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NATIONAL WATER-QUALITY ASSESSMENT PROGRAM
SOURCE WATER-QUALITY ASSESSMENT

Study Design and Percent Recoveries of Anthropogenic Organic Compounds With and Without the Addition of Ascorbic Acid to Preserve Water Samples Containing Free Chlorine, 2004–06

Open-File Report 2008–1226

U.S. Department of the Interior
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FOREWORD

The U.S. Geological Survey (USGS) is committed to providing the Nation with credible scientific information that helps to enhance and protect the overall quality of life and that facilitates effective management of water, biological, energy, and mineral resources (*http://www.usgs.gov/*). Information on the Nation's water resources is critical to ensuring long-term availability of water that is safe for drinking and recreation and is suitable for industry, irrigation, and fish and wildlife. Population growth and increasing demands for water make the availability of that water, now measured in terms of quantity and quality, even more essential to the long-term sustainability of our communities and ecosystems.

The USGS implemented the National Water-Quality Assessment (NAWQA) Program in 1991 to support national, regional, State, and local information needs and decisions related to water-quality management and policy (*http://water.usgs.gov/nawqa*). The NAWQA Program is designed to answer: What is the condition of our Nation's streams and ground water? How are conditions changing over time? How do natural features and human activities affect the quality of streams and ground water, and where are those effects most pronounced? By combining information on water chemistry, physical characteristics, stream habitat, and aquatic life, the NAWQA Program aims to provide science-based insights for current and emerging water issues and priorities. From 1991-2001, the NAWQA Program completed interdisciplinary assessments and established a baseline understanding of water-quality conditions in 51 of the Nation's river basins and aquifers, referred to as Study Units (*http://water.usgs.gov/nawqa/studyu.html*).

Multiple national and regional assessments are ongoing in the second decade (2001–2012) of the NAWQA Program as 42 of the 51 Study Units are reassessed. These assessments extend the findings in the Study Units by determining status and trends at sites that have been consistently monitored for more than a decade, and filling critical gaps in characterizing the quality of surface water and ground water. For example, increased emphasis has been placed on assessing the quality of source water and finished water associated with many of the Nation's largest community water systems. During the second decade, NAWQA is addressing five national priority topics that build an understanding of how natural features and human activities affect water quality, and establish links between sources of contaminants, the transport of those contaminants through the hydrologic system, and the potential effects of contaminants on humans and aquatic ecosystems. Included are topics on the fate of agricultural chemicals, effects of urbanization on stream ecosystems, bioaccumulation of mercury in stream ecosystems, effects of nutrient enrichment on aquatic ecosystems, and transport of contaminants to public-supply wells. These topical studies are conducted in those Study Units most affected by these issues; they comprise a set of multi-Study-Unit designs for systematic national assessment. In addition, national syntheses of information on pesticides, volatile organic compounds (VOCs), nutrients, selected trace elements, and aquatic ecology are continuing.

The USGS aims to disseminate credible, timely, and relevant science information to address practical and effective water-resource management and strategies that protect and restore water quality. We hope this NAWQA publication will provide you with insights and information to meet your needs, and will foster increased citizen awareness and involvement in the protection and restoration of our Nation's waters.

The USGS recognizes that a national assessment by a single program cannot address all water-resource issues of interest. External coordination at all levels is critical for cost-effective management, regulation, and conservation of our Nation's water resources. The NAWQA Program, therefore, depends on advice and information from other agencies—Federal, State, regional, interstate, Tribal, and local—as well as nongovernmental organizations, industry, academia, and other stakeholder groups. Your assistance and suggestions are greatly appreciated.

Robert M. Hirsch
Associate Director for Water

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Conversion Factors

Multiply	By	To obtain
liter (L)	33.82	ounce, fluid (fl. oz)
liter (L)	2.113	pint (pt)
liter (L)	1.057	quart (qt)
liter (L)	0.2642	gallon (gal)
liter (L)	61.02	cubic inch (in^3)

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83).

Concentrations of chemical constituents in water are given in micrograms per liter (µg/L).

Acronyms

AOC	anthropogenic organic compound
CASR	Chemical Abstracts Service Registry
GC/MS	gas chromatography-mass spectrometry
HBSL	Health-Based Screening Level
HPLC/MS	high performance liquid chromatography-mass spectrometry
LRS	laboratory reagent spikes
MCL	Maximum Contaminant Level
NAWQA	National Water-Quality Assessment
NWQL	National Water Quality Laboratory
SPE	solid phase extraction
SWQA	Source Water-Quality Assessment
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
VOC	volatile organic compound

Definitions

Analyte	The substance being qualified and quantified in the analysis.
Field-matrix spike	A sample spiked (fortified) in the field with a known concentration of selected compounds. Used to assess the degradation of compounds in a sample.
Finished water	The water that is treated and ready to be delivered to consumers. Finished water is collected before the water enters the distribution system.
Laboratory reagent spike (LRS)	A sample or reagent water that is spiked (fortified) with a known concentration of selected compounds in the laboratory and is analyzed with each set of ground-water, surface-water, or quality-control samples. A single laboratory reagent spike (often referred to as a set spike) is not intended to measure bias in the analytical method for that specific set of samples. Bias in the analytical method is indicated if the measured concentrations do not equal the theoretical concentration. Multiple laboratory reagent spikes can be pooled through time and across multiple instruments and analysts to provide information on bias in the analytical method. Laboratory reagent spikes also measure possible bias from other sources including the spike solution, spiking equipment and technique, and contamination. Comparison of recoveries from laboratory matrix spikes with those from paired laboratory reagent spikes can be used to assess matrix effects.
Nonquenched finished-water spiked sample	A finished-water sample of ground water or surface water that is spiked (fortified) in the field or laboratory (depending on the analytical schedule) with a known concentration of selected compounds and to which a dechlorination reagent has not been added.
Nonquenched reagent spiked sample	A sample of reagent water that is spiked (fortified) with a known concentration of selected compounds in the laboratory and to which a dechlorination reagent has not been added.
Percent recovery	The result of a measured concentration in a water sample that, when compared to the theoretical concentration, is expressed as a percentage of its theoretical concentration.
Quenched finished-water spiked sample	A finished-water sample of ground water or surface water that is spiked (fortified) in the field or laboratory (depending on the analytical schedule) with a known concentration of selected compounds and to which a dechlorination reagent, in this report ascorbic acid, has been added.
Quenched reagent spiked sample	A sample of reagent water that is spiked (fortified) in the laboratory with a known concentration of selected compounds and to which a dechlorination reagent, in this report ascorbic acid, has been added.
Reagent water	Deionized water that is continuously purged at the National Water Quality Laboratory with ultrapure nitrogen and assumed to be void of the analytes of interest. Used, in part, for laboratory reagent spikes and laboratory set blanks.
Source water	The raw (ambient) water collected at the supply well prior to water treatment (for ground water) or the raw (ambient) water collected from the river near the intake (for surface water).
Theoretical concentration	A calculated concentration based on the known mass of chemical constituents that are added to a known volume of water.

Study Design and Percent Recoveries of Anthropogenic Organic Compounds With and Without the Addition of Ascorbic Acid to Preserve Water Samples Containing Free Chlorine, 2004–06

By Joshua F. Valder, Gregory C. Delzer, Curtis V. Price, and Mark W. Sandstrom

Abstract

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey (USGS) began implementing Source Water-Quality Assessments (SWQAs) in 2002 that focus on characterizing the quality of source water and finished water of aquifers and major rivers used by some of the larger community water systems in the United States. As used for SWQA studies, source water is the raw (ambient) water collected at the supply well prior to water treatment (for ground water) or the raw (ambient) water collected from the river near the intake (for surface water). Finished water is the water that is treated, which typically involves, in part, the addition of chlorine or other disinfection chemicals to remove pathogens, and is ready to be delivered to consumers. Finished water is collected before the water enters the distribution system.

This report describes the study design and percent recoveries of anthropogenic organic compounds (AOCs) with and without the addition of ascorbic acid to preserve water samples containing free chlorine. The percent recoveries were determined by using analytical results from a laboratory study conducted in 2004 by the USGS's National Water Quality Laboratory (NWQL) and from data collected during 2004–06 for a field study currently (2008) being conducted by the USGS's NAWQA Program.

The laboratory study was designed to determine if preserving samples with ascorbic acid (quenching samples) adversely affects analytical performance under controlled conditions. During the laboratory study, eight samples of reagent water were spiked for each of five analytical schedules evaluated. Percent recoveries from these samples were then compared in two ways: (1) four quenched reagent spiked samples analyzed on day 0 were compared with four quenched reagent spiked samples analyzed on day 7 or 14, and (2) the combined eight quenched reagent spiked samples analyzed on day 0, 7, or 14 were compared with eight laboratory reagent spikes (LRSs). Percent recoveries from the quenched reagent spiked samples that were analyzed at two different times (day 0 and day 7 or 14) can be used to determine the stability of the quenched samples held for an amount of time representative of the normal amount of time between sample collection and analysis. The comparison between the quenched reagent spiked samples and the LRSs can be used to determine if quenching samples adversely affects the analytical performance under controlled conditions.

The field study began in 2004 and is continuing today (February 2008) to characterize the effect of quenching on field-matrix spike recoveries and to better understand the potential oxidation and transformation of 277 AOCs. Three types of samples were collected from 11 NAWQA Study Units across the Nation: (1) quenched finished-water samples (not spiked), (2) quenched finished-water spiked samples, and (3) nonquenched finished-water spiked samples. Percent recoveries of AOCs in quenched and nonquenched finished-water spiked samples collected during 2004–06 are presented. Comparisons of percent recoveries between quenched and nonquenched spiked samples can be used to show how quenching affects finished-water samples. A maximum of 6 surface-water and 7 ground-water quenched finished-water spiked samples paired with nonquenched finished-water spiked samples were analyzed. Analytical results for the field study are presented in two ways: (1) by surface-water supplies or ground-water supplies, and (2) by use (or source) group category for surface-water and ground-water supplies. Graphical representations of percent recoveries for the quenched and nonquenched finished-water spiked samples also are presented.

Introduction

The chlorination of drinking water serves to destroy or deactivate disease-producing microorganisms. Robert Koch, in 1881, was the first to illustrate through laboratory techniques that the addition of chlorine to waters will arrest microbiological activity (Crittenden and others, 2005). In 1902, the first drinking-water supply was chlorinated, and by 1941, about

85 percent of the water supplies in the United States were treated by chlorine disinfection.

Many organic compounds, such as the organophosphate pesticides, are unstable and degrade in the presence of free chlorine (Winslow and others, 2001). For example, fipronil, a pesticide commonly used as an insecticide (Budavari, 1996), has been shown to degrade or transform in waters containing free chlorine. Organophosphate insecticides, such as diazinon, also have been shown to degrade in the presence of free chlorine (Aizawa and others, 1994).

Most U.S. Environmental Protection Agency (USEPA) methods for determination of organic compounds in drinking water include the optional use of a dechlorination reagent to convert free chlorine to chloride, which prevents degradation of organic compounds (U.S. Environmental Protection Agency, 2006). Most analytical methods used by the U.S. Geological Survey (USGS) National Water Quality Laboratory (NWQL) do not use dechlorination reagents because most water samples collected for USGS studies are untreated source water and do not contain free chlorine. However, samples collected as part of the USGS National Water-Quality Assessment (NAWQA) Program's Source Water-Quality Assessment (SWQA) component, which monitors source (untreated) water and finished (treated) water of selected community water systems, include finished-water samples containing free chlorine. In addition, other studies conducted by the USGS also may include samples of wastewater effluent or samples downstream from wastewater effluent discharges, both of which likely contain free chlorine.

Previous NWQL experience with dechlorination reagents has demonstrated that some reagents, such as sodium bisulfite, have adverse effects on the recovery of some compounds analyzed. For this reason, sodium bisulfate was not considered an acceptable dechlorination reagent for USGS studies. However, the USEPA has published results of a dechlorination procedure for Method 526 that uses ascorbic acid and a pH 7 buffer of tris-(hydroxymethyl) aminomethane or tris hydrochloride in an effort to preserve chemicals that are known to degrade or potentially could degrade in the presence of free chlorine (Winslow and others, 2001).

Because free chlorine is known to cause degradation of some compounds monitored by SWQAs, a need existed to dechlorinate (preserve) finished-water samples in order to accurately represent analyte concentrations at the location and time that the sample was collected (finished water prior to distribution). However, the analytical methods used by SWQAs originally were not tested to evaluate the effects of the addition of dechlorination reagents on analytical performance. Similarly, specific information on the effect, if any, of free chlorine on each of the 277 anthropogenic organic compounds (AOCs) monitored by SWQAs (table 4 in Appendix 1) did not exist. As such, the NWQL and the NAWQA Program conducted a laboratory and field study to gain additional insight on the effect of dechlorination reagents on analytical performance and the oxidation/transformation of the compounds monitored by SWQAs, if any.

The laboratory study was conducted in 2004 by the NWQL and was intended to determine if quenching samples adversely affected analytical performance under controlled conditions. The field study, which also began in 2004 and currently (February 2008) is being conducted by the NAWQA Program, was designed to characterize the effect of quenching on field-matrix spike recoveries and to better understand the potential oxidation and transformation of 277 AOCs analyzed.

Purpose and Scope

The purposes of this report are to (1) describe the study design for the laboratory and field studies used to evaluate the analytical effects of adding a dechlorination reagent (hereafter referred to as quenching) to water samples containing free chlorine, and (2) present the percent recoveries of AOCs in water samples with and without the addition of ascorbic acid during 2004–06.

The laboratory study consisted of eight quenched reagent spiked samples: four analyzed upon preparation (day 0), and four analyzed at a later date (day 7 or 14). The held samples typically were analyzed 7 or 14 days after processing, which is considered to be representative of the normal amount of time between sample collection and analysis, depending upon the specific analytical schedule. Laboratory reagent spikes (LRSs), which were not quenched, are routinely analyzed by the NWQL and were obtained during the timeframe of the laboratory study to compare to quenched reagent spiked samples.

The field study consisted of quenched finished-water spiked samples paired with nonquenched finished-water spiked samples. The maximum number of quenched finished-water spiked samples paired with nonquenched finished-water spiked samples was 6 and 7 for finished water derived from surface-water and ground-water supplies, respectively. These paired data can be used to characterize the effect of quenching on field-matrix spike recoveries for finished water and also to gain additional insight on oxidation and transformation of each of the compounds analyzed.

Acknowledgments

Many people have assisted with the development, design, and testing associated with this study. In particular, the authors gratefully appreciate the help of NWQL and NAWQA Program personnel for the analyses and collection and processing of samples. In addition, Janet Carter and Donna Rose (USGS) are acknowledged for their review of this document.

Study Design

Percent recoveries of AOCs analyzed using various analytical schedules were evaluated during the laboratory and field studies. These analytical schedules include two volatile organic compound (VOC) schedules (2020 and 4024), three pesticide schedules (2060 and either 2003 or 2033), and one schedule (1433) for other AOCs. Table 4 in Appendix 1 includes a detailed list of the compounds analyzed during the study. As shown in table 4, some AOCs were analyzed using more than one schedule. During the field study, NWQL schedule 2003 was replaced by analytical schedule 2033, which contains the same compounds as on schedule 2003 plus 20 additional pesticides. Specific information for each schedule is described by Zaugg and others (1995), Lindley and others (1996), Sandstrom and others (2001), and Madsen and others (2003) for schedules 2003 and 2033; Connor and others (1998) for schedule 2020; Furlong and others (2001) for schedule 2060; Zaugg and others (2002) for schedule 1433; and Rose and Sandstrom (2003) for schedule 4024. These methods include both gas chromatography-mass spectrometry (GC/MS) and high performance liquid chromatography-mass spectrometry (HPLC/MS) analytical techniques.

Samples collected for VOC analysis using schedules 2020 and 4024 were chilled upon collection. Samples collected for schedule 2020 analysis also were preserved using a 1:1 hydrochloric acid. VOC sample sets were analyzed by purge and trap GC/MS (Connor and others, 1998; Rose and Sandstrom, 2003). Samples for analysis of pesticides and other semivolatile compounds as part of schedules 2003/2033, 2060, and 1433 were filtered in the field through a 0.7-micron baked-glass fiber filter and chilled. These samples were extracted at the NWQL on solid phase extraction (SPE) cartridges to concentrate the analytes from the filtered samples. SPE cartridges were then eluted with a solvent, and the extracts were analyzed by either GC/MS or HPLC/MS methods (Zaugg and others, 1995, 2002; Lindley and others, 1996; Furlong and others, 2001; Sandstrom and others, 2001; Madsen and others, 2003).

Because samples were spiked with known concentrations and volumes, data are presented as a percentage of mass recovered (percent recovery) based on spike and field concentration data. Laboratory and field study samples were preserved with a dechlorination reagent, ascorbic acid. The samples for the laboratory study were processed and analyzed by chemists at the NWQL. The samples for the field study were collected by multiple field crews using established USGS protocols (U.S. Geological Survey, 1997–2006) and analyzed at the NWQL.

Laboratory Study Design

The laboratory study was designed to determine if quenching samples adversely affected analytical performance under controlled conditions. Eight samples of reagent water were spiked for each of the five analytical schedules evaluated (table 1). Each of these reagent spiked samples was quenched with ascorbic acid, and in some cases a pH buffer as well. Four samples were analyzed on day 0, and four samples were analyzed at a later date, depending on which analytical schedule was used (table 1). Samples for the VOC schedules 2020 and 4024 were held for 14 days, and samples for the pesticide schedules 2003 and 2060 and samples for the other-AOC schedule, 1433, were held for 7 days, before they were analyzed.

Data from LRSs that were analyzed as part of the NWQL's standard operating procedure for each analytical schedule were obtained to use for comparison to the eight quenched reagent-spike samples. These data represent LRSs analyzed over a time period that encompasses the time period in which the quenched reagent spikes were analyzed (between 0 and 14 days). Eight LRSs were included for comparison,

Table 1. Number of quenched reagent spiked samples with or without an additional pH buffer added and number of laboratory reagent spikes, 2004.

Description	Analytical schedule				
	Volatile organic compounds		Pesticides		Other anthropogenic organic compounds
	2020	4024	2003	2060	1433
pH buffer added to sample	No	Yes	Yes	Yes	Yes
Number of quenched reagent spiked samples	[1]8	[1]8	[2]8	[2]8	[2]8
Number of laboratory reagent spikes (nonquenched)	8	6	8	8	8
Total number of samples	16	14	16	16	16

[1]Four samples analyzed on day 0, and four samples analyzed on day 14.

[2]Four samples analyzed on day 0, and four samples analyzed on day 7.

with the exception of schedule 4024, for which only six LRSs were available for comparison (table 1).

The laboratory study design allows for two types of comparisons. The first comparison between the quenched reagent spiked samples analyzed on day 0 and the quenched reagent spiked samples analyzed on day 7 or 14 could be used to characterize stability of the samples over time (fig. 1*A*). A second comparison between the combined quenched reagent spiked samples (analyzed on day 0, 7, or 14) and the LRSs could be used to characterize the effect of quenching on analytical performance (fig. 1*B*).

Field Study Design

The field study was designed to characterize the effect of quenching on field-matrix spike recoveries and to better understand the potential oxidation and transformation of 277 AOCs. Finished-water samples collected as part of SWQAs at 11 Study Units were spiked. The finished water was derived from ground-water supplies at 4 Study Units, from surface-water supplies at 6 Study Units, and from both supplies at 1 Study Unit (table 2 and fig. 2). The spiked samples were intended to be processed in duplicate, wherein one sample would be quenched and the other would not be quenched. However, in some cases, some finished-water spiked samples that were processed were quenched but not paired with a nonquenched sample, and some finished-water spiked samples were not quenched but were not paired with a quenched sample (table 5 in Appendix 1). The maximum numbers of paired samples (quenched finished-water spiked samples paired with nonquenched finished-water spiked samples) were six and seven for surface-water and ground-water supplies, respectively (table 5 in Appendix 1).

Eleven Study Units collected three types of samples. All three finished-water samples were to be collected after all treatment processes were completed and prior to distribution. The first sample was to be a quenched finished-water sample (not spiked) used only to characterize the quality of finished water prior to distribution, and for percent recovery calculations. The second sample collected was a quenched finished-water spiked sample, and the third was a nonquenched finished-water spiked sample. USGS approved sampling protocols (U.S. Geological Survey, 1997–2006) were followed for all sample collection. All samples were spiked at the NWQL with the exception of the pesticide samples (schedules 2003/2033 and 2060), which were spiked in the field. Each sample was then sent to the NWQL for processing and analyzing. The percent recoveries for quenched finished-water spiked samples and nonquenched finished-water spiked samples are presented in this report.

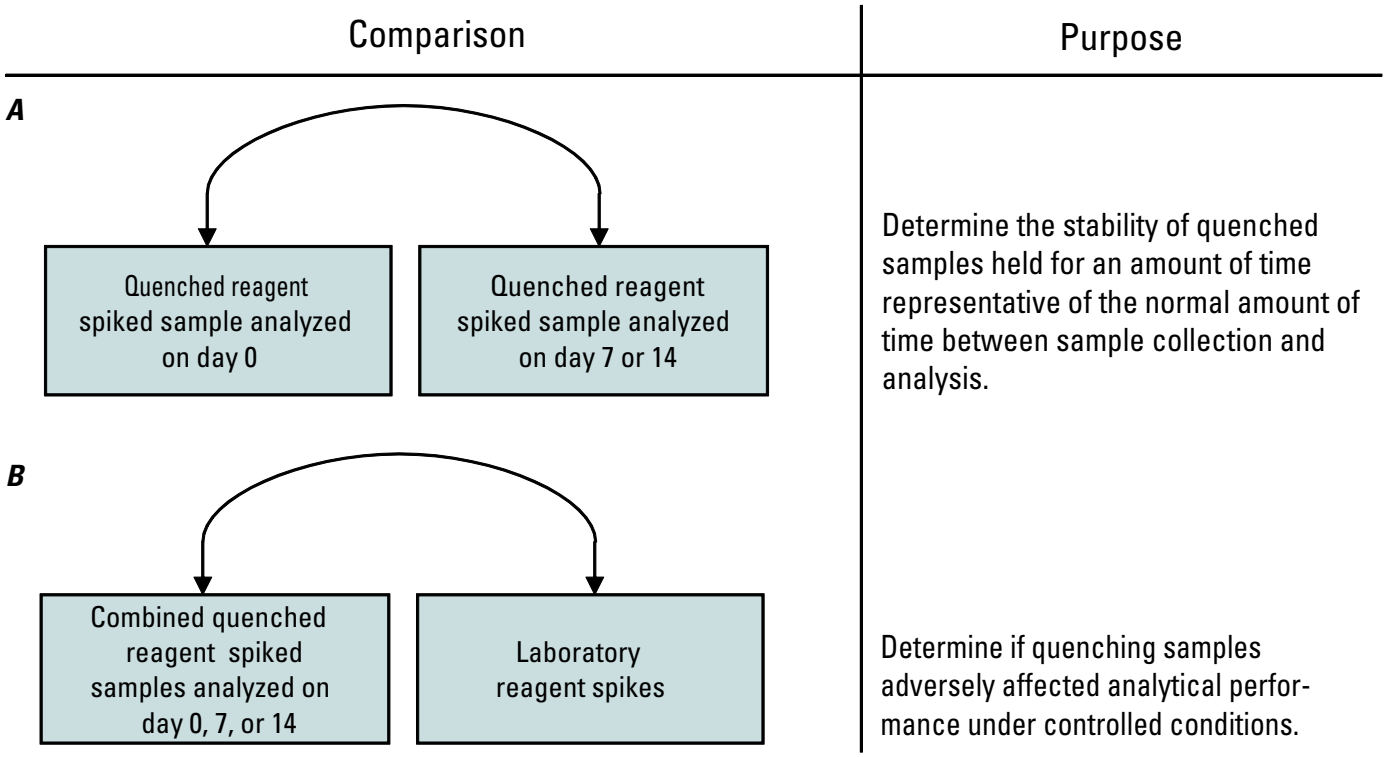

Figure 1. Schematic representation showing comparisons that could be used to *(A)*, determine the stability of quenched samples; and *(B)*, determine if quenching samples adversely affects analytical performance.

Table 2. Summary of Study Units that processed finished-water spiked samples for Source Water-Quality Assessments during 2004–06.

Map number (shown on figure 2)	Study-Unit acronym	Source Water-Quality Assessment Study-Unit name	Source of finished water
1	ACFB	Apalachicola-Chattahoochee-Flint River Basin	Surface water.
2	ALBE	Albemarle-Pamlico Drainage	Surface water.
3	MISE	Mississippi Embayment	Ground water.
4	NVBR	Nevada Basin and Range	Surface water.
5	PODL	Potomac River Basin and Delmarva Peninsula	Surface water.
6	RIOG	Rio Grande Valley	Ground water.
7	SANJ	San Joaquin-Tulare Basins	Ground water.
8	SCTX	South-Central Texas	Ground water.
9, 10	TRIN	Trinity River Basin	Ground water, surface water.
11	UMIS	Upper Mississippi River Basin	Surface water.
12	WILL	Willamette Basin	Surface water.

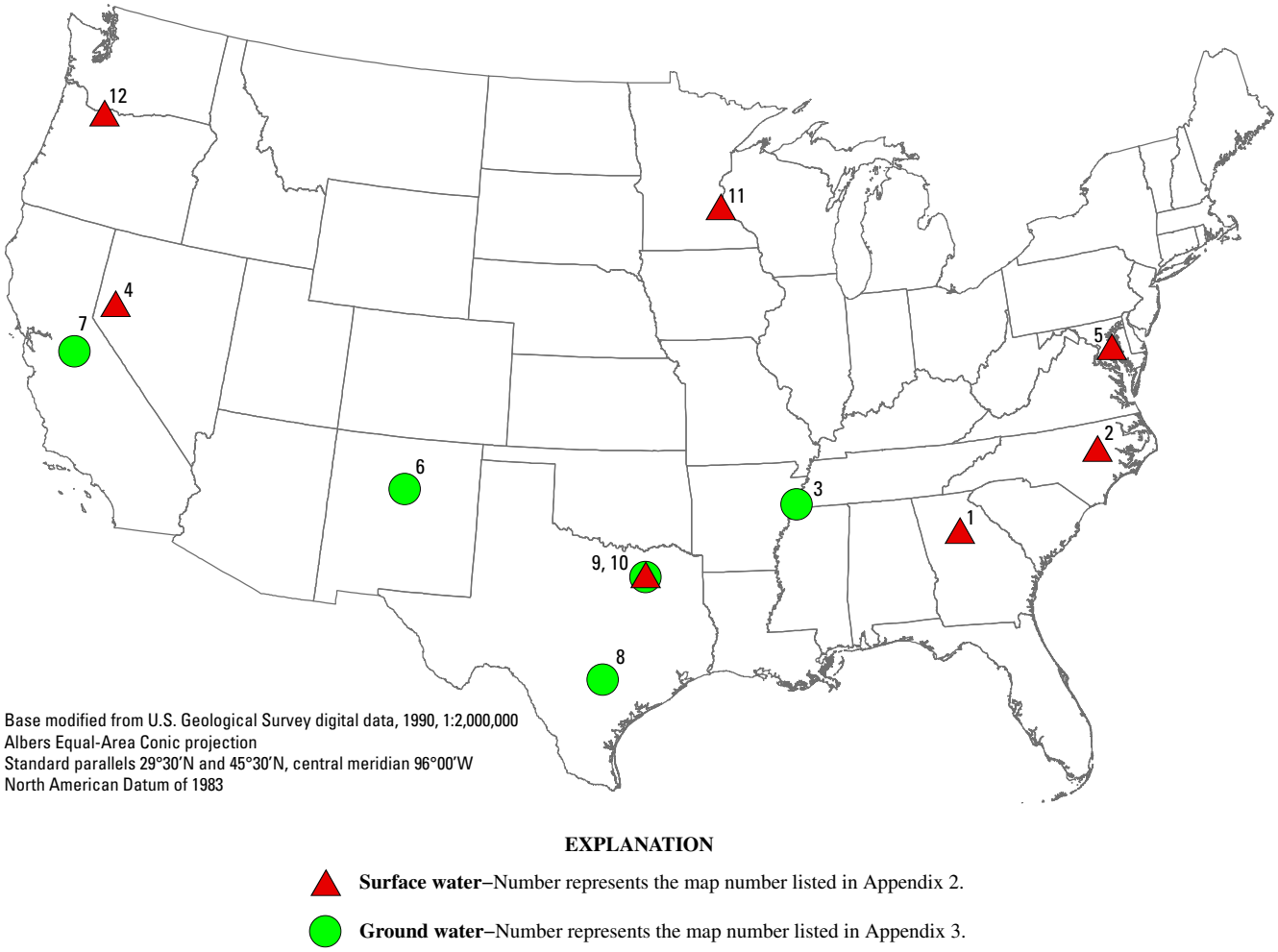

Figure 2. Locations of surface-water and ground-water supplies from which finished-water samples were collected as part of Source Water-Quality Assessments and spiked for this study, 2004–06. Finished water derived from ground-water supplies (map number 9) and from surface-water supplies (map number 10) was collected as part of the Trinity River Basin Source Water-Quality Assessment.

Percent Recoveries

Percent recoveries of AOCs for the laboratory and field studies were calculated by using the analytical results of the AOCs. For samples from both the laboratory and the field studies, if the remark code of a compound was a "less than" (<), the compound was considered not detected in the sample and the reported concentration was censored to 0. If a compound was detected at a concentration less than the lowest calibration standard, the concentration was estimated (Connor and others, 1998) and used "as is," similar to the concentrations that were not "less than" or estimated.

Percent recovery was calculated by using the following equations:

$$\text{Percent recovery} = \frac{\left(C_{Spiked} - C_{Sample}\right)100}{C_{Theoretical}}$$

and

$$C_{Theoretical} = \frac{\left(C_{Solution} \times C_{Amount}\right)}{V_{Sample}},$$

where

C_{Spiked} = the measured concentration in the spiked sample, in micrograms per liter;
C_{Sample} = the measured concentration that is present in the unspiked water sample, in micrograms per liter;
$C_{Theoretical}$ = the theoretical concentration of the sample, in micrograms per liter;
$C_{Solution}$ = the concentration of the spiked solution, in micrograms per milliliter;
C_{Amount} = the amount of spike added, in milliliters; and
V_{Sample} = the spike volume, in liters.

Laboratory Study Analytical Data

The laboratory study was designed to determine if quenching samples adversely affected analytical performance under controlled conditions. As previously stated, two comparisons could be made with these data: (1) a comparison between the quenched reagent spiked samples analyzed on day 0 and the quenched reagent spiked samples analyzed on day 7 or 14, and (2) a comparison between the combined quenched reagent spiked samples analyzed on day 0, 7, or 14 and the LRSs (fig. 1). Summary statistics of percent recoveries for the first comparison (fig. 1*A*) for quenched reagent spiked samples analyzed on day 0 and quenched reagent spiked samples analyzed on day 7 or 14 are presented in table 6 in Appendix 1, and are graphically represented by boxplots in figure 3.

For the second comparison (fig. 1*B*), summary statistics of percent recoveries for the combined quenched reagent spiked samples analyzed on day 0, 7, or 14, and the LRSs are presented in table 7 in Appendix 1. The median percent recoveries for each compound are graphically presented on a one-to-one plot (fig. 4).

Field Study Analytical Data

The field study was designed to characterize the effect of quenching on finished-water spike recoveries and to better understand the potential oxidation and transformation of the 277 AOCs analyzed (table 4). The percent recoveries were calculated for data from each of the 11 Study Units (fig. 2) and separated into two categories: finished water derived from surface-water supplies and finished water derived from ground-water supplies. The 277 AOCs analyzed for SWQA studies were categorized into the following 13 compound groups on the basis of their primary use or source (table 3): (1) disinfection by-products; (2) fumigant-related compounds; (3) fungicides; (4) gasoline hydrocarbons, oxygenates, and oxygenate degradates; (5) herbicides and herbicide degradates; (6) insecticides and insecticide degradates; (7) manufacturing additives; (8) organic synthesis compounds; (9) pavement- and combustion-derived compounds; (10) personal care and domestic use products; (11) plant- or animal-derived biochemicals; (12) refrigerants and propellants; and (13) solvents.

Percent recovery data for the compounds monitored during 2004–06 for the field study are presented in Appendix 2 for the surface-water supplies and in Appendix 3 for the ground-water supplies. The percent recoveries are presented in two formats: (1) a Microsoft Excel spreadsheet and (2) a tab-delimitated text file. The percent recoveries are presented for the quenched finished-water spiked samples and the nonquenched finished-water spiked samples separated by primary use or source groups as defined previously. The percent recoveries for AOCs in each of the 13 use groups are presented in a single worksheet within Excel and as a single tab-delimitated text file.

Data in Appendixes 2 and 3 are presented in a similar order. First, the finished-water sample type indicates whether the sample is a quenched finished-water spiked sample (black text) or a nonquenched finished-water spiked sample (blue text), followed by the reference number for the map location (fig. 2) and the Study-Unit abbreviation (table 2).

The percent recoveries in Appendixes 2 and 3 are not rounded. They are presented as derived from calculations based on concentration data received from the laboratory.

Graphical plots relating the median percent recoveries for the quenched finished-water spiked samples to those for the nonquenched finished-water spiked samples are shown in figures 5*A*, 5*B*, and 5*C* for surface-water supplies, ground-water supplies, and combined surface-water and ground-water supplies, respectively. These plots were generated by using the median percent recovery of each compound. Lastly, percent recoveries for all spiked data from each of the surface-water

and ground-water sites are graphically represented for individual compounds by use group in figures 6 and 7, respectively, in Appendix 4. The median percent recoveries for the quenched finished-water spiked samples and the nonquenched finished-water spiked samples also are included in each plot in figures 6 and 7.

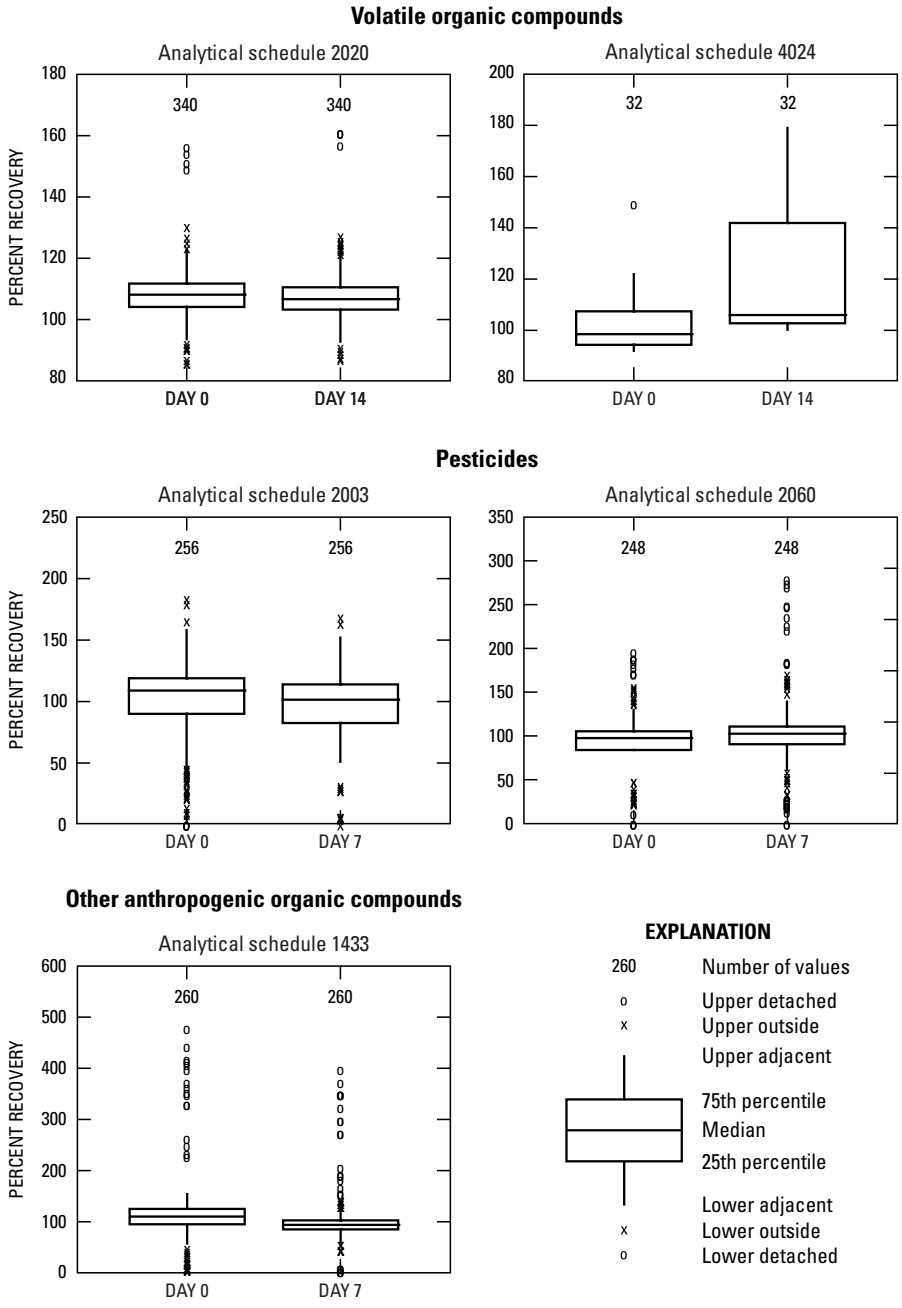

Figure 3. Percent recoveries for the quenched reagent spiked samples analyzed on day 0 and day 7 or 14 for volatile organic compounds, pesticides, and other anthropogenic organic compounds for the laboratory study, 2004.

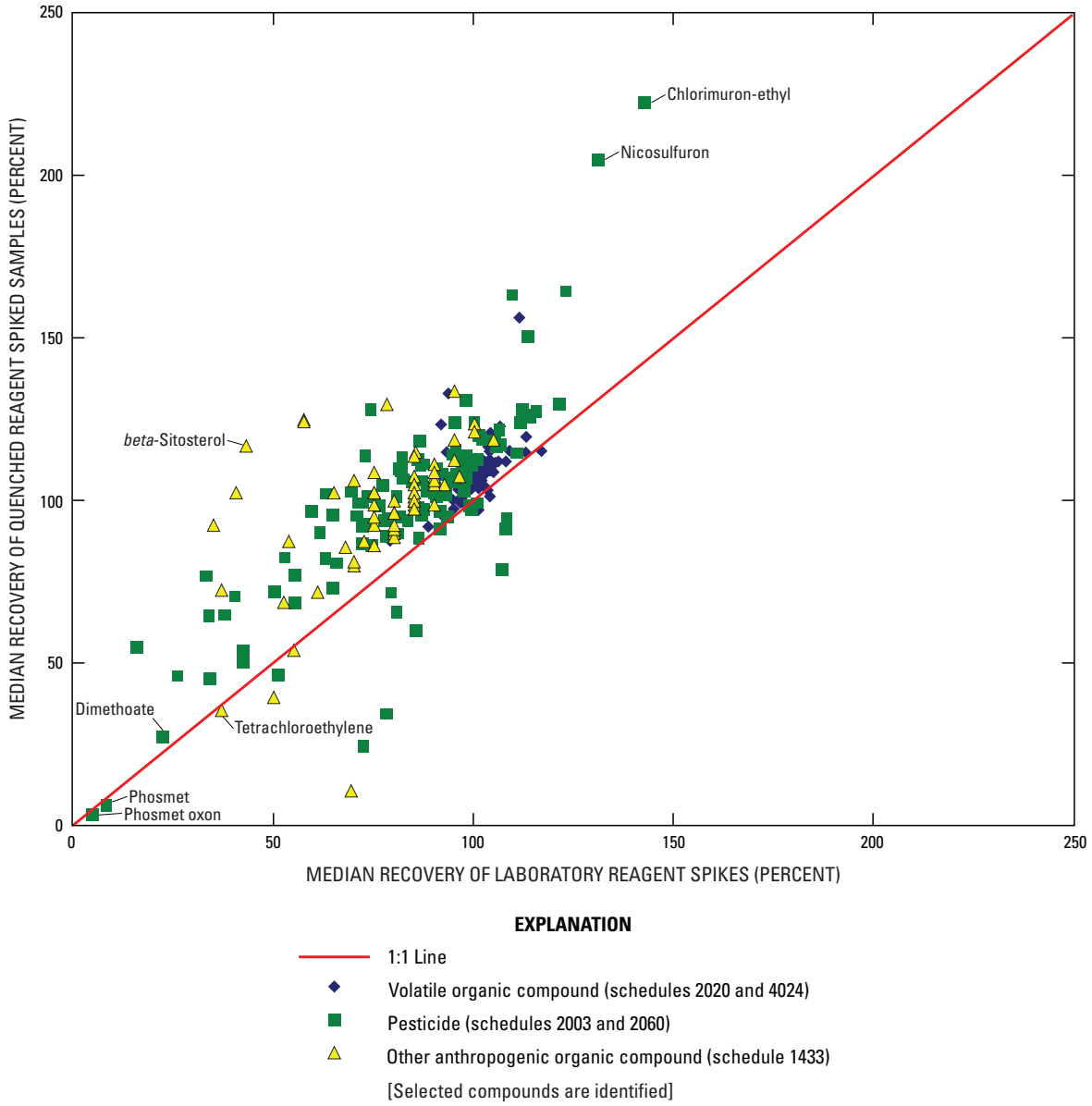

Figure 4. Relation between median percent recoveries for the combined quenched reagent spiked samples analyzed on day 0, 7, or 14 and median percent recoveries for the laboratory reagent spikes, for individual anthropogenic organic compounds in the laboratory study, 2004.

Table 3. Primary use or source groups for compounds analyzed for ground-water and surface-water Source Water-Quality Assessment studies.

[BTEX, benzene, toluene, ethylbenzene, and xylenes]

Primary use or source group	Description	Number of compounds in group
Disinfection by-products	Trihalomethanes, (poly) haloacetic acids and other compounds that are produced from the transformation of organic compounds during the disinfection of water and wastewater through chlorination, ozonation, or other chemical methods.	4
Fumigant-related compounds	Chemicals that may be present in commercial fumigant products, which produce a gas, vapor, fumes, or smoke intended to destroy, repel, or control unwanted organisms such as insects, bacteria, or rodents. These include fumigant active ingredients, as well as their degradates and their manufacturing by-products.	9
Fungicides	Pesticides that are used to kill unwanted fungi.	10
Gasoline hydrocarbons, oxygenates, and oxygenate degradates	Gasoline hydrocarbons are straight, branched, and (or) cyclic organic compounds that are highly volatile, contain only carbon and hydrogen atoms, and are common ingredients in gasoline and other petroleum products. Among these compounds, BTEX compounds are among those present in the highest proportions in gasoline. Oxygenates, such as methyl *tert*-butyl ether (MTBE), are compounds that contain only carbon, hydrogen, and oxygen atoms and are commonly added to gasoline to improve the efficiency of combustion. Oxygenate degradates are formed during the production, storage, release, and (or) use of gasoline oxygenates or following their release into the environment.	28
Herbicides and herbicide degradates	Pesticides designed to kill unwanted plants (herbicides) and compounds produced from the transformation of the parent herbicide following application (degradates).	71
Insecticides and insecticide degradates	Pesticides designed to kill unwanted insects (insecticides) and compounds produced from the transformation of the parent insecticide following application (degradates).	58
Manufacturing additives	Compounds used in commercial formulations of chemical products in order to improve the effectiveness of the product, including plasticizers (to increase the flexibility of plastics), fire retardants, corrosion inhibitors, and pesticide adjuvants.	7
Organic synthesis compounds	Chemicals that are used as precursors in the manufacture of other organic compounds. Chloroethylene (vinyl chloride), for example, is an organic synthesis compound used to produce polyvinyl chloride (PVC) plastics.	18
Pavement- and combustion-derived compounds	Organic substances, such as polynuclear aromatic hydrocarbons (PAHs), that are derived from either (1) the materials used to construct and seal parking lots and other paved surfaces, or (2) the combustion of other nonhalogenated organic compounds, most commonly gasoline, oil, coal, and other fossil fuels.	5
Personal care and domestic use products	Compounds that are present in commercial products sold for personal or residential use, such as fragrances, pharmaceuticals, insect repellents, dyes, detergents, disinfectants, shampoos, and chemicals used in fire extinguishers.	26
Plant- or animal-derived biochemicals	Naturally occurring compounds that are produced by plants or animals, either through direct biosynthesis or through the metabolic alteration of compounds ingested or taken up from other sources. These compounds are predominantly unsaturated solid alcohols of the steroid group naturally occurring in fatty tissues of plants and animals and present in animal fecal material.	5
Refrigerants and propellants	Volatile compounds that are used for commercial or domestic refrigeration, as blowing agents in the manufacture of packaging and other highly porous materials, or for dispensing other substances from spray cans and other aerosol delivery devices.	3
Solvents	Compounds that are used to dissolve other substances. Two of the more common solvents are trichloroethene (TCE) and tetrachloroethene (perchloroethene, PCE).	33
Total number of compounds		**277**

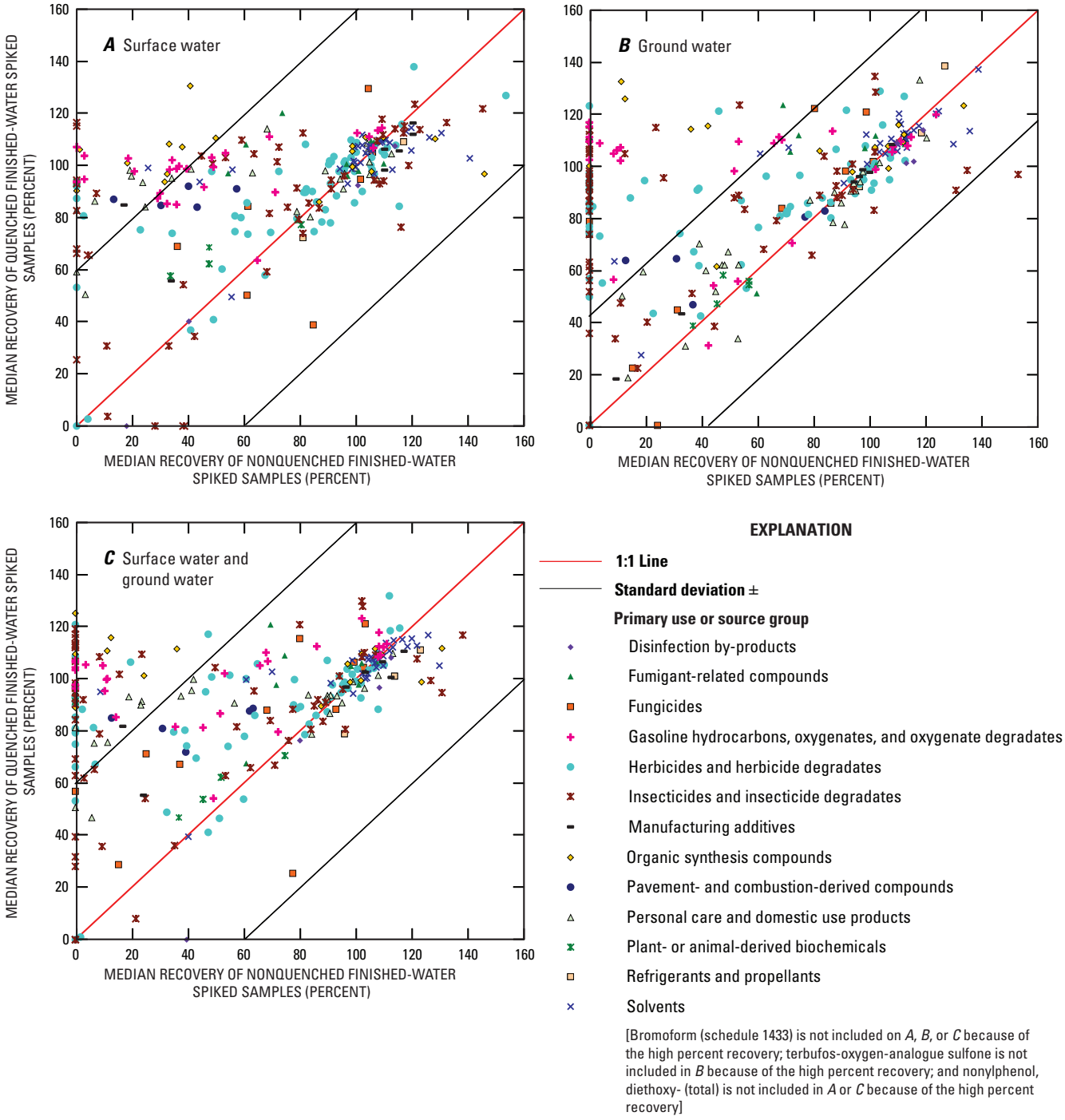

Figure 5. Relations between median percent recoveries of individual anthropogenic organic compounds for quenched finished-water spiked samples and those for nonquenched finished-water spiked samples in the field study for *(A)*, surface-water supplies; *(B)*, ground-water supplies; and *(C)*, surface-water and ground-water supplies, 2004–06.

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Appendixes

Appendix 1. Supplemental Data Tables

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
1,1,1,2-Tetrachloroethane	630–20–6	HBSL	Solvents	X	--	--	--	--	--
1,1,1-Trichloroethane	71–55–6	MCL	Solvents	X	--	--	--	--	--
1,1,2,2-Tetrachloroethane	79–34–5	HBSL	Solvents	X	--	--	--	--	--
1,1,2-Trichloroethane	79–00–5	MCL	Solvents	X	--	--	--	--	--
1,1,2-Trichlorotrifluoroethane	76–13–1	HBSL	Refrigerants and propellants	X	--	--	--	--	--
1,1-Dichloroethane	75–34–3	NA	Solvents	X	--	--	--	--	--
1,1-Dichloroethylene	75–35–4	MCL	Solvents	X	--	--	--	--	--
1,1-Dichloropropene	563–58–6	NA	Organic synthesis compounds	X	--	--	--	--	--
1,2,3,4-Tetramethylbenzene	488–23–3	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
1,2,3,5-Tetramethylbenzene	527–53–7	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
1,2,3-Trichlorobenzene	87–61–6	NA	Organic synthesis compounds	X	--	--	--	--	--
1,2,3-Trichloropropane	96–18–4	HBSL	Organic synthesis compounds	X	--	--	--	--	--
1,2,3-Trimethylbenzene	526–73–8	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
1,2,4-Trichlorobenzene	120–82–1	MCL	Solvents	X	--	--	--	--	--
1,2,4-Trimethylbenzene	95–63–6	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
1,2-Dibromo-3-chloropropane	96–12–8	MCL	Fumigant-related compounds	X	--	--	--	--	--
1,2-Dibromoethane	106–93–4	MCL	Fumigant-related compounds	X	--	--	--	--	--
1,2-Dichlorobenzene	95–50–1	MCL	Solvents	X	--	--	--	--	--
1,2-Dichloroethane	107–06–2	MCL	Solvents	X	--	--	--	--	--
1,2-Dichloropropane	78–87–5	MCL	Fumigant-related compounds	X	--	--	--	--	--
1,3,5-Trimethylbenzene	108–67–8	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
1,3-Dichlorobenzene	541–73–1	HBSL	Solvents	X	--	--	--	--	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
1,3-Dichloropropane	142–28–9	NA	Fumigant-related compounds	X	--	--	--	--	--
1,4-Dichlorobenzene	106–46–7	MCL	Fumigant-related compounds	X	--	--	--	--	X
1-Methylnaphthalene	90–12–0	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	--	--	--	--	--	X
1-Naphthol	90–15–3	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
2,2-Dichloropropane	594–20–7	NA	Fumigant-related compounds	X	--	--	--	--	--
2,4–D	94–75–7	MCL	Herbicides and herbicide degradates	--	--	--	--	X	--
2,4–D methyl ester	1928–38–7	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
2,4–DB	94–82–6	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
2,6-Diethylaniline	579–66–8	NA	Herbicides and herbicide degradates	--	--	X	X	--	--
2,6-Dimethylnaphthalene	581–42–0	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	--	--	--	--	--	X
2-Butanone	78–93–3	HBSL	Solvents	X	--	--	--	--	--
2-Chloro-2,6-diethylacetanilide	6967–29–9	NA	Herbicides and herbicide degradates	--	--	X	X	--	--
2-Chloro-4-isopropylamino-6-amino-*s*-triazine (CIAT)	6190–65–4	NA	Herbicides and herbicide degradates	--	--	X	X	X	--
2-Chloro-6-ethylamino-4-amino-*s*-triazine (CEAT)	1007–28–9	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
2-Chlorotoluene	95–49–8	HBSL	Solvents	X	--	--	--	--	--
2-Ethyl-6-methylaniline	24549–06–2	NA	Herbicides and herbicide degradates	--	--	X	X	--	--
2-Hexanone	591–78–6	NA	Solvents	X	--	--	--	--	--
2-Hydroxyatrazine	2163–68–0	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
2-Methylnaphthalene	91–57–6	HBSL	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	--	--	--	--	--	X
3(4-Chlorophenyl)-1-methyl urea	5352–88–5	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
3,4-Dichloroaniline	95–76–1	NA	Herbicides and herbicide degradates	--	--	X	X	--	--
3,5-Dichloroaniline	626–43–7	NA	Herbicides and herbicide degradates	--	--	--	X	--	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
3-*beta*-Coprostanol	360–68–9	NA	Plant- or animal-derived biochemicals	--	--	--	--	--	X
3-Chloropropene	107–05–1	NA	Organic synthesis compounds	X	--	--	--	--	--
3-Hydroxycarbofuran	16655–82–6	NA	Insecticides and insecticide degradates	--	--	--	--	X	--
3-Ketocarbofuran	16709–30–1	NA	Insecticides and insecticide degradates	--	--	--	--	X	--
3-Methyl-1(H)-indole (Skatole)	83–34–1	NA	Plant- or animal-derived biochemicals	--	--	--	--	--	X
3-*tert*-Butyl-4-hydroxy anisole (BHA)	25013–16–5	NA	Personal care and domestic use products	--	--	--	--	--	X
4-Chloro-2-methylphenol	1570–64–5	NA	Herbicides and herbicide degradates	--	--	X	X	--	--
4-Chlorotoluene	106–43–4	HBSL	Solvents	X	--	--	--	--	--
4-Cumylphenol	599–64–4	NA	Personal care and domestic use products	--	--	--	--	--	X
4-Isopropyl-1-methylbenzene	99–87–6	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
4-Methyl-2-pentanone	108–10–1	NA	Solvents	X	--	--	--	--	--
4-*n*-Octylphenol	1806–26–4	NA	Personal care and domestic use products	--	--	--	--	--	X
4-*tert*-Octylphenol	140–66–9	NA	Personal care and domestic use products	--	--	--	--	--	X
5–Methyl-1H-benzotriazole	136–85–6	NA	Manufacturing additives	--	--	--	--	--	X
Acetochlor	34256–82–1	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--
Acetone	67–64–1	HBSL	Solvents	X	X	--	--	--	--
Acetophenone	98–86–2	HBSL	Personal care and domestic use products	--	--	--	--	--	X
Acetyl hexamethyl tetrahydronaphthalene (AHTN)	21145–77–7	NA	Personal care and domestic use products	--	--	--	--	--	X
Acifluorfen	50594–66–6	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Acrylonitrile	107–13–1	HBSL	Organic synthesis compounds	X	--	--	--	--	--
Alachlor	15972–60–8	MCL	Herbicides and herbicide degradates	--	--	X	X	--	--
Aldicarb	116–06–3	HBSL	Insecticides and insecticide degradates	--	--	--	--	X	--
Aldicarb sulfone	1646–88–4	HBSL	Insecticides and insecticide degradates	--	--	--	--	X	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
Aldicarb sulfoxide	1646–87–3	HBSL	Insecticides and insecticide degradates	--	--	--	--	X	--
alpha-Endosulfan	959–98–8	NA	Insecticides and insecticide degradates	--	--	--	X	--	--
Anthracene	120–12–7	HBSL	Pavement- and combustion-derived compounds	--	--	--	--	--	X
Anthraquinone	84–65–1	NA	Organic synthesis compounds	--	--	--	--	--	X
Atrazine	1912–24–9	MCL	Herbicides and herbicide degradates	--	--	X	X	X	--
Azinphos-methyl	86–50–0	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Azinphos-methyl-oxon	961–22–8	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Bendiocarb	22781–23–3	HBSL	Insecticides and insecticide degradates	--	--	--	--	X	--
Benfluralin	1861–40–1	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--
Benomyl	17804–35–2	HBSL	Fungicides	--	--	--	--	X	--
Bensulfuron-methyl	83055–99–6	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Bentazon	25057–89–0	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Benzene	71–43–2	MCL	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
Benzo[a]pyrene	50–32–8	MCL	Pavement- and combustion-derived compounds	--	--	--	--	--	X
Benzophenone	119–61–9	NA	Personal care and domestic use products	--	--	--	--	--	X
beta-Sitosterol	83–46–5	NA	Plant- or animal-derived biochemicals	--	--	--	--	--	X
beta-Stigmastanol	19466–47–8	NA	Plant- or animal-derived biochemicals	--	--	--	--	--	X
Bisphenol A	80–05–7	HBSL	Manufacturing additives	--	--	--	--	--	X
Bromacil	314–40–9	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	X
Bromobenzene	108–86–1	NA	Solvents	X	--	--	--	--	--
Bromochloromethane	74–97–5	HBSL	Personal care and domestic use products	X	--	--	--	--	--
Bromodichloromethane	75–27–4	MCL	Disinfection by-products	X	--	--	--	--	--
Bromoethene	593–60–2	NA	Organic synthesis compounds	X	--	--	--	--	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
Bromoform	75–25–2	MCL	Disinfection by-products	X	--	--	--	--	X
Bromomethane	74–83–9	HBSL	Fumigant-related compounds	X	--	--	--	--	--
Bromoxynil	1689–84–5	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Butylbenzene	104–51–8	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
Caffeine	58–08–2	NA	Personal care and domestic use products	--	--	--	--	X	X
Camphor	76–22–2	NA	Personal care and domestic use products	--	--	--	--	--	X
Carbaryl	63–25–2	HBSL	Insecticides and insecticide degradates	--	--	X	X	X	X
Carbazole	86–74–8	NA	Organic synthesis compounds	--	--	--	--	--	X
Carbofuran	1563–66–2	MCL	Insecticides and insecticide degradates	--	--	--	X	X	--
Carbon disulfide	75–15–0	HBSL	Organic synthesis compounds	X	--	--	--	--	--
Chloramben, methyl ester	7286–84–2	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
Chlorimuron-ethyl	90982–32–4	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Chlorobenzene	108–90–7	MCL	Solvents	X	--	--	--	--	--
Chloroethane	75–00–3	NA	Solvents	X	--	--	--	--	--
Chloroform	67–66–3	MCL	Disinfection by-products	X	--	--	--	--	--
Chloromethane	74–87–3	HBSL	Organic synthesis compounds	X	--	--	--	--	--
Chlorothalonil	1897–45–6	HBSL	Fungicides	--	--	--	--	X	--
Chlorpyrifos	2921–88–2	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	X
Chlorpyrofos, oxygen analog	5598–15–2	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Cholesterol	57–88–5	NA	Plant- or animal-derived biochemicals	--	--	--	--	--	X
cis-1,2-Dichloroethylene	156–59–2	MCL	Solvents	X	--	--	--	--	--
cis-1,3-Dichloropropene	10061–01–5	NA	Fumigant-related compounds	X	--	--	--	--	--
cis-Permethrin	54774–45–7	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
cis-Propiconazole	60207–90–1	HBSL	Fungicides	--	--	--	X	--	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
Clopyralid	1702–17–6	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
Cotinine	486–56–6	NA	Personal care and domestic use products	--	--	--	--	--	X
Cyanazine	21725–46–2	HBSL	Herbicides and herbicide degradates	--	--	--	X	--	--
Cycloate	1134–23–2	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Cyfluthrin	68359–37–5	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Cypermethrin	52315–07–8	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Dacthal	1861–32–1	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--
Dacthal monoacid	887–54–7	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
Deethyldeisopropyl-atrazine (DDA)	3397–62–4	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
Desulfinylfipronil	--	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Desulfinylfipronil amide	--	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Diazinon	333–41–5	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	X
Diazinon, oxygen analog	962–58–3	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Dibromochloromethane	124–48–1	MCL	Disinfection by-products	X	--	--	--	--	--
Dibromomethane	74–95–3	NA	Solvents	X	--	--	--	--	--
Dicamba	1918–00–9	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Dichlorodifluoromethane	75–71–8	HBSL	Refrigerants and propellants	X	--	--	--	--	--
Dichloromethane	75–09–2	MCL	Solvents	X	--	--	--	--	--
Dichlorprop	120–36–5	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
Dichlorvos	62–73–7	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Dicrotophos	141–66–2	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Dieldrin	60–57–1	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Diethyl ether	60–29–7	HBSL	Solvents	X	--	--	--	--	--
Diisopropyl ether	108–20–3	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	X	--	--	--	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
Dimethoate	60–51–5	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Dinoseb	88–85–7	MCL	Herbicides and herbicide degradates	--	--	--	--	X	--
Diphenamid	957–51–7	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Disulfoton	298–04–4	HBSL	Insecticides and insecticide degradates	--	--	--	X	--	--
Disulfoton sulfone	2497–06–5	NA	Insecticides and insecticide degradates	--	--	--	X	--	--
Diuron	330–54–1	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
d-Limonene	5989–27–5	NA	Personal care and domestic use products	--	--	--	--	--	X
Endosulfan sulfate	1031–07–8	NA	Insecticides and insecticide degradates	--	--	--	X	--	--
EPTC	759–94–4	HBSL	Herbicides and herbicide degradates	--	--	--	X	--	--
Ethion	563–12–2	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Ethion monoxon	17356–42–2	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Ethoprophos	13194–48–4	HBSL	Insecticides and insecticide degradates	--	--	--	X	--	--
Ethyl methacrylate	97–63–2	NA	Organic synthesis compounds	X	--	--	--	--	--
Ethyl *tert*-butyl ether	637–92–3	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	X	--	--	--	--
Ethylbenzene	100–41–4	MCL	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
Fenamiphos	22224–92–6	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Fenamiphos sulfone	31972–44–8	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Fenamiphos sulfoxide	31972–43–7	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Fenuron	101–42–8	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
Fipronil	120068–37–3	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Fipronil sulfide	120067–83–6	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Fipronil sulfone	120068–36–2	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Flumetsulam	98967–40–9	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Fluometuron	2164–17–2	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
Fluoranthene	206–44–0	HBSL	Pavement- and combustion-derived compounds	--	--	--	--	--	X
Fonofos	944–22–9	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Hexachlorobutadiene	87–68–3	HBSL	Organic synthesis compounds	X	--	--	--	--	--
Hexachloroethane	67–72–1	HBSL	Solvents	X	--	--	--	--	--
Hexadydrohexamethyl-cyclopent-abenzopyran (HHCB)	1222–05–5	NA	Personal care and domestic use products	--	--	--	--	--	X
Hexazinone	51235–04–2	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--
Imazaquin	81335–37–7	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Imazethapyr	81335–77–5	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Imidacloprid	138261–41–3	NA	Insecticides and insecticide degradates	--	--	--	--	X	--
Indole	120–72–9	NA	Personal care and domestic use products	--	--	--	--	--	X
Iprodione	36734–19–7	HBSL	Fungicides	--	--	X	X	--	--
Isoborneol	124–76–5	NA	Personal care and domestic use products	--	--	--	--	--	X
Isofenphos	25311–71–1	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Isophorone	78–59–1	HBSL	Solvents	--	--	--	--	--	X
Isopropylbenzene	98–82–8	HBSL	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	--	--	--	--	--	X
Isopropylbenzene	98–82–8	HBSL	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
Isoquinoline	119–65–3	NA	Personal care and domestic use products	--	--	--	--	--	X
lambda-Cyhalothrin	91465–08–6	NA	Insecticides and insecticide degradates	--	--	--	X	--	--
Linuron	330–55–2	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
m- and *p*-Xylene	*m*=108–38–3 *p*=106–42–3	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
Malaoxon	1634–78–2	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Malathion	121–75–5	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
MCPA	94–74–6	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
MCPB	94–81–5	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Menthol (5-methyl-2-[1-methyleth-yl] cyclohexanol)	89–78–1	NA	Personal care and domestic use products	--	--	--	--	--	X
Metalaxyl	57837–19–1	HBSL	Fungicides	--	--	X	X	X	X
Methidathion	950–37–8	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Methiocarb	2032–65–7	HBSL	Insecticides and insecticide degradates	--	--	--	--	X	--
Methomyl	16752–77–5	HBSL	Insecticides and insecticide degradates	--	--	--	--	X	--
Methyl acetate	79–20–9	NA	Solvents	--	X	--	--	--	--
Methyl acrylate	96–33–3	NA	Organic synthesis compounds	X	--	--	--	--	--
Methyl acrylonitrile	126–98–7	HBSL	Organic synthesis compounds	X	--	--	--	--	--
Methyl iodide	74–88–4	NA	Organic synthesis compounds	X	--	--	--	--	--
Methyl methacrylate	80–62–6	HBSL	Organic synthesis compounds	X	--	--	--	--	--
Methyl salicylate	119–36–8	HBSL	Personal care and domestic use products	--	--	--	--	--	X
Metolachlor	51218–45–2	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	X
Metribuzin	21087–64–9	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--
Metsulfuron methyl	74223–64–6	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Molinate	2212–67–1	HBSL	Herbicides and herbicide degradates	--	--	--	X	--	--
Myclobutanil	88671–89–0	HBSL	Fungicides	--	--	X	X	--	--
N,N-diethyl-*meta*-toluamide (DEET)	134–62–3	NA	Personal care and domestic use products	--	--	--	--	--	X
Naphthalene	91–20–3	HBSL	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	X
Neburon	555–37–3	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
Nicosulfuron	111991–09–4	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Nonylphenol, diethoxy- (total)	26027–38–2	NA	Personal care and domestic use products	--	--	--	--	--	X

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
Norflurazon	27314–13–2	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
n-Propylbenzene	103–65–1	NA	Solvents	X	--	--	--	--	--
Octylphenol, diethoxy- (OPEO2)	26636–32–8	NA	Personal care and domestic use products	--	--	--	--	--	X
Octylphenol, monoethoxy- (OPEO1)	26636–32–8	NA	Personal care and domestic use products	--	--	--	--	--	X
o-Ethyl toluene	611–14–3	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
Oryzalin	19044–88–3	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Oxamyl	23135–22–0	MCL	Insecticides and insecticide degradates	--	--	--	--	X	--
Oxyfluorfen	42874–03–3	HBSL	Herbicides and herbicide degradates	--	--	--	X	--	--
o-Xylene	95–47–6	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
para-Nonylphenol, total (mixture of isomers)	84852–15–3	NA	Personal care and domestic use products	--	--	--	--	--	X
Paraoxon-methyl	950–35–6	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Parathion-methyl	298–00–0	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
p-Cresol	106–44–5	NA	Solvents	--	--	--	--	--	X
Pendimethalin	40487–42–1	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--
Pentachlorophenol	87–86–5	MCL	Fungicides	--	--	--	--	--	X
Phenanthrene	85–01–8	NA	Pavement- and combustion-derived compounds	--	--	--	--	--	X
Phenol	108–95–2	HBSL	Personal care and domestic use products	--	--	--	--	--	X
Phorate	298–02–2	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Phorate oxon	2600–69–3	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Phosmet	732–11–6	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Phosmet oxon	3735–33–9	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Picloram	1918–02–1	MCL	Herbicides and herbicide degradates	--	--	--	--	X	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
Prometon	1610–18–0	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	X
Prometryn	7287–19–6	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--
Propanil	709–98–8	HBSL	Herbicides and herbicide degradates	--	--	--	X	--	--
Propargite	2312–35–8	HBSL	Insecticides and insecticide degradates	--	--	--	X	--	--
Propham	122–42–9	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Propiconazole	60207–90–1	HBSL	Fungicides	--	--	--	--	X	--
Propoxur	114–26–1	HBSL	Insecticides and insecticide degradates	--	--	--	--	X	--
Propyzamide	23950–58–5	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--
Pyrene	129–00–0	HBSL	Pavement- and combustion-derived compounds	--	--	--	--	--	X
sec-Butylbenzene	135–98–8	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
Siduron	1982–49–6	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
Simazine	122–34–9	MCL	Herbicides and herbicide degradates	--	--	X	X	--	--
Styrene	100–42–5	MCL	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
Sulfometuron-methyl	74222–97–2	NA	Herbicides and herbicide degradates	--	--	--	--	X	--
Tebuconazole	107534–96–3	NA	Fungicides	--	--	--	X	--	--
Tebuthiuron	34014–18–1	HBSL	Herbicides and herbicide degradates	--	--	X	X	X	--
Tefluthrin	79538–32–2	HBSL	Insecticides and insecticide degradates	--	--	--	X	--	--
Terbacil	5902–51–2	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Terbufos	13071–79–9	HBSL	Insecticides and insecticide degradates	--	--	X	X	--	--
Terbufos-oxygen-analogue sulfone	56070–15–6	NA	Insecticides and insecticide degradates	--	--	X	X	--	--
Terbuthylazine	5915–41–3	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--
tert-Amyl alcohol	75–85–4	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	--	X	--	--	--	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
tert-Butyl alcohol	75–65–0	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	--	X	--	--	--	--
tert-Butyl methyl ether	1634–04–4	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	X	--	--	--	--
tert-Butylbenzene	98–06–6	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
tert-Pentyl methyl ether	994–05–8	NA	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	X	--	--	--	--
Tetrachloroethylene	127–18–4	MCL	Solvents	X	--	--	--	--	X
Tetrachloromethane	56–23–5	MCL	Solvents	X	--	--	--	--	--
Tetrahydrofuran	109–99–9	NA	Solvents	X	--	--	--	--	--
Thiobencarb	28249–77–6	HBSL	Herbicides and herbicide degradates	--	--	--	X	--	--
Toluene	108–88–3	MCL	Gasoline hydrocarbons, oxygenates, and oxygenate degradates	X	--	--	--	--	--
trans-1,2-Dichloroethylene	156–60–5	MCL	Solvents	X	--	--	--	--	--
trans-1,3-Dichloropropene	10061–02–6	NA	Fumigant-related compounds	X	--	--	--	--	--
trans-1,4-Dichloro-2-butene	110–57–6	NA	Organic synthesis compounds	X	--	--	--	--	--
trans-Propiconazole	60207–90–1	HBSL	Fungicides	--	--	--	X	--	--
Tri(2-chloroethyl)phosphate	115–96–8	NA	Manufacturing additives	--	--	--	--	--	X
Tribufos	78–48–8	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--
Tributyl phosphate	126–73–8	NA	Manufacturing additives	--	--	--	--	--	X
Trichloroethylene	79–01–6	MCL	Solvents	X	--	--	--	--	--
Trichlorofluoromethane	75–69–4	HBSL	Refrigerants and propellants	X	--	--	--	--	--
Triclopyr	55335–06–3	HBSL	Herbicides and herbicide degradates	--	--	--	--	X	--
Triclosan	3380–34–5	NA	Personal care and domestic use products	--	--	--	--	--	X
Triethyl citrate	77–93–0	NA	Personal care and domestic use products	--	--	--	--	--	X
Trifluralin	1582–09–8	HBSL	Herbicides and herbicide degradates	--	--	X	X	--	--

Table 4. Compounds analyzed, Chemical Abstract Service Registry numbers, drinking-water benchmarks, primary use or source groups, and analytical schedules used to analyze compounds.—Continued

[CASR, Chemical Abstracts Service Registry; HBSL, Health-Based Screening Level; MCL, Maximum Contaminant Level; NA, not available; --, not available or not used]

Compound	CASR number	Drinking-water benchmark	Primary use or source[1]	Analytical schedule(s) used to analyze compound					
				2020	4024	2003	2033	2060	1433
Triphenyl phosphate	115–86–6	NA	Manufacturing additives	--	--	--	--	--	X
Tris(2-butoxyethyl)phosphate	78–51–3	NA	Manufacturing additives	--	--	--	--	--	X
Tris(dichlorisopropyl) phosphate	13674–87–8	NA	Manufacturing additives	--	--	--	--	--	X
Vinyl chloride	75–01–4	MCL	Organic synthesis compounds	X	--	--	--	--	--

[1]Identified in Source Water-Quality Assessment studies (Carter and others, 2007).

Table 5. Number of surface-water and ground-water quenched and nonquenched finished-water spiked samples by primary use or source group from the field study, 2004–06.

[--, no data]

Parameter code	Compound	Surface water			Ground water		
		Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples	Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples
			Disinfection by-products				
32101	Bromodichloromethane	4	3	--	3	--	--
32104	Bromoform	4	3	--	3	--	--
34288	Bromoform	4	2	--	3	1	--
32106	Chloroform	4	3	--	3	--	--
32105	Dibromochloromethane	4	3	--	3	--	--
			Fumigant-related compounds				
82625	1,2-Dibromo-3-chloropropane	4	3	--	3	--	--
77651	1,2-Dibromoethane	4	3	--	3	--	--
34541	1,2-Dichloropropane	4	3	--	3	--	--
77173	1,3-Dichloropropane	4	3	--	3	--	--
34571	1,4-Dichlorobenzene	4	3	--	3	--	--
34572	1,4-Dichlorobenzene	4	2	--	3	1	--
77170	2,2-Dichloropropane	4	3	--	3	--	--
34413	Bromomethane	4	3	--	3	--	--
34704	*cis*-1,3-Dichloropropene	4	3	--	3	--	--
34699	*trans*-1,3-Dichloropropene	4	3	--	3	--	--
			Fungicides				
50300	Benomyl	3	3	--	2	--	1
49306	Chlorothalonil	3	2	--	2	--	1
79846	*cis*-Propiconazole	--	1	--	1	--	1
61593	Iprodione	3	3	--	3	--	--
50359	Metalaxyl	6	5	--	6	1	1
61596	Metalaxyl	3	3	--	3	--	--
61599	Myclobutanil	3	3	--	3	--	--
34459	Pentachlorophenol	3	--	--	2	1	--
50471	Propiconazole	3	3	--	2	--	1
62852	Tebuconazole	--	1	--	2	--	--
79847	*trans*-Propiconazole	--	1	--	2	--	--
			Gasoline hydrocarbons, oxygenates, and oxygenate degradates				
49999	1,2,3,4-Tetramethylbenzene	4	3	--	3	--	--
50000	1,2,3,5-Tetramethylbenzene	4	3	--	3	--	--
77221	1,2,3-Trimethylbenzene	4	3	--	3	--	--
77222	1,2,4-Trimethylbenzene	4	3	--	3	--	--

Table 5. Number of surface-water and ground-water quenched and nonquenched finished-water spiked samples by primary use or source group from the field study, 2004–06.—Continued

[--, no data]

Parameter code	Compound	Surface water			Ground water		
		Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples	Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples
	Gasoline hydrocarbons, oxygenates, and oxygenate degradates—Continued						
77226	1,3,5-Trimethylbenzene	4	3	--	3	--	--
62054	1-Methylnaphthalene	4	2	--	2	2	--
62055	2,6-Dimethylnaphthalene	4	2	--	3	1	--
62056	2-Methylnaphthalene	4	2	--	2	2	--
77356	4-Isopropyl-1-methylbenzene	4	3	--	3	--	--
34030	Benzene	4	3	--	3	--	--
77342	Butylbenzene	4	3	--	3	--	--
81577	Diisopropyl ether	4	7	--	4	--	--
50004	Ethyl *tert*-butyl ether	4	7	--	4	--	--
34371	Ethylbenzene	4	3	--	3	--	--
62078	Isopropylbenzene	4	2	--	3	1	--
77223	Isopropylbenzene	4	3	--	3	--	--
85795	*m*- and *p*-Xylene	4	3	--	3	--	--
34443	Naphthalene	4	2	--	3	1	--
34696	Naphthalene	4	3	--	3	--	--
77220	*o*-Ethyl toluene	4	3	--	3	--	--
77135	*o*-Xylene	4	3	--	3	--	--
77350	*sec*-Butylbenzene	4	3	--	3	--	--
77128	Styrene	4	3	--	3	--	--
77073	*tert*-Amyl alcohol	--	4	--	1	--	--
77035	*tert*-Butyl alcohol	--	4	--	1	--	--
78032	*tert*-Butyl methyl ether	4	7	--	4	--	--
77353	*tert*-Butylbenzene	4	3	--	3	--	--
50005	*tert*-Pentyl methyl ether	4	7	--	4	--	--
34010	Toluene	4	3	--	3	--	--
	Herbicides and herbicide degradates						
39732	2,4–D	3	3	--	2	--	1
50470	2,4–D methyl ester	3	2	--	2	--	1
38746	2,4–DB	3	3	--	2	--	1
82660	2,6-Diethylaniline	3	3	--	3	--	--
61618	2-Chloro-2,6-diethylacetanilide	3	3	--	3	--	--
04040	2-Chloro-4-isopropylamino-6-amino-*s*-triazine (CIAT)	5	4	--	5	--	--

Table 5. Number of surface-water and ground-water quenched and nonquenched finished-water spiked samples by primary use or source group from the field study, 2004–06.—Continued

[--, no data]

Parameter code	Compound	Surface water			Ground water		
		Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples	Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples
		Herbicides and herbicide degradates—Continued					
04038	2-Chloro-6-ethylamino-4-amino-*s*-triazine (CEAT)	3	3	--	2	--	1
61620	2-Ethyl-6-methylaniline	3	3	--	3	--	--
50355	2-Hydroxyatrazine	3	3	--	2	--	1
61692	3(4-Chlorophenyl)-1-methyl urea	3	3	--	2	--	1
61625	3,4-Dichloroaniline	3	3	--	3	--	--
61627	3,5-Dichloroaniline	--	1	--	2	--	--
61633	4-Chloro-2-methylphenol	3	3	--	3	--	--
49260	Acetochlor	3	3	--	3	--	--
49315	Acifluorfen	3	3	--	2	--	1
46342	Alachlor	3	3	--	3	--	--
39632	Atrazine	5	4	--	5	--	--
82673	Benfluralin	3	3	--	3	--	--
61693	Bensulfuron-methyl	2	3	--	2	--	--
38711	Bentazon	3	3	--	2	--	1
04029	Bromacil	6	5	--	6	1	1
49311	Bromoxynil	3	3	--	2	--	1
61188	Chloramben, methyl ester	3	2	--	2	--	1
50306	Chlorimuron-ethyl	2	3	--	2	--	--
49305	Clopyralid	3	2	--	2	--	1
04041	Cyanazine	--	1	--	2	--	--
04031	Cycloate	3	3	--	2	--	1
82682	Dacthal	3	3	--	3	--	--
49304	Dacthal monoacid	3	3	--	2	--	1
04039	Deethyldeisopropyl-atrazine (DDA)	3	3	--	2	--	--
38442	Dicamba	3	2	--	2	--	1
49302	Dichlorprop	3	3	--	2	--	1
49301	Dinoseb	3	3	--	2	--	1
04033	Diphenamid	3	3	--	2	--	1
49300	Diuron	3	3	--	2	--	1
82668	EPTC	--	1	--	2	--	--
49297	Fenuron	3	3	--	2	--	1
61694	Flumetsulam	3	3	--	2	--	1

Table 5. Number of surface-water and ground-water quenched and nonquenched finished-water spiked samples by primary use or source group from the field study, 2004–06.—Continued

[--, no data]

Parameter code	Compound	Surface water			Ground water		
		Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples	Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples
		Herbicides and herbicide degradates—Continued					
38811	Fluometuron	3	3	--	2	--	1
04025	Hexazinone	3	3	--	3	--	--
50356	Imazaquin	3	3	--	2	--	1
50407	Imazethapyr	3	3	--	2	--	1
38478	Linuron	3	3	--	2	--	1
38482	MCPA	3	3	--	2	--	1
38487	MCPB	3	3	--	2	--	1
39415	Metolachlor	6	7	2	7	3	--
82630	Metribuzin	3	3	--	3	--	--
61697	Metsulfuron methyl	3	3	--	2	--	1
82671	Molinate	--	1	--	2	--	--
49294	Neburon	3	3	--	2	--	1
50364	Nicosulfuron	2	3	--	2	--	1
49293	Norflurazon	3	3	--	2	--	1
49292	Oryzalin	3	3	--	2	--	1
61600	Oxyfluorfen	--	1	--	2	--	--
82683	Pendimethalin	3	3	--	3	--	--
49291	Picloram	3	2	--	2	--	1
04037	Prometon	6	7	2	7	3	--
04036	Prometryn	3	3	--	3	--	--
82679	Propanil	--	1	--	2	--	--
49236	Propham	3	3	--	2	--	1
82676	Propyzamide	3	3	--	3	--	--
38548	Siduron	3	3	--	2	--	1
04035	Simazine	3	3	--	3	--	--
50337	Sulfometuron-methyl	2	3	--	2	--	--
82670	Tebuthiuron	5	4	--	5	--	--
04032	Terbacil	3	3	--	2	--	1
04022	Terbuthylazine	3	3	--	3	--	--
82681	Thiobencarb	--	1	--	2	--	--
61610	Tribufos	--	1	--	2	--	--
49235	Triclopyr	3	3	--	2	--	1
82661	Trifluralin	3	3	--	3	--	--

Table 5. Number of surface-water and ground-water quenched and nonquenched finished-water spiked samples by primary use or source group from the field study, 2004–06.—Continued

[--, no data]

Parameter code	Compound	Surface water			Ground water		
		Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples	Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples
	Insecticides and insecticide degradates						
49295	1-Naphthol	3	3	--	3	--	--
49308	3-Hydroxycarbofuran	3	2	--	2	--	1
50295	3-Ketocarbofuran	3	2	--	2	--	1
49312	Aldicarb	3	2	--	2	--	1
49313	Aldicarb sulfone	3	2	--	2	--	1
49314	Aldicarb sulfoxide	3	2	--	2	--	1
34362	*alpha*-Endosulfan	--	1	--	2	--	--
82686	Azinphos-methyl	3	3	--	3	--	--
61635	Azinphos-methyl-oxon	3	3	--	3	--	--
50299	Bendiocarb	3	2	--	2	--	1
49310	Carbaryl	3	2	--	2	--	1
82680	Carbaryl	6	7	2	7	2	--
49309	Carbofuran	3	2	--	2	--	1
82674	Carbofuran	--	1	--	2	--	--
38933	Chlorpyrifos	6	7	2	6	3	--
61636	Chlorpyrofos, oxygen analog	3	3	--	3	--	--
82687	*cis*-Permethrin	3	3	--	3	--	--
61585	Cyfluthrin	3	3	--	3	--	--
61586	Cypermethrin	3	3	--	3	--	--
62170	Desulfinylfipronil	3	3	--	3	--	--
62169	Desulfinylfipronil amide	3	3	--	3	--	--
39572	Diazinon	6	7	2	6	3	--
61638	Diazinon, oxygen analog	3	3	--	3	--	--
38775	Dichlorvos	4	3	--	4	--	--
38454	Dicrotophos	3	3	--	3	--	--
39381	Dieldrin	3	3	--	3	--	--
82662	Dimethoate	3	3	--	3	--	--
82677	Disulfoton	--	1	--	2	--	--
61640	Disulfoton sulfone	--	1	--	2	--	--
61590	Endosulfan sulfate	--	1	--	2	--	--
82346	Ethion	3	3	--	3	--	--
61644	Ethion monoxon	3	3	--	3	--	--
82672	Ethoprophos	--	1	--	2	--	--

Table 5. Number of surface-water and ground-water quenched and nonquenched finished-water spiked samples by primary use or source group from the field study, 2004–06.—Continued

[--, no data]

Parameter code	Compound	Surface water			Ground water		
		Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples	Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples
	Insecticides and insecticide degradates—Continued						
61591	Fenamiphos	3	3	--	3	--	--
61645	Fenamiphos sulfone	3	3	--	3	--	--
61646	Fenamiphos sulfoxide	3	3	--	3	--	--
62166	Fipronil	3	3	--	3	--	--
62167	Fipronil sulfide	3	3	--	3	--	--
62168	Fipronil sulfone	3	3	--	3	--	--
04095	Fonofos	3	3	--	3	--	--
61695	Imidacloprid	3	3	--	2	--	1
61594	Isofenphos	3	3	--	3	--	--
61595	*lambda*-Cyhalothrin	--	1	--	2	--	--
61652	Malaoxon	3	3	--	3	--	--
39532	Malathion	3	3	--	3	--	--
61598	Methidathion	3	3	--	3	--	--
38501	Methiocarb	3	3	--	2	--	1
49296	Methomyl	3	2	--	2	--	1
38866	Oxamyl	3	2	--	2	--	1
61664	Paraoxon-methyl	3	3	--	3	--	--
82667	Parathion-methyl	3	3	--	3	--	--
82664	Phorate	3	3	--	3	--	--
61666	Phorate oxon	3	3	--	3	--	--
61601	Phosmet	2	2	--	1	--	--
61668	Phosmet oxon	2	1	--	1	--	--
82685	Propargite	--	1	--	2	--	--
38538	Propoxur	3	2	--	2	--	1
61606	Tefluthrin	--	1	--	2	--	--
82675	Terbufos	3	3	--	3	--	--
61674	Terbufos-oxygen-analogue sulfone	3	3	--	3	--	--
	Manufacturing additives						
62063	5-Methyl-1H-benzotriazole	4	2	--	1	2	--
62069	Bisphenol A	4	1	--	2	2	--
62087	Tri(2-chloroethyl)phosphate	4	2	--	3	1	--
62089	Tributyl phosphate	4	2	--	3	1	--
62092	Triphenyl phosphate	4	2	--	3	1	--

Table 5. Number of surface-water and ground-water quenched and nonquenched finished-water spiked samples by primary use or source group from the field study, 2004–06.—Continued

[--, no data]

Parameter code	Compound	Surface water			Ground water		
		Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples	Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples
	Manufacturing additives—Continued						
62093	Tris(2-butoxyethyl)phosphate	4	2	--	3	1	--
62088	Tris(dichlorisopropyl) phosphate	4	2	--	3	1	--
	Organic synthesis compounds						
77168	1,1-Dichloropropene	4	3	--	3	--	--
77613	1,2,3-Trichlorobenzene	4	3	--	3	--	--
77443	1,2,3-Trichloropropane	4	3	--	3	--	--
78109	3-Chloropropene	4	3	--	3	--	--
34215	Acrylonitrile	4	3	--	3	--	--
62066	Anthraquinone	4	2	--	3	1	--
50002	Bromoethene	4	3	--	3	--	--
62071	Carbazole	4	2	--	2	2	--
77041	Carbon disulfide	4	3	--	3	--	--
34418	Chloromethane	4	3	--	3	--	--
73570	Ethyl methacrylate	4	3	--	3	--	--
39702	Hexachlorobutadiene	4	3	--	3	--	--
49991	Methyl acrylate	4	3	--	3	--	--
81593	Methyl acrylonitrile	4	3	--	3	--	--
77424	Methyl iodide	4	3	--	3	--	--
81597	Methyl methacrylate	4	3	--	3	--	--
73547	*trans*-1,4-Dichloro-2-butene	4	3	--	3	--	--
39175	Vinyl chloride	4	3	--	3	--	--
	Pavement- and combustion-derived compounds						
734221	Anthracene	4	2	--	3	1	--
34248	Benzo[a]pyrene	4	2	--	3	1	--
34377	Fluoranthene	4	2	--	3	1	--
34462	Phenanthrene	4	2	--	3	1	--
34470	Pyrene	4	2	--	3	1	--
	Personal care and domestic use products						
62059	3-*tert*-Butyl-4-hydroxy anisole (BHA)	4	2	--	2	2	--
62060	4-Cumylphenol	4	2	--	2	2	--
62061	4-*n*-Octylphenol	4	2	--	3	1	--
62062	4-*tert*-Octylphenol	4	2	--	2	2	--

Table 5. Number of surface-water and ground-water quenched and nonquenched finished-water spiked samples by primary use or source group from the field study, 2004–06.—Continued

[--, no data]

Parameter code	Compound	Surface water			Ground water		
		Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples	Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples
	Personal care and domestic use products—Continued						
62064	Acetophenone	4	2	--	3	1	--
62065	Acetyl hexamethyl tetrahydronaphthalene (AHTN)	4	2	--	3	1	--
62067	Benzophenone	4	2	--	3	1	--
77297	Bromochloromethane	4	3	--	3	--	--
50305	Caffeine	6	5	--	5	2	1
62070	Camphor	4	2	--	3	1	--
62005	Cotinine	4	2	--	3	1	--
62073	*d*-Limonene	4	2	--	2	2	--
62075	Hexadydrohexamethyl-cyclopentabenzopyran (HHCB)	4	2	--	3	1	--
62076	Indole	4	2	--	2	2	--
62077	Isoborneol	4	2	--	3	1	--
62079	Isoquinoline	4	2	--	3	1	--
62080	Menthol (5-methyl-2-[1-methylethyl] cyclo-hexanol)	4	2	--	3	1	--
62081	Methyl salicylate	4	2	--	2	2	--
62082	N,N-diethyl-*meta*-toluamide (DEET)	4	2	--	3	1	--
62083	Nonylphenol, diethoxy-(total)	4	2	--	3	1	--
61705	Octylphenol, diethoxy-(OPEO2)	4	2	--	3	1	--
61706	Octylphenol, monoethoxy-(OPEO1)	4	2	--	3	1	--
62085	*para*-Nonylphenol, total (mixture of isomers)	4	2	--	2	2	--
34466	Phenol	4	2	--	2	2	--
62090	Triclosan	4	2	--	2	2	--
62091	Triethyl citrate	4	2	--	3	1	--
	Plant- or animal-derived biochemicals						
62057	3-*beta*-Coprostanol	4	2	--	3	1	--
62058	3-Methyl-1(H)-indole (Skatole)	4	2	--	2	2	--
62068	*beta*-Sitosterol	4	2	--	3	1	--

Table 5. Number of surface-water and ground-water quenched and nonquenched finished-water spiked samples by primary use or source group from the field study, 2004–06.—Continued

[--, no data]

Parameter code	Compound	Surface water			Ground water		
		Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples	Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples
		Plant- or animal-derived biochemicals—Continued					
62086	*beta*-Stigmastanol	4	2	--	3	1	--
62072	Cholesterol	4	2	--	3	1	--
		Refrigerants and propellants					
77652	1,1,2-Trichlorotrifluoro-ethane	4	3	--	3	--	--
34668	Dichlorodifluoromethane	4	3	--	3	--	--
34488	Trichlorofluoromethane	4	3	--	3	--	--
		Solvents					
77562	1,1,1,2-Tetrachloroethane	4	3	--	3	--	--
34506	1,1,1-Trichloroethane	4	3	--	3	--	--
34516	1,1,2,2-Tetrachloroethane	4	3	--	3	--	--
34511	1,1,2-Trichloroethane	4	3	--	3	--	--
34496	1,1-Dichloroethane	4	3	--	3	--	--
34501	1,1-Dichloroethylene	4	3	--	3	--	--
34551	1,2,4-Trichlorobenzene	4	3	--	3	--	--
34536	1,2-Dichlorobenzene	4	3	--	3	--	--
32103	1,2-Dichloroethane	4	3	--	3	--	--
34566	1,3-Dichlorobenzene	4	3	--	3	--	--
81595	2-Butanone	4	3	--	3	--	--
77275	2-Chlorotoluene	4	3	--	3	--	--
77103	2-Hexanone	4	3	--	3	--	--
77277	4-Chlorotoluene	4	3	--	3	--	--
78133	4-Methyl-2-pentanone	4	3	--	3	--	--
81552	Acetone	4	7	--	4	--	--
81555	Bromobenzene	4	3	--	3	--	--
34301	Chlorobenzene	4	3	--	3	--	--
34311	Chloroethane	4	3	--	3	--	--
77093	*cis*-1,2-Dichloroethylene	4	3	--	3	--	--
30217	Dibromomethane	4	3	--	3	--	--
34423	Dichloromethane	4	3	--	3	--	--
81576	Diethyl ether	4	3	--	3	--	--
34396	Hexachloroethane	4	3	--	3	--	--
34409	Isophorone	4	2	--	3	1	--
77032	Methyl acetate	--	4	--	1	--	--

Table 5. Number of surface-water and ground-water quenched and nonquenched finished-water spiked samples by primary use or source group from the field study, 2004–06.—Continued

[--, no data]

Parameter code	Compound	Surface water			Ground water		
		Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples	Quenched samples paired with nonquenched samples	Unpaired quenched samples	Unpaired nonquenched samples
		Solvents—Continued					
77224	*n*-Propylbenzene	4	3	--	3	--	--
62084	*p*-Cresol	4	2	--	3	1	--
34475	Tetrachloroethylene	4	3	--	3	--	--
34476	Tetrachloroethylene	4	2	--	3	1	--
32102	Tetrachloromethane	4	3	--	3	--	--
81607	Tetrahydrofuran	4	3	--	3	--	--
34546	*trans*-1,2-Dichloroethylene	4	3	--	3	--	--
39180	Trichloroethylene	4	3	--	3	--	--

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days				
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values		
				Minimum	Median	Maximum			Minimum	Median	Maximum
Schedule 4024											
81552	67–64–1	Acetone	4	106.4	117.4	149.6	4	14	119.9	122.6	152.8
81577	108–20–3	Diisopropyl ether	4	93.3	95.7	97.2	4	14	101.4	103.4	104.4
50004	637–92–3	Ethyl *tert*-butyl ether	4	92.2	93.5	94.4	4	14	100.2	100.8	102.4
77032	79–20–9	Methyl Acetate	4	100.3	100.9	101.3	4	14	105.5	105.9	108.7
77073	75–85–4	*tert*-Amyl alcohol	4	98.6	103.9	108.5	4	14	139.0	155.6	165.1
77035	75–65–0	*tert*-Butyl alcohol	4	110.3	113.6	121.9	4	14	144.8	167.1	179.0
78032	1634–04–4	*tert*-Butyl methyl ether	4	96.4	97.8	98.4	4	14	104.6	106.1	107.2
50005	994–05–8	*tert*-Pentyl methyl ether	4	92.0	93.9	94.3	4	14	100.4	101.7	103.1
Schedule 2020											
77562	630–20–6	1,1,1,2-Tetrachloroethane	4	97.6	100.7	104.4	4	14	98.2	98.9	102.9
34506	71–55–6	1,1,1-Trichloroethane	4	99.0	100.9	104.4	4	14	104.3	105.2	106.8
34516	79–34–5	1,1,2,2-Tetrachloroethane	4	106.0	108.9	114.7	4	14	104.6	107.8	109.8
34511	79–00–5	1,1,2-Trichloroethane	4	104.2	106.1	114.6	4	14	105.8	108.3	110.1
77652	76–13–1	1,1,2-Trichlorotrifluoroethane	4	108.1	109.7	114.7	4	14	107.4	111.4	114.0
34496	75–34–3	1,1-Dichloroethane	4	117.1	118.7	122.9	4	14	123.4	124.4	127.4
34501	75–35–4	1,1-Dichloroethylene	4	103.4	105.8	107.9	4	14	105.4	107.2	108.4
77168	563–58–6	1,1-Dichloropropene	4	105.8	107.9	110.1	4	14	108.9	110.4	111.5
49999	488–23–3	1,2,3,4-Tetramethylbenzene	4	112.2	116.3	120.7	4	14	106.1	106.8	108.1
50000	527–53–7	1,2,3,5-Tetramethylbenzene	4	119.6	123.0	127.0	4	14	116.7	118.1	120.3
77613	87–61–6	1,2,3-Trichlorobenzene	4	116.4	121.3	123.6	4	14	110.4	112.4	114.4
77443	96–18–4	1,2,3-Trichloropropane	4	101.4	105.5	108.4	4	14	102.4	103.9	105.3
77221	526–73–8	1,2,3-Trimethylbenzene	4	107.7	110.7	114.9	4	14	108.8	110.3	112.7
34551	120–82–1	1,2,4-Trichlorobenzene	4	110.7	114.0	116.5	4	14	101.3	103.5	105.9
77222	95–63–6	1,2,4-Trimethylbenzene	4	110.8	113.2	116.9	4	14	111.1	112.3	115.6
82625	96–12–8	1,2-Dibromo-3-chloropropane	4	111.5	118.1	122.7	4	14	111.2	112.8	113.3
77651	106–93–4	1,2-Dibromoethane	4	102.8	104.4	108.4	4	14	102.2	104.0	107.0

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days			
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values	
				Minimum	Median	Maximum			Minimum	Median	Maximum
			Schedule 2020—Continued								
34536	95–50–1	1,2-Dichlorobenzene	4	107.2	109.5	113.8	4	14	107.4	108.4	110.5
32103	107–06–2	1,2-Dichloroethane	4	105.5	106.6	110.7	4	14	105.7	106.9	110.4
34541	78–87–5	1,2-Dichloropropane	4	101.9	103.0	108.6	4	14	103.2	105.5	107.0
77226	108–67–8	1,3,5-Trimethylbenzene	4	104.8	107.3	111.4	4	14	106.4	107.6	111.1
34566	541–73–1	1,3-Dichlorobenzene	4	105.9	108.5	113.3	4	14	104.3	106.3	110.8
77173	142–28–9	1,3-Dichloropropane	4	104.3	107.7	109.9	4	14	105.8	107.1	109.5
34571	106–46–7	1,4-Dichlorobenzene	4	102.3	104.4	110.0	4	14	102.0	103.6	105.7
77170	594–20–7	2,2-Dichloropropane	4	114.5	116.3	119.6	4	14	105.7	108.1	110.1
81595	78–93–3	2-Butanone	4	119.1	120.4	122.5	4	14	111.8	112.4	114.7
77275	95–49–8	2-Chlorotoluene	4	101.6	106.5	110.8	4	14	103.2	106.0	107.3
77103	591–78–6	2-Hexanone	4	106.1	111.1	115.9	4	14	98.8	101.8	103.9
78109	107–05–1	3-Chloropropene	4	149.3	152.9	156.5	4	14	157.1	161.0	161.1
77277	106–43–4	4-Chlorotoluene	4	101.2	105.6	107.7	4	14	101.7	103.4	105.1
77356	99–87–6	4-Isopropyl-1-methylbenzene	4	110.6	113.0	116.2	4	14	109.6	112.1	114.3
78133	108–10–1	4-Methyl-2-pentanone	4	104.1	109.9	110.2	4	14	100.4	101.5	103.0
81552	67–64–1	Acetone	4	105.4	108.4	110.8	4	14	102.8	103.3	106.1
34215	107–13–1	Acrylonitrile	4	108.2	111.6	112.3	4	14	108.6	109.1	112.0
34030	71–43–2	Benzene	4	105.1	109.1	112.3	4	14	113.5	113.8	114.8
81555	108–86–1	Bromobenzene	4	102.5	105.4	107.1	4	14	104.6	105.7	107.6
77297	74–97–5	Bromochloromethane	4	96.5	99.2	101.2	4	14	96.8	101.7	104.2
32101	75–27–4	Bromodichloromethane	4	108.1	108.8	111.5	4	14	108.4	109.7	113.8
50002	593–60–2	Bromoethene	4	107.2	107.9	110.4	4	14	113.4	114.3	115.4
32104	75–25–2	Bromoform	4	101.3	102.7	105.7	4	14	96.6	98.5	99.6
34413	74–83–9	Bromomethane	4	112.4	113.4	114.8	4	14	116.5	121.5	122.7
77342	104–51–8	Butylbenzene	4	108.9	112.1	116.3	4	14	99.6	104.5	108.0
77041	75–15–0	Carbon disulfide	4	90.5	91.1	95.2	4	14	89.1	93.2	96.0

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days				
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values		
				Minimum	Median	Maximum			Minimum	Median	Maximum
			Schedule 2020—Continued								
34301	108–90–7	Chlorobenzene	4	102.6	105.1	107.9	4	14	104.2	106.2	106.5
34311	75–00–3	Chloroethane	4	101.8	104.9	107.3	4	14	111.8	116.4	119.3
32106	67–66–3	Chloroform	4	105.1	105.9	110.3	4	14	107.8	109.1	111.5
34418	74–87–3	Chloromethane	4	100.9	102.3	106.1	4	14	110.1	111.9	117.3
77093	156–59–2	*cis*-1,2-Dichloroethylene	4	103.6	107.9	109.3	4	14	109.5	110.9	112.0
34704	10061–01–5	*cis*-1,3-Dichloropropene	4	99.3	100.9	104.1	4	14	95.0	95.3	96.0
32105	124–48–1	Dibromochloromethane	4	99.8	101.6	105.5	4	14	98.7	100.9	102.5
30217	74–95–3	Dibromomethane	4	102.2	104.8	114.2	4	14	106.3	107.2	112.0
34668	75–71–8	Dichlorodifluoromethane	4	85.9	86.8	91.2	4	14	87.4	89.2	91.1
34423	75–09–2	Dichloromethane	4	101.7	104.0	108.1	4	14	106.3	106.7	109.3
81576	60–29–7	Diethyl ether	4	108.9	112.9	115.1	4	14	107.4	108.5	110.0
81577	108–20–3	Diisopropyl ether	4	104.4	106.1	109.8	4	14	103.8	104.8	105.3
73570	97–63–2	Ethyl methacrylate	4	105.0	109.3	111.7	4	14	99.0	99.7	101.9
50004	637–92–3	Ethyl *tert*-butyl ether	4	105.9	108.8	110.9	4	14	96.2	99.7	102.6
34371	100–41–4	Ethylbenzene	4	108.1	110.5	112.7	4	14	110.5	110.8	111.3
39702	87–68–3	Hexachlorobutadiene	4	106.4	108.8	113.5	4	14	101.6	103.8	105.5
34396	67–72–1	Hexachloroethane	4	93.6	95.2	98.3	4	14	95.4	96.9	98.4
77223	98–82–8	Isopropylbenzene	4	106.9	109.2	111.6	4	14	110.0	110.4	111.0
85795	*m*=108–38 –3 *p*=106–42–3	*m*- and *p*-Xylene	4	103.0	106.2	108.0	4	14	105.3	106.1	106.7
49991	96–33–3	Methyl acrylate	4	107.5	108.9	109.7	4	14	102.2	103.2	105.3
81593	126–98–7	Methyl acrylonitrile	4	110.1	111.1	113.2	4	14	108.1	108.4	112.0
77424	74–88–4	Methyl iodide	4	112.0	112.6	116.0	4	14	114.4	123.9	125.9
81597	80–62–6	Methyl methacrylate	4	97.9	101.1	103.1	4	14	93.3	93.6	95.0
34696	91–20–3	Naphthalene	4	109.3	115.0	117.7	4	14	101.4	102.5	103.1
77224	103–65–1	*n*-Propylbenzene	4	102.4	104.7	109.2	4	14	103.1	106.5	107.8
77220	611–14–3	*o*-Ethyl toluene	4	103.6	105.3	107.9	4	14	104.9	105.7	107.4

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days			
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values	
				Minimum	Median	Maximum			Minimum	Median	Maximum
					Schedule 2020—Continued						
77135	95–47–6	*o*-Xylene	4	105.1	107.7	110.1	4	14	105.9	107.4	108.1
77350	135–98–8	*sec*-Butylbenzene	4	108.0	110.2	112.6	4	14	109.1	110.1	112.1
77128	100–42–5	Styrene	4	103.1	107.4	110.2	4	14	103.8	105.0	107.5
78032	1634–04–4	*tert*-Butyl methyl ether	4	104.6	110.2	111.8	4	14	101.4	103.2	105.3
77353	98–06–6	*tert*-Butylbenzene	4	108.2	110.3	113.9	4	14	112.2	113.5	115.6
50005	994–05–8	*tert*-Pentyl methyl ether	4	102.7	108.0	108.6	4	14	95.8	96.9	100.0
34475	127–18–4	Tetrachloroethylene	4	100.0	102.9	106.7	4	14	101.9	104.5	106.7
32102	56–23–5	Tetrachloromethane	4	92.5	97.0	101.7	4	14	99.0	100.5	102.5
81607	109–99–9	Tetrahydrofuran	4	109.4	114.3	116.5	4	14	105.1	108.4	109.7
34010	108–88–3	Toluene	4	104.1	106.6	111.0	4	14	107.3	109.1	110.9
34546	156–60–5	*trans*-1,2-Dichloroethylene	4	103.1	105.0	107.9	4	14	104.9	108.2	110.3
34699	10061–02–6	*trans*-1,3-Dichloropropene	4	109.0	110.1	111.5	4	14	102.5	104.1	105.0
73547	110–57–6	*trans*-1,4-Dichloro-2-butene	4	121.4	122.1	130.5	4	14	105.6	105.8	109.7
39180	79–01–6	Trichloroethylene	4	98.9	101.1	104.0	4	14	102.9	105.5	106.6
34488	75–69–4	Trichlorofluoromethane	4	97.9	99.6	105.0	4	14	102.9	104.1	107.9
39175	75–01–4	Vinyl chloride	4	114.1	115.1	118.1	4	14	112.7	114.3	116.5
					Schedule 2003						
49295	90–15–3	1-Naphthol	4	47.0	52.0	56.6	4	7	51.4	64.0	70.4
82660	579–66–8	2,6-Diethylaniline	4	99.2	101.3	105.0	4	7	95.5	97.4	97.7
61618	6967–29–9	2-Chloro-2,6-diethylacetanilide	4	119.0	119.5	123.0	4	7	113.0	116.0	120.0
04040	6190–65–4	2-Chloro-4-isopropylamino-6-amino-*s*-triazine {CIAT}	4	39.9	44.0	50.0	4	7	51.2	52.2	56.8
61620	24549–06–2	2-Ethyl-6-methylaniline	4	96.4	99.9	105.0	4	7	96.4	97.4	97.5
61625	95–76–1	3,4-Dichloroaniline	4	66.7	69.4	72.6	4	7	89.4	91.3	97.1
61633	1570–64–5	4-Chloro-2-methylphenol	4	44.0	44.8	46.9	4	7	60.8	62.2	66.5
49260	34256–82–1	Acetochlor	4	114.0	115.5	119.0	4	7	108.0	112.0	114.0
46342	15972–60–8	Alachlor	4	112.0	115.0	117.0	4	7	108.0	111.5	116.0

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days				
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values		
				Minimum	Median	Maximum			Minimum	Median	Maximum
			Schedule 2003—Continued								
39632	1912–24–9	Atrazine	4	122.0	124.5	125.0	4	7	121.0	124.5	128.0
82686	86–50–0	Azinphos-methyl	4	35.2	84.9	104.0	4	7	85.7	97.4	104.0
61635	961–22–8	Azinphos-methyl-oxon	4	0.1	16.2	65.2	4	7	28.6	64.9	68.6
82673	1861–40–1	Benfluralin	4	96.1	102.5	110.0	4	7	87.3	89.4	95.9
82680	63–25–2	Carbaryl	4	117.0	122.0	123.0	4	7	126.0	130.0	136.0
38933	2921–88–2	Chlorpyrifos	4	112.0	114.5	116.0	4	7	108.0	112.0	116.0
61636	5598–15–2	Chlorpyrifos, oxygen analog	4	90.1	91.4	98.4	4	7	85.5	89.9	98.8
82687	54774–45–7	*cis*-Permethrin	4	61.0	66.3	67.1	4	7	54.7	63.5	67.2
61585	68359–37–5	Cyfluthrin	4	74.5	79.1	84.4	4	7	61.6	75.4	78.1
61586	52315–07–8	Cypermethrin	4	62.8	66.9	71.4	4	7	55.7	63.8	66.9
82682	1861–32–1	Dacthal	4	115.0	118.5	119.0	4	7	111.0	115.0	122.0
62170	--	Desulfinylfipronil	4	116.0	117.5	120.0	4	7	112.0	115.5	124.0
62169	--	Desulfinylfipronil amide	4	114.0	122.0	129.0	4	7	112.0	116.5	125.0
39572	333–41–5	Diazinon	4	107.0	109.0	111.0	4	7	102.0	105.0	107.0
39572	333–41–5	Diazinon	4	108.0	108.5	110.0	4	7	99.6	100.8	106.0
38775	62–73–7	Dichlorvos	4	77.6	79.8	82.7	4	7	75.2	75.6	76.9
38454	141–66–2	Dicrotophos	4	33.5	38.0	41.5	4	7	51.1	53.8	56.3
39381	60–57–1	Dieldrin	4	104.0	109.0	120.0	4	7	97.7	98.8	100.0
82662	60–51–5	Dimethoate	4	22.3	24.0	27.0	4	7	27.9	29.7	32.2
82346	563–12–2	Ethion	4	102.0	107.0	112.0	4	7	88.1	90.3	97.3
61644	17356–42–2	Ethion monoxon	4	102.0	107.5	112.0	4	7	89.5	91.3	101.0
61591	22224–92–6	Fenamiphos	4	129.0	136.5	145.0	4	7	114.0	115.0	128.0
61645	31972–44–8	Fenamiphos sulfone	4	92.0	105.5	113.0	4	7	99.6	100.0	112.0
61646	31972–43–7	Fenamiphos sulfoxide	4	65.2	68.3	74.1	4	7	69.9	71.7	79.7
62166	120068–37–3	Fipronil	4	130.0	133.0	144.0	4	7	124.0	125.5	138.0
62167	120067–83–6	Fipronil sulfide	4	114.0	116.0	122.0	4	7	112.0	116.5	122.0

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.—Continued

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Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days			
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values	
				Minimum	Median	Maximum			Minimum	Median	Maximum
			Schedule 2003—Continued								
62168	120068–36–2	Fipronil sulfone	4	95.7	100.8	104.0	4	7	89.8	91.3	95.8
04095	944–22–9	Fonofos	4	103.0	106.5	109.0	4	7	101.0	102.5	104.0
04095	944–22–9	Fonofos	4	104.0	107.0	115.0	4	7	101.0	103.0	106.0
04025	51235–04–2	Hexazinone	4	106.0	110.0	111.0	4	7	105.0	108.5	111.0
61593	36734–19–7	Iprodione	4	29.1	79.6	84.5	4	7	67.8	68.7	74.7
61594	25311–71–1	Isofenphos	4	123.0	125.5	130.0	4	7	117.0	121.0	127.0
61652	1634–78–2	Malaoxon	4	111.0	115.0	119.0	4	7	98.5	103.5	112.0
39532	121–75–5	Malathion	4	113.0	116.0	119.0	4	7	104.0	107.0	113.0
61596	57837–19–1	Metalaxyl	4	129.0	131.0	134.0	4	7	122.0	125.5	128.0
61598	950–37–8	Methidathion	4	109.0	115.0	119.0	4	7	103.0	106.0	109.0
82667	298–00–0	Methyl parathion	4	108.0	114.5	121.0	4	7	99.3	101.5	111.0
39415	51218–45–2	Metolachlor	4	117.0	120.0	122.0	4	7	114.0	117.0	122.0
82630	21087–64–9	Metribuzin	4	90.0	98.2	102.0	4	7	97.6	100.6	106.0
61599	88671–89–0	Myclobutanil	4	111.0	116.0	119.0	4	7	103.0	104.0	111.0
61664	950–35–6	Paraoxon-methyl	4	97.9	103.0	109.0	4	7	95.0	97.9	110.0
82683	40487–42–1	Pendimethalin	4	115.0	122.5	129.0	4	7	97.6	101.0	112.0
82664	298–02–2	Phorate	4	89.2	93.5	95.6	4	7	78.7	80.2	83.3
61666	2600–69–3	Phorate oxygen analog	4	96.7	100.6	107.0	4	7	77.2	77.5	81.3
61601	732–11–6	Phosmet	4	4.5	11.6	46.2	4	7	4.8	6.2	6.3
61668	3735–33–9	Phosmet oxon	4	0.1	0.1	29.5	4	7	0.1	6.9	7.0
04037	1610–18–0	Prometon	4	118.0	120.0	121.0	4	7	114.0	118.0	122.0
04036	7287–19–6	Prometryn	4	126.0	128.0	131.0	4	7	120.0	123.5	131.0
82676	23950–58–5	Propyzamide	4	110.0	111.5	112.0	4	7	106.0	108.0	114.0
04035	122–34–9	Simazine	4	119.0	122.0	123.0	4	7	117.0	123.0	127.0
82670	34014–18–1	Tebuthiuron	4	158.0	173.0	184.0	4	7	141.0	158.0	169.0
82675	13071–79–9	Terbufos	4	94.6	99.8	101.0	4	7	81.9	83.9	85.6

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.—Continued

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Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days			
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values	
				Minimum	Median	Maximum			Minimum	Median	Maximum
					Schedule 2003—Continued						
61674	56070–15–6	Terbufos oxygen analog sulfone	4	112.0	114.5	121.0	4	7	107.0	109.0	120.0
04022	5915–41–3	Terbuthylazine	4	124.0	126.0	129.0	4	7	120.0	123.5	126.0
82661	1582–09–8	Trifluralin	4	104.0	112.0	120.0	4	7	89.8	94.6	102.0
					Schedule 2060						
39732	94–75–7	2,4–D	4	114.5	119.1	122.9	4	7	132.4	136.4	139.0
50470	1928–38–7	2,4–D methyl ester	4	76.0	85.0	91.2	4	7	61.9	65.6	67.6
38746	94–82–6	2,4–DB	4	82.4	86.4	95.8	4	7	92.7	99.0	101.6
04040	6190–65–4	2-Chloro-4-isopropylamino-6-amino-*s*-triazine {CIAT}	4	75.3	84.7	95.4	4	7	88.2	94.3	96.9
04038	1007–28–9	2-Chloro-6-ethylamino-4-amino-*s*-triazine {CEAT}	4	81.7	85.7	90.8	4	7	88.8	91.1	93.2
50355	2163–68–0	2-Hydroxy-4-isopropylamino-6-ethylamino-*s*-triazine {OIET}	4	80.2	84.6	87.0	4	7	112.3	113.7	115.8
61692	5352–88–5	3-(4-Chlorophenyl)-1-methyl urea	4	92.2	103.3	107.1	4	7	93.2	95.7	98.7
49308	16655–82–6	3-Hydroxycarbofuran	4	98.0	101.0	104.2	4	7	100.6	101.4	104.5
49315	50594–66–6	Acifluorfen	4	89.3	93.7	97.1	4	7	97.1	98.9	103.7
49312	116–06–3	Aldicarb	4	11.7	37.9	48.6	4	7	23.2	47.1	54.0
49313	1646–88–4	Aldicarb sulfone	4	33.2	35.7	36.2	4	7	28.6	33.8	34.6
49314	1646–87–3	Aldicarb sulfoxide	4	81.3	83.3	119.2	4	7	71.2	75.6	103.2
39632	1912–24–9	Atrazine	4	95.0	97.7	102.6	4	7	102.2	106.3	108.2
50299	22781–23–3	Bendiocarb	4	95.6	100.4	104.4	4	7	93.1	94.4	96.5
50300	17804–35–2	Benomyl	4	102.7	108.8	113.6	4	7	114.8	115.2	119.8
61693	83055–99–6	Bensulfuron-methyl	4	151.6	153.8	156.8	4	7	171.0	183.9	185.4
38711	25057–89–0	Bentazon	4	67.1	70.4	71.7	4	7	75.2	77.0	78.1
04029	314–40–9	Bromacil	4	94.5	99.4	104.5	4	7	99.3	102.0	106.0
49311	1689–84–5	Bromoxynil	4	84.6	90.1	95.9	4	7	94.6	96.4	98.1

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.—Continued

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Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days			
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values	
				Minimum	Median	Maximum			Minimum	Median	Maximum
			Schedule 2060—Continued								
50305	58–08–2	Caffeine	4	69.9	72.9	77.6	4	7	80.2	83.2	87.2
82680	63–25–2	Carbaryl	4	98.5	100.8	104.2	4	7	102.2	103.2	107.6
49309	1563–66–2	Carbofuran	4	104.6	107.4	111.1	4	7	107.5	107.9	112.3
61188	7286–84–2	Chloramben methyl ester	4	81.2	85.5	87.6	4	7	84.0	90.0	91.2
04039	3397–62–4	Chlordiamino-*s*-triazine {CAAT}	4	22.8	24.1	24.7	4	7	23.3	25.2	27.5
50306	90982–32–4	Chlorimuron-ethyl	4	178.7	188.8	196.4	4	7	249.9	272.9	279.8
49305	1702–17–6	Clopyralid	4	53.8	61.3	66.1	4	7	48.1	56.1	61.6
04031	1134–23–2	Cycloate	4	66.8	85.8	93.7	4	7	79.8	81.9	84.9
49304	887–54–7	Dacthal monoacid	4	89.4	95.9	101.1	4	7	103.2	107.6	109.5
38442	1918–00–9	Dicamba	4	116.3	119.2	137.4	4	7	103.4	121.8	129.3
49302	120–36–5	Dichlorprop	4	104.8	107.4	109.3	4	7	102.5	104.6	107.4
49301	88–85–7	Dinoseb	4	82.0	85.9	89.1	4	7	88.4	89.5	90.6
04033	957–51–7	Diphenamid	4	99.0	102.3	105.3	4	7	109.0	109.7	113.5
49300	330–54–1	Diuron	4	103.5	105.2	108.4	4	7	106.0	109.1	112.4
49297	101–42–8	Fenuron	4	99.4	101.5	103.7	4	7	109.2	110.8	112.7
61694	98967–40–9	Flumetsulam	4	83.4	84.5	87.8	4	7	102.6	104.5	107.3
38811	2164–17–2	Fluometuron	4	102.4	106.1	108.7	4	7	107.8	109.0	114.2
50356	81335–37–7	Imazaquin	4	0.0	108.2	110.4	4	7	149.4	160.1	165.3
50407	81335–77–5	Imazethapyr	4	110.6	115.9	127.1	4	7	102.2	112.6	121.4
61695	138261–41–3	Imidacloprid	4	89.8	92.1	94.4	4	7	87.6	91.1	93.2
38478	330–55–2	Linuron	4	101.4	104.0	106.3	4	7	100.7	103.4	107.0
38482	94–74–6	MCPA	4	93.8	100.6	110.0	4	7	81.8	86.4	92.8
38487	94–81–5	MCPB	4	79.6	85.4	93.7	4	7	97.2	102.0	104.4
61596	57837–19–1	Metalaxyl	4	105.0	105.9	108.6	4	7	108.1	109.8	111.8
38501	2032–65–7	Methiocarb	4	83.2	93.7	99.2	4	7	94.3	99.1	100.5
49296	16752–77–5	Methomyl	4	90.2	98.1	103.1	4	7	106.8	110.9	111.2

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days			
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values	
				Minimum	Median	Maximum			Minimum	Median	Maximum
Schedule 2060—Continued											
61697	74223–64–6	Metsulfuron methyl	4	68.8	78.8	82.4	4	7	59.1	65.3	68.5
49294	555–37–3	Neburon	4	97.9	100.2	101.7	4	7	102.1	105.4	106.6
50364	111991–09–4	Nicosulfuron	4	171.3	177.9	189.0	4	7	221.6	231.8	248.3
49293	27314–13–2	Norflurazon	4	96.6	100.6	104.3	4	7	108.0	109.8	113.3
49292	19044–88–3	Oryzalin	4	84.8	84.9	89.7	4	7	99.1	100.6	101.9
38866	23135–22–0	Oxamyl	4	28.4	41.9	84.8	4	7	61.4	81.0	95.6
49291	1918–02–1	Picloram	4	0.0	96.5	105.2	4	7	91.4	98.8	99.5
49236	122–42–9	Propham	4	89.8	94.2	100.2	4	7	92.5	95.4	98.2
50471	60207–90–1	Propiconazole	4	92.3	96.1	102.7	4	7	104.2	108.8	112.0
38538	114–26–1	Propoxur	4	104.7	108.8	111.9	4	7	110.0	111.0	113.6
38548	1982–49–6	Siduron	4	100.7	103.2	107.8	4	7	106.2	110.2	111.9
50337	74222–97–2	Sulfometuron-methyl	4	139.2	142.4	146.3	4	7	156.1	162.0	166.2
82670	34014–18–1	Tebuthiuron	4	112.1	114.6	118.5	4	7	122.4	124.1	126.5
04032	5902–51–2	Terbacil	4	93.4	97.4	101.7	4	7	104.8	108.4	109.2
49235	55335–06–3	Triclopyr	4	100.8	117.9	130.0	4	7	100.2	111.5	111.9
Schedule 1433											
34572	106–46–7	1,4-Dichlorobenzene	4	49.0	67.5	80.0	4	7	82.5	86.3	95.0
62054	90–12–0	1-Methylnaphthalene	4	85.0	95.0	100.0	4	7	87.5	88.8	97.5
62055	581–42–0	2,6-Dimethylnaphthalene	4	85.0	95.0	100.0	4	7	85.0	86.3	95.0
62056	91–57–6	2-Methylnaphthalene	4	80.0	95.0	100.0	4	7	90.0	91.3	100.0
62057	360–68–9	3-*beta*-Coprostanol	4	100.0	116.3	125.0	4	7	118.8	134.4	156.3
62058	83–34–1	3-Methyl-1(H)-indole (Skatol)	4	115.0	125.0	130.0	4	7	102.5	105.0	112.5
62059	25013–16–5	3-*tert*-Butyl-4-hydroxy anisole (BHA)	4	80.0	87.5	95.0	4	7	57.5	63.8	65.0
62060	599–64–4	4-Cumylphenol	4	105.0	115.0	125.0	4	7	85.0	91.3	95.0
62061	1806–26–4	4-*n*-Octylphenol	4	110.0	117.5	130.0	4	7	95.0	95.0	102.5
62062	140–66–9	4-*tert*-Octylphenol	4	105.0	115.0	120.0	4	7	90.0	93.8	100.0

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days			
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values	
				Minimum	Median	Maximum			Minimum	Median	Maximum
			Schedule 1433—Continued								
62063	136–85–6	5-Methyl-1H-benzotriazole	4	75.0	78.1	81.3	4	7	59.4	64.1	68.8
62064	98–86–2	Acetophenone	4	110.0	117.5	125.0	4	7	95.0	97.5	105.0
62065	21145–77–7	Acetyl-hexamethyl-tetrahydro-naphthalene (AHTN)	4	95.0	102.5	110.0	4	7	82.5	83.8	90.0
34221	120–12–7	Anthracene	4	120.0	130.0	140.0	4	7	100.0	101.3	110.0
62066	84–65–1	Anthraquinone	4	105.0	112.5	120.0	4	7	100.0	106.3	115.0
34248	50–32–8	Benz[a]pyrene	4	105.0	112.5	120.0	4	7	85.0	86.3	92.5
62067	119–61–9	Benzophenone	4	110.0	115.0	120.0	4	7	90.0	96.3	100.0
62068	83–46–5	*beta*-Sitosterol	4	82.5	97.5	108.8	4	7	125.0	143.8	168.8
62086	19466–47–8	*beta*-Stigmastanol	4	73.8	94.4	102.5	4	7	100.0	121.9	143.8
62069	80–05–7	Bisphenol A	4	105.0	107.5	125.0	4	7	85.0	92.5	100.0
04029	314–40–9	Bromacil	4	115.0	120.6	137.5	4	7	93.8	93.8	100.0
34288	75–25–2	Bromoform	4	80.0	87.5	95.0	4	7	85.0	86.3	92.5
50305	58–08–2	Caffeine	4	105.0	107.5	115.0	4	7	92.5	98.8	105.0
62070	76–22–2	Camphor	4	110.0	115.0	120.0	4	7	90.0	93.8	100.0
82680	63–25–2	Carbaryl	4	55.0	62.5	75.0	4	7	67.5	71.3	72.5
62071	86–74–8	Carbazole	4	120.0	130.0	145.0	4	7	92.5	96.3	105.0
38933	2921–88–2	Chlorpyrifos	4	90.0	97.5	105.0	4	7	77.5	81.3	85.0
62072	57–88–5	Cholesterol	4	95.0	113.1	125.0	4	7	112.5	134.4	156.3
62005	486–56–6	Cotinine	4	81.3	86.3	91.3	4	7	93.8	100.0	100.0
39572	333–41–5	Diazinon	4	105.0	115.0	120.0	4	7	82.5	86.3	90.0
38775	62–73–7	Dichlorvos	4	6.5	7.0	8.0	4	7	4.0	4.0	4.5
62073	5989–27–5	*d*-Limonene	4	10.5	19.3	21.5	4	7	57.5	63.8	80.0
34377	206–44–0	Fluoranthene	4	115.0	125.0	140.0	4	7	95.0	98.8	107.5
62075	1222–05–5	Hexahydrohexamethyl cyclo-pentabenzopyran (HHCB)	4	100.0	110.0	120.0	4	7	90.0	96.3	100.0
62076	120–72–9	Indole	4	100.0	107.5	115.0	4	7	87.5	90.0	92.5

Table 6. Summary statistics of percent recoveries for quenched reagent spiked samples analyzed on day 0 and on day 7 or 14 by analytical schedule from the laboratory study, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound name	Hold time 0 days				Hold time 7 or 14 days			
			Number of samples	Quenched reagent spike values			Number of samples	Hold time (days)	Quenched reagent spike values	
				Minimum	Median	Maximum			Minimum	Median	Maximum
			Schedule 1433—Continued								
62077	124–76–5	Isoborneol	4	105.0	112.5	120.0	4	7	90.0	91.3	97.5
34409	78–59–1	Isophorone	4	105.0	110.0	120.0	4	7	85.0	87.5	92.5
62078	98–82–8	Isopropylbenzene	4	20.0	36.8	43.0	4	7	65.0	70.0	82.5
62079	119–65–3	Isoquinoline	4	105.0	112.5	125.0	4	7	90.0	96.3	100.0
62080	89–78–1	Menthol	4	105.0	115.0	120.0	4	7	92.5	93.8	100.0
61596	57837–19–1	Metalaxyl	4	105.0	112.5	120.0	4	7	82.5	87.5	92.5
62081	119–36–8	Methyl salicylate	4	100.0	105.0	115.0	4	7	85.0	86.3	92.5
39415	51218–45–2	Metolachlor	4	105.0	115.0	120.0	4	7	87.5	95.0	100.0
62082	134–62–3	N,N-diethyl-*meta*-toluamide (DEET)	4	110.0	120.0	130.0	4	7	92.5	98.8	102.5
34443	91–20–3	Naphthalene	4	75.0	85.0	90.0	4	7	77.5	78.8	85.0
62084	106–44–5	*p*-Cresol	4	105.0	107.5	115.0	4	7	87.5	90.0	95.0
34459	87–86–5	Pentachlorophenol	4	85.0	93.1	106.3	4	7	81.3	87.5	93.8
34462	85–01–8	Phenanthrene	4	110.0	120.0	125.0	4	7	95.0	96.3	105.0
04037	1610–18–0	Prometon	4	135.0	142.5	150.0	4	7	120.0	121.3	132.5
34470	129–00–0	Pyrene	4	95.0	105.0	115.0	4	7	80.0	83.8	90.0
34476	127–18–4	Tetrachloroethylene	4	12.0	22.8	26.0	4	7	45.0	46.3	60.0
62089	126–73–8	Tributyl phosphate	4	105.0	115.0	120.0	4	7	85.0	88.8	90.0
62090	3380–34–5	Triclosan	4	100.0	105.0	115.0	4	7	80.0	85.0	90.0
62091	77–93–0	Triethyl citrate (ethyl citrate)	4	125.0	132.5	140.0	4	7	107.5	108.8	117.5
62092	115–86–6	Triphenyl phosphate	4	115.0	125.0	135.0	4	7	92.5	95.0	102.5
62093	78–51–3	Tris(2-butoxyethyl)phosphate	4	130.0	135.0	145.0	4	7	95.0	101.3	107.5
62087	115–96–8	Tris(2-chloroethyl)phosphate	4	120.0	130.0	140.0	4	7	105.0	108.8	117.5
62088	13674–87–8	Tris(dichlorisopropyl)phosphate	4	125.0	132.5	145.0	4	7	107.5	113.8	122.5

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
Schedule 4024										
81552	67–64–1	Acetone	8	106.35	121.15	152.75	6	94.40	104.00	105.69
81577	108–20–3	Diisopropyl ether	8	93.31	99.26	104.39	6	95.81	99.88	106.04
50004	637–92–3	Ethyl *tert*-butyl ether	8	92.15	97.32	102.40	6	96.64	98.71	102.20
77032	79–20–9	Methyl acetate	8	100.30	103.38	108.68	6	99.98	103.30	110.05
77073	75–85–4	*tert*-Amyl alcohol	8	98.55	123.75	165.10	6	81.41	91.68	112.60
77035	75–65–0	*tert*-Butyl alcohol	8	110.30	133.35	179.00	6	82.68	93.49	116.50
78032	1634–04–4	*tert*-Butyl methyl ether	8	96.41	101.49	107.23	6	99.72	103.85	107.02
50005	994–05–8	*tert*-Pentyl methyl ether	8	92.00	97.33	103.10	6	97.26	101.02	105.24
Schedule 2020										
77562	630–20–6	1,1,1,2-Tetrachloroethane	8	97.60	99.57	104.38	8	85.13	96.46	110.10
34506	71–55–6	1,1,1-Trichloroethane	8	98.98	104.35	106.77	8	88.91	99.58	108.60
34516	79–34–5	1,1,2,2-Tetrachloroethane	8	104.62	108.50	114.69	8	90.35	98.81	122.46
34511	79–00–5	1,1,2-Trichloroethane	8	104.18	107.50	114.59	8	92.63	99.80	114.89
77652	76–13–1	1,1,2-Trichlorotrifluoroethane	8	107.37	110.34	114.67	8	88.14	103.71	115.95
34496	75–34–3	1,1-Dichloroethane	8	117.10	123.15	127.36	8	91.78	106.38	134.72
34501	75–35–4	1,1-Dichloroethylene	8	103.40	107.20	108.42	8	88.89	101.30	107.29
77168	563–58–6	1,1-Dichloropropene	8	105.76	109.80	111.48	8	94.17	104.17	109.39
49999	488–23–3	1,2,3,4-Tetramethylbenzene	8	106.14	110.18	120.68	8	68.45	101.44	127.18
50000	527–53–7	1,2,3,5-Tetramethylbenzene	8	116.71	119.94	127.00	8	84.29	112.93	141.46
77613	87–61–6	1,2,3-Trichlorobenzene	8	110.37	115.43	123.56	8	79.22	103.78	119.33
77443	96–18–4	1,2,3-Trichloropropane	8	101.44	103.88	108.38	8	86.08	97.06	116.31
77221	526–73–8	1,2,3-Trimethylbenzene	8	107.72	110.33	114.85	8	84.48	100.58	115.44
34551	120–82–1	1,2,4-Trichlorobenzene	8	101.33	108.29	116.50	8	80.51	102.56	121.00
77222	95–63–6	1,2,4-Trimethylbenzene	8	110.80	112.34	116.89	8	90.17	105.99	115.29
82625	96–12–8	1,2-Dibromo-3-chloropropane	8	111.20	113.20	122.66	8	86.12	100.40	120.26
77651	106–93–4	1,2-Dibromoethane	8	102.22	103.97	108.40	8	91.98	97.35	111.88

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
			Schedule 2020—Continued							
34536	95–50–1	1,2-Dichlorobenzene	8	107.24	108.67	113.76	8	90.31	100.06	111.20
32103	107–06–2	1,2-Dichloroethane	8	105.54	106.62	110.69	8	93.46	101.46	118.57
34541	78–87–5	1,2-Dichloropropane	8	101.92	104.03	108.62	8	91.87	101.03	113.50
77226	108–67–8	1,3,5-Trimethylbenzene	8	104.83	107.58	111.42	8	89.24	100.38	106.85
34566	541–73–1	1,3-Dichlorobenzene	8	104.28	106.67	113.29	8	89.47	99.52	110.71
77173	142–28–9	1,3-Dichloropropane	8	104.35	107.07	109.95	8	93.57	99.92	114.13
34571	106–46–7	1,4-Dichlorobenzene	8	101.98	103.71	109.96	8	86.03	96.01	108.46
77170	594–20–7	2,2-Dichloropropane	8	105.70	112.31	119.56	8	87.94	107.85	209.49
81595	78–93–3	2-Butanone	8	111.81	116.87	122.51	8	89.41	103.46	119.19
77275	95–49–8	2-Chlorotoluene	8	101.60	106.02	110.82	8	88.09	99.16	112.06
77103	591–78–6	2-Hexanone	8	98.75	104.98	115.95	8	86.02	98.19	109.97
78109	107–05–1	3-Chloropropene	8	149.31	156.79	161.11	8	83.62	111.21	157.51
77277	106–43–4	4-Chlorotoluene	8	101.20	103.70	107.71	8	87.70	98.25	104.66
77356	99–87–6	4-Isopropyl-1-methylbenzene	8	109.61	112.12	116.19	8	86.29	102.74	109.97
78133	108–10–1	4-Methyl-2-pentanone	8	100.42	103.57	110.19	8	84.66	96.06	108.06
81552	67–64–1	Acetone	8	102.78	105.75	110.80	8	89.31	100.64	127.06
34215	107–13–1	Acrylonitrile	8	108.17	110.42	112.25	8	95.33	102.51	114.20
34030	71–43–2	Benzene	8	105.11	112.90	114.81	8	94.83	103.80	120.32
81555	108–86–1	Bromobenzene	8	102.48	105.72	107.62	8	88.32	96.91	108.42
77297	74–97–5	Bromochloromethane	8	96.52	100.46	104.22	8	74.47	96.85	129.80
32101	75–27–4	Bromodichloromethane	8	108.15	108.99	113.75	8	96.53	104.76	121.85
50002	593–60–2	Bromoethene	8	107.15	111.90	115.40	8	95.41	105.21	118.70
32104	75–25–2	Bromoform	8	96.57	100.45	105.67	8	84.67	94.63	114.71
34413	74–83–9	Bromomethane	8	112.38	115.62	122.69	8	76.65	108.76	146.08
77342	104–51–8	Butylbenzene	8	99.58	108.44	116.26	8	84.77	101.25	112.36
77041	75–15–0	Carbon disulfide	8	89.10	92.16	96.00	8	79.06	88.49	98.49

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
			Schedule 2020—Continued							
34301	108–90–7	Chlorobenzene	8	102.57	106.16	107.89	8	89.55	99.09	111.94
34311	75–00–3	Chloroethane	8	101.83	109.54	119.33	8	88.78	104.01	124.83
32106	67–66–3	Chloroform	8	105.10	107.85	111.54	8	95.26	101.28	115.76
34418	74–87–3	Chloromethane	8	100.88	108.09	117.29	8	85.65	100.24	129.53
77093	156–59–2	*cis*-1,2-Dichloroethylene	8	103.61	109.38	112.04	8	94.52	102.92	115.06
34704	10061–01–5	*cis*-1,3-Dichloropropene	8	95.02	97.65	104.15	8	86.68	94.81	101.74
32105	124–48–1	Dibromochloromethane	8	98.71	100.95	105.48	8	85.86	96.48	114.88
30217	74–95–3	Dibromomethane	8	102.25	106.41	114.18	8	87.44	101.03	136.37
34668	75–71–8	Dichlorodifluoromethane	8	85.94	87.78	91.22	8	58.00	78.94	91.00
34423	75–09–2	Dichloromethane	8	101.73	106.35	109.34	8	91.35	99.05	110.85
81576	60–29–7	Diethyl ether	8	107.35	109.59	115.06	8	94.35	103.79	119.86
81577	108–20–3	Diisopropyl ether	8	103.82	105.32	109.84	8	88.52	99.56	110.69
73570	97–63–2	Ethyl methacrylate	8	99.01	103.47	111.68	8	91.43	98.76	109.84
50004	637–92–3	Ethyl *tert*-butyl ether	8	96.23	104.27	110.85	8	94.55	102.84	118.26
34371	100–41–4	Ethylbenzene	8	108.10	110.78	112.69	8	91.34	100.13	107.47
39702	87–68–3	Hexachlorobutadiene	8	101.59	105.98	113.47	8	86.55	100.58	121.61
34396	67–72–1	Hexachloroethane	8	93.63	96.03	98.42	8	79.13	91.63	105.05
77223	98–82–8	Isopropylbenzene	8	106.90	110.45	111.61	8	89.49	98.73	108.21
85795	*m*=108–38–3 *p*=106–42–3	*m*- and *p*-Xylene	8	102.98	106.08	107.97	8	88.39	98.30	109.92
49991	96–33–3	Methyl acrylate	8	102.16	106.41	109.65	8	93.95	101.80	115.36
81593	126–98–7	Methyl acrylonitrile	8	108.05	110.37	113.21	8	94.86	101.52	112.54
77424	74–88–4	Methyl iodide	8	111.98	115.20	125.90	8	54.40	93.08	163.88
81597	80–62–6	Methyl methacrylate	8	93.33	96.43	103.15	8	82.07	91.90	103.15
34696	91–20–3	Naphthalene	8	101.44	106.21	117.72	8	69.03	100.34	114.49
77224	103–65–1	*n*-Propylbenzene	8	102.35	106.40	109.19	8	83.85	97.83	107.03
77220	611–14–3	*o*-Ethyl toluene	8	103.58	105.69	107.85	8	87.26	96.46	102.87

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
			Schedule 2020—Continued							
77135	95–47–6	*o*-Xylene	8	105.07	107.42	110.10	8	89.70	99.34	106.32
77350	135–98–8	*sec*-Butylbenzene	8	108.01	110.07	112.64	8	87.50	97.16	104.21
77128	100–42–5	Styrene	8	103.13	105.38	110.22	8	87.06	96.07	105.60
78032	1634–04–4	*tert*-Butyl methyl ether	8	101.43	104.96	111.80	8	92.52	100.17	109.48
77353	98–06–6	*tert*-Butylbenzene	8	108.25	112.68	115.59	8	91.41	102.17	106.14
50005	994–05–8	*tert*-Pentyl methyl ether	8	95.83	101.34	108.57	8	91.85	96.91	104.97
34475	127–18–4	Tetrachloroethylene	8	100.00	103.88	106.71	8	91.45	99.25	113.33
32102	56–23–5	Tetrachloromethane	8	92.51	99.42	102.51	8	83.45	97.32	122.00
81607	109–99–9	Tetrahydrofuran	8	105.13	109.56	116.55	8	88.43	101.02	110.11
34010	108–88–3	Toluene	8	104.13	108.35	110.99	8	91.78	99.42	111.56
34546	156–60–5	*trans*-1,2-Dichloroethylene	8	103.05	106.99	110.30	8	93.42	100.78	113.87
34699	10061–02–6	*trans*-1,3-Dichloropropene	8	102.46	107.00	111.54	8	92.31	99.69	111.23
73547	110–57–6	*trans*-1,4-Dichloro-2-butene	8	105.63	115.55	130.46	8	105.43	116.73	134.84
39180	79–01–6	Trichloroethylene	8	98.85	103.44	106.60	8	87.28	98.10	109.15
34488	75–69–4	Trichlorofluoromethane	8	97.91	103.10	107.90	8	80.01	98.49	117.26
39175	75–01–4	Vinyl chloride	8	112.73	115.09	118.09	8	88.98	112.82	129.67
			Schedule 2003							
49295	90–15–3	1-Naphthol	8	47.00	55.05	70.40	8	6.46	15.57	37.64
82660	579–66–8	2,6-Diethylaniline	8	95.50	98.45	105.00	8	78.87	86.26	100.87
61618	6967–29–9	2-Chloro-2,6-diethylacetanilide	8	113.00	119.00	123.00	8	86.10	102.61	115.57
04040	6190–65–4	2-Chloro-4-isopropylamino-6-amino-*s*-triazine (CIAT)	8	39.90	50.60	56.80	8	33.70	42.29	54.19
61620	24549–06–2	2-Ethyl-6-methylaniline	8	96.40	97.50	105.00	8	79.06	87.29	99.12
61625	95–76–1	3,4-Dichloroaniline	8	66.70	81.00	97.10	8	58.26	65.83	89.33
61633	1570–64–5	4-Chloro-2-methylphenol	8	44.00	53.85	66.50	8	31.47	42.25	61.43
49260	34256–82–1	Acetochlor	8	108.00	114.00	119.00	8	75.85	98.10	112.28
46342	15972–60–8	Alachlor	8	108.00	113.00	117.00	8	77.26	100.94	114.75

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
			Schedule 2003—Continued							
39632	1912–24–9	Atrazine	8	121.00	124.50	128.00	8	97.14	111.86	120.49
82686	86–50–0	Azinphos-methyl	8	35.20	92.75	104.00	8	37.13	72.22	101.67
61635	961–22–8	Azinphos-methyl-oxon	8	0.10	46.70	68.60	8	16.39	51.19	92.59
82673	1861–40–1	Benfluralin	8	87.30	96.00	110.00	8	43.19	64.92	109.09
82680	63–25–2	Carbaryl	8	117.00	124.50	136.00	8	34.13	95.33	121.74
38933	2921–88–2	Chlorpyrifos	8	108.00	114.50	116.00	8	72.74	94.64	104.63
61636	5598–15–2	Chlorpyrofos, oxygen analog	8	85.50	90.35	98.80	8	26.79	61.39	85.38
82687	54774–45–7	*cis*-Permethrin	8	54.70	65.00	67.20	8	27.78	37.78	57.30
61585	68359–37–5	Cyfluthrin	8	61.60	76.95	84.40	8	22.36	33.18	52.61
61586	52315–07–8	Cypermethrin	8	55.70	64.80	71.40	8	24.15	33.87	51.83
82682	1861–32–1	Dacthal	8	111.00	117.50	122.00	8	94.19	106.96	115.00
62170	--	Desulfinylfipronil	8	112.00	117.00	124.00	8	67.62	105.83	118.52
62169	--	Desulfinylfipronil amide	8	112.00	118.50	129.00	8	67.91	86.44	109.26
39572	333–41–5	Diazinon	8	102.00	107.00	111.00	8	83.05	94.15	104.17
61638	962–58–3	Diazinon, oxygen analog	8	99.60	107.00	110.00	8	49.18	82.26	100.00
38775	62–73–7	Dichlorvos	8	75.20	77.25	82.70	8	22.43	55.24	79.73
38454	141–66–2	Dicrotophos	8	33.50	46.30	56.30	8	0.00	25.96	35.81
39381	60–57–1	Dieldrin	8	97.70	102.00	120.00	8	74.95	91.30	117.59
82662	60–51–5	Dimethoate	8	22.30	27.45	32.20	8	13.80	22.17	33.14
82346	563–12–2	Ethion	8	88.10	99.65	112.00	8	49.34	72.48	93.33
61644	17356–42–2	Ethion monoxon	8	89.50	101.50	112.00	8	46.05	73.31	95.83
61591	22224–92–6	Fenamiphos	8	114.00	128.50	145.00	8	51.89	74.30	105.36
61645	31972–44–8	Fenamiphos sulfone	8	92.00	102.50	113.00	8	46.22	62.88	103.28
61646	31972–43–7	Fenamiphos sulfoxide	8	65.20	70.70	79.70	8	0.00	40.26	60.83
62166	120068–37–3	Fipronil	8	124.00	131.00	144.00	8	57.91	98.15	123.77
62167	120067–83–6	Fipronil sulfide	8	112.00	116.00	122.00	8	64.57	95.41	112.15

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.—Continued

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Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
			Schedule 2003—Continued							
62168	120068–36–2	Fipronil sulfone	8	89.80	95.75	104.00	8	33.62	70.85	87.11
04095	944–22–9	Fonofos	8	101.00	104.00	109.00	8	79.14	90.18	102.50
04025	51235–04–2	Hexazinone	8	105.00	110.00	111.00	8	54.29	81.13	99.13
61593	36734–19–7	Iprodione	8	29.10	72.05	84.50	8	17.83	50.19	72.75
61594	25311–71–1	Isofenphos	8	117.00	124.50	130.00	8	74.77	100.00	117.76
61652	1634–78–2	Malaoxon	8	98.50	111.50	119.00	8	55.41	87.29	119.67
39532	121–75–5	Malathion	8	104.00	113.00	119.00	8	73.77	95.65	115.83
61596	57837–19–1	Metalaxyl	8	122.00	128.50	134.00	8	93.43	112.39	127.87
61598	950–37–8	Methidathion	8	103.00	109.00	119.00	8	56.13	90.91	108.70
39415	51218–45–2	Metolachlor	8	114.00	119.00	122.00	8	91.08	105.22	117.21
82630	21087–64–9	Metribuzin	8	90.00	98.80	106.00	8	57.02	76.34	93.86
61599	88671–89–0	Myclobutanil	8	103.00	111.00	119.00	8	49.24	86.76	104.63
61664	950–35–6	Paraoxon-methyl	8	95.00	99.65	110.00	8	45.38	71.45	112.50
82667	298–00–0	Parathion-methyl	8	99.30	109.50	121.00	8	51.70	81.78	120.00
82683	40487–42–1	Pendimethalin	8	97.60	113.50	129.00	8	62.13	82.10	129.09
82664	298–02–2	Phorate	8	78.70	86.25	95.60	8	53.30	74.62	96.52
61666	2600–69–3	Phorate oxygen analog	8	77.20	89.00	107.00	8	44.64	78.18	107.41
61601	732–11–6	Phosmet	8	4.50	6.30	46.20	8	0.00	8.11	32.45
61668	3735–33–9	Phosmet oxon	8	0.10	3.40	29.50	8	0.00	4.50	22.64
04037	1610–18–0	Prometon	8	114.00	120.00	122.00	8	83.94	100.95	119.17
04036	7287–19–6	Prometryn	8	120.00	126.50	131.00	8	95.14	113.39	131.48
82676	23950–58–5	Propyzamide	8	106.00	110.50	114.00	8	77.16	90.93	105.83
04035	122–34–9	Simazine	8	117.00	122.00	127.00	8	87.52	106.54	118.85
82670	34014–18–1	Tebuthiuron	8	141.00	165.00	184.00	8	78.44	123.15	163.11
82675	13071–79–9	Terbufos	8	81.90	90.10	101.00	8	49.53	81.13	96.30
61674	56070–15–6	Terbufos oxygen analog sulfone	8	107.00	113.00	121.00	8	49.60	85.93	112.30

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
			Schedule 2003—Continued							
04022	5915–41–3	Terbuthylazine	8	120.00	126.00	129.00	8	100.00	114.15	124.17
82661	1582–09–8	Trifluralin	8	89.80	103.00	120.00	8	46.55	69.32	116.36
			Schedule 2060							
39732	94–75–7	2,4–D	8	114.52	127.64	139.04	8	95.20	115.76	146.92
50470	1928–38–7	2,4–D methyl ester	8	61.88	71.78	91.20	8	58.08	79.32	118.04
38746	94–82–6	2,4–DB	8	82.44	94.26	101.60	8	66.36	83.52	104.40
04040	6190–65–4	2-Chloro-4-isopropylamino-6-amino-*s*-triazine (CIAT)	8	75.32	91.50	96.92	8	59.92	91.52	104.48
50355	2163–68–0	2-Hydroxy-4-isopropylamino-6-ethylamino-*s*-triazine (OIET)	8	80.24	99.66	115.84	8	80.36	100.76	141.64
61692	5352–88–5	3(4-Chlorophenyl)-1-methyl urea	8	92.24	97.84	107.08	8	79.12	99.52	125.28
49308	16655–82–6	3-Hydroxycarbofuran	8	98.00	101.44	104.48	8	78.24	90.76	117.24
49315	50594–66–6	Acifluorfen	8	89.28	97.12	103.72	8	69.56	91.52	104.04
49312	116–06–3	Aldicarb	8	11.72	45.46	54.00	8	0.00	34.00	131.80
49313	1646–88–4	Aldicarb sulfone	8	28.60	34.38	36.20	8	55.16	78.24	103.04
49314	1646–87–3	Aldicarb sulfoxide	8	71.16	82.18	119.24	8	0.16	62.84	104.32
39632	1912–24–9	Atrazine	8	94.96	102.38	108.16	8	73.24	91.48	113.24
50299	22781–23–3	Bendiocarb	8	93.08	96.04	104.44	8	69.76	86.88	112.92
50300	17804–35–2	Benomyl	8	102.68	114.16	119.76	8	6.88	72.96	120.76
61693	83055–99–6	Bensulfuron-methyl	8	151.56	163.86	185.44	8	39.60	109.76	185.96
38711	25057–89–0	Bentazon	8	67.12	73.46	78.12	8	0.00	64.80	102.84
04029	314–40–9	Bromacil	8	94.52	101.52	106.00	8	2.64	80.68	103.92
49311	1689–84–5	Bromoxynil	8	84.60	95.06	98.08	8	1.32	78.64	113.68
50305	58–08–2	Caffeine	8	69.92	78.88	87.24	8	82.76	107.24	139.24
49310	63–25–2	Carbaryl	8	98.52	102.46	107.60	8	74.24	90.28	108.20
49309	1563–66–2	Carbofuran	8	104.64	107.92	112.28	8	81.04	95.44	101.84
61188	7286–84–2	Chloramben, methyl ester	8	81.24	86.92	91.20	8	7.24	72.20	98.24

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.—Continued

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Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
			Schedule 2060—Continued							
04039	3397–62–4	Chlordiamino-*s*-triazine (CAAT)	8	22.80	24.32	27.52	8	43.20	72.40	116.60
50306	90982–32–4	Chlorimuron-ethyl	8	178.72	223.16	279.76	8	96.28	142.72	253.64
49305	1702–17–6	Clopyralid	8	48.12	60.10	66.08	8	52.64	85.44	106.36
04031	1134–23–2	Cycloate	8	66.76	82.60	93.72	8	2.84	52.64	86.40
49304	887–54–7	Dacthal monoacid	8	89.44	102.16	109.52	8	77.60	92.80	110.68
38442	1918–00–9	Dicamba	8	103.44	119.18	137.40	8	78.92	101.88	122.04
49302	120–36–5	Dichlorprop	8	102.48	106.34	109.28	8	75.04	94.80	103.36
49301	88–85–7	Dinoseb	8	82.04	88.78	90.60	8	27.40	86.32	105.76
04033	957–51–7	Diphenamid	8	98.96	107.16	113.48	8	83.52	94.48	111.76
49300	330–54–1	Diuron	8	103.52	107.22	112.40	8	47.72	98.16	116.52
49297	101–42–8	Fenuron	8	99.40	106.44	112.68	8	25.44	86.96	102.16
61694	98967–40–9	Flumetsulam	8	83.44	95.20	107.32	8	39.84	108.32	153.00
38811	2164–17–2	Fluometuron	8	102.40	108.52	114.20	8	40.32	95.72	112.04
50356	81335–37–7	Imazaquin	8	0.04	129.94	165.28	8	89.96	121.60	187.12
50407	81335–77–5	Imazethapyr	8	102.16	115.00	127.08	8	43.80	110.84	151.76
61695	138261–41–3	Imidacloprid	8	87.60	91.38	94.44	8	85.64	108.04	129.36
38478	330–55–2	Linuron	8	100.68	103.42	107.04	8	70.68	93.08	105.68
38482	94–74–6	MCPA	8	81.84	93.28	110.00	8	60.36	72.60	113.64
38487	94–81–5	MCPB	8	79.60	95.48	104.40	8	43.72	81.68	99.76
50359	57837–19–1	Metalaxyl	8	105.04	108.38	111.84	8	81.48	92.28	103.00
38501	2032–65–7	Methiocarb	8	83.20	97.12	100.52	8	0.92	59.24	96.44
49296	16752–77–5	Methomyl	8	90.16	104.96	111.20	8	1.24	77.44	103.04
61697	74223–64–6	Metsulfuron methyl	8	59.08	68.68	82.36	8	1.80	55.16	134.36
49294	555–37–3	Neburon	8	97.92	101.88	106.60	8	44.64	91.72	115.96
50364	111991–09–4	Nicosulfuron	8	171.28	205.30	248.28	8	50.04	131.04	240.44
49293	27314–13–2	Norflurazon	8	96.64	106.12	113.32	8	22.56	84.68	125.08

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.—Continued

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Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
			Schedule 2060—Continued							
49292	19044–88–3	Oryzalin	8	84.76	94.38	101.88	8	43.20	77.80	97.48
38866	23135–22–0	Oxamyl	8	28.36	65.82	95.64	8	25.84	80.72	97.36
49291	6607	Picloram	8	0.04	98.66	105.20	8	78.00	98.68	122.52
49236	122–42–9	Propham	8	89.84	95.44	100.20	8	39.96	93.52	105.40
50471	60207–90–1	Propiconazole	8	92.28	103.46	111.96	8	82.76	97.64	117.36
38538	114–26–1	Propoxur	8	104.68	110.42	113.60	8	83.16	97.16	113.28
38548	1982–49–6	Siduron	8	100.72	106.96	111.88	8	31.84	93.56	116.00
50337	74222–97–2	Sulfometuron-methyl	8	139.24	151.18	166.16	8	89.80	113.52	166.48
82670	34014–18–1	Tebuthiuron	8	112.08	120.46	126.52	8	88.08	101.12	130.64
04032	5902–51–2	Terbacil	8	93.40	103.28	109.20	8	1.16	88.08	110.84
49235	55335–06–3	Triclopyr	8	100.24	111.46	130.00	8	81.84	99.24	115.72
			Schedule 1433							
34572	106–46–7	1,4-Dichlorobenzene	8	49.00	81.25	95.00	8	23.50	70.00	95.00
62054	90–12–0	1-Methylnaphthalene	8	85.00	90.00	100.00	8	43.50	80.00	90.00
62055	581–42–0	2,6-Dimethylnaphthalene	8	85.00	88.75	100.00	8	49.00	80.00	90.00
62056	91–57–6	2-Methylnaphthalene	8	80.00	91.25	100.00	8	39.50	80.00	95.00
62057	360–68–9	3-*beta*-Coprostanol	8	100.00	125.00	156.25	8	10.50	57.50	122.50
62058	83–34–1	3-Methyl-1(H)-indole (Skatole)	8	102.50	113.75	130.00	8	40.50	85.00	105.00
62059	25013–16–5	3-*tert*-Butyl-4-hydroxy anisole (BHA)	8	57.50	72.50	95.00	8	2.95	37.00	75.00
62060	599–64–4	4-Cumylphenol	8	85.00	100.00	125.00	8	18.50	80.00	115.00
62061	1806–26–4	4-*n*-Octylphenol	8	95.00	106.25	130.00	8	14.50	70.00	95.00
62083	--	4-Nonylphenol diethoxylates	8	115.63	129.69	156.25	8	28.44	78.19	153.13
61705	--	4-Octylphenol diethoxylates	8	9.29	10.71	12.14	8	37.14	69.29	114.29
61706	--	4-Octylphenol monoethoxylates	8	71.43	85.71	107.14	8	39.29	67.86	107.14
62062	140–66–9	4-*tert*-Octylphenol	8	90.00	102.50	120.00	8	26.00	75.00	105.00
62063	136–85–6	5-Methyl-1H-benzotriazole	8	59.38	71.88	81.25	8	13.13	60.94	137.50

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
			Schedule 1433—Continued							
62064	98–86–2	Acetophenone	8	95.00	107.50	125.00	8	80.00	90.00	105.00
62065	21145–77–7	Acetyl hexamethyl tetrahydronaphthalene (AHTN)	8	82.50	92.50	110.00	8	44.50	80.00	95.00
34221	120–12–7	Anthracene	8	100.00	115.00	140.00	8	60.00	85.36	110.00
62066	84–65–1	Anthraquinone	8	100.00	108.75	120.00	8	55.00	75.00	105.00
34248	50–32–8	Benzo[a]pyrene	8	85.00	98.75	120.00	8	19.50	75.00	90.00
62067	119–61–9	Benzophenone	8	90.00	105.00	120.00	8	70.00	90.00	110.00
62068	83–46–5	*beta*-Sitosterol	8	82.50	116.88	168.75	8	4.50	43.13	110.00
62086	19466–47–8	*beta*-Stigmastanol	8	73.75	102.50	143.75	8	7.38	40.63	116.25
62069	80–05–7	Bisphenol A	8	85.00	102.50	125.00	8	0.00	65.00	105.00
04029	314–40–9	Bromacil	8	93.75	107.50	137.50	8	75.00	96.25	120.00
34288	75–25–2	Bromoform	8	80.00	86.25	95.00	8	50.00	75.00	95.00
50305	58–08–2	Caffeine	8	92.50	105.00	115.00	8	70.00	92.50	120.00
62070	76–22–2	Camphor	8	90.00	105.00	120.00	8	70.00	85.00	100.00
82680	63–25–2	Carbaryl	8	55.00	68.75	75.00	8	25.00	52.50	120.00
62071	86–74–8	Carbazole	8	92.50	112.50	145.00	8	70.00	95.00	150.00
38933	2921–88–2	Chlorpyrifos	8	77.50	87.50	105.00	8	41.00	72.50	95.00
62072	57–88–5	Cholesterol	8	95.00	124.38	156.25	8	13.75	57.50	150.00
62005	486–56–6	Cotinine	8	81.25	92.50	100.00	8	18.60	35.00	92.50
39572	333–41–5	Diazinon	8	82.50	97.50	120.00	8	65.00	85.00	110.00
62073	5989–27–5	*d*-Limonene	8	10.50	39.50	80.00	8	7.50	50.00	75.00
34377	206–44–0	Fluoranthene	8	95.00	111.25	140.00	8	50.00	90.00	105.00
62075	1222–05–5	Hexahydrohexamethylcyclopenta-benzopyran (HHCB)	8	90.00	100.00	120.00	8	41.50	85.00	105.00
62076	120–72–9	Indole	8	87.50	96.25	115.00	8	34.50	80.00	105.00
62077	124–76–5	Isoborneol	8	90.00	101.25	120.00	8	60.00	85.00	105.00
34409	78–59–1	Isophorone	8	85.00	98.75	120.00	8	65.00	85.00	110.00

Table 7. Summary statistics of percent recoveries for combined quenched reagent spiked samples from day 0, 7, or 14 and for laboratory reagent spikes, 2004.—Continued

[CASR, Chemical Abstracts Service Registry; --, no data]

Parameter code	CASR number	Compound	Total number of samples	Percent recovery for combined quenched reagent spiked samples analyzed on day 0, 7, or 14			Total number of samples	Percent recovery for laboratory reagent spikes		
				Minimum	Median	Maximum		Minimum	Median	Maximum
			Schedule 1433—Continued							
62078	98–82–8	Isopropylbenzene	8	20.00	54.00	82.50	8	12.50	55.00	80.00
62079	119–65–3	Isoquinoline	8	90.00	102.50	125.00	8	63.64	75.00	100.00
62080	89–78–1	Menthol	8	92.50	102.50	120.00	8	60.00	85.00	150.00
50359	57837–19–1	Metalaxyl	8	82.50	98.75	120.00	8	70.00	90.00	110.00
62081	119–36–8	Methyl salicylate	8	85.00	96.25	115.00	8	70.00	80.00	105.00
39415	51218–45–2	Metolachlor	8	87.50	102.50	120.00	8	70.00	85.00	110.00
62082	134–62–3	N,N-diethyl-*meta*-toluamide (DEET)	8	92.50	106.25	130.00	8	60.00	90.00	115.00
34443	91–20–3	Naphthalene	8	75.00	80.00	90.00	8	40.00	70.00	80.00
62084	106–44–5	*p*-Cresol	8	87.50	100.00	115.00	8	31.50	85.00	105.00
34459	87–86–5	Pentachlorophenol	8	81.25	87.50	106.25	8	20.00	53.75	111.25
34462	85–01–8	Phenanthrene	8	95.00	107.50	125.00	8	65.00	85.00	100.00
04037	1610–18–0	Prometon	8	120.00	133.75	150.00	8	72.73	95.00	125.00
34470	129–00–0	Pyrene	8	80.00	92.50	115.00	8	41.00	75.00	90.00
34476	127–18–4	Tetrachloroethylene	8	12.00	35.50	60.00	8	9.50	37.00	60.00
62089	126–73–8	Tributyl phosphate	8	85.00	97.50	120.00	8	60.00	85.00	120.00
62090	3380–34–5	Triclosan	8	80.00	95.00	115.00	8	19.00	75.00	105.00
62091	77–93–0	Triethyl citrate (ethyl citrate)	8	107.50	121.25	140.00	8	70.00	100.00	120.00
62092	115–86–6	Triphenyl phosphate	8	92.50	108.75	135.00	8	55.00	90.00	120.00
62093	78–51–3	Tris(2-butoxyethyl)phosphate	8	95.00	118.75	145.00	8	70.00	104.77	145.00
62087	115–96–8	Tris(2-chloroethyl)phosphate	8	105.00	118.75	140.00	8	75.00	95.00	120.00
62088	13674–87–8	Tris(dichlorisopropyl)phosphate	8	107.50	123.75	145.00	8	75.00	100.00	130.00

Appendix 2. Percent Recovery of Anthropogenic Organic Compounds in Quenched and Nonquenched Finished-Water Spiked Samples from Surface-Water Supplies Collected during Source Water-Quality Assessment Sampling, 2004–06.

The Microsoft Excel Spreadsheet (*surface_water_appendix2.xls*) contains an information worksheet (Documentation and acronyms) that describes the documentation and acronyms used in the data worksheet (Surface-water data) for Appendix 2. The data worksheet contains percent recovery values for each compound by use (or source) group. Use groups presented in this worksheet are disinfection by-products; fumigant-related compounds; fungicides; gasoline hydrocarbons, oxygenates, and oxygenate degradates; herbicides and herbicide degradates; insecticides and insecticide degradates; manufacturing additives; organic synthesis compounds; pavement- and combustion-derived compounds; personal care and domestic use products; plant- or animal-derived biochemicals; refrigerants and propellants; and solvents.

Tab-delimitated text files also are available for the documentation and acronyms (*appendix2_readme.txt*) and the percent-recovery data (*surface_water_text_data.txt*) for Appendix 2.

Appendix 3. Percent Recovery of Anthropogenic Organic Compounds in Quenched and Nonquenched Finished-Water Spiked Samples from Ground-Water Supplies Collected during Source Water-Quality Assessment Sampling, 2004–06.

The Microsoft Excel Spreadsheet (*ground_water_appendix3.xls*) contains an information worksheet (Documentation and acronyms) that describes the documentation and acronyms used in the data worksheet (Ground-water data) for Appendix 3. The data worksheet contains percent recovery values for each compound by use (or source) group. Use groups presented in this worksheet are disinfection by-products; fumigant-related compounds; fungicides; gasoline hydrocarbons, oxygenates, and oxygenate degradates; herbicides and herbicide degradates; insecticides and insecticide degradates; manufacturing additives; organic synthesis compounds; pavement- and combustion-derived compounds; personal care and domestic use products; plant- or animal-derived biochemicals; refrigerants and propellants; and solvents.

Tab-delimitated text files also are available for the documentation and acronyms (*appendix3_readme.txt*) and the percent-recovery data (*ground_water_text_data.txt*) for Appendix 3.

Appendix 4. Supplemental Graphs

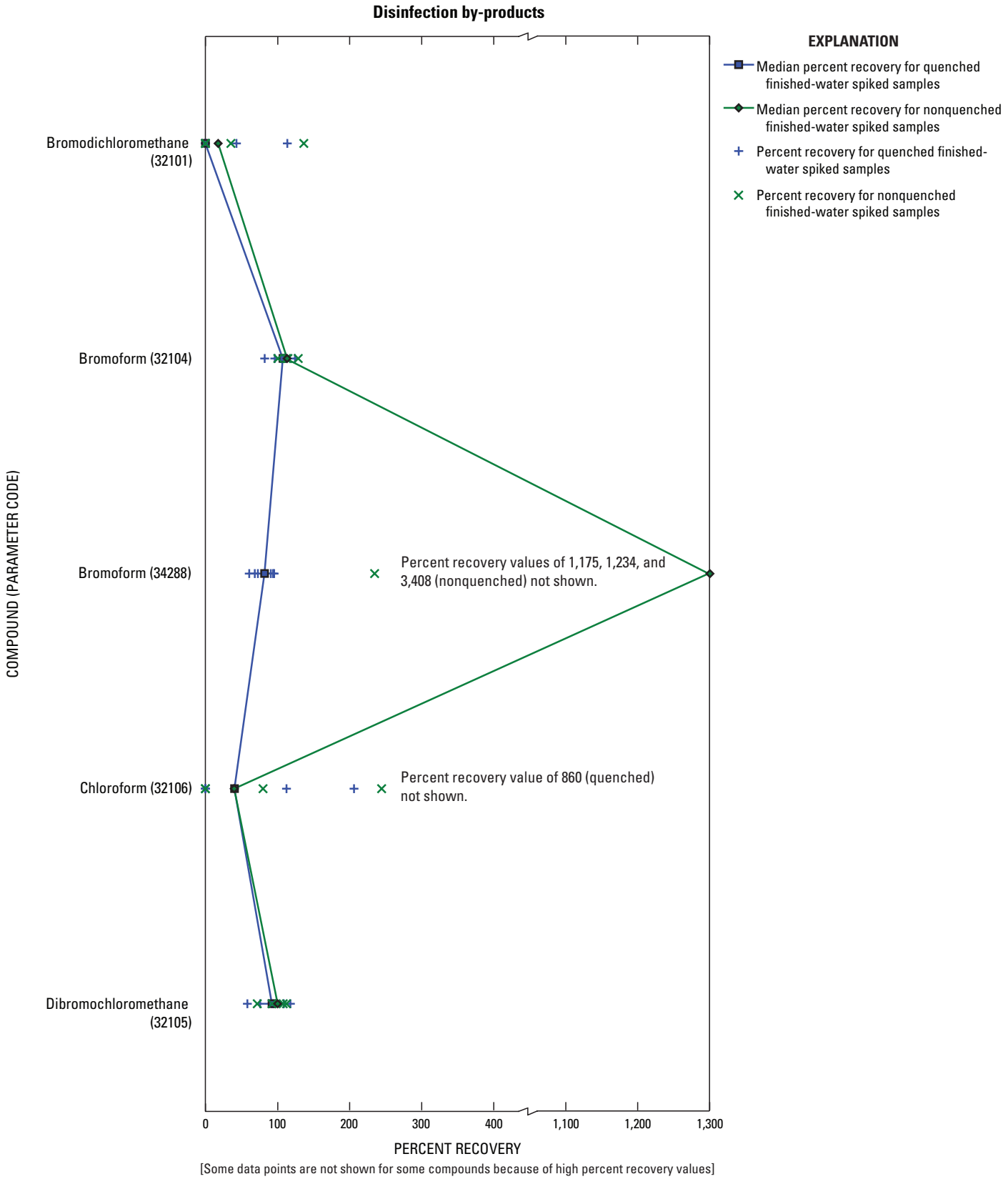
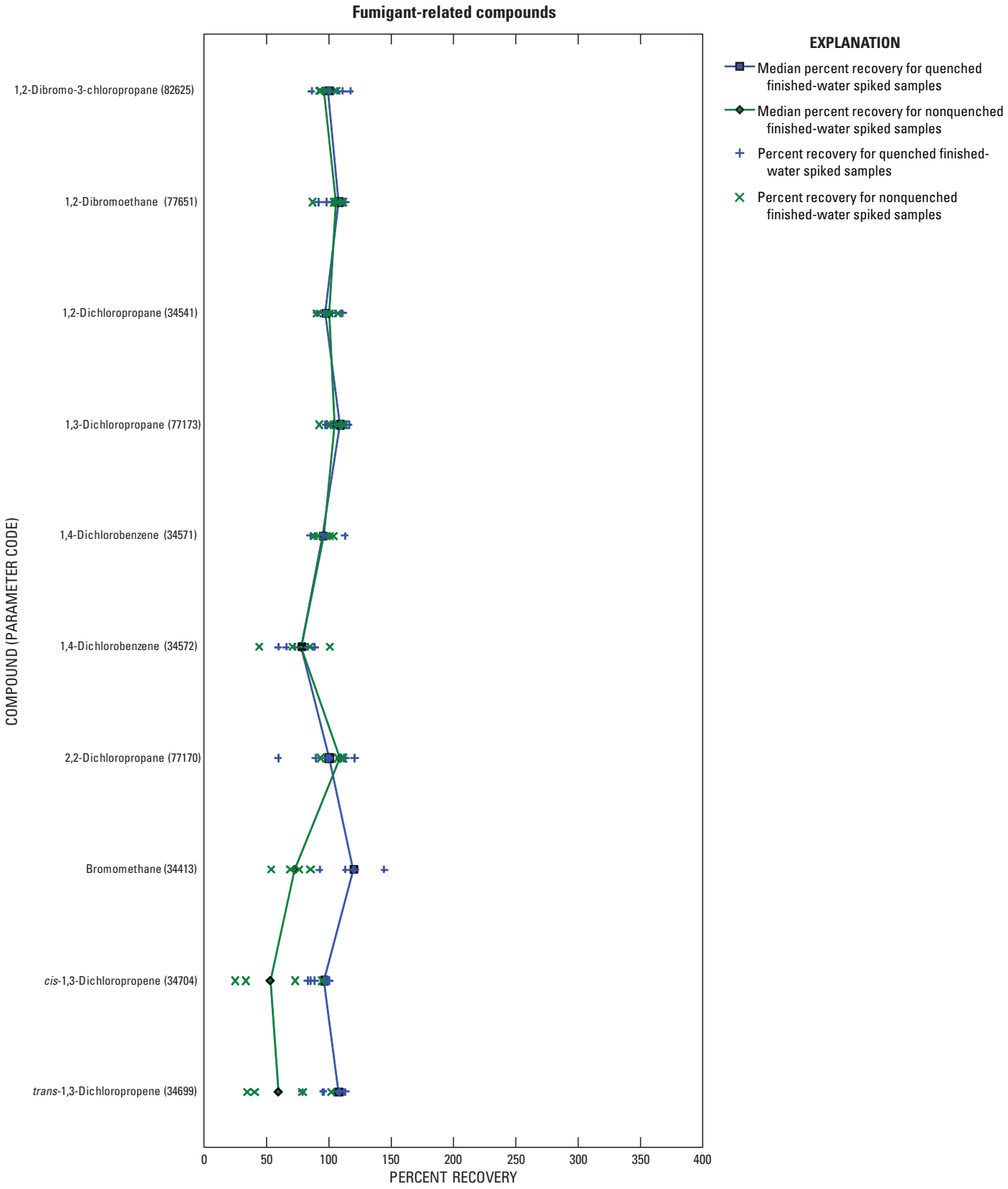


Figure 6. Percent recoveries for quenched and nonquenched finished-water spiked samples by primary use or source group, from surface-water supplies, 2004–06. The numbers of quenched and nonquenched finished-water samples for each compound are presented in table 5 in Appendix 1. The lines shown on the graph are for visual purposes and are intended to highlight differences in percent recoveries between quenched and nonquenched samples for each individual compound.



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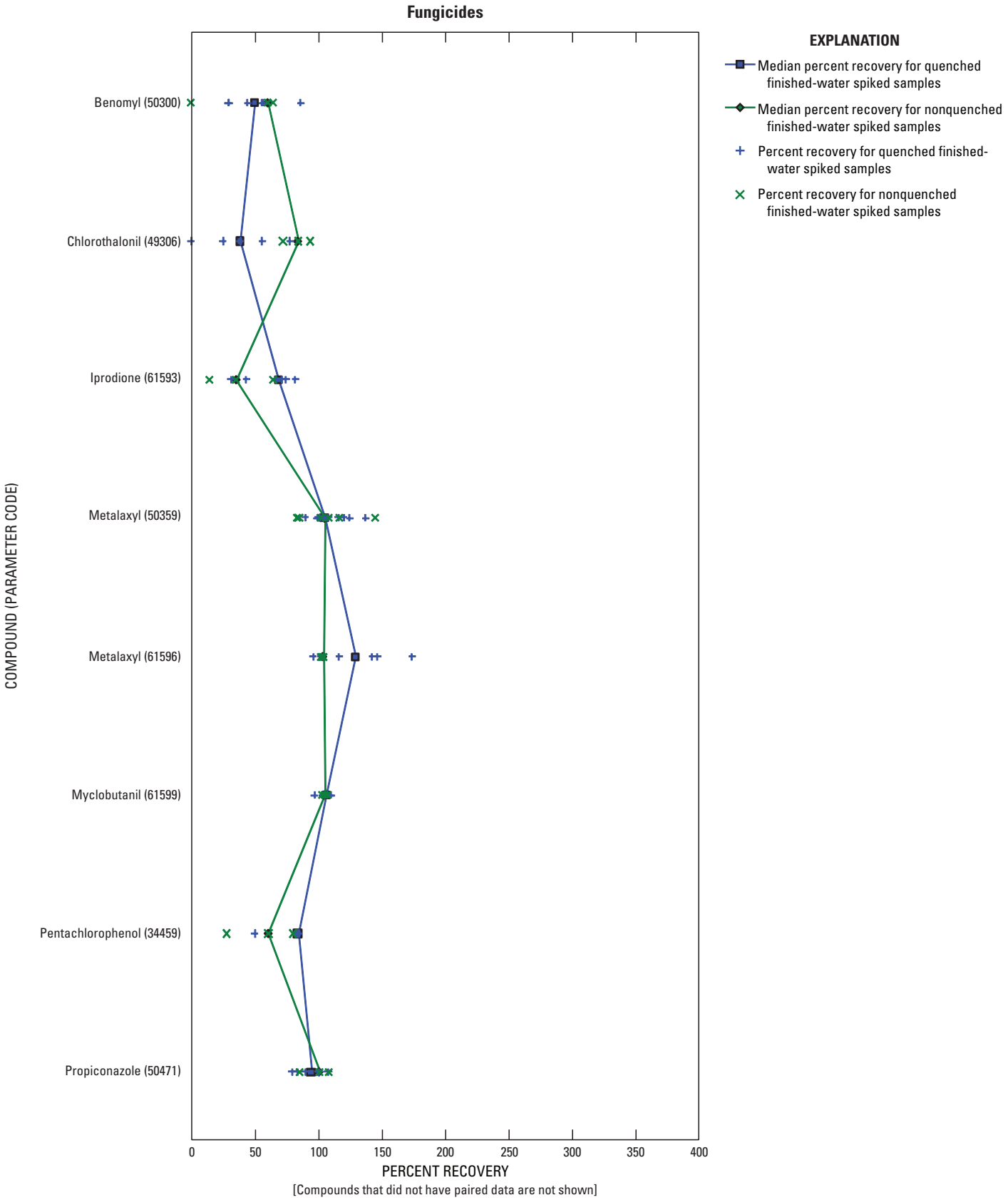

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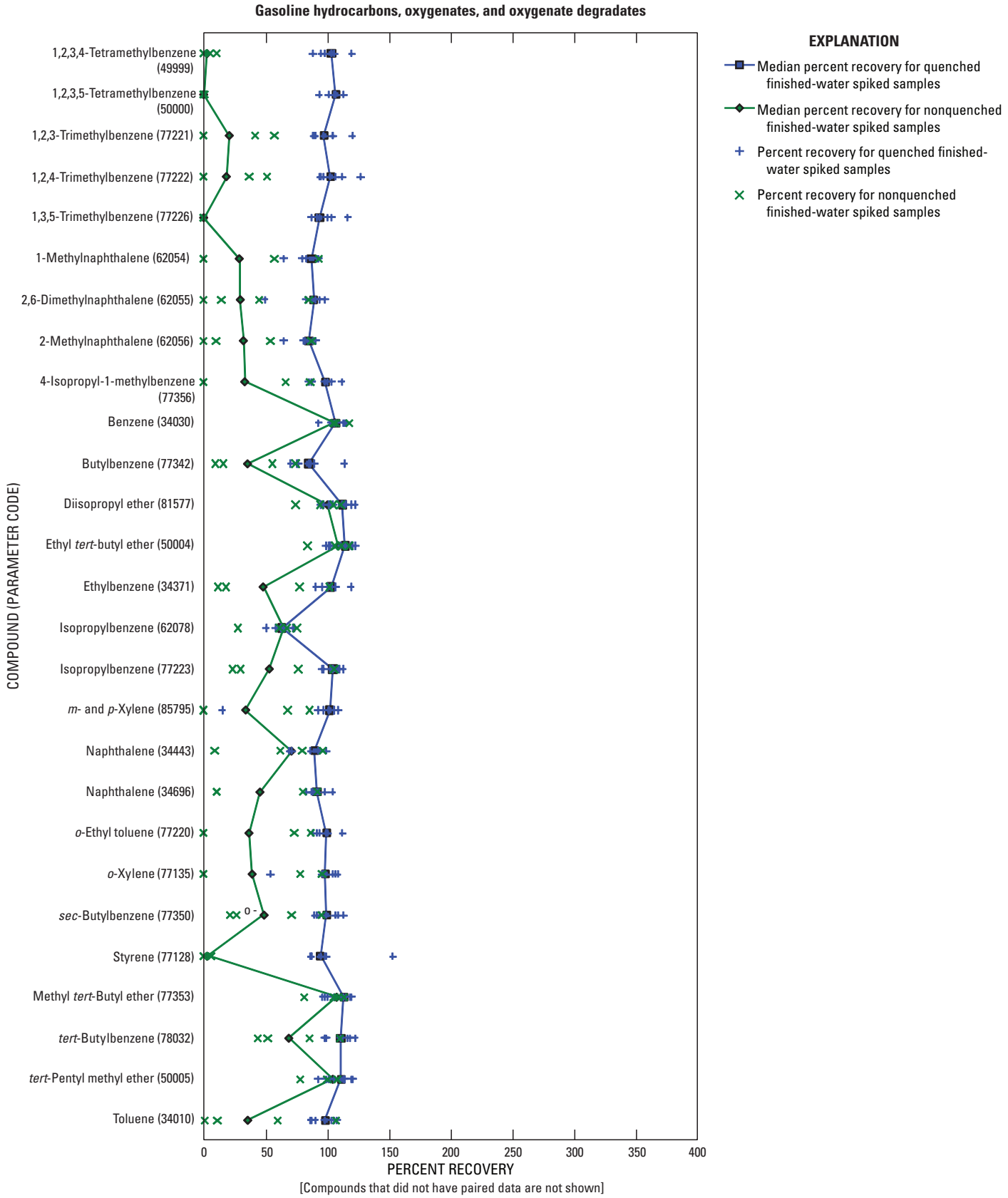

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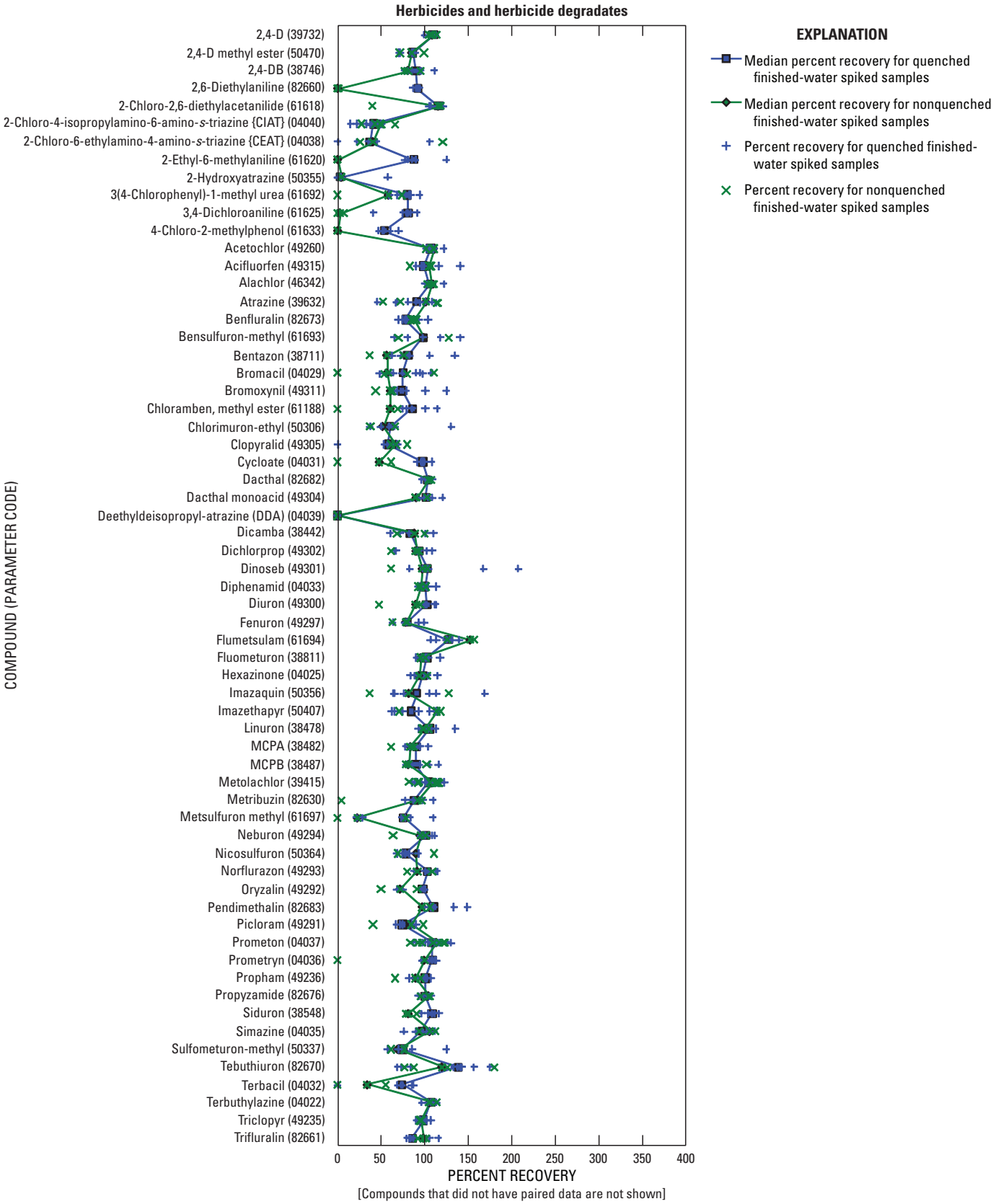

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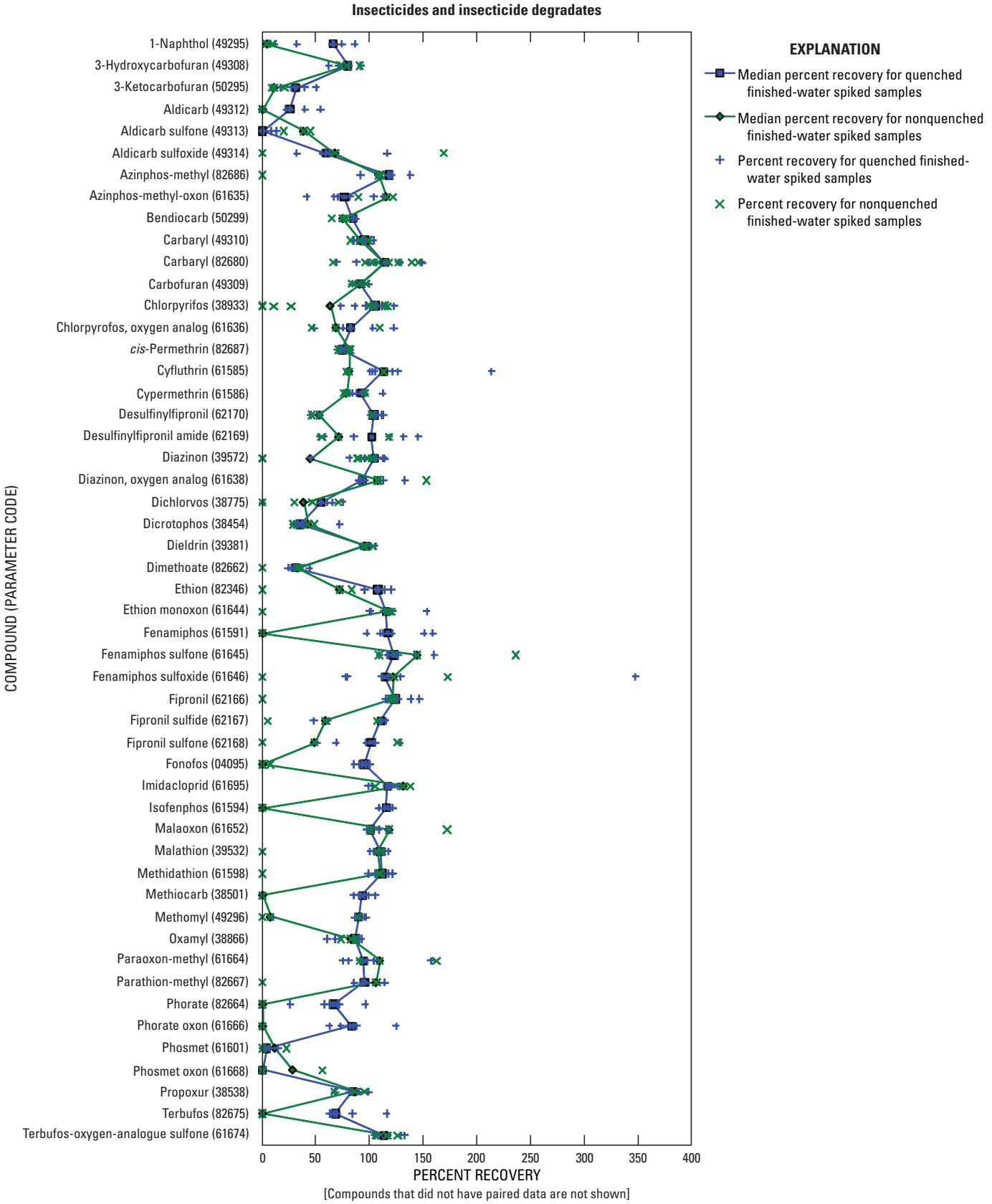

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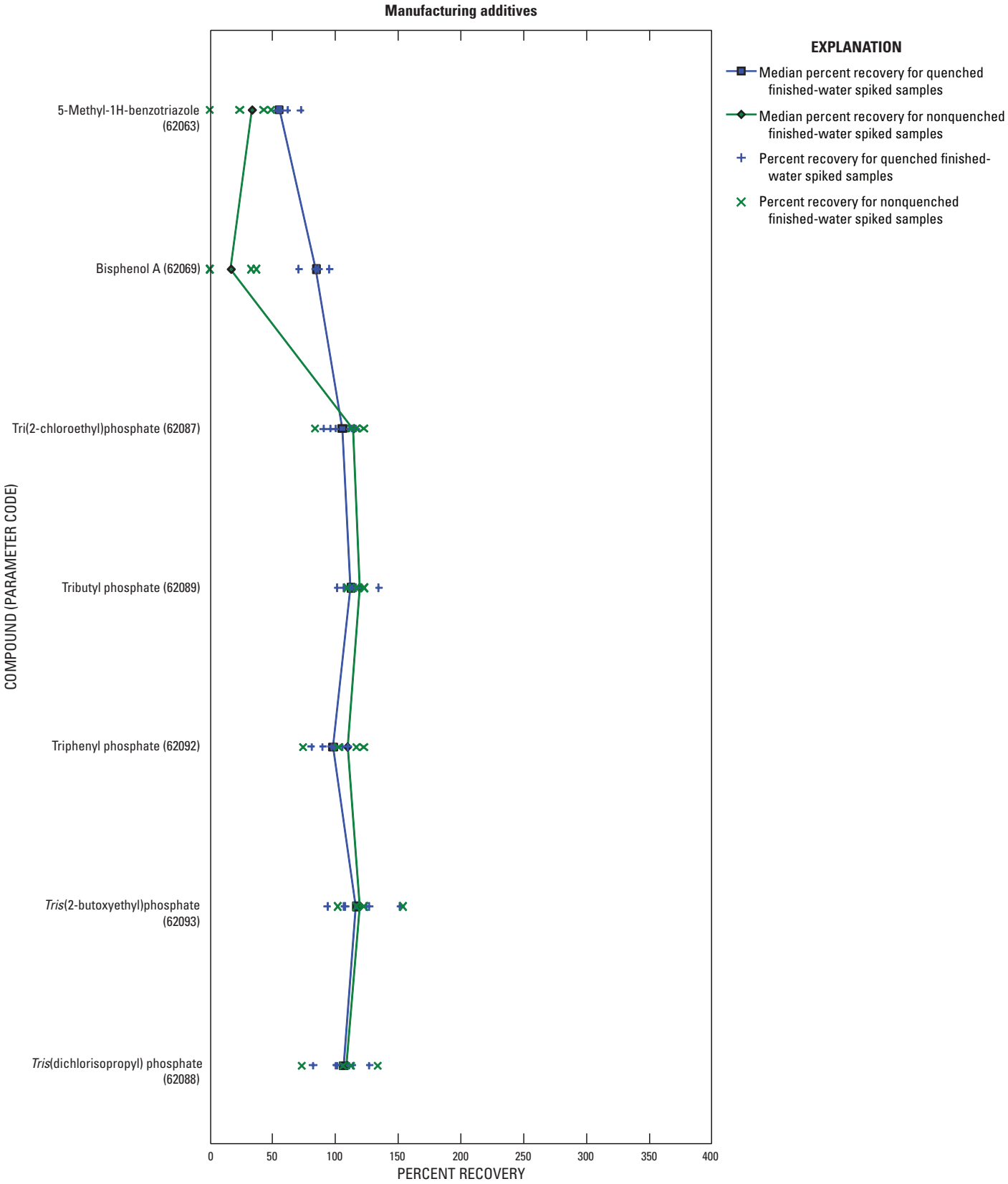

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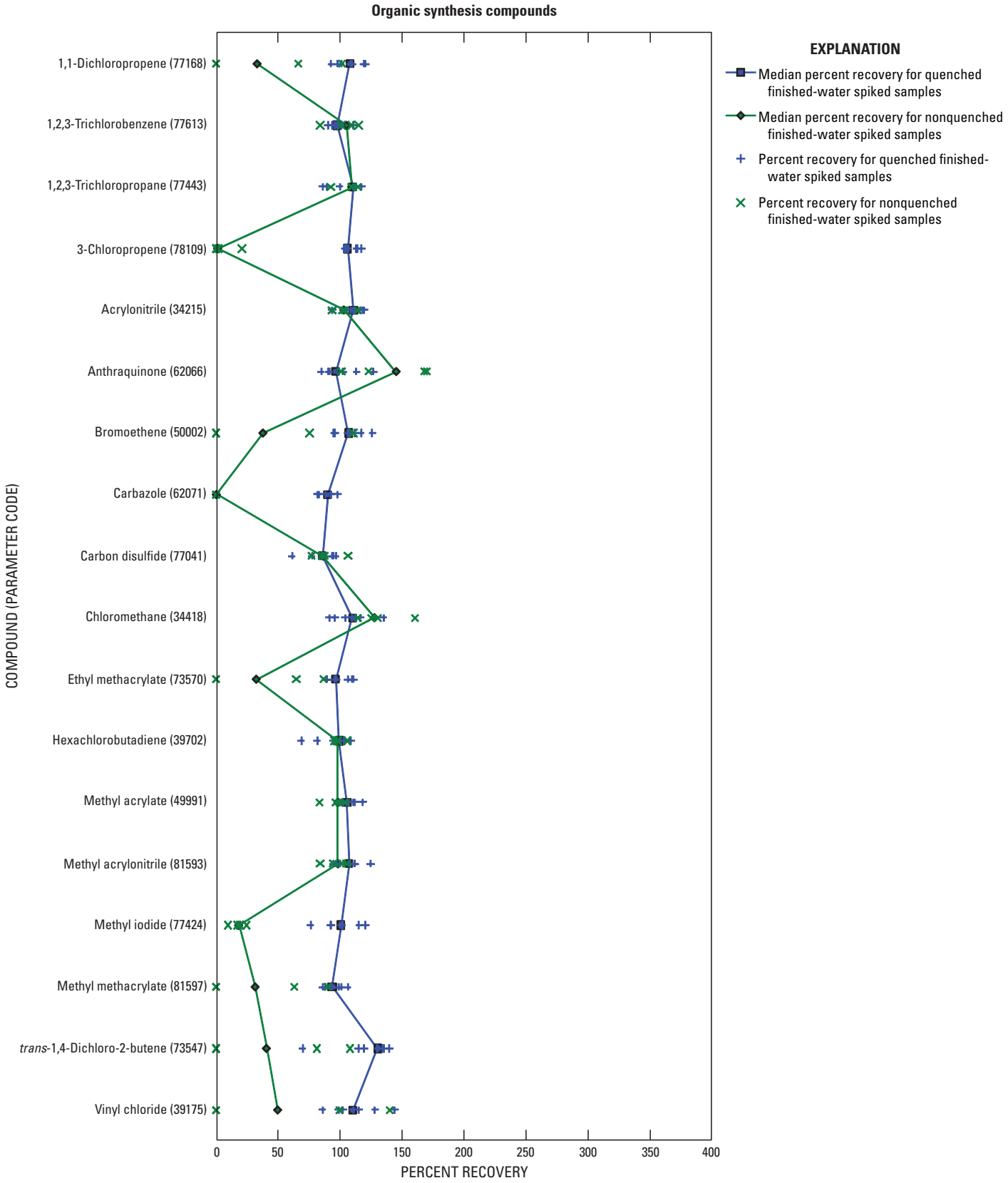

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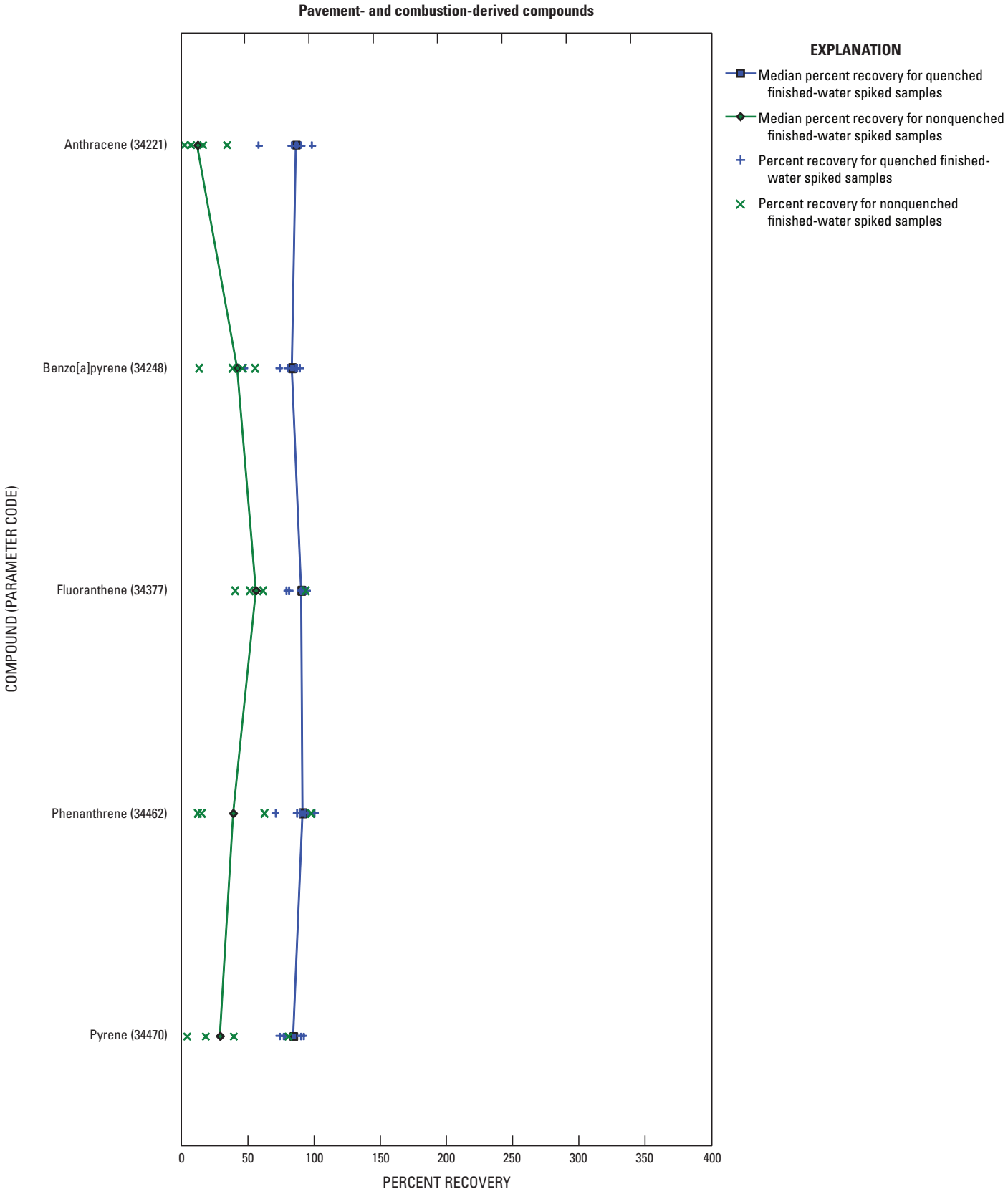

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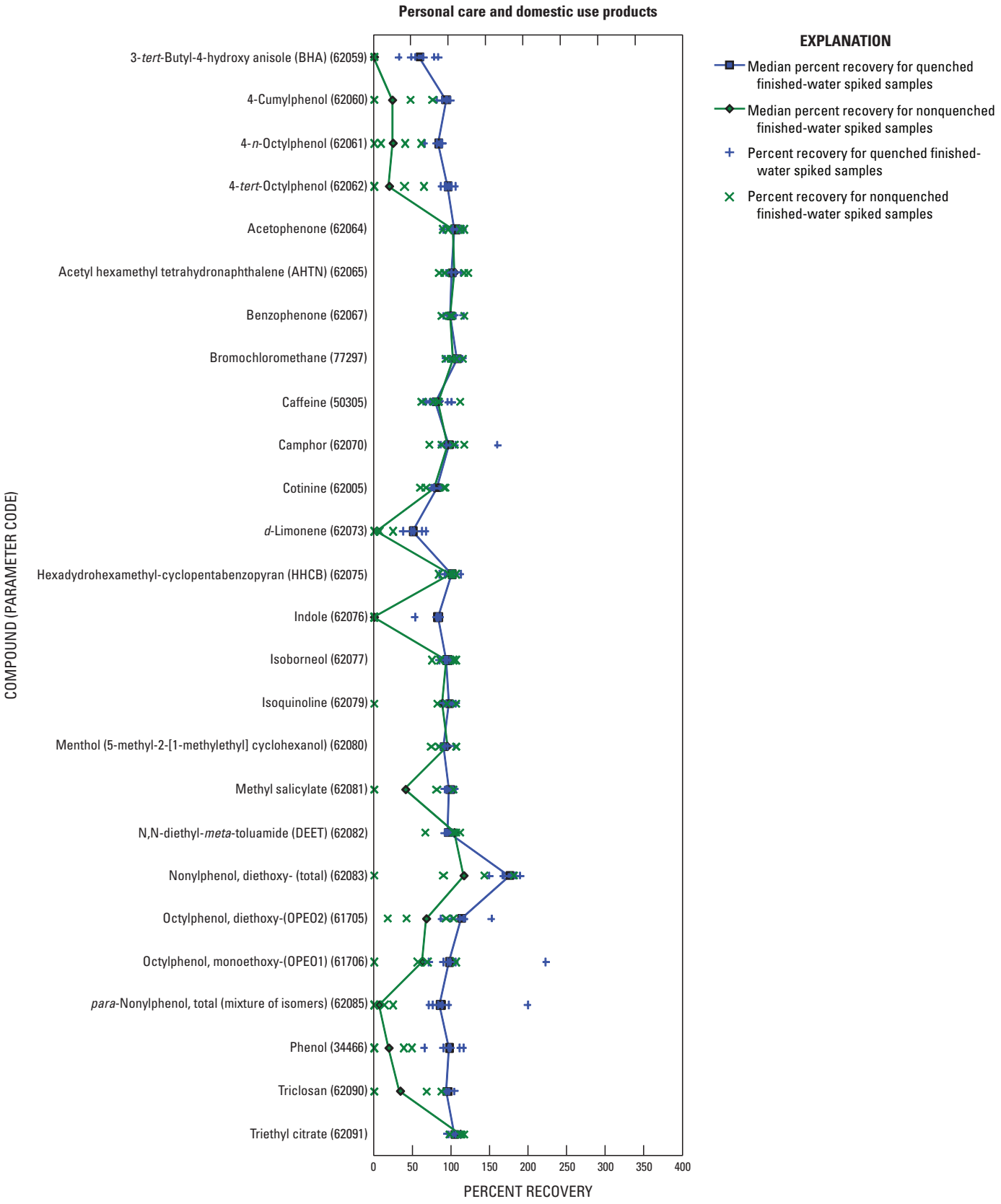

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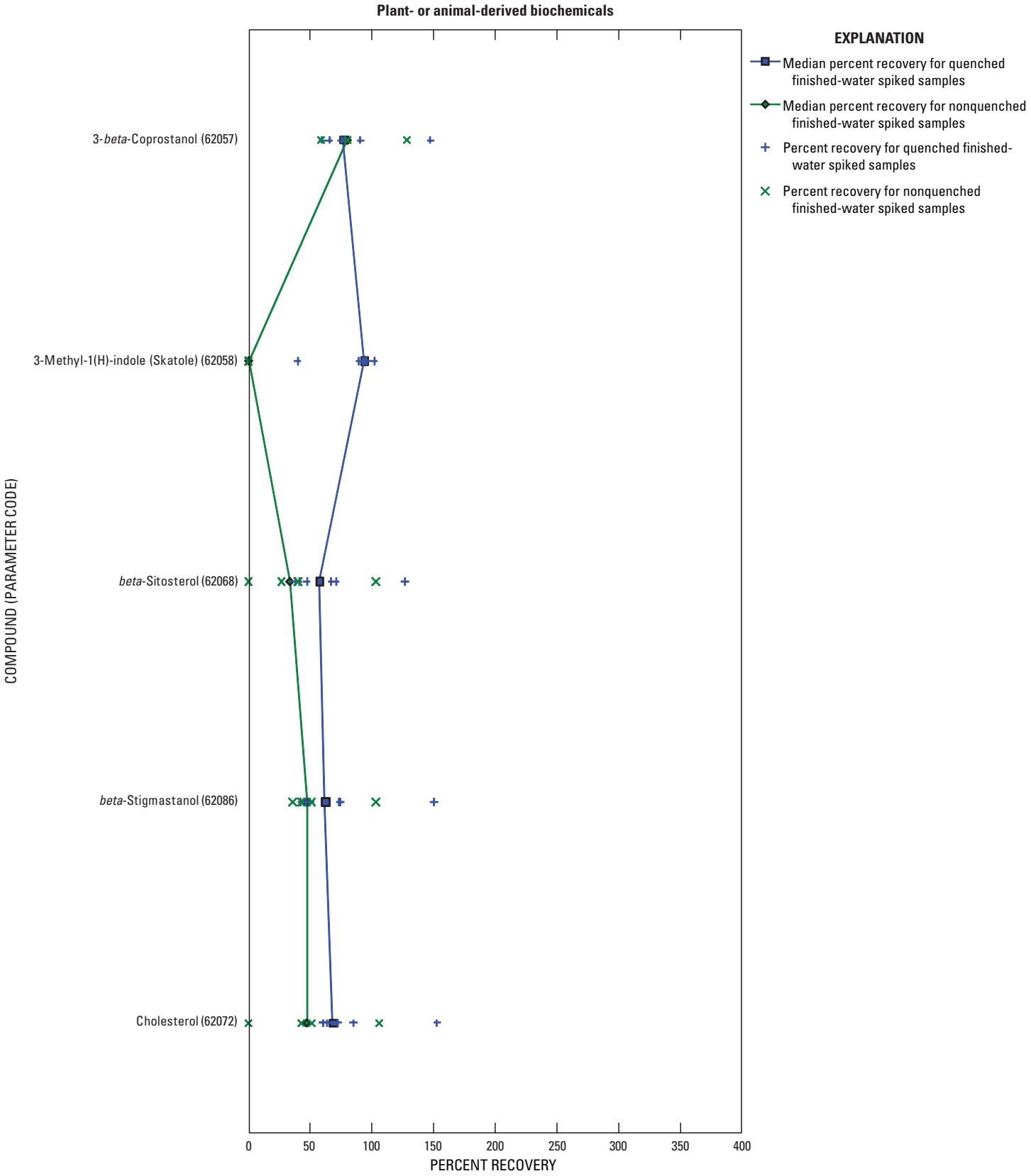

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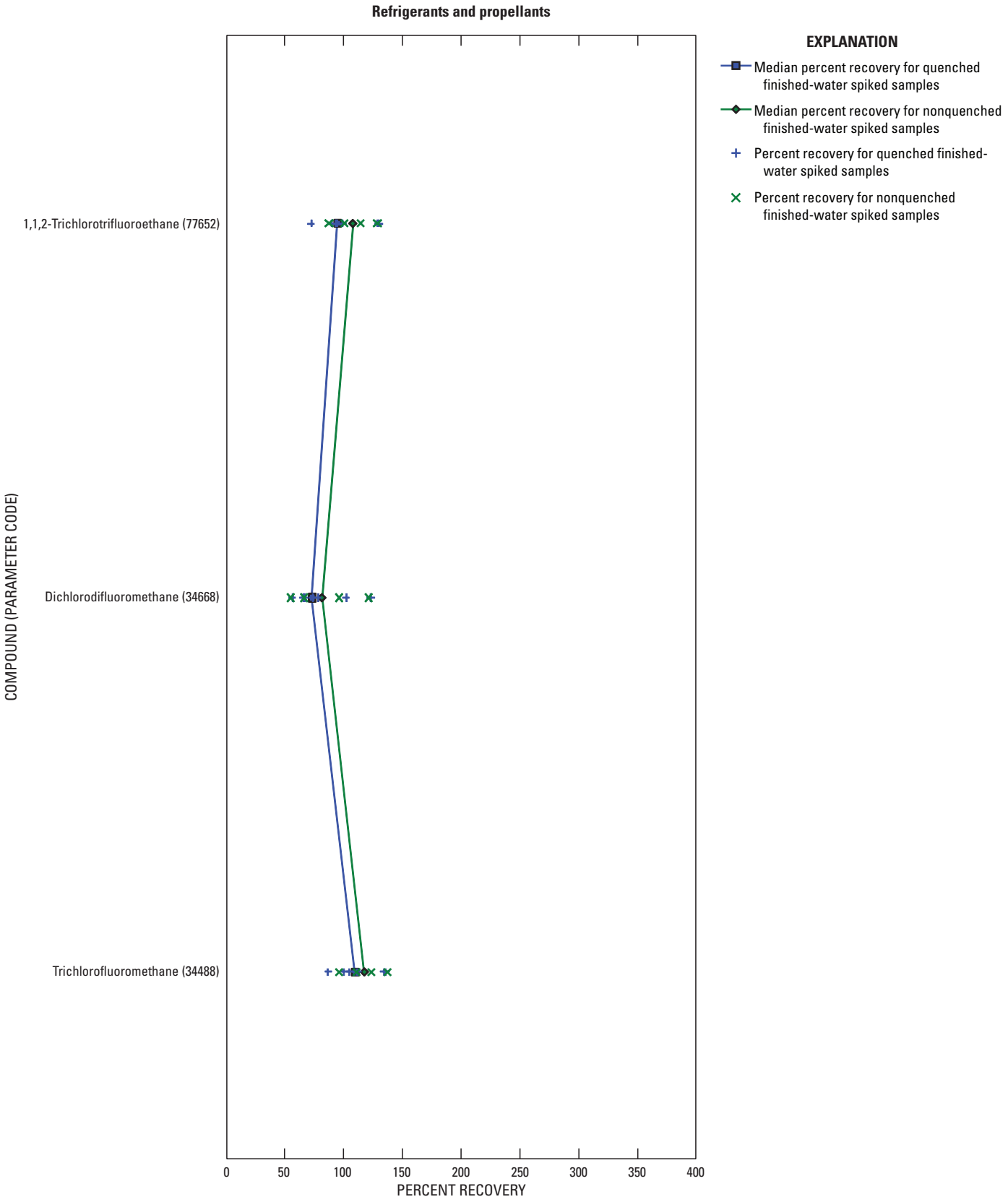

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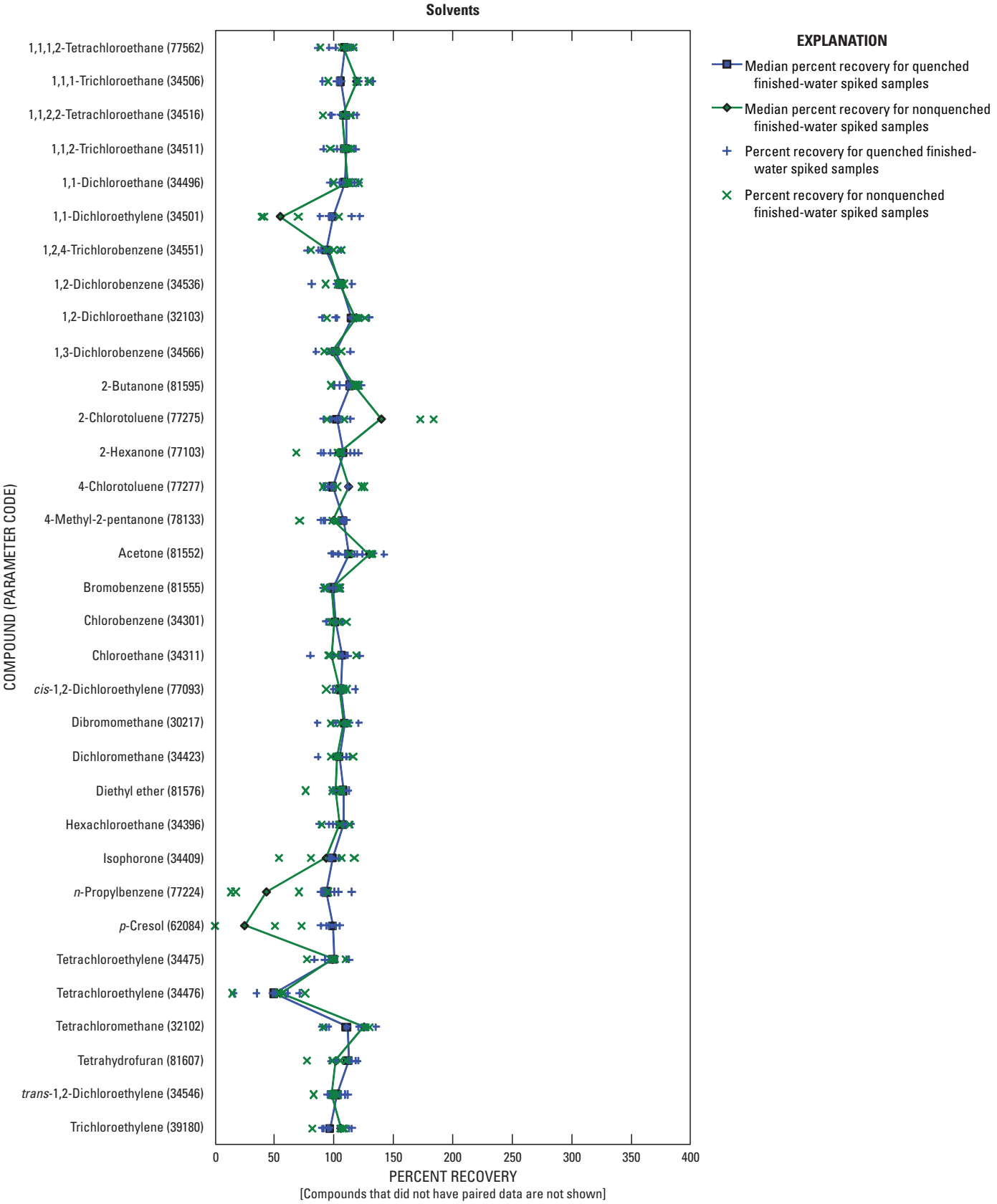

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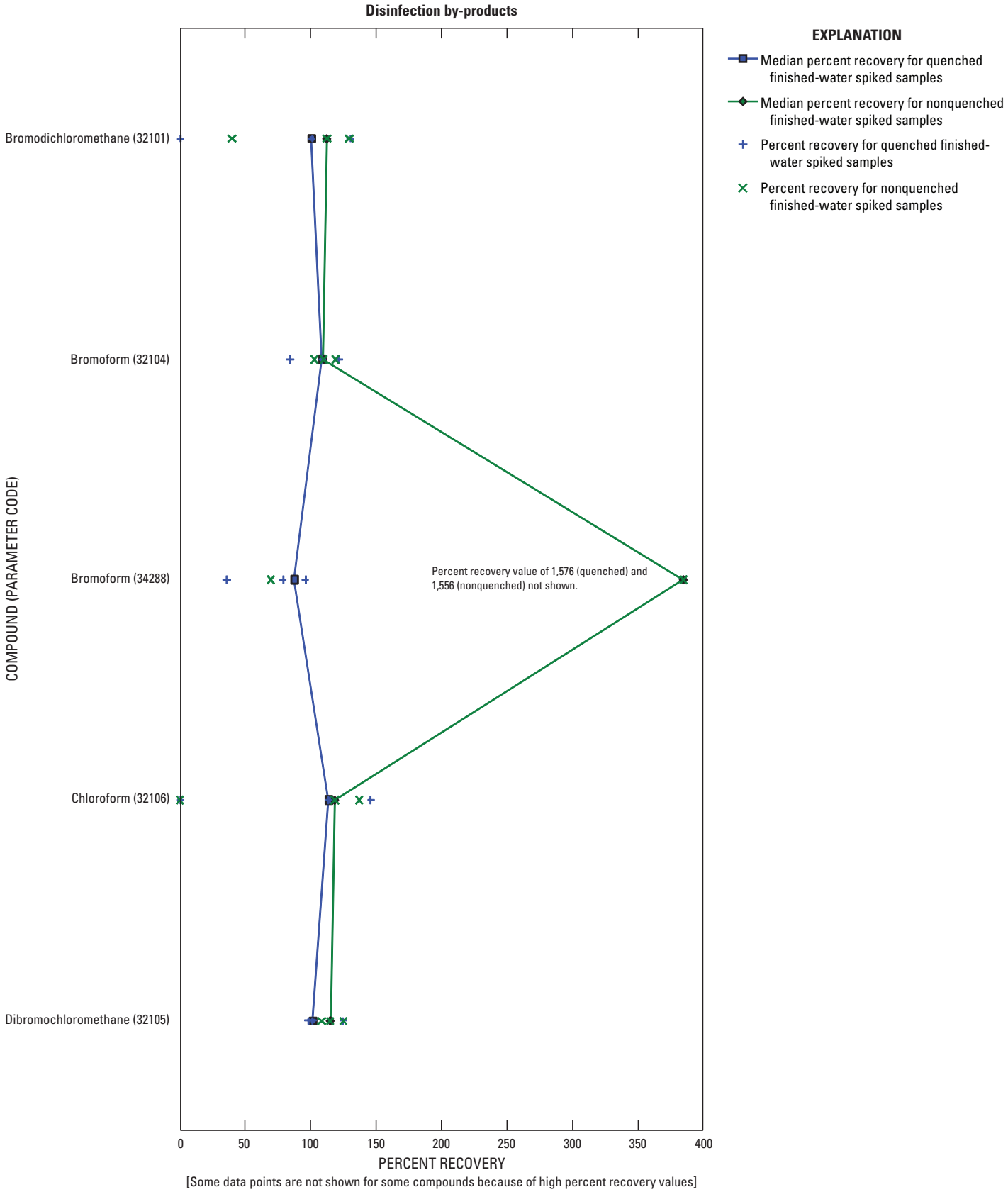

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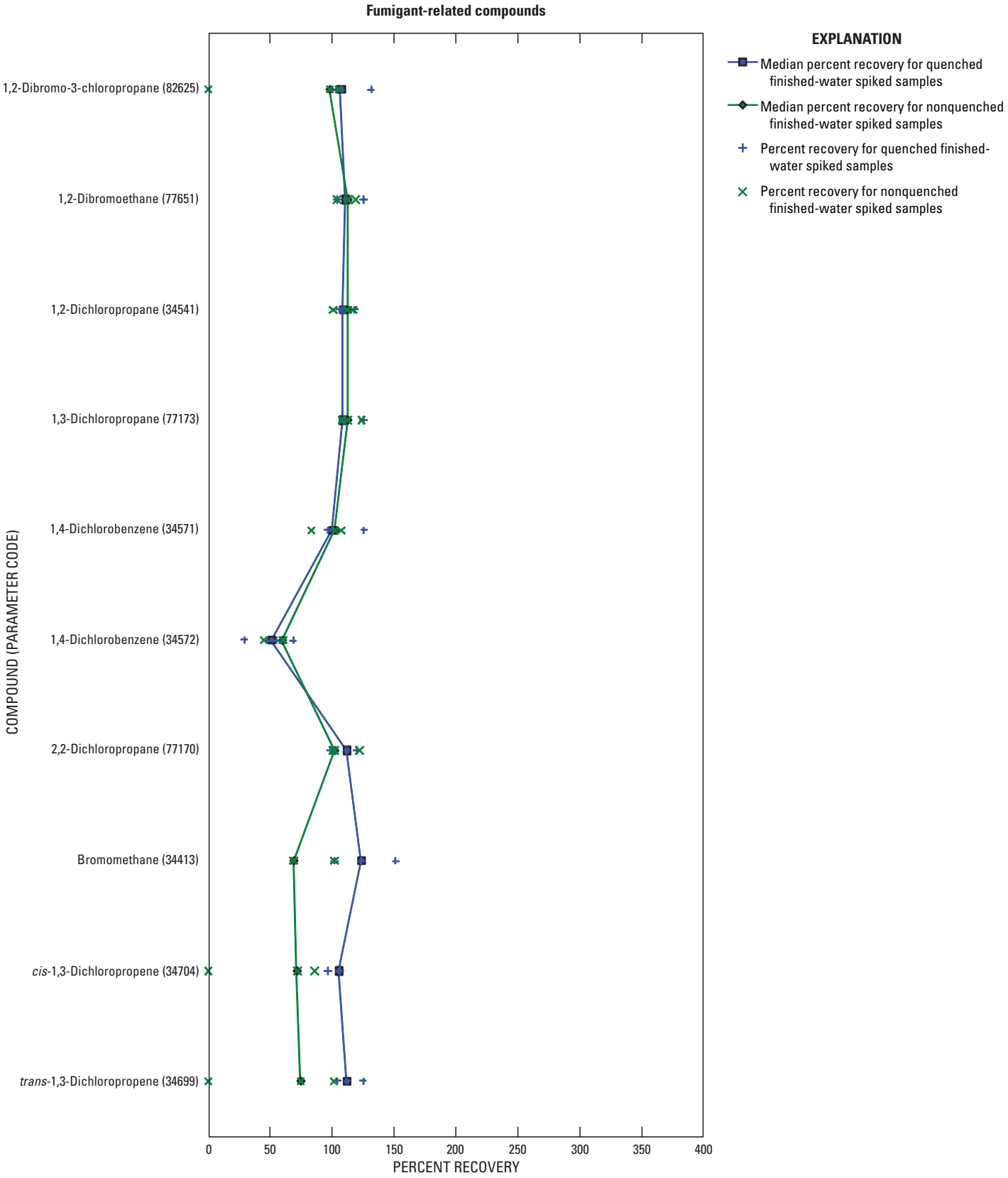

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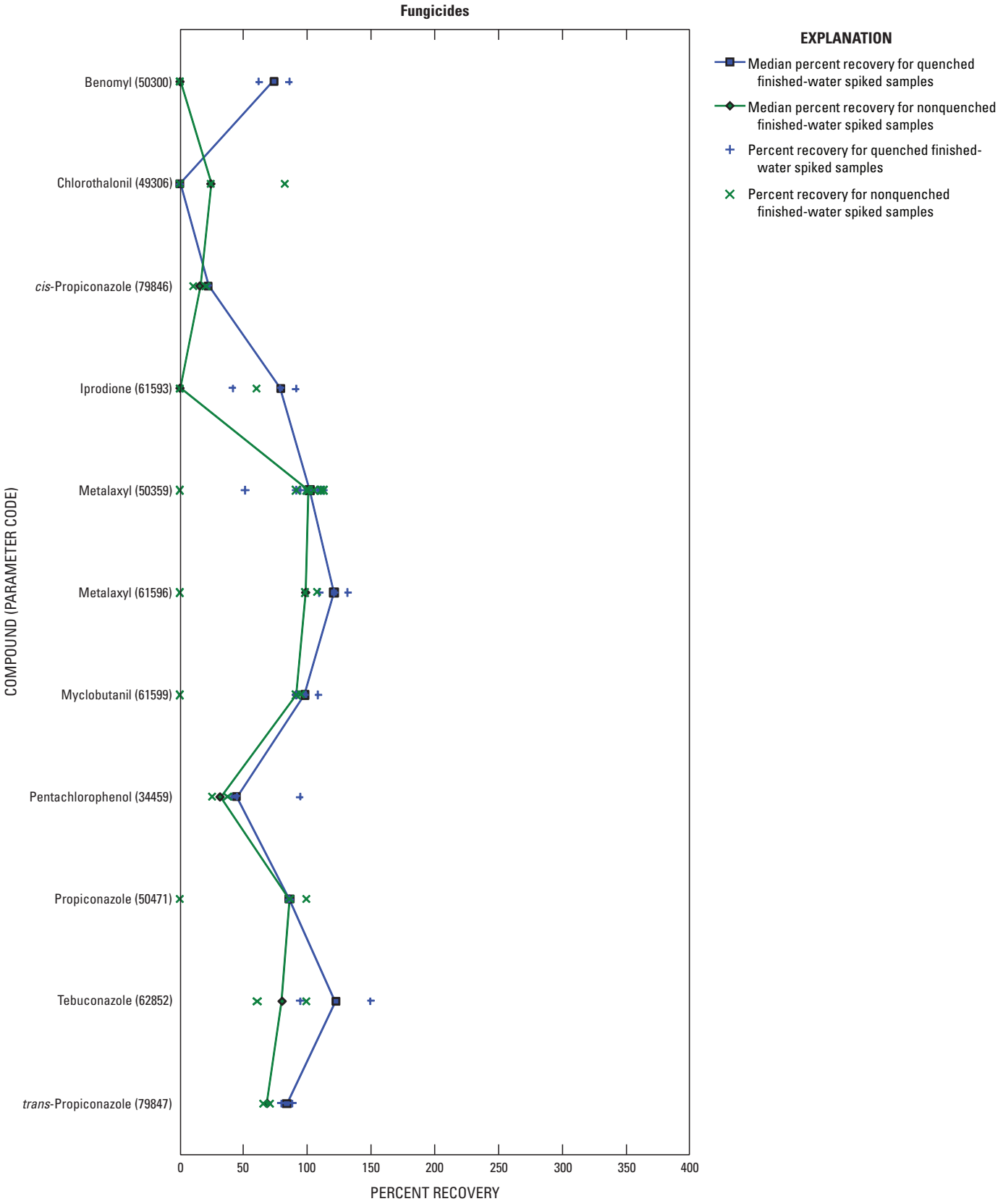

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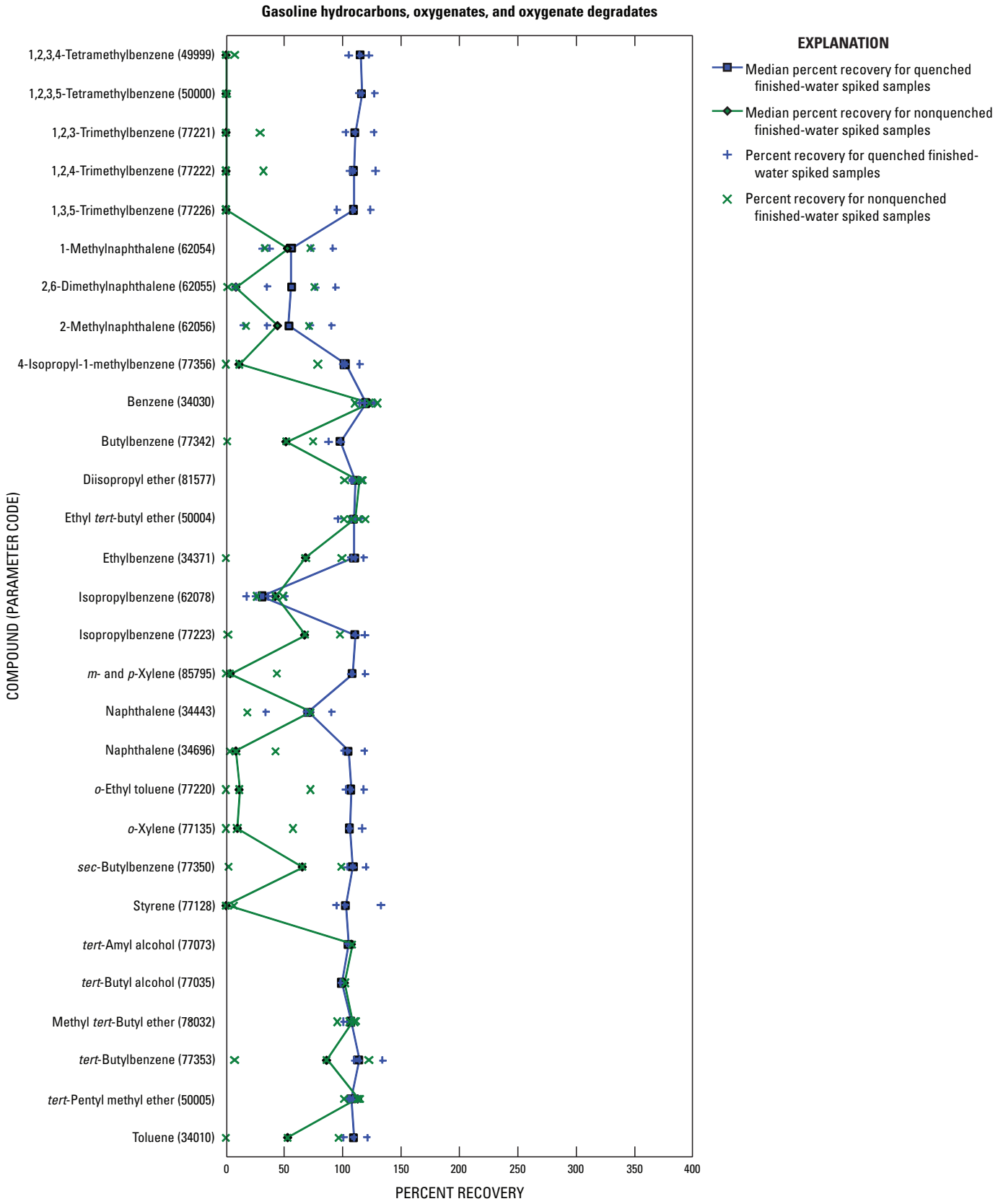

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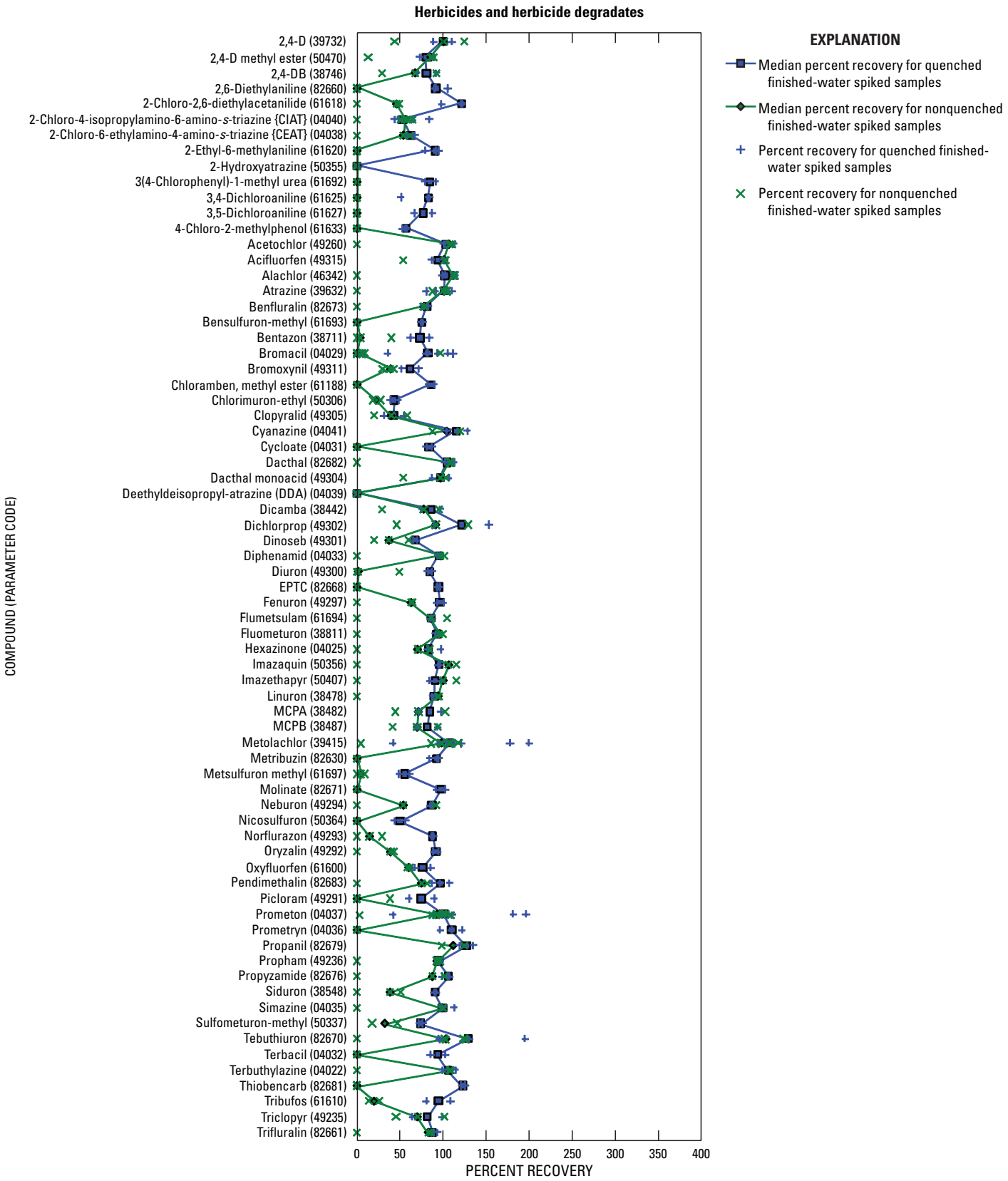

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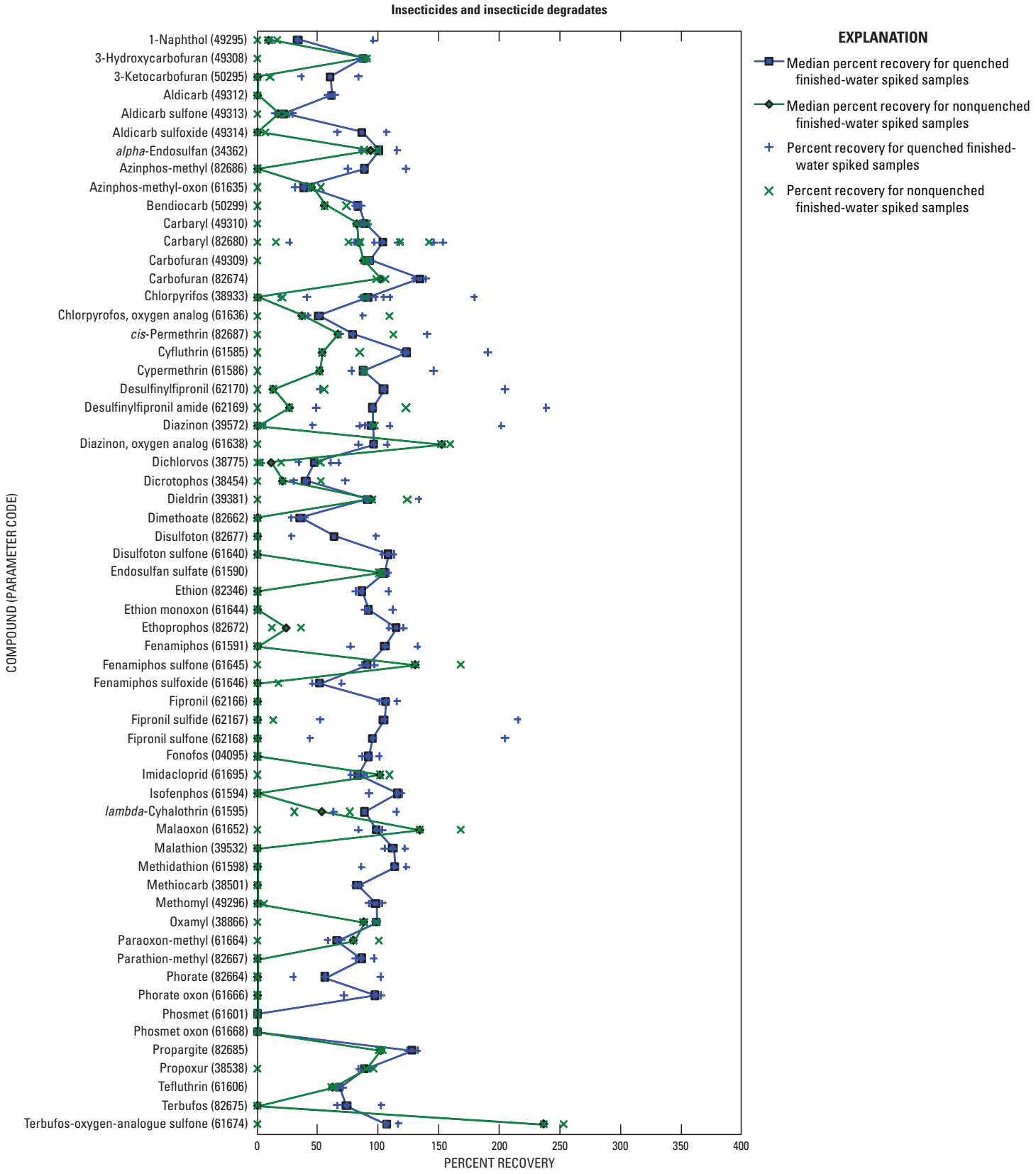

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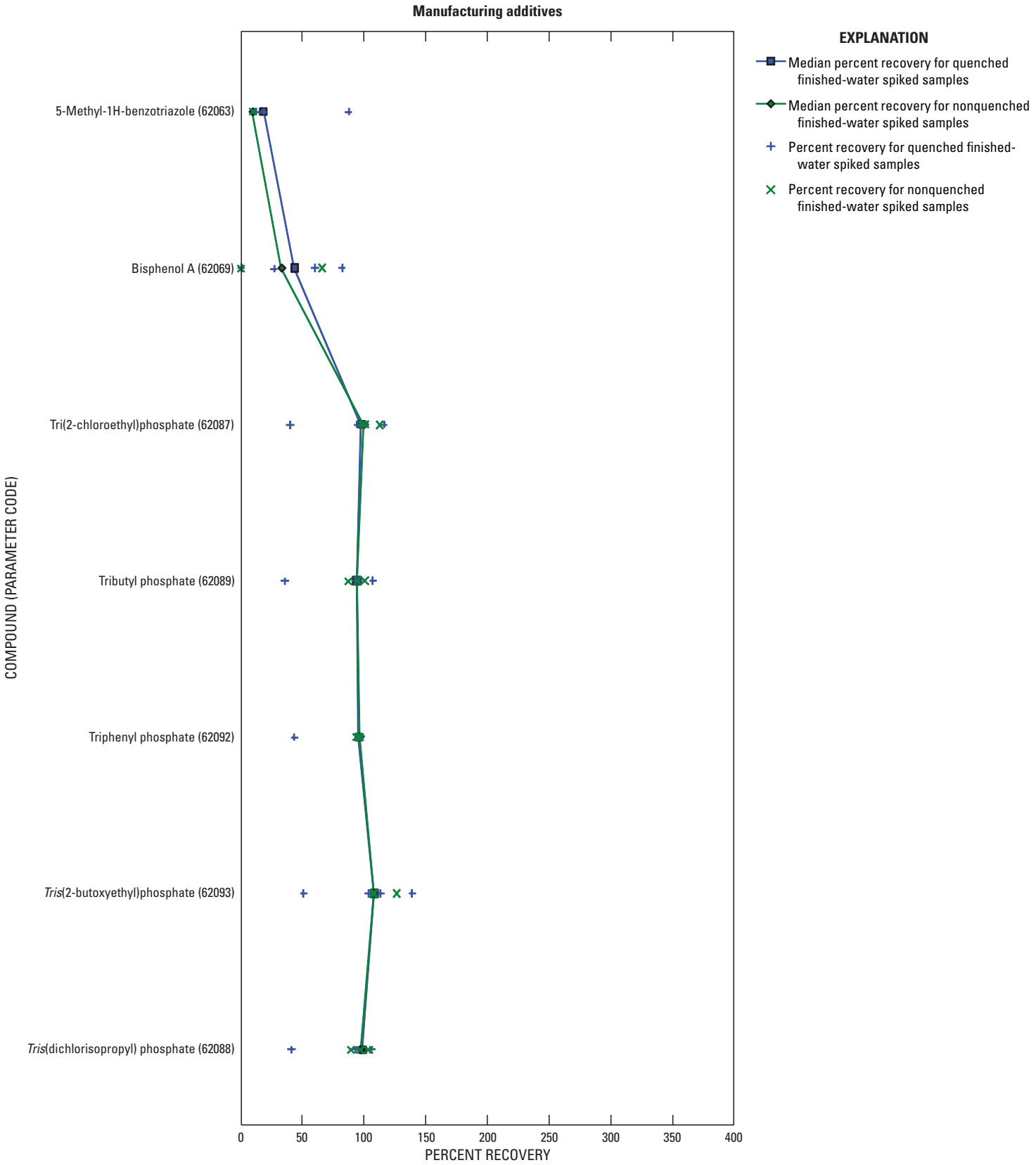

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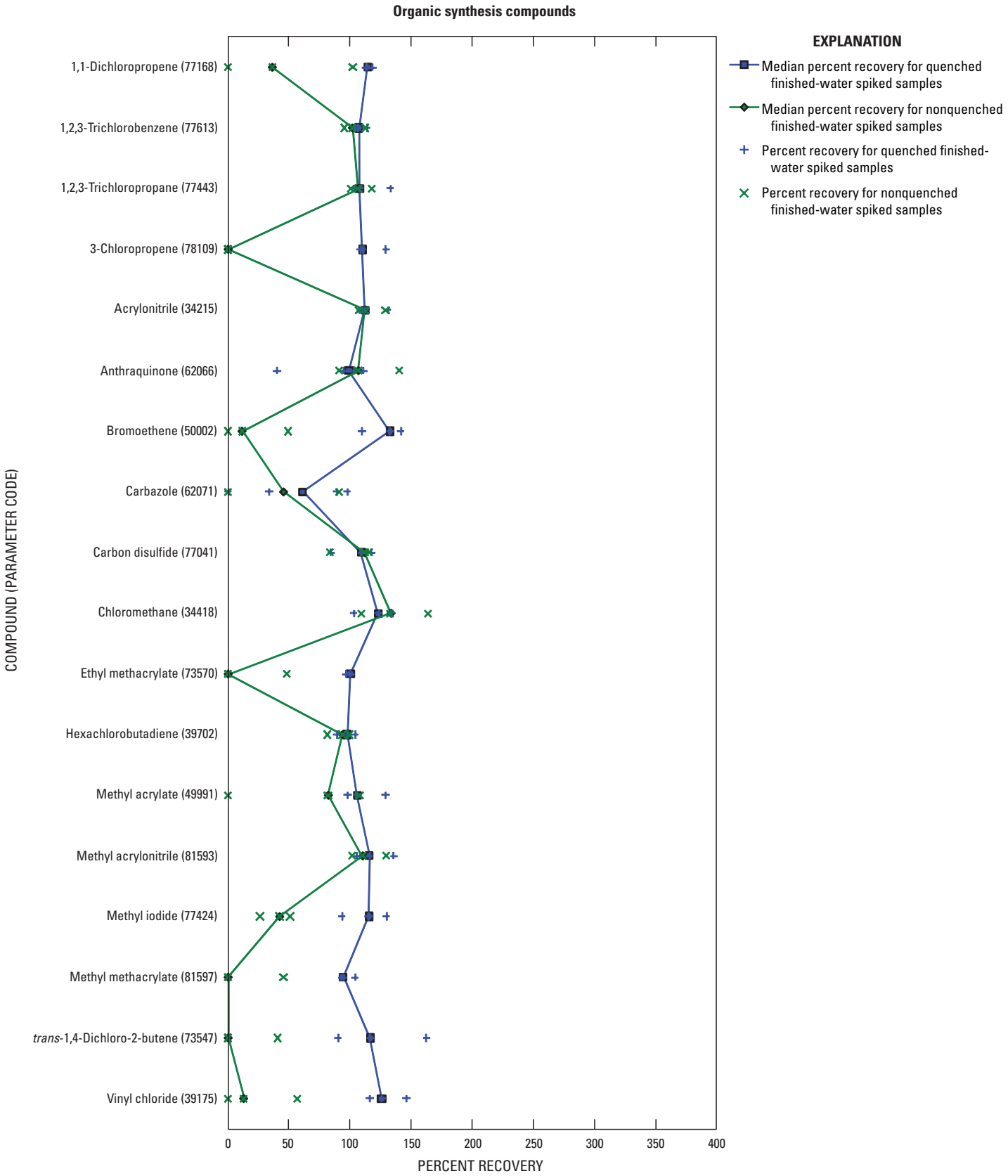

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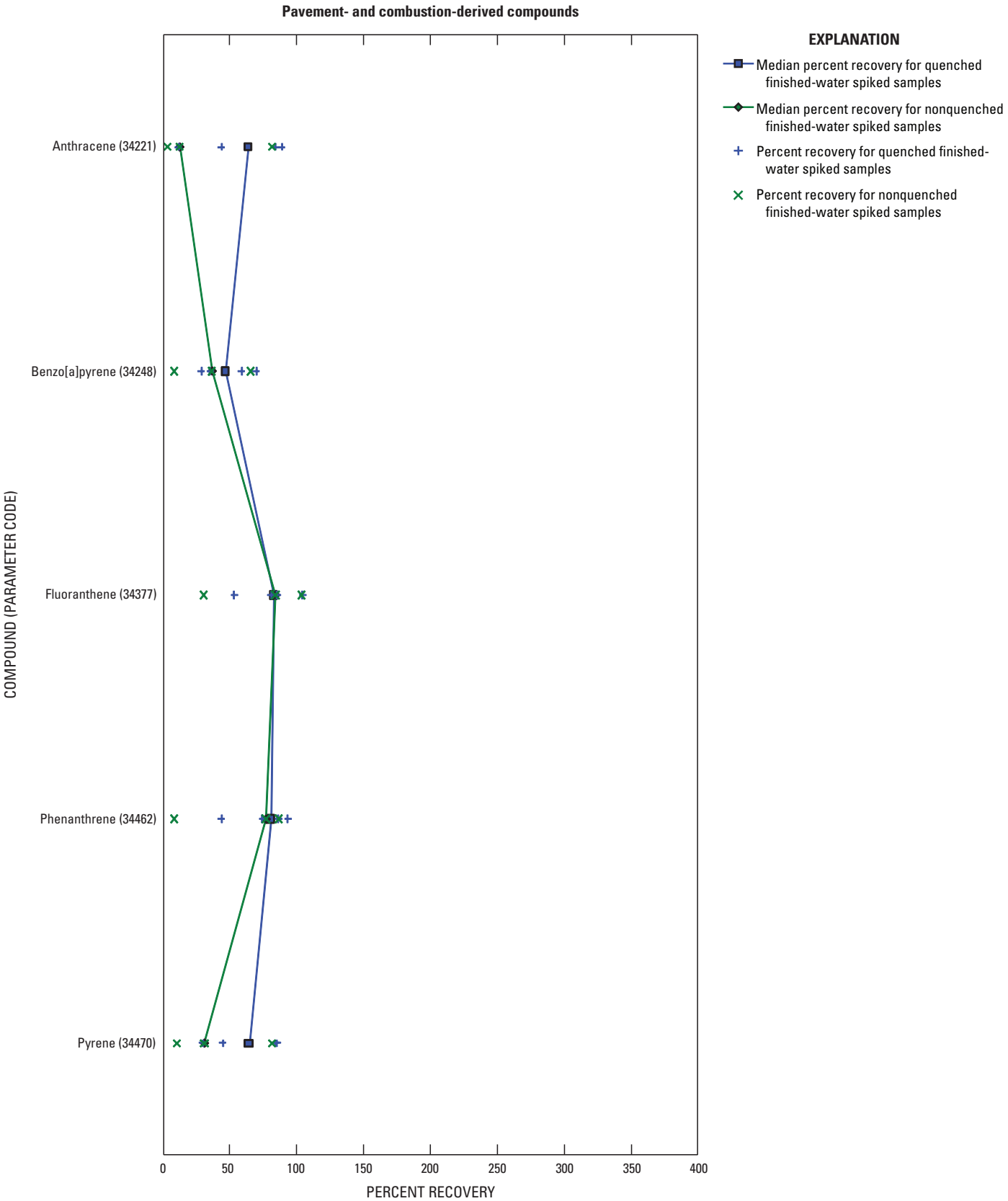

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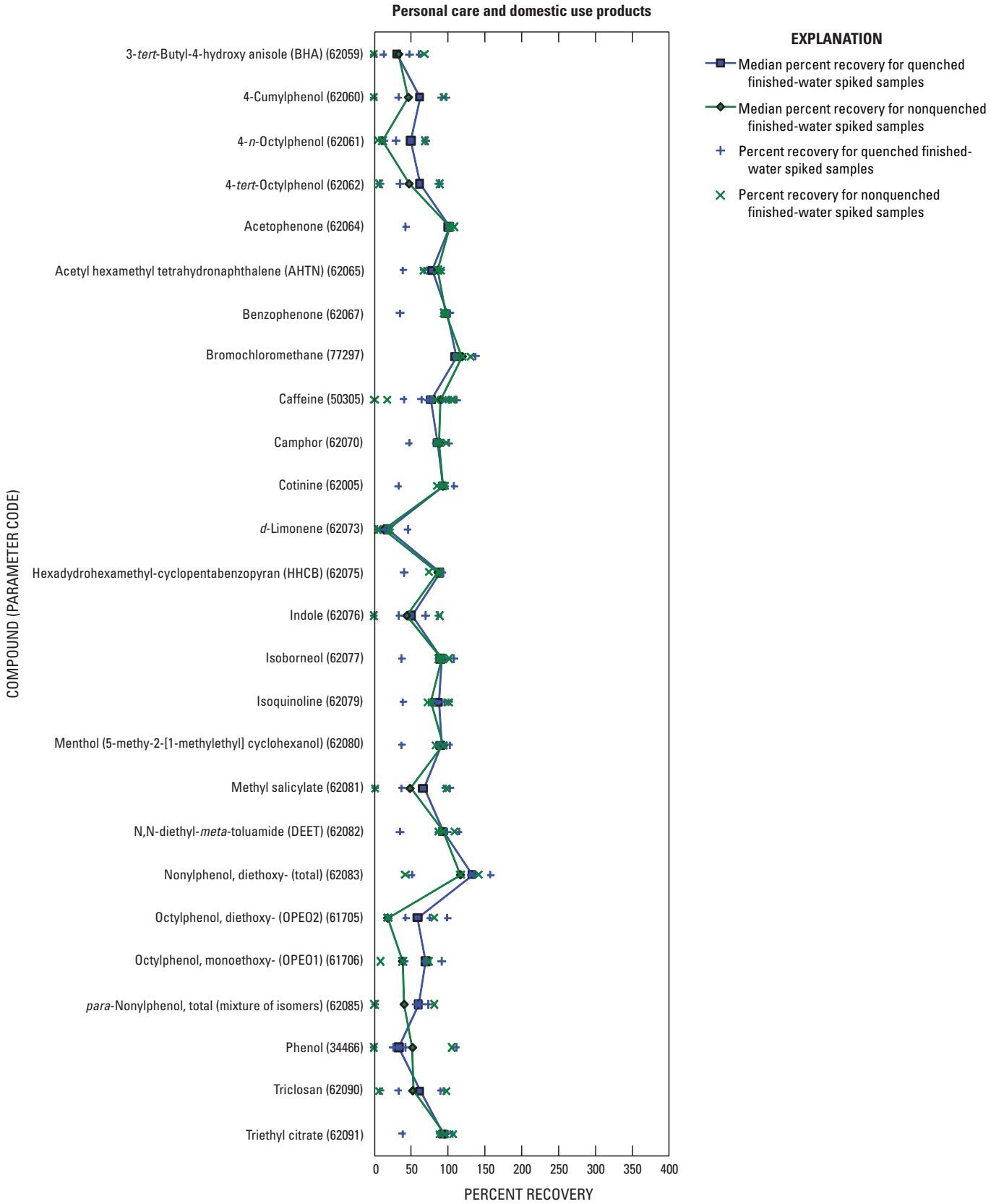

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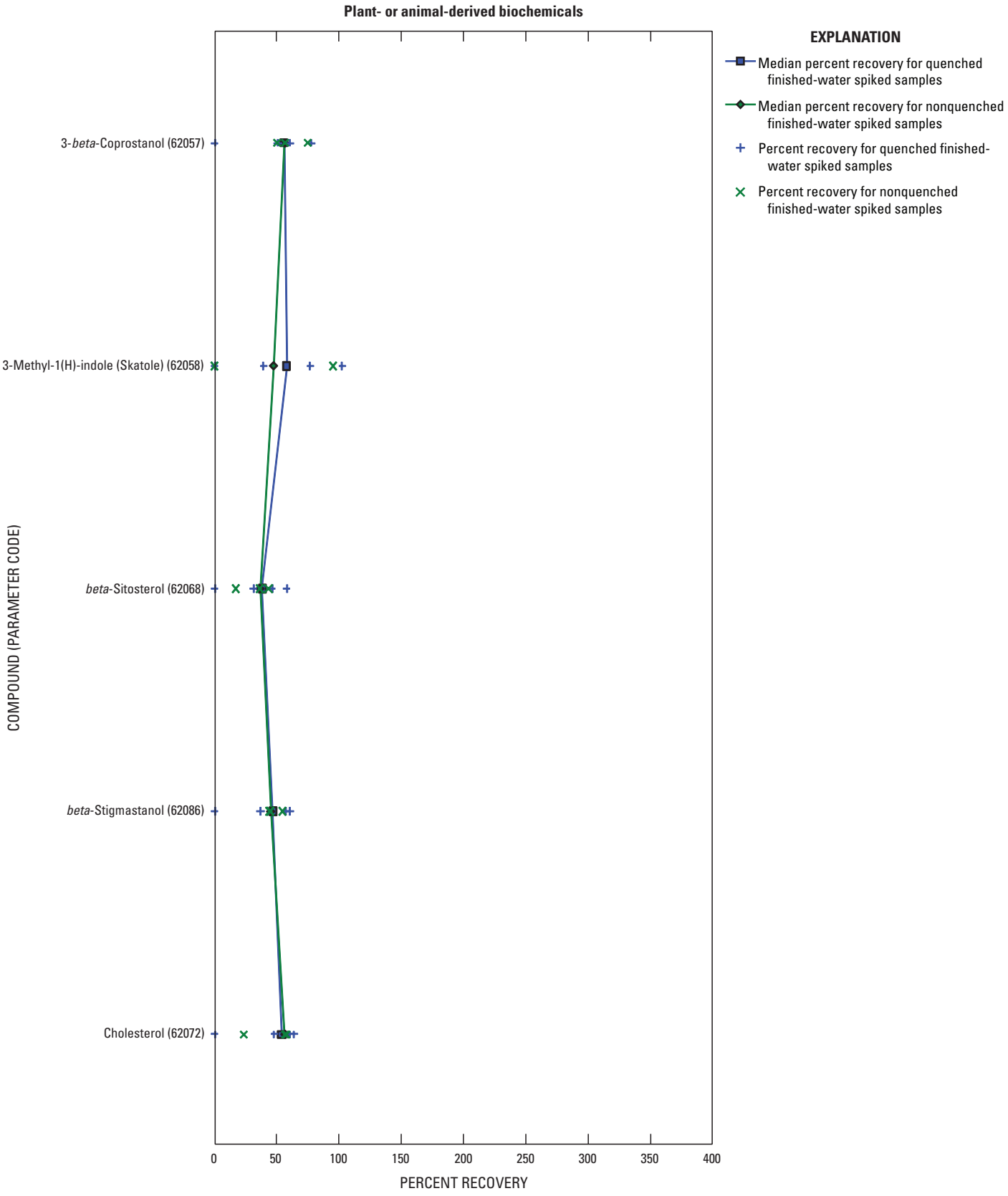

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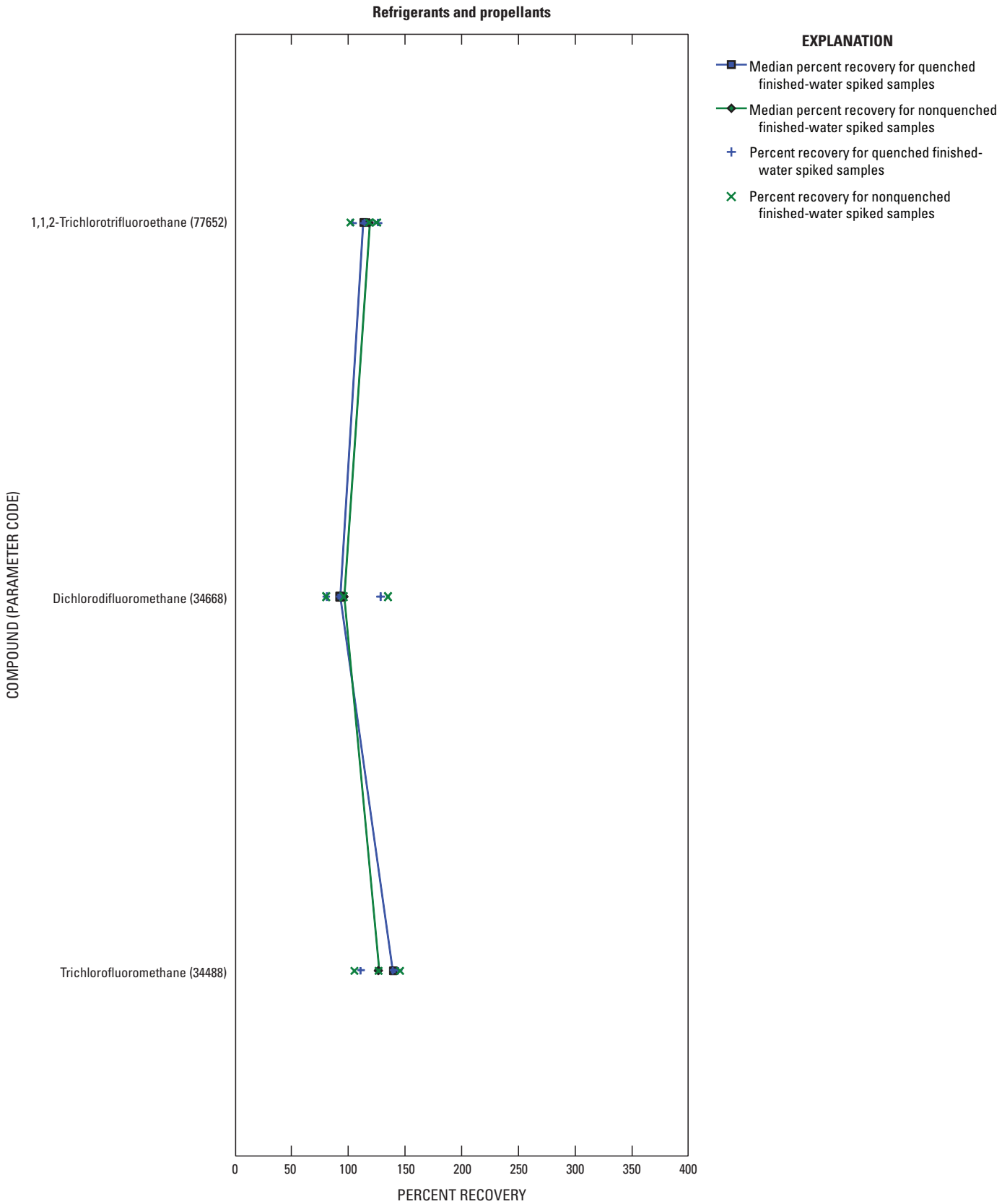

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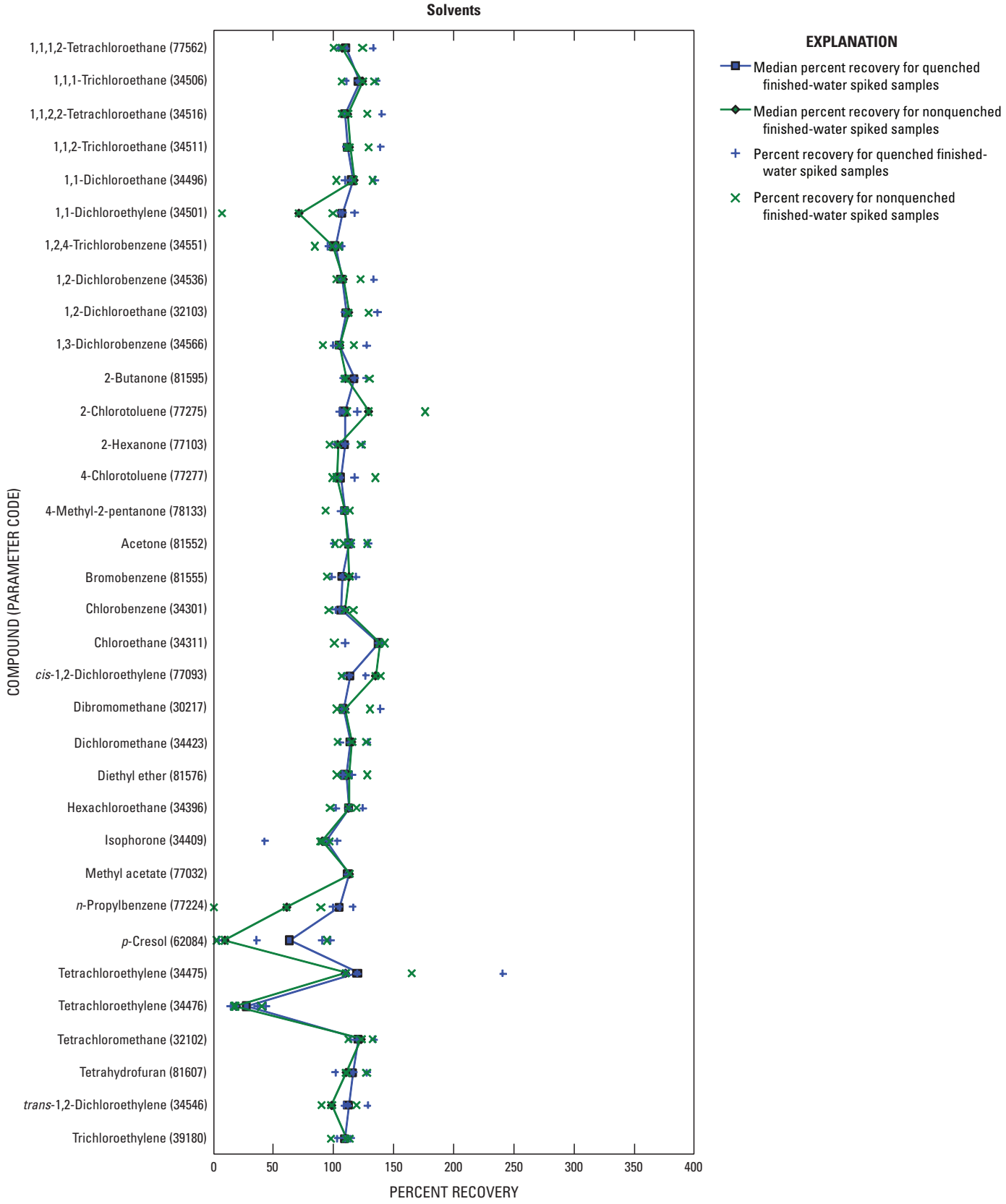

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