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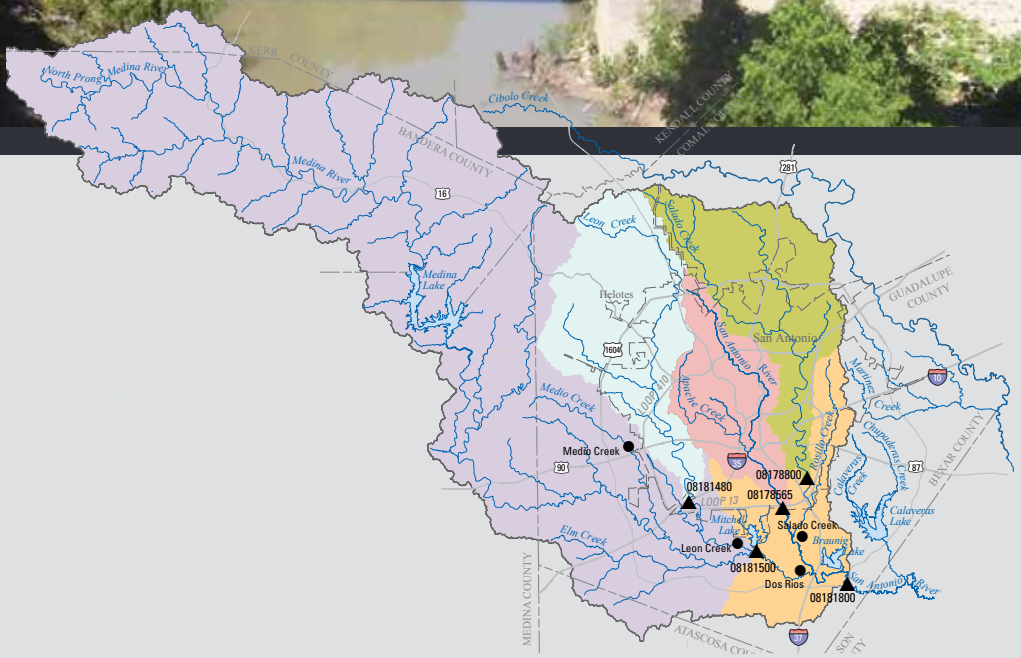
Surface-Water Quality in the Upper San Antonio River Basin, Bexar County, Texas, 1992–98



Data Series 738

U.S. Department of the Interior
U.S. Geological Survey

Cover: Medina River upstream from U.S. Geological Survey streamflow-gaging station 08181500 Medina River at San Antonio, Texas, April 30, 2010.

Surface-Water Quality in the Upper San Antonio River Basin, Bexar County, Texas, 1992–98

By J. Ryan Banta, Richard N. Slattery, and Cassi L. Crow

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U.S. Department of the Interior
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Contents

Figures

Tables

Conversion Factors

Inch/Pound to SI

Multiply	By	To obtain
	Length	
inch (in.)	25.4	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
square mile (mi^2)	2.590	Square kilometer (km^2)
	Flow rate	
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
million gallons per day (Mgal/d)	0.04381	cubic meter per second (m^3/s)

SI to Inch/Pound

Multiply	By	To obtain
	Length	
millimeter (mm)	0.03937	inch (in.)
meter (m)	3.281	foot (ft)
kilometer (km)	0.6214	mile (mi)
	Volume	
liter (L)	0.2642	gallon (gal)

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$°F=(1.8×°C)+32$$

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as follows:

$$°C=(°F-32)/1.8$$

Vertical coordinate information is referenced to the North American Vertical Datum of 1988 (NAVD 88).

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

Specific conductance is given in microsiemens per centimeter at 25 degrees Celsius (µS/cm at 25 °C).

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

Surface-Water Quality in the Upper San Antonio River Basin, Bexar County, Texas, 1992–98

By J. Ryan Banta, Richard N. Slattery, and Cassi L. Crow

Abstract

The potential effects of chemicals in rivers and streams on human health or the ecology have long been a source of concern to water managers. Chemicals in rivers may result from natural or anthropogenic sources (such as industrial or residential practices) which are commonly associated with urbanized watersheds. The U.S. Geological Survey, in cooperation with the San Antonio Water System, examined water-quality data collected from periodic and stormflow sampling events at five sites in the upper San Antonio River Basin during 1992–98. These water-quality data were compared among sites as well as between periodic and stormflow events. The samples were collected from five continuous streamflow-gaging stations in Bexar County, Texas. Samples were analyzed for major ions, nutrients, trace elements, and organic compounds, including selected pesticides.

The reported concentrations for the measured constituents varied among sites as well as between periodic and stormflow samples. Patterns for some constituents, such as nutrients, were observed; however, consistent patterns were not always observed for all analytes. For example, median concentrations for filtered ammonia, nitrate plus nitrite, organic nitrogen, and phosphorus generally were greater in periodic samples collected from the Medina and SAR Elmendorf sites as compared to samples collected from the other sites. Median concentrations of trace elements measured in periodic samples were generally less than concentrations measured in stormflow samples. In general, most of the concentrations of analyzed organic compounds were less than the laboratory reporting levels.

Introduction

The potential effects of chemical contributions to rivers and streams on human health or the ecology are a source of concern for water managers (U.S. Environmental Protection Agency, 2012a). Chemicals in rivers may result from natural or anthropogenic sources (such as industrial or residential practices) which are commonly associated with urbanized watersheds (U.S. Environmental Protection Agency, 2012a). For example, arsenic is a naturally occurring element in the environment; however, arsenic also can enter the environment as a result of glass and electronic production wastes (U.S. Environmental Protection Agency, 2012b). Some chemicals do not naturally occur in the environment, such as organochlorine pesticides which can enter the environment as a result of agricultural practices (U.S. Environmental Protection Agency, 2012b).

In 1990, San Antonio, Texas, covered approximately 333 square miles (mi^2) (U.S. Census Bureau, 1996); by 2000, San Antonio had increased to approximately 406 mi^2 (U.S. Census Bureau, 2001a). Similarly, the population increased from about 0.93 million people in 1990 to more than 1.1 million people in 2000, a 22 percent increase (U.S. Census Bureau, 2001b). Human activities in developed areas can potentially affect downstream river systems, especially during storm events when surface-water runoff from developed areas might carry chemicals with it, thereby potentially degrading the receiving water bodies. For example, elevated concentrations of some nutrients, possibly from wastewater treatment plants or application of fertilizers, have been observed in the San Antonio River (San Antonio River Authority, 2012). Elevated nutrient concentrations might result in eutrophication of the river (Dubrovsky and others, 2010). To gain a better understanding of the concentrations of selected chemicals in the San Antonio River, the U.S. Geological Survey (USGS), in cooperation with the San Antonio Water System, examined water-quality data collected from periodic and stormflow sampling events during 1992–98.

Purpose and Scope

The purpose of this report is to describe the chemical and hydrologic data collected from periodic and stormflow samples during 1992–98 from five continuous streamflow-gaging stations in the upper San Antonio River Basin, Bexar County, Tex. (fig. 1). Samples were analyzed for major ions, nutrients, trace elements, and organic compounds, including selected pesticides. These water-quality data were compared among sites, as well as between periodic and stormflow

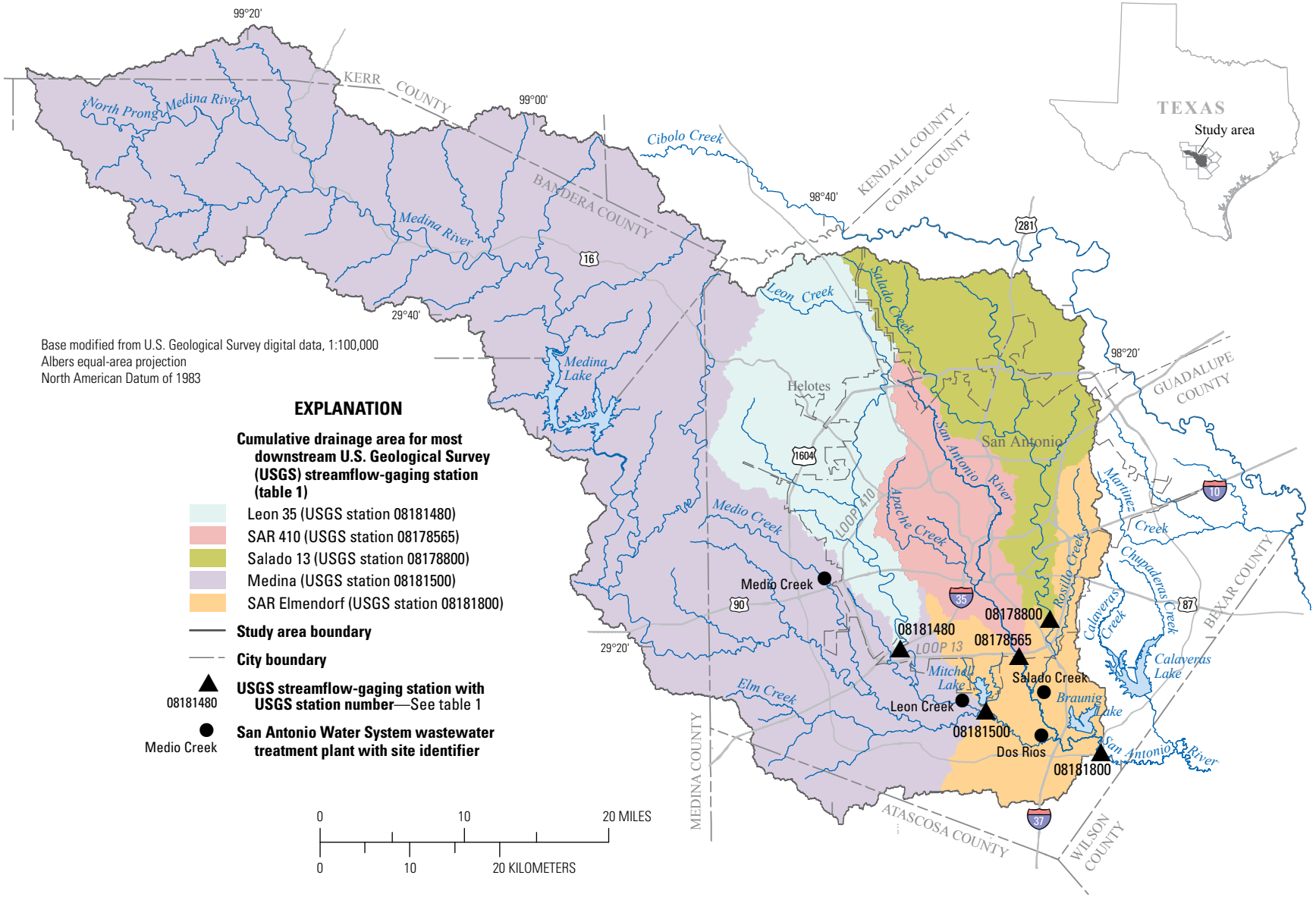


Figure 1. Location of data-collection sites in the study area, Bexar County, Texas.

events. Results also were compared with Texas Commission on Environmental Quality (TCEQ) surface water standards (Texas Commission on Environmental Quality, 2010). In this report, comparisons to TCEQ surface water standards were for general contextual purposes only because none of the samples were collected for regulatory compliance purposes.

Description of Study Area

The upper San Antonio River Basin is approximately 1,741 mi^2 and is defined in this report as the cumulative watershed area upstream from five existing USGS streamflow-gaging stations in Bexar County, Tex. (fig. 1, table 1 at end of report). The five USGS streamflow-gaging stations are as follows: 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (hereinafter referred to as the "Leon 35 site"); 08178565 San Antonio River at Loop 410, San Antonio, Tex. (hereinafter referred to as the "SAR 410 site"); 08178800 Salado Creek at Loop 13, San Antonio, Tex. (hereinafter referred to as the "Salado 13 site"); 08181500 Medina River at San Antonio, Tex. (hereinafter referred to as the "Medina site"); and 08181800 San Antonio River near Elmendorf, Tex. (hereinafter referred to as the "SAR Elmendorf site"). The SAR Elmendorf site is downstream from the confluence of the watersheds represented at the other four sites and is considered an integrator site for all the watersheds in the study area.

The sources of streamflow in the San Antonio River, as measured at the SAR Elmendorf site, are from springs discharging within the San Antonio city limits, tributaries, and stormflow from rainfall runoff. As the San Antonio River and its tributaries flow through different land-cover types, the types of land cover and associated human activities might influence the downstream water quality. For example, as a river passes through urbanized areas, the water quality might be affected by byproducts of industrial activities. Land cover in the drainage watersheds was categorized as "developed," "undeveloped," and "cultivated" (modified from the 1992 National Land Cover Dataset [NLCD]) (Vogelmann and others, 2001) (fig. 2, table 2 at end of report). Developed land cover includes low intensity residential, high intensity residential, and commercial/industrial/transportation. Undeveloped land cover includes open water, bare rock/sand/clay, quarries/strip mines/gravel pits, transitional, deciduous forest, evergreen forest, mixed forest, shrubland, grasslands/herbaceous, and emergent herbaceous wetlands. Cultivated land cover includes pasture/hay, row crops, small grains, and urban/recreational grasses.

The watershed with the highest percentage of developed land cover was the SAR 410 site (78.8 percent) (table 2). Because of the high percentage of developed land, the effects of urbanization on water-quality might be observed more readily at this site as compared to the other sites. Conversely, the watershed with the largest percentage of undeveloped land cover was the Medina site (76.3 percent), which also had the largest percentage of cultivated areas (17.8 percent), excluding the SAR Elmendorf site (18.3 percent). The potential effects of agricultural activities might be more readily observed at the Medina site than the other sites.

In addition to potential effects on water quality related to differences in land cover, there were four large wastewater treatment plants operating in the study area during 1992–98 (fig. 1). The Medio Creek and Leon Creek wastewater treatment plants discharge into tributaries of the Medina River, upstream from the Medina site. The Salado Creek and Dos Rios wastewater treatment facilities discharge into Salado Creek and San Antonio River, upstream of the SAR Elmendorf site. The combined average annual discharge from those four wastewater treatment facilities was approximately 47,200 million gallons per year (200 cubic feet per second) during 1992–98 (Gregg Eckhardt, San Antonio Water System, written commun., 2012).

Data-Collection Methods

Periodic and stormflow water-quality samples (hereinafter referred to as "periodic samples" and "stormflow samples," respectively) were collected from five sites during 1992–98 (fig. 1, table 1). Periodic and stormflow samples collected at each of the sites were analyzed for physical properties, major ions, nutrients, trace elements, and organic compounds, including selected pesticides.

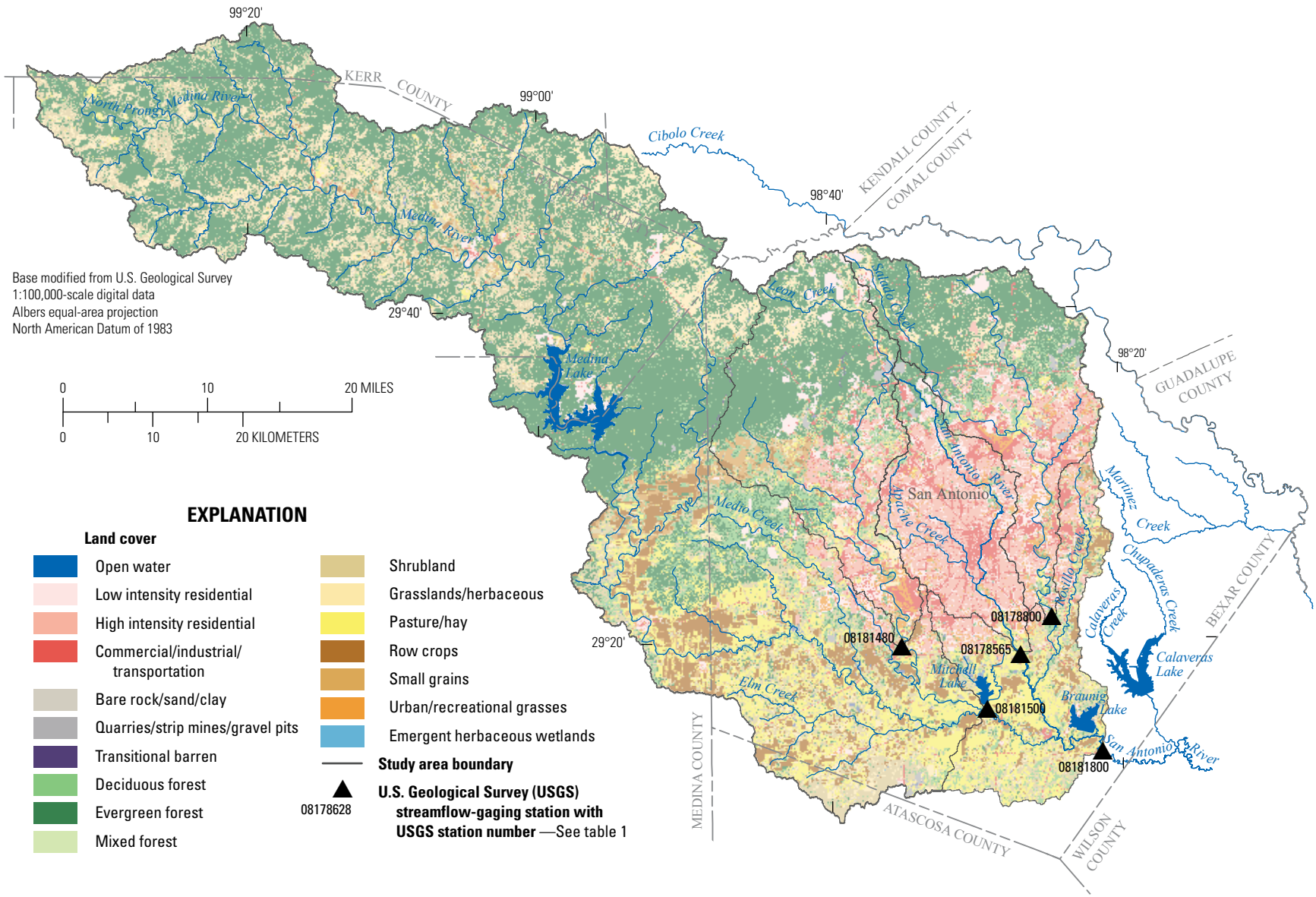


Figure 2. Land-cover map and data-collection sites in the study area, Bexar County, Texas, 1992.

Water-Quality Sample Collection

Periodic Sample Collection

Periodic samples were collected approximately every 2–3 months (fig. 3, table 3 at end of report). Periodic samples were not intended to represent base-flow conditions; the periodic samples were collected during a range of streamflow conditions at the sites from 1992–95. Sample preparation, collection, and processing techniques followed standard USGS protocols (Wells and others, 1990; U.S. Geological Survey, variously dated). Periodic samples analyzed for physical properties, major ions, nutrients, and trace elements were collected by using a depth-integrated method (Wells and others, 1990; U.S. Geological Survey, variously dated). Subsamples were collected at 10 to 20 equally spaced intervals across the stream by raising and lowering a narrow-mouth, 1-liter glass bottle through the water column at a constant rate. The subsamples were then composited into one to two larger intermediate glass containers for transporting. Periodic samples analyzed for organic compounds were collected into individual bottles from the stream at the centroid of flow (U.S. Geological Survey, variously dated). All samples were then chilled and transported to the USGS South Texas Program Office in San Antonio, Tex., for processing.

To process a composited periodic sample, the intermediate glass containers were transferred to an 8-liter polyethylene churn (U.S. Geological Survey, variously dated). A churning rate of about 9 inches per second was established on the composited sample and maintained while whole (raw) water samples were withdrawn from the churn splitter first. Subsamples were drawn from the churn by using a peristaltic pump and filtered through a 0.45 micron filter for the analysis of filtered constituents (U.S. Geological Survey, variously dated). Samples for organic compounds were kept in their original collection bottles. All samples were then chilled and sent to the USGS National Water Quality Laboratory (NWQL) in Denver, Colorado, for laboratory analysis.

Stormflow Sample Collection

Stormflow samples were collected from 1993–98 during periods when streamflow at the sites was affected by runoff associated with heavy rainfall. Stormflow samples were collected for physical properties, major ions, nutrients, trace elements, and organic compounds by using a point-integrating sampling method (U.S. Geological Survey, variously dated). The sample was drawn through a fixed intake mounted in the stream channel using a suction-lift type automatic sampler. The automatic sampler was programmed to begin sampling when streamflow exceeded a predetermined threshold and then fill as many as four 4-liter bottles at fixed-time intervals during the stormflow event. The samples were retrieved at the end of each stormflow event or after all four bottles were filled. The samples were then chilled and transported to the USGS South Texas Program Office for processing.

To process the stormflow samples, the four bottles were composited into a Teflon-lined stainless-steel churn, which represented the event mean concentration. As with the periodic samples, a churning rate of about 9 inches per second was established on the composited sample and maintained while whole (raw) water samples were withdrawn from the churn splitter first. Subsamples analyzed for filtered constituents were then drawn from the churn and filtered through a 0.45 micron filter (U.S. Geological Survey, variously dated). Unfiltered and filtered samples were then chilled and sent to the NWQL for laboratory analysis.

Laboratory Analysis

Composited water-quality samples were analyzed for the following physical properties: dissolved oxygen, pH, specific conductance, biochemical oxygen demand (BOD), dissolved solids, suspended solids, and alkalinity. Sample processing was done at the USGS South Texas Program Office by using methods described in the USGS National Field Manual for the Collection of Water Quality Data (U.S. Geological Survey, variously dated). BOD samples were collected, processed, and analyzed by using methods described by Delzer and McKenzie (1999). Major ions, nutrients, and organic compounds were analyzed and reported by the NWQL (appendix 1). Major ion concentrations were measured by using methods described by Fishman and Friedman (1989) and Fishman (1993). Nutrient concentrations were measured by using methods described by Patton and Truitt (1992) and Fishman (1993). Trace element concentrations were measured by using methods described by Garbarino and Struzeski (1998). Organic compounds were measured by using methods described by Wershaw and others (1983), Fishman (1993), U.S. Environmental Protection Agency (1984, 1999), and Clesceri and others (1998).

Quantified values reported by the NWQL represent measured concentrations greater than or equal to the laboratory reporting level, as determined by the laboratory at the time of analysis. Censored values reported by the NWQL represent measured concentrations less than the laboratory reporting level ("<LRL," where LRL is the reporting level), as determined by the laboratory at the time of analysis. In some cases, the measured concentration was greater than the detection level but less than the reporting level. In these cases, the value is reported with an "E" (estimated) remark code (Childress and others, 1999).

Streamflow Data Collection

Streamflow was measured at each of the five USGS streamflow-gaging stations by following methods described by Buchanan and Somers (1969) (since superseded by Turnipseed and Sauer [2010]) and Rantz and others (1982a, b). Streamflow was measured at 15-minute intervals and transmitted every 4 hours by a Geostationary Operational Environmental Satellite (GOES) to the USGS National Water

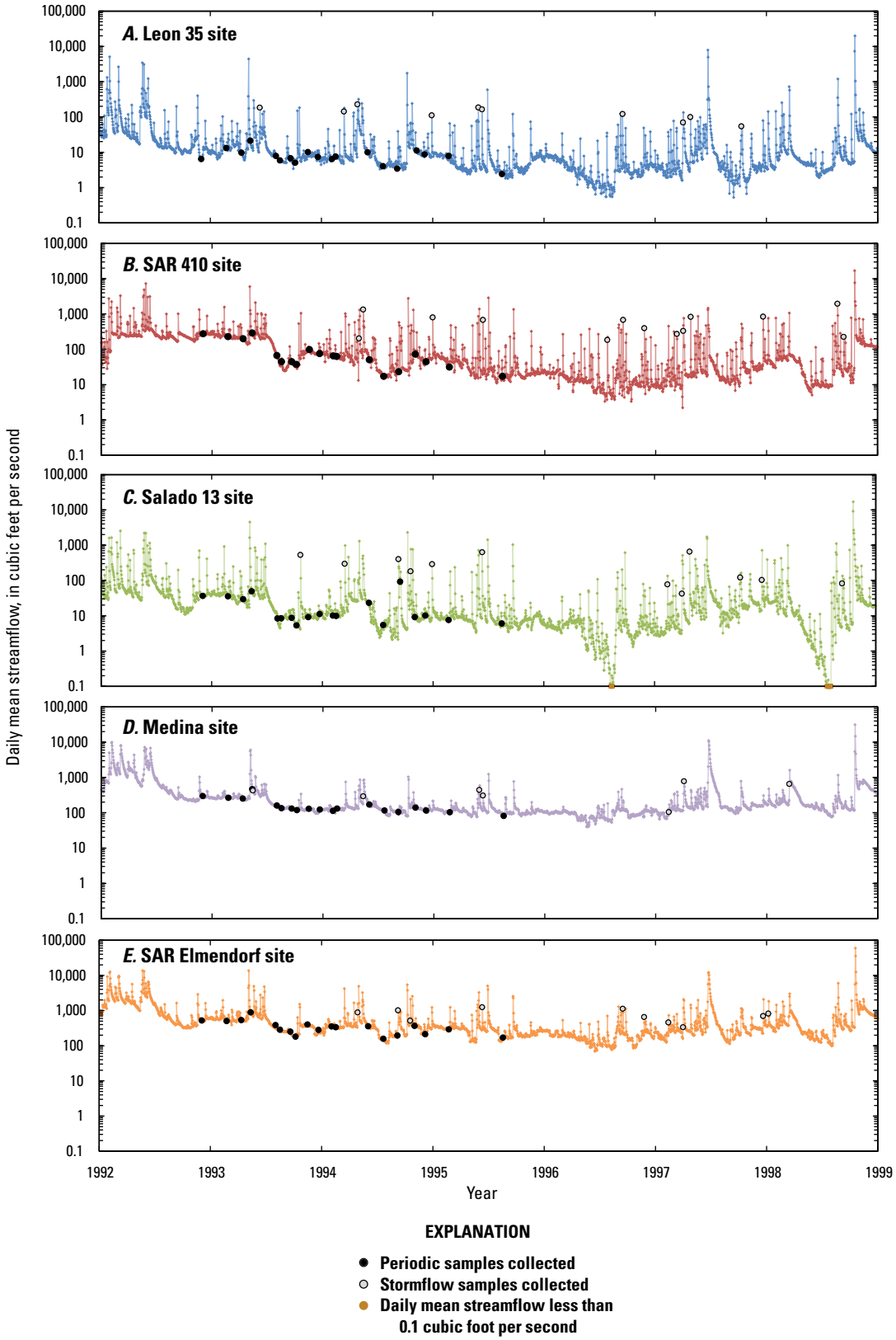


Figure 3. Daily mean streamflow at five U.S. Geological Survey streamflow-gaging stations during 1992–98 (table 1). *A*, Leon 35 site (station 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex.). *B*, SAR 410 site (station 08178565, San Antonio River at Loop 410, San Antonio, Tex.). *C*, Salado 13 site (station 08178800, Salado Creek at Loop 13, San Antonio, Tex.). *D*, Medina site (station 08181500, Medina River at San Antonio, Tex.). *E*, SAR Elmendorf site (station 08181800, San Antonio River near Elmendorf, Tex.).

Information System (NWIS) database (U.S. Geological Survey, 2012). Streamflow measurements were recorded at the streamflow-gaging stations at the time periodic samples were collected. Event mean streamflow, which was the average flow between the start time and end time of the sample collection, was reported for stormflow samples.

Quality Assurance

USGS quality-assurance procedures were followed for collecting and processing water-quality samples to evaluate the extent of contamination introduced during sampling, sample processing, shipping, and laboratory analysis (U.S. Geological Survey, variously dated). For example, the autosamplers and collection bottles were cleaned between sample collections by using a soap solution, hydrochloric acid, and deionized water rinses according to USGS protocols (U.S. Geological Survey, variously dated). Three field blank quality assurance samples were collected for analysis of selected organic compounds (organochlorine pesticides and aroclors) at three of the five sites (Leon 35, SAR 410, and Medina sites) on September 21, 1993. Field blank samples were processed by pumping pesticide-grade blank water, certified to contain undetectable concentrations of constituents to be analyzed, through the auto-sampler tubing and into collection bottles. No quantified values were reported for selected organic compounds in any of the field blank samples, indicating that contamination is likely negligible for those measured constituents (appendix 3).

Water-Quality Data

The collected water-quality samples were grouped into two categories: periodic samples and stormflow samples. The periodic samples were collected during 1992–95, whereas the stormflow samples were collected during 1993–98. The subsequent discussion of the measured concentrations at the sites and by sample type (periodic and stormflow) was written with the assumption that there were not substantial changes in watershed characteristics that might have affected sample concentrations during 1992–98. For example, the effects of potential development increases within the watersheds were assumed to be constant during the study period. It was also assumed that there were not any notable changes within the watershed between 1995 and 1998, which would be reflected in the stormflow samples but not the periodic samples, because the periodic samples were not collected during 1995–98. In addition, grouping samples into periodic and stormflow categories assumes that antecedent conditions, such as the length of time between stormflow events and the intensity of rainfall during stormflow events, had minimal effects on the measured concentrations.

Periodic samples were collected from all five sites during the same sampling event. Collecting the samples from all five sites during the sampling event reduced the potential biasing effects of temporal differences when making comparisons among watersheds. For example, if the Leon 35 site was sampled 5 times and the SAR 410 site was sampled 10 times, then potential differences in water-quality data among the sites might be related to physical differences among the watersheds, such as land-cover types, or might be because the samples were collected during different times. Ten periodic samples were typically analyzed for the full suite of analytes (field properties, major ions, nutrients, and organic compounds); however, in a few instances, sampling or analytical issues prevented measurements. Nine additional periodic water-quality samples were collected at all five sites during the study period for a subset of analytes. These data were included in the dataset when the analyzed suite matched the analyzed suite of periodic samples (for example, major ions and nutrients); therefore, appendix 1 includes all samples, which vary in number by analyte.

Stormflow samples were collected at up to five sites during the same rainfall event. Because of instrumentation issues, however, only two rainfall events were sampled at all five sites (table 3). As a result of sampling different rainfall events at different sites, stormflow sample data from each site might be temporally biased. Several rainfall events were sampled at three or more of the sites, and thus the datasets grouped by watershed were assumed to represent similar conditions, so that comparisons among sites could be made. It is possible, however, that differences also were a result of different hydrologic conditions during the time of sampling. The stormflow sample data are presented in appendix 2.

To help water managers assess the general health of water bodies, the TCEQ established surface water quality standards for human health protection (water and fish), hereinafter referred to as “TCEQ standards” (Texas Commission on Environmental Quality, 2010). Comparisons of median concentrations to TCEQ standards in this report are for general contextual purposes only, because none of the samples was collected for regulatory compliance purposes. The following summary descriptions of median concentrations represent the median of measurement detections at or greater than the reporting level.

Physical Properties

Values of physical properties (dissolved oxygen, pH, specific conductance, BOD, total dissolved solids, suspended solids, and alkalinity) varied among sites and between periodic and stormflow samples (table 4 at end of report). Median dissolved oxygen concentrations measured in periodic samples ranged from 6.2 milligrams per liter (mg/L) (Leon 35 site) to 10 mg/L (SAR 410 site). The median pH concentrations ranged from 7.4 standard units (SAR Elmendorf site, stormflow samples) to 8.0 standard units (SAR 410, Medina, and SAR Elmendorf sites, periodic samples). The median specific conductance concentrations

ranged from 326 microsiemens per centimeter (µS/cm) (Leon 35 site, stormflow samples) to 955 µS/cm (Salado 13 site, periodic samples). The median BOD concentrations ranged from 0.9 mg/L (Leon 35 site, periodic samples) to 10.5 mg/L (SAR 410 site, stormflow samples). Median dissolved solid concentrations ranged from 182 mg/L (SAR 410 site, stormflow samples) to 558 mg/L (Salado 13 site, periodic samples). The median suspended solid concentrations ranged from 8 mg/L (SAR 410 site, periodic samples) to 828 mg/L (Medina site, stormflow samples). The median alkalinity concentrations ranged from 84 mg/L (SAR 410 site, stormflow samples) to 280 mg/L (Salado 13 site, periodic samples).

Major Ions

The median concentrations of selected major ions (calcium, magnesium, potassium, sodium, chloride, and sulfate) were generally greater in periodic samples as compared to stormflow samples. The exceptions were for potassium concentrations measured in samples collected from the Salado 13 and Medina sites. The median concentrations of major ions varied among sites in periodic and stormflow samples; however, stormflow samples at the SAR Elmendorf site were generally greater as compared to the other sites. The median calcium concentrations ranged from 35.0 mg/L (SAR 410 site, stormflow samples) to 110 mg/L (Salado 13 site, periodic samples). Median magnesium concentrations ranged from 4.19 mg/L (Leon 35 site, stormflow samples) to 14.0 mg/L (Leon 35 site, periodic samples). Median potassium concentrations ranged from 2.10 mg/L (SAR 410 site, periodic samples) to 6.70 mg/L (SAR Elmendorf site, periodic samples). Median sodium concentrations ranged from 13.2 mg/L (SAR 410 site, stormflow samples) to 74.0 mg/L (Salado 13, periodic samples). Median chloride concentrations ranged from 16.0 mg/L (Leon 35 site, stormflow samples) to 92.0 mg/L (SAR Elmendorf site, periodic samples). Median sulfate concentrations ranged from 25.0 mg/L (SAR 410 site, stormflow samples) to 92.0 mg/L (Leon 35 site, periodic samples).

Nutrients

Median concentrations of nutrients were compared among sites, as well as between periodic and stormflow samples. Nutrient concentrations of filtered nitrogen and phosphorus constituents were measured in as many as 19 of the periodic samples and 13 of the stormflow samples. Median concentrations for filtered ammonia, nitrate plus nitrite, organic nitrogen, and phosphorus generally were greater in periodic samples collected from the Medina and SAR Elmendorf sites as compared to samples collected from the other sites (fig. 4, table 4). The same pattern of greater median concentrations at the Medina and SAR Elmendorf sites is also present in the stormflow samples, with the exception of organic nitrogen.

Median concentrations of ammonia in periodic samples at each site were slightly less than the associated median concentrations in stormflow samples, with the exception of the Medina site. The spread in the ammonia concentrations at the Medina site during periodic sampling is notably greater than the other the sites. Conversely, median concentrations of nitrate plus nitrite at each site were greater in the periodic samples as compared to the stormflow samples (fig. 4). A consistent pattern for organic nitrogen and phosphorus between periodic and stormflow samples was not present.

Trace Elements

Median concentrations of unfiltered trace elements varied among the sites and between periodic and stormflow samples (fig. 5, table 4). For example, median concentrations of chromium were greater in stormflow samples collected from the Leon 35 site and lesser in samples collected from the Salado 13 site. Median concentrations of lead in stormflow samples, however, were greater at the SAR 410 site and lesser in stormflow samples from the Medina site. Median concentrations of arsenic were generally similar in stormflow samples collected at each of the five sites (fig. 5).

Median trace element concentrations measured in periodic samples were generally less than concentrations measured in stormflow samples (figs. 2 and 5, tables 2 and 4). For example, the SAR 410 site (with the largest percentage of developed land cover) and the Medina site (with the largest percentage of undeveloped land cover) both exhibited greater median concentrations in the stormflow samples as compared to the respective periodic samples.

Comparing trace element concentrations to TCEQ standards indicated that all measured values were less than the TCEQ standards, with the exception of arsenic in one stormflow sample at the Leon 35 site, and lead in both periodic and stormflow samples at several sites (fig. 5, table 4; Texas Commission on Environmental Quality, 2010). The concentrations reported here represent unfiltered samples, whereas the TCEQ standards for some constituents represent concentrations for filtered samples. Some trace elements were likely bound to particulates in the water column. Although trace element concentrations were detected by using the analytical methods described in this report, these trace elements might or might not be available to biological species and subsequent food webs (commonly referred to as “bioavailability”). Surface water that is extracted from a river typically undergoes several steps of filtration, sedimentation, and treatment before it is considered acceptable for drinking water purposes. Thus, comparisons of unfiltered sample concentrations to TCEQ standards were for contextual purposes only.

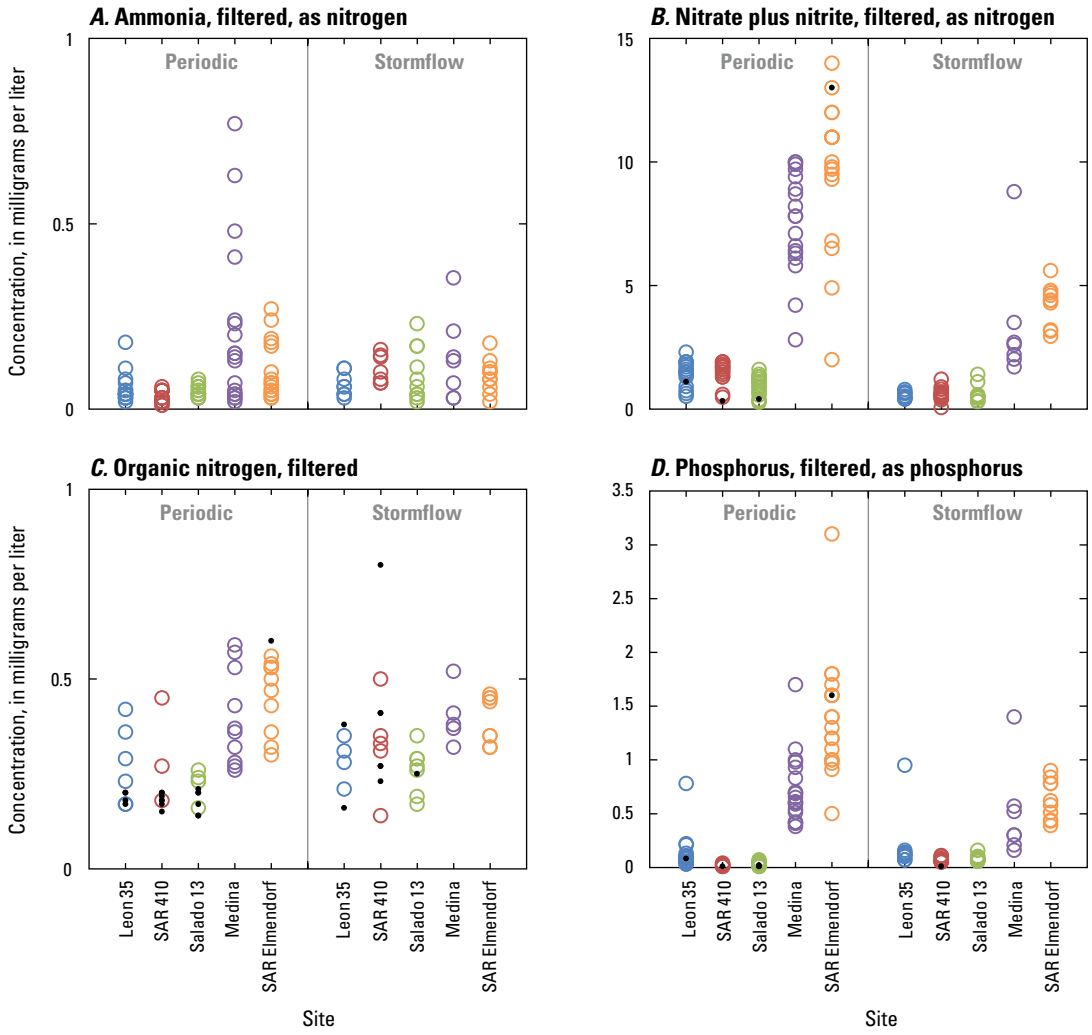
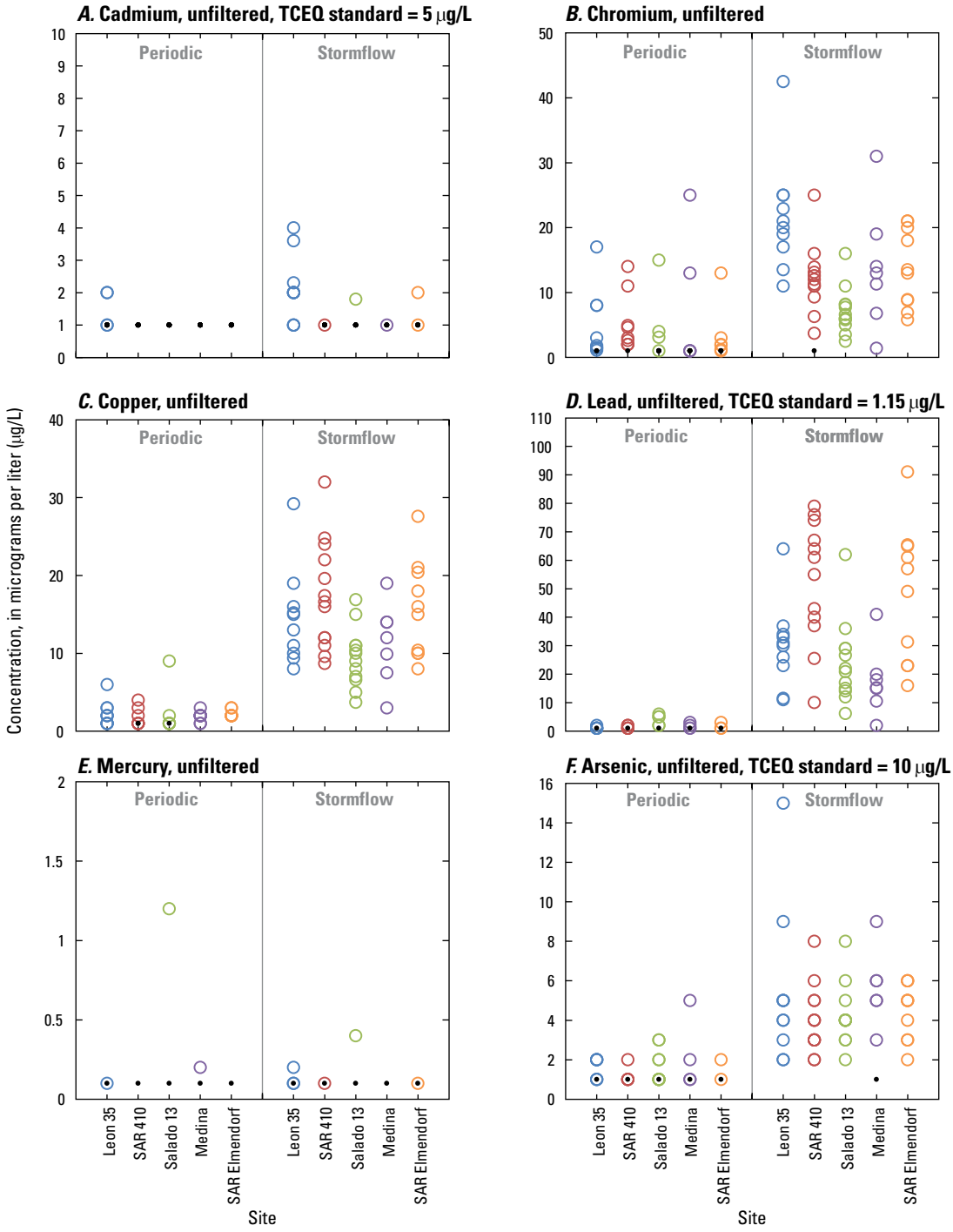


Figure 4. Water-quality data of selected nutrients in filtered periodic and stormflow samples in the study area, Bexar County, Texas, 1992–98 (table 1). *A*, Ammonia, as nitrogen. *B*, Nitrate plus nitrite, as nitrogen. *C*, Organic nitrogen. *D*, Phosphorus, as phosphorus.



TCEQ standards are Texas Commission on Environmental Quality surface water standards (Texas Commission on Environmental Quality, 2010), in micrograms per liter (µg/L)

EXPLANATION

- **Value less than the laboratory reporting level**

Value equal to or greater than the laboratory reporting level

- Leon 35 site (USGS station 08181480)—Leon Creek at Interstate Highway 35, San Antonio, Tex.
- SAR 410 site (USGS station 08178565)—San Antonio River at Loop 410, San Antonio, Tex.
- Salado 13 site (USGS station 08178800)—Salado Creek at Loop 13, San Antonio, Tex.
- Medina site (USGS station 08181500)—Medina River at San Antonio, Tex.
- SAR Elmendorf site (USGS station 08181800)—San Antonio River near Elmendorf, Tex.

USGS, U.S. Geological Survey

Figure 5. Water-quality data of selected trace elements in unfiltered periodic and stormflow samples in the study area, Bexar County, Texas, 1992–98 (table 1). *A*, Cadmium. *B*, Chromium. *C*, Copper. *D*, Lead. *E*, Mercury. *F*, Arsenic.

Organic Compounds

Organic compounds were measured in the periodic and stormflow samples. Most of the concentrations of analyzed organic compounds were less than the laboratory reporting levels (appendixes 1 and 2). Of the organic compounds greater than the laboratory reporting level, a few of the measured concentrations were different among sites and between periodic and stormflow samples. For example, bromodichloromethane was less than the laboratory reporting level in the periodic or stormflow samples collected from the Leon 35, SAR 410, and Salado 13 sites but was equal to or greater than the laboratory reporting level in some the periodic and stormflow samples collected from the Medina site and all of the samples collected from the SAR Elmendorf. This compound was historically used as a solvent and fire retardant and is associated with chlorinated water treatment processes (National Institute of Health, 2011). Conversely, tetrachloroethene (PCE), which is commonly associated with industrial practices such as commercial dry-cleaning, metal cleaning, and chemical intermediates (National Institute of Health, 2011), was detected in 8 out of the 10 of the periodic samples and in 1 out of the 5 stormflow samples at the Leon 35 site but was not detected in samples collected from any of the other sites (table 4). Diazinon, a pesticide, was most frequently detected in periodic samples at the Salado 13 site (6 out of 14) and in stormflow samples at the SAR 410 and Salado 13 sites (3 out of 4 and 3 out of 6, respectively). Note that the SAR 410 and Salado 13 sites had the lowest cultivated land-cover percentages of the watersheds in this study (table 2). Oil and grease were detected more often in the stormflow samples as compared to periodic samples at all of the sites.

All of the organic compound concentrations were less than the respective TCEQ standards, with the exception of chlordane, which was measured in 4 out of 12 stormflow samples collected from the SAR 410 site, and bis(2-ethylhexyl) phthalate, which was measured in 1 out of 5 stormflow samples collected at the Leon 35 site (table 4; Texas Commission on Environmental Quality, 2010).

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Table 1. Data-collection sites in the study area, Bexar County, Texas.

[dd, degrees; mm, minutes; ss, seconds; cfs, cubic feet per second]

U.S. Geological Survey station number	Site identifier	U.S. Geological Survey station name	Latitude (dd mm ss)	Longitude (dd mm ss)	Drainage area (square miles)	Daily mean streamflow, 1992–98 (cfs)
08181480	Leon 35	Leon Creek at Interstate Highway 35, San Antonio, Tex.	29°19’47”	98°35’02”	207	48
08178565	SAR 410	San Antonio River at Loop 410, San Antonio, Tex.	29°19’19”	98°27’00”	115	142
08178800	Salado 13	Salado Creek at Loop 13, San Antonio, Tex.	29°21’25”	98°24’45”	185	64
08181500	Medina	Medina River at San Antonio, Tex.	29°15’50”	98°29’26”	1,300	376
08181800	SAR Elmendorf	San Antonio River near Elmendorf, Tex.	29°13’19”	98°21’20”	1,741	671

Table 2. Land-cover type and percentage of occurrence in the study area, Bexar County, Texas, 1992.

[dd, degrees; mm, minutes; ss, seconds; --, not applicable; %, percent]

U.S. Geological Survey station number	Site identifier	1992 Land cover category (percent)[1]		
		Developed		
		Low intensity residential	High intensity residential	Commercial/industrial/ transportation
08181480	Leon 35	8.7%	6.4%	7.0%
08178565	SAR 410	16.5%	41.4%	20.9%
08178800	Salado 13	10.9%	12.6%	10.3%
08181500	Medina	2.5%	1.6%	1.7%
08181800	SAR Elmendorf	4.4%	5.8%	4.3%

U.S. Geological Survey station number	Site identifier	1992 Land cover category (percent)[1]									
		Undeveloped									
		Open water	Bare rock/ sand/ clay	Quarries/ strip mines/ gravel pits	Transi- tional	Deciduous forest	Evergreen forest	Mixed forest	Shrub- land	Grasslands/ herbaceous	Emergent herbaceous wetlands
08181480	Leon 35	0.2%	0.4%	0.7%	0.1%	10.8%	38.6%	--	7.4%	7.4%	0.0%
08178565	SAR 410	0.2%	0.1%	0.9%	--	3.4%	4.7%	--	2.7%	0.6%	0.0%
08178800	Salado 13	0.3%	0.1%	1.2%	--	9.0%	36.6%	--	4.6%	6.7%	0.0%
08181500	Medina	1.0%	0.6%	0.3%	0.0%	7.5%	41.8%	0.0%	15.0%	10.1%	0.0%
08181800	SAR Elmendorf	1.0%	0.5%	0.4%	0.0%	7.4%	35.7%	0.0%	13.3%	8.6%	0.1%

U.S. Geological Survey station number	Site identifier	1992 Land cover category (percent)[1]				Summary		
		Culitvated				1992 Land cover category (percent)[1]		
		Pasture/ hay	Row crops	Small grains	Urban/ recreational grasses	Total developed	Total undeveloped	Total cultivated
08181480	Leon 35	3.8%	1.0%	4.4%	3.1%	22.1%	65.6%	12.3%
08178565	SAR 410	2.2%	0.0%	0.2%	6.1%	78.8%	12.6%	8.6%
08178800	Salado 13	2.7%	0.0%	0.5%	4.4%	33.8%	58.5%	7.7%
08181500	Medina	9.2%	5.4%	2.4%	0.7%	5.9%	76.3%	17.8%
08181800	SAR Elmendorf	10.0%	4.9%	1.9%	1.6%	14.5%	67.1%	18.3%

[1]Land cover categories modified from National Land Cover Dataset, 1992.

Table 3. Dates of periodic and stormflow sampling events in the study area, Bexar County, Texas, 1992–98.

[PS, periodic sample; SF, stormflow sample; green shading indicates periodic sample collected; grey shading indicates stormflow sample collected]

Sampling date	U.S. Geological Survey station number 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (Leon 35)	U.S. Geological Survey station number 08178565 San Antonio River at Loop 410, San Antonio, Tex. (SAR 410)	U.S. Geological Survey station number 08178800 Salado Creek at Loop 13, San Antonio, Tex. (Salado 13)	U.S. Geological Survey station number 08181500 Medina River at San Antonio, Tex. (Medina)	U.S. Geological Survey station number 08181800 San Antonio River near Elmendorf, Tex. (SAR Elmendorf)
12/2–12/3/1992	PS	PS	PS	PS	PS
2/22–2/24/1993	PS	PS	PS	PS	PS
4/12–4/14/1993	PS	PS	PS	PS	PS
5/5/1993				SF	
5/11–5/13/1993	PS	PS	PS	PS	PS
8/2–8/6/1993	PS	PS	PS	PS	PS
8/16–8/17/1993	PS	PS	PS	PS	PS
9/20–9/21/1993	PS	PS	PS	PS	PS
10/5–10/7/1993	PS	PS	PS	PS	PS
10/20/1993			SF		
11/15–11/18/93	PS	PS	PS	PS	PS
12/20–12/22/1993	PS	PS	PS	PS	PS
2/2–2/4/1994	PS	PS	PS	PS	PS
2/14–2/16/1994	PS	PS	PS	PS	PS
3/15/1994	SF		SF		
4/28–4/29/1994	SF	SF			SF
5/13–5/14/1994		SF		SF	
5/31–6/3/1994	PS	PS	PS	PS	PS
7/20–7/22/1994	PS	PS	PS	PS	PS
9/6–9/14/1994	PS	PS	PS	PS	PS
9/8/1994			SF		SF
10/18/1994			SF		SF
11/1–11/9/1994	PS	PS	PS	PS	PS
12/5–12/7/1995	PS	PS	PS	PS	PS
12/28/1994	SF	SF	SF		
2/13–2/22/1995	PS	PS	PS	PS	PS
5/30/1995	SF			SF	
6/11/1995	SF	SF	SF	SF	SF
8/15–8/18/95	PS	PS	PS	PS	PS
7/26/1996		SF			
9/15/1996	SF	SF			SF
11/24/1996		SF			SF
2/12/1997			SF	SF	SF
3/11/1997		SF			
4/1–4/3/1997	SF	SF	SF	SF	SF
4/26/1997	SF	SF	SF		
10/10/1997	SF		SF		
12/20/1997		SF			SF
1/6/1998					SF
3/16/1998				SF	
9/11/1998		SF	SF		
Number of periodic sampling events	19	19	19	19	19
Number of stormflow sampling events	9	12	11	7	10

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (Leon 35)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Streamflow, cubic feet per second	19/19	0.47	40	11	10/10	119	802	311
Physical properties								
Dissolved oxygen, water, unfiltered, milligrams per liter	19/19	3.7	12.5	6.2	0/0	--	--	--
Dissolved oxygen, water, unfiltered, percent of saturation	19/19	39	137	74	0/0	--	--	--
pH, water, unfiltered, laboratory, standard units	19/19	7.5	8.3	7.9	10/10	7.4	8.0	7.6
Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius	19/19	736	911	785	10/10	210	448	326
Temperature, water, degrees Celsius	19/19	13.0	28.0	22.0	0/0	--	--	--
Biochemical oxygen demand, water, unfiltered, 5 days at 20 degrees Celsius, milligrams per liter	18/18	0.2	7.7	0.9	8/8	3.9	28.0	5.2
Chemical oxygen demand, high level, water, unfiltered, milligrams per liter	4/10	10	20	20	10/10	30	80	50
Dissolved solids dried at 180 degrees Celsius, water, filtered, milligrams per liter	10/10	447	549	491	10/10	112	265	189
Suspended solids, water, unfiltered, milligrams per liter	17/19	1	56	9	10/10	123	1,560	692
Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, field, milligrams per liter as calcium carbonate	19/19	210	280	240	10/10	62	130	91
Major ions								
Calcium, water, filtered, milligrams per liter	19/19	65.0	110	85.0	10/10	25.0	51.0	35.5
Magnesium, water, filtered, milligrams per liter	19/19	11.0	18.0	14.0	10/10	2.20	6.00	4.19
Potassium, water, filtered, milligrams per liter	19/19	2.80	5.90	3.20	10/10	3.05	4.80	3.65
Sodium, water, filtered, milligrams per liter	19/19	45.0	85.0	65.0	10/10	7.30	29.0	15.9
Chloride, water, filtered, milligrams per liter	19/19	39.0	83.0	47.0	10/10	6.70	26.8	16.0
Sulfate, water, filtered, milligrams per liter	19/19	75.0	130	92.0	10/10	9.10	46.0	27.5
Nutrients								
Ammonia, water, filtered, milligrams per liter as nitrogen	16/18	0.020	0.180	0.040	8/9	0.030	0.110	0.060
Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen	17/18	0.51	2.30	1.50	9/9	0.40	0.79	0.52
Organic nitrogen, water, unfiltered, milligrams per liter	7/9	0.16	0.55	0.22	8/9	0.27	3.6	1.1

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (Leon 35)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Phosphorus, water, filtered, milligrams per liter as phosphorus	18/19	0.03	0.78	0.08	9/9	0.07	0.95	0.12
Total nitrogen, water, unfiltered, milligrams per liter	7/9	1.5	2.5	2.3	9/9	0.72	4.5	1.6
Trace elements								
Beryllium, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Cadmium, water, unfiltered, micrograms per liter	4/10	1.0	2.0	1.5	10/10	1.0	4.0	2.0
Chromium, water, unfiltered, recoverable, micrograms per liter	8/10	1.1	17.0	2.4	10/10	11.0	42.5	20.5
Copper, water, unfiltered, recoverable, micrograms per liter	10/10	1.0	6.0	2.0	10/10	8.0	29.2	14.0
Lead, water, unfiltered, recoverable, micrograms per liter	7/10	1.0	2.0	1.0	10/10	11.0	64.0	30.5
Mercury, water, unfiltered, recoverable, micrograms per liter	1/10	0.1	0.1	0.1	3/10	0.1	0.2	0.1
Nickel, water, unfiltered, recoverable, micrograms per liter	10/10	2.0	33.0	13.0	10/10	5.8	46.7	13.6
Silver, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	4/10	1.0	2.8	1.8
Thallium, water, unfiltered, micrograms per liter	0/10	--	--	--	0/6	--	--	--
Zinc, water, unfiltered, recoverable, micrograms per liter	8/10	10	30	15	9/10	40	230	100
Antimony, water, unfiltered, EPA contract, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
Arsenic, water, unfiltered, micrograms per liter	7/10	1	2	2	10/10	2	15	5
Cyanide, water, unfiltered, milligrams per liter	0/10	--	--	--	0/10	--	--	--
Selenium, water, unfiltered, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Organic compounds								
1,2,3-Trichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2-Dibromo-3-chloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2-Dibromoethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (Leon 35)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
1,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,3-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,4-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
2,4,6-Trichlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
2,4-Dichlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
2,4-Dimethylphenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
2-Methyl-4,6-dinitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
4-Chloro-3-methylphenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
4-Nitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Acrylonitrile, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Aldrin, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
alpha-Endosulfan, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
alpha-HCH, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
beta-Endosulfan, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
beta-HCH, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Bromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Chlordane (technical), water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
cis-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
cis-Chlordane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
delta-HCH, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Diazinon, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	1/4	0.20	0.20	0.20

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (Leon 35)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Dieldrin, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	1/8	0.02	0.02	0.02
Endosulfan sulfate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Endrin aldehyde, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Endrin, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Heptachlor epoxide, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Heptachlor, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Hexachlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Lindane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
p,p'-DDD, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
p,p'-DDE, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
p,p'-DDT, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Pentachlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Toxaphene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
trans-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
trans-Chlordane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Aroclor 1016, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Aroclor 1221, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Aroclor 1232, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Aroclor 1242, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Aroclor 1248, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
Aroclor 1254, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (Leon 35)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Aroclor 1260, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/8	--	--	--
1,1,1,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,1,1-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	1/10	0.2	0.2	0.2	0/5	--	--	--
1,1,2,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
1,1,2-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,1-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,1-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,1-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2,3-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2,4-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
1,2,4-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/5	0.2	0.2	0.2
1,2-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
1,2-Diphenylhydrazine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
1,3,5-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,3-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
2,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
2,4-Dinitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
2,4-Dinitrotoluene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
2,6-Dinitrotoluene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
2-Chloroethyl vinyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (Leon 35)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
2-Chloronaphthalene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
2-Chlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
2-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
2-Nitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
3,3'-Dichlorobenzidine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
4-Bromophenyl phenyl ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
4-Chlorophenyl phenyl ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
4-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
4-Isopropyltoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
9H-Fluorene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Acenaphthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Acenaphthylene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Acrolein, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Anthracene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Benzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Benzo[a]anthracene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Benzo[a]pyrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Benzo[b]fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Benzo[ghi]perylene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Benzo[k]fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (Leon 35)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Benzyl n-butyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Bis(2-chloroethoxy)methane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Bis(2-chloroethyl) ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Bis(2-chloroisopropyl) ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Bis(2-ethylhexyl) phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	1/5	10	10	10
Bromobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Bromochloromethane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Bromodichloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Chlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Chloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Chloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Chrysene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
cis-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	5/10	0.4	0.5	0.4	2/5	0.2	0.5	0.4
Dibenzo[a,h]anthracene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Dibromochloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Dibromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Dichlorodifluoromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Dichloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Diethyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Dimethyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (Leon 35)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Di-n-butyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Di-n-octyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Ethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Fluoranthene, water, unfiltered, recoverable, micrograms per liter	1/9	6.00	6.00	6.00	0/5	--	--	--
Hexachlorobutadiene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
Hexachlorocyclopentadiene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Hexachloroethane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Indeno[1,2,3-cd]pyrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Isophorone, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Isopropylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Naphthalene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
n-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Nitrobenzene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
N-Nitrosodimethylamine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
N-Nitrosodi-n-propylamine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
N-Nitrosodiphenylamine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
n-Propylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Oil and grease, water, unfiltered, freon extraction, gravimetric, recoverable, milligrams per liter	0/10	--	--	--	1/9	1	1	1
Organic carbon, water, unfiltered, milligrams per liter	18/19	0.3	4.1	2.8	10/10	9.6	30.0	18.5

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181480 Leon Creek at Interstate Highway 35, San Antonio, Tex. (Leon 35)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Phenanthrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Phenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Phenolic compounds, water, unfiltered, recoverable, micrograms per liter	5/9	1	5	2	4/10	1	6	2
Pyrene, water, unfiltered, recoverable, micrograms per liter	1/9	5.00	5.00	5.00	0/5	--	--	--
sec-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Styrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
tert-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Tetrachloroethene, water, unfiltered, recoverable, micrograms per liter	8/10	0.2	0.6	0.3	1/5	0.5	0.5	0.5
Tetrachloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Toluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
trans-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Tribromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Trichloroethene, water, unfiltered, recoverable, micrograms per liter	9/10	0.2	0.6	0.4	1/5	0.6	0.6	0.6
Trichlorofluoromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/5	0.6	0.6	0.6
Trichloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Trihalomethanes, water, unfiltered, maximum summation, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Vinyl chloride, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Xylene (all isomers), water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178565 San Antonio River at Loop 410, San Antonio, Tex. (SAR 410)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Streamflow, cubic feet per second	19/19	11	266	57	13/13	417	3,650	1,160
Physical properties								
Dissolved oxygen, water, unfiltered, milligrams per liter	19/19	7.6	17.6	10.0	0/0	--	--	--
Dissolved oxygen, water, unfiltered, percent of saturation	19/19	88	175	126	0/0	--	--	--
pH, water, unfiltered, laboratory, standard units	19/19	7.7	8.2	8.0	13/13	6.9	7.9	7.5
Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius	19/19	460	643	552	13/13	191	459	345
Temperature, water, degrees Celsius	19/19	14.0	32.0	22.5	0/0	--	--	--
Biochemical oxygen demand, water, unfiltered, 5 days at 20 degrees Celsius, milligrams per liter	18/18	0.5	2.1	1.1	12/12	7.7	25.0	10.5
Chemical oxygen demand, high level, water, unfiltered, milligrams per liter	4/10	10	20	20	12/13	20	160	70
Dissolved solids dried at 180 degrees Celsius, water, filtered, milligrams per liter	10/10	262	367	306	13/13	100	252	182
Suspended solids, water, unfiltered, milligrams per liter	10/10	1	28	8	13/13	82	1,100	560
Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, field, milligrams per liter as calcium carbonate	19/19	120	240	190	13/13	59	110	84
Major ions								
Calcium, water, filtered, milligrams per liter	19/19	48.0	76.0	67.0	13/13	22.1	42.2	35.0
Magnesium, water, filtered, milligrams per liter	19/19	12.0	20.0	17.0	13/13	1.97	9.30	5.40
Potassium, water, filtered, milligrams per liter	19/19	1.20	3.60	2.10	13/13	2.10	4.70	3.43
Sodium, water, filtered, milligrams per liter	19/19	17.0	47.0	26.0	13/13	4.72	27.0	13.2
Chloride, water, filtered, milligrams per liter	18/18	24.0	62.0	35.5	13/13	5.58	38.0	17.0
Sulfate, water, filtered, milligrams per liter	18/18	28.0	67.0	42.5	13/13	8.95	53.0	25.0
Nutrients								
Ammonia, water, filtered, milligrams per liter as nitrogen	16/18	0.010	0.060	0.030	7/13	0.070	0.160	0.100
Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen	17/18	0.48	1.90	1.60	13/13	0.06	1.20	0.59
Organic nitrogen, water, unfiltered, milligrams per liter	6/10	0.15	0.34	0.25	7/13	0.63	4.3	2.1
Phosphorus, water, filtered, milligrams per liter as phosphorus	7/19	0.010	0.040	0.02	12/13	0.050	0.110	0.065
Total nitrogen, water, unfiltered, milligrams per liter	6/10	0.99	2.0	1.7	13/13	1.4	4.9	2.7

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178565 San Antonio River at Loop 410, San Antonio, Tex. (SAR 410)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Trace elements								
Beryllium, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/13	--	--	--
Cadmium, water, unfiltered, micrograms per liter	0/10	--	--	--	1/13	1.0	1.0	1.0
Chromium, water, unfiltered, recoverable, micrograms per liter	9/10	2.0	14.0	3.0	12/13	3.7	25.0	11.7
Copper, water, unfiltered, recoverable, micrograms per liter	7/10	1.0	4.0	1.0	13/13	8.7	32.0	16.6
Lead, water, unfiltered, recoverable, micrograms per liter	6/10	1.0	2.0	1.0	13/13	10.0	97.0	61.0
Mercury, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/13	0.1	0.1	0.1
Nickel, water, unfiltered, recoverable, micrograms per liter	7/10	1.0	4.0	2.0	13/13	3.4	19.0	8.6
Silver, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/13	--	--	--
Thallium, water, unfiltered, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Zinc, water, unfiltered, recoverable, micrograms per liter	4/10	10	30	15	13/13	40	280	170
Antimony, water, unfiltered, EPA contract, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Arsenic, water, unfiltered, micrograms per liter	5/10	1	2	1	13/13	2	8	4
Cyanide, water, unfiltered, milligrams per liter	0/10	--	--	--	0/13	--	--	--
Selenium, water, unfiltered, micrograms per liter	0/10	--	--	--	0/13	--	--	--
Organic compounds								
1,2,3-Trichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dibromo-3-chloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dibromoethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,3-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,4-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,4,6-Trichlorophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178565 San Antonio River at Loop 410, San Antonio, Tex. (SAR 410)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
2,4-Dichlorophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,4-Dimethylphenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Methyl-4,6-dinitrophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Chloro-3-methylphenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Nitrophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Acrylonitrile, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Aldrin, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
alpha-Endosulfan, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
alpha-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
beta-Endosulfan, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
beta-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Bromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chlordane (technical), water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	4/12	0.1	0.1	0.1
cis-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
cis-Chlordane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
delta-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Diazinon, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	3/4	0.10	0.30	0.20
Dieldrin, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/12	0.03	0.03	0.03
Endosulfan sulfate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Endrin aldehyde, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Endrin, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178565 San Antonio River at Loop 410, San Antonio, Tex. (SAR 410)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Heptachlor epoxide, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Heptachlor, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Hexachlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Lindane, water, unfiltered, recoverable, micrograms per liter	1/10	0.05	0.05	0.05	0/12	--	--	--
p,p'-DDD, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
p,p'-DDE, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/12	0.05	0.05	0.05
p,p'-DDT, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Pentachlorophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Toxaphene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
trans-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
trans-Chlordane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Aroclor 1016, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Aroclor 1221, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Aroclor 1232, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Aroclor 1242, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Aroclor 1248, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Aroclor 1254, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Aroclor 1260, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
1,1,1,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1,1-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1,2,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178565 San Antonio River at Loop 410, San Antonio, Tex. (SAR 410)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
1,1,2-Trichloro-1,2,2-trifluoroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1,2-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2,3-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2,4-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2,4-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Diphenylhydrazine, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,3,5-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,3-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,4-Dinitrophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,4-Dinitrotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,6-Dinitrotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Chloroethyl vinyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Chloronaphthalene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Chlorophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Nitrophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178565 San Antonio River at Loop 410, San Antonio, Tex. (SAR 410)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
3,3'-Dichlorobenzidine, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Bromophenyl phenyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Chlorophenyl phenyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Isopropyltoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
9H-Fluorene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Acenaphthene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Acenaphthylene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Acrolein, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Anthracene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[a]anthracene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[a]pyrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[b]fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[ghi]perylene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[k]fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzyl n-butyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bis(2-chloroethoxy)methane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bis(2-chloroethyl) ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bis(2-chloroisopropyl) ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bis(2-ethylhexyl) phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178565 San Antonio River at Loop 410, San Antonio, Tex. (SAR 410)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Bromobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bromochloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bromodichloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chrysene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
cis-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dibenzo[a,h]anthracene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dibromochloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dibromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dichlorodifluoromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dichloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Diethyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dimethyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Di-n-butyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Di-n-octyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Ethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Hexachlorobutadiene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Hexachlorocyclopentadiene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178565 San Antonio River at Loop 410, San Antonio, Tex. (SAR 410)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Hexachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Indeno[1,2,3-cd]pyrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Isophorone, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Isopropylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Naphthalene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
n-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Nitrobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
N-Nitrosodimethylamine, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
N-Nitrosodi-n-propylamine, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
N-Nitrosodiphenylamine, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
n-Propylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Oil and grease, water, unfiltered, freon extraction, gravimetric, recoverable, milligrams per liter	1/10	1	1	1	4/10	2	5	3
Organic carbon, water, unfiltered, milligrams per liter	10/10	1.2	7.8	2.2	13/13	9.4	96.0	23.0
Phenanthrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Phenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Phenolic compounds, water, unfiltered, recoverable, micrograms per liter	5/10	1	2	1	4/13	1	6	3
Pyrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
sec-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Styrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
tert-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178565 San Antonio River at Loop 410, San Antonio, Tex. (SAR 410)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Tetrachloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Tetrachloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Toluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
trans-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Tribromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Trichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Trichlorofluoromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Trichloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Trihalomethanes, water, unfiltered, maximum summation, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Vinyl chloride, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Xylene (all isomers), water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178800 Salado Creek at Loop 13, San Antonio, Tex. (Salado 13)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Streamflow, cubic feet per second	19/19	4.3	48	11	12/12	190	1,520	552
Physical properties								
Dissolved oxygen, water, unfiltered, milligrams per liter	19/19	3.3	10.6	7.1	0/0	--	--	--
Dissolved oxygen, water, unfiltered, percent of saturation	19/19	43	106	82	0/0	--	--	--
pH, water, unfiltered, laboratory, standard units	19/19	7.4	8.4	7.9	12/12	7.4	7.9	7.5
Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius	19/19	339	1,190	955	12/12	267	689	382
Temperature, water, degrees Celsius	19/19	11.0	28.5	21.0	0/0	--	--	--
Biochemical oxygen demand, water, unfiltered, 5 days at 20 degrees Celsius, milligrams per liter	17/17	0.5	8.0	1.0	11/11	4.0	27.0	6.4
Chemical oxygen demand, high level, water, unfiltered, milligrams per liter	7/10	10	30	20	12/12	10	80	50
Dissolved solids dried at 180 degrees Celsius, water, filtered, milligrams per liter	10/10	201	680	558	12/12	145	403	209
Suspended solids, water, unfiltered, milligrams per liter	17/19	5	87	11	12/12	122	1,040	410
Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, field, milligrams per liter as calcium carbonate	19/19	110	320	280	12/12	76	210	120
Major ions								
Calcium, water, filtered, milligrams per liter	19/19	41.0	120	110	12/12	30.0	73.0	45.8
Magnesium, water, filtered, milligrams per liter	19/19	4.30	23.0	16.0	12/12	2.90	13.0	5.95
Potassium, water, filtered, milligrams per liter	19/19	2.30	7.60	3.90	12/12	2.76	5.00	3.96
Sodium, water, filtered, milligrams per liter	19/19	19.0	110	74.0	12/12	7.60	48.0	20.3
Chloride, water, filtered, milligrams per liter	19/19	20.0	150	90.0	12/12	8.20	57.0	23.0
Sulfate, water, filtered, milligrams per liter	19/19	22.0	150	89.0	12/12	15.1	59.0	30.0
Nutrients								
Ammonia, water, filtered, milligrams per liter as nitrogen	15/18	0.030	0.080	0.040	10/11	0.020	0.230	0.070
Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen	17/18	0.27	1.60	1.00	11/11	0.30	1.40	0.48
Organic nitrogen, water, unfiltered, milligrams per liter	6/10	0.16	0.45	0.26	10/11	0.33	2.3	1.4
Phosphorus, water, filtered, milligrams per liter as phosphorus	16/19	0.01	0.07	0.025	11/11	0.06	0.16	0.07
Total nitrogen, water, unfiltered, milligrams per liter	7/10	0.54	2.0	1.1	11/11	0.82	3.9	2.0

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178800 Salado Creek at Loop 13, San Antonio, Tex. (Salado 13)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Trace elements								
Beryllium, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Cadmium, water, unfiltered, micrograms per liter	0/10	--	--	--	1/12	1.8	1.8	1.8
Chromium, water, unfiltered, recoverable, micrograms per liter	4/10	1.0	15.0	3.6	12/12	2.5	16.0	6.3
Copper, water, unfiltered, recoverable, micrograms per liter	7/10	1.0	9.0	1.0	12/12	3.7	16.9	9.5
Lead, water, unfiltered, recoverable, micrograms per liter	5/10	2.0	6.0	5.0	12/12	6.2	62.0	21.5
Mercury, water, unfiltered, recoverable, micrograms per liter	1/10	1.2	1.2	1.2	1/12	0.4	0.4	0.4
Nickel, water, unfiltered, recoverable, micrograms per liter	9/10	1.0	4.0	2.0	12/12	3.1	16.0	6.8
Silver, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Thallium, water, unfiltered, micrograms per liter	0/10	--	--	--	0/6	--	--	--
Zinc, water, unfiltered, recoverable, micrograms per liter	5/10	10	20	20	12/12	20	150	65
Antimony, water, unfiltered, EPA contract, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
Arsenic, water, unfiltered, micrograms per liter	9/10	1	3	1	12/12	2	8	4
Cyanide, water, unfiltered, milligrams per liter	0/10	--	--	--	0/12	--	--	--
Selenium, water, unfiltered, micrograms per liter	0/10	--	--	--	0/12	--	--	--
Organic compounds								
1,2,3-Trichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2-Dibromo-3-chloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2-Dibromoethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,3-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,4-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178800 Salado Creek at Loop 13, San Antonio, Tex. (Salado 13)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
2,4,6-Trichlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
2,4-Dichlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
2,4-Dimethylphenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
2-Methyl-4,6-dinitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
4-Chloro-3-methylphenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
4-Nitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Acrylonitrile, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Aldrin, water, unfiltered, recoverable, micrograms per liter	0/14	--	--	--	0/11	--	--	--
alpha-Endosulfan, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
alpha-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
beta-Endosulfan, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
beta-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Bromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Chlordane (technical), water, unfiltered, recoverable, micrograms per liter	0/14	--	--	--	0/11	--	--	--
cis-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
cis-Chlordane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
delta-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Diazinon, water, unfiltered, recoverable, micrograms per liter	6/14	0.01	0.60	0.12	3/6	0.20	0.20	0.20
Dieldrin, water, unfiltered, recoverable, micrograms per liter	1/14	0.02	0.02	0.02	1/11	0.02	0.02	0.02
Endosulfan sulfate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Endrin aldehyde, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178800 Salado Creek at Loop 13, San Antonio, Tex. (Salado 13)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Endrin, water, unfiltered, recoverable, micrograms per liter	0/14	--	--	--	0/11	--	--	--
Heptachlor epoxide, water, unfiltered, recoverable, micrograms per liter	0/14	--	--	--	0/11	--	--	--
Heptachlor, water, unfiltered, recoverable, micrograms per liter	0/14	--	--	--	0/11	--	--	--
Hexachlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Lindane, water, unfiltered, recoverable, micrograms per liter	0/14	--	--	--	0/11	--	--	--
p,p'-DDD, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
p,p'-DDE, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
p,p'-DDT, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Pentachlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Toxaphene, water, unfiltered, recoverable, micrograms per liter	0/14	--	--	--	0/11	--	--	--
trans-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
trans-Chlordane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Aroclor 1016, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Aroclor 1221, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Aroclor 1232, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Aroclor 1242, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Aroclor 1248, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Aroclor 1254, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
Aroclor 1260, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/11	--	--	--
1,1,1,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,1,1-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178800 Salado Creek at Loop 13, San Antonio, Tex. (Salado 13)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
1,1,2,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
1,1,2-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,1-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,1-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,1-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2,3-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2,4-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
1,2,4-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,2-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
1,2-Diphenylhydrazine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
1,3,5-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
1,3-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
2,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
2,4-Dinitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
2,4-Dinitrotoluene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
2,6-Dinitrotoluene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
2-Chloroethyl vinyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
2-Chloronaphthalene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
2-Chlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
2-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178800 Salado Creek at Loop 13, San Antonio, Tex. (Salado 13)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
2-Nitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
3,3'-Dichlorobenzidine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
4-Bromophenyl phenyl ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
4-Chlorophenyl phenyl ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
4-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
4-Isopropyltoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
9H-Fluorene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Acenaphthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Acenaphthylene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Acrolein, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Anthracene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Benzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Benzo[a]anthracene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Benzo[a]pyrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Benzo[b]fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Benzo[ghi]perylene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Benzo[k]fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Benzyl n-butyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Bis(2-chloroethoxy)methane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Bis(2-chloroethyl) ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Bis(2-chloroisopropyl) ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178800 Salado Creek at Loop 13, San Antonio, Tex. (Salado 13)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Bis(2-ethylhexyl) phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Bromobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Bromochloromethane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/5	--	--	--
Bromodichloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Chlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Chloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Chloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Chrysene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
cis-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Dibenzo[a,h]anthracene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Dibromochloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Dibromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Dichlorodifluoromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Dichloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Diethyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Dimethyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Di-n-butyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Di-n-octyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Ethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Hexachlorobutadiene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178800 Salado Creek at Loop 13, San Antonio, Tex. (Salado 13)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Hexachlorocyclopentadiene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Hexachloroethane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Indeno[1,2,3-cd]pyrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Isophorone, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Isopropylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter	1/9	0.4	0.4	0.4	0/5	--	--	--
Naphthalene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/6	--	--	--
n-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Nitrobenzene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
N-Nitrosodimethylamine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
N-Nitrosodi-n-propylamine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
N-Nitrosodiphenylamine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
n-Propylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Oil and grease, water, unfiltered, freon extraction, gravimetric, recoverable, milligrams per liter	0/10	--	--	--	3/11	1	2	1
Organic carbon, water, unfiltered, milligrams per liter	18/19	2.4	8.1	4.2	12/12	8.3	30.0	16.0
Phenanthrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Phenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
Phenolic compounds, water, unfiltered, recoverable, micrograms per liter	6/10	1	3	2	2/12	1	3	2
Pyrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/6	--	--	--
sec-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08178800 Salado Creek at Loop 13, San Antonio, Tex. (Salado 13)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Styrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
tert-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Tetrachloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Tetrachloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Toluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
trans-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Tribromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Trichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Trichlorofluoromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Trichloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Trihalomethanes, water, unfiltered, maximum summation, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Vinyl chloride, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--
Xylene (all isomers), water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/5	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181500 Medina River at San Antonio, Tex. (Medina)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Streamflow, cubic feet per second	19/19	64	435	117	7/7	123	1,990	788
Physical properties								
Dissolved oxygen, water, unfiltered, milligrams per liter	19/19	6.4	10.6	7.5	0/0	--	--	--
Dissolved oxygen, water, unfiltered, percent of saturation	19/19	75	114	91	0/0	--	--	--
pH, water, unfiltered, laboratory, standard units	19/19	7.9	8.2	8.0	7/7	7.4	7.9	7.7
Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius	19/19	751	992	912	7/7	417	979	600
Temperature, water, degrees Celsius	19/19	12.5	30.0	21.5	1/1	17.5	17.5	17.5
Biochemical oxygen demand, water, unfiltered, 5 days at 20 degrees Celsius, milligrams per liter	18/18	0.7	6.2	1.3	6/6	5.6	9.3	6.4
Chemical oxygen demand, high level, water, unfiltered, milligrams per liter	8/10	10	30	20	6/7	30	150	50
Dissolved solids dried at 180 degrees Celsius, water, filtered, milligrams per liter	10/10	420	603	545	7/7	230	588	334
Suspended solids, water, unfiltered, milligrams per liter	10/10	1	73	30	7/7	62	2,710	828
Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, field, milligrams per liter as calcium carbonate	19/19	200	240	230	7/7	93	220	150
Major ions								
Calcium, water, filtered, milligrams per liter	19/19	84.0	100	93.0	7/7	36.0	87.0	58.9
Magnesium, water, filtered, milligrams per liter	19/19	17.0	22.0	20.0	7/7	5.60	19.0	10.4
Potassium, water, filtered, milligrams per liter	19/19	3.60	18.0	5.50	7/7	4.60	6.80	5.50
Sodium, water, filtered, milligrams per liter	19/19	44.0	78.0	67.0	7/7	27.0	80.0	36.0
Chloride, water, filtered, milligrams per liter	19/19	54.0	99.0	81.0	7/7	32.0	99.0	45.0
Sulfate, water, filtered, milligrams per liter	19/19	64.0	110	90.0	7/7	35.0	98.0	59.0
Nutrients								
Ammonia, water, filtered, milligrams per liter as nitrogen	18/18	0.020	0.770	0.145	7/7	0.030	0.354	0.130
Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen	18/18	2.80	10.0	7.80	7/7	1.70	8.80	2.60
Organic nitrogen, water, unfiltered, milligrams per liter	10/10	0.28	0.67	0.525	7/7	0.47	2.5	1.8
Phosphorus, water, filtered, milligrams per liter as phosphorus	19/19	0.38	1.7	0.65	7/7	0.16	1.4	0.3
Total nitrogen, water, unfiltered, milligrams per liter	10/10	4.8	11	8.2	7/7	2.3	9.5	4.5

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181500 Medina River at San Antonio, Tex. (Medina)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Trace elements								
Beryllium, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Cadmium, water, unfiltered, micrograms per liter	0/10	--	--	--	1/7	1.0	1.0	1.0
Chromium, water, unfiltered, recoverable, micrograms per liter	5/10	1.0	25.0	1.0	7/7	1.4	31.0	13.0
Copper, water, unfiltered, recoverable, micrograms per liter	10/10	1.0	3.0	2.0	7/7	3.0	19.0	12.0
Lead, water, unfiltered, recoverable, micrograms per liter	4/10	1.0	3.0	1.5	7/7	2.0	41.0	15.2
Mercury, water, unfiltered, recoverable, micrograms per liter	1/10	0.2	0.2	0.2	0/7	--	--	--
Nickel, water, unfiltered, recoverable, micrograms per liter	9/10	2.0	11.0	3.0	7/7	3.0	31.0	10.8
Silver, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Thallium, water, unfiltered, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Zinc, water, unfiltered, recoverable, micrograms per liter	10/10	10	40	20	7/7	50	110	60
Antimony, water, unfiltered, EPA contract, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Arsenic, water, unfiltered, micrograms per liter	4/10	1	5	2	6/7	3	9	6
Cyanide, water, unfiltered, milligrams per liter	0/10	--	--	--	0/7	--	--	--
Selenium, water, unfiltered, micrograms per liter	1/10	1	1	1	0/7	--	--	--
Organic compounds								
1,2,3-Trichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dibromo-3-chloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dibromoethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,3-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,4-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,4,6-Trichlorophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181500 Medina River at San Antonio, Tex. (Medina)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
2,4-Dichlorophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,4-Dimethylphenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Methyl-4,6-dinitrophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Chloro-3-methylphenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Nitrophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Acrylonitrile, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Aldrin, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
alpha-Endosulfan, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
alpha-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
beta-Endosulfan, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
beta-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Bromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chlordane (technical), water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
cis-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
cis-Chlordane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
delta-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Diazinon, water, unfiltered, recoverable, micrograms per liter	2/10	0.10	0.20	0.15	2/4	0.10	0.20	0.15
Dieldrin, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Endosulfan sulfate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Endrin aldehyde, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Endrin, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181500 Medina River at San Antonio, Tex. (Medina)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Heptachlor epoxide, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Heptachlor, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Hexachlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Lindane, water, unfiltered, recoverable, micrograms per liter	1/10	0.03	0.03	0.03	0/7	--	--	--
p,p'-DDD, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
p,p'-DDE, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
p,p'-DDT, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Pentachlorophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Toxaphene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
trans-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
trans-Chlordane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Aroclor 1016, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Aroclor 1221, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Aroclor 1232, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Aroclor 1242, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Aroclor 1248, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Aroclor 1254, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
Aroclor 1260, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/7	--	--	--
1,1,1,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1,1-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1,2,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181500 Medina River at San Antonio, Tex. (Medina)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
1,1,2-Trichloro-1,2,2-trifluoroethane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
1,1,2-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2,3-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2,4-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2,4-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Diphenylhydrazine, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,3,5-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,3-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,4-Dinitrophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,4-Dinitrotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,6-Dinitrotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Chloroethyl vinyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Chloronaphthalene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Chlorophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Nitrophenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181500 Medina River at San Antonio, Tex. (Medina)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
3,3'-Dichlorobenzidine, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Bromophenyl phenyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Chlorophenyl phenyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Isopropyltoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
9H-Fluorene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Acenaphthene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Acenaphthylene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Acrolein, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Anthracene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[a]anthracene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[a]pyrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[b]fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[ghi]perylene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[k]fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzyl n-butyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bis(2-chloroethoxy)methane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bis(2-chloroethyl) ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bis(2-chloroisopropyl) ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bis(2-ethylhexyl) phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181500 Medina River at San Antonio, Tex. (Medina)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Bromobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bromochloromethane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Bromodichloromethane, water, unfiltered, recoverable, micrograms per liter	5/10	0.2	2.8	1.2	4/4	0.2	0.6	0.4
Chlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chrysene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
cis-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dibenzo[a,h]anthracene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dibromochloromethane, water, unfiltered, recoverable, micrograms per liter	4/10	0.5	1.8	1.2	2/4	0.3	0.4	0.4
Dibromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dichlorodifluoromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dichloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Diethyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dimethyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Di-n-butyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Di-n-octyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Ethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Hexachlorobutadiene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Hexachlorocyclopentadiene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181500 Medina River at San Antonio, Tex. (Medina)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Hexachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Indeno[1,2,3-cd]pyrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Isophorone, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Isopropylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Naphthalene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
n-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Nitrobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
N-Nitrosodimethylamine, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
N-Nitrosodi-n-propylamine, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
N-Nitrosodiphenylamine, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
n-Propylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Oil and grease, water, unfiltered, freon extraction, gravimetric, recoverable, milligrams per liter	1/10	1	1	1	1/6	1	1	1
Organic carbon, water, unfiltered, milligrams per liter	10/10	3.0	12.0	3.7	7/7	6.1	57.0	20.0
Phenanthrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Phenol, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Phenolic compounds, water, unfiltered, recoverable, micrograms per liter	6/10	1	9	2	2/7	2	3	3
Pyrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
sec-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Styrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
tert-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181500 Medina River at San Antonio, Tex. (Medina)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Tetrachloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Tetrachloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Toluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/4	0.2	0.2	0.2
trans-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Tribromomethane, water, unfiltered, recoverable, micrograms per liter	3/10	0.2	0.4	0.2	0/4	--	--	--
Trichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Trichlorofluoromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Trichloromethane, water, unfiltered, recoverable, micrograms per liter	8/10	0.2	5.4	0.7	4/4	0.3	1.3	0.8
Trihalomethanes, water, unfiltered, maximum summation, micrograms per liter	3/10	3.6	10.0	7.0	0/4	--	--	--
Vinyl chloride, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Xylene (all isomers), water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181800 San Antonio River near Elmendorf, Tex. (SAR Elmendorf)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Streamflow, cubic feet per second	19/19	138	2,680	320	10/10	920	2,260	1,940
Physical properties								
Dissolved oxygen, water, unfiltered, milligrams per liter	19/19	6.4	10.3	7.7	0/0	--	--	--
Dissolved oxygen, water, unfiltered, percent of saturation	19/19	85	107	92	0/0	--	--	--
pH, water, unfiltered, laboratory, standard units	19/19	8.0	8.2	8.0	10/10	7.3	7.9	7.4
Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius	19/19	764	995	921	10/10	427	666	585
Temperature, water, degrees Celsius	19/19	15.8	29.0	23.8	0/0	--	--	--
Biochemical oxygen demand, water, unfiltered, 5 days at 20 degrees Celsius, milligrams per liter	18/18	0.6	2.4	1.2	9/9	0.8	15.0	7.7
Chemical oxygen demand, high level, water, unfiltered, milligrams per liter	9/10	10	20	10	10/10	30	120	60
Dissolved solids dried at 180 degrees Celsius, water, filtered, milligrams per liter	10/10	436	587	543	10/10	240	394	342
Suspended solids, water, unfiltered, milligrams per liter	10/10	7	111	20	10/10	200	1,350	739
Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, field, milligrams per liter as calcium carbonate	19/19	180	250	220	10/10	100	150	140
Major ions								
Calcium, water, filtered, milligrams per liter	19/19	82.0	96.0	87.0	10/10	41.0	61.0	54.5
Magnesium, water, filtered, milligrams per liter	19/19	13.0	20.0	18.0	10/10	7.00	12.0	10.3
Potassium, water, filtered, milligrams per liter	19/19	3.20	9.00	6.70	10/10	4.74	6.50	5.50
Sodium, water, filtered, milligrams per liter	19/19	46.0	84.0	73.0	10/10	28.0	52.0	41.8
Chloride, water, filtered, milligrams per liter	19/19	45.0	110	92.0	10/10	34.0	68.0	52.0
Sulfate, water, filtered, milligrams per liter	19/19	60.0	85.0	74.0	10/10	32.0	55.0	45.0
Nutrients								
Ammonia, water, filtered, milligrams per liter as nitrogen	17/18	0.030	0.270	0.070	10/10	0.020	0.178	0.090
Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen	17/18	0.87	14.0	9.80	10/10	2.94	5.60	4.40
Organic nitrogen, water, unfiltered, milligrams per liter	9/9	0.33	0.57	0.45	10/10	0.22	3.1	1.2
Phosphorus, water, filtered, milligrams per liter as phosphorus	18/19	0.50	3.1	1.3	10/10	0.39	0.9	0.6
Total nitrogen, water, unfiltered, milligrams per liter	9/9	1.3	15	9.9	10/10	3.4	8.8	5.7

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181800 San Antonio River near Elmendorf, Tex. (SAR Elmendorf)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Trace elements								
Beryllium, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Cadmium, water, unfiltered, micrograms per liter	0/10	--	--	--	2/10	1.0	2.0	1.5
Chromium, water, unfiltered, recoverable, micrograms per liter	7/10	1.0	13.0	1.9	10/10	5.8	21.0	13.3
Copper, water, unfiltered, recoverable, micrograms per liter	10/10	2.0	3.0	2.0	10/10	8.0	27.6	15.5
Lead, water, unfiltered, recoverable, micrograms per liter	3/10	1.0	3.0	1.0	10/10	16.0	91.0	53.0
Mercury, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/10	0.1	0.1	0.1
Nickel, water, unfiltered, recoverable, micrograms per liter	10/10	2.0	8.0	3.0	10/10	5.0	18.8	13.2
Silver, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Thallium, water, unfiltered, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Zinc, water, unfiltered, recoverable, micrograms per liter	9/10	20	30	20	10/10	50	210	130
Antimony, water, unfiltered, EPA contract, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Arsenic, water, unfiltered, micrograms per liter	3/10	1	2	1	10/10	2	6	5
Cyanide, water, unfiltered, milligrams per liter	0/10	--	--	--	0/10	--	--	--
Selenium, water, unfiltered, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Organic compounds								
1,2,3-Trichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dibromo-3-chloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dibromoethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,3-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,4-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,4,6-Trichlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181800 San Antonio River near Elmendorf, Tex. (SAR Elmendorf)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
2,4-Dichlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
2,4-Dimethylphenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
2-Methyl-4,6-dinitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
4-Chloro-3-methylphenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
4-Nitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Acrylonitrile, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Aldrin, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
alpha-Endosulfan, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
alpha-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
beta-Endosulfan, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
beta-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Bromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chlordane (technical), water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
cis-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
cis-Chlordane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
delta-HCH, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Diazinon, water, unfiltered, recoverable, micrograms per liter	1/10	0.20	0.20	0.20	2/4	0.10	0.10	0.10
Dieldrin, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/10	0.02	0.02	0.02
Endosulfan sulfate, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Endrin aldehyde, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Endrin, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181800 San Antonio River near Elmendorf, Tex. (SAR Elmendorf)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Heptachlor epoxide, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Heptachlor, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Hexachlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Lindane, water, unfiltered, recoverable, micrograms per liter	1/10	0.03	0.03	0.03	0/10	--	--	--
p,p'-DDD, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/10	0.1	0.1	0.1
p,p'-DDE, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/10	0.08	0.08	0.08
p,p'-DDT, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/10	0.2	0.2	0.2
Pentachlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Toxaphene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
trans-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
trans-Chlordane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Aroclor 1016, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Aroclor 1221, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Aroclor 1232, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Aroclor 1242, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Aroclor 1248, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/10	--	--	--
Aroclor 1254, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/10	0.1	0.1	0.1
Aroclor 1260, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/10	0.1	0.1	0.1
1,1,1,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1,1-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	1/10	0.4	0.4	0.4	0/4	--	--	--
1,1,2,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181800 San Antonio River near Elmendorf, Tex. (SAR Elmendorf)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
1,1,2-Trichloro-1,2,2-trifluoroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1,2-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,1-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2,3-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2,4-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2,4-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,2-Diphenylhydrazine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
1,3,5-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
1,3-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2,4-Dinitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
2,4-Dinitrotoluene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
2,6-Dinitrotoluene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
2-Chloroethyl vinyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Chloronaphthalene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
2-Chlorophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
2-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
2-Nitrophenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181800 San Antonio River near Elmendorf, Tex. (SAR Elmendorf)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
3,3'-Dichlorobenzidine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
4-Bromophenyl phenyl ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
4-Chlorophenyl phenyl ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
4-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
4-Isopropyltoluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
9H-Fluorene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Acenaphthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Acenaphthylene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Acrolein, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Anthracene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Benzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Benzo[a]anthracene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Benzo[a]pyrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Benzo[b]fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Benzo[ghi]perylene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Benzo[k]fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Benzyl n-butyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Bis(2-chloroethoxy)methane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Bis(2-chloroethyl) ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Bis(2-chloroisopropyl) ether, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Bis(2-ethylhexyl) phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181800 San Antonio River near Elmendorf, Tex. (SAR Elmendorf)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Bromobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bromochloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Bromodichloromethane, water, unfiltered, recoverable, micrograms per liter	10/10	1.1	3.1	1.7	4/4	0.6	2.4	1.4
Chlorobenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chloroethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Chrysene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
cis-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dibenzo[a,h]anthracene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Dibromochloromethane, water, unfiltered, recoverable, micrograms per liter	10/10	0.9	2.7	1.2	4/4	0.5	1.7	1.1
Dibromomethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dichlorodifluoromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Dichloromethane, water, unfiltered, recoverable, micrograms per liter	1/10	0.2	0.2	0.2	2/4	0.2	0.3	0.3
Diethyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Dimethyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Di-n-butyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Di-n-octyl phthalate, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Ethylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Fluoranthene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Hexachlorobutadiene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Hexachlorocyclopentadiene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181800 San Antonio River near Elmendorf, Tex. (SAR Elmendorf)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Hexachloroethane, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Indeno[1,2,3-cd]pyrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Isophorone, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Isopropylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/4	0.2	0.2	0.2
Naphthalene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
n-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Nitrobenzene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
N-Nitrosodimethylamine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
N-Nitrosodi-n-propylamine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
N-Nitrosodiphenylamine, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
n-Propylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Oil and grease, water, unfiltered, freon extraction, gravimetric, recoverable, milligrams per liter	1/10	1	1	1	3/7	1	3	2
Organic carbon, water, unfiltered, milligrams per liter	10/10	2.9	5.5	3.9	10/10	14.0	47.0	27.0
Phenanthrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Phenol, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
Phenolic compounds, water, unfiltered, recoverable, micrograms per liter	3/9	2	3	2	2/10	2	2	2
Pyrene, water, unfiltered, recoverable, micrograms per liter	0/9	--	--	--	0/4	--	--	--
sec-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Styrene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
tert-Butylbenzene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

Table 4. Summary statistics of detected concentrations of periodic and stormflow samples collected from the study area, Bexar County, Texas, 1992–98.—Continued

[n, number; median values represent median of detected values]

	U.S. Geological Survey station number 08181800 San Antonio River near Elmendorf, Tex. (SAR Elmendorf)							
	Periodic samples				Stormflow samples			
	n (detects/ samples)	Minimum value	Maximum value	Median value	n (detects/ samples)	Minimum value	Maximum value	Median value
Tetrachloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Tetrachloromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Toluene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	1/4	0.3	0.3	0.3
trans-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Tribromomethane, water, unfiltered, recoverable, micrograms per liter	7/10	0.2	0.4	0.2	2/4	0.3	0.3	0.3
Trichloroethene, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Trichlorofluoromethane, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Trichloromethane, water, unfiltered, recoverable, micrograms per liter	10/10	0.8	4.1	2.3	4/4	1.1	3.1	2.1
Trihalomethanes, water, unfiltered, maximum summation, micrograms per liter	7/10	3.0	9.0	5.0	2/4	5.7	7.5	6.6
Vinyl chloride, water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--
Xylene (all isomers), water, unfiltered, recoverable, micrograms per liter	0/10	--	--	--	0/4	--	--	--

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