416%	0.000% - 0.416%	**0.801%**	0.312% - 1.35%	0.416% - 1.25%
	10,001 - 50,000	0.0000871	**0.156%**	0.000% - 0.535%	0.000% - 0.357%	**0.913%**	0.357% - 1.60%	0.357% - 1.43%
	> 50,000	0.0000774	**0.121%**	0.000% - 0.667%	0.000% - 0.667%	**0.959%**	0.000% - 2.00%	0.000% - 2.00%
	Total	0.000105	**0.292%**	0.206% - 0.382%	0.218% - 0.364%	**1.21%**	1.01% - 1.41%	1.04% - 1.38%
Surface Water	< 500	0.000122	**0.355%**	0.000% - 0.990%	0.000% - 0.990%	**1.47%**	0.330% - 2.97%	0.330% - 2.64%
	501 - 3,300	0.0000927	**0.132%**	0.000% - 0.709%	0.000% - 0.473%	**0.829%**	0.000% - 1.89%	0.236% - 1.66%
	3,301 - 10,000	0.000143	**0.229%**	0.000% - 0.735%	0.000% - 0.735%	**1.62%**	0.368% - 3.31%	0.735% - 2.94%
	10,001 - 50,000	0.000110	**0.122%**	0.000% - 0.639%	0.000% - 0.320%	**0.998%**	0.000% - 2.24%	0.320% - 1.92%
	> 50,000	0.0000458	**0.00255%**	0.000% - 0.000%	0.000% - 0.000%	**0.154%**	0.000% - 0.637%	0.000% - 0.637%
	Total	0.000107	**0.180%**	0.000% - 0.409%	0.0681% - 0.341%	**1.07%**	0.545% - 1.64%	0.613% - 1.57%
All Systems - Combined Ground & Surface Water		0.000105	**0.283%**	0.195% - 0.367%	0.211% - 0.351%	**1.20%**	1.01% - 1.39%	1.03% - 1.37%

All estimates presented as percentages are expressed to three significant figures.

Table C.27.b. Thallium - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	148	98	197	106	189
	501 - 3,300	26	10	45	13	42
	3,301 - 10,000	4	0	10	0	10
	10,001 - 50,000	2	0	6	0	4
	> 50,000	1	0	1	0	1
	GW Total	174	122	227	130	216
Surface Water	≤ 500	5	0	15	0	15
	501 - 3,300	2	0	12	0	8
	3,301 - 10,000	2	0	7	0	7
	10,001 - 50,000	1	0	6	0	3
	> 50,000	0	0	0	0	0
	SW Total	10	0	23	4	19
Total Ground & Surface Water		184	127	239	137	228

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.27.c. Thallium - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	581	476	696	488	676
	501 - 3,300	120	84	161	87	155
	3,301 - 10,000	19	8	33	10	30
	10,001 - 50,000	11	4	19	4	17
	> 50,000	2	0	4	0	4
	GW Total	717	602	836	616	821
Surface Water	≤ 500	23	5	46	5	41
	501 - 3,300	14	0	32	4	28
	3,301 - 10,000	16	4	33	7	30
	10,001 - 50,000	9	0	21	3	18
	> 50,000	1	0	3	0	3
	SW Total	60	30	91	34	88
Total Ground & Surface Water		778	655	905	669	890

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.27.d. Thallium - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.002 mg/L			Threshold = 0.001 mg/L		
Ground Water	< 500	0.000113	**0.328%**	0.186% - 0.487%	0.204% - 0.465%	**1.35%**	1.05% - 1.68%	1.08% - 1.62%
	501 - 3,300	0.0000925	**0.198%**	0.0581% - 0.380%	0.0744% - 0.346%	**0.971%**	0.628% - 1.32%	0.669% - 1.28%
	3,301 - 10,000	0.0000738	**0.165%**	0.000% - 0.467%	0.000% - 0.416%	**0.845%**	0.367% - 1.43%	0.419% - 1.32%
	10,001 - 50,000	0.0000871	**0.116%**	0.000% - 0.409%	0.000% - 0.361%	**0.767%**	0.196% - 1.56%	0.276% - 1.36%
	> 50,000	0.0000774	**0.138%**	0.000% - 1.03%	0.000% - 1.03%	**0.914%**	0.000% - 1.99%	0.000% - 1.84%
	Total	0.000105	**0.150%**	0.0319% - 0.573%	0.0370% - 0.530%	**0.887%**	0.383% - 1.41%	0.456% - 1.33%
Surface Water	< 500	0.000122	**0.398%**	0.000% - 1.47%	0.000% - 1.19%	**1.73%**	0.173% - 3.93%	0.259% - 3.53%
	501 - 3,300	0.0000927	**0.148%**	0.000% - 0.671%	0.000% - 0.578%	**0.855%**	0.000% - 1.90%	0.147% - 1.75%
	3,301 - 10,000	0.000143	**0.228%**	0.000% - 1.04%	0.000% - 0.754%	**1.67%**	0.313% - 3.66%	0.509% - 3.28%
	10,001 - 50,000	0.000110	**0.112%**	0.000% - 0.614%	0.000% - 0.585%	**0.943%**	0.000% - 2.11%	0.177% - 1.89%
	> 50,000	0.0000458	**0.000824%**	0.000% - 0.000%	0.000% - 0.000%	**0.132%**	0.000% - 1.48%	0.000% - 0.915%
	Total	0.000107	**0.0222%**	0.000% - 0.0866%	0.0000568% - 0.0777%	**0.279%**	0.0664% - 1.41%	0.0757% - 1.05%
All Systems - Combined Ground & Surface Water		0.000105	**0.0743%**	0.0156% - 0.246%	0.0190% - 0.234%	**0.527%**	0.244% - 1.24%	0.286% - 0.975%

All estimates presented as percentages are expressed to three significant figures.

Table C.27.e. Thallium - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.002 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	21,300	12,100	31,600	13,300	30,200
	501 - 3,300	30,700	9,000	59,000	11,600	53,700
	3,301 - 10,000	22,700	0	64,300	0	57,300
	10,001 - 50,000	28,200	0	99,900	0	88,200
	> 50,000	50,000	0	262,800	0	262,800
	GW Total	128,200	27,300	490,900	31,700	453,900
Surface Water	≤ 500	1,200	0	4,300	0	3,500
	501 - 3,300	4,200	0	18,900	0	16,300
	3,301 - 10,000	13,900	0	63,200	0	45,800
	10,001 - 50,000	24,500	0	134,200	0	127,800
	> 50,000	0	0	0	0	0
	SW Total	28,300	0	110,300	≤100	98,900
Total Ground & Surface Water		158,300	33,300	524,600	40,400	498,900

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.27.f. Thallium - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	87,700	68,000	109,200	70,100	105,500
	501 - 3,300	150,700	97,500	205,400	103,900	198,300
	3,301 - 10,000	116,300	50,500	197,300	57,700	182,200
	10,001 - 50,000	187,500	48,000	380,300	67,500	331,900
	> 50,000	232,500	0	505,000	0	469,200
	GW Total	759,700	328,100	1,209,800	390,300	1,138,700
Surface Water	≤ 500	5,000	500	11,500	800	10,300
	501 - 3,300	24,100	0	53,500	4,200	49,300
	3,301 - 10,000	101,300	19,100	222,500	31,000	199,800
	10,001 - 50,000	206,100	0	460,900	38,600	413,200
	> 50,000	127,100	0	1,426,900	0	880,600
	SW Total	355,100	84,500	1,796,600	96,300	1,340,700
Total Ground & Surface Water		1,123,400	520,000	2,647,700	608,600	2,077,500

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.28.a. Toxaphene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.003 mg/L			Threshold = 0.0015 mg/L			Threshold = 0.01 mg/L		
Ground Water	< 500	0.00000782	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000245%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000733	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000354%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.00000707	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000963	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000116	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000778	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000967%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.00000951	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00138%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000168	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000105	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000638	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000262	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00276%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000129	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000573%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.00000830	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000145%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.28.b. Toxaphene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.003 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.28.c. Toxaphene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0015 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.28.d. Toxaphene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1	0	0	0	0
Total Ground & Surface Water		1	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.28.e. Toxaphene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.003 mg/L			Threshold = 0.0015 mg/L			Threshold = 0.001 mg/L		
Ground Water	< 500	0.00000782	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00000850%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.00000733	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000400%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.00000707	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000963	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000116	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.00000778	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.0000376%	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.00000951	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00366%	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000168	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000105	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.00000638	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000262	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00169%	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000129	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.00141%	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.00000830	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000%	0.000% - 0.000%	0.000% - 0.000%	0.000833%	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.28.f. Toxaphene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.003 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.28.g. Toxaphene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0015 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.28.h. Toxaphene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.001 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	1,800	0	0	0	0
Total Ground & Surface Water		1,800	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.29.a. 1,1,2-Trichloroethane - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.003 mg/L		
Ground Water	< 500	0.0000126	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000140	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000146	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000171	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000157	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000132	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.0000178	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000212	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000337	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000259	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000276	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000246	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.0000140	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.29.b. 1,1,2-Trichloroethane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.29.c. 1,1,2-Trichloroethane - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.003 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.29.d. 1,1,2-Trichloroethane - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.003 mg/L		
Ground Water	< 500	0.0000126	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000140	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000146	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000171	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000157	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000132	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
Surface Water	< 500	0.0000178	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	501 - 3,300	0.0000212	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	3,301 - 10,000	0.0000337	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	10,001 - 50,000	0.0000259	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	> 50,000	0.0000276	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
	Total	0.0000246	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%
All Systems - Combined Ground & Surface Water		0.0000140	**0.000%**	0.000% - 0.000%	0.000% - 0.000%	**0.000%**	0.000% - 0.000%	0.000% - 0.000%

All estimates presented as percentages are expressed to three significant figures.

Table C.29.e. 1,1,2-Trichloroethane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.29.f. 1,1,2-Trichloroethane - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.003 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	GW Total	0	0	0	0	0
Surface Water	≤ 500	0	0	0	0	0
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	0	0	0	0	0
	> 50,000	0	0	0	0	0
	SW Total	0	0	0	0	0
Total Ground & Surface Water		0	0	0	0	0

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.30.a. Trichloroethylene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on the Number of Systems

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0025 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000551	0.128%	0.0941% - 0.168%	0.101% - 0.161%	0.222%	0.175% - 0.276%	0.182% - 0.269%	0.802%	0.692% - 0.934%	0.712% - 0.907%
	501 - 3,300	0.0000326	0.102%	0.0435% - 0.174%	0.0435% - 0.174%	0.280%	0.196% - 0.370%	0.218% - 0.370%	0.973%	0.762% - 1.20%	0.805% - 1.15%
	3,301 - 10,000	0.000129	0.572%	0.431% - 0.776%	0.431% - 0.776%	1.11%	0.862% - 1.38%	0.862% - 1.38%	3.03%	2.50% - 3.53%	2.67% - 3.45%
	10,001 - 50,000	0.000387	1.56%	1.21% - 1.96%	1.21% - 1.96%	2.97%	2.41% - 3.46%	2.56% - 3.46%	7.61%	6.93% - 8.58%	6.93% - 8.28%
	> 50,000	0.000866	4.05%	3.07% - 4.91%	3.07% - 4.91%	7.15%	6.14% - 8.59%	6.14% - 7.98%	13.8%	11.7% - 16.0%	12.3% - 15.3%
	Total	0.0000707	0.221%	0.186% - 0.256%	0.191% - 0.252%	0.420%	0.368% - 0.466%	0.377% - 0.461%	1.27%	1.17% - 1.39%	1.19% - 1.37%
Surface Water	< 500	0.0000143	0.0187%	0.000% - 0.292%	0.000% - 0.292%	0.0531%	0.000% - 0.292%	0.000% - 0.292%	0.479%	0.000% - 1.17%	0.000% - 0.875%
	501 - 3,300	0.00000711	0.00226%	0.000% - 0.000%	0.000% - 0.000%	0.0131%	0.000% - 0.226%	0.000% - 0.226%	0.280%	0.000% - 0.677%	0.000% - 0.677%
	3,301 - 10,000	0.0000100	0.00137%	0.000% - 0.000%	0.000% - 0.000%	0.00341%	0.000% - 0.000%	0.000% - 0.000%	0.304%	0.000% - 1.02%	0.000% - 0.683%
	10,001 - 50,000	0.0000628	0.227%	0.000% - 0.303%	0.000% - 0.303%	0.678%	0.606% - 1.21%	0.606% - 0.909%	2.33%	1.52% - 3.03%	1.82% - 3.03%
	> 50,000	0.000549	3.79%	3.03% - 4.24%	3.64% - 4.24%	6.08%	5.46% - 6.67%	5.46% - 6.67%	9.34%	7.88% - 10.9%	7.88% - 10.9%
	Total	0.0000777	0.450%	0.381% - 0.572%	0.381% - 0.508%	0.795%	0.699% - 0.953%	0.699% - 0.890%	1.71%	1.46% - 2.03%	1.46% - 1.97%
All Systems - Combined Ground & Surface Water		0.0000711	0.236%	0.204% - 0.274%	0.208% - 0.269%	0.445%	0.399% - 0.491%	0.408% - 0.486%	1.30%	1.21% - 1.42%	1.22% - 1.39%

All estimates presented as percentages are expressed to three significant figures.

Table C.30.b. Trichloroethylene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	56	41	73	44	70
	501 - 3,300	12	5	21	5	21
	3,301 - 10,000	14	10	19	10	19
	10,001 - 50,000	19	14	23	14	23
	> 50,000	8	6	9	6	9
	GW Total	131	111	152	114	150
Surface Water	≤ 500	0	0	4	0	4
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	2	0	3	0	3
	> 50,000	15	12	17	15	17
	SW Total	25	21	32	21	28
Total Ground & Surface Water		154	133	178	136	175

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.30.c. Trichloroethylene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0025 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	96	76	120	79	117
	501 - 3,300	34	24	45	26	45
	3,301 - 10,000	27	21	33	21	33
	10,001 - 50,000	35	29	41	30	41
	> 50,000	14	12	16	12	15
	GW Total	250	219	277	224	274
Surface Water	≤ 500	1	0	4	0	4
	501 - 3,300	0	0	4	0	4
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	6	6	11	6	8
	> 50,000	24	22	27	22	27
	SW Total	44	39	53	39	50
Total Ground & Surface Water		290	260	319	265	316

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.30.d. Trichloroethylene - Systems - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

Source Water Type	Population Served	National Estimate of Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	349	301	406	310	395
	501 - 3,300	118	93	146	98	140
	3,301 - 10,000	73	60	85	64	83
	10,001 - 50,000	91	82	102	82	99
	> 50,000	26	22	30	23	29
	GW Total	754	698	828	706	814
Surface Water	≤ 500	7	0	18	0	13
	501 - 3,300	5	0	12	0	12
	3,301 - 10,000	3	0	10	0	7
	10,001 - 50,000	22	14	28	17	28
	> 50,000	38	32	44	32	44
	SW Total	95	82	114	82	110
Total Ground & Surface Water		844	788	920	793	907

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

System estimates are rounded to the nearest whole number.

Table C.30.e. Trichloroethylene - 16 Cross-Section States - Mean Concentration, Best Estimate, and Credible Intervals Based on Population Served

Source Water Type	Population Served	Mean Concentration Value (mg/L)	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval	Best Estimate of Exceeding Threshold	95% Credible Interval	90% Credible Interval
			Threshold = 0.005 mg/L			Threshold = 0.0025 mg/L			Threshold = 0.0005 mg/L		
Ground Water	< 500	0.0000551	0.104%	0.0669% - 0.152%	0.0721% - 0.143%	0.203%	0.142% - 0.271%	0.148% - 0.257%	0.797%	0.669% - 0.946%	0.687% - 0.920%
	501 - 3,300	0.0000326	0.114%	0.0317% - 0.214%	0.0461% - 0.198%	0.364%	0.231% - 0.483%	0.262% - 0.469%	1.10%	0.884% - 1.36%	0.907% - 1.31%
	3,301 - 10,000	0.000129	0.606%	0.443% - 0.867%	0.457% - 0.828%	1.24%	0.933% - 1.55%	0.989% - 1.51%	3.34%	2.83% - 3.86%	2.92% - 3.77%
	10,001 - 50,000	0.000387	2.29%	1.88% - 2.67%	2.01% - 2.63%	3.86%	3.15% - 4.66%	3.26% - 4.53%	9.18%	8.35% - 10.1%	8.45% - 9.95%
	> 50,000	0.000866	2.89%	2.04% - 3.71%	2.04% - 3.58%	4.80%	4.12% - 6.05%	4.12% - 5.72%	11.3%	10.0% - 13.4%	10.1% - 12.9%
	Total	0.0000707	1.94%	1.56% - 2.33%	1.60% - 2.28%	3.30%	2.91% - 3.82%	2.96% - 3.70%	7.90%	7.26% - 8.69%	7.38% - 8.53%
Surface Water	< 500	0.0000143	0.00911%	0.000% - 0.139%	0.000% - 0.139%	0.0259%	0.000% - 0.139%	0.000% - 0.139%	0.316%	0.000% - 1.06%	0.000% - 0.947%
	501 - 3,300	0.00000711	0.00165%	0.000% - 0.000%	0.000% - 0.000%	0.00755%	0.000% - 0.115%	0.000% - 0.0856%	0.161%	0.000% - 0.594%	0.000% - 0.473%
	3,301 - 10,000	0.0000100	0.00155%	0.000% - 0.000%	0.000% - 0.000%	0.00332%	0.000% - 0.000%	0.000% - 0.000%	0.360%	0.000% - 0.974%	0.000% - 0.902%
	10,001 - 50,000	0.0000628	0.402%	0.000% - 0.545%	0.000% - 0.545%	1.26%	1.17% - 1.79%	1.17% - 1.66%	3.20%	2.24% - 4.19%	2.58% - 4.02%
	> 50,000	0.000549	15.9%	15.6% - 16.4%	15.7% - 16.0%	16.6%	16.4% - 17.2%	16.4% - 17.0%	19.0%	17.5% - 21.9%	17.7% - 21.4%
	Total	0.0000777	13.3%	13.0% - 13.7%	13.1% - 13.4%	13.9%	13.8% - 14.5%	13.8% - 14.3%	16.2%	15.0% - 18.6%	15.1% - 18.2%
All Systems - Combined Ground & Surface Water		0.0000711	8.19%	7.98% - 8.41%	8.02% - 8.36%	9.17%	8.95% - 9.53%	8.97% - 9.43%	12.5%	11.7% - 13.8%	11.8% - 13.6%

All estimates presented as percentages are expressed to three significant figures.

Table C.30.f. Trichloroethylene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.005 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	6,800	4,400	9,900	4,700	9,300
	501 - 3,300	17,600	4,900	33,200	7,200	30,800
	3,301 - 10,000	83,500	60,900	119,300	62,900	114,000
	10,001 - 50,000	560,700	458,800	651,400	490,800	643,800
	> 50,000	734,000	518,300	943,400	518,300	910,900
	GW Total	1,664,800	1,335,800	1,994,700	1,368,300	1,951,000
Surface Water	≤ 500	0	0	400	0	400
	501 - 3,300	0	0	0	0	0
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	87,900	0	119,000	0	119,000
	> 50,000	15,298,700	15,009,900	15,809,000	15,115,800	15,375,700
	SW Total	16,883,500	16,577,900	17,469,200	16,679,800	16,998,100
Total Ground & Surface Water		17,451,800	17,000,200	17,914,000	17,074,700	17,809,600

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.30.g. Trichloroethylene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0025 mg/L)

Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	13,200	9,200	17,600	9,600	16,700
	501 - 3,300	56,400	35,800	75,000	40,700	72,700
	3,301 - 10,000	170,600	128,500	213,600	136,200	207,500
	10,001 - 50,000	944,200	770,400	1,139,500	797,500	1,106,500
	> 50,000	1,220,000	1,047,000	1,538,800	1,047,000	1,455,300
	GW Total	2,825,800	2,495,100	3,269,600	2,534,500	3,167,700
Surface Water	≤ 500	<100	0	400	0	400
	501 - 3,300	0	0	3,200	0	2,400
	3,301 - 10,000	0	0	0	0	0
	10,001 - 50,000	274,200	256,300	390,100	256,300	363,600
	> 50,000	15,963,000	15,780,100	16,531,100	15,780,100	16,396,300
	SW Total	17,749,300	17,532,900	18,398,700	17,532,900	18,220,400
Total Ground & Surface Water		19,541,400	19,053,600	20,289,000	19,115,400	20,095,200

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

Population estimates are rounded to the nearest hundred.

Table C.30.h. Trichloroethylene - Population Served - National Best Estimate Including Estimate Range Based on Credible Bounds (Threshold = 0.0005 mg/L)

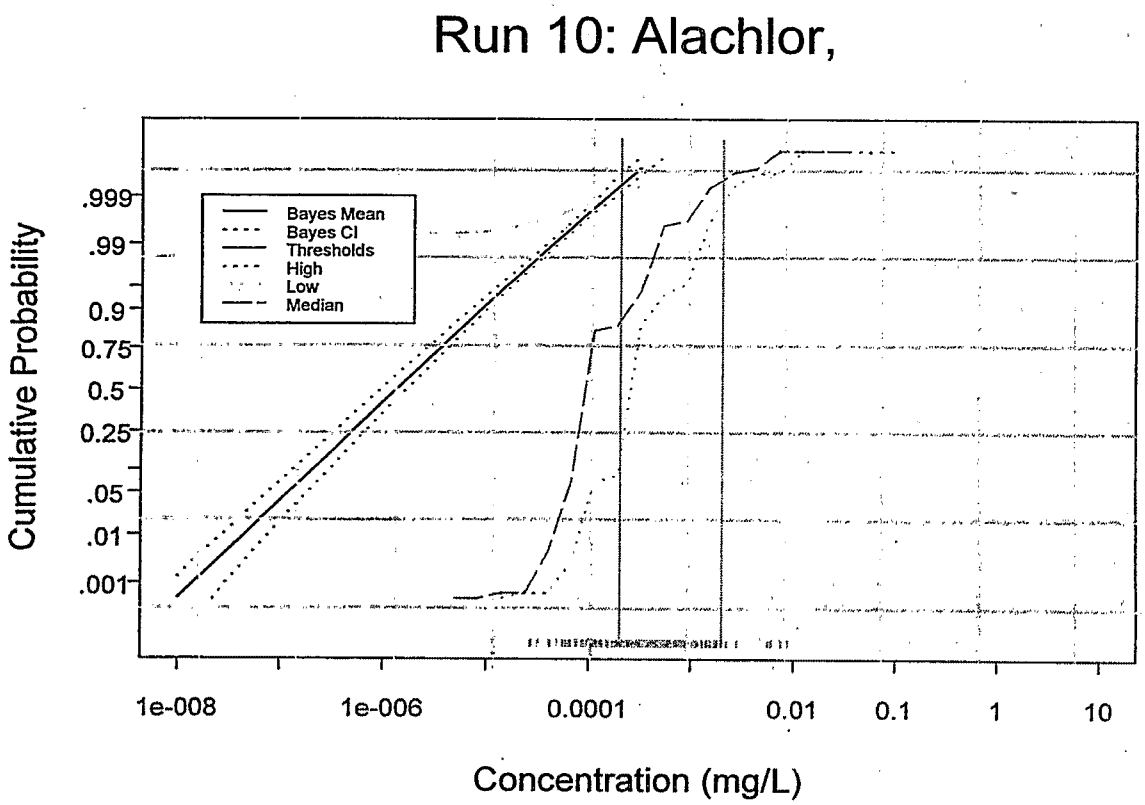
Source Water Type	Population Served	National Estimate of Population Served by Systems Exceeding the Specified Threshold				
		using best estimate	using lower 95% CB	using upper 95% CB	using lower 90% CB	using upper 90% CB
Ground Water	≤ 500	51,800	43,500	61,500	44,600	59,800
	501 - 3,300	171,400	137,200	211,600	140,800	202,800
	3,301 - 10,000	459,400	389,600	530,800	402,000	519,000
	10,001 - 50,000	2,242,600	2,039,700	2,471,100	2,065,100	2,432,700
	> 50,000	2,880,100	2,546,800	3,401,700	2,559,600	3,289,800
	GW Total	6,769,700	6,221,300	7,444,900	6,322,500	7,312,100
Surface Water	≤ 500	900	0	3,100	0	2,800
	501 - 3,300	4,500	0	16,700	0	13,300
	3,301 - 10,000	21,900	0	59,200	0	54,900
	10,001 - 50,000	700,100	488,600	915,800	564,200	877,600
	> 50,000	18,273,700	16,868,000	21,085,000	17,031,700	20,584,400
	SW Total	20,614,200	19,111,700	23,670,000	19,213,600	23,186,200
Total Ground & Surface Water		26,583,400	24,943,300	29,352,500	25,135,000	29,054,300

Estimates are generated separately for each level of aggregation. Therefore, estimates for the individual size stratum will not add to estimated totals at the source water level of aggregation, and estimates for the source water strata ("GW Total" and "SW Total") will not add to the total estimated for all systems ("Total Ground & Surface Water").

An additional rounding convention is applied to population-served estimates. The primary model estimation output is the number of systems. In a specific size category, model output can be a fraction of a system and therefore, the raw model output for the associated population-served estimate can also be a fractional value. For this reason, fractional population-served estimates are rounded up to the value of the lower bound of the population-served size category if the population estimate is greater than one-half the value of the lower bound (e.g. 1,651 is rounded up to 3,300 for the 3,301 to 10,000 size category).

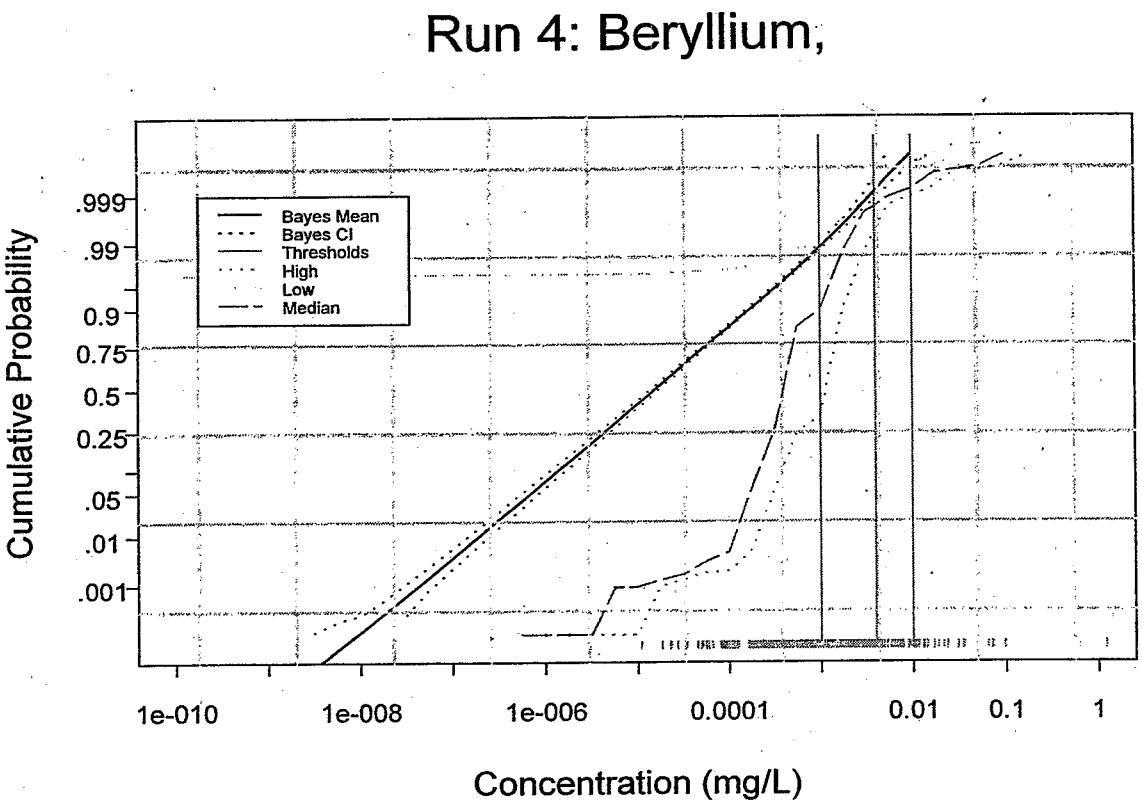
Population estimates are rounded to the nearest hundred.

Figure D.1. Alachlor -- Bounding Analysis of the Distribution of Model Estimated System Means



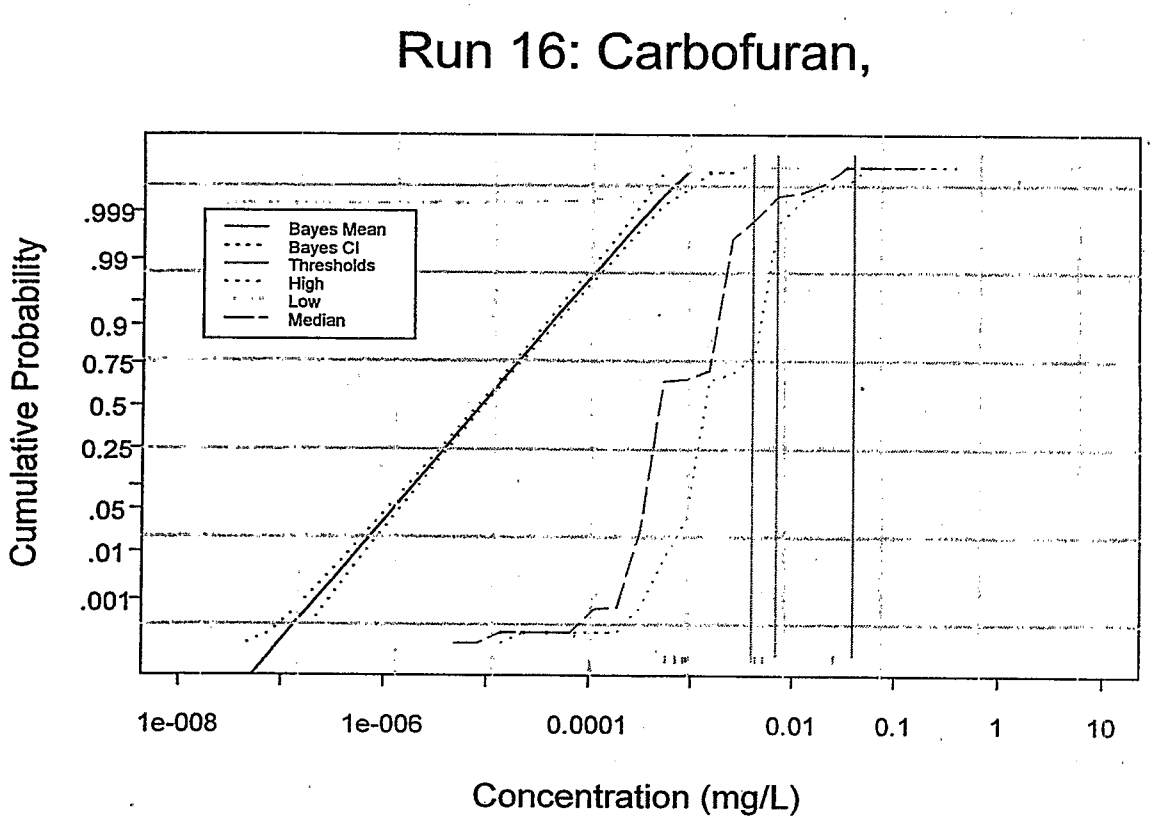
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for alachlor (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.0001 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.0002 mg/L). The two vertical lines represent the contaminant concentration thresholds of interest for alachlor: 0.002 mg/L, and 0.0002 mg/L.

Figure D.2. Beryllium -- Bounding Analysis of the Distribution of Model Estimated System Means



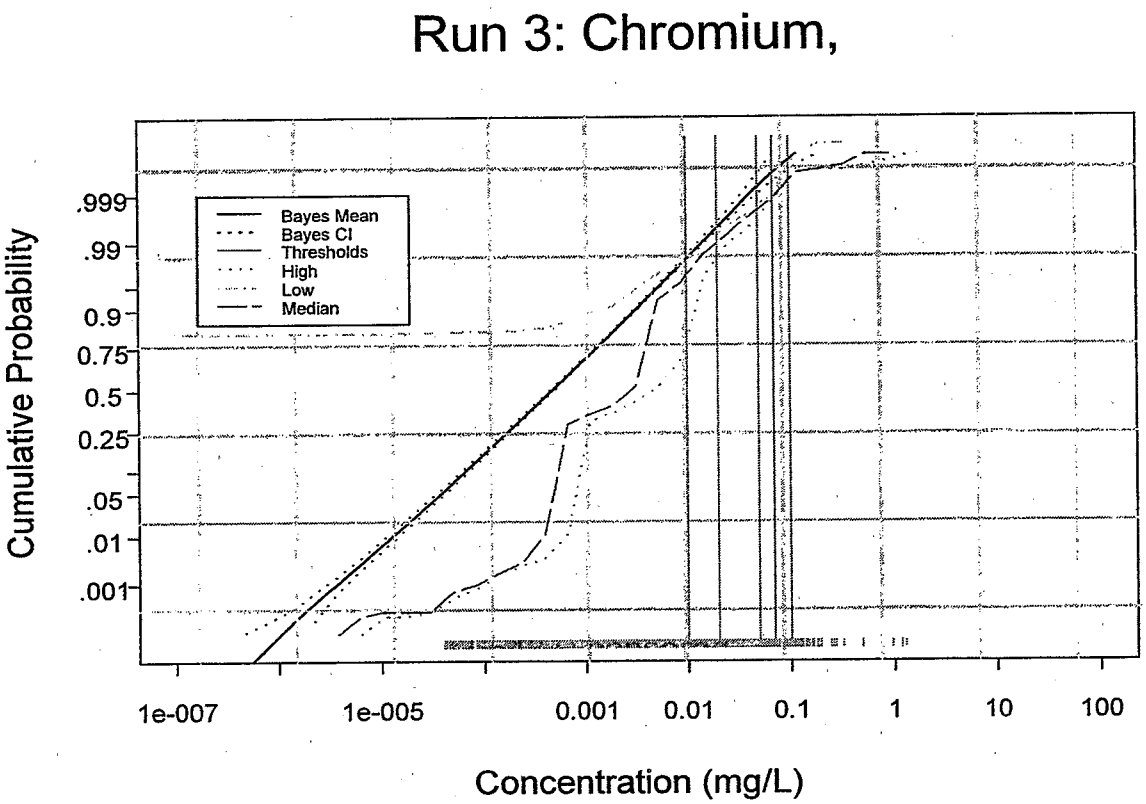
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for beryllium (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.0005 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.001 mg/L). The three vertical lines represent the contaminant concentration thresholds of interest for beryllium: 0.01 mg/L, 0.004 mg/L, and 0.001 mg/L.

Figure D.3. Carbofuran -- Bounding Analysis of the Distribution of Model Estimated System Means



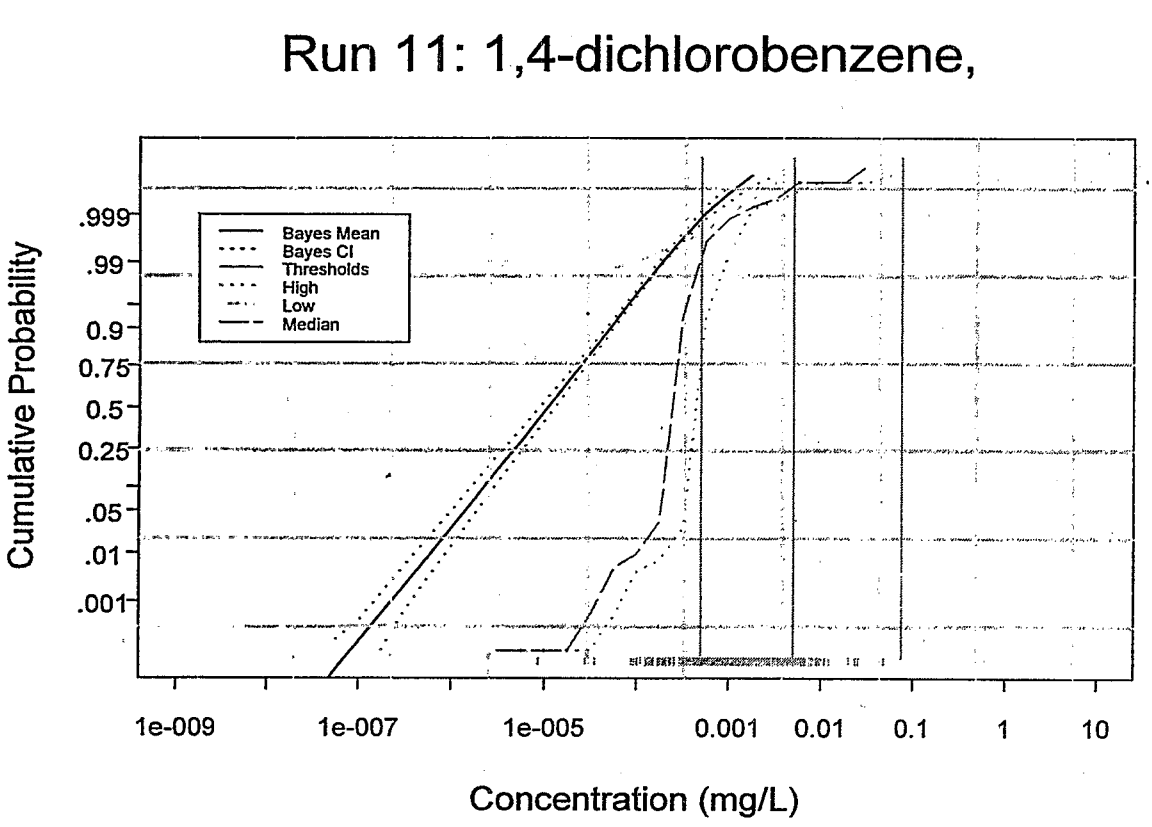
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for carbofuran (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.00045 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.0009 mg/L). The three vertical lines represent the contaminant concentration thresholds of interest for carbofuran: 0.04 mg/L, 0.007 mg/L, and 0.004 mg/L.

Figure D.4. Chromium -- Bounding Analysis of the Distribution of Model Estimated System Means



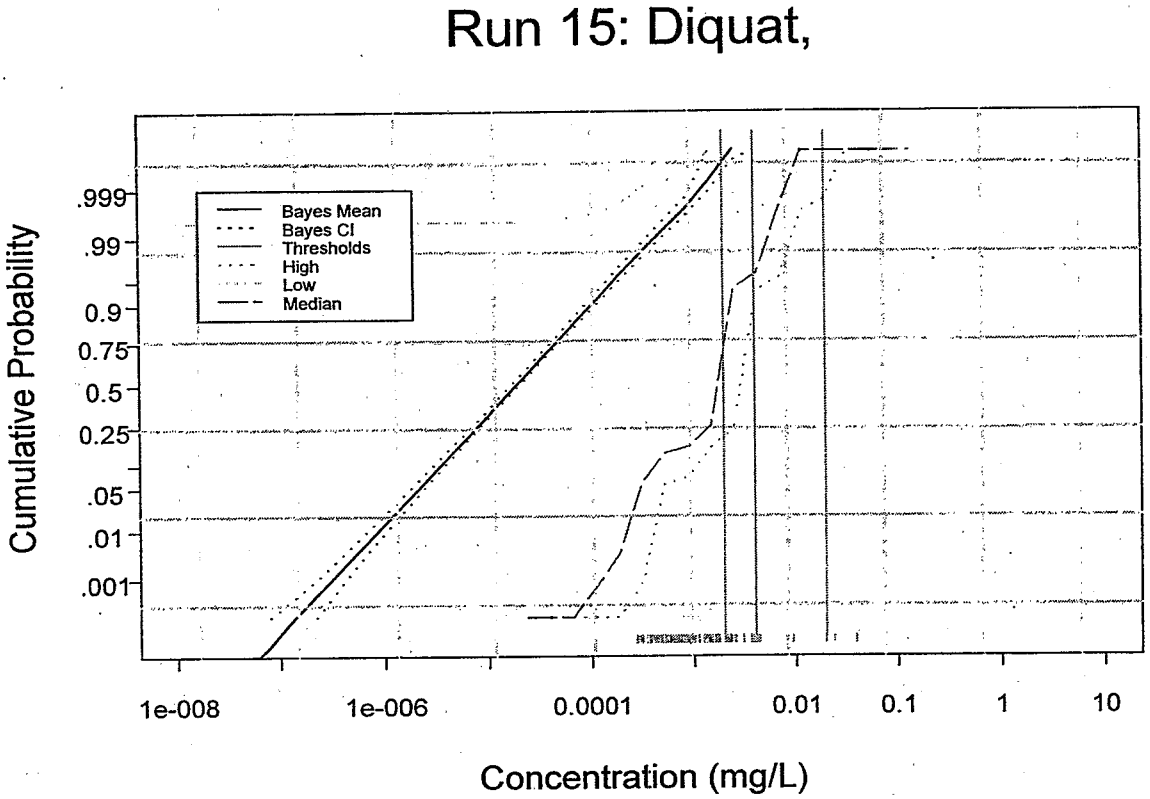
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for chromium (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.005 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.01 mg/L). The five vertical lines represent the contaminant concentration thresholds of interest for chromium: 0.1 mg/L, 0.07 mg/L, 0.05 mg/L, 0.02 mg/L, and 0.01 mg/L.

Figure D.5. 1,4-Dichlorobenzene -- Bounding Analysis of the Distribution of Model Estimated System Means



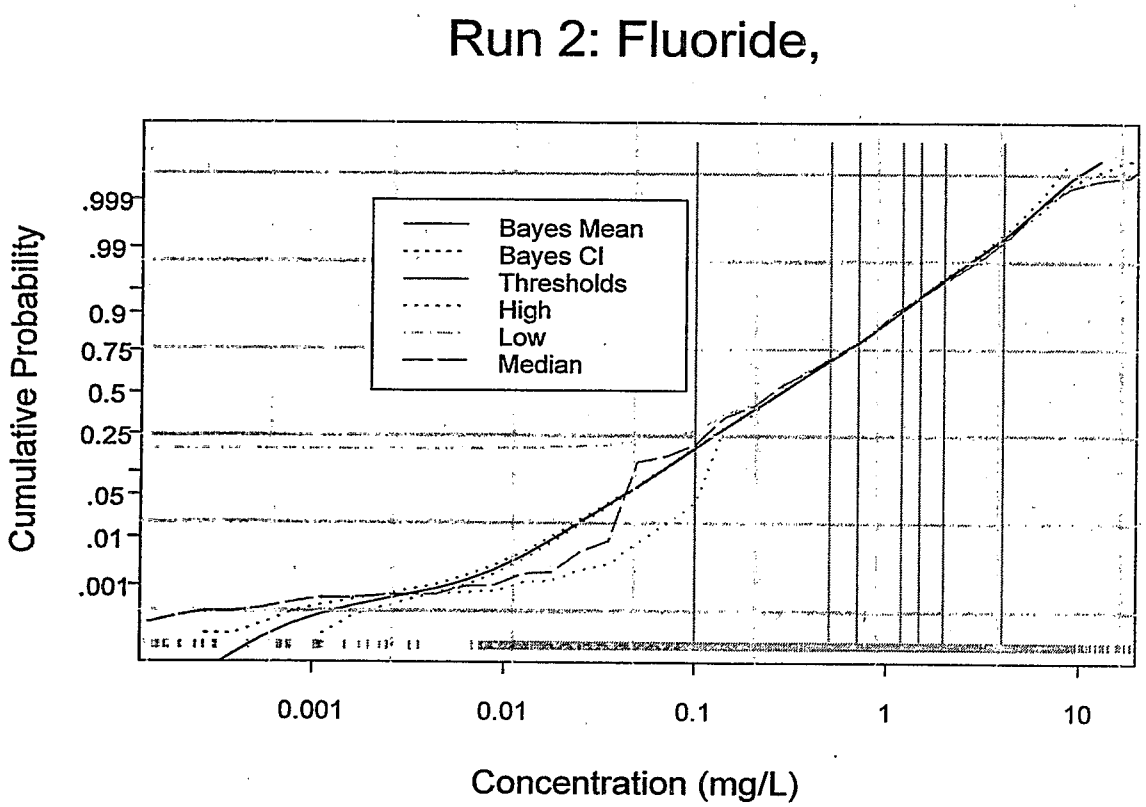
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for 1,4-dichlorobenzene (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.00025 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.0005 mg/L). The three vertical lines represent the contaminant concentration thresholds of interest for 1,4-dichlorobenzene: 0.075 mg/L, 0.005 mg/L, and 0.0005 mg/L.

Figure D.6. Diquat -- Bounding Analysis of the Distribution of Model Estimated System Means



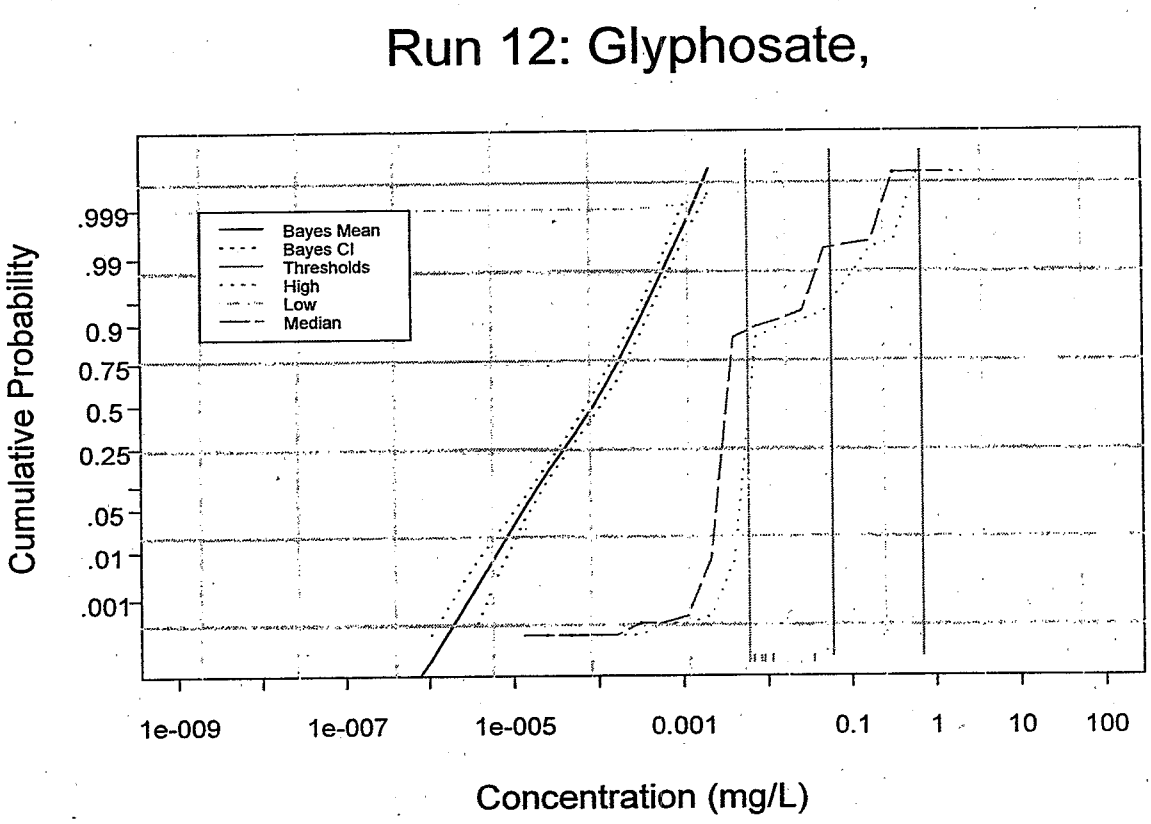
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for diquat (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.0002 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.0004 mg/L). The three vertical lines represent the contaminant concentration thresholds of interest for diquat: 0.02 mg/L, 0.004 mg/L, and 0.002 mg/L.

Figure D.7. Fluoride -- Bounding Analysis of the Distribution of Model Estimated System Means



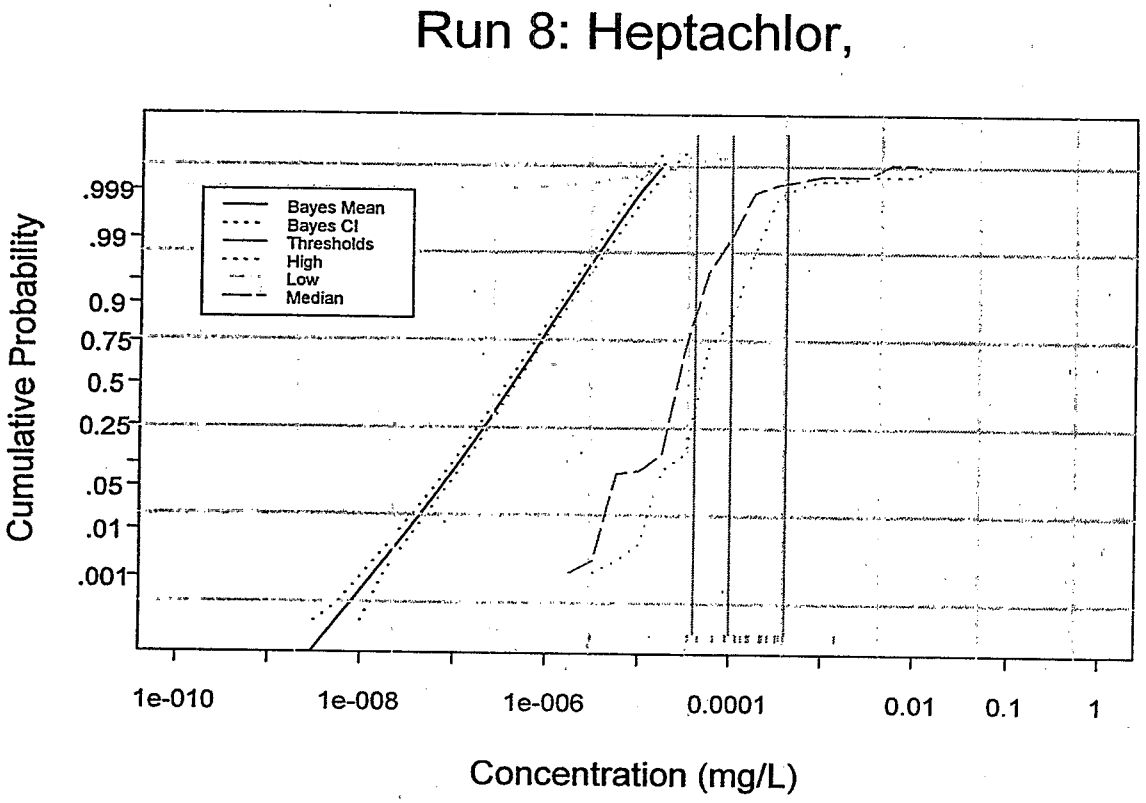
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for fluoride (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.05 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.1 mg/L). The seven vertical lines represent the contaminant concentration thresholds of interest for fluoride: 4 mg/L, 2 mg/L, 1.5 mg/L, 1.2 mg/L, 0.7 mg/L, 0.5 mg/L, and 0.1 mg/L. Note: Fluoride occurrence was also assessed relative to 3 mg/L. However, this threshold is not presented in the above figure.

Figure D.8. Glyphosate -- Bounding Analysis of the Distribution of Model Estimated System Means



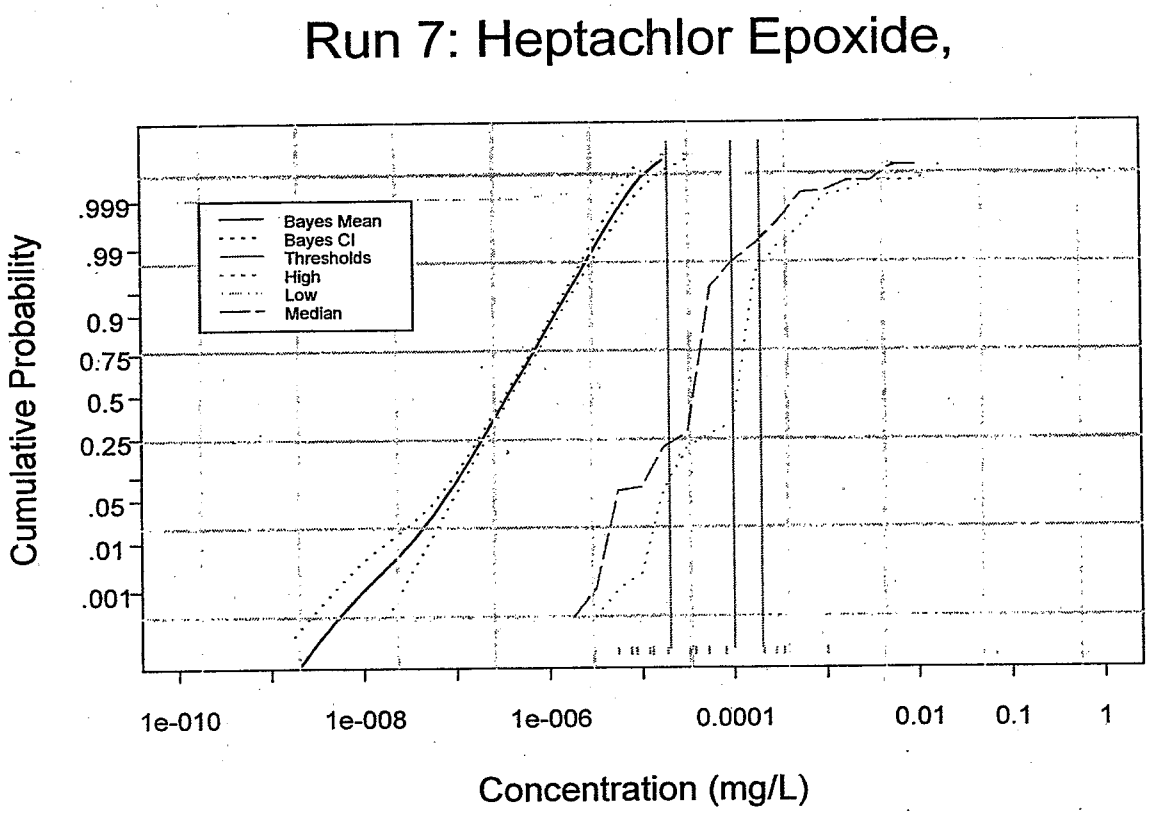
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for glyphosate (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.003 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.006 mg/L). The three vertical lines represent the contaminant concentration thresholds of interest for glyphosate: 0.7 mg/L, 0.06 mg/L, and 0.006 mg/L.

Figure D.9. Heptachlor -- Bounding Analysis of the Distribution of Model Estimated System Means



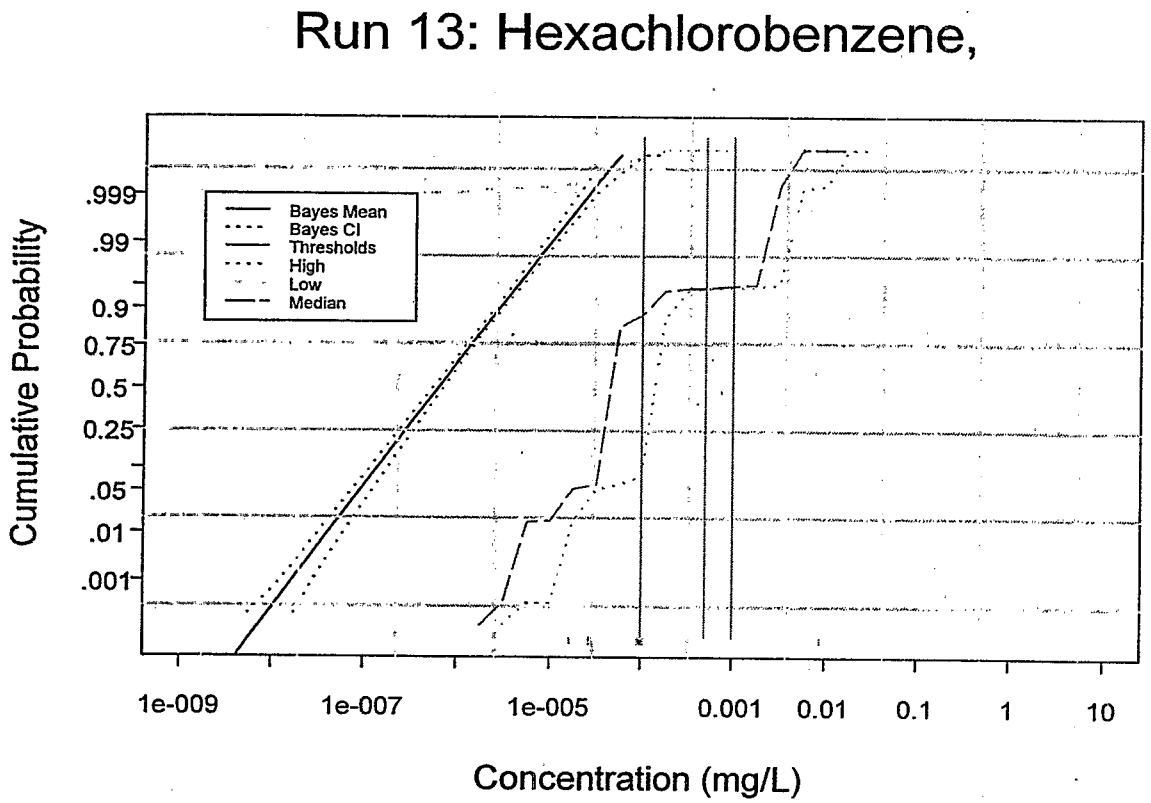
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for heptachlor (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.00002 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.00004 mg/L). The three vertical lines represent the contaminant concentration thresholds of interest for heptachlor: 0.0004 mg/L, 0.0001 mg/L, and 0.00004 mg/L.

Figure D.10. Heptachlor Epoxide -- Bounding Analysis of the Distribution of Model Estimated System Means



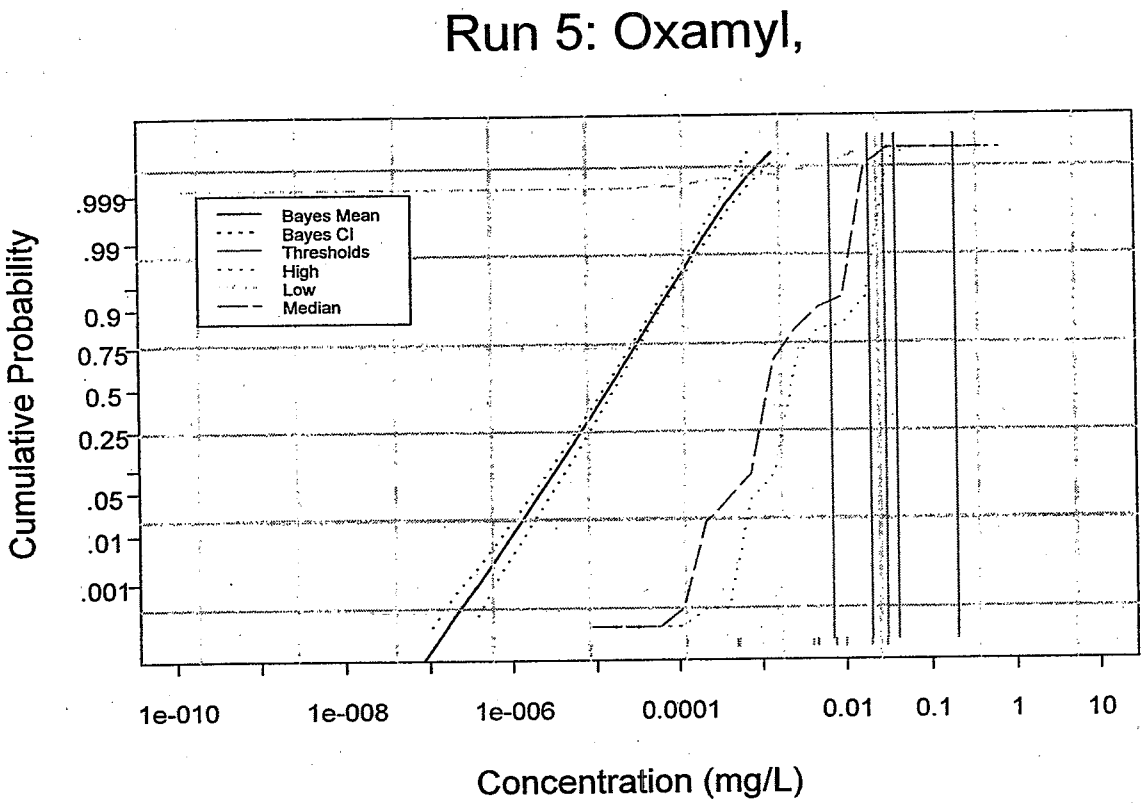
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for heptachlor epoxide (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.00001 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.00002 mg/L). The three vertical lines represent the contaminant concentration thresholds of interest for heptachlor epoxide: 0.0002 mg/L, 0.0001 mg/L, and 0.00002 mg/L.

Figure D.11. Hexachlorobenzene -- Bounding Analysis of the Distribution of Model Estimated System Means



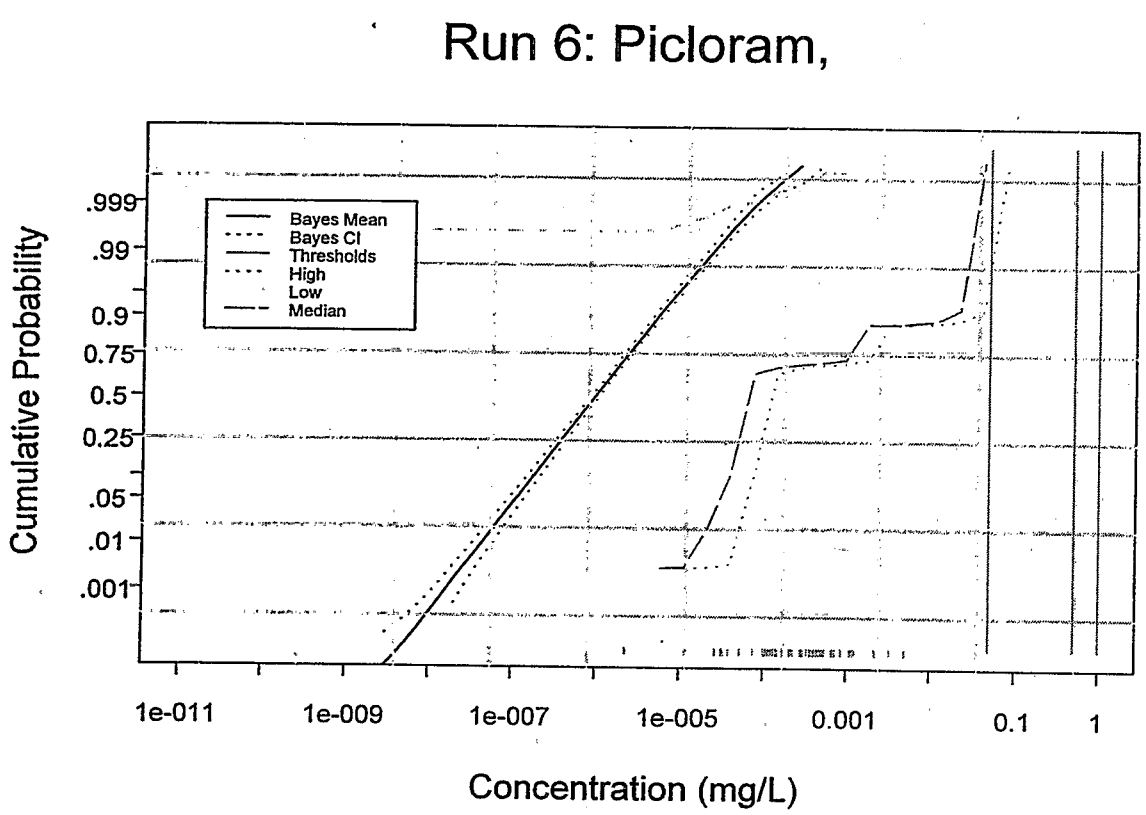
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for hexachlorobenzene (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.00005 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.0001 mg/L). The three vertical lines represent the contaminant concentration thresholds of interest for hexachlorobenzene: 0.001 mg/L, 0.0005 mg/L, and 0.0001 mg/L.

Figure D.12. Oxamyl -- Bounding Analysis of the Distribution of Model Estimated System Means



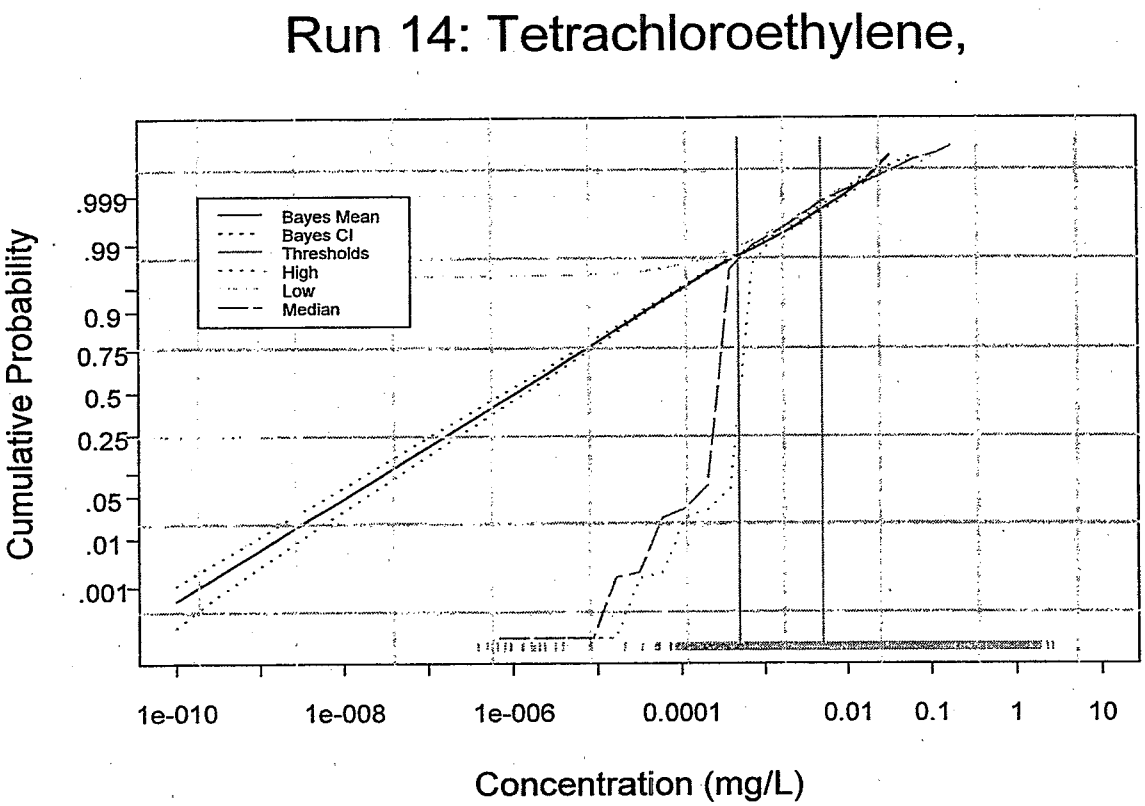
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for oxamyl (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.001 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.002 mg/L). The five vertical lines represent the contaminant concentration thresholds of interest for oxamyl: 0.2 mg/L, 0.04 mg/L, 0.03 mg/L, 0.02 mg/L, and 0.007 mg/L.

Figure D.13. Picloram -- Bounding Analysis of the Distribution of Model Estimated System Means



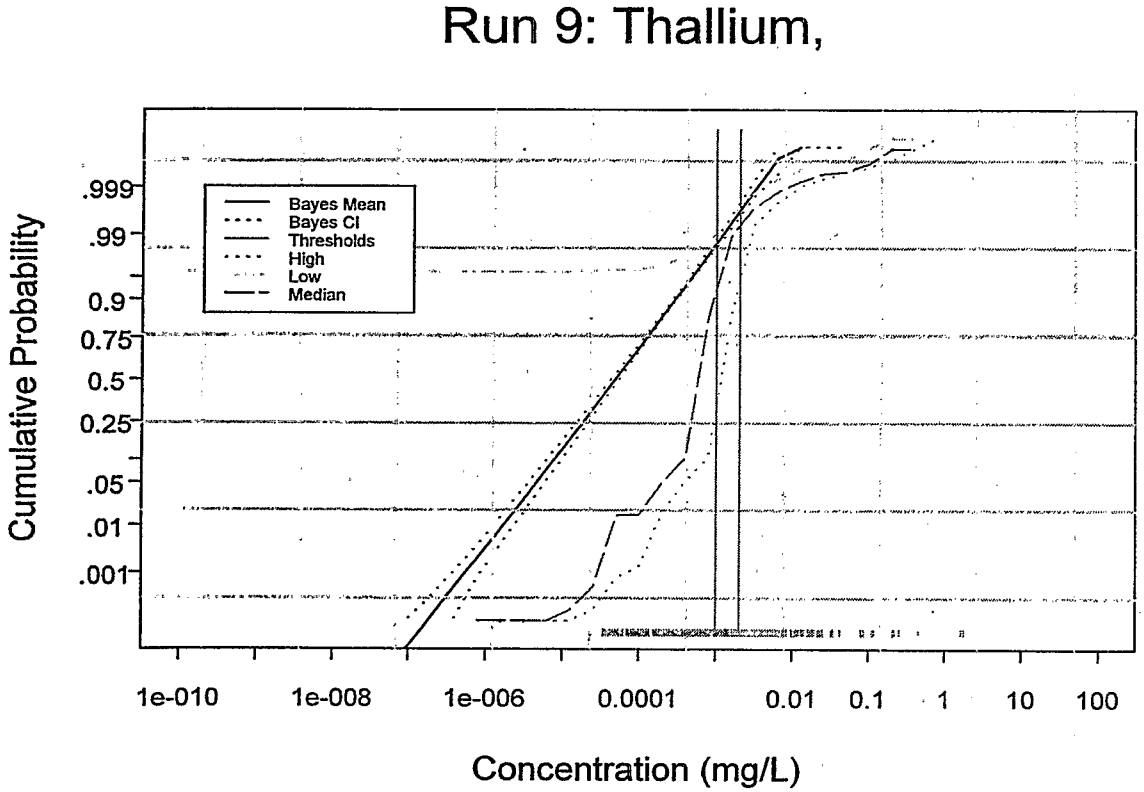
This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for picloram (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.00005 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.0001 mg/L). The three vertical lines represent the contaminant concentration thresholds of interest for picloram: 1 mg/L, 0.5 mg/L, and 0.05 mg/L.

Figure D.14. Tetrachloroethylene -- Bounding Analysis of the Distribution of Model Estimated System Means



This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for tetrachloroethylene (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.00025 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.0005 mg/L). The two vertical lines represent the contaminant concentration thresholds of interest for tetrachloroethylene: 0.005 mg/L, and 0.0005 mg/L.

Figure D.15. Thallium -- Bounding Analysis of the Distribution of Model Estimated System Means



This diagram presents a plot of the cumulative density function (CDF) of the modeled, best estimate system means for thallium (and its 90% Credible Interval) compared to three calculated "bounding" CDFs. The model-predicted CDF of system means, based on compliance monitoring analytical data from the 16-state cross-section, is represented by the solid line labeled "Bayes Mean." The two dotted lines most closely straddling and nearly parallel to the "Bayes Mean" represent the 90% Credible Interval around the model prediction (labeled "Bayes CI"). The lower bound (labeled "low") represents a CDF of calculated system means where all non-detection data were set equal to zero. The middle bound (labeled "median") represents the distribution of data where all non-detection data were set equal to one-half of the modal MRL (0.0005 mg/L). The upper bound (labeled "high") represents the distribution of data where system means were calculated with all non-detection data were set equal to the modal MRL (0.001 mg/L). The two vertical lines represent the contaminant concentration thresholds of interest for thallium: 0.002 mg/L, and 0.001 mg/L.