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Concentrations of Selected Pharmaceuticals and Antibiotics in South-Central Pennsylvania Waters, March through September 2006

Data Series 300

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

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By Connie A. Loper, J. Kent Crawford, Kim L. Otto, Rhonda L. Manning[1], Michael T. Meyer, and Edward T. Furlong

[1]Pennsylvania Department of Environmental Protection
Bureau of Water Standards and Facility Regulation

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Suggested citation:
Loper, C.A., Crawford, J.K., Otto, K.L., Manning, R.L., Meyer, M.T., and Furlong, E.T., 2007, Concentrations of selected pharmaceuticals and antibiotics in south-central Pennsylvania waters, March through September 2006: U.S. Geological Survey Data Series 300, 101 p.

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Conversion Factors

Multiply	By	To obtain
	Length	
inch (in.)	2.54	centimeter (cm)
inch (in.)	25.4	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Flow rate	
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)

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

°F = (1.8×°C) + 32

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).

Altitude, as used in this report, refers to distance above the vertical datum.

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

Concentrations of Selected Pharmaceuticals and Antibiotics in South-Central Pennsylvania Waters, March 2006 through September 2006

By Connie A. Loper, J. Kent Crawford, Kim L. Otto, Rhonda L. Manning[1], Michael T. Meyer, and Edward T. Furlong

Abstract

This report presents environmental and quality-control data from analyses of 15 pharmaceutical and 31 antibiotic compounds in water samples from streams and wells in south-central Pennsylvania. The analyses are part of a study by the U.S. Geological Survey (USGS) in cooperation with the Pennsylvania Department of Environmental Protection (PADEP) to define concentrations of selected emerging contaminants in streams and well water in Pennsylvania. Sampling was conducted at 11 stream sites and at 6 wells in 9 counties of south-central Pennsylvania. Five of the streams received municipal wastewater and 6 of the streams received runoff from agricultural areas dominated by animal-feeding operations. For all 11 streams, samples were collected at locations upstream and downstream of the municipal effluents or animal-feeding operations. All six wells were in agricultural settings.

A total of 120 environmental samples and 21 quality-control samples were analyzed for the study. Samples were collected at each site in March/April, May, July, and September 2006 to obtain information on changes in concentration that could be related to seasonal use of compounds.

For streams, 13 pharmaceuticals and 11 antibiotics were detected at least 1 time. Detections included analytical results that were estimated or above the minimum reporting limits. Seventy-eight percent of all detections were analyzed in samples collected downstream from municipal-wastewater effluents. For streams receiving wastewater effluents, the pharmaceuticals caffeine and para-xanthine (a degradation product of caffeine) had the greatest concentrations, 4.75 µg/L (micrograms per liter) and 0.853 µg/L, respectively. Other pharmaceuticals and their respective maximum concentrations were carbamazepine (0.516 µg/L) and ibuprofen (0.277 µg/L). For streams receiving wastewater effluents, the antibiotic azithromycin had the greatest concentration (1.65 µg/L), followed by sulfamethoxazole (1.34 µg/L), ofloxacin (0.329 µg/L), and trimethoprim (0.256 µg/L).

For streams receiving runoff from animal-feeding operations, the only pharmaceuticals detected were acetaminophen, caffeine, cotinine, diphenhydramine, and carbamazepine. The maximum concentration for pharmaceuticals was 0.053 µg/L. Three streams receiving runoff from animal-feeding operations had detections of one or more antibiotic compounds—oxytetracycline, sulfadimethoxine, sulfamethoxazole, and tylosin. The maximum concentration for antibiotics was 0.157 µg/L. The average number of compounds (pharmaceuticals and antibiotics) detected in sites downstream from animal-feeding operations was three. The average number of compounds detected downstream from municipal-wastewater effluents was 13.

For wells used to supply livestock, four compounds were detected–two pharmaceuticals (cotinine and diphenhydramine) and two antibiotics (tylosin and sulfamethoxazole). There were five detections in all the well samples. The maximum concentration detected in well water was for cotinine, estimated to be 0.024 µg/L.

Seasonal occurrence of pharmaceutical and antibiotic compounds in stream water varied by compound and site type. At four stream sites, the same compounds were detected in all four seasonal samples. At other sites, pharmaceutical or antibiotic compounds were detected only one time in seasonal samples. Winter samples collected in streams receiving municipal-wastewater effluent had the greatest number of compounds detected (21).

Research analytical methods were used to determine concentrations for pharmaceuticals and antibiotics. To assist in evaluating the quality of the analyses, detailed information is presented on laboratory methodology and results from quality-control samples. Quality-control data include results for nine blanks, nine duplicate environmental sample pairs, and three laboratory-spiked environmental samples as well as the recoveries of compounds in laboratory surrogates and laboratory reagent spikes.

Introduction

In 2005, over $133 billion worth of pharmaceutical and antibiotic compounds for human and animal needs were

[1]Pennsylvania Department of Environmental Protection, Bureau of Water Standards and Facility Regulation.

shipped by pharmaceutical manufacturers in the United States (U.S. Census Bureau, 2006). Most of these compounds or their metabolites are excreted or discarded into waste systems and eventually are released into the environment through point sources, such as wastewater-treatment plants, and nonpoint sources, such as on-site septic systems, sewage sludge, and animal manure.

Reconnaissance studies have measured pharmaceutical, antibiotic, and other compounds at low concentrations in surface waters across the United States and in Europe, particularly in waters receiving effluent from wastewater treatment plants (Kolpin and others, 2002; Sando and others, 2005; Buser and others, 1999; Fono and others, 2006). These compounds, termed "emerging contaminants," include antibiotics, prescription and nonprescription drugs, animal and plant steroids, reproductive hormones, personal-care products, detergent metabolites, flame retardants, products of oil use and combustion, and other chemicals (Kolpin and others, 2002; Stackleberg and others, 2004; Colker and Day, 2006). Streams receiving agricultural, municipal, and industrial wastewaters appear to be the most affected (Kolpin and others, 2002). The occurrence and concentrations of the compounds reflect their physicochemical behavior (Halling-Sorensen and others, 1998). Some compounds are lipophilic (fat loving); they are able to pass through membranes and are persistent. Therefore, these chemicals "have many of the necessary properties to bioaccumulate and provoke effects in the aquatic or terrestrial ecosystems" (Halling-Sorensen and others, 1998).

These emerging contaminants include endocrinologically active compounds termed "endocrine disruptors," pharmaceutically active compounds (PhACs) or drug residuals, and, more recently, personal care products (PCPs). Pharmaceutically active compounds are consumed by humans or animals. These compounds, "after having an internal curing effect somewhere in the human body, … will be excreted through urine or feces as a mixture of metabolites, as unchanged substances, or conjugated with an inactivating substituent … " (Rang and Dale, 1991). "The fate of these substances may be divided into three principle possible fates; *i*) the substance is ultimately mineralized to carbon dioxide and water, … *ii*) the substance is lipophilic and not readily degradable so part of the substance will be retained in the sludge, or *iii*) the substance is metabolized to a more hydrophilic form of the parent lipophilic substance but still persistent and therefore it will pass the wastewater treatment plant and end up in the receiving waters and therefore affect the aquatic organisms if the metabolites are biologically active" (Halling-Sorensen and others, 1998).

These compounds commonly are found in natural waters at low concentrations, suggesting minimal environmental impact. But aquatic organisms are subjected to chronic exposure and exposure to mixtures of compounds with potential additive effects.

Many of these compounds are not removed by conventional drinking-water treatment such as slow sand, diatomaceous, or direct filtration technologies. Therefore, these chemicals may be present in the drinking water supplied to some communities. Some studies (Stackleberg and others, 2004; Loraine and Pettigrove, 2006) have demonstrated that a subset of these chemicals present in source waters survives drinking-water processes and remains present in the finished water that is delivered to the customer.

Further, many rural residents use ground water as their drinking-water source. Typically, these waters receive no treatment. But, ground water may be susceptible to emerging contaminants from on-lot sewage disposal, from agricultural land use, and from spray irrigation.

The environmental impacts of these commonly used chemicals are largely unknown. Research provides compelling evidence that endocrine systems of certain fish and wildlife have been affected by chemical contaminants, resulting in development and reproductive problems. For example, feminization of fish has been documented (Iguchi and others, 2001), and intersex fish have been found in the Potomac River Basin and elsewhere (Blazer and others, 2007; Hinck and others, 2006; Woodling and others, 2006). A study by Goni-Urriza and others (2000) demonstrated that natural populations of bacteria are capable of developing resistance to antibiotics. Because of the potential for environmental disruption and perhaps human health effects, a better understanding of emerging contaminants and their fate is needed.

Need for the Study

Few studies have been done in Pennsylvania waters to document the occurrence and distribution of emerging-contaminant compounds. During 1999-2000, the U.S. Geological Survey (USGS) collected samples from five streams in south-central Pennsylvania that were analyzed for antibiotics, prescription drugs, nonprescription drugs, and other wastewater-related compounds. Results from these analyses were used as part of the data set for the first nationwide reconnaissance of emerging contaminants in streams (Kolpin and others, 2002).

In 2005, a pilot study to evaluate the effects of on-site disposal of wastewater was conducted by the USGS in the Broad Run watershed of Chester County, Pa. (Senior and Cinotto, 2007). The study included an evaluation of wastewater compounds in ground water and stream base flow. Thirty different wastewater compounds out of a suite of 62 compounds analyzed were detected at reporting levels ranging from less than 0.5 µg/L to less than 5 µg/L.

Senior and Cinotto (2007) also reported results from samples collected in 2000 and 2002 in wells in Chester County, Pa. Twelve wells were sampled during the study period, and samples were analyzed for a suite of compounds that included selected antibiotics, human drugs, hormones, and wastewater compounds. Several of the target compounds were detected at low concentrations. The 2002 samples were part of a national reconnaissance for contaminants in ground water (Barnes and others, 2005).

Additional studies are needed to determine if emerging-contaminant compounds are present in streams and wells in

Pennsylvania and to determine if there is a seasonal pattern of occurrence with specific compounds. In 2006, the USGS partnered with the Pennsylvania Department of Environmental Protection (PADEP) to conduct a survey of pharmaceutical and antibiotic compounds in ground water and stream water of south-central Pennsylvania. The analytical results of this study are presented in this report. The study included three primary objectives: 1) use current (research) analytical methodology to screen for pharmaceutical and antibiotic compounds present in streams and ground waters of south-central Pennsylvania and determine their concentrations, 2) determine seasonal variations in pharmaceutical and antibiotic concentrations, and 3) suggest source(s) of the pharmaceutical and antibiotic compounds. The study did not include examination of biological communities to determine if the detected compounds were impacting the ecology. Further, no correlation with human-health data was proposed to examine relations between human health and the pharmaceutical and antibiotic compounds analyzed for the study.

The data from this study will expand the current database of emerging contaminants in stream and well water and will identify potential target locations for further research.

Purpose of the Report

This report presents the results of analyses without interpretation for pharmaceuticals, antibiotics, and general water-quality indicators from stream-water and well-water samples collected for the south-central Pennsylvania emerging-contaminant survey. Results are presented by site type, site, and season. Because analytical methods used for the pharmaceuticals and antibiotics currently (2007) are considered by the USGS as research methods, information on the analytical methods and the results of quality-control samples collected during the course of the study are presented and discussed in detail.

Scope of the Report

Samples were collected at each site in March/April, May, July, and September 2006. Samples were collected at 11 stream sites and 6 wells in 9 counties of south-central Pennsylvania (fig.1 and table 1). Five of the streams sampled received municipal-wastewater effluent and 6 of the streams sampled received runoff from agricultural areas dominated by animal-feeding operations. For these 11 streams, samples were collected at locations upstream and downstream from the wastewater effluents or animal-feeding operations. Data from an additional stream, Conoy Creek (sites 9 and 10 on figure 1), were originally in the project design as a stream receiving municipal wastewater, but it was learned during the project that this stream does not actually receive municipal wastewater. The six wells were in agricultural land-use settings.

The data reported for each site include measurements of field characteristics and analytical results for 15 pharmaceuticals and 31 antibiotics. Laboratory analyses were completed at the USGS National Water Quality Laboratory (NWQL) in Denver, Colo., and the Organic Geochemistry Research Laboratory (OGRL) in Lawrence, Kans. Analyses were completed on 120 environmental samples and 21 quality-control samples (9 blanks, 9 duplicates, 3 laboratory-spiked environmental samples). Of the 120 environmental samples, 24 samples were collected from wells in agricultural areas used to supply water for livestock, and 96 samples were collected from stream-water locations (48 from stream-water locations adjacent to municipal-wastewater effluents and 48 from stream-water locations adjacent to animal-feeding operations).

Methods

Methods used for site selection, streamflow measurements, field water-chemistry measurements, water-quality sampling and processing, laboratory analyses, and quality assurance and quality control are described in this section. Added detail is included for the method description used at the OGRL because there is no citable reference at this time.

Site Selection and Sampling Locations

Three site types were sampled for this study: 1) streams receiving municipal-wastewater effluent, 2) streams receiving runoff from animal-feeding operations, and 3) wells in agricultural areas used to supply water for livestock. Sites selected for this study are summarized in figure 1 and table 1.

PADEP and the USGS worked cooperatively to select sampling locations for streams receiving municipal wastewater. Early in the study, PADEP provided the USGS with locations of municipal-wastewater-treatment plants. The following site-selection criteria were established by the USGS:

1. Streams had to receive wastewater effluent from one of the municipal-wastewater-plant locations provided by PADEP,
2. Stream locations would be in the south-central Pennsylvania study area,
3. Small streams were targeted so there would potentially be large impacts from the wastewater input, and
4. Permission could be obtained to access the stream upstream and downstream of the wastewater-discharge pipe.

Wastewater sites selected on Spring Creek, Middle Spring Creek, Mountain Creek, Killinger Creek, and Lititz Run met these criteria. A sixth stream, Conoy Creek, was originally in the project design as a stream receiving municipal wastewater, but it was learned during the project that effluent from the municipal treatment plant is piped to the Susquehanna River and not discharged to Conoy Creek. Therefore, for the purposes of presenting concentrations of compounds in streams receiving municipal wastewater, this site was not included. But, the data

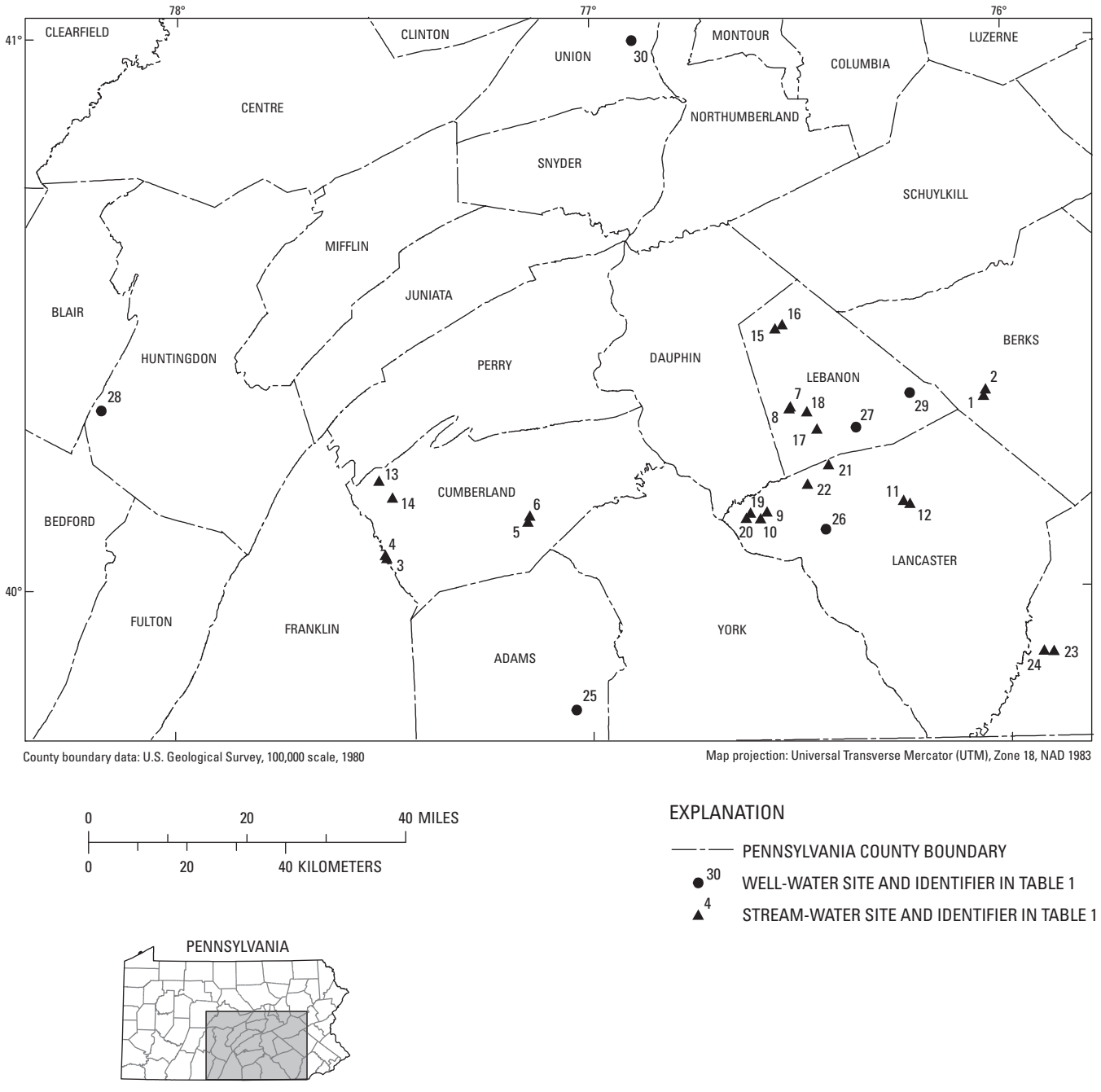

Figure 1. Locations of sampling sites for the study, south-central Pennsylvania.

Table 1. Sampling sites for this study, including site types, U.S. Geological Survey station identification numbers and names, latitude and longitude, and map identification number.

[na, not applicable]

U.S. Geological Survey station identification number	Map identification number (fig. 1)[1]	Site or well name	County	Location	Latitude	Longitude	Drainage area, in square miles	Type of animal present in the watershed
Stream sites upstream and downstream of municipal-wastewater effluents								
01470857	1	Spring Creek near Wernersville, Pa.	Berks	Upstream	40° 20’ 58"	076° 05’ 03"	19.6	na
01470858	2	Spring Creek near Brownsville, Pa.	Berks	Downstream	40° 21’ 09"	076° 05’ 03"	19.6	na
015693155	3	Middle Spring Creek at College at Shippensburg, Pa.	Cumberland/Franklin	Upstream	40° 03’ 23"	077° 31’ 43"	20.4	na
015693158	4	Middle Spring Creek above Burd Run below Shippensburg, Pa.	Cumberland/Franklin	Downstream	40° 03’ 42"	077° 31’ 58"	20.7	na
01571193	5	Mountain Creek at Mill Street at Mt. Holly Springs, Pa.	Cumberland	Upstream	40° 07’ 16"	077° 11’ 21"	45.8	na
01571195	6	Mountain Creek at Mt. Zion at Mt. Holly Springs, Pa.	Cumberland	Downstream	40° 07’ 54"	077° 11’ 06"	47.1	na
01573151	7	Killinger Creek Upstream of Treatment Plant near Annville, Pa.	Lebanon	Upstream	40° 19’ 27"	076° 33’ 22"	13.6	na
01573153	8	Killinger Creek Downstream of Treatment Plant near Annville, Pa.	Lebanon	Downstream	40° 19’ 31"	076° 33’ 19"	13.8	na
01576420	11	Lititz Run at Lititz, Pa.	Lancaster	Upstream	40° 09’ 12"	076° 17’ 10"	11.9	na
01576422	12	Lititz Run at Rothsville, Pa.	Lancaster	Downstream	40° 08’ 51"	076° 16’ 13"	13.3	na
Stream sites upstream and downstream of animal-feeding operations								
01569346	13	Three Square Hollow Run above Turnpike near Newburg, Pa.	Cumberland	Upstream	40° 11’ 46"	077° 32’ 50"	1.36	Cattle
01569349	14	Three Square Hollow Run below Turnpike near Newburg, Pa.	Cumberland	Downstream	40° 09’ 55"	077° 30’ 53"	9.60	Cattle
01572146	15	Trout Run near Ft. Indiantown Gap, Pa.	Lebanon	Upstream	40° 28’ 03"	076° 35’ 24"	1.29	Swine
01572148	16	Trout Run at Scout Camp near Green Point, Pa.	Lebanon	Downstream	40° 28’ 30"	076° 34’ 22"	4.23	Swine
401704076293101	17	Bachman Run at Fontana, Pa.	Lebanon	Upstream	40° 17’ 04"	076° 29’ 31"	3.10	Poultry
01573095	18	Bachman Run at Annville, Pa.	Lebanon	Downstream	40° 18’ 58"	076° 30’ 58"	7.30	Poultry
01574050	19	Snitz Creek near Falmouth, Pa.	Lancaster	Upstream	40° 08’ 02"	076° 39’ 17"	.23	Cattle
01574055	20	Snitz Creek near Bainbridge, Pa.	Lancaster	Downstream	40° 07’ 28"	076° 39’ 52"	2.02	Cattle
01575771	21	Little Chickies Creek at Camp Road near Mastersonville, Pa.	Lancaster	Upstream	40° 13’ 12"	076° 27’ 56"	.52	Poultry
015757724	22	Little Chickies Creek at Elizabethtown Road near Milton Grove, Pa.	Lancaster	Downstream	40° 11’ 07"	076° 30’ 58"	7.57	Poultry
01578349	23	Muddy Run at Cochranville near Parkesburg, Pa.	Chester	Upstream	39° 52’ 36"	075° 55’ 50"	.48	Cattle
015783492	24	Muddy Run at Glennville near Parkesburg, Pa.	Chester	Downstream	39° 52’ 39"	075° 57’ 14"	2.34	Cattle
Wells in agricultural areas used to supply water for livestock								
				Livestock supplied				
394643077043101	25	AD 653	Adams	Horses	39° 46’ 45"	077° 04’ 31"	na	na
400610076282501	26	LN 2114	Lancaster	Chickens	40° 06’ 09"	076° 28’ 25"	na	na
401712076235101	27	LB 1248	Lebanon	Dairy cows	40° 17’ 12"	076° 23’ 51"	na	na
401920078130101	28	HU 426	Huntingdon	Dairy cows	40° 19’ 19"	078° 13’ 00"	na	na
402052076160101	29	LB 1249	Lebanon	Swine	40° 20’ 52"	076° 16’ 01"	na	na
405931076555601	30	UN 205	Union	Dairy cows	40° 59’ 31"	076° 55’ 55"	na	na

[1]A sixth stream, Conoy Creek, was originally in the project design as a stream receiving municipal wastewater, but it was learned that this stream does not actually receive municipal wastewater. Instead, effluent from the municipal treatment plant is piped to the Susquehanna River and is not discharged to Conoy Creek. Map identification numbers for Conoy Creek sampling locations are “9” (upstream, station identification number 01574310, Conoy Creek near Elizabethtown, Pa.) and “10” (downstream, station identification number 01574314, Conoy Creek near Stacktown, Pa.)

from samples collected at the upstream and downstream sites at Conoy Creek are included in the report and discussed as a background site.

The Killinger Creek sites met the site-selection criteria, but following the sampling period, it was learned that the wastewater plant on Killinger Creek was, at times, cleaned before or during sample collection. Upon further discussions with staff from the plant, the cleaning process takes place weekly on the same day, and three of the four samples at the downstream location (May, July, and September samples) were collected on the day of cleaning. Concentrations of compounds reported for this site may, therefore, reflect atypical concentrations of pharmaceuticals and antibiotics.

For the streams selected in agricultural areas, the USGS worked in cooperation with County Conservation District personnel to determine the locations of animal-feeding operations that had streams in near proximity. The following site-selection criteria were established by the USGS:

1. Streams had to have inputs from agricultural areas dominated by animal-feeding operations,
2. Stream locations would be in the south-central Pennsylvania study area,
3. Small streams were targeted, and
4. Permission could be obtained to access the stream upstream and downstream of animal-feeding operations.

For the well-water sampling, wells were selected in agricultural areas. The following well-selection criteria were established by the USGS:

Wells would be

1. Located in the south-central Pennsylvania study area,
2. Currently used to supply water for livestock on a farm,
3. Used on a daily basis,
4. Representative of the aquifer,
5. Shallow [less than or equal to 300 ft] total depth,
6. Completed in a limestone aquifer, and
7. Of known completion with written records on file with the homeowner or Pennsylvania Geological Survey that would provide confirmation of the well depth and aquifer lithology (appendix1).

There also would need to be a raw (untreated) water sampling point where water-treatment systems could be by-passed during well sampling.

Streamflow Measurement

Streamflow measurements using a Sontek Flowtracker were made concurrently with the collection of water-quality samples. Computation of area (using stream width and depth) and procedures for making streamflow measurements followed documented USGS procedures (Rantz and others, 1982).

Field Water Chemistry

Field measurements of pH, specific conductance, dissolved oxygen, dissolved-oxygen saturation, and water temperature were made with a calibrated multi-parameter water-quality meter manufactured by the YSI Corporation. Calibration followed procedures documented by USGS (variously dated). Field measurements with equipment types and accuracies are shown in table 2. Stream depth was estimated to 0.10 ft using a standard USGS Hydrologic Instrumentation Facility (HIF) wading rod.

Water-chemistry readings and stream depth were measured to determine if the stream was well-mixed from bank to bank and if there was variability in the cross section due to depth. Water-chemistry readings in the stream cross section were made at 1-ft or 2-ft horizontal intervals (depending on stream width), at quarter-points of the stream width, and in the vertical at six-tenths of the depth of the stream. Stream depth was measured at each vertical prior to water-chemistry readings. Barometric pressure was recorded at the majority of sites using a Thommen field barometer; the field barometer also was used to check the internal barometer of the YSI multiparameter meter during calibration of dissolved oxygen.

Water-Quality Sampling and Processing

Water-quality sampling and processing for stream and well-water samples are described in this section. Procedures used for packing and shipping samples also are included.

Stream Water

Stream-water sampling equipment was cleaned thoroughly prior to sample collection, following the USGS protocols for organic-compound sampling (Wilde, 2004), including a caveat in Wilde and others (update 5.6.1.F) (2004) that identifies the need to use non-antibacterial detergents because of the analyses for antibiotic compounds. Special considerations related to personal safety and sample contamination specific to working in streams receiving potentially hazardous compounds from municipal-wastewater plants or animal-feeding operations also were followed (Wilde and others [update 5.6.1.F], 2004). Streams were sampled at low flow or during a falling stage after a rainfall event.

Water-quality samples for laboratory determination of pharmaceuticals and antibiotics were collected with a DH-81 hand-held sampler fitted with a Teflon nozzle holder, Teflon nozzle, and 1-L (liter) Teflon bottle. Typically, three separate 1-L samples were collected, each sample containing stream water collected at three depth-integrated verticals located at 25 percent, 50 percent, and 75 percent of the stream width. Each 1-L sample was sequentially poured into a single pre-cleaned and stream-rinsed 3-L Teflon bottle for the final composited sample. All locations of the verticals were noted on the field

Table 2. Field measurements, units, accuracies, and equipment types used for this study.

[NWIS, National Water Information System; ft^3/s, cubic feet per second; °C, degrees Celsius; YSI, Yellow Springs Instrument; µS/cm, microsiemens per centimeter at 25°C; mm, millimeters; mg/L, milligrams per liter]

Measurements	NWIS code	Reporting units	Reporting accuracy	Equipment/sensor type
Stream discharge	00061	ft^3/s	± 0.003 ft^3/s	Sontek Flowtracker
Temperature	00010	°C	± 0.15°C	YSI Precision Thermister
pH	00400	standard units	± 0.2	Glass combination electrode, YSI
Specific conductance	00095	µS/cm at 25°C	± 0.5% of the reading or ± 1 µS/cm; whichever is greater	4-electrode cell with auto-ranging, YSI
Dissolved oxygen	00300	mg/L	± 2% of the reading or 0.2 mg/L; whichever is greater	Steady state polarographic, YSI
Barometric pressure	00025	mm mercury	± 0.75 to 1.5 mm mercury	Thommen Classic Altimeter Plus Barometer

data sheets. All samples were immediately placed on ice until they were returned to the laboratory for processing.

Sample-processing and shipping protocols developed for pharmaceutical and antibiotic compounds were followed (Wilde and others [update 5.6.1.F], 2004). During this step, special care was taken not to contaminate samples through laboratory-processor inputs or laboratory-area inputs. The 3-L Teflon bottle containing the stream sample was first shaken to mix the water prior to filtration. A fluid-metering pump, fitted with a Teflon head and hoses, was used to draw the sample from the 3-L bottle to a pre-cleaned aluminum filter support (Geotech brand) with a baked, glass microfiber filter (147-mm diameter, 0.7 µm (micrometer) pore size). The sample was then filtered into two 1-L amber, cleaned-and-burned (baked at 450°C to burn off all residual organic compounds) glass bottles for pharmaceutical analyses (one bottle was held as an archive sample) and three 125-mL (milliliter) cleaned-and-burned glass bottles for antibiotic analyses. All bottles were wiped with clean, disposable isopropyl alcohol (70 percent) pads, inserted into foam sleeves, and immediately placed in the refrigerator at 4°C or packed for shipment to the USGS NWQL or OGRL. All samples were double bagged and were shipped on ice within 2 days of collection via overnight delivery to the analytical laboratories. Lab benches were cleaned after sample filtration with a non-antibacterial soap solution and isopropyl alcohol.

Well Water

Well-water sampling equipment was cleaned thoroughly prior to sample collection, following the USGS protocols for organic-compound sampling (Wilde, 2004), including a caveat in Wilde and others (update 5.6.1.F) (2004) that identifies the need to use non-antibacterial detergents because of the analyses for antibiotic compounds. Collection of well-water samples followed protocols documented by Wilde and others (1999) with three modifications; modifications to the protocols included the use of brass fittings instead of Teflon to connect to water sources and did not include the use of a flow manifold or processing chamber.

At all wells sampled, submersible pumps provided sample water to a tap either at the base of the pressure tank or at an outside faucet. As the well was purged, pH, specific conductance, dissolved oxygen, and water temperature were monitored using a calibrated YSI 556 multiparameter meter. When readings became stable (variation between five or more 5-minute sequential field-measurement values: ± 0.05 units for pH; ± 0.2°C for water temperature; ± 0.3 mg/L for dissolved oxygen; and ± 3 percent for specific conductivities greater than 100 µS/cm), the well-water samples were collected.

All well-water samples were processed at the sampling site. A pre-cleaned Savillex Teflon in-line filter-unit holder with a baked, glass microfiber filter (47-mm diameter, 0.7µm pore-size) was used to filter the sample directly from the tap or faucet into two clean 1-L amber glass bottles that were cleaned and baked at 450°C to burn off all residual organic compounds for pharmaceutical analyses. The second bottle was held as an archive sample. Three 125-mL cleaned-and-burned glass bottles were used to collect filtered water for antibiotic analyses. All bottles were wiped with clean, disposable isopropyl alcohol (70 percent) pads, inserted into foam sleeves, and immediately placed on ice until they were returned to the laboratory where they were either placed in the refrigerator at 4°C or packed for shipment to the USGS NWQL or OGRL. All samples were double bagged and were shipped on ice within 2 days of collection via overnight delivery to the analytical laboratories.

Laboratory Analyses

Pharmaceutical compounds were analyzed by the USGS NWQL in Denver, Colo. The research analytical method used a solid-phase extraction followed by high performance liquid phase chromatography/mass spectrometry (HPLC-MS), using a polar reverse-phase octylsilane (C8) HPLC column following the procedure described in Cahill and others (2004). The com-

pounds analyzed at the USGS NWQL and their minimum reporting levels (MRLs) and method detection limits (MDLs) are listed in table 3. The MRL is the smallest measured concentration of a substance that can be reliably measured using a given analytical method. The MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. The USGS NWQL has established a data reporting convention described in Childress and others (1999). A qualifying remark code ('E' = estimated) is used for semi-quantitative analytical results to denote less certainty in quantification than the majority of the analyses. E-coding is used in the USGS National Water Information System to denote these semi-quantitative results. For the purposes of this report, data are coded E(1)-E(4) to denote the reason for qualification. This convention will be noted in the data tables and the discussion of concentration of selected pharmaceuticals and antibiotics. Reported analytical concentrations are coded as follows:

- E(1) if concentration is below the long-term MDL (for information-rich methods only);
- E(2) if the concentration is greater than or equal to the long-term MDL but less than the MRL (lowest calibration standard is less than the MRL);
- E(3) if the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent,
- E(4) if data are reported above the MRL, but there was a failure in some aspect of lab quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed).

In this report, a compound is reported as a "detection" for any E-coded value as well as values reported without qualification above the MRL. No estimated values were reported for samples from the OGRL; all detections quantified were above the MRLs.

Antibiotics and selected pharmaceuticals were analyzed at the USGS OGRL in Lawrence, Kans., using a research method modified after an online solid phase extraction (SPE) method from Meyer and others (2007). Water samples were analyzed for antibiotics using online SPE and liquid phase chromatography/tandem mass spectrometry (LC/MS/MS) with electrospray ionization (ESI) using multiple reaction monitoring (MRM). This technique allowed quantitation of chloramphenicol, lincomycin, ormetoprim, trimethoprim, five macrolides, six sulfonamides, six quinolines, four tetracycline antibiotics, six antibiotic degradation products, and two pharmaceuticals—carbamazepine and ibuprofen. Samples were analyzed in positive-ion mode except for chloramphenicol and ibuprofen, which were analyzed in negative-ion mode. Samples were extracted using the HLB Prospekt cartridges (Waters Corp., Milford, Mass.). Demeclocycline, nalidixic acid, oleandomycin, and $^{13}C_6$-Sulfamethazine were used as surrogate standards; clinafloxacin, $^{13}C_2$-erythromycin, $^{13}C_2$-erythromycin-H_2O, meclocycline, simatone, and $^{13}C_6$-sulfomethoxazole were used as internal standards. The detected compounds were quantitated using the ratio of the area of the quantifying ion of the analyte to the area of the quantifying ion of the internal standard.

The compounds analyzed at the USGS OGRL and their MRLs are listed in table 4. The MRLs were determined by assessing the signal-to-noise ratio in 0.002, 0.005, and 0.010 µg/L laboratory reagent spiked (LRS) samples. A minimum signal-to-noise ratio of five was used to establish the reporting levels. The MRLs ranged from 0.005 to 0.010 µg/L for all the compounds analyzed except for ibuprofen, sulfadiazine, chloramphenicol, and sulfathiazole; the MRL for these compounds was 0.050 µg/L; the MRL for sulfathiozole was 0.020 µg/L. MDLs for the compounds analyzed at the OGRL will be established when the analytical method is finalized; however, no results will be reported below the MRLs.

A method of standard addition (Harris, 2003) is also used by chemists at the OGRL if recoveries of compounds in internal quality-control samples (surrogates and laboratory-spiked environmental samples) are less than or greater than 35 percent of the expected concentration, providing those analytes were detected in the samples. Standard addition corrects for matrix effects and results in a more accurate quantitation of individual analytes. All wastewater influents and effluents are automatically analyzed using standard addition.

In standard addition, an unspiked-environmental and spiked-environmental sample aliquot are prepared and analyzed. The following equation was used to calculate analyte concentrations by standard addition:

$$C = (R_{us} / (R_{sp} - R_{us}))\, C_{sp} \quad (1)$$

where

C is concentration of the analyte in the unspiked sample,

R_{us} is the ratio of area of the quantitation-ion of the analyte to the area of the quantitation-ion of the internal standard in the unspiked sample,

R_{sp} is the ratio of area of the quantitation-ion of the analyte to the area of the quantitation-ion of the internal standard in the spiked sample,

and

C_{sp} is the concentration of the analytes in the spiked sample due to the spike.

Quality Assurance and Quality Control

Quality-assurance procedures that provide controls to immeasurable components of a study that substantially improve the quality of the results (U.S. Geological Survey, variously dated) were followed in the field and Pennsylvania Water Science Center (PA WSC) laboratory. A sampling schedule was also developed to meet study goals for collection of samples during targeted seasonal periods. Once established, the sam-

Table 3. List of target pharmaceutical and antibiotic compounds analyzed at the U.S. Geological Survey National Water Quality Laboratory in Denver, Colorado.

[Italicized compounds were also analyzed at the USGS Organic Geochemistry Research Laboratory in Lawrence, Kans., using on-line solid phase extraction (SPE) and liquid phase chromatography/tandem mass spectrometry (LC/MS/MS) with electrospray ionization using multiple reaction monitoring; NWIS, National Water Information System; footnotes generally cite references for medicinal use; --, not available]

Compound	NWIS parameter code	Medicinal use	Minimum reporting level, in micrograms per liter	Method detection limit, in micrograms per liter
Human and veterinary drugs				
Nonprescription pharmaceuticals				
Acetaminophen	62000	Analgesic[1]	0.024	0.012
Caffeine	50305	Stimulant[1]	.015	.008
Para-xanthine[2,3,4]	62030	Degradation product of caffeine[5]	.021	.010
Codeine	62003	Analgesic[1]	.022	.011
Cotinine	62005	Nicotine metabolite[1]	.028	.014
Diphenhydramine	62796	Antihistamine, antiemetic (anti-nausea), sleep aid, sedative[6]	.023	.012
Prescription pharmaceuticals				
Carbamazepine	62793	Anticonvulsant and antimanic agent[6]	.018	.009
Dehydronifedipine	62004	Antianginal metabolite[1]	.022	.011
Diltiazem[7]	62008	Antihypertensive[1]	.018	.009
Fluoxetine	62011	Antidepressant[1]	.016	--
Ranitidine	62019	Antacid[1]	.025	--
Salbutamol	62020	Antiasthmatic[1]	.014	.007
Thiabendazole	62801	Anthelmintics[3,8] (used to treat worm infections)	.025	.012
Warfarin	62024	Anticoagulant[1]	.019	.009
Antibiotics				
Sulfamethoxazole	62021	Antibiotic[1]	.024	.012
Trimethoprim	62023	Antibiotic[1]	.020	.010

[1]U.S. Geological Survey, 2006.

[2]Degradation product.

[3]Edward Furlong, U.S. Geological Survey, written commun., 2007.

[4]Para-xanthine also known as 1,7 dimethylxanthine.

[5]Long, 1995-2005.

[6]Couper and Logan, 2004.

[7] Routinely reported as an estimated concentration, indicated by an “E” qualifier.

[8]Micromedex, Inc., 2006.

Table 4. List of target antibiotic and pharmaceutical compounds analyzed at the U.S Geological Survey Organic Geochemistry Research Laboratory in Lawrence, Kansas.

[Italicized compounds were also analyzed at the USGS National Water Quality Laboratory in Denver, Colo., using high performance liquid phase chromatography/mass spectrometry methodology (HPLC-MS); NWIS, National Water Information System]

Compound	NWIS parameter codes	Minimum reporting level, in micrograms per liter
Macrolide antibiotics		
Azithromycin	62792	0.005
Erythromycin	62797	.008
Erythromycin-H_2O (anhydro-erythromycin)[1]	63674	.008
Roxithromycin	62895	.005
Tylosin	62896	.005
Virginiamycin	62897	.005
Quinoline antibiotics		
Ciprofloxacin	62898	.005
Enrofloxacin	(code not yet established)	.005
Lomefloxacin	62900	.005
Norfloxacin	62757	.005
Ofloxacin	62899	.005
Sarafloxacin	62771	.005
Sulfonamide antibiotics		
Sulfachloropyridazine	62774	.005
Sulfadiazine	62963	.050
Sulfadimethoxine	62776	.005
Sulfamethazine	61762	.005
Sulfamethoxazole	62775	.005
Sulfathiazole	62778	.020
Tetracycline antibiotics and degradation products		
Chlorotetracycline	61744	.010
Epi-chlorotetracycline (4-EC-tetracycline HCl)[1]	63731	.010
Epi-iso-chlorotetracycline (Iso-epi-chlorotetracycline)[1]	64047	.010
Iso-chlorotetracycline[1]	64175	.010
Doxycycline	62694	.010
Oxytetracycline	61759	.010
Epi-oxytetracycline (4-Epi-oxytetracycline) [1]	63729	.010
Tetracycline	62781	.010
Epi-tetracycline (4-Epi-tetracycline HCl)[1]	63727	.010
Other antibiotics		
Chloramphenicol	65194	.050
Lincomycin	62894	.005
Ormetoprim	62962	.005
Trimethoprim	62023	.005
Pharmaceuticals		
Carbamazepine	62793	.005
Ibuprofen	62014	.050

[1]Degradation product.

pling schedule needed few adjustments and was key to completing all the work needed to accomplish the study objectives.

The USGS NWQL's quality-assurance process is documented in a Quality Management System (QMS) report by Maloney (2005). This QMS report is the framework for planning, implementing, and assessing work performed by the NWQL and for carrying out required quality assurance and quality control for compliance with the standards set by the National Environmental Laboratory Accreditation Conference. All personnel associated with the NWQL are obligated to meet the requirements described in the policies, processes, and standard operating procedures (SOPs) included or referenced in this document.

Quality Control on Field Measurements

Prior to each sampling season, thermistors for field instruments were checked against an NIST-certified thermometer. Multiparameter meters used for field-chemistry readings were calibrated on the day of sampling using certified standards and buffers. A sodium sulfite/cobalt chloride zero dissolved-oxygen solution was prepared daily and was used to check the accuracy of the dissolved-oxygen reading near 0.0 mg/L dissolved oxygen. Any meter that showed a reading of greater than 0.3 mg/L oxygen in a zero dissolved-oxygen solution was not used until the membrane and electrode-filling solution could be changed. Barometric-pressure readings were cross-checked with a second barometer during dissolved-oxygen calibration to insure no change in calibration of the internal barometer had occurred.

Field meter log books, which accompanied the field meters at all times, were prepared to record calibration, performance, and service information as well as track the performance of each instrument over the course of the study. All field-meter calibration information was copied on the site field-data sheet to insure the accuracy of the field-meter readings in case the log book would become lost or damaged.

Quality Control on Water-Quality Samples

Quality-control samples are those samples that are planned to provide data that can be used to estimate the magnitude of the bias or variability in the processes used to obtain the environmental data. Pharmaceutical and antibiotic quality-control samples submitted included blanks, duplicates, and laboratory spikes (into environmental water). A summary of all quality-control samples submitted for this study is presented in table 5.

Blanks

For this study, equipment blanks and field blanks were collected and analyzed to determine if there was any bias due to contamination in any of the processing steps (equipment, field, transport, and laboratory). Blanks made up 6.4 percent of all pharmaceutical and antibiotic samples submitted for analyses. To evaluate the cleaning processes used on both stream-water equipment and well-water equipment, three equipment blanks were collected in the PA WSC laboratory by pouring certified organic-free water through field equipment and processing the collected sample through the filter apparatuses used for environmental samples. In addition to equipment blanks, six field blanks were collected to evaluate contamination that might be introduced at the site. Three of the field blanks were collected at stream-water locations, and three were collected at well-water locations.

Duplicates

Four stream-water and four well-water field sequential duplicates (table 5) were collected and processed immediately following each associated primary environmental sample using identical procedures; sequential duplicates measure variability introduced during collection, processing, analytical methodology, and also reflect temporal changes in environmental conditions. In addition, one stream-water split duplicate (collected at station 015693158 on May 10, 2006) was submitted to the OGRL. A split duplicate is a single sample that is subdivided into two other samples; split duplicates give a measure of variability (reproducibility) in analytical values produced by sample processing and analytical methodology. Duplicates made up 6.4 percent of all samples submitted for analyses For these duplicates, a relative percent difference (RPD) was calculated between the two samples when both values had either estimated concentrations or concentrations above the MRL according to the following equation:

$$RPD = (d/s) \times 100, \quad (2)$$

where

d is the difference in concentration between the primary environmental sample and the duplicate sample,

and

s is the mean of the concentrations of the primary environmental sample and the duplicate sample.

Laboratory-Spiked Environmental Samples

A laboratory-spiked environmental sample was prepared by adding a standard spike solution to a split of the environmental sample water to assess the recovery efficiencies and matrix effects of the analytical methods. Over the course of the study, one stream-water quality-control sample was spiked with known concentrations of pharmaceuticals and antibiotics at the NWQL, and two stream-water quality-control samples were spiked with known concentrations of antibiotics and pharmaceuticals at the OGRL. For the laboratory-spiked environmental sample collected at station 015693158 on May 10, 2006, an environmental sample was collected and split in the PA WSC laboratory using a Teflon, decaport cone splitter to create two identical samples. One sample was submitted as an environmental sample, and the second was sent to be spiked at the NWQL and analyzed in the same batch as the environmental sample. The laboratory-spiked samples for this study collected

Table 5. Summary of quality-control samples analyzed at the U.S. Geological Survey National Water Quality Laboratory (NWQL) and Organic Geochemistry Research Laboratory (OGRL).

Type of quality-control sample	Station name	U.S. Geological Survey station identification number	Date	Time (first time listed –NWQL sample; second time listed – OGRL sample)
Equipment blanks	Lemoyne Station	401435076540910	2/24/06	1430, 1431
	Lemoyne Station	401435076540910	2/24/06	1445, 1446
	Lemoyne Station	401435076540910	5/02/06	1530, 1531
Field blanks	Spring Creek	01470857	5/08/06	1130, 1131
	Middle Spring Creek	015693158	9/19/06	1120, 1121
	Trout Run	01572146	7/31/06	0945, 0946
	AD 653	394643077043101	3/09/06	1130, 1131
	LN 2114	400610076282501	7/13/06	0940, 0945
	LB 1248	401712076235101	9/20/06	1245, 1246
Duplicate samples	Spring Creek	01470858	9/18/06	1125, 1126
	Middle Spring Creek	015693158	5/10/06	1036 (OGRL schedule only)
	Middle Spring Creek	015693158	7/06/06	1030, 1035
	Killinger Creek	01573153	3/07/06	1235, 1236
	Conoy Creek	01574314	5/01/06	1037, 1038
	AD 653	394643077043101	5/04/06	1112, 1113
	LN 2114	400610076282501	5/15/06	1317, 1318
	LN 2114	400610076282501	9/07/06	1105, 1106
	UN 205	405931076555601	7/11/06	1200, 1205
Laboratory-spiked environmental samples	Middle Spring Creek	015693158	5/10/06	1035 (NWQL schedule only)
	Snitz Creek	01574050	3/16/06	1032 (OGRL schedule only)
	Snitz Creek	01574055	5/01/06	1247 (OGRL schedule only)

at Snitz Creek on March 16 and May 1, 2006, were both split and spiked at the OGRL.

Laboratory Quality Control

The NWQL uses four types of quality-control samples for antibiotic and pharmaceutical analyses–two for instrument quality control and two for process quality control. Instrument quality-control samples are either continuing-calibration samples (which ensure the acceptable calibration performance during analysis) or continuing-calibration blanks (which are used to monitor cross-contamination between injections). Eight standards, ranging in concentration from 0.005 to 1.0 µg/L, and a reagent blank are used in instrument calibration. Acceptance criterion for calibration is an R-squared fit value of 0.995 or better for the standard curve of each compound, although fits of 0.998 and better are typical. The process quality-control samples are laboratory reagent blanks (LRB) and laboratory reagent spikes (LRS). LRBs are used to monitor for inadvertent contamination during the extraction and analysis process. A LRS is made by adding a known volume of a spike solution, with known concentrations of compounds, to a known volume of organic-free grade water. LRSs are used to monitor method performance in the absence of a sample matrix; they also are used in aggregate to monitor long-term method performance with multiple operators and multiple instruments. Process quality-control samples are put in the batch run every 10 samples. All these types of quality-control samples, therefore, collectively monitor for contamination and method performance throughout the laboratory process.

For the analytical work done at the NWQL, carbamazepine-d10 and ethyl nicotinate-d4 were also added to each sample as surrogate spikes to evaluate the effect of bias and variability of recoveries in the environmental-sample matrix. Surrogates are similar in physical and chemical properties to the analytes of interest but usually are not found in environmental samples. These surrogates are used because they behave similarly in the analytical process to at least some of the analytes of interest but do not interfere with any analytes. Surrogates are added to all environmental and quality-control samples to monitor water-matrix effects and gross sample-processing errors. Samples reporting low surrogate recoveries usually indicate problematic sample matrices but may also indicate gross processing errors. Recovery of surrogates in the sample matrix should be reviewed in relation to recovery of surrogates in LRSs to evaluate possible matrix effects on recovery in environmental samples.

At the OGRL, nine standard curve solutions (ranging in concentration from 0.002 to 1.0 µg/L), LRBs, and LRSs are prepared in Na_2PO_4 (pH 7) buffered, laboratory-grade water. Acceptance criterion for calibration is an R-squared fit value of 0.99 or better. Every analytical sample run has a duplicate sample, a 0.2 µg/L laboratory-spiked environmental sample, and a LRB after every tenth environmental sample and a LRS after every twentieth environmental sample. Two LRBs are also interspersed between the environmental samples. All standard solutions, blanks, and laboratory-spiked environmental samples are treated the same as the environmental water samples.

Results for Quality-Control Samples

Results for blanks, duplicates, laboratory-spiked environmental samples, and laboratory quality-control samples are discussed in the following section. Because there was only one detection in a blank sample, a table showing results of all blank data is not included in this report. Primary environmental and duplicate paired data are shown in table 6 (at the end of the report).

Blanks

Only one antibiotic, tylosin, was measured above the MRL (< 0.005 µg/L) at 0.006 µg/L in an equipment blank. It was unclear if the contamination was due to the equipment or introduced during the analysis (OGRL statistics show 15 percent of all the LRBs had detections of tylosin, and the average concentration of these detections was 0.007 µg/L). There were no other detections in the remaining equipment or field blanks. This indicates that sampling procedures, sample equipment and containers, cleaning procedures, and analytical processes were not contributing contamination to the samples collected for the study.

Duplicates

Of the four ground-water duplicate-sample pairs, none had detections of any pharmaceuticals or antibiotics; therefore, no RPDs could be calculated or are shown on table 7. At stream-water sites, RPDs of individual compounds in five duplicate sample pairs were generally less than or equal to 30 percent between each of the samples with the exception of diphenhydramine (36 and 39 percent), diltiazem (40 percent), azithromycin (140 percent), ofloxacin (88 percent), and sulfamethoxazole (84 and 35 percent). An explanation of the high RPDs by compound is as follows: diphenhydramine (both results in the pair had low concentrations; NWQL surrogate recovery data indicated matrix effects for both samples, and long-term mean recovery was 60 percent); diltiazem (both results in the pair had low concentrations; NWQL surrogate recovery data indicated matrix effects), azithromycin (standard deviation of percent recoveries in laboratory-reagent spikes was 93 percent), ofloxacin (both results in the pair had low concentrations), and sulfamethoxazole (long-term mean recovery in laboratory-reagent spikes was 122 percent with associated standard deviation of percent recoveries equal to 28 percent).

Combining results for all sequential and split duplicate pairs, RPDs were first calculated for 52 pairs of compounds (all from stream-water sites) having measurable detections in both samples (table 7). Median RPDs were then calculated for individual pharmaceutical compounds. Median RPDs ranged from 2.3 percent for carbamazepine (NWQL) to 37.5 percent for diphenydramine. Using the same procedure, median RPDs for antibiotics (if only one RPD was available for a compound analyzed, that result was used as a median) ranged from 5 percent for sulfamethoxazole (NWQL) to 33 percent for tylosin. Using all individually calculated RPDs, the overall median RPD for all samples and all compounds was 16 percent. An overall median RPD of 16 percent is very acceptable considering the generally low concentrations of data that push the quantification capabilities of the instrumentation and the added time-component variability that is inherent in evaluating sequential-duplicate results (Edward Furlong, U.S. Geological Survey, oral commun., 2007).

Laboratory-Spiked Environmental Samples

Table 8 shows calculated recoveries of pharmaceuticals and antibiotics from the sample collected at Middle Spring Creek above Burd Run below Shippensburg, Pa., on May 10, 2006, that was spiked and analyzed at the NWQL. For the spike, 0.1 mL of 2,500 ng/mL (nanograms per milliliter) spike solution was added to one of the two split samples. If the sample volume is exactly 1.0 L, the final concentration would be 0.25 µg/L. Because the volume varies slightly, adjustments for the actual volume are made during instrumental analysis, and the recoveries are calculated using the exact expected concentration. For example, for the purposes of the percent-recovery calculation, the spike concentration in the sample ('calculated concentration in spike' on table 9) was first adjusted to the volume of the sample submitted (972 mL) by dividing 0.25 µg/L by 0.972 L. The formula for calculating recovery in percent is found in the heading of the table.

Calculated recoveries of pharmaceuticals in the laboratory-spiked environmental sample analyzed at the USGS NWQL were generally ±30 percent of the spiked concentration. There were exceptions. Data for spikes (table 8) show poor recoveries for fluoxetine (3.5 percent), thiabendazole (38 percent), diltiazem and ranitidine (both 51 percent), and diphenhydramine (60 percent). Fluoxetine, diltiazem, and ranitidine were reported as "highly variable compounds" during methods development and have mean long-term recoveries ranging from 22 to 37 percent. In the final approved method, fluoxetine and ranitidine will be dropped except for custom analytical requests; diltiazem will be retained but will be reported as estimated data values (Edward Furlong, U.S. Geological Survey, oral commun., May 29, 2007). Therefore, the data reported for

Table 7. Relative percent differences (RPD) in concentrations of primary environmental and quality-control sequential and split duplicate samples analyzed at the U.S. Geological Survey (USGS) National Water Quality Laboratory (NWQL) and Organic Geochemistry Research Laboratory (ORGL).

[Sample data is only shown if both results of the duplicate pair were above the reporting limit or one or both were reported as estimated (E) values; env., environmental; na, no relative percent difference (RPD) could be calculated because either one or both concentrations were below the reporting limit (reported as a "<" value); --, either or both concentrations for compound were below the reporting limit (complete results of analyses are presented in table 6); compounds in italics were analyzed at both laboratories; E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent]

Analyte	Spring Creek 01470858			Middle Spring Creek 0156931358			Middle Spring Creek 015693158		
	Concentration (µg/L)			Concentration (µg/L)			Concentration (µg/L)		
	9/18/2006 1120,1121 primary env. sample	9/18/2006 1125,1126 duplicate sample	Relative percent difference	5/10/2006 1031 primary env. sample	5/10/2006 1036 duplicate sample	Relative percent difference	7/6/2006 1020,1025 primary env. sample	7/6/2006 1030,1035 duplicate sample	Relative percent difference
Compounds analyzed at the USGS NWQL									
Human and veterinary drugs									
Nonprescription pharmaceuticals									
Acetaminophen	--	--	na	--	--	na	--	--	na
Caffeine	0.022	0.025	13	--	--	na	--	--	na
Para-xanthine[1,2]	--	--	na	--	--	na	--	--	na
Codeine	--	--	na	--	--	na	E(1) 0 .010	E(1) 0 .010	0
Cotinine	--	--	na	--	--	na	--	--	na
Diphenhydramine	--	--	na	--	--	na	E(2) .013	E(1) .009	36
Prescription pharmaceuticals									
Carbamazepine	--	--	na	--	--	na	.050	.051	2.0
Dehydronifedipine	--	--	na	--	--	na	--	--	na
Diltiazem	--	--	na	--	--	na	E(3) .024	E(3) .018	29
Fluoxetine	--	--	na	--	--	na	--	--	na
Ranitidine	--	--	na	--	--	na	E(3) .007	E(3) .006	15
Salbutamol	--	--	na	--	--	na	E(1) .004	E(1) .004	0
Antibiotics									
Sulfamethoxazole	--	--	na	--	--	na	.082	.078	5.0
Trimethoprim	--	--	na	--	--	na	.023	.023	0
Compounds analyzed at the USGS OGRL									
Macrolide antibiotics									
Azithromycin	.031	.035	12	1.65	1.28	25	.078	.014	140
Erythromycin	--	--	na	--	--	na	--	--	na
Erythromycin-H_2O (anhydro-erythromycin)[1]	--	--	na	.081	.068	17	--	--	na
Tylosin	--	--	na	--	--	na	--	--	na
Quinoline antibiotics									
Ciprofloxacin	--	--	na	--	--	na	.007	.008	13
Ofloxacin	.012	.011	8.7	.009	.023	88	.022	.022	0
Sulfonamide antibiotics									
Sulfadiazine	--	--	na	--	--	na	--	--	na
Sulfamethoxazole	.148	.159	7.2	.434	.426	1.9	.110	.268	84
Other antibiotics									
Trimethoprim	.011	.010	10	.123	.114	7.6	.052	.058	11
Pharmaceuticals									
Carbamazepine	.014	.015	6.9	.152	.151	.66	.086	.090	4.5
Ibuprofen	--	--	na	--	--	na	--	--	na

[1]Degradation product.

[2]Para-xanthine also known as 1,7 dimethylxanthine.

Table 7. Relative percent differences (RPD) in concentrations of primary environmental and quality-control sequential and split duplicate samples analyzed at the U.S. Geological Survey (USGS) National Water Quality Laboratory (NWQL) and Organic Geochemistry Research Laboratory (ORGL).—Continued

[Sample data is only shown if both results of the duplicate pair were above the reporting limit or one or both were reported as estimated (E) values; env., environmental; na, no relative percent difference (RPD) could be calculated because either one or both concentrations were below the reporting limit (reported as a "<" value); --, either or both concentrations for compound were below the reporting limit (complete results of analyses are presented in table 6); compounds in italics were analyzed at both laboratories; E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent]

Analyte	Killinger Creek 01573153			Conoy Creek 01574314		
	Concentration (µg/L)			Concentration (µg/L)		
	3/7/2006 1230,1231 primary env. sample	3/7/2006 1235,1236 duplicate sample	Relative percent difference	5/1/2006 1035,1036 primary env. sample	5/1/2006 1037,1038 duplicate sample	Relative percent difference
Compounds analyzed at the USGS NWQL						
Human and veterinary drugs						
Nonprescription pharmaceuticals						
Acetaminophen	0.098	0.083	17	0.029	0.030	3.4
Caffeine	4.75	6.12	25	.032	.035	9.0
Para-xanthine[1,2]	.853	.997	16	--	--	na
Codeine	.056	.064	13	--	--	na
Cotinine	.043	.055	22	E(1) .004	E(1) .005	22
Diphenhydramine	.066	.098	39	--	--	na
Prescription pharmaceuticals						
Carbamazepine	.079	.077	2.6	--	--	na
Dehydronifedipine	E(1) .006	E(1) .007	15	--	--	na
Diltiazem	E(3) .026	E(3) .039	40	--	--	na
Fluoxetine	--	--	na	--	--	na
Ranitidine	E(3) .019	E(3) .025	27	--	--	na
Salbutamol	E(2) .009	E(2) .010	10	--	--	na
Antibiotics						
Sulfamethoxazole	--	--	na	--	--	na
Trimethoprim	.105	.121	14	--	--	na
Compounds analyzed at the USGS OGRL						
Macrolide antibiotics						
Azithromycin	.239	.180	28	--	--	--
Erythromycin	.015	.017	12	--	--	na
Erythromycin-H_2O (anhydro-erythromycin)[1]	.025	.020	22	--	--	na
Tylosin	--	--	na	.025	.018	33
Quinoline antibiotics						
Ciprofloxacin	.075	.101	30	--	--	na
Ofloxacin	.171	.204	18	--	--	na
Sulfonamide antibiotics						
Sulfadiazine	.121	.164	30	--	--	na
Sulfamethoxazole	.355	.508	35	--	--	na
Other antibiotics						
Trimethoprim	.140	.153	8.9	--	--	na
Pharmaceuticals						
Carbamazepine	.164	.187	13	--	--	na
Ibuprofen	.277	.366	28	--	--	na

[1]Degradation product.

[2]Para-xanthine also known as 1,7 dimethylxanthine.

Table 8. Pharmaceutical and antibiotic recoveries in the laboratory-spiked environmental sample analyzed at the USGS National Water Quality Laboratory in Denver, Colorado.

[Less-than values were set equal to zero for calculations. E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(3), median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; <, less than; shading indicates detection in primary environmental sample and subsequent addition to the theoretical concentration]

Analyte	Concentration, in micrograms per liter				
	Primary environmental sample Middle Spring Creek 015693158 5/10/06 1030	Calculated concentration in spike	Theoretical concentration in laboratory-spiked environmental sample	Measured concentration in laboratory-spiked environmental sample, Middle Spring Creek 015693158 5/10/06 1035	Recovery, in percent
	A	B	(A + B) = C	D	(D/C) X 100
Human and veterinary drugs					
Nonprescription pharmaceuticals					
Acetaminophen	E(1) 0.008	0.257	0.265	0.269	100
Caffeine	< .015	.257	.257	.280	110
Para-xanthine[1,2]	< .021	.257	.257	.243	95
Codeine	.029	.257	.286	.293	100
Cotinine	E(1) .004	.257	.261	.251	96
Diphenhydramine	.071	.257	.328	.196	60
Prescription pharmaceuticals					
Carbamazepine	.108	.257	.365	.263	72
Dehydronifedipine	< .022	.257	.257	.299	120
Diltiazem	E(3) .032	.257	.289	E(3) .148	51
Fluoxetine	< .016	.257	.257	E(3) .009	3.5
Ranitidine	E(3) .051	.257	.308	E(3) .158	51
Salbutamol	E(1) .005	.257	.262	.264	100
Thiabendazole	< .025	.257	.257	.097	38
Warfarin	< .019	.257	.257	E(3) .229	89
Antibiotics					
Sulfamethoxazole	.552	.257	.809	.621	77
Trimethoprim	.117	.257	.374	.291	78

[1]Degradation product.

[2]Para-xanthine also known as 1,7 dimethylxanthine.

fluoxetine (all non-detects), ranitidine, and diltiazem in table 6 will be qualified as estimated values. The low recovery for thiabendazole in laboratory-spiked environmental samples is believed to be mainly because of field-matrix effects because mean long-term method performance has been acceptable for this compound (83 percent).

Tables 9 and 10 show calculated "apparent" recoveries or "matrix" effects of antibiotics and pharmaceuticals from samples analyzed at the OGRL that were collected at the upstream station at Snitz Creek on March 16, 2006 (table 9), and at the downstream station at Snitz Creek on May 1, 2006 (table 10). In general, laboratory-spiked environmental samples (matrix spikes) provide information to evaluate method sample performance in environmental matrices. The recovery data from laboratory-spiked environmental samples, in conjunction with surrogate standard recoveries, is also used by OGRL chemists to determine if standard addition will be run on the sample in a next tier of work to better quantify the results and provide a higher degree of certainty in the occurrence and concentration of the compounds.

The recoveries of the two laboratory-spiked environmental samples (tables 9 and 10) were generally within ±40 percent of the spiked concentration. Azithromycin, chloramphenicol, ibuprofen, lincomycin, ormetoprim, tylosin, and trimethoprim exhibited the widest variation in "apparent" recoveries or "matrix" effects with variations from 18 to 220 percent of the spiked concentrations. Because of refinements of data prior to release, using standard addition, no OGRL results need to be qualified (Michael Meyer, U.S. Geological Survey, oral commun., May 2007).

Laboratory Quality Control

Summary statistics for surrogate (carbamazepine-d10 and ethyl nicotinate-d4) spike recoveries by site type (and upstream and downstream) for samples collected for this study and long-term recoveries in NWQL reagent spikes are shown in table 11. Surrogate recoveries from laboratory reagent spikes (LRS) reflect the absence of any sample matrix components, such as dissolved organic matter, that can affect the recovery of the surrogates and, by extension, the ambient pharmaceuticals.

Overall, recoveries of carbamazepine-d10 and ethyl nicotinate-d4 in samples from this study were acceptable when compared to the long-term surrogates recoveries in LRS. In stream-water samples, mean and median carbamazepine-d10 recoveries decreased at sites downstream from municipal-wastewater effluents, which may reflect the effect of the wastewater matrix on carbamazepine-d10 recoveries. Also, standard deviations and relative standard deviations (relative standard deviation equal to the standard deviation divided by the mean surrogate recovery) of carbamazepine-d10 in samples collected upstream and downstream from municipal-wastewater effluents were within two and three standard deviations, respectively, from that seen in laboratory reagent spikes.

Stream water from the Killinger Creek downstream location had the lowest consistent surrogate carbamazepine-d10 recoveries for the study—an average of 44 percent recovery for the four seasonal samples—that could indicate positive or negative bias in reported concentrations in one or more compounds resulting from matrix effects. Carbamazepine-d10 recoveries in streams receiving runoff from animal-feeding operations did not demonstrate upstream versus downstream differences. Mean and median recoveries of ethyl nicotinate-d4 were relatively uniform in all stream-water samples. Recoveries of both surrogates were highest in well-water samples from wells in agricultural areas used to supply livestock and were equal to or better than the recoveries of the surrogate recoveries in LRS samples. Overall, the surrogate data for the samples in this study indicate that the method performed well (Edward Furlong, U.S. Geological Survey, oral commun., 2007).

Long-term mean recoveries and standard deviations for pharmaceutical and antibiotic compounds in LRSs varied by compound at the NWQL and OGRL. Summary statistics have been compiled for recoveries of method pharmaceuticals calculated from 157 LRSs extracted and analyzed over a 1-year period (May 3, 2005–May 4, 2006) at the NWQL. "Long-term mean" recoveries for NWQL reagent spikes for pharmaceutical and antibiotic compounds ranged from 22 to 92 percent; the maximum standard deviation was 21 percent. Reported long-term mean recoveries of individual compounds analyzed at the USGS NWQL should be considered when interpreting results because there is the potential for the actual concentrations to be higher than reported. Although this data set does not cover the period of sample analyses, similar performance is expected because the methodology remained unchanged during sample analyses (Edward Furlong, U.S. Geological Survey, written commun., August 14, 2007).

Long-term mean "apparent" recoveries for the 28 compounds analyzed at the USGS OGRL have been calculated for the period February 2006–December 2006 for 25 to 29 LRS samples. The long-term mean recoveries generally reflect the recoveries found in LRSs during sample analyses at the OGRL (Michael Meyer, U.S. Geological Survey, oral commun., August 21, 2007). The mean recoveries ranged from 82 to 134 percent of the expected spiked concentrations. The percent standard deviations ranged from 17 to 37 percent for 21 of the compounds. The percent standard deviation ranged from 42 to 93 percent for azithromycin, roxithromycin, tylosin, and virginiamycin (four macrolides); the percent standard deviation for sulfadiazine was 61 percent, which was the earliest eluting and lowest responding compound, and ibuprofen and chloramphenicol, the only two compounds analyzed in negative-ion mode, had percent standard deviations of 67 and 117 percent, respectively. As a research method, the analyzed compounds are being evaluated for 1) their environmental significance, 2) their method performance, and 3) the performance of specific compounds to the internal standards used for quantitation in varied matrices. Although the standard deviations for some of the compounds are larger than 40 percent, for the 4 macrolides, most of the increased deviation resulted from low values from

Table 9. Antibiotic and pharmaceutical recoveries in the laboratory-spiked environmental sample collected in March 2006 from Snitz Creek and analyzed at the U.S. Geological Survey Organic Geochemistry Research Laboratory in Lawrence, Kansas.

[Less-than values were set equal to zero for calculations. <, less than]

Analyte	Concentration, in micrograms per liter				
	Primary Environmental sample Snitz Creek 01574050 3/16/06 1031	Calculated concentration in spike	Theoretical concentration in laboratory-spiked environmental sample	Actual Concentration in laboratory-spiked environmental sample, Snitz Creek 01574050 3/16/06 1032	Recovery, in percent
	A	B	(A + B) = C	D	(D/C) X 100
Macrolide antibiotics					
Azithromycin	< 0.005	0.2	0.2	0.449	220
Total Erythromycin (parent and 1 degradate)	< .008	.2	.2	.152	76
Roxithromycin	< .005	.2	.2	.110	55
Tylosin	< .005	.2	.2	.108	54
Virginiamycin	< .005	.2	.2	.315	160
Quinoline antibiotics					
Ciprofloxacin	< .005	.2	.2	.308	150
Enrofloxacin	< .005	.2	.2	.183	92
Lomefloxacin	< .005	.2	.2	.295	150
Norfloxacin	< .005	.2	.2	.348	170
Ofloxacin	< .005	.2	.2	.328	160
Sarafloxacin	< .005	.2	.2	.237	120
Sulfonamide antibiotics					
Sulfachloropyridazine	< .005	.2	.2	.121	60
Sulfadiazine	< .050	.2	.2	.181	90
Sulfadimethoxine	< .005	.2	.2	.141	70
Sulfamethazine	< .005	.2	.2	.145	72
Sulfamethoxazole	< .005	.2	.2	.139	70
Sulfathiazole	< .020	.2	.2	.115	58
Tetracycline antibiotics and degradation products					
Total Chlorotetracycline (parent and 3 degradates)	< .010	.2	.2	.262	130
Doxycycline	< .010	.2	.2	.244	120
Oxytetracycline	< .010	.2	.2	.239	120
Tetracycline	< .010	.2	.2	.339	170
Other antibiotics					
Chloramphenicol	< .050	.2	.2	.071	36
Lincomycin	< .005	.2	.2	.035	18
Ormetoprim	< .005	.2	.2	.109	54
Trimethoprim	< .005	.2	.2	.088	44
Pharmaceuticals					
Carbamazepine	< .005	.2	.2	.111	56
Ibuprofen	< .050	.2	.2	.069	34

Table 10. Antibiotic and pharmaceutical recoveries in the laboratory-spiked environmental sample collected in May 2006 from Snitz Creek and analyzed at U.S. Geological Survey Organic Geochemistry Research Laboratory in Lawrence, Kansas.

[Less-than values were set equal to zero for calculations. <, less than; shading indicates detection in primary environmental sample and subsequent addition to the theoretical concentration]

Analyte	Concentration, in micrograms per liter				
	Primary environmental sample Snitz Creek 01574055 5/01/06 1246	Calculated concentration in spike	Theoretical concentration in laboratory-spiked environmental sample	Actual concentration in laboratory-spiked environmental sample, Snitz Creek 01574055 5/01/06 1247	Recovery, in percent
	A	B	(A + B) = C	D	(D/C) X 100
Macrolide antibiotics					
Azithromycin	< 0.005	0.2	0.2	0.106	53
Total Erythromycin (parent and 1 degradate)	< .008	.2	.2	.140	70
Roxithromycin	< .005	.2	.2	.170	85
Tylosin	.027	.2	.227	.365	160
Virginiamycin	< .005	.2	.2	.150	75
Quinoline antibiotics					
Ciprofloxacin	< .005	.2	.2	.219	110
Enrofloxacin	< .005	.2	.2	.288	140
Lomefloxacin	< .005	.2	.2	.166	83
Norfloxacin	< .005	.2	.2	.151	76
Ofloxacin	< .005	.2	.2	.186	93
Sarafloxacin	< .005	.2	.2	.189	94
Sulfonamide antibiotics					
Sulfachloropyridazine	< .005	.2	.2	.269	130
Sulfadiazine	< .050	.2	.2	.266	130
Sulfadimethoxine	< .005	.2	.2	.244	120
Sulfamethazine	< .005	.2	.2	.334	170
Sulfamethoxazole	< .005	.2	.2	.229	110
Sulfathiazole	< .020	.2	.2	.277	140
Tetracycline antibiotics and degradation products					
Total Chlorotetracycline (parent and 3 degradates)	< .010	.2	.2	.254	130
Doxycycline	< .010	.2	.2	.292	150
Oxytetracycline	< .010	.2	.2	.202	100
Tetracycline	< .010	.2	.2	.236	120
Other antibiotics					
Chloramphenicol	< .050	.2	.2	.155	78
Lincomycin	< .005	.2	.2	.107	54
Ormetoprim	< .005	.2	.2	.334	170
Trimethoprim	< .005	.2	.2	.338	170
Pharmaceuticals					
Carbamazepine	< .005	.2	.2	.289	140
Ibuprofen	< .050	.2	.2	.202	100

Table 11. Summary statistics for surrogate-spike recoveries by site type from samples collected for this study and from evaluation of long-term recoveries for U.S. Geological Survey National Water Quality Laboratory (NWQL) reagent spikes.

Surrogate spike compounds	Statistics	Long-term NWQL laboratory reagent spikes	Streams receiving municipal wastewater effluent		Streams receiving runoff from animal-feeding operations		Wells in agricultural areas used to supply livestock
			Upstream	Downstream	Upstream	Downstream	
		Recovery, in percent					
Carbamazepine-d10	Maximum	120	110	120	120	95	120
	Median	98	98	85	100	96	110
	Mean	98	94	79	96	95	110
	Minimum	80	55	34	64	66	92
	Standard deviation of recovery (percent)	7.4	15	22	12	10	6.9
	Relative standard deviation of recovery (percent)	7.6	16	28	13	10	6.5
Ethyl nicotinate-d4	Maximum	117	110	110	120	120	110
	Median	86	85	82	89	90	100
	Mean	85	87	81	89	92	100
	Minimum	51	72	47	61	75	88
	Standard deviation of recovery (percent)	13	7.7	15	12	10	6.6
	Relative standard deviation of recovery (percent)	15	8.8	19	13	11	6.6

4 to 6 of the 25 samples. The large deviation from the expected concentration for ibuprofen and chloramphenicol was generally because of underestimated concentrations. Because of the use of close monitoring of the matrix spiked samples, surrogate standards, and the use of standard addition, the data for these six compounds have not been qualified.

Concentrations of Selected Pharmaceuticals and Antibiotics

Water samples were analyzed for 14 pharmaceuticals and 2 antibiotics at the USGS NWQL and 2 pharmaceuticals and 31 antibiotics (including degradation products) at the USGS OGRL. Data for all sites sampled are shown in table 6 at the end of this report. Results from respective laboratories are distinguished in the table by analyzing-agency sample codes (NWQL or OGRL). The USGS NWQL has established a data reporting convention described in Childress and others (1999). A qualifying remark code ('E' = estimated) is used for semi-quantitative analytical results to denote the following:

- E(1) if concentration is below the long-term MDL (for information-rich methods only);
- E(2) if the concentration is greater than or equal to the long-term MDL but less than the MRL (lowest calibration standard is less than the MRL);
- E(3) if the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent,
- E(4) if data are reported above the MRL, but there was a failure in some aspect of lab quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed).

Two antibiotics, sulfamethoxazole and trimethoprim, and one pharmaceutical, carbamazepine, were part of both laboratory schedules; therefore, analyses were completed for 15 unique pharmaceuticals and 31 unique antibiotics. For the purposes of counting numbers of compounds detected over the course of the study, the antibiotics sulfamethoxazole and trimethoprim were counted as detected if they were detected at the OGRL regardless if they were detected at the NWQL. The detection limit for

these compounds was lower at the OGRL than at the NWQL and all the other antibiotics were analyzed at the OGRL. The pharmaceutical carbamazepine was counted as detected if it was detected a the NWQL regardless if it was detected at the OGRL. Except for ibuprofen, all pharmaceuticals were analyzed at the NWQL.

Water Quality in Streams

A statistical summary of the reported concentrations of compounds detected in samples from streams and a summary of the numbers of detections are shown in tables 12 and 13. Detections include estimated results and concentrations greater than the MRL. In these tables, counts of numbers of samples, numbers of detections, and statistics related to concentrations of analytes do not include data for Conoy Creek, because the downstream site did not include outflow from a wastewater-treatment plant. For each compound, there were 44 samples from upstream locations (20 samples from streams receiving municipal-wastewater effluent and 24 samples from streams receiving runoff from animal-feeding operations) and 44 samples from downstream locations (20 samples from streams receiving municipal-wastewater effluent and 24 samples from streams receiving runoff from animal-feeding operations). For the purpose of calculating medians, results reported as "less than" values were set equal to zero. For concentrations above the MRL and for estimated values, the actual concentration reported was used for determining the median. All assigned concentrations were ordered, and the median was selected.

In stream samples, 13 pharmaceuticals and 11 antibiotics were detected at least 1 time during the study. For pharmaceuticals, caffeine and para-xanthine (a degradation product of caffeine) had the largest concentrations (both in the same sample)—4.75 µg/L and 0.853 µg/L, respectively—followed by carbamazepine (OGRL) (0.516 µg/L) and ibuprofen (0.277 µg/L) (table 12). All of these pharmaceuticals were detected as maximum concentrations downstream of wastewater effluent. Although the pharmaceuticals acetaminophen, caffeine, cotinine, diphenhydramine, and carbamazepine were detected in some streams receiving runoff from animal-feeding operations, concentrations of these compounds were low (maximum concentration equalled 0.053 µg/L).

A summary of detections for the 88 stream-water samples (11 streams with samples at upstream and downstream locations over 4 seasons) is presented in table 13. The pharmaceutical carbamazepine was detected in 23 samples (6 detections from upstream locations and 17 detections from downstream locations). Caffeine was detected in 14 samples (3 detections from upstream locations and 11 detections from downstream locations). Diphenhydramine was detected in 14 samples (1 detection from an upstream location and 13 detections from downstream locations).

Azithromycin had the highest concentration analyzed for antibiotic compounds—1.65 µg/L—followed by sulfamethoxazole (1.34 µg/L), ofloxacin (0.329 µg/L), and trimethoprim (0.256 µg/L) (table 12). In some streams receiving runoff from animal-feeding operations, oxytetracycline, sulfadimethoxine, sulfamethoxazole, and tylosin were detected, but with one exception (sulfamethoxazole [OGRL—0.157 µg/L]), concentrations of antibiotics were low (maximum concentration of E(4) 0.039 µg/L).

The antibiotic sulfamethoxazole was detected in 21 samples (4 detections from upstream locations and 17 detections from downstream locations). Trimethoprim was detected in 17 samples (1 detection from an upstream location and 16 detections from downstream locations). Ofloxacin was detected in 17 samples (1 detection from an upstream location and 16 detections from downstream locations). Erythromycin-H_2O was detected in 12 samples (1 detection from an upstream location and 11 detections from downstream locations). Azithromycin was detected in 11 samples (11 detections from downstream locations).

Some compounds were not detected above the MRLs in any stream samples. The compounds not detected were two pharmaceuticals (fluoxetine and thiabendazole), and for the antibiotics, two macrolides (roxithromycin and virginiamycin), four quinolines (enrofloxacin, lomefloxacin, norfloxacin, and sarafloxacin), three sulfonamides (sulfachloropyridazine, sulfamethazine, and sulfathiazole), and all the tetracyclines and degradation products with the exception of oxytetracycline, chloramphenicol, lincomycin, and ormetoprim.

Water Quality in Wells

A statistical summary of the reported concentrations of compounds detected in samples collected at well-water sites sampled is shown in table 14. Four compounds were detected in well water over the course of the project. Two wells had one detection of two different pharmaceuticals, cotinine and diphenhydramine, which were detected at estimated concentrations under the compound MRLs, E(2) 0.024 µg/L and E(1) 0.003 µg/L, respectively. A third well had detections of the antibiotics tylosin (0.017 µg/L) and sulfamethoxazole (0.006 µg/L), and a fourth well had one detection of tylosin (0.012 µg/L). Two wells had no detections of any pharmaceutical or antibiotic compounds.

Water Quality at All Sites

Concentration maximums and minimums for compounds with detections, numbers of seasonal samples with detections, and number of compounds detected are shown in table 15 for individual streams and wells sampled. Seventy-eight percent of all detections were analyzed in samples collected downstream from municipal-wastewater effluents. At the downstream locations, Killinger Creek had the greatest number of pharmaceutical and antibiotic compounds detected in samples analyzed during the course of the study–20; followed by Lititz Run, 17; Middle Spring Creek, 14; Spring Creek, 12; and Mountain Creek, 6. Downstream locations with multiple maximum com-

Table 12. Summary statistics for concentrations of selected pharmaceuticals and antibiotics analyzed at the U.S. Geological Survey National Water Quality Laboratory and Organic Geochemistry Laboratory for stream-water sites, south-central Pennsylvania, 2006.

[Concentrations are in micrograms per liter; compounds in italics were analyzed by both laboratories; <, less than; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), data are reported above the minimum reporting level, but there was a failure in some aspect of laboratory quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed); --, not available; U, upstream; D, downstream]

Analyte	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Long-term mean recovery in laboratory reagent spikes, in percent	Standard deviation of percent recoveries in laboratory reagent spikes	Location	Number of samples (surface-water site types combined)[1]	Summary statistics: Streams receiving municipal-wastewater effluent[2] Minimum	Median	Maximum	Streams receiving runoff from animal-feeding operations Minimum	Median	Maximum
Compounds analyzed at the U.S. Geological Survey National Water Quality Laboratory												
Human and veterinary drugs												
Nonprescription pharmaceuticals												
Acetaminophen	0.012	0.024	67	14	U	44	< 0.024	< 0.024	0.048	< 0.024	< 0.024	< 0.024
	.012	.024			D	44	< .024	< .024	.098	< .024	< .024	E(2) .018
Caffeine	.008	.015	92	16	U	44	< .015	< .015	.065	< .015	< .015	.019
	.008	.015			D	44	< .015	< .015	4.75	< .015	< .015	.053
Para-xanthine[3,4]	.010	.021	84	21	U	44	< .021	< .021	E(2) .019	< .021	< .021	< .021
	.010	.021			D	44	< .021	< .021	.853	< .021	< .021	< .021
Codeine	.011	.022	77	11	U	44	< .022	< .022	< .022	< .022	< .022	< .022
	.011	.022			D	44	< .022	< .022	.155	< .022	< .022	< .022
Cotinine	.014	.028	92	11	U	44	< .028	< .028	E(1) .010	< .028	< .028	< .028
	.014	.028			D	44	< .028	< .028	.043	< .028	< .028	E(1) .007
Diphenhydramine	.012	.023	60	8	U	44	< .023	< .023	< .023	< .023	< .023	E(1) .010
	.012	.023			D	44	< .023	E(2) .014	.135	< .023	< .023	< .023
Prescription pharmaceuticals												
Carbamazepine	.009	.018	85	10	U	44	< .018	< .018	E(2) .009	< .018	< .018	E(4) .025
	.009	.018			D	44	< .018	.042	.276	< .018	< .018	E(1) .005
Dehydronifedipine	.011	.022	78	12	U	44	< .022	< .022	< .022	< .022	< .022	< .022
	.011	.022			D	44	< .022	< .022	E(2) .015	< .022	< .022	< .022
Diltiazem	.009	.018	37	15	U	44	< .018	< .018	< .018	< .018	< .018	< .018
	.009	.018			D	44	< .018	< .018	E(3) .079	< .018	< .018	< .018
Fluoxetine	--	.016	22	13	U	44	< .016	< .016	< .016	< .016	< .016	< .016
	--	.016			D	44	< .016	< .016	< .016	< .016	< .016	< .016
Ranitidine	--	.025	30	12	U	44	< .025	< .025	< .025	< .025	< .025	< .025
	--	.025			D	44	< .025	< .025	E(3) .051	< .025	< .025	< .025
Salbutamol	.007	.014	70	14	U	44	< .014	< .014	< .014	< .014	< .014	< .014
	.007	.014			D	44	< .014	< .014	E(2) .012	< .014	< .014	< .014
Thiabendazole	.012	.025	83	11	U	44	< .025	< .025	< .025	< .025	< .025	< .025
	.012	.025			D	44	< .025	< .025	< .025	< .025	< .025	< .025
Warfarin	.009	.019	53	17	U	44	< .019	< .019	< .019	< .019	< .019	< .019
	.009	.019			D	44	< .019	< .019	E(3) .030	< .019	< .019	< .019

Table 12. Summary statistics for concentrations of selected pharmaceuticals and antibiotics analyzed at the U.S. Geological Survey National Water Quality Laboratory and Organic Geochemistry Laboratory for stream-water sites, south-central Pennsylvania, 2006.—Continued

[Concentrations are in micrograms per liter; compounds in italics were analyzed by both laboratories; <, less than; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), data are reported above the minimum reporting level, but there was a failure in some aspect of laboratory quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed); --, not available; U, upstream; D, downstream]

Analyte	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Long-term mean recovery in laboratory reagent spikes, in percent	Standard deviation of percent recoveries in laboratory reagent spikes	Location	Number of samples (surface-water site types combined)[1]	Summary statistics					
							Streams receiving municipal-wastewater effluent[2]			Streams receiving runoff from animal-feeding operations		
							Minimum	Median	Maximum	Minimum	Median	Maximum
Antibiotics												
Sulfamethoxazole	0.012	0.024	74	11	U	44	< 0.024	< 0.024	E(2) 0.022	< 0.024	< 0.024	E(4) 0.039
	.012	.024			D	44	< .024	.025	0.552	< .024	< .024	E(1) .008
Trimethoprim	.010	.020	86	10	U	44	< .020	< .020	< .020	< .020	< .020	< .020
	.010	.020			D	44	< .020	E(2) .016	.117	< .020	< .020	< .020
Compounds analyzed at the U.S. Geological Survey Organic Geochemistry Research Laboratory												
Macrolide antibiotics												
Azithromycin	--	.005	100	93	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	.026	1.65	< .005	< .005	< .005
Erythromycin	--	.008	104	18	U	44	< .008	< .008	< .008	< .008	< .008	< .008
	--	.008			D	44	< .008	< .008	.016	< .008	< .008	< .008
Erythromycin-H_20[3]	--	.008	115	37	U	44	< .008	< .008	.011	< .008	< .008	< .008
	--	.008			D	44	< .008	.012	.168	< .008	< .008	< .008
Roxithromycin	--	.005	95	49	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	< .005
Tylosin	--	.005	136	70	U	44	< .005	< .005	.009	< .005	< .005	.017
	--	.005			D	44	< .005	< .005	.023	< .005	< .005	.027
Virginiamycin	--	.005	108	42	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	< .005
Quinoline antibiotics												
Ciprofloxacin	--	.005	94	18	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	.182	< .005	< .005	< .005
Enrofloxacin	--	.005	98	27	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	< .005
Lomefloxacin	--	.005	99	20	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	< .005
Norfloxacin	--	.005	94	22	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	< .005
Ofloxacin	--	.005	100	22	U	44	< .005	< .005	.006	< .005	< .005	< .005
	--	.005			D	44	< .005	.020	.329	< .005	< .005	< .005
Sarafloxacin	--	.005	96	17	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	< .005

Table 12. Summary statistics for concentrations of selected pharmaceuticals and antibiotics analyzed at the U.S. Geological Survey National Water Quality Laboratory and Organic Geochemistry Laboratory for stream-water sites, south-central Pennsylvania, 2006.—Continued

[Concentrations are in micrograms per liter; compounds in italics were analyzed by both laboratories; <, less than; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), data are reported above the minimum reporting level, but there was a failure in some aspect of laboratory quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed); --, not available; U, upstream; D, downstream]

Analyte	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Long-term mean recovery in laboratory reagent spikes, in percent	Standard deviation of percent recoveries in laboratory reagent spikes	Location	Number of samples (surface-water site types combined)[1]	Summary statistics					
							Streams receiving municipal-wastewater effluent[2]			Streams receiving runoff from animal-feeding operations		
							Minimum	Median	Maximum	Minimum	Median	Maximum
Sulfonamide antibiotics												
Sulfachloropyridazine	--	0.005	110	21	U	44	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	< .005
Sulfadiazine	--	.050	134	61	U	44	< .050	< .050	< .050	< .050	< .050	< .050
	--	.050			D	44	< .050	< .050	.121	< .050	< .050	< .050
Sulfadimethoxine	--	.005	112	25	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	.026
Sulfamethazine	--	.005	111	30	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	< .005
Sulfamethoxazole	--	.005	122	28	U	44	< .005	< .005	.067	< .005	< .005	.157
	--	.005			D	44	< .005	.120	1.34	< .005	< .005	.019
Sulfathiazole	--	.020	97	27	U	44	< .020	< .020	< .020	< .020	< .020	< .020
	--	.020			D	44	< .020	< .020	< .020	< .020	< .020	< .020
Tetracycline antibiotics and degradation products												
Chlorotetracycline	--	.010	Chlorotetra-cycline, total = 103	Chlorotetra-cycline, total = 36	U	44	< .010	< .010	< .010	< .010	< .010	< .010
	--	.010			D	44	< .010	< .010	< .010	< .010	< .010	< .010
Epi-chlorotetracycline (4-EC-tetracycline HCl)[3]	--	.010			U	44	< .010	< .010	< .010	< .010	< .010	< .010
	--	.010			D	44	< .010	< .010	< .010	< .010	< .010	< .010
Epi-iso-chlorotetracycline (Iso-epi-chlorotetracycline)[3]	--	.010			U	44	< .010	< .010	< .010	< .010	< .010	< .010
	--	.010			D	44	< .010	< .010	< .010	< .010	< .010	< .010
Iso-chlorotetracycline[3]	--	.010			U	44	< .010	< .010	< .010	< .010	< .010	< .010
	--	.010			D	44	< .010	< .010	< .010	< .010	< .010	< .010
Doxycycline	--	.010	104	32	U	44	< .010	< .010	< .010	< .010	< .010	< .010
	--	.010			D	44	< .010	< .010	< .010	< .010	< .010	< .010
Oxytetracycline	--	.010	85	33	U	44	< .010	< .010	.040	< .010	< .010	< .010
	--	.010			D	44	< .010	< .010	.010	< .010	< .010	.020
Epi-oxytetracycline (4-Epi-oxytetracycline)[3]	--	.010	-	-	U	44	< .010	< .010	< .010	< .010	< .010	< .010
	--	.010			D	44	< .010	< .010	< .010	< .010	< .010	< .010
Tetracyclines	--	.010	89	21	U	44	< .010	< .010	< .010	< .010	< .010	< .010
	--	.010			D	44	< .010	< .010	< .010	< .010	< .010	< .010
Epi-tetracycline (4-Epi-tetrecycline HCl)[3]	--	.010	-	-	U	44	< .010	< .010	< .010	< .010	< .010	< .010
	--				D	44	< .010	< .010	< .010	< .010	< .010	< .010

Table 12. Summary statistics for concentrations of selected pharmaceuticals and antibiotics analyzed at the U.S. Geological Survey National Water Quality Laboratory and Organic Geochemistry Laboratory for stream-water sites, south-central Pennsylvania, 2006.—Continued

[Concentrations are in micrograms per liter; compounds in italics were analyzed by both laboratories; <, less than; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), data are reported above the minimum reporting level, but there was a failure in some aspect of laboratory quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed); --, not available; U, upstream; D, downstream]

Analyte	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Long-term mean recovery in laboratory reagent spikes, in percent	Standard deviation of percent recoveries in laboratory reagent spikes	Location	Number of samples (surface-water site types combined)[1]	Summary statistics					
							Streams receiving municipal-wastewater effluent[2]			Streams receiving runoff from animal-feeding operations		
							Minimum	Median	Maximum	Minimum	Median	Maximum
Other antibiotics												
Chloramphenicol	--	.050	82	117	U	44	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	--	.050			D	44	< .050	< .050	< .050	< .050	< .050	< .050
Lincomycin	--	.005	100	37	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	< .005
Ormetoprim	--	.005	83	34	U	44	< .005	< .005	< .005	< .005	< .005	< .005
	--	.005			D	44	< .005	< .005	< .005	< .005	< .005	< .005
Trimethoprim	--	.005	85	32	U	44	< .005	< .005	.015	< .005	< .005	< .005
	--	.005			D	44	< .005	.034	.256	< .005	< .005	< .005
Pharmaceuticals												
Carbamazepine	--	.005	98	25	U	44	< .005	< .005	.013	< .005	< .005	.021
	--	.005			D	44	< .005	.054	.516	< .005	< .005	.005
Ibuprofen	--	.050	87	67	U	44	< .050	< .050	< .050	< .050	< .050	< .050
	--	.050			D	44	< .050	< .050	.277	< .050	< .050	< .050

[1]Count does not include samples collected at upstream and downstream locations on Conoy Creek. The downstream site at Conoy Creek did not receive outflow from a wastewater-treatment plant.

[2]Does not include results from samples collected at upstream and downstream locations on Conoy Creek. The downstream site at Conoy Creek did not receive outflow from a wastewater-treatment plant.

[3]Degradation product.

[4]Para-xanthine also known as 1,7 dimethylxanthine.

Table 13. Summary of numbers of detections for selected pharmaceuticals and antibiotics for stream-water sites, south-central Pennsylvania, 2006.

[Compounds in italics were analyzed by both laboratories; <, less than; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); U, upstream; D, downstream]

Analyte	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Location	Number of samples (surface-water site types combined)[1]	Detections (E-coded or above the minimum reporting level)		
					Number of detections [2]	Number of detections from streams receiving municipal wastewater effluent[2]	Number of detections from streams receiving runoff from animal-feeding operations
Compounds analyzed at the U.S. Geological Survey National Water Quality Laboratory							
Nonprescription pharmaceuticals							
Acetaminophen	0.012	0.024	U	44	1	1	0
	.012	.024	D	44	9	5	4
Caffeine	.008	.015	U	44	3	1	2
	.008	.015	D	44	11	7	4
Para-xanthine[3,4]	.010	.021	U	44	1	1	0
	.010	.021	D	44	1	1	0
Codeine	.011	.022	U	44	0	0	0
	.011	.022	D	44	9	9	0
Cotinine	.014	.028	U	44	1	1	0
	.014	.028	D	44	9	7	2
Diphenhydramine	.012	.023	U	44	1	0	1
	.012	.023	D	44	13	13	0
Prescription pharmaceuticals							
Carbamazepine	.009	.018	U	44	5	1	4
	.009	.018	D	44	18	16	2
Dehydronifedipine	.011	.022	U	44	0	0	0
	.011	.022	D	44	4	4	0
Diltiazem	.009	.018	U	44	0	0	0
	.009	.018	D	44	10	10	0
Fluoxetine	--	.016	U	44	0	0	0
	--	.016	D	44	0	0	0
Ranitidine	--	.025	U	44	0	0	0
	--	.025	D	44	6	6	0
Salbutamol	.007	.014	U	44	0	0	0
	.007	.014	D	44	4	4	0
Thiabendazole	.012	.025	U	44	0	0	0
	.012	.025	D	44	0	0	0
Warfarin	.009	.019	U	44	0	0	0
	.009	.019	D	44	1	1	0
Antibiotics							
Sulfamethoxazole	.012	.024	U	44	2	1	1
	.012	.024	D	44	15	13	2
Trimethoprim	.010	.020	U	44	0	0	0
	.010	.020	D	44	12	12	0

Table 13. Summary of numbers of detections for selected pharmaceuticals and antibiotics for stream-water sites, south-central Pennsylvania, 2006.—Continued

[Compounds in italics were analyzed by both laboratories; <, less than; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); U, upstream; D, downstream]

Analyte	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Location	Number of samples (surface-water site types combined)[1]	Detections (E-coded or above the minimum reporting level)		
					Number of detections [2]	Number of detections from streams receiving municipal wastewater effluent[2]	Number of detections from streams receiving runoff from animal-feeding operations
Compounds analyzed at the U.S. Geological Survey Organic Geochemistry Research Laboratory							
Macrolide antibiotics							
Azithromycin	--	0.005	U	44	0	0	0
	--	.005	D	44	11	11	0
Erythromycin	--	.008	U	44	0	0	0
	--	.008	D	44	5	5	0
Erythromycin-H_20[3]	--	.008	U	44	1	1	0
	--	.008	D	44	11	11	0
Roxithromycin	--	.005	U	44	0	0	0
	--	.005	D	44	0	0	0
Tylosin	--	.005	U	44	2	1	1
	--	.005	D	44	5	3	2
Virginiamycin	--	.005	U	44	0	0	0
	--	.005	D	44	0	0	0
Quinoline antibiotics							
Ciprofloxacin	--	.005	U	44	0	0	0
	--	.005	D	44	7	7	0
Enrofloxacin	--	.005	U	44	0	0	0
	--	.005	D	44	0	0	0
Lomefloxacin	--	.005	U	44	0	0	0
	--	.005	D	44	0	0	0
Norfloxacin	--	.005	U	44	0	0	0
	--	.005	D	44	0	0	0
Ofloxacin	--	.005	U	44	1	1	0
	--	.005	D	44	16	16	0
Sarafloxacin	--	.005	U	44	0	0	0
	--	.005	D	44	0	0	0
Sulfonamide antibiotics							
Sulfachloropyridazine	--	.005	U	44	0	0	0
	--	.005	D	44	0	0	0
Sulfadiazine	--	.050	U	44	0	0	0
	--	.050	D	44	1	1	0
Sulfadimethoxine	--	.005	U	44	0	0	0
	--	.005	D	44	2	0	2
Sulfamethazine	--	.005	U	44	0	0	0
	--	.005	D	44	0	0	0
Sulfamethoxazole	--	.005	U	44	4	2	2
	--	.005	D	44	17	16	1
Sulfathiazole	--	.020	U	44	0	0	0
	--	.020	D	44	0	0	0

Table 13. Summary of numbers of detections for selected pharmaceuticals and antibiotics for stream-water sites, south-central Pennsylvania, 2006.—Continued

[Compounds in italics were analyzed by both laboratories; <, less than; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); U, upstream; D, downstream]

Analyte	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Location	Number of samples (surface-water site types combined)[1]	Detections (E-coded or above the minimum reporting level)		
					Number of detections [2]	Number of detections from streams receiving municipal wastewater effluent[2]	Number of detections from streams receiving runoff from animal-feeding operations
Tetracycline antibiotics and degradation products							
Chlorotetracycline	--	0.010	U	44	0	0	0
	--	.010	D	44	0	0	0
Epi-chlorotetracycline (4-EC-tetracycline HCl)[3]	--	.010	U	44	0	0	0
	--	.010	D	44	0	0	0
Epi-iso-chlorotetracycline (Iso-epi-chlorotetracycline)[3]	--	.010	U	44	0	0	0
	--	.010	D	44	0	0	0
Iso-chlorotetracycline[3]	--	.010	U	44	0	0	0
	--	.010	D	44	0	0	0
Doxycycline	--	.010	U	44	0	0	0
	--	.010	D	44	0	0	0
Oxytetracycline	--	.010	U	44	1	1	0
	--	.010	D	44	2	1	1
Epi-oxytetracycline (4-Epi-oxytetracycline)[3]	--	.010	U	44	0	0	0
	--	.010	D	44	0	0	0
Tetracyclines	--	.010	U	44	0	0	0
	--	.010	D	44	0	0	0
Epi-tetracycline (4-Epi-tetracycline HCl)[3]	--	.010	U	44	0	0	0
	--	.010	D	44	0	0	0
Other antibiotics							
Chloramphenicol	--	.050	U	44	0	0	0
	--	.050	D	44	0	0	0
Lincomycin	--	.005	U	44	0	0	0
	--	.005	D	44	0	0	0
Ormetoprim	--	.005	U	44	0	0	0
	--	.005	D	44	0	0	0
Trimethoprim	--	.005	U	44	1	1	0
	--	.005	D	44	16	16	0
Pharmaceuticals							
Carbamazepine	--	.005	U	44	6	3	3
	--	.005	D	44	17	16	1
Ibuprofen	--	.050	U	44	0	0	0
	--	.050	D	44	1	1	0

[1]Count does not include samples collected at upstream and downstream locations on Conoy Creek. The downstream site at Conoy Creek did not receive outflow from a wastewater-treatment plant.

[2]Does not include results from samples collected at upstream and downstream locations on Conoy Creek. The downstream site at Conoy Creek did not receive outflow from a wastewater-treatment plant.

[3]Degradation product.

[4]Para-xanthine also known as 1,7 dimethylxanthine.

Table 14. Summary statistics for concentrations and numbers of detections of pharmaceuticals and antibiotics analyzed at the U.S. Geological Survey National Water Quality and Organic Geochemistry Research Laboratories for well-water sites, south-central Pennsylvania, 2006.

[Compounds in italics were analyzed by both laboratories; <, less than; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); --, not available]

Analyte	Number of samples	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Number of detections	Long-term mean recovery in laboratory reagent spikes, in percent	Standard deviation of percent recoveries in laboratory reagent spikes	Concentrations, in micrograms per liter		
							Wells in agricultural areas used to supply livestock		
							Minimum	Median	Maximum
Compounds analyzed at the U.S. Geological Survey National Water Quality Laboratory									
Human and veterinary drugs									
Nonprescription pharmaceuticals									
Acetaminophen	24	0.012	0.024	0	67	14	< 0.024	< 0.024	< 0.024
Caffeine	24	.008	.015	0	92	16	< .015	< .015	< .015
Para-xanthine[1,2]	24	.010	.021	0	84	21	< .021	< .021	< .021
Codeine	24	.011	.022	0	77	11	< .022	< .022	< .022
Cotinine	24	.014	.028	1	92	11	< .028	< .028	E(2) .024
Diphenhydramine	24	.012	.023	1	60	8	< .023	< .023	E(1) .003
Prescription pharmaceuticals									
Carbamazepine	24	.009	.018	0	85	10	< .018	< .018	< .018
Dehydronifedipine	24	.011	.022	0	78	12	< .022	< .022	< .022
Diltiazem	24	.009	.018	0	37	15	< .018	< .018	< .018
Fluoxetine	24	--	.016	0	22	13	< .016	< .016	< .016
Ranitidine	24	--	.025	0	30	12	< .025	< .025	< .025
Salbutamol	24	.007	.014	0	70	14	< .014	< .014	< .014
Thiabendazole	24	.012	.025	0	83	11	< .025	< .025	< .025
Warfarin	24	.009	.019	0	53	17	< .019	< .019	< .019
Antibiotics									
Sulfamethoxazole	24	.012	.024	0	74	11	< .024	< .024	< .024
Trimethoprim	24	.010	.020	0	86	10	< .020	< .020	< .020
Compounds analyzed at the U.S. Geological Survey Organic Geochemistry Research Laboratory									
Macrolide antibiotics									
Azithromycin	24	--	.005	0	100	93	< .005	< .005	< .005
Erythromycin	24	--	.008	0	104	18	< .008	< .008	< .008
Erythromycin-H_20[1]	24	--	.008	0	115	37	< .008	< .008	< .008
Roxithromycin	24	--	.005	0	95	49	< .005	< .005	< .005
Tylosin	24	--	.005	2	136	70	< .005	< .005	.017
Virginiamycin	24	--	.005	0	108	42	< .005	< .005	< .005
Quinoline antibiotics									
Ciprofloxacin	24	--	.005	0	94	18	< .005	< .005	< .005
Enrofloxacin	24	--	.005	0	98	27	< .005	< .005	< .005
Lomefloxacin	24	--	.005	0	99	20	< .005	< .005	< .005
Norfloxacin	24	--	.005	0	94	22	< .005	< .005	< .005
Ofloxacin	24	--	.005	0	100	22	< .005	< .005	< .005
Sarafloxacin	24	--	.005	0	96	17	< .005	< .005	< .005
Sulfonamide antibiotics									
Sulfachloropyridazine	24	--	.005	0	110	21	< .005	< .005	< .005
Sulfadiazine	24	--	.050	0	134	61	< .050	< .050	< .050
Sulfadimethoxine	24	--	.005	0	112	25	< .005	< .005	< .005
Sulfamethazine	24	--	.005	0	111	30	< .005	< .005	< .005
Sulfamethoxazole	24	--	.005	1	122	28	< .005	< .005	.006
Sulfathiazole	24	--	.020	0	97	27	< .020	< .020	< .020

Table 14. Summary statistics for concentrations and numbers of detections of pharmaceuticals and antibiotics analyzed at the U.S. Geological Survey National Water Quality and Organic Geochemistry Research Laboratories for well-water sites, south-central Pennsylvania, 2006.

[Compounds in italics were analyzed by both laboratories; <, less than; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); --, not available]

Analyte	Number of samples	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Number of detections	Long-term mean recovery in laboratory reagent spikes, in percent	Standard deviation of percent recoveries in laboratory reagent spikes	Concentrations, in micrograms per liter		
							Wells in agricultural areas used to supply livestock		
							Minimum	Median	Maximum
Tetracycline antibiotics and degradation products									
Chlorotetracycline	24	--	0.010	0	Chlorotetracycline, total = 103	Chlorotetracycline, total = 36	< 0.010	< 0.010	< 0.010
Epi-chlorotetracycline (4-EC-tetracycline HCl)[1]	24	--	.010	0			< .010	< .010	< .010
Epi-iso-chlorotetracycline (Iso-epi-chlorotetracycline)[1]	24	--	.010	0			< .010	< .010	< .010
Iso-chlorotetracycline[1]	24	--	.010	0			< .010	< .010	< .010
Doxycycline	24	--	.010	0	104	32	< .010	< .010	< .010
Oxytetracycline	24	--	.010	0	85	33	< .010	< .010	< .010
Epi-oxytetracycline (4-Epi-oxytetracycline)[1]	24	--	.010	0	-		< .010	< .010	< .010
Tetracyclines	24	--	.010	0	89	21	< .010	< .010	< .010
Epi-tetracycline (4-Epi-tetracycline HCl)[1]	24	--	.010	0	-	-	< .010	< .010	< .010
Other antibiotics									
Chloramphenicol	24	--	.050	0	82	117	< .050	< .050	< .050
Lincomycin	24	--	.005	0	100	37	< .005	< .005	< .005
Ormetoprim	24	--	.005	0	83	34	< .005	< .005	< .005
Trimethoprim	24	--	.005	0	85	32	< .005	< .005	< .005
Pharmaceuticals									
Carbamazepine	24	--	.005	0	98	25	< .005	< .005	< .005
Ibuprofen	24	--	.050	0	87	67	< .050	< .050	< .050

[1]Degradation product.

[2]Para-xanthine also known as 1.7 dimethylxanthine.

pound concentrations for the study were Killinger Creek–16 compounds, Middle Spring Creek–4 compounds, and Lititz Run–2 compounds. For sites downstream from animal-feeding operations, Snitz Creek had the greatest number of compounds detected in samples analyzed, 8; followed by Little Chickies Creek, 4; and Muddy Run, 3. Three Square Hollow Run, Trout Run, and Bachman Run had one detection each.

Stream-water sites upstream from municipal-wastewater effluent outfalls had either no compounds detected (Spring and Middle Spring Creeks) or fewer compounds detected than at downstream locations. Oxytetracycline, however, had the maximum concentration for the study (0.038 µg/L) in a sample collected from the upstream site at Lititz Run.

Even though Conoy Creek did not receive municipal wastewater effluent, three pharmaceuticals (acetaminophen, caffeine, cotinine) and one antibiotic (tylosin) were detected in 50 to 100 percent of the samples collected at both upstream and downstream locations. The maximum concentrations for the project for acetaminophen (0.35 µg/L) and tylosin (0.030 µg/L) were analyzed in samples collected at the upstream location on Conoy Creek. Determination of the source(s) of these contaminants is not within the scope of this report.

Numbers of Detections of Compounds by Season

Over the course of the study, four samples were collected at each site to assess changes in concentration resulting from seasonal use of human or veterinary pharmaceuticals and antibiotics. Samples were collected in March/April (considered winter sample), May (spring sample), July (summer sample), and September (fall sample). At four streams, at least one compound was detected in all four seasonal samples (table 15). The Middle Spring Creek downstream location had nine compounds (four antibiotics, five pharmaceuticals) that were detected in every sample. The Killinger Creek downstream location had six compounds (five antibiotics, one pharmaceutical) that were detected in every sample. The Lititz Run downstream location had four compounds (three antibiotics, one pharmaceutical) that were detected in every sample. Other compounds were detected at these sites, but not in every seasonal sample. At other streams, like the Trout Run and Three Square Hollow downstream locations, pharmaceutical or antibiotic compounds were only detected in one of the seasonal samples.

The number of detections and total numbers of compounds detected in seasonal samples collected for streams receiving municipal wastewater effluent and streams receiving runoff from animal-feeding operations are shown in table 16; results for Conoy Creek are not included in this table. For total number of compounds detected, carbamazepine was counted only if detected at the NWQL; sulfamethoxazole and trimethoprim were counted only if detected at the OGRL.

Seasonal occurrence of pharmaceutical and antibiotic compounds in stream water varied by compound and stream-water site type (table 16). Erythromycin-H_20 was the only antibiotic degradation product detected for the study; it was detected twice as often as the parent compound in most of the seasonal samples collected from streams receiving municipal-wastewater effluent. Samples collected during the winter period from streams receiving municipal-wastewater effluent had the greatest number of compounds detected (21).

For well-water samples, seasonal distributions for the number of detections and the number of compounds detected are shown in table 17. The total number of detections in well water was very low; tylosin was detected two times in winter samples, cotinine and sulfamethoxazole were each detected one time in fall samples, and diphenhydramine was detected one time in summer samples.

Table 15. Concentration ranges of compounds with detections, numbers of seasonal samples with detections of specific compounds, and number of compounds detected by site.

[Statistic: Max, maximum concentration; min, minimum concentration; Numb, number of seasonal samples having detections of the compound (for example, "4" indicates the compound was detected in all four seasonal samples). --, no detections; <, less than; bolding indicates maximum concentration for project; shading indicates one or more detections (above minimum reporting level or E-coded [estimated]); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), the concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), data are reported above the minimum reporting level, but there was a failure in some aspect of laboratory quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed)]

U.S. Geological Survey station identification number	Stream or well name	Location	Number of compounds detected March-September	Statistic	Concentration, in micrograms per liter													
					Acetaminophen	Anhydro-erythromycin (erythromycin-H_2O)	Azithromycin	Caffeine	Carbamazepine (OGRL)	Carbamazepine (NWQL)	Ciprofloxacin	Codeine	Cotinine	Dehydronifedipine	Diltiazem	Diphenhydramine	Erythromycin	Ibuprofen
Stream sites upstream and downstream from municipal-wastewater effluents																		
01470857	Spring Creek	U	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
01470858		D	12	Max	E(1) 0.007	0.016	0.031	0.022	0.026	0.019	--	E(1) 0.007	E(1) 0.004	--	E(3) 0.005	0.024	--	--
				Min	< .024	< .008	< .005	< .015	< .005	< .018	--	< .022	< .028	--	< .018	< .023	--	--
				Numb	1	1	1	3	3	3	--	2	2	--	1	3	--	--
015693155	Middle Spring Creek	U	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
015693158		D	14	Max	E(1) .008	.081	**1.65**	--	.152	.13	.021	.031	E(1) .004	--	E(3) .065	.071	--	--
				Min	< .024	< .008	.078	--	.086	.05	< .005	E(1) .010	< .028	--	E(3) .023	E(2) .013	--	--
				Numb	1	3	4	--	4	4	2	4	1	--	4	4	--	--
01571193	Mountain Creek	U	1	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
01571195		D	6	Max	--	--	--	.015	.005	E(2) .009	--	--	-	--	--	--	--	--
				Min	--	--	--	< .015	< .005	< .018	--	--	-	--	--	--	--	--
				Numb	--	--	--	1	1	1	--	--	-	--	--	--	--	--
01573151	Killinger Creek	U	6	Max	.048	--	--	.065	.011	E(2) .009	--	--	E(1) .010	--	--	--	--	--
				Min	< .024	--	--	< .015	< .005	< .018	--	--	< .028	--	--	--	--	--
				Numb	1	--	--	1	2	1	--	--	1	--	--	--	--	--
01573153		D	20	Max	.098	**.168**	.686	**4.75**	**.516**	**.276**	**.182**	**.155**	**.043**	**E(2) 0.015**	**E(3) .079**	**.135**	.015	**0.277**
				Min	< .024	.008	.021	< .015	.045	.030	< .005	< .022	< .028	< .022	< .018	< .023	< .008	< .050
				Numb	2	4	4	3	4	4	3	2	2	3	3	3	3	1
01574310	Conoy Creek[1]	U	4	Max	**.35**	--	--	.060	--	--	--	--	E(1) .005	--	--	--	--	--
				Min	< .024	--	--	.019	--	--	--	--	< .028	--	--	--	--	--
				Numb	3	--	--	4	--	--	--	--	2	--	--	--	--	--
01574314		D	4	Max	.029	--	--	.363	--	--	--	--	E(2) .017	--	--	--	--	--
				Min	E(1) .005	--	--	.015	--	--	--	--	< .028	--	--	--	--	--
				Numb	4	--	--	4	--	--	--	--	2	--	--	--	--	--
01576420	Lititz Run	U	6	Max	--	.011	--	--	.013	--	--	--	--	--	--	--	--	--
				Min	--	< .008	--	--	< .005	--	--	--	--	--	--	--	--	--
				Numb	--	1	--	--	1	--	--	--	--	--	--	--	--	--
01576422		D	17	Max	E(1) .009	.152	.44	--	.142	.139	.015	.040	E(1) .008	E(1) .005	E(3) .043	.036	**.016**	--
				Min	< .024	< .008	< .005	--	.054	.040	< .005	< .022	< .028	< .022	< .018	< .023	< .008	--
				Numb	1	3	2	--	4	4	2	1	2	1	2	3	2	--

[1]The downstream site at Conoy Creek did not receive outflow from a wastewater-treatment plant.

Table 15. Concentration ranges of compounds with detections, numbers of seasonal samples with detections of specific compounds, and number of compounds detected by site.—Continued

[Statistic: Max, maximum concentration; min, minimum concentration; Numb, number of seasonal samples having detections of the compound (for example, "4" indicates the compound was detected in all four seasonal samples). --, no detections; <, less than; bolding indicates maximum concentration for project; shading indicates one or more detections (above minimum reporting level or E-coded [estimated]); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), the concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), data are reported above the minimum reporting level, but there was a failure in some aspect of laboratory quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed)]

U.S. Geological Survey station identification number	Stream or well name	Location	Number of compounds detected March-September	Statistic	Concentration, in micrograms per liter													
					Acetaminophen	Anhydro-erythromycin (erythromycin-H_2O)	Azithromycin	Caffeine	Carbamazepine (OGRL)	Carbamazepine (NWQL)	Ciprofloxacin	Codeine	Cotinine	Dehydronifedipine	Diltiazem	Diphenhydramine	Erythromycin	Ibuprofen
Stream sites upstream and downstream from animal-feeding operations																		
01569346	Three Square Hollow Run	U	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
01569349		D	1	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
01572146	Trout Run	U	1	Max	--	--	--	--	--	--	--	--	--	--	--	E(1) 0.010	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	< .023	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	1	--	--
01572148		D	1	Max	E(2) 0.018	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	< .024	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	1	--	--	--	--	--	--	--	--	--	--	--	--	--
401704076293101	Bachman Run	U	2	Max	--	--	--	0.019	0.009	E(2) 0.010	--	--	--	--	--	--	--	--
				Min	--	--	--	< .015	< .005	< .018	--	--	--	--	--	--	--	--
				Numb	--	--	--	1	1	2	--	--	--	--	--	--	--	--
01573095		D	1	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
01574050	Snitz Creek	U	4	Max	--	--	--	.016	.021	E(4) .025	--	--	--	--	--	--	--	--
				Min	--	--	--	< .015	< .005	< .018	--	--	--	--	--	--	--	--
				Numb	--	--	--	1	2	2	--	--	--	--	--	--	--	--
01574055		D	8	Max	E(1) .003	--	--	.053	--	E(1) .005	--	--	E(1) 0.007	--	--	--	--	--
				Min	< .024	--	--	< .015	--	< .018	--	--	< .028	--	--	--	--	--
				Numb	1	--	--	3	--	1	--	--	1	--	--	--	--	--
01575771	Little Chickies Creek	U	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
015757724		D	4	Max	E(1) .004	--	--	.018	--	E(1) .005	--	--	--	--	--	--	--	--
				Min	< .024	--	--	< .015	--	< .018	--	--	--	--	--	--	--	--
				Numb	1	--	--	1	--	1	--	--	--	--	--	--	--	--
01578349	Muddy Run	U	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
015783492		D	3	Max	E(1) .009	--	--	--	.005	--	--	--	E(1) .007	--	--	--	--	--
				Min	< .024	--	--	--	< .005	--	--	--	< .028	--	--	--	--	--
				Numb	1	--	--	--	1	--	--	--	1	--	--	--	--	--

Table 15. Concentration ranges of compounds with detections, numbers of seasonal samples with detections of specific compounds, and number of compounds detected by site.—Continued

[Statistic: Max, maximum concentration; min, minimum concentration; Numb, number of seasonal samples having detections of the compound (for example, "4" indicates the compound was detected in all four seasonal samples). --, no detections; <, less than; bolding indicates maximum concentration for project; shading indicates one or more detections (above minimum reporting level or E-coded [estimated]); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), the concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), data are reported above the minimum reporting level, but there was a failure in some aspect of laboratory quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed)]

U.S. Geological Survey station identification number	Stream or well name	Location	Number of compounds detected March-September	Statistic	Concentration, in micrograms per liter													
					Acetaminophen	Anhydro-erythromycin (erythromycin-H_2O)	Azithromycin	Caffeine	Carbamazepine (OGRL)	Carbamazepine (NWQL)	Ciprofloxacin	Codeine	Cotinine	Dehydronifedipine	Diltiazem	Diphenhydramine	Erythromycin	Ibuprofen
Wells in agricultural areas used to supply water to livestock																		
394643077043101	AD 653	-	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
400610076282501	LN 2114	-	1	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
401712076235101	LB 1248	-	2	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--	--
401920078130101	HU 426	-	1	Max	--	--	--	--	--	--	--	--	--	--	--	E(1) 0.003	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	< .023	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	1	--	--
402052076160101	LB 1249	-	1	Max	--	--	--	--	--	--	--	--	E(2) 0.024	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	< .028	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	1	--	--	--	--	--
405931076555601	UN 205	-	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 15. Concentration ranges of compounds with detections, numbers of seasonal samples with detections of specific compounds, and number of compounds detected by site.—Continued

[Statistic: Max, maximum concentration; min, minimum concentration; Numb, number of seasonal samples having detections of the compound (for example, "4" indicates the compound was detected in all four seasonal samples). --, no detections; <, less than; bolding indicates maximum concentration for project; shading indicates one or more detections (above minimum reporting level or E-coded [estimated]); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), the concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), data are reported above the minimum reporting level, but there was a failure in some aspect of laboratory quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed)]

U.S. Geological Survey station identification number	Stream or well name	Location	Number of compounds detected March-September	Statistic	Concentration, in micrograms per liter												
					Ofloxacin	Oxytetracycline	P-Xanthine	Ranitidine	Salbutamol	Sulfadiazine	Sulfadimethoxine	Sulfamethoxazole (NWQL)	Sulfamethoxazole (OGRL)	Trimethoprim (NWQL)	Trimethoprim (OGRL)	Tylosin	Warfarin
Stream sites upstream and downstream from municipal-wastewater effluents																	
01470857	Spring Creek	U	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
01470858		D	12	Max	0.012	--	--	--	--	--	--	0.212	0.148	E(2) 0.019	0.022	--	--
				Min	< .005	--	--	--	--	--	--	< .024	< .005	< .020	< .005	--	--
				Numb	3	--	--	--	--	--	--	3	3	3	3	--	--
015693155	Middle Spring Creek	U	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
015693158		D	14	Max	.032	--	--	**E(3) 0.051**	E(1) 0.005	--	--	**.552**	.766	**.117**	.123	--	--
				Min	.009	--	--	E(3) .007	< .014	--	--	< .027	.110	.023	.030	--	--
				Numb	4	--	--	4	2	--	--	3	4	4	4	--	--
01571193	Mountain Creek	U	1	Max	--	--	--	--	--	--	--	--	--	--	--	0.009	--
				Min	--	--	--	--	--	--	--	--	--	--	--	< .005	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	1	--
01571195		D	6	Max	.005	--	--	--	--	--	--	E(1) .006	.023	--	.009	.023	--
				Min	< .005	--	--	--	--	--	--	< .024	< .005	--	< .005	< .005	--
				Numb	1	--	--	--	--	--	--	1	1	--	1	1	--
01573151	Killinger Creek	U	6	Max	--	--	E(2) 0.019	--	--	--	--	E(2) .022	.013	--	--	--	--
				Min	--	--	< .021	--	--	--	--	< .024	< .005	--	--	--	--
				Numb	--	--	1	--	--	--	--	1	1	--	--	--	--
01573153		D	20	Max	**.329**	--	**.853**	E(3) .040	**E(2) .012**	**.121**	--	E(4) .218	**1.34**	.106	**.256**	--	--
				Min	.062	--	< .021	< .025	< .014	< .050	--	< .024	.042	< .020	.033	--	--
				Numb	4	--	1	2	2	1	--	2	4	2	4	--	--
01574310	Conoy Creek[1]	U	4	Max	--	--	--	--	--	--	--	--	--	--	--	**.030**	--
				Min	--	--	--	--	--	--	--	--	--	--	--	< .005	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	3	--
01574314		D	4	Max	--	--	--	--	--	--	--	--	--	--	--	.025	--
				Min	--	--	--	--	--	--	--	--	--	--	--	< .005	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	3	--
01576420	Lititz Run	U	6	Max	.006	**0.038**	--	--	--	--	--	--	.067	--	.015	--	--
				Min	< .005	< .010	--	--	--	--	--	--	< .005	--	< .005	--	--
				Numb	1	1	--	--	--	--	--	--	1	--	1	--	--
01576422		D	17	Max	.069	.015	--	--	--	--	--	.262	.142	.060	.106	.007	E(3) .030
				Min	.023	< .010	--	--	--	--	--	E(4) .030	.108	< .020	.034	< .005	< .019
				Numb	4	1	--	--	--	--	--	4	4	3	4	2	1

[1]The downstream site at Conoy Creek did not receive outflow from a wastewater-treatment plant.

Table 15. Concentration ranges of compounds with detections, numbers of seasonal samples with detections of specific compounds, and number of compounds detected by site.—Continued

[Statistic: Max, maximum concentration; min, minimum concentration; Numb, number of seasonal samples having detections of the compound (for example, "4" indicates the compound was detected in all four seasonal samples). --, no detections; <, less than; bolding indicates maximum concentration for project; shading indicates one or more detections (above minimum reporting level or E-coded [estimated]); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), the concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), data are reported above the minimum reporting level, but there was a failure in some aspect of laboratory quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed)]

U.S. Geological Survey station identification number	Stream or well name	Location	Number of compounds detected March-September	Statistic	Concentration, in micrograms per liter													
					Ofloxacin	Oxytetracycline	P-Xanthine	Ranitidine	Salbutamol	Sulfadiazine	Sulfadimethoxine	Sulfamethoxazole (NWQL)	Sulfamethoxazole (OGRL)	Trimethoprim (NWQL)	Trimethoprim (OGRL)	Tylosin	Warfarin
Stream sites upstream and downstream from animal-feeding operations																		
01569346	Three Square Hollow Run	U	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
01569349		D	1	Max	--	--	--	--	--	--	--	--	--	--	--	0.007	--
				Min	--	--	--	--	--	--	--	--	--	--	--	< .005	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	1	--
01572146	Trout Run	U	1	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
01572148		D	1	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
401704076293101	Bachman Run	U	2	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
01573095		D	1	Max	--	--	--	--	--	--	--	E(1) 0.008	--	--	--	--	--
				Min	--	--	--	--	--	--	--	< .024	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	1	--	--	--	--	--
01574050	Snitz Creek	U	4	Max	--	--	--	--	--	--	--	E(4) .039	0.157	--	--	.017	--
				Min	--	--	--	--	--	--	--	< .024	< .005	--	--	< .005	--
				Numb	--	--	--	--	--	--	--	1	2	--	--	1	--
01574055		D	8	Max	--	0.019	--	--	--	--	0.005	E(1) .006	.019	--	--	.027	--
				Min	--	< 0.010	--	--	--	--	< .005	< .024	< .005	--	--	< .005	--
				Numb	--	1	--	--	--	--	1	1	1	--	--	1	--
01575771	Little Chickies Creek	U	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
015757724		D	4	Max	--	--	--	--	--	--	**.026**	--	--	--	--	--	--
				Min	--	--	--	--	--	--	< .005	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	1	--	--	--	--	--	--
01578349	Muddy Run	U	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
015783492		D	3	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 15. Concentration ranges of compounds with detections, numbers of seasonal samples with detections of specific compounds, and number of compounds detected by site.—Continued

[Statistic: Max, maximum concentration; min, minimum concentration; Numb, number of seasonal samples having detections of the compound (for example, "4" indicates the compound was detected in all four seasonal samples). --, no detections; <, less than; bolding indicates maximum concentration for project; shading indicates one or more detections (above minimum reporting level or E-coded [estimated]); E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), the concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), data are reported above the minimum reporting level, but there was a failure in some aspect of laboratory quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed)]

U.S. Geological Survey station identification number	Stream or well name	Location	Number of compounds detected March-September	Statistic	Concentration, in micrograms per liter												
					Ofloxacin	Oxytetracycline	P-Xanthine	Ranitidine	Salbutamol	Sulfadiazine	Sulfadimethoxine	Sulfamethoxazole (NWQL)	Sulfamethoxazole (OGRL)	Trimethoprim (NWQL)	Trimethoprim (OGRL)	Tylosin	Warfarin
Wells in agricultural areas used to supply water to livestock																	
394643077043101	AD 653	-	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
400610076282501	LN 2114	-	1	Max	--	--	--	--	--	--	--	--	--	--	--	0.012	--
				Min	--	--	--	--	--	--	--	--	--	--	--	< .005	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	1	--
401712076235101	LB 1248	-	2	Max	--	--	--	--	--	--	--	--	0.006	--	--	.017	--
				Min	--	--	--	--	--	--	--	--	< .005	--	--	< .005	--
				Numb	--	--	--	--	--	--	--	--	1	--	--	1	--
401920078130101	HU 426	-	1	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
402052076160101	LB 1249	-	1	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--
405931076555601	UN 205	-	0	Max	--	--	--	--	--	--	--	--	--	--	--	--	--
				Min	--	--	--	--	--	--	--	--	--	--	--	--	--
				Numb	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 16. Summary of numbers of detections by season at stream-water sites sampled, south-central Pennsylvania, 2006.

[Compounds in italics were analyzed by both laboratories; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); E-coded values are greater than the method detection limit but less than the minimum reporting level and are coded as estimated because of lower precision; --, not available]

Analyte	Number of samples[1,2]	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Number of detections							
				Streams receiving municipal-wastewater effluent[2]				Streams receiving runoff from animal-feeding operations			
				Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
Compounds analyzed at the U.S. Geological Survey National Water Quality Laboratory											
Human and veterinary drugs											
Nonprescription pharmaceuticals											
Acetaminophen	88	0.012	0.024	3	3	0	0	3	1	0	0
Caffeine	88	.008	.015	3	2	0	3	0	3	2	1
Para-xanthine[3,4]	88	.010	.021	2	0	0	0	0	0	0	0
Codeine	88	.011	.022	3	4	1	1	0	0	0	0
Cotinine	88	.014	.028	4	4	0	0	1	1	0	0
Diphenhydramine	88	.012	.023	4	4	3	2	0	0	1	0
Prescription pharmaceuticals											
Carbamazepine	88	.009	.018	4	4	4	5	0	2	1	3
Dehydronifedipine	88	.011	.022	1	1	0	2	0	0	0	0
Diltiazem	88	.009	.018	2	3	4	1	0	0	0	0
Fluoxetine	88	--	.016	0	0	0	0	0	0	0	0
Ranitidine	88	--	.025	2	2	1	1	0	0	0	0
Salbutamol	88	.007	.014	1	2	1	0	0	0	0	0
Thiabendazole	88	.012	.025	0	0	0	0	0	0	0	0
Warfarin	88	.009	.019	0	0	0	1	0	0	0	0
Antibiotics											
Sulfamethoxazole	88	.012	.024	2	3	4	5	0	0	0	3
Trimethoprim	88	.010	.020	4	4	3	1	0	0	0	0
Compounds analyzed at the U.S. Geological Survey Organic Geochemistry Research Laboratory											
Macrolide antibiotics											
Azithromycin	88	--	.005	2	3	3	3	0	0	0	0
Erythromycin	88	--	.008	2	2	0	1	0	0	0	0
Erythromycin-H_20[3]	88	--	.008	4	4	2	2	0	0	0	0
Roxithromycin	88	--	.005	0	0	0	0	0	0	0	0
Tylosin	88	--	.005	3	1	0	0	1	2	0	0
Virginiamycin	88	--	.005	0	0	0	0	0	0	0	0
Quinoline antibiotics											
Ciprofloxacin	88	--	.005	2	1	1	3	0	0	0	0
Enrofloxacin	88	--	.005	0	0	0	0	0	0	0	0
Lomefloxacin	88	--	.005	0	0	0	0	0	0	0	0
Norfloxacin	88	--	.005	0	0	0	0	0	0	0	0
Ofloxacin	88	--	.005	4	4	5	4	0	0	0	0
Sarafloxacin	88	--	.005	0	0	0	0	0	0	0	0
Sulfonamide antibiotics											
Sulfachloropyridazine	88	--	.005	0	0	0	0	0	0	0	0
Sulfadiazine	88	--	.050	1	0	0	0	0	0	0	0
Sulfadimethoxine	88	--	.005	0	0	0	0	0	0	1	1
Sulfamethazine	88	--	.005	0	0	0	0	0	0	0	0
Sulfamethoxazole	88	--	.005	4	4	5	5	0	0	1	2
Sulfathiazole	88	--	.020	0	0	0	0	0	0	0	0

Table 16. Summary of numbers of detections by season at stream-water sites sampled, south-central Pennsylvania, 2006.—Continued

[Compounds in italics were analyzed by both laboratories; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); E-coded values are greater than the method detection limit but less than the minimum reporting level and are coded as estimated because of lower precision; --, not available]

Analyte	Number of samples[1,2]	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Number of detections							
				Streams receiving municipal-wastewater effluent[2]				Streams receiving runoff from animal-feeding operations			
				Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
Tetracycline antibiotics and degradation products											
Chlorotetracycline	88	--	0.010	0	0	0	0	0	0	0	0
Epi-chlorotetracycline (4-EC-tetracycline HCl)[3]	88	--	.010	0	0	0	0	0	0	0	0
Epi-iso-chlorotetracycline (Iso-epi-chlorotetracycline)[3]	88	--	.010	0	0	0	0	0	0	0	0
Iso-chlorotetracycline[3]	88	--	.010	0	0	0	0	0	0	0	0
Doxycycline	88	--	.010	0	0	0	0	0	0	0	0
Oxytetracycline	88	--	.010	0	0	0	2	1	0	0	0
Epi-oxytetracycline (4-Epi-oxytetracycline)[3]	88	--	.010	0	0	0	0	0	0	0	0
Tetracyclines	88	--	.010	0	0	0	0	0	0	0	0
Epi-tetracycline (4-Epi-tetracycline HCl)[3]	88	--	.010	0	0	0	0	0	0	0	0
Other antibiotics											
Chloramphenicol	88	--	.050	0	0	0	0	0	0	0	0
Lincomycin	88	--	.005	0	0	0	0	0	0	0	0
Ormetoprim	88	--	.005	0	0	0	0	0	0	0	0
Trimethoprim	88	--	.005	5	4	4	4	0	0	0	0
Pharmaceuticals											
Carbamazepine	88	--	.005	4	5	4	6	0	1	2	1
Ibuprofen	88	--	.050	1	0	0	0	0	0	0	0
Number of pharmaceutical compounds detected				12	10	6	8	2	4	3	2
Number of antibiotic compounds detected				9	8	6	8	2	1	2	2
Total number of compounds detected				21	18	12	16	4	5	5	4

[1]Twenty-two sites were sampled four times per year.

[2]Count does not include samples collected at upstream and downstream locations on Conoy Creek. The downstream site at Conoy Creek did not receive outflow from a wastewater-treatment plant.

[3]Degradation product.

[4]Para-xanthine also known as 1,7 dimethylxanthine.

Table 17. Summary of numbers of detections by season at well-water sites sampled, south-central Pennsylvania, 2006.

[Compounds in italics were analyzed by both laboratories; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); E-coded values are greater than the method detection limit but less than the minimum reporting level and are coded as estimated because of lower precision; --, not available]

Analyte	Number of samples	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Number of detections			
				Winter	Spring	Summer	Fall
Compounds analyzed at the U.S. Geological Survey National Water Quality Laboratory							
Human and veterinary drugs							
Nonprescription pharmaceuticals							
Acetaminophen	24	0.012	0.024	0	0	0	0
Caffeine	24	.008	.015	0	0	0	0
Para-xanthine[1,2]	24	.010	.021	0	0	0	0
Codeine	24	.011	.022	0	0	0	0
Cotinine	24	.014	.028	0	0	0	1
Diphenhydramine	24	.012	.023	0	0	1	0
Prescription pharmaceuticals							
Carbamazepine	24	.009	.018	0	0	0	0
Dehydronifedipine	24	.011	.022	0	0	0	0
Diltiazem	24	.009	.018	0	0	0	0
Fluoxetine	24	--	.016	0	0	0	0
Ranitidine	24	--	.025	0	0	0	0
Salbutamol	24	.007	.014	0	0	0	0
Thiabendazole	24	.012	.025	0	0	0	0
Warfarin	24	.009	.019	0	0	0	0
Antibiotics							
Sulfamethoxazole	24	.012	.024	0	0	0	0
Trimethoprim	24	.010	.020	0	0	0	0
Compounds analyzed at the U.S. Geological Survey Organic Geochemistry Research Laboratory							
Macrolide antibiotics							
Azithromycin	24	--	.005	0	0	0	0
Erythromycin	24	--	.008	0	0	0	0
Erythromycin-H_20[1]	24	--	.008	0	0	0	0
Roxithromycin	24	--	.005	0	0	0	0
Tylosin	24	--	.005	2	0	0	0
Virginiamycin	24	--	.005	0	0	0	
Quinoline antibiotics							
Ciprofloxacin	24	--	.005	0	0	0	0
Enrofloxacin	24	--	.005	0	0	0	0
Lomefloxacin	24	--	.005	0	0	0	0
Norfloxacin	24	--	.005	0	0	0	0
Ofloxacin	24	--	.005	0	0	0	0
Sarafloxacin	24	--	.005	0	0	0	0
Sulfonamide antibiotics							
Sulfachloropyridazine	24	--	.005	0	0	0	0
Sulfadiazine	24	--	.050	0	0	0	0
Sulfadimethoxine	24	--	.005	0	0	0	0
Sulfamethazine	24	--	.005	0	0	0	0
Sulfamethoxazole	24	--	.005	0	0	0	1
Sulfathiazole	24	--	.020	0	0	0	0

Table 17. Summary of numbers of detections by season at well-water sites sampled, south-central Pennsylvania, 2006.—Continued

[Compounds in italics were analyzed by both laboratories; shading indicates one or more detections (E-coded [estimated] or above minimum reporting level); E-coded values are greater than the method detection limit but less than the minimum reporting level and are coded as estimated because of lower precision; --, not available]

Analyte	Number of samples	Method detection limit, in micrograms per liter	Minimum reporting level, in micrograms per liter	Number of detections			
				Winter	Spring	Summer	Fall
Tetracycline antibiotics and degradation products							
Chlorotetracycline	24	--	0.010	0	0	0	0
Epi-chlorotetracycline (4-EC-tetracycline HCl)[1]	24	--	.010	0	0	0	0
Epi-iso-chlorotetracycline (Iso-epi-chlorotetracycline)[1]	24	--	.010	0	0	0	0
Iso-chlorotetracycline[1]	24	--	.010	0	0	0	0
Doxycycline	24	--	.010	0	0	0	0
Oxytetracycline	24	--	.010	0	0	0	0
Epi-oxytetracycline (4-Epi-oxytetracycline)[1]	24	--	.010	0	0	0	0
Tetracyclines	24	--	.010	0	0	0	0
Epi-tetracycline (4-Epi-tetracycline HCl)[1]	24	--	.010	0	0	0	0
Other antibiotics							
Chloramphenicol	24	--	.050	0	0	0	0
Lincomycin	24	--	.005	0	0	0	0
Ormetoprim	24	--	.005	0	0	0	0
Trimethoprim	24	--	.005	0	0	0	0
Pharmaceuticals							
Carbamazepine	24	--	.005	0	0	0	0
Ibuprofen	24	--	.050	0	0	0	0
Total number of pharmaceutical compounds detected				0	0	1	1
Total number of antibiotic compounds detected				1	0	0	1
Total number of compounds detected				1	0	1	2

[1]Degradation product.

[2]Para-xanthine also known as 1,7 dimethylxanthine.

Summary

Data are presented for pharmaceuticals and antibiotics from 11 stream sites and 6 wells in 9 counties of south-central Pennsylvania. Five of the streams received municipal wastewater and 6 of the streams received runoff from agricultural areas containing animal-feeding operations. For all 11 streams, samples were collected at locations upstream and downstream of the wastewater effluents or animal-feeding operations. A sixth stream, Conoy Creek, was originally in the project design as a stream receiving municipal wastewater, but it was learned during the project that effluent from the municipal treatment plant is piped to the Susquehanna River and not discharged to Conoy Creek. For this reason, Conoy Creek data are presented only as a background site.

There were 120 environmental samples and 21 quality-control samples analyzed for the study. Samples were collected one time at each site in March/April, May, July, and September 2006. Samples were analyzed for 15 pharmaceutical and 31 antibiotic compounds.

In stream samples, 13 pharmaceuticals and 11 antibiotics were detected at least 1 time. Considering all detections as the assessment levels, carbamazepine was the most frequently detected pharmaceutical in streams receiving municipal-wastewater effluent and streams receiving runoff from animal-feeding operations, followed by caffeine and diphenhydramine. Caffeine and para-xanthine (a degradation product of caffeine) had the greatest concentrations of pharmaceutical compounds analyzed for the study, 4.75 µg/L and 0.853 µg/L, respectively. Sulfamethoxazole was the most frequently detected antibiotic followed by trimethoprim, ofloxacin, erythromycin-H_20, and azithromycin. Azithromycin and sulfamethoxazole had the largest concentrations for antibiotic compounds, 1.65 µg/L and 1.34 µg/L, respectively.

Seventy-eight percent of all detections were analyzed in samples collected downstream from municipal-wastewater effluents. Detections of compounds collected at sites downstream, and in some cases upstream, from agricultural areas with animal-feeding operations were few.

Four compounds were detected in wells used to supply livestock–two pharmaceuticals (cotinine and diphenhydramine) and two antibiotics (tylosin and sulfamethoxazole). There were five detections in all well samples–three wells had one detection, and one well had detections of two different compounds. The maximum concentration detected in well water was E(2) 0.024 µg/L for cotinine.

Seasonal occurrence of pharmaceutical and antibiotic compounds in stream water varied by compound and site type. At five stream sites, several compounds were detected in all four seasonal samples. The Middle Spring Creek downstream location had the most compounds that were detected in every sample–nine compounds (four antibiotics, five pharmaceuticals). At other sites, pharmaceutical or antibiotic compounds were detected only one time in seasonal samples. Winter samples collected in streams receiving municipal-wastewater effluent had the greatest number (21) of compounds detected.

Research analytical methods were used to determine concentrations for pharmaceuticals and antibiotics. To assist in evaluating the quality of the analyses, detailed information is presented on laboratory methodology and results from quality-control samples. Quality-control data include results for nine blanks, nine duplicate-environmental sample pairs, and three laboratory-spiked environmental samples as well as recoveries of compounds in laboratory surrogates and laboratory reagent spikes. Quality-control data indicate that several issues should be considered when evaluating the reported data.

1. Mean recoveries for the surrogate carbamazepine d-10 decreased at sites downstream from municipal-wastewater effluents, which may indicate matrix effects that could result in positive or negative bias in reported concentrations in one or more compounds.
2. Results for fluoxetine (all non-detects), ranitidine, warfarin, and diltiazem are qualified because of low long-term mean recoveries in laboratory reagent spikes.
3. Reported long-term mean recoveries of individual compounds analyzed at the USGS NWQL should be considered if interpreting results because there is the potential for the actual concentrations to be higher than reported.
4. Because of close monitoring of laboratory-spiked environmental samples, surrogate standards, and the use of standard addition, none of the data from samples analyzed at the USGS OGRL will be qualified.

Acknowledgments

The cooperation of Robert Titler, and Arianne Proctor of the Pennsylvania Department of Environmental Protection is gratefully acknowledged. Julie Dietze is acknowledged for graciously responding to inquiries throughout the course of the study. Jeffrey Bender, Heather Eggleston, David O'Brien, Mark Roland, Joanne Irvin, Dennis Low, John Nantz, and Linda Zarr of the USGS assisted with streamflow measurements, sample processing, or data management. Scott Hoffman of the USGS provided the Geographic Information System support. USGS reviewers Kevin Breen, Cherie Miller, Andrew Reif, Mark Burkhardt, and Stephen Werner offered valuable suggestions for improving the report. Finally, the authors wish to extend thanks to the landowners and wastewater treatment plant managers who graciously allowed access to the wells or streams.

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Table 6. Field chemistry and conditions, pharmaceutical, and antibiotic data, March to September 2006.

[Compounds are listed alphabetically; shading indicates duplicate samples, duplicate samples are paired with bolded samples collected on the same day and sent to the same laboratory; time offset of one minute used to separate NWQL data from OGRL data for environmental samples collected at the same site on the same day; ft^3/s, cubic feet per second; mm Hg, millimeters of mercury; mg/L, milligrams per liter; NWQL, National Water Quality Laboratory; OGRL, Organic Geochemistry Research Laboratory; µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; µg/L, micrograms per liter; fltrd, filtered; <, less than; E(1), concentration is below the long-term method detection limit (for information-rich methods only); E(2), concentration is greater than or equal to the long-term method detection limit but less than the minimum reporting level (lowest calibration standard is less than the minimum reporting level); E(3), the median long-term recovery of the compound is between 30 and 60 percent or the relative standard deviation of long-term recoveries was greater than 25 percent; E(4), if data are reported above the minimum reporting level, but there was a failure in some aspect of lab quality control (for example, the laboratory-spike or surrogate recoveries were low and the sample could not be re-analyzed)]

Station number	Station name	Date	Time	Agency analyzing sample	Instantaneous discharge (ft^3/s) (P00061)	Barometric pressure (mm HG) (00025)	Dissolved oxygen (mg/L) (00300)
01470857	Spring Creek near Wernersville, Pa.	20060306	1130	NWQL	29	755	14.6
01470857	Spring Creek near Wernersville, Pa.	20060306	1131	OGRL	29	755	14.6
01470857	Spring Creek near Wernersville, Pa.	20060508	1215	NWQL	20	758	11.5
01470857	Spring Creek near Wernersville, Pa.	20060508	1216	OGRL	20	758	11.5
01470857	Spring Creek near Wernersville, Pa.	20060720	1130	NWQL	31	—	9.2
01470857	Spring Creek near Wernersville, Pa.	20060720	1131	OGRL	31	—	9.2
01470857	Spring Creek near Wernersville, Pa.	20060918	1235	NWQL	30	754	9.5
01470857	Spring Creek near Wernersville, Pa.	20060918	1236	OGRL	30	754	9.5
01470858	Spring Creek near Brownsville, Pa.	20060306	1300	NWQL	25	754	15.0
01470858	Spring Creek near Brownsville, Pa.	20060306	1301	OGRL	25	754	15.0
01470858	Spring Creek near Brownsville, Pa.	20060508	1100	NWQL	25	—	11.3
01470858	Spring Creek near Brownsville, Pa.	20060508	1101	OGRL	25	—	11.3
01470858	Spring Creek near Brownsville, Pa.	20060720	1030	NWQL	33	—	9.0
01470858	Spring Creek near Brownsville, Pa.	20060720	1031	OGRL	33	—	9.0
01470858	**Spring Creek near Brownsville, Pa.**	**20060918**	**1120**	**NWQL**	31	**758**	**9.5**
01470858	**Spring Creek near Brownsville, Pa.**	**20060918**	**1121**	**OGRL**	31	**758**	**9.5**
01470858	Spring Creek near Brownsville, Pa.	20060918	1125	NWQL	—	—	—
01470858	Spring Creek near Brownsville, Pa.	20060918	1126	OGRL	—	—	—
015693155	Middle Spring Creek at College at Shippensburg, Pa.	20060313	1100	NWQL	12	—	13.1
015693155	Middle Spring Creek at College at Shippensburg, Pa.	20060313	1101	OGRL	12	—	13.1
015693155	Middle Spring Creek at College at Shippensburg, Pa.	20060510	1145	NWQL	8.3	745	11.7
015693155	Middle Spring Creek at College at Shippensburg, Pa.	20060510	1146	OGRL	8.3	745	11.7
015693155	Middle Spring Creek at College at Shippensburg, Pa.	20060706	1130	NWQL	25	747	10.7
015693155	Middle Spring Creek at College at Shippensburg, Pa.	20060706	1135	OGRL	25	747	10.7
015693155	Middle Spring Creek at College at Shippensburg, Pa.	20060919	1020	NWQL	8.0	743	9.1
015693155	Middle Spring Creek at College at Shippensburg, Pa.	20060919	1021	OGRL	8.0	743	9.1
015693158	Middle Spring Cr ab Burd Run bl Shippensburg, Pa.	20060313	1300	NWQL	14	740	14.3
015693158	Middle Spring Cr ab Burd Run bl Shippensburg, Pa.	20060313	1301	OGRL	14	740	14.3
015693158	Middle Spring Cr ab Burd Run bl Shippensburg, Pa.	20060510	1030	NWQL	11	744	11.3
015693158	**Middle Spring Cr ab Burd Run bl Shippensburg, Pa.**	**20060510**	**1031**	**OGRL**	11	**744**	**11.3**
015693158	Middle Spring Cr ab Burd Run bl Shippensburg, Pa.	20060510	1036	OGRL	—	—	—
015693158	**Middle Spring Cr ab Burd Run bl Shippensburg, Pa.**	**20060706**	**1020**	**NWQL**	30	**746**	**10.3**
015693158	**Middle Spring Cr ab Burd Run bl Shippensburg, Pa.**	**20060706**	**1025**	**OGRL**	30	**746**	**10.3**
015693158	Middle Spring Cr ab Burd Run bl Shippensburg, Pa.	20060706	1030	NWQL	—	—	—
015693158	Middle Spring Cr ab Burd Run bl Shippensburg, Pa.	20060706	1035	OGRL	—	—	—
015693158	Middle Spring Cr ab Burd Run bl Shippensburg, Pa.	20060919	1200	NWQL	11	743	8.9
015693158	Middle Spring Cr ab Burd Run bl Shippensburg, Pa.	20060919	1201	OGRL	11	743	8.9
01571193	Mountain Creek at Mill Street at Mt Holly Springs, Pa.	20060405	1600	NWQL	37	—	13.8
01571193	Mountain Creek at Mill Street at Mt Holly Springs, Pa.	20060405	1601	OGRL	37	—	13.8
01571193	Mountain Creek at Mill Street at Mt Holly Springs, Pa.	20060516	1210	NWQL	132	740	10.7
01571193	Mountain Creek at Mill Street at Mt Holly Springs, Pa.	20060516	1211	OGRL	132	740	10.7
01571193	Mountain Creek at Mill Street at Mt Holly Springs, Pa.	20060726	1500	NWQL	33	748	8.6
01571193	Mountain Creek at Mill Street at Mt Holly Springs, Pa.	20060726	1501	OGRL	33	748	8.6

Station number	Station name	Date	Time	Agency analyzing sample	Instantaneous discharge (ft^3/s) (P00061)	Barometric pressure (mm HG) (00025)	Dissolved oxygen (mg/L) (00300)
01571193	Mountain Creek at Mill Street at Mt Holly Springs, Pa.	20060905	1105	NWQL	24	754	9.5
01571193	Mountain Creek at Mill Street at Mt Holly Springs, Pa.	20060905	1106	OGRL	24	754	9.5
01571195	Mountain Creek at Mt Zion at Mt Holly Springs, Pa.	20060405	1800	NWQL	40	—	13.2
01571195	Mountain Creek at Mt Zion at Mt Holly Springs, Pa.	20060405	1801	OGRL	40	—	13.2
01571195	Mountain Creek at Mt Zion at Mt Holly Springs, Pa.	20060516	1050	NWQL	147	741	10.8
01571195	Mountain Creek at Mt Zion at Mt Holly Springs, Pa.	20060516	1051	OGRL	147	741	10.8
01571195	Mountain Creek at Mt Zion at Mt Holly Springs, Pa.	20060726	1600	NWQL	32	748	8.8
01571195	Mountain Creek at Mt Zion at Mt Holly Springs, Pa.	20060726	1601	OGRL	32	748	8.8
01571195	Mountain Creek at Mt Zion at Mt Holly Springs, Pa.	20060905	0950	NWQL	24	754	9.3
01571195	Mountain Creek at Mt Zion at Mt Holly Springs, Pa.	20060905	0951	OGRL	24	754	9.3
01573151	Killinger Creek US Treatment Plant nr Annville, Pa.	20060307	1415	NWQL	5.1	757	17.1
01573151	Killinger Creek US Treatment Plant nr Annville, Pa.	20060307	1416	OGRL	5.1	757	17.1
01573151	Killinger Creek US Treatment Plant nr Annville, Pa.	20060503	1040	NWQL	.73	751	9.9
01573151	Killinger Creek US Treatment Plant nr Annville, Pa.	20060503	1041	OGRL	.73	751	9.9
01573151	Killinger Creek US Treatment Plant nr Annville, Pa.	20060719	1110	NWQL	21	757	9.7
01573151	Killinger Creek US Treatment Plant nr Annville, Pa.	20060719	1111	OGRL	21	757	9.7
01573151	Killinger Creek US Treatment Plant nr Annville, Pa.	20060913	1100	NWQL	.39	758	10.7
01573151	Killinger Creek US Treatment Plant nr Annville, Pa.	20060913	1101	OGRL	.39	758	10.7
01573153	**Killinger Creek DS Treatment Plant nr Annville, Pa.**	**20060307**	**1230**	**NWQL**	6.1	**759**	**14.7**
01573153	**Killinger Creek DS Treatment Plant nr Annville, Pa.**	**20060307**	**1231**	**OGRL**	6.1	**759**	**14.7**
01573153	Killinger Creek DS Treatment Plant nr Annville, Pa.	20060307	1235	NWQL	—	—	—
01573153	Killinger Creek DS Treatment Plant nr Annville, Pa.	20060307	1236	OGRL	—	—	—
01573153	Killinger Creek DS Treatment Plant nr Annville, Pa.	20060503	0940	NWQL	2.3	751	6.5
01573153	Killinger Creek DS Treatment Plant nr Annville, Pa.	20060503	0941	OGRL	2.3	751	6.5
01573153	Killinger Creek DS Treatment Plant nr Annville, Pa.	20060719	1010	NWQL	31	758	8.8
01573153	Killinger Creek DS Treatment Plant nr Annville, Pa.	20060719	1011	OGRL	31	758	8.8
01573153	Killinger Creek DS Treatment Plant nr Annville, Pa.	20060913	0950	NWQL	1.6	758	7.0
01573153	Killinger Creek DS Treatment Plant nr Annville, Pa.	20060913	0951	OGRL	1.6	758	7.0
01574310	Conoy Creek near Elizabethtown, Pa.	20060301	1600	NWQL	4.7	—	17.4
01574310	Conoy Creek near Elizabethtown, Pa.	20060301	1601	OGRL	4.7	—	17.4
01574310	Conoy Creek near Elizabethtown, Pa.	20060501	0940	NWQL	4.0	761	10.4
01574310	Conoy Creek near Elizabethtown, Pa.	20060501	0941	OGRL	4.0	761	10.4
01574310	Conoy Creek near Elizabethtown, Pa.	20060705	1420	NWQL	14	748	7.9
01574310	Conoy Creek near Elizabethtown, Pa.	20060705	1425	OGRL	14	748	7.9
01574310	Conoy Creek near Elizabethtown, Pa.	20060906	1200	NWQL	2.5	757	9.0
01574310	Conoy Creek near Elizabethtown, Pa.	20060906	1201	OGRL	2.5	757	9.0
01574314	Conoy Creek near Stacktown, Pa.	20060301	1500	NWQL	6.6	—	16.4
01574314	Conoy Creek near Stacktown, Pa.	20060301	1501	OGRL	6.6	—	16.4
01574314	**Conoy Creek near Stacktown, Pa.**	**20060501**	**1035**	**NWQL**	4.5	**762**	**12.5**
01574314	**Conoy Creek near Stacktown, Pa.**	**20060501**	**1036**	**OGRL**	4.5	**762**	**12.5**
01574314	Conoy Creek near Stacktown, Pa.	20060501	1037	NWQL	—	—	—
01574314	Conoy Creek near Stacktown, Pa.	20060501	1038	OGRL	—	—	—
01574314	Conoy Creek near Stacktown, Pa.	20060705	1310	NWQL	22	749	8.1
01574314	Conoy Creek near Stacktown, Pa.	20060705	1315	OGRL	22	749	8.1
01574314	Conoy Creek near Stacktown, Pa.	20060906	1300	NWQL	2.6	757	9.6
01574314	Conoy Creek near Stacktown, Pa.	20060906	1301	OGRL	2.6	757	9.6

Station number	Station name	Date	Time	Agency analyzing sample	Instantaneous discharge (ft^3/s) (P00061)	Barometric pressure (mm HG) (00025)	Dissolved oxygen (mg/L) (00300)
01576420	Lititz Run at Lititz, Pa.	20060306	1600	NWQL	16	753	11
01576420	Lititz Run at Lititz, Pa.	20060306	1601	OGRL	16	753	11.0
01576420	Lititz Run at Lititz, Pa.	20060522	1150	NWQL	7.8	753	10.8
01576420	Lititz Run at Lititz, Pa.	20060522	1151	OGRL	7.8	753	10.8
01576420	Lititz Run at Lititz, Pa.	20060717	1150	NWQL	27	754	9.7
01576420	Lititz Run at Lititz, Pa.	20060717	1151	OGRL	27	754	9.7
01576420	Lititz Run at Lititz, Pa.	20060911	1100	NWQL	7.6	766	9.1
01576420	Lititz Run at Lititz, Pa.	20060911	1101	OGRL	7.6	766	9.1
01576422	Lititz Run at Rothsville, Pa.	20060306	1730	NWQL	26	753	—
01576422	Lititz Run at Rothsville, Pa.	20060306	1731	OGRL	26	753	—
01576422	Lititz Run at Rothsville, Pa.	20060522	1025	NWQL	17	754	11.6
01576422	Lititz Run at Rothsville, Pa.	20060522	1026	OGRL	17	754	11.6
01576422	Lititz Run at Rothsville, Pa.	20060717	1030	NWQL	35	755	9.7
01576422	Lititz Run at Rothsville, Pa.	20060717	1031	OGRL	35	755	9.7
01576422	Lititz Run at Rothsville, Pa.	20060911	1205	NWQL	14	767	9.5
01576422	Lititz Run at Rothsville, Pa.	20060911	1206	OGRL	14	767	9.5
01569346	Three Square Hollow Run ab Turnpike nr Newburg, Pa.	20060405	1300	NWQL	1.0	—	10.9
01569346	Three Square Hollow Run ab Turnpike nr Newburg, Pa.	20060405	1301	OGRL	1.0	—	10.9
01569346	Three Square Hollow Run ab Turnpike nr Newburg, Pa.	20060523	1115	NWQL	2.2	745	11.4
01569346	Three Square Hollow Run ab Turnpike nr Newburg, Pa.	20060523	1116	OGRL	2.2	745	11.4
01569346	Three Square Hollow Run ab Turnpike nr Newburg, Pa.	20060726	1045	NWQL	1.2	743	8.1
01569346	Three Square Hollow Run ab Turnpike nr Newburg, Pa.	20060726	1046	OGRL	1.2	743	8.1
01569346	Three Square Hollow Run ab Turnpike nr Newburg, Pa.	20060927	0955	NWQL	.38	743	9.6
01569346	Three Square Hollow Run ab Turnpike nr Newburg, Pa.	20060927	0956	OGRL	.38	743	9.6
01569349	Three Square Hollow Run bl Turnpike nr Newburg, Pa.	20060405	1130	NWQL	5.5	—	12.5
01569349	Three Square Hollow Run bl Turnpike nr Newburg, Pa.	20060405	1131	OGRL	5.5	—	12.5
01569349	Three Square Hollow Run bl Turnpike nr Newburg, Pa.	20060523	1000	NWQL	7.9	753	12.0
01569349	Three Square Hollow Run bl Turnpike nr Newburg, Pa.	20060523	1001	OGRL	7.9	753	12.0
01569349	Three Square Hollow Run bl Turnpike nr Newburg, Pa.	20060726	1245	NWQL	3.3	749	8.8
01569349	Three Square Hollow Run bl Turnpike nr Newburg, Pa.	20060726	1246	OGRL	3.3	749	8.8
01569349	Three Square Hollow Run bl Turnpike nr Newburg, Pa.	20060927	1100	NWQL	.53	750	10.6
01569349	Three Square Hollow Run bl Turnpike nr Newburg, Pa.	20060927	1101	OGRL	.53	750	10.6
01572146	Trout Run near Ft. Indiantown Gap, Pa.	20060320	1200	NWQL	1.2	748	15.0
01572146	Trout Run near Ft. Indiantown Gap, Pa.	20060320	1201	OGRL	1.2	748	15.0
01572146	Trout Run near Ft. Indiantown Gap, Pa.	20060518	1145	NWQL	2.3	734	10.6
01572146	Trout Run near Ft. Indiantown Gap, Pa.	20060518	1146	OGRL	2.3	734	10.6
01572146	Trout Run near Ft. Indiantown Gap, Pa.	20060731	1015	NWQL	.8	745	8.4
01572146	Trout Run near Ft. Indiantown Gap, Pa.	20060731	1016	OGRL	.8	745	8.4
01572146	Trout Run near Ft. Indiantown Gap, Pa.	20060926	0945	NWQL	.3	748	10.3
01572146	Trout Run near Ft. Indiantown Gap, Pa.	20060926	0946	OGRL	.3	748	10.3
01572148	Trout Run at Scout Camp near Green Point, Pa.	20060320	1445	NWQL	3.3	750	14.9
01572148	Trout Run at Scout Camp near Green Point, Pa.	20060320	1446	OGRL	3.3	750	14.9
01572148	Trout Run at Scout Camp near Green Point, Pa.	20060518	1030	NWQL	6.2	736	10.5
01572148	Trout Run at Scout Camp near Green Point, Pa.	20060518	1031	OGRL	6.2	736	10.5
01572148	Trout Run at Scout Camp near Green Point, Pa.	20060731	1110	NWQL	3.2	—	7.4
01572148	Trout Run at Scout Camp near Green Point, Pa.	20060731	1111	OGRL	3.2	—	7.4

Station number	Station name	Date	Time	Agency analyzing sample	Instantaneous discharge (ft^3/s) (P00061)	Barometric pressure (mm HG) (00025)	Dissolved oxygen (mg/L) (00300)
01572148	Trout Run at Scout Camp near Green Point, Pa.	20060926	1055	NWQL	1.5	750	9.2
01572148	Trout Run at Scout Camp near Green Point, Pa.	20060926	1056	OGRL	1.5	750	9.2
401704076293101	Bachman Run at Fontana, Pa.	20060315	1145	NWQL	4.4	748	14.1
401704076293101	Bachman Run at Fontana, Pa.	20060315	1146	OGRL	4.4	748	14.1
401704076293101	Bachman Run at Fontana, Pa.	20060503	1345	NWQL	3.6	748	8.0
401704076293101	Bachman Run at Fontana, Pa.	20060503	1346	OGRL	3.6	748	8.0
401704076293101	Bachman Run at Fontana, Pa.	20060719	1430	NWQL	5.9	754	9.5
401704076293101	Bachman Run at Fontana, Pa.	20060719	1431	OGRL	5.9	754	9.5
401704076293101	Bachman Run at Fontana, Pa.	20060913	1400	NWQL	3.4	755	9.4
401704076293101	Bachman Run at Fontana, Pa.	20060913	1401	OGRL	3.4	755	9.4
01573095	Bachman Run at Annville, Pa.	20060315	1030	NWQL	11	750	13.1
01573095	Bachman Run at Annville, Pa.	20060315	1031	OGRL	11	750	13.1
01573095	Bachman Run at Annville, Pa.	20060503	1245	NWQL	9.5	750	9.4
01573095	Bachman Run at Annville, Pa.	20060503	1246	OGRL	9.5	750	9.4
01573095	Bachman Run at Annville, Pa.	20060719	1330	NWQL	20	756	12.0
01573095	Bachman Run at Annville, Pa.	20060719	1331	OGRL	20	756	12.0
01573095	Bachman Run at Annville, Pa.	20060913	1305	NWQL	7.1	757	9.7
01573095	Bachman Run at Annville, Pa.	20060913	1306	OGRL	7.1	757	9.7
01574050	Snitz Creek near Falmouth, Pa.	20060316	1030	NWQL	.57	753	14.5
01574050	Snitz Creek near Falmouth, Pa.	20060316	1031	OGRL	.57	753	14.5
01574050	Snitz Creek near Falmouth, Pa.	20060501	1350	NWQL	.28	759	12.3
01574050	Snitz Creek near Falmouth, Pa.	20060501	1351	OGRL	.28	759	12.3
01574050	Snitz Creek near Falmouth, Pa.	20060705	1045	NWQL	.85	747	7.1
01574050	Snitz Creek near Falmouth, Pa.	20060705	1050	OGRL	.85	747	7.1
01574050	Snitz Creek near Falmouth, Pa.	20060906	1030	NWQL	.22	756	7.7
01574050	Snitz Creek near Falmouth, Pa.	20060906	1031	OGRL	.22	756	7.7
01574055	Snitz Creek near Bainbridge, Pa.	20060316	1130	NWQL	1.3	—	16.4
01574055	Snitz Creek near Bainbridge, Pa.	20060316	1131	OGRL	1.3	—	16.4
01574055	Snitz Creek near Bainbridge, Pa.	20060501	1245	NWQL	.86	761	11.2
01574055	Snitz Creek near Bainbridge, Pa.	20060501	1246	OGRL	.86	761	11.2
01574055	Snitz Creek near Bainbridge, Pa.	20060705	1145	NWQL	1.8	749	8.5
01574055	Snitz Creek near Bainbridge, Pa.	20060705	1150	OGRL	1.8	749	8.5
01574055	Snitz Creek near Bainbridge, Pa.	20060906	0925	NWQL	.43	756	8.2
01574055	Snitz Creek near Bainbridge, Pa.	20060906	0926	OGRL	.43	756	8.2
01575771	L Chickies Cr at Camp Road nr Mastersonville, Pa.	20060322	1000	NWQL	.40	747	15.5
01575771	L Chickies Cr at Camp Road nr Mastersonville, Pa.	20060322	1001	OGRL	.40	747	15.5
01575771	L Chickies Cr at Camp Road nr Mastersonville, Pa.	20060515	1055	NWQL	.67	746	9.8
01575771	L Chickies Cr at Camp Road nr Mastersonville, Pa.	20060515	1056	OGRL	.67	746	9.8
01575771	L Chickies Cr at Camp Road nr Mastersonville, Pa.	20060717	1410	NWQL	.42	750	7.6
01575771	L Chickies Cr at Camp Road nr Mastersonville, Pa.	20060717	1411	OGRL	.42	750	7.6
01575771	L Chickies Cr at Camp Road nr Mastersonville, Pa.	20060911	1450	NWQL	.09	—	9.1
01575771	L Chickies Cr at Camp Road nr Mastersonville, Pa.	20060911	1451	OGRL	.09	—	9.1
015757724	Little Chickies Cr at E-town road nr Milton Grove, Pa.	20060322	1100	NWQL	5.0	752	19.6
015757724	Little Chickies Cr at E-town road nr Milton Grove, Pa.	20060322	1101	OGRL	5.0	752	19.6
015757724	Little Chickies Cr at E-town road nr Milton Grove, Pa.	20060515	0915	NWQL	4.5	749	9.5
015757724	Little Chickies Cr at E-town road nr Milton Grove, Pa.	20060515	0916	OGRL	4.5	749	9.5

Station number	Station name	Date	Time	Agency analyzing sample	Instantaneous discharge (ft^3/s) (P00061)	Barometric pressure (mm HG) (00025)	Dissolved oxygen (mg/L) (00300)
015757724	Little Chickies Cr at E-town road nr Milton Grove, Pa.	20060717	1310	NWQL	7.1	751	11.0
015757724	Little Chickies Cr at E-town road nr Milton Grove, Pa.	20060717	1311	OGRL	7.1	751	11.0
015757724	Little Chickies Cr at E-town road nr Milton Grove, Pa.	20060911	1550	NWQL	1.7	764	11.4
015757724	Little Chickies Cr at E-town road nr Milton Grove, Pa.	20060911	1551	OGRL	1.7	764	11.4
01578349	Muddy Run at Cochranville near Parkesburg, Pa.	20060314	1145	NWQL	.39	—	10.9
01578349	Muddy Run at Cochranville near Parkesburg, Pa.	20060314	1146	OGRL	.39	—	10.9
01578349	Muddy Run at Cochranville near Parkesburg, Pa.	20060511	1110	NWQL	.19	744	9.5
01578349	Muddy Run at Cochranville near Parkesburg, Pa.	20060511	1111	OGRL	.19	744	9.5
01578349	Muddy Run at Cochranville near Parkesburg, Pa.	20060718	1250	NWQL	.35	748	8.4
01578349	Muddy Run at Cochranville near Parkesburg, Pa.	20060718	1251	OGRL	.35	748	8.4
01578349	Muddy Run at Cochranville near Parkesburg, Pa.	20060912	1215	NWQL	.11	758	8.8
01578349	Muddy Run at Cochranville near Parkesburg, Pa.	20060912	1216	OGRL	.11	758	8.8
015783492	Muddy Run at Glennville near Parkesburg, Pa.	20060314	1400	NWQL	2.7	742	9.8
015783492	Muddy Run at Glennville near Parkesburg, Pa.	20060314	1401	OGRL	2.7	742	9.8
015783492	Muddy Run at Glennville near Parkesburg, Pa.	20060511	1010	NWQL	1.6	746	8.1
015783492	Muddy Run at Glennville near Parkesburg, Pa.	20060511	1011	OGRL	1.6	746	8.1
015783492	Muddy Run at Glennville near Parkesburg, Pa.	20060718	1115	NWQL	5.2	750	6.4
015783492	Muddy Run at Glennville near Parkesburg, Pa.	20060718	1116	OGRL	5.2	750	6.4
015783492	Muddy Run at Glennville near Parkesburg, Pa.	20060912	1115	NWQL	1.3	762	7.7
015783492	Muddy Run at Glennville near Parkesburg, Pa.	20060912	1116	OGRL	1.3	762	7.7
394643077043101	AD 653	20060309	1230	NWQL	—	742	6.5
394643077043101	AD 653	20060309	1231	OGRL	—	742	6.5
394643077043101	**AD 653**	**20060504**	**1110**	**NWQL**	—	**746**	**6.2**
394643077043101	**AD 653**	**20060504**	**1111**	**OGRL**	—	**746**	**6.2**
394643077043101	AD 653	20060504	1112	NWQL	—	—	—
394643077043101	AD 653	20060504	1113	OGRL	—	—	—
394643077043101	AD 653	20060710	1125	NWQL	—	748	6.2
394643077043101	AD 653	20060710	1130	OGRL	—	748	6.2
394643077043101	AD 653	20060925	1055	NWQL	—	745	6.6
394643077043101	AD 653	20060925	1056	OGRL	—	745	6.6
400610076282501	LN 2114	20060406	1030	NWQL	—	752	8.3
400610076282501	LN 2114	20060406	1031	OGRL	—	752	8.3
400610076282501	**LN 2114**	**20060515**	**1315**	**NWQL**	—	**751**	**7.9**
400610076282501	**LN 2114**	**20060515**	**1316**	**OGRL**	—	**751**	**7.9**
400610076282501	LN 2114	20060515	1317	NWQL	—	—	—
400610076282501	LN 2114	20060515	1318	OGRL	—	—	—
400610076282501	LN 2114	20060713	1100	NWQL	—	751	8.9
400610076282501	LN 2114	20060713	1101	OGRL	—	751	8.9
400610076282501	**LN 2114**	**20060907**	**1100**	**NWQL**	—	**760**	**8.1**
400610076282501	**LN 2114**	**20060907**	**1101**	**OGRL**	—	**760**	**8.1**
400610076282501	LN 2114	20060907	1105	NWQL	—	—	—
400610076282501	LN 2114	20060907	1106	OGRL	—	—	—
401712076235101	LB 1248	20060403	1415	NWQL	—	—	4.3
401712076235101	LB 1248	20060403	1416	OGRL	—	—	4.3
401712076235101	LB 1248	20060517	1410	NWQL	—	737	4.0
401712076235101	LB 1248	20060517	1411	OGRL	—	737	4.0

Station number	Station name	Date	Time	Agency analyzing sample	Instantaneous discharge (ft^3/s) (P00061)	Barometric pressure (mm HG) (00025)	Dissolved oxygen (mg/L) (00300)
401712076235101	LB 1248	20060712	1355	NWQL	—	748	3.6
401712076235101	LB 1248	20060712	1400	OGRL	—	748	3.6
401712076235101	LB 1248	20060920	1400	NWQL	—	743	4.1
401712076235101	LB 1248	20060920	1401	OGRL	—	743	4.1
401920078130101	HU 426	20060329	1300	NWQL	—	744	.1
401920078130101	HU 426	20060329	1301	OGRL	—	744	.1
401920078130101	HU 426	20060509	1400	NWQL	—	738	.1
401920078130101	HU 426	20060509	1401	OGRL	—	738	.1
401920078130101	HU 426	20060725	1250	NWQL	—	740	.1
401920078130101	HU 426	20060725	1251	OGRL	—	740	.1
401920078130101	HU 426	20060914	1230	NWQL	—	739	.2
401920078130101	HU 426	20060914	1231	OGRL	—	739	.2
402052076160101	LB 1249	20060403	1130	NWQL	—	—	8.8
402052076160101	LB 1249	20060403	1131	OGRL	—	—	8.8
402052076160101	LB 1249	20060517	1135	NWQL	—	741	8.9
402052076160101	LB 1249	20060517	1136	OGRL	—	741	8.9
402052076160101	LB 1249	20060712	1140	NWQL	—	752	8.9
402052076160101	LB 1249	20060712	1145	OGRL	—	752	8.9
402052076160101	LB 1249	20060920	1050	NWQL	—	745	8.4
402052076160101	LB 1249	20060920	1051	OGRL	—	745	8.4
405931076555601	UN 205	20060323	1140	NWQL	—	—	1.4
405931076555601	UN 205	20060323	1141	OGRL	—	—	1.4
405931076555601	UN 205	20060502	1140	NWQL	—	750	1.4
405931076555601	UN 205	20060502	1141	OGRL	—	750	1.4
405931076555601	**UN 205**	**20060711**	**1150**	**NWQL**	—	**751**	**1.0**
405931076555601	**UN 205**	**20060711**	**1155**	**OGRL**	—	**751**	**1.0**
405931076555601	UN 205	20060711	1200	NWQL	—	—	—
405931076555601	UN 205	20060711	1205	OGRL	—	—	—
405931076555601	UN 205	20060921	1215	NWQL	—	752	.7
405931076555601	UN 205	20060921	1216	OGRL	—	752	.7

Station number	Date	Time	Dissolved oxygen (percent saturation) (00301)	pH, water, unfiltered, field (standard units) (00400)	Specific conductance, water, unfiltered (µS/cm °C) (00095)	Temperature, air (°C) (00020)	Temperature, water (°C) (00010)	4-Epichlortetracycline hydrochloride, water, fltrd (µg/L) (63731)	4-Epioxytetracycline water, fltrd (µg/L) (63729)	4-Epitetracycline hydrochloride, water, fltrd (µg/L) (63727)
01470857	20060306	1130	118	8.2	352	—	6.0	—	—	—
01470857	20060306	1131	118	8.2	352	—	6.0	< 0.010	< 0.010	< 0.010
01470857	20060508	1215	110	8.1	345	19.0	13.5	—	—	—
01470857	20060508	1216	110	8.1	345	19.0	13.5	< .010	< .010	< .010
01470857	20060720	1130	97	7.9	359	—	17.9	—	—	—
01470857	20060720	1131	97	7.9	359	—	17.9	< .010	< .010	< .010
01470857	20060918	1235	97	8.0	368	22.5	16.2	—	—	—
01470857	20060918	1236	97	8.0	368	22.5	16.2	< .010	< .010	< .010
01470858	20060306	1300	125	8.3	363	—	7.6	—	—	—
01470858	20060306	1301	125	8.3	363	—	7.6	< .010	< .010	< .010
01470858	20060508	1100	108	7.7	365	—	12.8	—	—	—
01470858	20060508	1101	108	7.7	365	—	12.8	< .010	< .010	< .010
01470858	20060720	1030	94	7.8	378	—	17.9	—	—	—
01470858	20060720	1031	94	7.8	378	—	17.9	< .010	< .010	< .010
01470858	**20060918**	**1120**	**96**	**7.9**	**385**	**22.0**	**15.8**	**—**	**—**	**—**
01470858	**20060918**	**1121**	**96**	**7.9**	**385**	**22.0**	**15.8**	**< .010**	**< .010**	**< .010**
01470858	20060918	1125	—	—	—	—	—	—	—	—
01470858	20060918	1126	—	—	—	—	—	< .010	< .010	< .010
015693155	20060313	1100	123	8.2	433	—	12.4	—	—	—
015693155	20060313	1101	123	8.2	433	—	12.4	< .010	< .010	< .010
015693155	20060510	1145	114	8.1	424	31.5	13.4	—	—	—
015693155	20060510	1146	114	8.1	424	31.5	13.4	< .010	< .010	< .010
015693155	20060706	1130	107	7.7	336	25.0	15.5	—	—	—
015693155	20060706	1135	107	7.7	336	25.0	15.5	< .010	< .010	< .010
015693155	20060919	1020	88	8.2	444	21.0	13.9	—	—	—
015693155	20060919	1021	88	8.2	444	21.0	13.9	< .010	< .010	< .010
015693158	20060313	1300	141	8.3	521	—	14.6	—	—	—
015693158	20060313	1301	141	8.3	521	—	14.6	< .010	< .010	< .010
015693158	20060510	1030	108	7.8	633	26.0	13.4	—	—	—
015693158	**20060510**	**1031**	**108**	**7.8**	**633**	**26.0**	**13.4**	**< .010**	**< .010**	**< .010**
015693158	20060510	1036	—	—	—	—	—	< .010	< .010	< .010
015693158	**20060706**	**1020**	**105**	**7.3**	**434**	**22.0**	**15.9**	**—**	**—**	**—**
015693158	**20060706**	**1025**	**105**	**7.3**	**434**	**22.0**	**15.9**	**< .010**	**< .010**	**< .010**
015693158	20060706	1030	—	—	—	—	—	—	—	—
015693158	20060706	1035	—	—	—	—	—	< .010	< .010	< .010
015693158	20060919	1200	91	8.2	582	20.5	16.1	—	—	—
015693158	20060919	1201	91	8.2	582	20.5	16.1	< .010	< .010	< .010
01571193	20060405	1600	126	8.6	96	—	11.4	—	—	—
01571193	20060405	1601	126	8.6	96	—	11.4	< .010	< .010	< .010
01571193	20060516	1210	100	6.8	57	15.0	12.6	—	—	—
01571193	20060516	1211	100	6.8	57	15.0	12.6	< .010	< .010	< .010
01571193	20060726	1500	96	8.0	97	28.5	20.9	—	—	—
01571193	20060726	1501	96	8.0	97	28.5	20.9	< .010	< .010	< .010

Station number	Date	Time	Dissolved oxygen (percent saturation) (00301)	pH, water, unfiltered, field (standard units) (00400)	Specific conduc-tance, water, unfiltered (µS/cm °C) (00095)	Temper-ature, air (°C) (00020)	Temper-ature, water (°C) (00010)	4-Epichlor-tetracycline hydrochloride, water, fltrd (µg/L) (63731)	4-Epioxy-tetra-cycline water, fltrd (µg/L) (63729)	4-Epitetra-cycline hydro-chloride, water, fltrd (µg/L) (63727)
01571193	20060905	1105	96	7.8	113	17.0	16.0	—	—	—
01571193	20060905	1106	96	7.8	113	17.0	16.0	< 0.010	< 0.010	< 0.010
01571195	20060405	1800	121	8.6	103	—	11.2	—	—	—
01571195	20060405	1801	121	8.6	103	—	11.2	< .010	< .010	< .010
01571195	20060516	1050	101	6.7	57	15.5	12.2	—	—	—
01571195	20060516	1051	101	6.7	57	15.5	12.2	< .010	< .010	< .010
01571195	20060726	1600	100	8.3	107	28.0	21.4	—	—	—
01571195	20060726	1601	100	8.3	107	28.0	21.4	< .010	< .010	< .010
01571195	20060905	0950	94	7.8	120	17.0	16.2	—	—	—
01571195	20060905	0951	94	7.8	120	17.0	16.2	< .010	< .010	< .010
01573151	20060307	1415	160	8.8	482	—	12.3	—	—	—
01573151	20060307	1416	160	8.8	482	—	12.3	< .010	< .010	< .010
01573151	20060503	1040	96	8.5	505	19.0	13.6	—	—	—
01573151	20060503	1041	96	8.5	505	19.0	13.6	< .010	< .010	< .010
01573151	20060719	1110	106	7.8	410	25.0	19.3	—	—	—
01573151	20060719	1111	106	7.8	410	25.0	19.3	< .010	< .010	< .010
01573151	20060913	1100	102	8.2	532	15.0	13.6	—	—	—
01573151	20060913	1101	102	8.2	532	15.0	13.6	< .010	< .010	< .010
01573153	**20060307**	**1230**	**135**	**8.2**	**693**	**—**	**11.4**	**—**	**—**	**—**
01573153	**20060307**	**1231**	**135**	**8.2**	**693**	**—**	**11.4**	**< .010**	**< .010**	**< .010**
01573153	20060307	1235	—	—	—	—	—	—	—	—
01573153	20060307	1236	—	—	—	—	—	< .010	< .010	< .010
01573153	20060503	0940	69	7.7	895	18.0	17.3	—	—	—
01573153	20060503	0941	69	7.7	895	18.0	17.3	< .010	< .010	< .010
01573153	20060719	1010	96	7.7	438	23.5	19.3	—	—	—
01573153	20060719	1011	96	7.7	438	23.5	19.3	< .010	< .010	< .010
01573153	20060913	0950	82	7.4	1,020	16.0	22.8	—	—	—
01573153	20060913	0951	82	7.4	1,020	16.0	22.8	< .010	< .010	< .010
01574310	20060301	1600	140	9.0	389	—	6.4	—	—	—
01574310	20060301	1601	140	9.0	389	—	6.4	< .010	< .010	< .010
01574310	20060501	0940	96	7.7	389	15.0	11.8	—	—	—
01574310	20060501	0941	96	7.7	389	15.0	11.8	< .010	< .010	< .010
01574310	20060705	1420	90	7.7	275	25.5	22.3	—	—	—
01574310	20060705	1425	90	7.7	275	25.5	22.3	< .010	< .010	< .010
01574310	20060906	1200	97	8.3	387	—	18.9	—	—	—
01574310	20060906	1201	97	8.3	387	—	18.9	< .010	< .010	< .010
01574314	20060301	1500	141	8.9	391	—	8.5	—	—	—
01574314	20060301	1501	141	8.9	391	—	8.5	< .010	< .010	< .010
01574314	**20060501**	**1035**	**120**	**8.0**	**392**	**16.0**	**13.9**	**—**	**—**	**—**
01574314	**20060501**	**1036**	**120**	**8.0**	**392**	**16.0**	**13.9**	**< .010**	**< .010**	**< .010**
01574314	20060501	1037	—	—	—	—	—	—	—	—
01574314	20060501	1038	—	—	—	—	—	< .010	< .010	< .010
01574314	20060705	1310	94	7.7	222	24.5	22.7	—	—	—
01574314	20060705	1315	94	7.7	222	24.5	22.7	< .010	< .010	< .010
01574314	20060906	1300	108	8.5	392	25.0	21.3	—	—	—
01574314	20060906	1301	108	8.5	392	25.0	21.3	< .010	< .010	< .010

Station number	Date	Time	Dissolved oxygen (percent saturation) (00301)	pH, water, unfiltered, field (standard units) (00400)	Specific conductance, water, unfiltered (µS/cm °C) (00095)	Temperature, air (°C) (00020)	Temperature, water (°C) (00010)	4-Epichlortetracycline hydrochloride, water, fltrd (µg/L) (63731)	4-Epioxytetracycline water, fltrd (µg/L) (63729)	4-Epitetracycline hydrochloride, water, fltrd (µg/L) (63727)
01576420	20060306	1600	104	7.7	696	—	12.5	—	—	—
01576420	20060306	1601	104	7.7	696	—	12.5	< 0.010	< 0.010	< 0.010
01576420	20060522	1150	104	7.6	700	16.0	13.6	—	—	—
01576420	20060522	1151	104	7.6	700	16.0	13.6	< .010	< .010	< .010
01576420	20060717	1150	98	7.5	677	30.0	16.0	—	—	—
01576420	20060717	1151	98	7.5	677	30.0	16.0	< .010	< .010	< .010
01576420	20060911	1100	88	7.4	740	16.0	14.1	—	—	—
01576420	20060911	1101	88	7.4	740	16.0	14.1	< .010	< .010	< .010
01576422	20060306	1730	—	7.7	840	—	11.7	—	—	—
01576422	20060306	1731	—	7.7	840	—	11.7	< .010	< .010	< .010
01576422	20060522	1025	111	7.5	1,110	14.5	13.5	—	—	—
01576422	20060522	1026	111	7.5	1,110	14.5	13.5	< .010	< .010	< .010
01576422	20060717	1030	99	7.3	859	29.0	16.5	—	—	—
01576422	20060717	1031	99	7.3	859	29.0	16.5	< .010	< .010	< .010
01576422	20060911	1205	98	7.7	1,150	18.5	16.8	—	—	—
01576422	20060911	1206	98	7.7	1,150	18.5	16.8	< .010	< .010	< .010
01569346	20060405	1300	94	7.5	41	—	8.6	—	—	—
01569346	20060405	1301	94	7.5	41	—	8.6	< .010	< .010	< .010
01569346	20060523	1115	98	6.5	35	14.0	9.6	—	—	—
01569346	20060523	1116	98	6.5	35	14.0	9.6	< .010	< .010	< .010
01569346	20060726	1045	87	7.5	38	21.5	18.7	—	—	—
01569346	20060726	1046	87	7.5	38	21.5	18.7	< .010	< .010	< .010
01569346	20060927	0955	92	5.3	38	16.0	13.9	—	—	—
01569346	20060927	0956	92	5.3	38	16.0	13.9	< .010	< .010	< .010
01569349	20060405	1130	104	8.0	90	—	7.4	—	—	—
01569349	20060405	1131	104	8.0	90	—	7.4	< .010	< .010	< .010
01569349	20060523	1000	107	7.4	66	13.0	10.2	—	—	—
01569349	20060523	1001	107	7.4	66	13.0	10.2	< .010	< .010	< .010
01569349	20060726	1245	104	8.0	84	28.5	23.4	—	—	—
01569349	20060726	1246	104	8.0	84	28.5	23.4	< .010	< .010	< .010
01569349	20060927	1100	100	7.2	109	17.0	12.5	—	—	—
01569349	20060927	1101	100	7.2	109	17.0	12.5	< .010	< .010	< .010
01572146	20060320	1200	114	8.4	29	—	3.7	—	—	—
01572146	20060320	1201	114	8.4	29	—	3.7	.010	< .010	< .010
01572146	20060518	1145	96	6.6	28	17.0	10.9	—	—	—
01572146	20060518	1146	96	6.6	28	17.0	10.9	.010	< .010	< .010
01572146	20060731	1015	89	—	36	—	18.0	—	—	—
01572146	20060731	1016	89	—	36	—	18.0	.010	< .010	< .010
01572146	20060926	0945	96	4.8	36	15.0	12.2	—	—	—
01572146	20060926	0946	96	4.8	36	15.0	12.2	.010	< .010	< .010
01572148	20060320	1445	120	7.6	40	—	6.3	—	—	—
01572148	20060320	1446	120	7.6	40	—	6.3	.010	< .010	< .010
01572148	20060518	1030	98	6.6	38	18.0	12.3	—	—	—
01572148	20060518	1031	98	6.6	38	18.0	12.3	.010	< .010	< .010
01572148	20060731	1110	85	—	52	—	22.8	—	—	—
01572148	20060731	1111	85	—	52	—	22.8	.010	< .010	< .010

Station number	Date	Time	Dissolved oxygen (percent saturation) (00301)	pH, water, unfiltered, field (standard units) (00400)	Specific conduc-tance, water, unfiltered (µS/cm °C) (00095)	Temper-ature, air (°C) (00020)	Temper-ature, water (°C) (00010)	4-Epichlor-tetracycline hydrochloride, water, fltrd (µg/L) (63731)	4-Epioxy-tetra-cycline water, fltrd (µg/L) (63729)	4-Epitetra-cycline hydro-chloride, water, fltrd (µg/L) (63727)
01572148	20060926	1055	91	7.1	52	16.5	15.0	—	—	—
01572148	20060926	1056	91	7.1	52	16.5	15.0	0.010	< 0.010	< 0.010
401704076293101	20060315	1145	122	8.1	534	—	8.9	—	—	—
401704076293101	20060315	1146	122	8.1	534	—	8.9	< .010	< .010	< .010
401704076293101	20060503	1345	80	8.0	514	25.5	15.6	—	—	—
401704076293101	20060503	1346	80	8.0	514	25.5	15.6	< .010	< .010	< .010
401704076293101	20060719	1430	98	7.8	502	29.5	16.7	—	—	—
401704076293101	20060719	1431	98	7.8	502	29.5	16.7	< .010	< .010	< .010
401704076293101	20060913	1400	89	7.8	574	15.0	12.8	—	—	—
401704076293101	20060913	1401	89	7.8	574	15.0	12.8	< .010	< .010	< .010
01573095	20060315	1030	113	7.9	607	—	8.3	—	—	—
01573095	20060315	1031	113	7.9	607	—	8.3	< .010	< .010	< .010
01573095	20060503	1245	93	8.2	587	26.5	15.1	—	—	—
01573095	20060503	1246	93	8.2	587	26.5	15.1	< .010	< .010	< .010
01573095	20060719	1330	123	7.8	588	26.5	16.7	—	—	—
01573095	20060719	1331	123	7.8	588	26.5	16.7	< .010	< .010	< .010
01573095	20060913	1305	91	7.8	614	14.0	12.4	—	—	—
01573095	20060913	1306	91	7.8	614	14.0	12.4	< .010	< .010	< .010
01574050	20060316	1030	115	6.5	308	—	5.6	—	—	—
01574050	20060316	1031	115	6.5	308	—	5.6	< .010	< .010	< .010
01574050	20060501	1350	118	8.2	313	24.0	13.5	—	—	—
01574050	20060501	1351	118	8.2	313	24.0	13.5	< .010	< .010	< .010
01574050	20060705	1045	80	7.5	344	21.5	20.0	—	—	—
01574050	20060705	1050	80	7.5	344	21.5	20.0	< .010	< .010	< .010
01574050	20060906	1030	80	8.1	402	18.0	17.0	—	—	—
01574050	20060906	1031	80	8.1	402	18.0	17.0	< .010	< .010	< .010
01574055	20060316	1130	130	8.1	312	—	5.7	—	—	—
01574055	20060316	1131	130	8.1	312	—	5.7	< .010	< .010	< .010
01574055	20060501	1245	106	7.7	323	30.0	13.0	—	—	—
01574055	20060501	1246	106	7.7	323	30.0	13.0	< .010	< .010	< .010
01574055	20060705	1145	91	7.3	342	22.0	18.6	—	—	—
01574055	20060705	1150	91	7.3	342	22.0	18.6	< .010	< .010	< .010
01574055	20060906	0925	85	8.0	367	18.0	—	—	—	—
01574055	20060906	0926	85	8.0	367	18.0	16.6	< .010	< .010	< .010
01575771	20060322	1000	121	7.7	248	—	5.0	—	—	—
01575771	20060322	1001	121	7.7	248	—	5.0	< .010	< .010	< .010
01575771	20060515	1055	90	7.3	247	10.0	11.8	—	—	—
01575771	20060515	1056	90	7.3	247	10.0	11.8	< .010	< .010	< .010
01575771	20060717	1410	86	7.4	238	31.0	21.3	—	—	—
01575771	20060717	1411	86	7.4	238	31.0	21.3	< .010	< .010	< .010
01575771	20060911	1450	93	7.6	242	—	16.2	—	—	—
01575771	20060911	1451	93	7.6	242	—	16.2	< .010	< .010	< .010
015757724	20060322	1100	150	8.8	279	—	4.2	—	—	—
015757724	20060322	1101	150	8.8	279	—	4.2	< .010	< .010	< .010
015757724	20060515	0915	90	7.0	280	10.0	12.9	—	—	—
015757724	20060515	0916	90	7.0	280	10.0	12.9	< .010	< .010	< .010

Station number	Date	Time	Dissolved oxygen (percent saturation) (00301)	pH, water, unfiltered, field (standard units) (00400)	Specific conduc-tance, water, unfiltered (µS/cm °C) (00095)	Temper-ature, air (°C) (00020)	Temper-ature, water (°C) (00010)	4-Epichlor-tetracycline hydrochloride, water, fltrd (µg/L) (63731)	4-Epioxy-tetra-cycline water, fltrd (µg/L) (63729)	4-Epitetra-cycline hydro-chloride, water, fltrd (µg/L) (63727)
015757724	20060717	1310	136	8.8	292	34.0	—	—	—	—
015757724	20060717	1311	136	8.8	292	34.0	26.0	< 0.010	< 0.010	< 0.010
015757724	20060911	1550	124	8.7	306	19.5	19.1	—	—	—
015757724	20060911	1551	124	8.7	306	19.5	19.1	< .010	< .010	< .010
01578349	20060314	1145	100	6.7	205	—	11.5	—	—	—
01578349	20060314	1146	100	6.7	205	—	11.5	< .010	< .010	< .010
01578349	20060511	1110	88	6.7	196	22.0	12.4	—	—	—
01578349	20060511	1111	88	6.7	196	22.0	12.4	< .010	< .010	< .010
01578349	20060718	1250	88	6.5	200	30.0	17.6	—	—	—
01578349	20060718	1251	88	6.5	200	30.0	17.6	< .010	< .010	< .010
01578349	20060912	1215	85	6.9	197	22.0	14.0	—	—	—
01578349	20060912	1216	85	6.9	197	22.0	14.0	< .010	< .010	< .010
015783492	20060314	1400	98	7.4	262	—	15.4	—	—	—
015783492	20060314	1401	98	7.4	262	—	15.4	< .010	< .010	< .010
015783492	20060511	1010	86	7.6	239	23.0	18.4	—	—	—
015783492	20060511	1011	86	7.6	239	23.0	18.4	< .010	< .010	< .010
015783492	20060718	1115	83	7.4	246	33.0	28.6	—	—	—
015783492	20060718	1116	83	7.4	246	33.0	28.6	< .010	< .010	< .010
015783492	20060912	1115	83	7.6	250	19.5	19.1	—	—	—
015783492	20060912	1116	83	7.6	250	19.5	19.1	< .010	< .010	< .010
394643077043101	20060309	1230	61	7.2	542	—	11.9	—	—	—
394643077043101	20060309	1231	61	7.2	542	—	11.9	< .010	< .010	< .010
394643077043101	**20060504**	**1110**	**59**	**7.3**	**496**	**22.0**	**12.8**	**—**	**—**	**—**
394643077043101	**20060504**	**1111**	**59**	**7.3**	**496**	**22.0**	**12.8**	**< .010**	**< .010**	**< .010**
394643077043101	20060504	1112	—	—	—	—	—	—	—	—
394643077043101	20060504	1113	—	—	—	—	—	< .010	< .010	< .010
394643077043101	20060710	1125	60	7.0	526	28.0	12.9	—	—	—
394643077043101	20060710	1130	60	7.0	526	28.0	12.9	< .010	< .010	< .010
394643077043101	20060925	1055	67	7.4	514	17.0	12.7	—	—	—
394643077043101	20060925	1056	67	7.4	514	17.0	12.7	< .010	< .010	< .010
400610076282501	20060406	1030	77	7.2	544	—	12.5	—	—	—
400610076282501	20060406	1031	77	7.2	544	—	12.5	< .010	< .010	< .010
400610076282501	**20060515**	**1315**	**75**	**7.2**	**553**	**13.0**	**12.8**	**—**	**—**	**—**
400610076282501	**20060515**	**1316**	**75**	**7.2**	**553**	**13.0**	**12.8**	**< .010**	**< .010**	**< .010**
400610076282501	20060515	1317	—	—	—	—	—	—	—	—
400610076282501	20060515	1318	—	—	—	—	—	< .010	< .010	< .010
400610076282501	20060713	1100	86	6.6	546	26.5	13.2	—	—	—
400610076282501	20060713	1101	86	6.6	546	26.5	13.2	< .010	< .010	< .010
400610076282501	**20060907**	**1100**	**78**	**7.8**	**552**	**23.5**	**13.3**	**—**	**—**	**—**
400610076282501	**20060907**	**1101**	**78**	**7.8**	**552**	**23.5**	**13.3**	**< .010**	**< .010**	**< .010**
400610076282501	20060907	1105	—	—	—	—	—	—	—	—
400610076282501	20060907	1106	—	—	—	—	—	< .010	< .010	< .010
401712076235101	20060403	1415	—	7.2	695	—	11.8	—	—	—
401712076235101	20060403	1416	—	7.2	695	—	11.8	< .010	< .010	< .010
401712076235101	20060517	1410	38	7.3	673	19.5	11.8	—	—	—
401712076235101	20060517	1411	38	7.3	673	19.5	11.8	< .010	< .010	< .010

Station number	Date	Time	Dissolved oxygen (percent saturation) (00301)	pH, water, unfiltered, field (standard units) (00400)	Specific conduc-tance, water, unfiltered (µS/cm °C) (00095)	Temper-ature, air (°C) (00020)	Temper-ature, water (°C) (00010)	4-Epichlor-tetracycline hydrochloride, water, fltrd (µg/L) (63731)	4-Epioxy-tetra-cycline water, fltrd (µg/L) (63729)	4-Epitetra-cycline hydro-chloride, water, fltrd (µg/L) (63727)
401712076235101	20060712	1355	34	7.0	704	32.0	12.1	—	—	—
401712076235101	20060712	1400	34	7.0	704	32.0	12.1	< 0.010	< 0.010	< 0.010
401712076235101	20060920	1400	38	7.3	713	18.5	11.8	—	—	—
401712076235101	20060920	1401	38	7.3	713	18.5	11.8	< .010	< .010	< .010
401920078130101	20060329	1300	1	7.5	464	—	11.8	—	—	—
401920078130101	20060329	1301	1	7.5	464	—	11.8	< .010	< .010	< .010
401920078130101	20060509	1400	1	7.5	440	19.5	11.9	—	—	—
401920078130101	20060509	1401	1	7.5	440	19.5	11.9	< .010	< .010	< .010
401920078130101	20060725	1250	1	—	503	28.5	12.0	—	—	—
401920078130101	20060725	1251	1	—	503	28.5	12.0	< .010	< .010	< .010
401920078130101	20060914	1230	2	7.5	507	20.7	12.0	—	—	—
401920078130101	20060914	1231	2	7.5	507	20.7	12.0	< .010	< .010	< .010
402052076160101	20060403	1130	—	7.2	616	—	11.3	—	—	—
402052076160101	20060403	1131	—	7.2	616	—	11.3	< .010	< .010	< .010
402052076160101	20060517	1135	82	7.1	616	—	11.6	—	—	—
402052076160101	20060517	1136	82	7.1	616	—	11.6	< .010	< .010	< .010
402052076160101	20060712	1140	84	6.9	650	30.0	12.1	—	—	—
402052076160101	20060712	1145	84	6.9	650	30.0	12.1	< .010	< .010	< .010
402052076160101	20060920	1050	80	7.3	649	17.0	11.7	—	—	—
402052076160101	20060920	1051	80	7.3	649	17.0	11.7	< .010	< .010	< .010
405931076555601	20060323	1140	—	7.0	791	—	12.1	—	—	—
405931076555601	20060323	1141	—	7.0	791	—	12.1	< .010	< .010	< .010
405931076555601	20060502	1140	14	6.9	665	18.0	13.1	—	—	—
405931076555601	20060502	1141	14	6.9	665	18.0	13.1	< .010	< .010	< .010
405931076555601	**20060711**	**1150**	**10**	**6.9**	**815**	**30.0**	**14.3**	**—**	**—**	**—**
405931076555601	**20060711**	**1155**	**10**	**6.9**	**815**	**30.0**	**14.3**	**< .010**	**< .010**	**< .010**
405931076555601	20060711	1200	—	—	—	—	—	—	—	—
405931076555601	20060711	1205	—	—	—	—	—	< .010	< .010	< .010
405931076555601	20060921	1215	7	7.2	864	19.5	13.2	—	—	—
405931076555601	20060921	1216	7	7.2	864	19.5	13.2	< .010	< .010	< .010

Station number	Date	Time	Acetamin-ophen, water, fltrd (µg/L) (62000)	Anhydro-erthromycin, water, fltrd (µg/L) (63674)	Azithro-mycin, water, fltrd (µg/L) (62792)	Caffeine, water, fltrd (µg/L) (50305)	Carbam-azepine, water, fltrd (µg/L) (62793)	Carbam-azepine-d10, surrogate, pharma-ceutical method, water, fltrd, percent recovery (90797)[1]	Chloram-phenicol, water, fltrd (µg/L) (65194)	Chlorotetra-cycline, water, fltrd (µg/L) (61744)
01470857	20060306	1130	< 0.024	—	—	< 0.015	< 0.018	99.4	—	—
01470857	20060306	1131	—	< 0.008	< 0.005	—	< .005	—	< 0.050	< 0.010
01470857	20060508	1215	< .024	—	—	< .015	< .018	111	—	—
01470857	20060508	1216	—	< .008	< .005	—	< .005	—	< .050	< .010
01470857	20060720	1130	< .024	—	—	< .015	< .018	77.3	—	—
01470857	20060720	1131	—	< .008	< .005	—	< .005	—	< .050	< .010
01470857	20060918	1235	< .024	—	—	< .015	< .018	105	—	—
01470857	20060918	1236	—	< .008	< .005	—	< .005	—	< .050	< .010
01470858	20060306	1300	E(1) .007	—	—	.018	E(2) .013	93.8	—	—
01470858	20060306	1301	—	< .008	< .005	—	< .005	—	< .050	< .010
01470858	20060508	1100	< .024	—	—	.021	.019	105	—	—
01470858	20060508	1101	—	.016	< .005	—	.026	—	< .050	< .010
01470858	20060720	1030	< .024	—	—	< .015	E(1) .008	89.1	—	—
01470858	20060720	1031	—	< .008	< .005	—	.011	—	< .050	< .010
01470858	**20060918**	**1120**	**< .024**	**—**	**—**	**.022**	**< .018**	**116**	**—**	**—**
01470858	**20060918**	**1121**	**—**	**< .008**	**.031**	**—**	**.014**	**—**	**< .050**	**< .010**
01470858	20060918	1125	< .024	—	—	.025	E .019	132	—	—
01470858	20060918	1126	—	< .008	.035	—	.015	—	< .050	< .010
015693155	20060313	1100	< .024	—	—	< .015	< .018	106	—	—
015693155	20060313	1101	—	< .008	< .005	—	< .005	—	< .050	< .010
015693155	20060510	1145	< .024	—	—	< .015	< .018	109	—	—
015693155	20060510	1146	—	< .008	< .005	—	< .005	—	< .050	< .010
015693155	20060706	1130	< .024	—	—	< .015	< .018	86	—	—
015693155	20060706	1135	—	< .008	< .005	—	< .005	—	< .050	< .010
015693155	20060919	1020	< .024	—	—	< .015	< .018	106	—	—
015693155	20060919	1021	—	< .008	< .005	—	< .005	—	< .050	< .010
015693158	20060313	1300	< .024	—	—	< .015	.116	87.1	—	—
015693158	20060313	1301	—	.061	1.510	—	.112	—	< .050	< .010
015693158	20060510	1030	E(1) .008	—	—	< .025	.108	68.6	—	—
015693158	**20060510**	**1031**	**—**	**.081**	**1.650**	**—**	**.152**	**—**	**< .050**	**< .010**
015693158	20060510	1036	—	.068	1.280	—	.151	—	< .050	< .010
015693158	**20060706**	**1020**	**< .024**	**—**	**—**	**< .015**	**.050**	**68.3**	**—**	**—**
015693158	**20060706**	**1025**	**—**	**< .008**	**.078**	**—**	**.086**	**—**	**< .050**	**< .010**
015693158	20060706	1030	< .024	—	—	< .015	.051	71.6	—	—
015693158	20060706	1035	—	< .008	.014	—	.090	—	< .050	< .010
015693158	20060919	1200	< .024	—	—	< .015	.130	79.2	—	—
015693158	20060919	1201	—	.027	.315	—	.138	—	< .050	< .010
01571193	20060405	1600	< .024	—	—	< .015	< .018	E 104	—	—
01571193	20060405	1601	—	< .008	< .005	—	< .005	—	< .050	< .010
01571193	20060516	1210	< .024	—	—	< .015	< .018	83.7	—	—
01571193	20060516	1211	—	< .008	< .005	—	< .005	—	< .050	< .010
01571193	20060726	1500	< .024	—	—	< .015	< .018	93.4	—	—
01571193	20060726	1501	—	< .008	< .005	—	< .005	—	< .050	< .010

[1]For recoveries of surrogate compounds, an "E" designation indicates either (1) there was a potential interference with recovery, or (2) one or both of the two continuing calibration verification sample values fell outside the limits of compliance.

Station number	Date	Time	Acetamin-ophen, water, fltrd (µg/L) (62000)	Anhydro-erthromycin, water, fltrd (µg/L) (63674)	Azithro-mycin, water, fltrd (µg/L) (62792)	Caffeine, water, fltrd (µg/L) (50305)	Carbam-azepine, water, fltrd (µg/L) (62793)	Carbamazepine-d10, surrogate, pharma-ceutical method, water, fltrd, percent recovery (90797)[1]	Chloram-phenicol, water, fltrd (µg/L) (65194)	Chlorotetra-cycline, water, fltrd (µg/L) (61744)
01571193	20060905	1105	< 0.024	—	—	< 0.015	< 0.018	E 105	—	—
01571193	20060905	1106	—	< 0.008	< 0.005	—	< .005	—	< 0.050	< 0.010
01571195	20060405	1800	< .024	—	—	< .015	< .018	E 105	—	—
01571195	20060405	1801	—	< .008	< .005	—	< .005	—	< .050	< .010
01571195	20060516	1050	< .024	—	—	< .015	< .018	86.5	—	—
01571195	20060516	1051	—	< .008	< .005	—	< .005	—	< .050	< .010
01571195	20060726	1600	< .024	—	—	< .015	< .018	96.8	—	—
01571195	20060726	1601	—	< .008	< .005	—	< .005	—	< .050	< .010
01571195	20060905	0950	< .024	—	—	.015	E(2) .009	E 106	—	—
01571195	20060905	0951	—	< .008	< .005	—	.005	—	< .050	< .010
01573151	20060307	1415	.048	—	—	.065	< .018	95	—	—
01573151	20060307	1416	—	< .008	< .005	—	< .005	—	< .050	< .010
01573151	20060503	1040	< .024	—	—	< .015	< .018	98.4	—	—
01573151	20060503	1041	—	< .008	< .005	—	.011	—	< .050	< .010
01573151	20060719	1110	< .024	—	—	< .015	< .018	67.4	—	—
01573151	20060719	1111	—	< .008	< .005	—	< .005	—	< .050	< .010
01573151	20060913	1100	< .024	—	—	< .015	E(2) .009	113	—	—
01573151	20060913	1101	—	< .008	< .005	—	.005	—	< .050	< .010
01573153	**20060307**	**1230**	**.098**	**—**	**—**	**4.750**	**.079**	**48.3**	**—**	**—**
01573153	**20060307**	**1231**	**—**	**.025**	**.239**	**—**	**.164**	**—**	**< .010**	**< .010**
01573153	20060307	1235	.083	—	—	6.120	.077	46.8	—	—
01573153	20060307	1236	—	.020	.180	—	.187	—	< .050	< .010
01573153	20060503	0940	E(4) .032	—	—	.043	.167	33.5	—	—
01573153	20060503	0941	—	.168	.686	—	.516	—	< .050	< .010
01573153	20060719	1010	< .024	—	—	< .015	.030	58	—	—
01573153	20060719	1011	—	.017	.021	—	.045	—	< .050	< .010
01573153	20060913	0950	< .024	—	—	.085	.276	E 34.8	—	—
01573153	20060913	0951	—	.008	.280	—	.406	—	< .050	< .010
01574310	20060301	1600	E(1) .005	—	—	.019	< .018	79.9	—	—
01574310	20060301	1601	—	< .008	< .005	—	< .005	—	< .050	< .010
01574310	20060501	0940	.350	—	—	.047	< .018	89.3	—	—
01574310	20060501	0941	—	< .008	< .005	—	< .005	—	< .050	< .010
01574310	20060705	1420	< .024	—	—	.060	< .018	55.4	—	—
01574310	20060705	1425	—	< .008	< .005	—	< .005	—	< .050	< .010
01574310	20060906	1200	E(2) .014	—	—	.032	< .018	E 80.5	—	—
01574310	20060906	1201	—	< .008	< .005	—	< .005	—	< .050	< .010
01574314	20060301	1500	E(1) .007	—	—	.015	< .018	84.3	—	—
01574314	20060301	1501	—	< .008	< .005	—	< .005	—	< .050	< .010
01574314	**20060501**	**1035**	**.029**	**—**	**—**	**.032**	**< .018**	**85.9**	**—**	**—**
01574314	**20060501**	**1036**	**—**	**< .008**	**< .005**	**—**	**< .005**	**—**	**< .050**	**< .010**
01574314	20060501	1037	.030	—	—	.035	< .018	84	—	—
01574314	20060501	1038	—	< .008	< .005	—	< .005	—	< .050	< .010
01574314	20060705	1310	E(1) .005	—	—	.363	< .018	46.7	—	—
01574314	20060705	1315	—	< .008	< .005	—	< .005	—	< .050	< .010
01574314	20060906	1300	E(1) .010	—	—	.074	< .018	E 79.3	—	—
01574314	20060906	1301	—	< .008	< .005	—	< .005	—	< .050	< .010

[1]For recoveries of surrogate compounds, an "E" designation indicates either (1) there was a potential interference with recovery, or (2) one or both of the two continuing calibration verification sample values fell outside the limits of compliance.

Station number	Date	Time	Acetamin-ophen, water, fltrd (µg/L) (62000)	Anhydro-erthromycin, water, fltrd (µg/L) (63674)	Azithro-mycin, water, fltrd (µg/L) (62792)	Caffeine, water, fltrd (µg/L) (50305)	Carbam-azepine, water, fltrd (µg/L) (62793)	Carbam-azepine-d10, surrogate, pharma-ceutical method, water, fltrd, percent recovery (90797)[1]	Chloram-phenicol, water, fltrd (µg/L) (65194)	Chlorotetra-cycline, water, fltrd (µg/L) (61744)
01576420	20060306	1600	< 0.024	—	—	< 0.015	< 0.018	97.3	—	—
01576420	20060306	1601	—	0.011	< 0.005	—	.013	—	< 0.050	< 0.0010
01576420	20060522	1150	< .024	—	—	< .015	< .018	106	—	—
01576420	20060522	1151	—	< .008	< .005	—	< .005	—	< .050	< .010
01576420	20060717	1150	< .024	—	—	< .015	< .018	E 82.1	—	—
01576420	20060717	1151	—	< .008	< .005	—	< .005	—	< .050	< .010
01576420	20060911	1100	< .024	—	—	< .015	< .018	98.4	—	—
01576420	20060911	1101	—	< .008	< .005	—	< .005	—	< .050	< .010
01576422	20060306	1730	< .024	—	—	< .015	.040	85.5	—	—
01576422	20060306	1731	—	.028	< .005	—	.055	—	< .050	< .010
01576422	20060522	1025	E(1) .009	—	—	< .015	.083	63.4	—	—
01576422	20060522	1026	—	.152	.440	—	.142	—	< .050	< .010
01576422	20060717	1030	< .024	—	—	< .015	E(4) .043	E 92.3	—	—
01576422	20060717	1031	—	.036	.076	—	.054	—	< .050	< .010
01576422	20060911	1205	< .024	—	—	< .015	.139	73.5	—	—
01576422	20060911	1206	—	< .008	< .005	—	.103	—	< .050	< .010
01569346	20060405	1300	< .024	—	—	< .015	< .018	E 106	—	—
01569346	20060405	1301	—	< .008	< .005	—	< .005	—	< .050	< .010
01569346	20060523	1115	< .024	—	—	< .015	< .018	94.8	—	—
01569346	20060523	1116	—	< .008	< .005	—	< .005	—	< .050	< .010
01569346	20060726	1045	< .024	—	—	< .015	< .018	96.9	—	—
01569346	20060726	1046	—	< .008	< .005	—	< .005	—	< .050	< .010
01569346	20060927	0955	< .024	—	—	< .015	< .018	99.9	—	—
01569346	20060927	0956	—	< .008	< .005	—	< .005	—	< .050	< .010
01569349	20060405	1130	< .024	—	—	< .015	< .018	E 96.4	—	—
01569349	20060405	1131	—	< .008	< .005	—	< .005	—	< .050	< .010
01569349	20060523	1000	< .024	—	—	< .015	< .018	94.2	—	—
01569349	20060523	1001	—	< .008	< .005	—	< .005	—	< .050	< .010
01569349	20060726	1245	< .024	—	—	.015	< .018	85.6	—	—
01569349	20060726	1246	—	< .008	< .005	—	< .005	—	< .050	< .010
01569349	20060927	1100	< .024	—	—	.015	< .018	104	—	—
01569349	20060927	1101	—	< .008	< .005	—	< .005	—	< .050	< .010
01572146	20060320	1200	< .024	—	—	< .015	< .018	95.2	—	—
01572146	20060320	1201	—	< .008	< .005	—	< .005	—	< .050	< .010
01572146	20060518	1145	< .024	—	—	< .015	< .018	100	—	—
01572146	20060518	1146	—	< .008	< .005	—	< .005	—	< .050	< .010
01572146	20060731	1015	< .024	—	—	< .015	< .018	101	—	—
01572146	20060731	1016	—	< .008	< .005	—	< .005	—	< .050	< .010
01572146	20060926	0945	< .024	—	—	< .015	< .018	112	—	—
01572146	20060926	0946	—	< .008	< .005	—	< .005	—	< .050	< .010
01572148	20060320	1445	E(2) .018	—	—	< .015	< .018	95.8	—	—
01572148	20060320	1446	—	< .008	< .005	—	< .005	—	< .050	< .010
01572148	20060518	1030	< .024	—	—	< .015	< .018	98.3	—	—
01572148	20060518	1031	—	< .008	< .005	—	< .005	—	< .050	< .010
01572148	20060731	1110	< .024	—	—	< .015	< .018	94.7	—	—
01572148	20060731	1111	—	< .008	< .005	—	< .005	—	< .050	< .010

[1]For recoveries of surrogate compounds, an "E" designation indicates either (1) there was a potential interference with recovery, or (2) one or both of the two continuing calibration verification sample values fell outside the limits of compliance.

Station number	Date	Time	Acetaminophen, water, fltrd (µg/L) (62000)	Anhydroerthromycin, water, fltrd (µg/L) (63674)	Azithromycin, water, fltrd (µg/L) (62792)	Caffeine, water, fltrd (µg/L) (50305)	Carbamazepine, water, fltrd (µg/L) (62793)	Carbamazepine-d10, surrogate, pharmaceutical method, water, fltrd, percent recovery (90797)[1]	Chloramphenicol, water, fltrd (µg/L) (65194)	Chlorotetracycline, water, fltrd (µg/L) (61744)
01572148	20060926	1055	< 0.024	—	—	< 0.015	< 0.018	100	—	—
01572148	20060926	1056	—	< 0.008	< 0.005	—	< .005	—	< 0.050	< 0.010
401704076293101	20060315	1145	< .024	—	—	< .015	< .018	99.4	—	—
401704076293101	20060315	1146	—	< .008	< .005	—	< .005	—	< .050	< .010
401704076293101	20060503	1345	< .024	—	—	.019	E(2) .010	103	—	—
401704076293101	20060503	1346	—	< .008	< .005	—	.009	—	< .050	< .010
401704076293101	20060719	1430	< .024	—	—	< .015	< .018	79.8	—	—
401704076293101	20060719	1431	—	< .008	< .005	—	< .005	—	< .050	< .010
401704076293101	20060913	1400	< .024	—	—	< .015	E(1) .005	E 104	—	—
401704076293101	20060913	1401	—	< .008	< .005	—	< .005	—	< .050	< .010
01573095	20060315	1030	< .024	—	—	< .015	< .018	99.3	—	—
01573095	20060315	1031	—	< .008	< .005	—	< .005	—	< .050	< .010
01573095	20060503	1245	< .024	—	—	< .015	< .018	101	—	—
01573095	20060503	1246	—	< .008	< .005	—	< .005	—	< .050	< .010
01573095	20060719	1330	< .024	—	—	< .015	< .018	95.4	—	—
01573095	20060719	1331	—	< .008	< .005	—	< .005	—	< .050	< .010
01573095	20060913	1305	< .024	—	—	< .015	< .018	E 110	—	—
01573095	20060913	1306	—	< .008	< .005	—	< .005	—	< .050	< .010
01574050	20060316	1030	< .024	—	—	< .015	< .018	85.4	—	—
01574050	20060316	1031	—	< .008	< .005	—	< .005	—	< .050	< .010
01574050	20060501	1350	< .024	—	—	< .017	< .018	92.4	—	—
01574050	20060501	1351	—	< .008	< .005	—	< .005	—	< .050	< .010
01574050	20060705	1045	< .024	—	—	.016	E(1) .006	76.3	—	—
01574050	20060705	1050	—	< .008	< .005	—	.007	—	< .050	< .010
01574050	20060906	1030	< .024	—	—	< .015	E(4) .025	E 88.3	—	—
01574050	20060906	1031	—	< .008	< .005	—	.021	—	< .050	< .010
01574055	20060316	1130	E(1) .003	—	—	< .017	< .018	91.3	—	—
01574055	20060316	1131	—	< .008	< .005	—	< .005	—	< .050	< .010
01574055	20060501	1245	< .024	—	—	.040	< .018	90.4	—	—
01574055	20060501	1246	—	< .008	< .005	—	< .005	—	< .050	< .010
01574055	20060705	1145	< .024	—	—	.030	< .018	80.3	—	—
01574055	20060705	1150	—	< .008	< .005	—	< .005	—	< .050	< .010
01574055	20060906	0925	< .024	—	—	.053	E .005	E 105	—	—
01574055	20060906	0926	—	< .008	< .005	—	< .005	—	< .050	< .010
01575771	20060322	1000	< .024	—	—	< .015	< .018	105	—	—
01575771	20060322	1001	—	< .008	< .005	—	< .005	—	< .050	< .010
01575771	20060515	1055	< .024	—	—	< .015	< .018	82.6	—	—
01575771	20060515	1056	—	< .008	< .005	—	< .005	—	< .050	< .010
01575771	20060717	1410	< .024	—	—	< .015	< .018	E 64.3	—	—
01575771	20060717	1411	—	< .008	< .005	—	< .005	—	< .050	< .010
01575771	20060911	1450	< .024	—	—	< .015	< .018	118	—	—
01575771	20060911	1451	—	< .008	< .005	—	< .005	—	< .050	< .010
015757724	20060322	1100	< .024	—	—	< .015	< .018	107	—	—
015757724	20060322	1101	—	< .008	< .005	—	< .005	—	< .050	< .010
015757724	20060515	0915	E(1) .004	—	—	.018	E(1) .005	84.1	—	—
015757724	20060515	0916	—	< .008	< .005	—	< .005	—	< .050	< .010

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Station number	Date	Time	Acetamin-ophen, water, fltrd (µg/L) (62000)	Anhydro-erthromycin, water, fltrd (µg/L) (63674)	Azithro-mycin, water, fltrd (µg/L) (62792)	Caffeine, water, fltrd (µg/L) (50305)	Carbam-azepine, water, fltrd (µg/L) (62793)	Carbam-azepine-d10, surrogate, pharma-ceutical method, water, fltrd, percent recovery (90797)[1]	Chloram-phenicol, water, fltrd (µg/L) (65194)	Chlorotetra-cycline, water, fltrd (µg/L) (61744)
015757724	20060717	1310	< 0.024	—	—	< 0.015	< 0.018	E 97.2	—	—
015757724	20060717	1311	—	< 0.008	< 0.005	—	< .005	—	< 0.050	< 0.010
015757724	20060911	1550	< .024	—	—	< .015	< .018	103	—	—
015757724	20060911	1551	—	< .008	< .005	—	< .005	—	< .050	< .010
01578349	20060314	1145	< .024	—	—	< .015	< .018	106	—	—
01578349	20060314	1146	—	< .008	< .005	—	< .005	—	< .050	< .010
01578349	20060511	1110	< .024	—	—	< .015	< .018	107	—	—
01578349	20060511	1111	—	< .008	< .005	—	< .005	—	< .050	< .010
01578349	20060718	1250	< .024	—	—	< .015	< .018	E 90	—	—
01578349	20060718	1251	—	< .008	< .005	—	< .005	—	< .050	< .010
01578349	20060912	1215	< .024	—	—	< .015	< .018	102	—	—
01578349	20060912	1216	—	< .008	< .005	—	< .005	—	< .050	< .010
015783492	20060314	1400	E(1) .009	—	—	< .015	< .018	87.5	—	—
015783492	20060314	1401	—	< .008	< .005	—	< .005	—	< .050	< .010
015783492	20060511	1010	< .024	—	—	< .015	< .018	91.3	—	—
015783492	20060511	1011	—	< .008	< .005	—	< .005	—	< .050	< .010
015783492	20060718	1115	< .024	—	—	< .015	< .018	E 65.7	—	—
015783492	20060718	1116	—	< .008	< .005	—	.005	—	< .050	< .010
015783492	20060912	1115	< .024	—	—	< .015	< .018	102	—	—
015783492	20060912	1116	—	< .008	< .005	—	< .005	—	< .050	< .010
394643077043101	20060309	1230	< .024	—	—	< .026	< .018	108	—	—
394643077043101	20060309	1231	—	< .008	< .005	—	< .005	—	< .050	< .010
394643077043101	**20060504**	**1110**	**< .024**	**—**	**—**	**< .015**	**< .018**	**111**	**—**	**—**
394643077043101	**20060504**	**1111**	**—**	**< .008**	**< .005**	**—**	**< .005**	**—**	**< .050**	**< .010**
394643077043101	20060504	1112	< .024	—	—	< .015	< .018	108	—	—
394643077043101	20060504	1113	—	< .008	< .005	—	< .005	—	< .050	< .010
394643077043101	20060710	1125	< .024	—	—	< .015	< .018	109	—	—
394643077043101	20060710	1130	—	< .008	< .005	—	< .005	—	< .050	< .010
394643077043101	20060925	1055	< .024	—	—	< .015	< .018	97.7	—	—
394643077043101	20060925	1056	—	< .008	< .005	—	< .005	—	< .050	< .010
400610076282501	20060406	1030	< .024	—	—	< .015	< .018	E 109	—	—
400610076282501	20060406	1031	—	< .008	< .005	—	< .005	—	< .050	< .010
400610076282501	**20060515**	**1315**	**< .024**	**—**	**—**	**< .015**	**< .018**	**102**	**—**	**—**
400610076282501	**20060515**	**1316**	**—**	**< .008**	**< .005**	**—**	**< .005**	**—**	**< .050**	**< .010**
400610076282501	20060515	1317	< .024	—	—	< .015	< .018	100	—	—
400610076282501	20060515	1318	—	< .008	< .005	—	< .005	—	< .050	< .010
400610076282501	20060713	1100	< .024	—	—	< .015	< .018	110	—	—
400610076282501	20060713	1101	—	< .008	< .005	—	< .005	—	< .050	< .010
400610076282501	**20060907**	**1100**	**< .024**	**—**	**—**	**< .015**	**< .018**	**E 113**	**—**	**—**
400610076282501	**20060907**	**1101**	**—**	**< .008**	**< .005**	**—**	**< .005**	**—**	**< .050**	**< .010**
400610076282501	20060907	1105	< .024	—	—	< .015	< .018	E 110	—	—
400610076282501	20060907	1106	—	< .008	< .005	—	< .005	—	< .050	< .010
401712076235101	20060403	1415	< .024	—	—	< .015	< .018	101	—	—
401712076235101	20060403	1416	—	< .008	< .005	—	< .005	—	< .050	< .010
401712076235101	20060517	1410	< .024	—	—	< .015	< .018	100	—	—
401712076235101	20060517	1411	—	< .008	< .005	—	< .005	—	< .050	< .010

[1]For recoveries of surrogate compounds, an "E" designation indicates either (1) there was a potential interference with recovery, or (2) one or both of the two continuing calibration verification sample values fell outside the limits of compliance.

Station number	Date	Time	Acetaminophen, water, fltrd (µg/L) (62000)	Anhydroerthromycin, water, fltrd (µg/L) (63674)	Azithromycin, water, fltrd (µg/L) (62792)	Caffeine, water, fltrd (µg/L) (50305)	Carbamazepine, water, fltrd (µg/L) (62793)	Carbamazepine-d10, surrogate, pharmaceutical method, water, fltrd, percent recovery (90797)[1]	Chloramphenicol, water, fltrd (µg/L) (65194)	Chlorotetracycline, water, fltrd (µg/L) (61744)
401712076235101	20060712	1355	< 0.024	—	—	< 0.015	< 0.018	109	—	—
401712076235101	20060712	1400	—	< 0.008	< 0.005	—	< .005	—	< 0.050	< 0.010
401712076235101	20060920	1400	< .024	—	—	< .015	< .018	104	—	—
401712076235101	20060920	1401	—	< .008	< .005	—	< .005	—	< .050	< .010
401920078130101	20060329	1300	< .024	—	—	< .015	< .018	104	—	—
401920078130101	20060329	1301	—	< .008	< .005	—	< .005	—	< .050	< .010
401920078130101	20060509	1400	< .024	—	—	< .015	< .018	111	—	—
401920078130101	20060509	1401	—	< .008	< .005	—	< .005	—	< .050	< .010
401920078130101	20060725	1250	< .024	—	—	< .015	< .018	92.1	—	—
401920078130101	20060725	1251	—	< .008	< .005	—	< .005	—	< .050	< .010
401920078130101	20060914	1230	< .024	—	—	< .015	< .018	100	—	—
401920078130101	20060914	1231	—	< .008	< .005	—	< .005	—	< .050	< .010
402052076160101	20060403	1130	< .024	—	—	< .015	< .018	100	—	—
402052076160101	20060403	1131	—	< .008	< .005	—	< .005	—	< .050	< .010
402052076160101	20060517	1135	< .024	—	—	< .015	< .018	104	—	—
402052076160101	20060517	1136	—	< .008	< .005	—	< .005	—	< .050	< .010
402052076160101	20060712	1140	< .024	—	—	< .015	< .018	113	—	—
402052076160101	20060712	1145	—	< .008	< .005	—	< .005	—	< .050	< .010
402052076160101	20060920	1050	< .024	—	—	< .015	< .018	96.9	—	—
402052076160101	20060920	1051	—	< .008	< .005	—	< .005	—	< .050	< .010
405931076555601	20060323	1140	< .024	—	—	< .015	< .018	113	—	—
405931076555601	20060323	1141	—	< .008	< .005	—	< .005	—	< .050	< .010
405931076555601	20060502	1140	< .024	—	—	< .015	< .018	122	—	—
405931076555601	20060502	1141	—	< .008	< .005	—	< .005	—	< .050	< .010
405931076555601	**20060711**	**1150**	**< .024**	**—**	**—**	**< .015**	**< .018**	**112**	**—**	**—**
405931076555601	**20060711**	**1155**	**—**	**< .008**	**< .005**	**—**	**< .005**	**—**	**< .050**	**< .010**
405931076555601	20060711	1200	< .024	—	—	< .015	< .018	108	—	—
405931076555601	20060711	1205	—	< .008	< .005	—	< .005	—	< .050	< .010
405931076555601	20060921	1215	< .024	—	—	< .015	< .018	99.1	—	—
405931076555601	20060921	1216	—	< .008	< .005	—	< .005	—	< .050	< .010

[1]For recoveries of surrogate compounds, an "E" designation indicates either (1) there was a potential interference with recovery, or (2) one or both of the two continuing calibration verification sample values fell outside the limits of compliance.

Station number	Date	Time	Ciprofloxacin, water fltrd (µg/L) (62898)	Codeine, water, fltrd (µg/L) (62003)	Cotinine, water, fltrd (µg/L) (62005)	Dehydronifedipine, water, fltrd (µg/L) (62004)	Diltiazem, water, fltrd (µg/L) (62008)[2]	Diphenhydramine, water, fltrd (µg/L) (62796)	Doxycycline, water, fltrd (µg/L) (62694)	Enrofloxacin, water, fltrd (µg/L)
01470857	20060306	1130	—	< 0.022	< 0.028	< 0.022	< 0.018	< 0.023	—	—
01470857	20060306	1131	< 0.005	—	—	—	—	—	< 0.010	< 0.005
01470857	20060508	1215	—	< .022	< .028	< .022	< .018	< .023	—	—
01470857	20060508	1216	< .005	—	—	—	—	—	< .010	< .005
01470857	20060720	1130	—	< .022	< .028	< .022	< .018	< .023	—	—
01470857	20060720	1131	< .005	—	—	—	—	—	< .010	< .005
01470857	20060918	1235	—	< .022	< .028	< .022	< .018	< .023	—	—
01470857	20060918	1236	< .005	—	—	—	—	—	< .010	< .005
01470858	20060306	1300	—	E(1) .005	E(1) .004	< .022	< .018	.024	—	—
01470858	20060306	1301	< .005	—	—	—	—	—	< .010	< .005
01470858	20060508	1100	—	E(1) .007	E(1) .003	< .022	< .018	E(2) .015	—	—
01470858	20060508	1101	< .005	—	—	—	—	—	< .010	< .005
01470858	20060720	1030	—	< .022	< .028	< .022	E(3) .005	< .023	—	—
01470858	20060720	1031	< .005	—	—	—	—	—	< .010	< .005
01470858	**20060918**	**1120**	**—**	**< .022**	**< .028**	**< .022**	**< .018**	**E(1) .011**	**—**	**—**
01470858	**20060918**	**1121**	**< .005**	**—**	**—**	**—**	**—**	**—**	**< .010**	**< .005**
01470858	20060918	1125	—	< .022	E(1) .008	< .022	E(3) .017	< .023	—	—
01470858	20060918	1126	< .005	—	—	—	—	—	< .010	< .005
015693155	20060313	1100	—	< .022	< .028	< .022	< .018	< .023	—	—
015693155	20060313	1101	< .005	—	—	—	—	—	< .010	< .005
015693155	20060510	1145	—	< .022	< .028	< .022	< .018	< .023	—	—
015693155	20060510	1146	< .005	—	—	—	—	—	< .010	< .005
015693155	20060706	1130	—	< .022	< .028	< .022	< .018	< .023	—	—
015693155	20060706	1135	< .005	—	—	—	—	—	< .010	< .005
015693155	20060919	1020	—	< .022	< .028	< .022	< .018	< .023	—	—
015693155	20060919	1021	< .005	—	—	—	—	—	< .010	< .005
015693158	20060313	1300	—	.031	< .028	< .022	E(3) .023	.026	—	—
015693158	20060313	1301	< .005	—	—	—	—	—	< .010	< .005
015693158	20060510	1030	—	.029	E(1) .004	< .022	E(3) .032	.071	—	—
015693158	**20060510**	**1031**	**< .005**	**—**	**—**	**—**	**—**	**—**	**< .010**	**< .005**
015693158	20060510	1036	.010	—	—	—	—	—	< .010	< .005
015693158	**20060706**	**1020**	**—**	**E(1) .010**	**< .028**	**< .022**	**E(3) .024**	**E(2) .013**	**—**	**—**
015693158	**20060706**	**1025**	**.007**	**—**	**—**	**—**	**—**	**—**	**< .010**	**< .005**
015693158	20060706	1030	—	E(1) .010	< .028	< .022	E(3) .018	E(1) .009	—	—
015693158	20060706	1035	.008	—	—	—	—	—	< .010	< .005
015693158	20060919	1200	—	E(2) .011	< .028	< .022	E(3) .065	E(2) .019	—	—
015693158	20060919	1201	.021	—	—	—	—	—	< .010	< .005
01571193	20060405	1600	—	< .022	< .028	< .022	< .018	< .023	—	—
01571193	20060405	1601	< .005	—	—	—	—	—	< .010	< .005
01571193	20060516	1210	—	< .022	< .028	< .022	< .018	< .023	—	—
01571193	20060516	1211	< .005	—	—	—	—	—	< .010	< .005
01571193	20060726	1500	—	< .022	< .028	< .022	< .018	< .023	—	—
01571193	20060726	1501	< .005	—	—	—	—	—	< .010	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Ciprofloxacin, water fltrd (µg/L) (62898)	Codeine, water, fltrd (µg/L) (62003)	Cotinine, water, fltrd (µg/L) (62005)	Dehydronifedipine, water, fltrd (µg/L) (62004)	Diltiazem, water, fltrd (µg/L) (62008)[2]	Diphenhydramine, water, fltrd (µg/L) (62796)	Doxycycline, water, fltrd (µg/L) (62694)	Enrofloxacin, water, fltrd (µg/L)
01571193	20060905	1105	—	< 0.022	< 0.028	< 0.022	< 0.018	< 0.023	—	—
01571193	20060905	1106	< 0.005	—	—	—	—	—	< 0.010	< 0.005
01571195	20060405	1800	—	< .022	< .028	< .022	< .018	< .023	—	—
01571195	20060405	1801	< .005	—	—	—	—	—	< .010	< .005
01571195	20060516	1050	—	< .022	< .028	< .022	< .018	< .023	—	—
01571195	20060516	1051	< .005	—	—	—	—	—	< .010	< .005
01571195	20060726	1600	—	< .022	< .028	< .022	< .018	< .023	—	—
01571195	20060726	1601	< .005	—	—	—	—	—	< .010	< .005
01571195	20060905	0950	—	< .022	< .028	< .022	< .018	< .023	—	—
01571195	20060905	0951	< .005	—	—	—	—	—	< .010	< .005
01573151	20060307	1415	—	< .022	E(1) .010	< .022	< .018	< .023	—	—
01573151	20060307	1416	< .005	—	—	—	—	—	< .010	< .005
01573151	20060503	1040	—	< .022	< .028	< .022	< .018	< .023	—	—
01573151	20060503	1041	< .005	—	—	—	—	—	< .010	< .005
01573151	20060719	1110	—	< .022	< .028	< .022	< .018	< .023	—	—
01573151	20060719	1111	< .005	—	—	—	—	—	< .010	< .005
01573151	20060913	1100	—	< .022	< .028	< .022	< .018	< .023	—	—
01573151	20060913	1101	< .005	—	—	—	—	—	< .010	< .005
01573153	**20060307**	**1230**	**—**	**.056**	**.043**	**E(1) .006**	**E(3) .026**	**.066**	**—**	**—**
01573153	**20060307**	**1231**	**.075**	**—**	**—**	**—**	**—**	**—**	**< .010**	**< .005**
01573153	20060307	1235	—	.064	.055	E(1) .007	E(3) .039	.098	—	—
01573153	20060307	1236	.101	—	—	—	—	—	< .010	< .005
01573153	20060503	0940	—	.155	E(2) .017	E(2) .011	E(3) .079	.135	—	—
01573153	20060503	0941	.182	—	—	—	—	—	< .010	< .005
01573153	20060719	1010	—	< .022	< .028	< .022	E(3) .032	E(2) .015	—	—
01573153	20060719	1011	< .005	—	—	—	—	—	< .010	< .005
01573153	20060913	0950	—	< .046	< .028	E(2) .015	< .018	< .023	—	—
01573153	20060913	0951	.068	—	—	—	—	—	< .010	< .005
01574310	20060301	1600	—	< .022	< .028	< .022	< .018	< .023	—	—
01574310	20060301	1601	< .005	—	—	—	—	—	< .010	< .005
01574310	20060501	0940	—	< .022	E(1) .005	< .022	< .018	< .023	—	—
01574310	20060501	0941	< .005	—	—	—	—	—	< .010	< .005
01574310	20060705	1420	—	< .022	E(1) .004	< .022	< .018	< .023	—	—
01574310	20060705	1425	< .005	—	—	—	—	—	< .010	< .005
01574310	20060906	1200	—	< .022	< .028	< .022	< .018	< .023	—	—
01574310	20060906	1201	< .005	—	—	—	—	—	< .010	< .005
01574314	20060301	1500	—	< .022	< .028	< .022	< .018	< .023	—	—
01574314	20060301	1501	< .005	—	—	—	—	—	< .010	< .005
01574314	**20060501**	**1035**	**—**	**< .022**	**E(1) .004**	**< .022**	**< .018**	**< .023**	**—**	**—**
01574314	**20060501**	**1036**	**< .005**	**—**	**—**	**—**	**—**	**—**	**< .010**	**< .005**
01574314	20060501	1037	—	< .022	E(1) .005	< .022	< .018	< .023	—	—
01574314	20060501	1038	< .005	—	—	—	—	—	< .010	< .005
01574314	20060705	1310	—	< .022	E(2) .017	< .022	< .018	< .023	—	—
01574314	20060705	1315	< .005	—	—	—	—	—	< .010	< .005
01574314	20060906	1300	—	< .022	< .028	< .022	< .018	< .023	—	—
01574314	20060906	1301	< .005	—	—	—	—	—	< .010	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Ciprofloxacin, water fltrd (µg/L) (62898)	Codeine, water, fltrd (µg/L) (62003)	Cotinine, water, fltrd (µg/L) (62005)	Dehydronifedipine, water, fltrd (µg/L) (62004)	Diltiazem, water, fltrd (µg/L) (62008)[2]	Diphenhydramine, water, fltrd (µg/L) (62796)	Doxycycline, water, fltrd (µg/L) (62694)	Enrofloxacin, water, fltrd (µg/L)
01576420	20060306	1600	—	< 0.022	< 0.028	< 0.022	< 0.018	< 0.023	—	—
01576420	20060306	1601	< 0.005	—	—	—	—	—	< 0.010	< 0.005
01576420	20060522	1150	—	< .022	< .028	< .022	< .018	< .023	—	—
01576420	20060522	1151	< .005	—	—	—	—	—	< .010	< .005
01576420	20060717	1150	—	< .022	< .028	< .022	< .018	< .023	—	—
01576420	20060717	1151	< .005	—	—	—	—	—	< .010	< .005
01576420	20060911	1100	—	< .022	< .028	< .022	< .018	< .023	—	—
01576420	20060911	1101	< .005	—	—	—	—	—	< .010	< .005
01576422	20060306	1730	—	< .028	E(1) .007	< .022	< .018	.036	—	—
01576422	20060306	1731	.010	—	—	—	—	—	< .010	< .005
01576422	20060522	1025	—	.040	E(1) .008	< .022	E(3) .023	.031	—	—
01576422	20060522	1026	< .005	—	—	—	—	—	< .010	< .005
01576422	20060717	1030	—	< .022	< .028	< .022	E(3) .043	E(1) .007	—	—
01576422	20060717	1031	< .005	—	—	—	—	—	< .010	< .005
01576422	20060911	1205	—	< .022	< .028	E(1) .005	< .018	< .023	—	—
01576422	20060911	1206	.015	—	—	—	—	—	< .010	< .005
01569346	20060405	1300	—	< .022	< .028	< .022	< .018	< .023	—	—
01569346	20060405	1301	< .005	—	—	—	—	—	< .010	< .005
01569346	20060523	1115	—	< .022	< .028	< .022	< .018	< .023	—	—
01569346	20060523	1116	< .005	—	—	—	—	—	< .010	< .005
01569346	20060726	1045	—	< .022	< .028	< .022	< .018	< .023	—	—
01569346	20060726	1046	< .005	—	—	—	—	—	< .010	< .005
01569346	20060927	0955	—	< .022	< .028	< .022	< .018	< .023	—	—
01569346	20060927	0956	< .005	—	—	—	—	—	< .010	< .005
01569349	20060405	1130	—	< .022	< .028	< .022	< .018	< .023	—	—
01569349	20060405	1131	< .005	—	—	—	—	—	< .010	< .005
01569349	20060523	1000	—	< .022	< .028	< .022	< .018	< .023	—	—
01569349	20060523	1001	< .005	—	—	—	—	—	< .010	< .005
01569349	20060726	1245	—	< .022	< .028	< .022	< .018	< .023	—	—
01569349	20060726	1246	< .005	—	—	—	—	—	< .010	< .005
01569349	20060927	1100	—	< .022	< .028	< .022	< .018	< .023	—	—
01569349	20060927	1101	< .005	—	—	—	—	—	< .010	< .005
01572146	20060320	1200	—	< .022	< .028	< .022	< .018	< .023	—	—
01572146	20060320	1201	< .005	—	—	—	—	—	< .010	< .005
01572146	20060518	1145	—	< .022	< .028	< .022	< .018	< .023	—	—
01572146	20060518	1146	< .005	—	—	—	—	—	< .010	< .005
01572146	20060731	1015	—	< .022	< .028	< .022	< .018	E(1) .010	—	—
01572146	20060731	1016	< .005	—	—	—	—	—	< .010	< .005
01572146	20060926	0945	—	< .022	< .028	< .022	< .018	< .023	—	—
01572146	20060926	0946	< .005	—	—	—	—	—	< .010	< .005
01572148	20060320	1445	—	< .022	< .028	< .022	< .018	< .023	—	—
01572148	20060320	1446	< .005	—	—	—	—	—	< .010	< .005
01572148	20060518	1030	—	< .022	< .028	< .022	< .018	< .023	—	—
01572148	20060518	1031	< .005	—	—	—	—	—	< .010	< .005
01572148	20060731	1110	—	< .022	< .028	< .022	< .018	< .023	—	—
01572148	20060731	1111	< .005	—	—	—	—	—	< .010	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Ciprofloxacin, water fltrd (µg/L) (62898)	Codeine, water, fltrd (µg/L) (62003)	Cotinine, water, fltrd (µg/L) (62005)	Dehydronifedipine, water, fltrd (µg/L) (62004)	Diltiazem, water, fltrd (µg/L) (62008)[2]	Diphenhydramine, water, fltrd (µg/L) (62796)	Doxycycline, water, fltrd (µg/L) (62694)	Enrofloxacin, water, fltrd (µg/L)
01572148	20060926	1055	—	< 0.022	< 0.028	< 0.022	< 0.018	< 0.023	—	—
01572148	20060926	1056	< 0.005	—	—	—	—	—	< 0.010	< 0.005
401704076293101	20060315	1145	—	< .022	< .028	< .022	< .018	< .023	—	—
401704076293101	20060315	1146	< .005	—	—	—	—	—	< .010	< .005
401704076293101	20060503	1345	—	< .022	< .028	< .022	< .018	< .023	—	—
401704076293101	20060503	1346	< .005	—	—	—	—	—	< .010	< .005
401704076293101	20060719	1430	—	< .022	< .028	< .022	< .018	< .023	—	—
401704076293101	20060719	1431	< .005	—	—	—	—	—	< .010	< .005
401704076293101	20060913	1400	—	< .022	< .028	< .022	< .018	< .023	—	—
401704076293101	20060913	1401	< .005	—	—	—	—	—	< .010	< .005
01573095	20060315	1030	—	< .022	< .028	< .022	< .018	< .023	—	—
01573095	20060315	1031	< .005	—	—	—	—	—	< .010	< .005
01573095	20060503	1245	—	< .022	< .028	< .022	< .018	< .023	—	—
01573095	20060503	1246	< .005	—	—	—	—	—	< .010	< .005
01573095	20060719	1330	—	< .022	< .028	< .022	< .018	< .023	—	—
01573095	20060719	1331	< .005	—	—	—	—	—	< .010	< .005
01573095	20060913	1305	—	< .022	< .028	< .022	< .018	< .023	—	—
01573095	20060913	1306	< .005	—	—	—	—	—	< .010	< .005
01574050	20060316	1030	—	< .022	< .028	< .022	< .018	< .023	—	—
01574050	20060316	1031	< .005	—	—	—	—	—	< .010	< .005
01574050	20060501	1350	—	< .022	< .028	< .022	< .018	< .023	—	—
01574050	20060501	1351	< .005	—	—	—	—	—	< .010	< .005
01574050	20060705	1045	—	< .022	< .028	< .022	< .018	< .023	—	—
01574050	20060705	1050	< .005	—	—	—	—	—	< .010	< .005
01574050	20060906	1030	—	< .022	< .028	< .022	< .018	< .023	—	—
01574050	20060906	1031	< .005	—	—	—	—	—	< .010	< .005
01574055	20060316	1130	—	< .022	< .028	< .022	< .018	< .023	—	—
01574055	20060316	1131	< .005	—	—	—	—	—	< .010	< .005
01574055	20060501	1245	—	< .022	E(1) .007	< .022	< .018	< .023	—	—
01574055	20060501	1246	< .005	—	—	—	—	—	< .010	< .005
01574055	20060705	1145	—	< .022	< .028	< .022	< .018	< .023	—	—
01574055	20060705	1150	< .005	—	—	—	—	—	< .010	< .005
01574055	20060906	0925	—	< .022	< .028	< .022	< .018	< .023	—	—
01574055	20060906	0926	< .005	—	—	—	—	—	< .010	< .005
01575771	20060322	1000	—	< .022	< .028	< .022	< .018	< .023	—	—
01575771	20060322	1001	< .005	—	—	—	—	—	< .010	< .005
01575771	20060515	1055	—	< .022	< .028	< .022	< .018	< .023	—	—
01575771	20060515	1056	< .005	—	—	—	—	—	< .010	< .005
01575771	20060717	1410	—	< .022	< .028	< .022	< .018	< .023	—	—
01575771	20060717	1411	< .005	—	—	—	—	—	< .010	< .005
01575771	20060911	1450	—	< .022	< .028	< .022	< .018	< .023	—	—
01575771	20060911	1451	< .005	—	—	—	—	—	< .010	< .005
015757724	20060322	1100	—	< .022	< .028	< .022	< .018	< .023	—	—
015757724	20060322	1101	< .005	—	—	—	—	—	< .010	< .005
015757724	20060515	0915	—	< .022	< .028	< .022	< .018	< .023	—	—
015757724	20060515	0916	< .005	—	—	—	—	—	< .010	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Ciprofloxacin, water fltrd (µg/L) (62898)	Codeine, water, fltrd (µg/L) (62003)	Cotinine, water, fltrd (µg/L) (62005)	Dehydronifedipine, water, fltrd (µg/L) (62004)	Diltiazem, water, fltrd (µg/L) (62008)[2]	Diphenhydramine, water, fltrd (µg/L) (62796)	Doxycycline, water, fltrd (µg/L) (62694)	Enrofloxacin, water, fltrd (µg/L)
015757724	20060717	1310	—	< 0.022	< 0.028	< 0.022	< 0.018	< 0.023	—	—
015757724	20060717	1311	< 0.005	—	—	—	—	—	< 0.010	< 0.005
015757724	20060911	1550	—	< .022	< .028	< .022	< .018	< .023	—	—
015757724	20060911	1551	< .005	—	—	—	—	—	< .010	< .005
01578349	20060314	1145	—	< .022	< .028	< .022	< .018	< .023	—	—
01578349	20060314	1146	< .005	—	—	—	—	—	< .010	< .005
01578349	20060511	1110	—	< .022	< .028	< .022	< .018	< .023	—	—
01578349	20060511	1111	< .005	—	—	—	—	—	< .010	< .005
01578349	20060718	1250	—	< .022	< .028	< .022	< .018	< .023	—	—
01578349	20060718	1251	< .005	—	—	—	—	—	< .010	< .005
01578349	20060912	1215	—	< .022	< .028	< .022	< .018	< .023	—	—
01578349	20060912	1216	< .005	—	—	—	—	—	< .010	< .005
015783492	20060314	1400	—	< .022	E(1) .007	< .022	< .018	< .023	—	—
015783492	20060314	1401	< .005	—	—	—	—	—	< .010	< .005
015783492	20060511	1010	—	< .022	< .028	< .022	< .018	< .023	—	—
015783492	20060511	1011	< .005	—	—	—	—	—	< .010	< .005
015783492	20060718	1115	—	< .022	< .028	< .022	< .018	< .023	—	—
015783492	20060718	1116	< .005	—	—	—	—	—	< .010	< .005
015783492	20060912	1115	—	< .022	< .028	< .022	< .018	< .023	—	—
015783492	20060912	1116	< .005	—	—	—	—	—	< .010	< .005
394643077043101	20060309	1230	—	< .022	< .028	< .022	< .018	< .023	—	—
394643077043101	20060309	1231	< .005	—	—	—	—	—	< .010	< .005
394643077043101	**20060504**	**1110**	**—**	**< .022**	**< .028**	**< .022**	**< .018**	**< .023**	**—**	**—**
394643077043101	**20060504**	**1111**	**< .005**	**—**	**—**	**—**	**—**	**—**	**< .010**	**< .005**
394643077043101	20060504	1112	—	< .022	< .028	< .022	< .018	< .023	—	—
394643077043101	20060504	1113	< .005	—	—	—	—	—	< .010	< .005
394643077043101	20060710	1125	—	< .022	< .028	< .022	< .018	< .023	—	—
394643077043101	20060710	1130	< .005	—	—	—	—	—	< .010	< .005
394643077043101	20060925	1055	—	< .022	< .028	< .022	< .018	< .023	—	—
394643077043101	20060925	1056	< .005	—	—	—	—	—	< .010	< .005
400610076282501	20060406	1030	—	< .022	< .028	< .022	< .018	< .023	—	—
400610076282501	20060406	1031	< .005	—	—	—	—	—	< .010	< .005
400610076282501	**20060515**	**1315**	**—**	**< .022**	**< .028**	**< .022**	**< .018**	**< .023**	**—**	**—**
400610076282501	**20060515**	**1316**	**< .005**	**—**	**—**	**—**	**—**	**—**	**< .010**	**< .005**
400610076282501	20060515	1317	—	< .022	< .028	< .022	< .018	< .023	—	—
400610076282501	20060515	1318	< .005	—	—	—	—	—	< .010	< .005
400610076282501	20060713	1100	—	< .022	< .028	< .022	< .018	< .023	—	—
400610076282501	20060713	1101	< .005	—	—	—	—	—	< .010	< .005
400610076282501	**20060907**	**1100**	**—**	**< .022**	**< .028**	**< .022**	**< .018**	**< .023**	**—**	**—**
400610076282501	**20060907**	**1101**	**< .005**	**—**	**—**	**—**	**—**	**—**	**< .010**	**< .005**
400610076282501	20060907	1105	—	< .022	< .028	< .022	< .018	< .023	—	—
400610076282501	20060907	1106	< .005	—	—	—	—	—	< .010	< .005
401712076235101	20060403	1415	—	< .022	< .028	< .022	< .018	< .023	—	—
401712076235101	20060403	1416	< .005	—	—	—	—	—	< .010	< .005
401712076235101	20060517	1410	—	< .022	< .028	< .022	< .018	< .023	—	—
401712076235101	20060517	1411	< .005	—	—	—	—	—	< .010	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Ciprofloxacin, water fltrd (µg/L) (62898)	Codeine, water, fltrd (µg/L) (62003)	Cotinine, water, fltrd (µg/L) (62005)	Dehydronifedipine, water, fltrd (µg/L) (62004)	Diltiazem, water, fltrd (µg/L) (62008)[2]	Diphenhydramine, water, fltrd (µg/L) (62796)	Doxycycline, water, fltrd (µg/L) (62694)	Enrofloxacin, water, fltrd (µg/L)
401712076235101	20060712	1355	—	< 0.022	< 0.028	< 0.022	< 0.018	< 0.023	—	—
401712076235101	20060712	1400	< 0.005	—	—	—	—	—	< 0.010	< 0.005
401712076235101	20060920	1400	—	< .022	< .028	< .022	< .018	< .023	—	—
401712076235101	20060920	1401	< .005	—	—	—	—	—	< .010	< .005
401920078130101	20060329	1300	—	< .022	< .028	< .022	< .018	< .023	—	—
401920078130101	20060329	1301	< .005	—	—	—	—	—	< .010	< .005
401920078130101	20060509	1400	—	< .022	< .028	< .022	< .018	< .023	—	—
401920078130101	20060509	1401	< .005	—	—	—	—	—	< .010	< .005
401920078130101	20060725	1250	—	< .022	< .028	< .022	< .018	E(1) .003	—	—
401920078130101	20060725	1251	< .005	—	—	—	—	—	< .010	< .005
401920078130101	20060914	1230	—	< .022	< .028	< .022	< .018	< .023	—	—
401920078130101	20060914	1231	< .005	—	—	—	—	—	< .010	< .005
402052076160101	20060403	1130	—	< .022	< .028	< .022	< .018	< .023	—	—
402052076160101	20060403	1131	< .005	—	—	—	—	—	< .010	< .005
402052076160101	20060517	1135	—	< .022	< .028	< .022	< .018	< .023	—	—
402052076160101	20060517	1136	< .005	—	—	—	—	—	< .010	< .005
402052076160101	20060712	1140	—	< .022	< .028	< .022	< .018	< .023	—	—
402052076160101	20060712	1145	< .005	—	—	—	—	—	< .010	< .005
402052076160101	20060920	1050	—	< .022	E(2) .024	< .022	< .018	< .023	—	—
402052076160101	20060920	1051	< .005	—	—	—	—	—	< .010	< .005
405931076555601	20060323	1140	—	< .022	< .028	< .022	< .018	< .023	—	—
405931076555601	20060323	1141	< .005	—	—	—	—	—	< .010	< .005
405931076555601	20060502	1140	—	< .022	< .028	< .022	< .018	< .023	—	—
405931076555601	20060502	1141	< .005	—	—	—	—	—	< .010	< .005
405931076555601	20060711	1150	—	< .022	< .028	< .022	< .018	< .023	—	—
405931076555601	**20060711**	**1155**	**< .005**	**—**	**—**	**—**	**—**	**—**	**< .010**	**< .005**
405931076555601	**20060711**	**1200**	**—**	**< .022**	**< .028**	**< .022**	**< .018**	**< .023**	**—**	**—**
405931076555601	20060711	1205	< .005	—	—	—	—	—	< .010	< .005
405931076555601	20060921	1215	—	< .022	< .028	< .022	< .018	< .023	—	—
405931076555601	20060921	1216	< .005	—	—	—	—	—	< .010	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Erythromycin, water, fltrd (µg/L) (62797)	Ethyl nicotinate-d4, surrogate, water, fltrd, percent recovery (99571)[1]	Fluoxetine, water, fltrd (µg/L) (62011)[2]	Ibuprofen, water, fltrd (µg/L) (62014)	Isochloro-tetracycline, water, fltrd (µg/L) (64175)	Isoepichloro-tetracycline, water, fltrd (µg/L) (64047)	Lincomycin, water, fltrd (µg/L) (62894)
01470857	20060306	1130	—	81.6	< 0.016	—	—	—	—
01470857	20060306	1131	< 0.008	—	—	< 0.050	< 0.010	< 0.010	< 0.005
01470857	20060508	1215	—	98.8	< .016	—	—	—	—
01470857	20060508	1216	< .008	—	—	< .050	< .010	< .010	< .005
01470857	20060720	1130	—	E 72.2	< .016	—	—	—	—
01470857	20060720	1131	< .008	—	—	< .050	< .010	< .010	< .005
01470857	20060918	1235	—	83.5	< .016	—	—	—	—
01470857	20060918	1236	< .008	—	—	< .050	< .010	< .010	< .005
01470858	20060306	1300	—	80.2	< .016	—	—	—	—
01470858	20060306	1301	< .008	—	—	< .050	< .010	< .010	< .005
01470858	20060508	1100	—	91.7	< .016	—	—	—	—
01470858	20060508	1101	< .008	—	—	< .050	< .010	< .010	< .005
01470858	20060720	1030	—	E 97	< .016	—	—	—	—
01470858	20060720	1031	< .008	—	—	< .050	< .010	< .010	< .005
01470858	**20060918**	**1120**	**—**	**87.2**	**< .016**	**—**	**—**	**—**	**—**
01470858	**20060918**	**1121**	**< .008**	**—**	**—**	**< .050**	**< .010**	**< .010**	**< .005**
01470858	20060918	1125	—	89.8	< .016	—	—	—	—
01470858	20060918	1126	< .008	—	—	< .050	< .010	< .010	< .005
015693155	20060313	1100	—	88	< .016	—	—	—	—
015693155	20060313	1101	< .008	—	—	< .050	< .010	< .010	< .005
015693155	20060510	1145	—	97.5	< .016	—	—	—	—
015693155	20060510	1146	< .008	—	—	< .050	< .010	< .010	< .005
015693155	20060706	1130	—	94.7	< .016	—	—	—	—
015693155	20060706	1135	< .008	—	—	< .050	< .010	< .010	< .005
015693155	20060919	1020	—	88.7	< .016	—	—	—	—
015693155	20060919	1021	< .008	—	—	< .050	< .010	< .010	< .005
015693158	20060313	1300	—	77.3	< .016	—	—	—	—
015693158	20060313	1301	< .008	—	—	< .050	< .010	< .010	< .005
015693158	20060510	1030	—	76.3	< .016	—	—	—	—
015693158	**20060510**	**1031**	**< .008**	**—**	**—**	**< .050**	**< .010**	**< .010**	**< .005**
015693158	20060510	1036	< .008	—	—	< .050	< .010	< .010	< .005
015693158	**20060706**	**1020**	**—**	**81.7**	**< .016**	**—**	**—**	**—**	**—**
015693158	**20060706**	**1025**	**< .008**	**—**	**—**	**< .050**	**< .010**	**< .010**	**< .005**
015693158	20060706	1030	—	82.4	< .016	—	—	—	—
015693158	20060706	1035	< .008	—	—	< .050	< .010	< .010	< .005
015693158	20060919	1200	—	55.3	< .016	—	—	—	—
015693158	20060919	1201	< .008	—	—	< .050	< .010	< .010	< .005
01571193	20060405	1600	—	95.4	< .016	—	—	—	—
01571193	20060405	1601	< .008	—	—	< .050	< .010	< .010	< .005
01571193	20060516	1210	—	83.1	< .016	—	—	—	—
01571193	20060516	1211	< .008	—	—	< .050	< .010	< .010	< .005
01571193	20060726	1500	—	106	< .016	—	—	—	—
01571193	20060726	1501	< .008	—	—	< .050	< .010	< .010	< .005

[1]For recoveries of surrogate compounds, an "E" designation indicates either (1) there was a potential interference with recovery or (2) one or both of the two continuing calibration verification sample values fell outside the limits of compliance.

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Erythromycin, water, fltrd (µg/L) (62797)	Ethyl nicotinate-d4, surrogate, water, fltrd, percent recovery (99571)[1]	Fluoxetine, water, fltrd (µg/L) (62011)[2]	Ibuprofen, water, fltrd (µg/L) (62014)	Isochloro-tetracycline, water, fltrd (µg/L) (64175)	Isoepichloro-tetracycline, water, fltrd (µg/L) (64047)	Lincomycin, water, fltrd (µg/L) (62894)
01571193	20060905	1105	—	84.1	< 0.016	—	—	—	—
01571193	20060905	1106	< 0.008	—	—	< 0.050	< 0.010	< 0.010	< 0.005
01571195	20060405	1800	—	96.2	< .016	—	—	—	—
01571195	20060405	1801	< .008	—	—	< .050	< .010	< .010	< .005
01571195	20060516	1050	—	87.5	< .016	—	—	—	—
01571195	20060516	1051	< .008	—	—	< .050	< .010	< .010	< .005
01571195	20060726	1600	—	110	< .016	—	—	—	—
01571195	20060726	1601	< .008	—	—	< .050	< .010	< .010	< .005
01571195	20060905	0950	—	82.7	< .016	—	—	—	—
01571195	20060905	0951	< .008	—	—	< .050	< .010	< .010	< .005
01573151	20060307	1415	—	82.1	< .016	—	—	—	—
01573151	20060307	1416	< .008	—	—	< .050	< .010	< .010	< .005
01573151	20060503	1040	—	83.7	< .016	—	—	—	—
01573151	20060503	1041	< .008	—	—	< .050	< .010	< .010	< .005
01573151	20060719	1110	—	E 85.1	< .016	—	—	—	—
01573151	20060719	1111	< .008	—	—	< .050	< .010	< .010	< .005
01573151	20060913	1100	—	82.2	< .016	—	—	—	—
01573151	20060913	1101	< .008	—	—	< .050	< .010	< .010	< .005
01573153	**20060307**	**1230**	**—**	**66.2**	**< .016**	**—**	**—**	**—**	**—**
01573153	**20060307**	**1231**	**.015**	**—**	**—**	**.277**	**< .010**	**< .010**	**< .005**
01573153	20060307	1235	—	61.6	< .016	—	—	—	—
01573153	20060307	1236	.017	—	—	.366	< .010	< .010	< .005
01573153	20060503	0940	—	47.1	< .016				
01573153	20060503	0941	.011	—	—	< .050	< .010	< .010	< .005
01573153	20060719	1010	—	E 89.1	< .016	—	—	—	—
01573153	20060719	1011	< .008	—	—	< .050	< .010	< .010	< .005
01573153	20060913	0950	—	54.8	< .016	—	—	—	—
01573153	20060913	0951	.008	—	—	< .050	< .010	< .010	< .005
01574310	20060301	1600	—	83.8	< .016	—	—	—	—
01574310	20060301	1601	< .008	—	—	< .050	< .010	< .010	< .005
01574310	20060501	0940	—	90.8	< .016	—	—	—	—
01574310	20060501	0941	< .008	—	—	< .050	< .010	< .010	< .005
01574310	20060705	1420	—	83.8	< .016	—	—	—	—
01574310	20060705	1425	< .008	—	—	< .050	< .010	< .010	< .005
01574310	20060906	1200	—	80.2	< .016	—	—	—	—
01574310	20060906	1201	< .008	—	—	< .050	< .010	< .010	< .005
01574314	20060301	1500	—	90.2	< .016	—	—	—	—
01574314	20060301	1501	< .008	—	—	< .050	< .010	< .010	< .005
01574314	**20060501**	**1035**	**—**	**87.6**	**< .016**	**—**	**—**	**—**	**—**
01574314	**20060501**	**1036**	**< .008**	**—**	**—**	**< .050**	**< .010**	**< .010**	**< .005**
01574314	20060501	1037	—	88.2	< .016	—	—	—	—
01574314	20060501	1038	< .008	—	—	< .050	< .010	< .010	< .005
01574314	20060705	1310	—	83.5	< .016	—	—	—	—
01574314	20060705	1315	< .008	—	—	< .050	< .010	< .010	< .005
01574314	20060906	1300	—	82	< .016	—	—	—	—
01574314	20060906	1301	< .008	—	—	< .050	< .010	< .010	< .005

[1]For recoveries of surrogate compounds, an "E" designation indicates either (1) there was a potential interference with recovery or (2) one or both of the two continuing calibration verification sample values fell outside the limits of compliance.

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Erythromycin, water, fltrd (µg/L) (62797)	Ethyl nicotinate-d4, surrogate, water, fltrd, percent recovery (99571)[1]	Fluoxetine, water, fltrd (µg/L) (62011)[2]	Ibuprofen, water, fltrd (µg/L) (62014)	Isochloro-tetracycline, water, fltrd (µg/L) (64175)	Isoepichloro-tetracycline, water, fltrd (µg/L) (64047)	Lincomycin, water, fltrd (µg/L) (62894)
01576420	20060306	1600	—	87.4	< 0.016	—	—	—	—
01576420	20060306	1601	< 0.008	—	—	< 0.050	< 0.010	< 0.010	< 0.005
01576420	20060522	1150	—	93.8	< .016	—	—	—	—
01576420	20060522	1151	< .008	—	—	< .050	< .010	< .010	< .005
01576420	20060717	1150	—	E 75.4	< .016	—	—	—	—
01576420	20060717	1151	< .008	—	—	< .050	< .010	< .010	< .005
01576420	20060911	1100	—	91.1	< .016				
01576420	20060911	1101	< .008	—	—	< .050	< .010	< .010	< .005
01576422	20060306	1730	—	78.2	< .016	—	—	—	—
01576422	20060306	1731	.016	—	—	< .050	< .010	< .010	< .005
01576422	20060522	1025	—	75.5	< .016	—	—	—	—
01576422	20060522	1026	.011	—	—	< .050	< .010	< .010	< .005
01576422	20060717	1030	—	E 106	< .016	—	—	—	—
01576422	20060717	1031	< .008	—	—	< .050	< .010	< .010	< .005
01576422	20060911	1205	—	71.2	< .016	—	—	—	—
01576422	20060911	1206	< .008	—	—	< .050	< .010	< .010	< .005
01569346	20060405	1300	—	98.4	< .016	—	—	—	—
01569346	20060405	1301	< .008	—	—	< .050	< .010	< .010	< .005
01569346	20060523	1115	—	90.2	< .016	—	—	—	—
01569346	20060523	1116	< .008	—	—	< .050	< .010	< .010	< .005
01569346	20060726	1045	—	111	< .016	—	—	—	—
01569346	20060726	1046	< .008	—	—	< .050	< .010	< .010	< .005
01569346	20060927	0955	—	85.7	< .016	—	—	—	—
01569346	20060927	0956	< .008	—	—	< .050	< .010	< .010	< .005
01569349	20060405	1130	—	97.6	< .016	—	—	—	—
01569349	20060405	1131	< .008	—	—	< .050	< .010	< .010	< .005
01569349	20060523	1000	—	91.4	< .016	—	—	—	—
01569349	20060523	1001	< .008	—	—	< .050	< .010	< .010	< .005
01569349	20060726	1245	—	104	< .016	—	—	—	—
01569349	20060726	1246	< .008	—	—	< .050	< .010	< .010	< .005
01569349	20060927	1100	—	86	< .016	—	—	—	—
01569349	20060927	1101	< .008	—	—	< .050	< .010	< .010	< .005
01572146	20060320	1200	—	89.2	< .016	—	—	—	—
01572146	20060320	1201	< .008	—	—	< .050	< .010	< .010	< .005
01572146	20060518	1145	—	92.3	< .016	—	—	—	—
01572146	20060518	1146	< .008	—	—	< .050	< .010	< .010	< .005
01572146	20060731	1015	—	123	< .016	—	—	—	—
01572146	20060731	1016	< .008	—	—	< .050	< .010	< .010	< .005
01572146	20060926	0945	—	86.9	< .016	—	—	—	—
01572146	20060926	0946	< .008	—	—	< .050	< .010	< .010	< .005
01572148	20060320	1445	—	91.9	< .016	—	—	—	—
01572148	20060320	1446	< .008	—	—	< .050	< .010	< .010	< .005
01572148	20060518	1030	—	89.5	< .016	—	—	—	—
01572148	20060518	1031	< .008	—	—	< .050	< .010	< .010	< .005
01572148	20060731	1110	—	110	< .016	—	—	—	—
01572148	20060731	1111	< .008	—	—	< .050	< .010	< .010	< .005

[1]For recoveries of surrogate compounds, an "E" designation indicates either (1) there was a potential interference with recovery or (2) one or both of the two continuing calibration verification sample values fell outside the limits of compliance.

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Erythromycin, water, fltrd (µg/L) (62797)	Ethyl nicotinate-d4, surrogate, water, fltrd, percent recovery (99571)[1]	Fluoxetine, water, fltrd (µg/L) (62011)[2]	Ibuprofen, water, fltrd (µg/L) (62014)	Isochloro-tetracycline, water, fltrd (µg/L) (64175)	Isoepichloro-tetracycline, water, fltrd (µg/L) (64047)	Lincomycin, water, fltrd (µg/L) (62894)
01572148	20060926	1055	—	84.9	< 0.016	—	—	—	—
01572148	20060926	1056	< 0.008	—	—	< 0.050	< 0.010	< 0.010	< 0.005
401704076293101	20060315	1145	—	85.7	< .016	—	—	—	—
401704076293101	20060315	1146	< .008	—	—	< .050	< .010	< .010	< .005
401704076293101	20060503	1345	—	92	< .016	—	—	—	—
401704076293101	20060503	1346	< .008	—	—	< .050	< .010	< .010	< .005
401704076293101	20060719	1430	—	E 75.2	< .016	—	—	—	—
401704076293101	20060719	1431	< .008	—	—	< .050	< .010	< .010	< .005
401704076293101	20060913	1400	—	88.5	< .016	—	—	—	—
401704076293101	20060913	1401	< .008	—	—	< .050	< .010	< .010	< .005
01573095	20060315	1030	—	90.3	< .016	—	—	—	—
01573095	20060315	1031	< .008	—	—	< .050	< .010	< .010	< .005
01573095	20060503	1245	—	91.7	< .016	—	—	—	—
01573095	20060503	1246	< .008	—	—	< .050	< .010	< .010	< .005
01573095	20060719	1330	—	E 102	< .016	—	—	—	—
01573095	20060719	1331	< .008	—	—	< .050	< .010	< .010	< .005
01573095	20060913	1305	—	91	< .016	—	—	—	—
01573095	20060913	1306	< .008	—	—	< .050	< .010	< .010	< .005
01574050	20060316	1030	—	85.2	< .016	—	—	—	—
01574050	20060316	1031	< .008	—	—	< .050	< .010	< .010	< .005
01574050	20060501	1350	—	88.6	< .016	—	—	—	—
01574050	20060501	1351	< .008	—	—	< .050	< .010	< .010	< .005
01574050	20060705	1045	—	89.7	< .016	—	—	—	—
01574050	20060705	1050	< .008	—	—	< .050	< .010	< .010	< .005
01574050	20060906	1030	—	74.9	< .016	—	—	—	—
01574050	20060906	1031	< .008	—	—	< .050	< .010	< .010	< .005
01574055	20060316	1130	—	82.5	< .016	—	—	—	—
01574055	20060316	1131	< .008	—	—	< .050	< .010	< .010	< .005
01574055	20060501	1245	—	88.1	< .016	—	—	—	—
01574055	20060501	1246	< .008	—	—	< .050	< .010	< .010	< .005
01574055	20060705	1145	—	94.9	< .016	—	—	—	—
01574055	20060705	1150	< .008	—	—	< .050	< .010	< .010	< .005
01574055	20060906	0925	—	85.2	< .016	—	—	—	—
01574055	20060906	0926	< .008	—	—	< .050	< .010	< .010	< .005
01575771	20060322	1000	—	100	< .016	—	—	—	—
01575771	20060322	1001	< .008	—	—	< .050	< .010	< .010	< .005
01575771	20060515	1055	—	81.6	< .016	—	—	—	—
01575771	20060515	1056	< .008	—	—	< .050	< .010	< .010	< .005
01575771	20060717	1410	—	E 61.4	< .016	—	—	—	—
01575771	20060717	1411	< .008	—	—	< .050	< .010	< .010	< .005
01575771	20060911	1450	—	97.8	< .016	—	—	—	—
01575771	20060911	1451	< .008	—	—	< .050	< .010	< .010	< .005
015757724	20060322	1100	—	103	< .016	—	—	—	—
015757724	20060322	1101	< .008	—	—	< .050	< .010	< .010	< .005
015757724	20060515	0915	—	82.5	< .016	—	—	—	—
015757724	20060515	0916	< .008	—	—	< .050	< .010	< .010	< .005

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[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Erythromycin, water, fltrd (µg/L) (62797)	Ethyl nicotinate-d4, surrogate, water, fltrd, percent recovery (99571)[1]	Fluoxetine, water, fltrd (µg/L) (62011)[2]	Ibuprofen, water, fltrd (µg/L) (62014)	Isochloro-tetracycline, water, fltrd (µg/L) (64175)	Isoepichloro-tetracycline, water, fltrd (µg/L) (64047)	Lincomycin, water, fltrd (µg/L) (62894)
015757724	20060717	1310	—	E 121	< 0.016	—	—	—	—
015757724	20060717	1311	< 0.008	—	—	< 0.050	< 0.010	< 0.010	< 0.005
015757724	20060911	1550	—	86.7	< .016	—	—	—	—
015757724	20060911	1551	< .008	—	—	< .050	< .010	< .010	< .005
01578349	20060314	1145	—	89	< .016	—	—	—	—
01578349	20060314	1146	< .008	—	—	< .050	< .010	< .010	< .005
01578349	20060511	1110	—	90.1	< .016	—	—	—	—
01578349	20060511	1111	< .008	—	—	< .050	< .010	< .010	< .005
01578349	20060718	1250	—	E 78.8	< .016	—	—	—	—
01578349	20060718	1251	< .008	—	—	< .050	< .010	< .010	< .005
01578349	20060912	1215	—	85.8	< .016	—	—	—	—
01578349	20060912	1216	< .008	—	—	< .050	< .010	< .010	< .005
015783492	20060314	1400	—	81.6	< .016	—	—	—	—
015783492	20060314	1401	< .008	—	—	< .050	< .010	< .010	< .005
015783492	20060511	1010	—	84	< .016	—	—	—	—
015783492	20060511	1011	< .008	—	—	< .050	< .010	< .010	< .005
015783492	20060718	1115	—	E 75.1	< .016	—	—	—	—
015783492	20060718	1116	< .008	—	—	< .050	< .010	< .010	< .005
015783492	20060912	1115	—	87.8	< .016	—	—	—	—
015783492	20060912	1116	< .008	—	—	< .050	< .010	< .010	< .005
394643077043101	20060309	1230	—	99.5	< .016	—	—	—	—
394643077043101	20060309	1231	< .008	—	—	< .050	< .010	< .010	< .005
394643077043101	**20060504**	**1110**	**—**	**101**	**< .016**	**—**	**—**	**—**	**—**
394643077043101	**20060504**	**1111**	**< .008**	**—**	**—**	**< .050**	**< .010**	**< .010**	**< .005**
394643077043101	20060504	1112	—	98.2	< .016	—	—	—	—
394643077043101	20060504	1113	< .008	—	—	< .050	< .010	< .010	< .005
394643077043101	20060710	1125	—	105	< .016	—	—	—	—
394643077043101	20060710	1130	< .008	—	—	< .050	< .010	< .010	< .005
394643077043101	20060925	1055	—	88.8	< .016	—	—	—	—
394643077043101	20060925	1056	< .008	—	—	< .050	< .010	< .010	< .005
400610076282501	20060406	1030	—	100.3	< .016	—	—	—	—
400610076282501	20060406	1031	< .008	—	—	< .050	< .010	< .010	< .005
400610076282501	**20060515**	**1315**	**—**	**95.1**	**< .016**	**—**	**—**	**—**	**—**
400610076282501	**20060515**	**1316**	**< .008**	**—**	**—**	**< .050**	**< .010**	**< .010**	**< .005**
400610076282501	20060515	1317	—	97.1	< .016	—	—	—	—
400610076282501	20060515	1318	< .008	—	—	< .050	< .010	< .010	< .005
400610076282501	20060713	1100	—	106	< .016	—	—	—	—
400610076282501	20060713	1101	< .008	—	—	< .050	< .010	< .010	< .005
400610076282501	**20060907**	**1100**	**—**	**96.6**	**< .016**	**—**	**—**	**—**	**—**
400610076282501	**20060907**	**1101**	**< .008**	**—**	**—**	**< .050**	**< .010**	**< .010**	**< .005**
400610076282501	20060907	1105	—	96.4	< .016	—	—	—	—
400610076282501	20060907	1106	< .008	—	—	< .050	< .010	< .010	< .005
401712076235101	20060403	1415	—	101	< .016	—	—	—	—
401712076235101	20060403	1416	< .008	—	—	< .050	< .010	< .010	< .005
401712076235101	20060517	1410	—	93	< .016	—	—	—	—
401712076235101	20060517	1411	< .008	—	—	< .050	< .010	< .010	< .005

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[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Erythromycin, water, fltrd (µg/L) (62797)	Ethyl nicotinate-d4, surrogate, water, fltrd, percent recovery (99571)[1]	Fluoxetine, water, fltrd (µg/L) (62011)[2]	Ibuprofen, water, fltrd (µg/L) (62014)	Isochloro-tetracycline, water, fltrd (µg/L) (64175)	Isoepichloro-tetracycline, water, fltrd (µg/L) (64047)	Lincomycin, water, fltrd (µg/L) (62894)
401712076235101	20060712	1355	—	95.7	< 0.016	—	—	—	—
401712076235101	20060712	1400	< 0.008	—	—	< 0.050	< 0.010	< 0.010	< 0.005
401712076235101	20060920	1400	—	93.8	< .016	—	—	—	—
401712076235101	20060920	1401	< .008	—	—	< .050	< .010	< .010	< .005
401920078130101	20060329	1300	—	111	< .016	—	—	—	—
401920078130101	20060329	1301	< .008	—	—	< .050	< .010	< .010	< .005
401920078130101	20060509	1400	—	106	< .016	—	—	—	—
401920078130101	20060509	1401	< .008	—	—	< .050	< .010	< .010	< .005
401920078130101	20060725	1250	—	114	< .016	—	—	—	—
401920078130101	20060725	1251	< .008	—	—	< .050	< .010	< .010	< .005
401920078130101	20060914	1230	—	92.6	< .016	—	—	—	—
401920078130101	20060914	1231	< .008	—	—	< .050	< .010	< .010	< .005
402052076160101	20060403	1130	—	104	< .016	—	—	—	—
402052076160101	20060403	1131	< .008	—	—	< .050	< .010	< .010	< .005
402052076160101	20060517	1135	—	97.1	< .016	—	—	—	—
402052076160101	20060517	1136	< .008	—	—	< .050	< .010	< .010	< .005
402052076160101	20060712	1140	—	104	< .016	—	—	—	—
402052076160101	20060712	1145	< .008	—	—	< .050	< .010	< .010	< .005
402052076160101	20060920	1050	—	94.8	< .016	—	—	—	—
402052076160101	20060920	1051	< .008	—	—	< .050	< .010	< .010	< .005
405931076555601	20060323	1140	—	105	< .016	—	—	—	—
405931076555601	20060323	1141	< .008	—	—	< .050	< .010	< .010	< .005
405931076555601	20060502	1140	—	99.5	< .016	—	—	—	—
405931076555601	20060502	1141	< .008	—	—	< .050	< .010	< .010	< .005
405931076555601	**20060711**	**1150**	**—**	**105**	**< .016**	**—**	**—**	**—**	**—**
405931076555601	**20060711**	**1155**	**< .008**	**—**	**—**	**< .050**	**< .010**	**< .010**	**< .005**
405931076555601	20060711	1200	—	100	< .016	—	—	—	—
405931076555601	20060711	1205	< .008	—	—	< .050	< .010	< .010	< .005
405931076555601	20060921	1215	—	87.9	< .016	—	—	—	—
405931076555601	20060921	1216	< .008	—	—	< .050	< .010	< .010	< .005

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[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Lome-floxacin, water, fltrd (µg/L) (62900)	Norfloxacin, water, fltrd (µg/L) (62757)	Ofloxacin, water, fltrd (µg/L) (62899)	Ormetoprim, water, fltrd (µg/L) (62962)	Oxytetra-cycline, water, fltrd (µg/L) (61759)	p-Xanthine, water, fltrd (µg/L) (62030)	Ranitidine, water, fltrd (µg/L) (62019)[2]	Roxithromycin, water, fltrd (µg/L) (62895)
01470857	20060306	1130	—	—	—	—	—	< 0.021	< 0.025	—
01470857	20060306	1131	< 0.005	< 0.005	< 0.005	< 0.005	< 0.010	—	—	< 0.005
01470857	20060508	1215	—	—	—	—	—	< .021	< .025	—
01470857	20060508	1216	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01470857	20060720	1130	—	—	—	—	—	< .021	< .025	—
01470857	20060720	1131	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01470857	20060918	1235	—	—	—	—	—	< .021	< .025	—
01470857	20060918	1236	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01470858	20060306	1300	—	—	—	—	—	< .021	< .025	—
01470858	20060306	1301	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01470858	20060508	1100	—	—	—	—	—	< .021	< .025	—
01470858	20060508	1101	< .005	< .005	.008	< .005	< .010	—	—	< .005
01470858	20060720	1030	—	—	—	—	—	< .021	< .025	—
01470858	20060720	1031	< .005	< .005	.009	< .005	< .010	—	—	< .005
01470858	**20060918**	**1120**	**—**	**—**	**—**	**—**	**—**	**< .021**	**< .025**	**—**
01470858	**20060918**	**1121**	**< .005**	**< .005**	**.012**	**< .005**	**< .010**	**—**	**—**	**< .005**
01470858	20060918	1125	—	—	—	—	—	< .021	< .025	—
01470858	20060918	1126	< .005	< .005	.011	< .005	< .010	—	—	< .005
015693155	20060313	1100	—	—	—	—	—	< .021	< .025	—
015693155	20060313	1101	< .005	< .005	< .005	< .005	< .010	—	—	< .005
015693155	20060510	1145	—	—	—	—	—	< .021	< .025	—
015693155	20060510	1146	< .005	< .005	< .005	< .005	< .010	—	—	< .005
015693155	20060706	1130	—	—	—	—	—	< .021	< .025	—
015693155	20060706	1135	< .005	< .005	< .005	< .005	< .010	—	—	< .005
015693155	20060919	1020	—	—	—	—	—	< .021	< .025	—
015693155	20060919	1021	< .005	< .005	< .005	< .005	< .010	—	—	< .005
015693158	20060313	1300	—	—	—	—	—	< .021	E(3) .015	—
015693158	20060313	1301	< .005	< .005	.032	< .005	< .010	—	—	< .005
015693158	20060510	1030	—	—	—	—	—	< .021	E(3) .051	—
015693158	**20060510**	**1031**	**< .005**	**< .005**	**.009**	**< .005**	**< .010**	**—**	**—**	**< .005**
015693158	20060510	1036	< .005	< .005	.023	< .005	< .010	—	—	< .005
015693158	**20060706**	**1020**	**—**	**—**	**—**	**—**	**—**	**< .021**	**E(3) .007**	**—**
015693158	**20060706**	**1025**	**< .005**	**< .005**	**.022**	**< .005**	**< .010**	**—**	**—**	**< .005**
015693158	20060706	1030	—	—	—	—	—	< .021	E(3) .006	—
015693158	20060706	1035	< .005	< .005	.022	< .005	< .010	—	—	< .005
015693158	20060919	1200	—	—	—	—	—	< .021	E(3) .018	—
015693158	20060919	1201	< .005	< .005	.017	< .005	< .010	—	—	< .005
01571193	20060405	1600	—	—	—	—	—	< .021	< .025	—
01571193	20060405	1601	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01571193	20060516	1210	—	—	—	—	—	< .021	< .025	—
01571193	20060516	1211	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01571193	20060726	1500	—	—	—	—	—	< .021	< .025	—
01571193	20060726	1501	< .005	< .005	< .005	< .005	< .010	—	—	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Lome-floxacin, water, fltrd (µg/L) (62900)	Norfloxacin, water, fltrd (µg/L) (62757)	Ofloxacin, water, fltrd (µg/L) (62899)	Ormetoprim, water, fltrd (µg/L) (62962)	Oxytetra-cycline, water, fltrd (µg/L) (61759)	p-Xanthine, water, fltrd (µg/L) (62030)	Ranitidine, water, fltrd (µg/L) (62019)[2]	Roxithromycin, water, fltrd (µg/L) (62895)
01571193	20060905	1105	—	—	—	—	—	< 0.021	< 0.025	—
01571193	20060905	1106	< 0.005	< 0.005	< 0.005	< 0.005	< 0.010	—	—	< 0.005
01571195	20060405	1800	—	—	—	—	—	< .021	< .025	—
01571195	20060405	1801	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01571195	20060516	1050	—	—	—	—	—	< .021	< .025	—
01571195	20060516	1051	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01571195	20060726	1600	—	—	—	—	—	< .021	< .025	—
01571195	20060726	1601	< .005	< .005	.005	< .005	< .010	—	—	< .005
01571195	20060905	0950	—	—	—	—	—	< .021	< .025	—
01571195	20060905	0951	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01573151	20060307	1415	—	—	—	—	—	E(2) .019	< .025	—
01573151	20060307	1416	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01573151	20060503	1040	—	—	—	—	—	< .021	< .025	—
01573151	20060503	1041	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01573151	20060719	1110	—	—	—	—	—	< .021	< .025	—
01573151	20060719	1111	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01573151	20060913	1100	—	—	—	—	—	< .021	< .025	—
01573151	20060913	1101	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01573153	**20060307**	**1230**	**—**	**—**	**—**	**—**	**—**	**.853**	**E(3) .019**	**—**
01573153	**20060307**	**1231**	**< .005**	**< .005**	**.171**	**< .005**	**< .010**	**—**	**—**	**< .005**
01573153	20060307	1235	—	—	—	—	—	.997	E(3) .025	—
01573153	20060307	1236	< .005	< .005	.204	< .005	< .010	—	—	< .005
01573153	20060503	0940	—	—	—	—	—	< .021	E(3) .040	—
01573153	20060503	0941	< .005	< .005	.267	< .005	< .010	—	—	< .005
01573153	20060719	1010	—	—	—	—	—	< .021	< .025	—
01573153	20060719	1011	< .005	< .005	.062	< .005	< .010	—	—	< .005
01573153	20060913	0950	—	—	—	—	—	< .021	< .025	—
01573153	20060913	0951	< .005	< .005	.329	< .005	< .010	—	—	< .005
01574310	20060301	1600	—	—	—	—	—	< .021	< .025	—
01574310	20060301	1601	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574310	20060501	0940	—	—	—	—	—	< .021	< .025	—
01574310	20060501	0941	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574310	20060705	1420	—	—	—	—	—	< .021	< .025	—
01574310	20060705	1425	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574310	20060906	1200	—	—	—	—	—	< .021	< .025	—
01574310	20060906	1201	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574314	20060301	1500	—	—	—	—	—	< .021	< .025	—
01574314	20060301	1501	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574314	**20060501**	**1035**	**—**	**—**	**—**	**—**	**—**	**< .021**	**< .025**	**—**
01574314	**20060501**	**1036**	**< .005**	**< .005**	**< .005**	**< .005**	**< .010**	**—**	**—**	**< .005**
01574314	20060501	1037	—	—	—	—	—	< .021	< .025	—
01574314	20060501	1038	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574314	20060705	1310	—	—	—	—	—	< .021	< .025	—
01574314	20060705	1315	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574314	20060906	1300	—	—	—	—	—	< .021	< .025	—
01574314	20060906	1301	< .005	< .005	< .005	< .005	< .010	—	—	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Lome-floxacin, water, fltrd (µg/L) (62900)	Norfloxacin, water, fltrd (µg/L) (62757)	Ofloxacin, water, fltrd (µg/L) (62899)	Ormetoprim, water, fltrd (µg/L) (62962)	Oxytetra-cycline, water, fltrd (µg/L) (61759)	p-Xanthine, water, fltrd (µg/L) (62030)	Ranitidine, water, fltrd (µg/L) (62019)[2]	Roxithromycin, water, fltrd (µg/L) (62895)
01576420	20060306	1600	—	—	—	—	—	< 0.021	< 0.025	—
01576420	20060306	1601	< 0.005	< 0.005	0.006	< 0.005	< 0.010	—	—	< 0.005
01576420	20060522	1150	—	—	—	—	—	< .021	< .025	—
01576420	20060522	1151	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01576420	20060717	1150	—	—	—	—	—	< .021	< .025	—
01576420	20060717	1151	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01576420	20060911	1100	—	—	—	—	—	< .021	< .025	—
01576420	20060911	1101	< .005	< .005	< .005	< .005	.038	—	—	< .005
01576422	20060306	1730	—	—	—	—	—	< .021	< .025	—
01576422	20060306	1731	< .005	< .005	.056	< .005	< .010	—	—	< .005
01576422	20060522	1025	—	—	—	—	—	< .021	< .025	—
01576422	20060522	1026	< .005	< .005	.023	< .005	< .010	—	—	< .005
01576422	20060717	1030	—	—	—	—	—	< .021	< .025	—
01576422	20060717	1031	< .005	< .005	.036	< .005	< .010	—	—	< .005
01576422	20060911	1205	—	—	—	—	—	< .021	< .025	—
01576422	20060911	1206	< .005	< .005	.069	< .005	.015	—	—	< .005
01569346	20060405	1300	—	—	—	—	—	< .021	< .025	—
01569346	20060405	1301	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01569346	20060523	1115	—	—	—	—	—	< .021	< .025	—
01569346	20060523	1116	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01569346	20060726	1045	—	—	—	—	—	< .021	< .025	—
01569346	20060726	1046	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01569346	20060927	0955	—	—	—	—	—	< .021	< .025	—
01569346	20060927	0956	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01569349	20060405	1130	—	—	—	—	—	< .021	< .025	—
01569349	20060405	1131	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01569349	20060523	1000	—	—	—	—	—	< .021	< .025	—
01569349	20060523	1001	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01569349	20060726	1245	—	—	—	—	—	< .021	< .025	—
01569349	20060726	1246	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01569349	20060927	1100	—	—	—	—	—	< .021	< .025	—
01569349	20060927	1101	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01572146	20060320	1200	—	—	—	—	—	< .021	< .025	—
01572146	20060320	1201	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01572146	20060518	1145	—	—	—	—	—	< .021	< .025	—
01572146	20060518	1146	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01572146	20060731	1015	—	—	—	—	—	< .021	< .025	—
01572146	20060731	1016	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01572146	20060926	0945	—	—	—	—	—	< .021	< .025	—
01572146	20060926	0946	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01572148	20060320	1445	—	—	—	—	—	< .021	< .025	—
01572148	20060320	1446	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01572148	20060518	1030	—	—	—	—	—	< .021	< .025	—
01572148	20060518	1031	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01572148	20060731	1110	—	—	—	—	—	< .021	< .025	—
01572148	20060731	1111	< .005	< .005	< .005	< .005	< .010	—	—	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Lome-floxacin, water, fltrd (µg/L) (62900)	Norfloxacin, water, fltrd (µg/L) (62757)	Ofloxacin, water, fltrd (µg/L) (62899)	Ormetoprim, water, fltrd (µg/L) (62962)	Oxytetra-cycline, water, fltrd (µg/L) (61759)	p-Xanthine, water, fltrd (µg/L) (62030)	Ranitidine, water, fltrd (µg/L) (62019)[2]	Roxithromycin, water, fltrd (µg/L) (62895)
01572148	20060926	1055	—	—	—	—	—	< 0.021	< 0.025	—
01572148	20060926	1056	< 0.005	< 0.005	< 0.005	< 0.005	< 0.010	—	—	< 0.005
401704076293101	20060315	1145	—	—	—	—	—	< .021	< .025	—
401704076293101	20060315	1146	< .005	< .005	< .005	< .005	< .010	—	—	< .005
401704076293101	20060503	1345	—	—	—	—	—	< .021	< .025	—
401704076293101	20060503	1346	< .005	< .005	< .005	< .005	< .010	—	—	< .005
401704076293101	20060719	1430	—	—	—	—	—	< .021	< .025	—
401704076293101	20060719	1431	< .005	< .005	< .005	< .005	< .010	—	—	< .005
401704076293101	20060913	1400	—	—	—	—	—	< .021	< .025	—
401704076293101	20060913	1401	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01573095	20060315	1030	—	—	—	—	—	< .021	< .025	—
01573095	20060315	1031	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01573095	20060503	1245	—	—	—	—	—	< .021	< .025	—
01573095	20060503	1246	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01573095	20060719	1330	—	—	—	—	—	< .021	< .025	—
01573095	20060719	1331	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01573095	20060913	1305	—	—	—	—	—	< .021	< .025	—
01573095	20060913	1306	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574050	20060316	1030	—	—	—	—	—	< .021	< .025	—
01574050	20060316	1031	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574050	20060501	1350	—	—	—	—	—	< .021	< .025	—
01574050	20060501	1351	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574050	20060705	1045	—	—	—	—	—	< .021	< .025	—
01574050	20060705	1050	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574050	20060906	1030	—	—	—	—	—	< .021	< .025	—
01574050	20060906	1031	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574055	20060316	1130	—	—	—	—	—	< .021	< .025	—
01574055	20060316	1131	< .005	< .005	< .005	< .005	.019	—	—	< .005
01574055	20060501	1245	—	—	—	—	—	< .021	< .025	—
01574055	20060501	1246	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574055	20060705	1145	—	—	—	—	—	< .021	< .025	—
01574055	20060705	1150	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01574055	20060906	0925	—	—	—	—	—	< .021	< .025	—
01574055	20060906	0926	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01575771	20060322	1000	—	—	—	—	—	< .021	< .025	—
01575771	20060322	1001	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01575771	20060515	1055	—	—	—	—	—	< .021	< .025	—
01575771	20060515	1056	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01575771	20060717	1410	—	—	—	—	—	< .021	< .025	—
01575771	20060717	1411	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01575771	20060911	1450	—	—	—	—	—	< .021	< .025	—
01575771	20060911	1451	< .005	< .005	< .005	< .005	< .010	—	—	< .005
015757724	20060322	1100	—	—	—	—	—	< .021	< .025	—
015757724	20060322	1101	< .005	< .005	< .005	< .005	< .010	—	—	< .005
015757724	20060515	0915	—	—	—	—	—	< .021	< .025	—
015757724	20060515	0916	< .005	< .005	< .005	< .005	< .010	—	—	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Lome-floxacin, water, fltrd (µg/L) (62900)	Norfloxacin, water, fltrd (µg/L) (62757)	Ofloxacin, water, fltrd (µg/L) (62899)	Ormetoprim, water, fltrd (µg/L) (62962)	Oxytetra-cycline, water, fltrd (µg/L) (61759)	p-Xanthine, water, fltrd (µg/L) (62030)	Ranitidine, water, fltrd (µg/L) (62019)[2]	Roxithromycin, water, fltrd (µg/L) (62895)
015757724	20060717	1310	—	—	—	—	—	< 0.021	< 0.025	—
015757724	20060717	1311	< 0.005	< 0.005	< 0.005	< 0.005	< 0.010	—	—	< 0.005
015757724	20060911	1550	—	—	—	—	—	< .021	< .025	—
015757724	20060911	1551	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01578349	20060314	1145	—	—	—	—	—	< .021	< .025	—
01578349	20060314	1146	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01578349	20060511	1110	—	—	—	—	—	< .021	< .025	—
01578349	20060511	1111	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01578349	20060718	1250	—	—	—	—	—	< .021	< .025	—
01578349	20060718	1251	< .005	< .005	< .005	< .005	< .010	—	—	< .005
01578349	20060912	1215	—	—	—	—	—	< .021	< .025	—
01578349	20060912	1216	< .005	< .005	< .005	< .005	< .010	—	—	< .005
015783492	20060314	1400	—	—	—	—	—	< .021	< .025	—
015783492	20060314	1401	< .005	< .005	< .005	< .005	< .010	—	—	< .005
015783492	20060511	1010	—	—	—	—	—	< .021	< .025	—
015783492	20060511	1011	< .005	< .005	< .005	< .005	< .010	—	—	< .005
015783492	20060718	1115	—	—	—	—	—	< .021	< .025	—
015783492	20060718	1116	< .005	< .005	< .005	< .005	< .010	—	—	< .005
015783492	20060912	1115	—	—	—	—	—	< .021	< .025	—
015783492	20060912	1116	< .005	< .005	< .005	< .005	< .010	—	—	< .005
394643077043101	20060309	1230	—	—	—	—	—	< .021	< .025	—
394643077043101	20060309	1231	< .005	< .005	< .005	< .005	< .010	—	—	< .005
394643077043101	**20060504**	**1110**	**—**	**—**	**—**	**—**	**—**	**< .021**	**< .025**	**—**
394643077043101	**20060504**	**1111**	**< .005**	**< .005**	**< .005**	**< .005**	**< .010**	**—**	**—**	**< .005**
394643077043101	20060504	1112	—	—	—	—	—	< .021	< .025	—
394643077043101	20060504	1113	< .005	< .005	< .005	< .005	< .010	—	—	< .005
394643077043101	20060710	1125	—	—	—	—	—	< .021	< .025	—
394643077043101	20060710	1130	< .005	< .005	< .005	< .005	< .010	—	—	< .005
394643077043101	20060925	1055	—	—	—	—	—	< .021	< .025	—
394643077043101	20060925	1056	< .005	< .005	< .005	< .005	< .010	—	—	< .005
400610076282501	20060406	1030	—	—	—	—	—	< .021	< .025	—
400610076282501	20060406	1031	< .005	< .005	< .005	< .005	< .010	—	—	< .005
400610076282501	**20060515**	**1315**	**—**	**—**	**—**	**—**	**—**	**< .021**	**< .025**	**—**
400610076282501	**20060515**	**1316**	**< .005**	**< .005**	**< .005**	**< .005**	**< .010**	**—**	**—**	**< .005**
400610076282501	20060515	1317	—	—	—	—	—	< .021	< .025	—
400610076282501	20060515	1318	< .005	< .005	< .005	< .005	< .010	—	—	< .005
400610076282501	20060713	1100	—	—	—	—	—	< .021	< .025	—
400610076282501	20060713	1101	< .005	< .005	< .005	< .005	< .010	—	—	< .005
400610076282501	**20060907**	**1100**	**—**	**—**	**—**	**—**	**—**	**< .021**	**< .025**	**—**
400610076282501	**20060907**	**1101**	**< .005**	**< .005**	**< .005**	**< .005**	**< .010**	**—**	**—**	**< .005**
400610076282501	20060907	1105	—	—	—	—	—	< .021	< .025	—
400610076282501	20060907	1106	< .005	< .005	< .005	< .005	< .010	—	—	< .005
401712076235101	20060403	1415	—	—	—	—	—	< .021	< .025	—
401712076235101	20060403	1416	< .005	< .005	< .005	< .005	< .010	—	—	< .005
401712076235101	20060517	1410	—	—	—	—	—	< .021	< .025	—
401712076235101	20060517	1411	< .005	< .005	< .005	< .005	< .010	—	—	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Lome-floxacin, water, fltrd (µg/L) (62900)	Norfloxacin, water, fltrd (µg/L) (62757)	Ofloxacin, water, fltrd (µg/L) (62899)	Ormetoprim, water, fltrd (µg/L) (62962)	Oxytetra-cycline, water, fltrd (µg/L) (61759)	p-Xanthine, water, fltrd (µg/L) (62030)	Ranitidine, water, fltrd (µg/L) (62019)[2]	Roxithromycin, water, fltrd (µg/L) (62895)
401712076235101	20060712	1355	—	—	—	—	—	< 0.021	< 0.025	—
401712076235101	20060712	1400	< 0.005	< 0.005	< 0.005	< 0.005	< 0.010	—	—	< 0.005
401712076235101	20060920	1400	—	—	—	—	—	< .021	< .025	—
401712076235101	20060920	1401	< .005	< .005	< .005	< .005	< .010	—	—	< .005
401920078130101	20060329	1300	—	—	—	—	—	< .021	< .025	—
401920078130101	20060329	1301	< .005	< .005	< .005	< .005	< .010	—	—	< .005
401920078130101	20060509	1400	—	—	—	—	—	< .021	< .025	—
401920078130101	20060509	1401	< .005	< .005	< .005	< .005	< .010	—	—	< .005
401920078130101	20060725	1250	—	—	—	—	—	< .021	< .025	—
401920078130101	20060725	1251	< .005	< .005	< .005	< .005	< .010	—	—	< .005
401920078130101	20060914	1230	—	—	—	—	—	< .021	< .025	—
401920078130101	20060914	1231	< .005	< .005	< .005	< .005	< .010	—	—	< .005
402052076160101	20060403	1130	—	—	—	—	—	< .021	< .025	—
402052076160101	20060403	1131	< .005	< .005	< .005	< .005	< .010	—	—	< .005
402052076160101	20060517	1135	—	—	—	—	—	< .021	< .025	—
402052076160101	20060517	1136	< .005	< .005	< .005	< .005	< .010	—	—	< .005
402052076160101	20060712	1140	—	—	—	—	—	< .021	< .025	—
402052076160101	20060712	1145	< .005	< .005	< .005	< .005	< .010	—	—	< .005
402052076160101	20060920	1050	—	—	—	—	—	< .021	< .025	—
402052076160101	20060920	1051	< .005	< .005	< .005	< .005	< .010	—	—	< .005
405931076555601	20060323	1140	—	—	—	—	—	< .021	< .025	—
405931076555601	20060323	1141	< .005	< .005	< .005	< .005	< .010	—	—	< .005
405931076555601	20060502	1140	—	—	—	—	—	< .021	< .025	—
405931076555601	20060502	1141	< .005	< .005	< .005	< .005	< .010	—	—	< .005
405931076555601	**20060711**	**1150**	—	—	—	—	—	**< .021**	**< .025**	—
405931076555601	**20060711**	**1155**	**< .005**	**< .005**	**< .005**	**< .005**	**< .010**	—	—	**< .005**
405931076555601	20060711	1200	—	—	—	—	—	< .021	< .025	—
405931076555601	20060711	1205	< .005	< .005	< .005	< .005	< .010	—	—	< .005
405931076555601	20060921	1215	—	—	—	—	—	< .021	< .025	—
405931076555601	20060921	1216	< .005	< .005	< .005	< .005	< .010	—	—	< .005

[2]Because of low long-term recoveries, this compound will be qualified.

Station number	Date	Time	Salbutamol, water, fltrd (µg/L) (62020)	Sarafloxacin, water, fltrd (µg/L) (62771)	Sulfachloro-pyridazine, water, fltrd (µg/L) (62774)	Sulfadiazine, water, fltrd (µg/L) (62963)	Sulfadimeth-ozine, water, fltrd (µg/L) (62776)	Sulfameth-azine, water, fltrd (µg/L) (61762)	Sulfameth-oxazole, water, fltrd (µg/L) NWQL (62021)	Sulfameth-oxazole, water, fltrd (µg/L) OGRL (62775)
01470857	20060306	1130	< 0.014	—	—	—	—	—	< 0.024	—
01470857	20060306	1131	—	< 0.005	< 0.005	< 0.050	< 0.005	< 0.005	—	< 0.005
01470857	20060508	1215	< .014	—	—	—	—	—	< .024	—
01470857	20060508	1216	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01470857	20060720	1130	< .014	—	—	—	—	—	< .024	—
01470857	20060720	1131	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01470857	20060918	1235	< .014	—	—	—	—	—	< .024	—
01470857	20060918	1236	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01470858	20060306	1300	< .014	—	—	—	—	—	E(4) .042	—
01470858	20060306	1301	—	< .005	< .005	< .050	< .005	< .005	—	—
01470858	20060508	1100	< .014	—	—	—	—	—	.212	—
01470858	20060508	1101	—	< .005	< .005	< .050	< .005	< .005	—	.123
01470858	20060720	1030	< .014	—	—	—	—	—	E(2) .020	—
01470858	20060720	1031	—	< .005	< .005	< .050	< .005	< .005	—	.082
01470858	**20060918**	**1120**	**< .014**	**—**	**—**	**—**	**—**	**—**	**< .024**	—
01470858	**20060918**	**1121**	**—**	**< .005**	**< .005**	**< .050**	**< .005**	**< .005**	—	**.148**
01470858	20060918	1125	< .014	—	—	—	—	—	E(4) .072	—
01470858	20060918	1126	—	< .005	< .005	< .050	< .005	< .005	—	.159
015693155	20060313	1100	< .014	—	—	—	—	—	< .024	—
015693155	20060313	1101	—	< .005	< .005	< .050	< .005	< .005	—	< .005
015693155	20060510	1145	< .014	—	—	—	—	—	< .024	—
015693155	20060510	1146	—	< .005	< .005	< .050	< .005	< .005	—	< .005
015693155	20060706	1130	< .014	—	—	—	—	—	< .024	—
015693155	20060706	1135	—	< .005	< .005	< .050	< .005	< .005	—	< .005
015693155	20060919	1020	< .014	—	—	—	—	—	< .024	—
015693155	20060919	1021	—	< .005	< .005	< .050	< .005	< .005	—	< .005
015693158	20060313	1300	< .014	—	—	—	—	—	< .027	—
015693158	20060313	1301	—	< .005	< .005	< .050	< .005	< .005	—	.150
015693158	20060510	1030	E(1) .005	—	—	—	—	—	.552	—
015693158	**20060510**	**1031**	**—**	**< .005**	**< .005**	**< .050**	**< .005**	**< .005**	**—**	**.434**
015693158	20060510	1036	—	< .005	< .005	< .050	< .005	< .005	—	.426
015693158	**20060706**	**1020**	**E(1) .004**	**—**	**—**	**—**	**—**	**—**	**.082**	**—**
015693158	**20060706**	**1025**	**—**	**< .005**	**< .005**	**< .050**	**< .005**	**< .005**	**—**	**.110**
015693158	20060706	1030	E(1) .004	—	—	—	—	—	.078	—
015693158	20060706	1035	—	< .005	< .005	< .050	< .005	< .005	—	.268
015693158	20060919	1200	< .014	—	—	—	—	—	.243	—
015693158	20060919	1201	—	< .005	< .005	< .050	< .005	< .005	—	.766
01571193	20060405	1600	< .014	—	—	—	—	—	< .024	—
01571193	20060405	1601	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01571193	20060516	1210	< .014	—	—	—	—	—	< .024	—
01571193	20060516	1211	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01571193	20060726	1500	< .014	—	—	—	—	—	< .024	—
01571193	20060726	1501	—	< .005	< .005	< .050	< .005	< .005	—	< .005

Station number	Date	Time	Salbutamol, water, fltrd (µg/L) (62020)	Sarafloxacin, water, fltrd (µg/L) (62771)	Sulfachloro-pyridazine, water, fltrd (µg/L) (62774)	Sulfadiazine, water, fltrd (µg/L) (62963)	Sulfadimeth-ozine, water, fltrd (µg/L) (62776)	Sulfameth-azine, water, fltrd (µg/L) (61762)	Sulfameth-oxazole, water, fltrd (µg/L) NWQL (62021)	Sulfameth-oxazole, water, fltrd (µg/L) OGRL (62775)
01571193	20060905	1105	< 0.014	—	—	—	—	—	< 0.024	—
01571193	20060905	1106	—	< 0.005	< 0.005	< 0.050	< 0.005	< 0.005	—	< 0.005
01571195	20060405	1800	< .014	—	—	—	—	—	< .024	—
01571195	20060405	1801	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01571195	20060516	1050	< .014	—	—	—	—	—	< .024	—
01571195	20060516	1051	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01571195	20060726	1600	< .014	—	—	—	—	—	< .024	—
01571195	20060726	1601	—	< .005	< .005	< .050	< .005	< .005	—	.023
01571195	20060905	0950	< .014	—	—	—	—	—	E(1) .006	—
01571195	20060905	0951	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01573151	20060307	1415	< .014	—	—	—	—	—	< .024	—
01573151	20060307	1416	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01573151	20060503	1040	< .014	—	—	—	—	—	< .024	—
01573151	20060503	1041	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01573151	20060719	1110	< .014	—	—	—	—	—	< .024	—
01573151	20060719	1111	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01573151	20060913	1100	< .014	—	—	—	—	—	E(2) .022	—
01573151	20060913	1101	—	< .005	< .005	< .050	< .005	< .005	—	.013
01573153	**20060307**	**1230**	**E(2) .009**	**—**	**—**	**—**	**—**	**—**	**< .186**	—
01573153	**20060307**	**1231**	**—**	**< .005**	**< .005**	**.121**	**< .005**	**< .005**	—	**.355**
01573153	20060307	1235	E(2) .010	—	—	—	—	—	< .185	—
01573153	20060307	1236	—	< .005	< .005	.164	< .005	< .005	—	.508
01573153	20060503	0940	E(2) .012	—	—	—	—	—	< .024	—
01573153	20060503	0941	—	< .005	< .005	< .050	< .005	< .005	—	.042
01573153	20060719	1010	< .014	—	—	—	—	—	E(2) .020	—
01573153	20060719	1011	—	< .005	< .005	< .050	< .005	< .005	—	.149
01573153	20060913	0950	< .014	—	—	—	—	—	E(4) .218	—
01573153	20060913	0951	—	< .005	< .005	< .050	< .005	< .005	—	1.340
01574310	20060301	1600	< .014	—	—	—	—	—	< .024	—
01574310	20060301	1601	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574310	20060501	0940	< .014	—	—	—	—	—	< .024	—
01574310	20060501	0941	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574310	20060705	1420	< .014	—	—	—	—	—	< .024	—
01574310	20060705	1425	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574310	20060906	1200	< .014	—	—	—	—	—	< .024	—
01574310	20060906	1201	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574314	20060301	1500	< .014	—	—	—	—	—	< .024	—
01574314	20060301	1501	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574314	**20060501**	**1035**	**< .014**	**—**	**—**	**—**	**—**	**—**	**< .024**	**—**
01574314	**20060501**	**1036**	**—**	**< .005**	**< .005**	**< .050**	**< .005**	**< .005**	**—**	**< .005**
01574314	20060501	1037	< .014	—	—	—	—	—	< .024	—
01574314	20060501	1038	—	< .005	< .005	< .050	< .005	< .005	—	< .055
01574314	20060705	1310	< .014	—	—	—	—	—	< .024	—
01574314	20060705	1315	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574314	20060906	1300	< .014	—	—	—	—	—	< .024	—
01574314	20060906	1301	—	< .005	< .005	< .050	< .005	< .005	—	< .005

Station number	Date	Time	Salbutamol, water, fltrd (µg/L) (62020)	Sarafloxacin, water, fltrd (µg/L) (62771)	Sulfachloro-pyridazine, water, fltrd (µg/L) (62774)	Sulfadiazine, water, fltrd (µg/L) (62963)	Sulfadimeth-ozine, water, fltrd (µg/L) (62776)	Sulfameth-azine, water, fltrd (µg/L) (61762)	Sulfameth-oxazole, water, fltrd (µg/L) NWQL (62021)	Sulfameth-oxazole, water, fltrd (µg/L) OGRL (62775)
01576420	20060306	1600	< 0.014	—	—	—	—	—	< 0.024	—
01576420	20060306	1601	—	< 0.005	< 0.005	< 0.050	< 0.005	< 0.005	—	< 0.067
01576420	20060522	1150	< .014	—	—	—	—	—	< .024	—
01576420	20060522	1151	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01576420	20060717	1150	< .014	—	—	—	—	—	< .024	—
01576420	20060717	1151	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01576420	20060911	1100	< .014	—	—	—	—	—	< .024	—
01576420	20060911	1101	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01576422	20060306	1730	< .014	—	—	—	—	—	E(4) .091	—
01576422	20060306	1731	—	< .005	< .005	< .050	< .005	< .005	—	.142
01576422	20060522	1025	< .014	—	—	—	—	—	.262	—
01576422	20060522	1026	—	< .005	< .005	< .050	< .005	< .005	—	.136
01576422	20060717	1030	< .014	—	—	—	—	—	E(4) .030	—
01576422	20060717	1031	—	< .005	< .005	< .050	< .005	< .005	—	.117
01576422	20060911	1205	< .014	—	—	—	—	—	E(4) .064	—
01576422	20060911	1206	—	< .005	< .005	< .050	< .005	< .005	—	.108
01569346	20060405	1300	< .014	—	—	—	—	—	< .024	—
01569346	20060405	1301	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01569346	20060523	1115	< .014	—	—	—	—	—	< .024	—
01569346	20060523	1116	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01569346	20060726	1045	< .014	—	—	—	—	—	< .024	—
01569346	20060726	1046	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01569346	20060927	0955	< .014	—	—	—	—	—	< .024	—
01569346	20060927	0956	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01569349	20060405	1130	< .014	—	—	—	—	—	< .024	—
01569349	20060405	1131	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01569349	20060523	1000	< .014	—	—	—	—	—	< .024	—
01569349	20060523	1001	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01569349	20060726	1245	< .014	—	—	—	—	—	< .024	—
01569349	20060726	1246	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01569349	20060927	1100	< .014	—	—	—	—	—	< .024	—
01569349	20060927	1101	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01572146	20060320	1200	< .014	—	—	—	—	—	< .024	—
01572146	20060320	1201	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01572146	20060518	1145	< .014	—	—	—	—	—	< .024	—
01572146	20060518	1146	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01572146	20060731	1015	< .014	—	—	—	—	—	< .024	—
01572146	20060731	1016	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01572146	20060926	0945	< .014	—	—	—	—	—	< .024	—
01572146	20060926	0946	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01572148	20060320	1445	< .014	—	—	—	—	—	< .024	—
01572148	20060320	1446	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01572148	20060518	1030	< .014	—	—	—	—	—	< .024	—
01572148	20060518	1031	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01572148	20060731	1110	< .014	—	—	—	—	—	< .024	—
01572148	20060731	1111	—	< .005	< .005	< .050	< .005	< .005	—	< .005

Station number	Date	Time	Salbutamol, water, fltrd (µg/L) (62020)	Sarafloxacin, water, fltrd (µg/L) (62771)	Sulfachloro-pyridazine, water, fltrd (µg/L) (62774)	Sulfadiazine, water, fltrd (µg/L) (62963)	Sulfadimeth-ozine, water, fltrd (µg/L) (62776)	Sulfameth-azine, water, fltrd (µg/L) (61762)	Sulfameth-oxazole, water, fltrd (µg/L) NWQL (62021)	Sulfameth-oxazole, water, fltrd (µg/L) OGRL (62775)
01572148	20060926	1055	< 0.014	—	—	—	—	—	< 0.024	—
01572148	20060926	1056	—	< 0.005	< 0.005	< 0.050	< 0.005	< 0.005	—	< 0.005
401704076293101	20060315	1145	< .014	—	—	—	—	—	< .024	—
401704076293101	20060315	1146	—	< .005	< .005	< .050	< .005	< .005	—	< .005
401704076293101	20060503	1345	< .014	—	—	—	—	—	< .024	—
401704076293101	20060503	1346	—	< .005	< .005	< .050	< .005	< .005	—	< .005
401704076293101	20060719	1430	< .014	—	—	—	—	—	< .024	—
401704076293101	20060719	1431	—	< .005	< .005	< .050	< .005	< .005	—	< .005
401704076293101	20060913	1400	< .014	—	—	—	—	—	< .024	—
401704076293101	20060913	1401	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01573095	20060315	1030	< .014	—	—	—	—	—	< .024	—
01573095	20060315	1031	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01573095	20060503	1245	< .014	—	—	—	—	—	< .024	—
01573095	20060503	1246	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01573095	20060719	1330	< .014	—	—	—	—	—	< .024	—
01573095	20060719	1331	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01573095	20060913	1305	< .014	—	—	—	—	—	E .008	—
01573095	20060913	1306	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574050	20060316	1030	< .014	—	—	—	—	—	< .024	—
01574050	20060316	1031	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574050	20060501	1350	< .014	—	—	—	—	—	< .024	—
01574050	20060501	1351	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574050	20060705	1045	< .014	—	—	—	—	—	< .024	—
01574050	20060705	1050	—	< .005	< .005	< .050	< .005	< .005	—	.019
01574050	20060906	1030	< .014	—	—	—	—	—	E(4) .039	—
01574050	20060906	1031	—	< .005	< .005	< .050	< .005	< .005	—	.157
01574055	20060316	1130	< .014	—	—	—	—	—	< .024	—
01574055	20060316	1131	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574055	20060501	1245	< .014	—	—	—	—	—	< .024	—
01574055	20060501	1246	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01574055	20060705	1145	< .014	—	—	—	—	—	< .024	—
01574055	20060705	1150	—	< .005	< .005	< .050	.005	< .005	—	< .005
01574055	20060906	9250	< .014	—	—	—	—	—	E(1) .006	—
01574055	20060906	0926	—	< .005	< .005	< .050	< .005	< .005	—	.019
01575771	20060322	1000	< .014	—	—	—	—	—	< .024	—
01575771	20060322	1001	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01575771	20060515	1055	< .014	—	—	—	—	—	< .024	—
01575771	20060515	1056	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01575771	20060717	1410	< .014	—	—	—	—	—	< .024	—
01575771	20060717	1411	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01575771	20060911	1450	< .014	—	—	—	—	—	< .024	—
01575771	20060911	1451	—	< .005	< .005	< .050	< .005	< .005	—	< .005
015757724	20060322	1100	< .014	—	—	—	—	—	< .024	—
015757724	20060322	1101	—	< .005	< .005	< .050	< .005	< .005	—	< .005
015757724	20060515	0915	< .014	—	—	—	—	—	< .024	—
015757724	20060515	0916	—	< .005	< .005	< .050	< .005	< .005	—	< .005

Station number	Date	Time	Salbutamol, water, fltrd (µg/L) (62020)	Sarafloxacin, water, fltrd (µg/L) (62771)	Sulfachloro-pyridazine, water, fltrd (µg/L) (62774)	Sulfadiazine, water, fltrd (µg/L) (62963)	Sulfadimeth-ozine, water, fltrd (µg/L) (62776)	Sulfameth-azine, water, fltrd (µg/L) (61762)	Sulfameth-oxazole, water, fltrd (µg/L) NWQL (62021)	Sulfameth-oxazole, water, fltrd (µg/L) OGRL (62775)
015757724	20060717	1310	< 0.014	—	—	—	—	—	< 0.024	—
015757724	20060717	1311	—	< 0.005	< 0.005	< 0.050	< 0.005	< 0.005	—	< 0.005
015757724	20060911	1550	< .014	—	—	—	—	—	< .024	—
015757724	20060911	1551	—	< .005	< .005	< .050	.026	< .005	—	< .005
01578349	20060314	1145	< .014	—	—	—	—	—	< .024	—
01578349	20060314	1146	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01578349	20060511	1110	< .014	—	—	—	—	—	< .024	—
01578349	20060511	1111	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01578349	20060718	1250	< .014	—	—	—	—	—	< .024	—
01578349	20060718	1251	—	< .005	< .005	< .050	< .005	< .005	—	< .005
01578349	20060912	1215	< .014	—	—	—	—	—	< .024	—
01578349	20060912	1216	—	< .005	< .005	< .050	< .005	< .005	—	< .005
015783492	20060314	1400	< .014	—	—	—	—	—	< .024	—
015783492	20060314	1401	—	< .005	< .005	< .050	< .005	< .005	—	< .005
015783492	20060511	1010	< .014	—	—	—	—	—	< .024	—
015783492	20060511	1011	—	< .005	< .005	< .050	< .005	< .005		< .005
015783492	20060718	1115	< .014	—	—	—	—	—	< .024	—
015783492	20060718	1116	—	< .005	< .005	< .050	< .005	< .005	—	< .005
015783492	20060912	1115	< .014	—	—	—	—	—	< .024	—
015783492	20060912	1116	—	< .005	< .005	< .050	< .005	< .005	—	< .005
394643077043101	20060309	1230	< .014	—	—	—	—	—	< .024	—
394643077043101	20060309	1231	—	< .005	< .005	< .050	< .005	< .005	—	< .005
394643077043101	**20060504**	**1110**	**< .014**	**—**	**—**	**—**	**—**	**—**	**< .024**	—
394643077043101	**20060504**	**1111**	**—**	**< .005**	**< .005**	**< .050**	**< .005**	**< .005**	—	**< .005**
394643077043101	20060504	1112	< .014	—	—	—	—	—	< .024	—
394643077043101	20060504	1113	—	< .005	< .005	< .050	< .005	< .005	—	< .005
394643077043101	20060710	1125	< .014	—	—	—	—	—	< .024	—
394643077043101	20060710	1130	—	< .005	< .005	< .050	< .005	< .005	—	< .005
394643077043101	20060925	1055	< .014	—	—	—	—	—	< .024	—
394643077043101	20060925	1056	—	< .005	< .005	< .050	< .005	< .005	—	< .005
400610076282501	20060406	1030	< .014	—	—	—	—	—	< .024	—
400610076282501	20060406	1031	—	< .005	< .005	< .050	< .005	< .005	—	< .005
400610076282501	**20060515**	**1315**	**< .014**	**—**	**—**	**—**	**—**	**—**	**< .024**	—
400610076282501	**20060515**	**1316**	**—**	**< .005**	**< .005**	**< .050**	**< .005**	**< .005**	—	**< .005**
400610076282501	20060515	1317	< .014	—	—	—	—	—	< .024	—
400610076282501	20060515	1318	—	< .005	< .005	< .050	< .005	< .005	—	< .005
400610076282501	20060713	1100	< .014	—	—	—	—	—	< .024	—
400610076282501	20060713	1101	—	< .005	< .005	< .050	< .005	< .005	—	< .005
400610076282501	**20060907**	**1100**	**< .014**	**—**	**—**	**—**	**—**	**—**	**< .024**	—
400610076282501	**20060907**	**1101**	**—**	**< .005**	**< .005**	**< .050**	**< .005**	**< .005**	—	**< .005**
400610076282501	20060907	1105	< .014	—	—	—	—	—	< .024	—
400610076282501	20060907	1106	—	< .005	< .005	< .050	< .005	< .005	—	< .005
401712076235101	20060403	1415	< .014	—	—	—	—	—	< .024	—
401712076235101	20060403	1416	—	< .005	< .005	< .050	< .005	< .005	—	< .005
401712076235101	20060517	1410	< .014	—	—	—	—	—	< .024	—
401712076235101	20060517	1411	—	< .005	< .005	< .050	< .005	< .005	—	< .005

Station number	Date	Time	Salbutamol, water, fltrd (µg/L) (62020)	Sarafloxacin, water, fltrd (µg/L) (62771)	Sulfachloro-pyridazine, water, fltrd (µg/L) (62774)	Sulfadiazine, water, fltrd (µg/L) (62963)	Sulfadimeth-ozine, water, fltrd (µg/L) (62776)	Sulfameth-azine, water, fltrd (µg/L) (61762)	Sulfameth-oxazole, water, fltrd (µg/L) NWQL (62021)	Sulfameth-oxazole, water, fltrd (µg/L) OGRL (62775)
401712076235101	20060712	1355	< 0.014	—	—	—	—	—	< 0.024	—
401712076235101	20060712	1400	—	< 0.005	< 0.005	< 0.050	< 0.005	< 0.005	—	< 0.005
401712076235101	20060920	1400	< .014	—	—	—	—	—	< .024	—
401712076235101	20060920	1401	—	< .005	< .005	< .050	< .005	< .005	—	.006
401920078130101	20060329	1300	< .014	—	—	—	—	—	< .024	—
401920078130101	20060329	1301	—	< .005	< .005	< .050	< .005	< .005	—	< .005
401920078130101	20060509	1400	< .014	—	—	—	—	—	< .024	—
401920078130101	20060509	1401	—	< .005	< .005	< .050	< .005	< .005	—	< .005
401920078130101	20060725	1250	< .014	—	—	—	—	—	< .024	—
401920078130101	20060725	1251	—	< .005	< .005	< .050	< .005	< .005	—	< .005
401920078130101	20060914	1230	< .014	—	—	—	—	—	< .024	—
401920078130101	20060914	1231	—	< .005	< .005	< .050	< .005	< .005	—	< .005
402052076160101	20060403	1130	< .014	—	—	—	—	—	< .024	—
402052076160101	20060403	1131	—	< .005	< .005	< .050	< .005	< .005	—	< .005
402052076160101	20060517	1135	< .014	—	—	—	—	—	< .024	—
402052076160101	20060517	1136	—	< .005	< .005	< .050	< .005	< .005	—	< .005
402052076160101	20060712	1140	< .014	—	—	—	—	—	< .024	—
402052076160101	20060712	1145	—	< .005	< .005	< .050	< .005	< .005	—	< .005
402052076160101	20060920	1050	< .014	—	—	—	—	—	< .024	—
402052076160101	20060920	1051	—	< .005	< .005	< .050	< .005	< .005	—	< .005
405931076555601	20060323	1140	< .014	—	—	—	—	—	< .024	—
405931076555601	20060323	1141	—	< .005	< .005	< .050	< .005	< .005	—	< .005
405931076555601	20060502	1140	< .014	—	—	—	—	—	< .024	—
405931076555601	20060502	1141	—	< .005	< .005	< .050	< .005	< .005	—	< .005
405931076555601	**20060711**	**1150**	**< .014**	**—**	**—**	**—**	**—**	**—**	**< .024**	—
405931076555601	**20060711**	**1155**	**—**	**< .005**	**< .005**	**< .050**	**< .005**	**< .005**	—	**< .005**
405931076555601	20060711	1200	< .014	—	—	—	—	—	< .024	—
405931076555601	20060711	1205	—	< .005	< .005	< .050	< .005	< .005	—	< .005
405931076555601	20060921	1215	< .014	—	—	—	—	—	< .024	—
405931076555601	20060921	1216	—	< .005	< .005	< .050	< .005	< .005	—	< .005

Station number	Date	Time	Sulfathiazole, water, fltrd (µg/L) (62778)	Tetracycline, water, fltrd (µg/L) (62781)	Thiaben-dazole, water, fltrd (µg/L) (62801)	Trimethoprim, water, fltrd (µg/L) NWQL (62023)	Trimethoprim, water, fltrd (µg/L) OGRL (62023)	Tylosin, water, fltrd (µg/L) (62896)
01470857	20060306	1130	—	—	< 0.025	< 0.020	—	—
01470857	20060306	1131	< 0.020	< 0.010	—	—	< 0.005	< 0.005
01470857	20060508	1215	—	—	< .025	< .020	—	—
01470857	20060508	1216	< .020	< .010	—	—	< .005	< .005
01470857	20060720	1130	—	—	< .025	< .020	—	—
01470857	20060720	1131	< .020	< .010	—	—	< .005	< .005
01470857	20060918	1235	—	—	< .025	< .020	—	—
01470857	20060918	1236	< .020	< .010	—	—	< .005	< .005
01470858	20060306	1300	—	—	< .025	E(2) .014	—	—
01470858	20060306	1301	< .020	< .010	—	—	< .005	< .005
01470858	20060508	1100	—	—	< .025	E(2) .019	—	—
01470858	20060508	1101	< .020	< .010	—	—	.022	< .005
01470858	20060720	1030	—	—	< .025	E(1) .004	—	—
01470858	20060720	1031	< .020	< .010	—	—	.014	< .005
01470858	**20060918**	**1120**	**—**	**—**	**< .025**	**< .020**	**—**	**—**
01470858	**20060918**	**1121**	**< .020**	**< .010**	**—**	—	**.011**	**< .005**
01470858	20060918	1125	—	—	< .025	E(2) .010	—	—
01470858	20060918	1126	< .020	< .010	—	—	.010	< .005
015693155	20060313	1100	—	—	< .025	< .020	—	—
015693155	20060313	1101	< .020	< .010	—	—	< .005	< .005
015693155	20060510	1145	—	—	< .025	< .020	—	—
015693155	20060510	1146	< .020	< .010	—	—	< .005	< .005
015693155	20060706	1130	—	—	< .025	< .020	—	—
015693155	20060706	1135	< .020	< .010	—	—	< .005	< .005
015693155	20060919	1020	—	—	< .025	< .020	—	—
015693155	20060919	1021	< .020	< .010	—	—	< .005	< .005
015693158	20060313	1300	—	—	< .025	.033	—	—
015693158	20060313	1301	< .020	< .010	—	—	.030	< .005
015693158	20060510	1030	—	—	< .025	.117	—	—
015693158	**20060510**	**1031**	**< .020**	**< .010**	**—**	**—**	**.123**	**< .005**
015693158	20060510	1036	< .020	< .010	—	—	.114	< .005
015693158	**20060706**	**1020**	**—**	**—**	**< .025**	**.023**	**—**	**—**
015693158	**20060706**	**1025**	**< .020**	**< .010**	**—**	**—**	**.052**	**< .005**
015693158	20060706	1030	—	—	< .025	.023	—	—
015693158	20060706	1035	< .020	< .010	—	—	.058	< .005
015693158	20060919	1200	—	—	< .025	.037	—	—
015693158	20060919	1201	< .020	< .010	—	—	.080	< .005
01571193	20060405	1600	—	—	< .025	< .020	—	—
01571193	20060405	1601	< .020	< .010	—	—	< .005	.009
01571193	20060516	1210	—	—	< .025	< .020	—	—
01571193	20060516	1211	< .020	< .010	—	—	< .005	< .005
01571193	20060726	1500	—	—	< .025	< .020	—	—
01571193	20060726	1501	< .020	< .010	—	—	< .005	< .005

Station number	Date	Time	Sulfathiazole, water, fltrd (µg/L) (62778)	Tetracycline, water, fltrd (µg/L) (62781)	Thiaben-dazole, water, fltrd (µg/L) (62801)	Trimethoprim, water, fltrd (µg/L) NWQL (62023)	Trimethoprim, water, fltrd (µg/L) OGRL (62023)	Tylosin, water, fltrd (µg/L) (62896)
01571193	20060905	1105	—	—	< 0.025	< 0.020	—	—
01571193	20060905	1106	< 0.020	< 0.010	—	—	< 0.005	< 0.005
01571195	20060405	1800	—	—	< .025	< .020	—	—
01571195	20060405	1801	< .020	< .010	—	—	.009	.023
01571195	20060516	1050	—	—	< .025	< .020	—	—
01571195	20060516	1051	< .020	< .010	—	—	< .005	< .005
01571195	20060726	1600	—	—	< .025	< .020	—	—
01571195	20060726	1601	< .020	< .010	—	—	< .005	< .005
01571195	20060905	0950	—	—	< .025	< .020	—	—
01571195	20060905	0951	< .020	< .010	—	—	< .005	< .005
01573151	20060307	1415	—	—	< .025	< .020	—	—
01573151	20060307	1416	< .020	< .010	—	—	< .005	< .005
01573151	20060503	1040	—	—	< .025	< .020	—	—
01573151	20060503	1041	< .020	< .010	—	—	< .005	< .005
01573151	20060719	1110	—	—	< .025	< .020	—	—
01573151	20060719	1111	< .020	< .010	—	—	< .005	< .005
01573151	20060913	1100	—	—	< .025	< .020	—	—
01573151	20060913	1101	< .020	< .010	—	—	< .005	< .005
01573153	**20060307**	**1230**	**—**	**—**	**< .025**	**.105**	**—**	**—**
01573153	**20060307**	**1231**	**< .020**	**< .010**	**—**	**—**	**.140**	**< .005**
01573153	20060307	1235	—	—	< .025	.121	—	—
01573153	20060307	1236	< .020	< .010	—	—	.153	.006
01573153	20060503	0940	—	—	< .025	.106	—	—
01573153	20060503	0941	< .020	< .010	—	—	.256	< .005
01573153	20060719	1010	—	—	< .025	< .020	—	—
01573153	20060719	1011	< .020	< .010	—	—	.040	< .005
01573153	20060913	0950	—	—	< .025	< .020	—	—
01573153	20060913	0951	< .020	< .010	—	—	.033	< .005
01574310	20060301	1600	—	—	< .025	< .020	—	—
01574310	20060301	1601	< .020	< .010	—	—	< .005	.005
01574310	20060501	0940	—	—	< .025	< .020	—	—
01574310	20060501	0941	< .020	< .010	—	—	< .005	.030
01574310	20060705	1420	—	—	< .025	< .020	—	—
01574310	20060705	1425	< .020	< .010	—	—	< .005	.010
01574310	20060906	1200	—	—	< .025	< .020	—	—
01574310	20060906	1201	< .020	< .010	—	—	< .005	< .005
01574314	20060301	1500	—	—	< .025	< .020	—	—
01574314	20060301	1501	< .020	< .010	—	—	< .005	.007
01574314	**20060501**	**1035**	**—**	**—**	**< .025**	**< .020**	**—**	**—**
01574314	**20060501**	**1036**	**< .020**	**< .010**	**—**	**—**	**< .005**	**.025**
01574314	20060501	1037	—	—	< .025	< .020	—	—
01574314	20060501	1038	< .020	< .010	—	—	< .005	.018
01574314	20060705	1310	—	—	< .025	< .020	—	—
01574314	20060705	1315	< .020	< .010	—	—	< .005	.012
01574314	20060906	1300	—	—	< .025	< .020	—	—
01574314	20060906	1301	< .020	< .010	—	—	< .005	< .005

Station number	Date	Time	Sulfathiazole, water, fltrd (µg/L) (62778)	Tetracycline, water, fltrd (µg/L) (62781)	Thiaben-dazole, water, fltrd (µg/L) (62801)	Trimethoprim, water, fltrd (µg/L) NWQL (62023)	Trimethoprim, water, fltrd (µg/L) OGRL (62023)	Tylosin, water, fltrd (µg/L) (62896)
01576420	20060306	1600	—	—	< 0.025	< 0.020	—	—
01576420	20060306	1601	< 0.020	< 0.010	—	—	0.015	< 0.005
01576420	20060522	1150	—	—	< .025	< .020	—	—
01576420	20060522	1151	< .020	< .010	—	—	< .005	< .005
01576420	20060717	1150	—	—	< .025	< .020	—	—
01576420	20060717	1151	< .020	< .010	—	—	< .005	< .005
01576420	20060911	1100	—	—	< .025	< .020	—	—
01576420	20060911	1101	< .020	< .010	—	—	< .005	< .005
01576422	20060306	1730	—	—	< .025	.030	—	—
01576422	20060306	1731	< .020	< .010	—	—	.034	.005
01576422	20060522	1025	—	—	< .025	.060	—	—
01576422	20060522	1026	< .020	< .010	—	—	.106	.007
01576422	20060717	1030	—	—	< .025	E(4) .022	—	—
01576422	20060717	1031	< .020	< .010	—	—	.054	< .005
01576422	20060911	1205	—	—	< .025	< .020	—	—
01576422	20060911	1206	< .020	< .010	—	—	.069	< .005
01569346	20060405	1300	—	—	< .025	< .020	—	—
01569346	20060405	1301	< .020	< .010	—	—	< .005	< .005
01569346	20060523	1115	—	—	< .025	< .020	—	—
01569346	20060523	1116	< .020	< .010	—	—	< .005	< .005
01569346	20060726	1045	—	—	< .025	< .020	—	—
01569346	20060726	1046	< .020	< .010	—	—	< .005	< .005
01569346	20060927	0955	—	—	< .025	< .020	—	—
01569346	20060927	0956	< .020	< .010	—	—	< .005	< .005
01569349	20060405	1130	—	—	< .025	< .020	—	—
01569349	20060405	1131	< .020	< .010	—	—	< .005	.007
01569349	20060523	1000	—	—	< .025	< .020	—	—
01569349	20060523	1001	< .020	< .010	—	—	< .005	< .005
01569349	20060726	1245	—	—	< .025	< .020	—	—
01569349	20060726	1246	< .020	< .010	—	—	< .005	< .005
01569349	20060927	1100	—	—	< .025	< .020	—	—
01569349	20060927	1101	< .020	< .010	—	—	< .005	< .005
01572146	20060320	1200	—	—	< .025	< .020	—	—
01572146	20060320	1201	< .020	< .010	—	—	< .005	< .005
01572146	20060518	1145	—	—	< .025	< .020	—	—
01572146	20060518	1146	< .020	< .010	—	—	< .005	< .005
01572146	20060731	1015	—	—	< .025	< .020	—	—
01572146	20060731	1016	< .020	< .010	—	—	< .005	< .005
01572146	20060926	0945	—	—	< .025	< .020	—	—
01572146	20060926	0946	< .020	< .010	—	—	< .005	< .005
01572148	20060320	1445	—	—	< .025	< .020	—	—
01572148	20060320	1446	< .020	< .010	—	—	< .005	< .005
01572148	20060518	1030	—	—	< .025	< .020	—	—
01572148	20060518	1031	< .020	< .010	—	—	< .005	< .005
01572148	20060731	1110	—	—	< .025	< .020	—	—
01572148	20060731	1111	< .020	< .010	—	—	< .005	< .005

Station number	Date	Time	Sulfathiazole, water, fltrd (µg/L) (62778)	Tetracycline, water, fltrd (µg/L) (62781)	Thiaben-dazole, water, fltrd (µg/L) (62801)	Trimethoprim, water, fltrd (µg/L) NWQL (62023)	Trimethoprim, water, fltrd (µg/L) OGRL (62023)	Tylosin, water, fltrd (µg/L) (62896)
01572148	20060926	1055	—	—	< 0.025	< 0.020	—	—
01572148	20060926	1056	< 0.020	< 0.010	—	—	< 0.005	< 0.005
401704076293101	20060315	1145	—	—	< .025	< .020	—	—
401704076293101	20060315	1146	< .020	< .010	—	—	< .005	< .005
401704076293101	20060503	1345	—	—	< .025	< .020	—	—
401704076293101	20060503	1346	< .020	< .010	—	—	< .005	< .005
401704076293101	20060719	1430	—	—	< .025	< .020	—	—
401704076293101	20060719	1431	< .020	< .010	—	—	< .005	< .005
401704076293101	20060913	1400	—	—	< .025	< .020	—	—
401704076293101	20060913	1401	< .020	< .010	—	—	< .005	< .005
01573095	20060315	1030	—	—	< .025	< .020	—	—
01573095	20060315	1031	< .020	< .010	—	—	< .005	< .005
01573095	20060503	1245	—	—	< .025	< .020	—	—
01573095	20060503	1246	< .020	< .010	—	—	< .005	< .005
01573095	20060719	1330	—	—	< .025	< .020	—	—
01573095	20060719	1331	< .020	< .010	—	—	< .005	< .005
01573095	20060913	1305	—	—	< .025	< .020	—	—
01573095	20060913	1306	< .020	< .010	—	—	< .005	< .005
01574050	20060316	1030	—	—	< .025	< .020	—	—
01574050	20060316	1031	< .020	< .010	—	—	< .005	< .005
01574050	20060501	1350	—	—	< .025	< .020	—	—
01574050	20060501	1351	< .020	< .010	—	—	< .005	.017
01574050	20060705	1045	—	—	< .025	< .020	—	—
01574050	20060705	1050	< .020	< .010	—	—	< .005	< .005
01574050	20060906	1030	—	—	< .025	< .020	—	—
01574050	20060906	1031	< .020	< .010	—	—	< .005	< .005
01574055	20060316	1130	—	—	< .025	< .020	—	—
01574055	20060316	1131	< .020	< .010	—	—	< .005	< .005
01574055	20060501	1245	—	—	< .025	< .020	—	—
01574055	20060501	1246	< .020	< .010	—	—	< .005	.027
01574055	20060705	1145	—	—	< .025	< .020	—	—
01574055	20060705	1150	< .020	< .010	—	—	< .005	< .005
01574055	20060906	0925	—	—	< .025	< .020	—	—
01574055	20060906	0926	< .020	< .010	—	—	< .005	< .005
01575771	20060322	1000	—	—	< .025	< .020	—	—
01575771	20060322	1001	< .020	< .010	—	—	< .005	< .005
01575771	20060515	1055	—	—	< .025	< .020	—	—
01575771	20060515	1056	< .020	< .010	—	—	< .005	< .005
01575771	20060717	1410	—	—	< .025	< .020	—	—
01575771	20060717	1411	< .020	< .010	—	—	< .005	< .005
01575771	20060911	1450	—	—	< .025	< .020	—	—
01575771	20060911	1451	< .020	< .010	—	—	< .005	< .005
015757724	20060322	1100	—	—	< .025	< .020	—	—
015757724	20060322	1101	< .020	< .010	—	—	< .005	< .005
015757724	20060515	0915	—	—	< .025	< .020	—	—
015757724	20060515	0916	< .020	< .010	—	—	< .005	< .005

Station number	Date	Time	Sulfathiazole, water, fltrd (µg/L) (62778)	Tetracycline, water, fltrd (µg/L) (62781)	Thiaben-dazole, water, fltrd (µg/L) (62801)	Trimethoprim, water, fltrd (µg/L) NWQL (62023)	Trimethoprim, water, fltrd (µg/L) OGRL (62023)	Tylosin, water, fltrd (µg/L) (62896)
015757724	20060717	1310	—	—	< 0.025	< 0.020	—	—
015757724	20060717	1311	< 0.020	< 0.010	—	—	< 0.005	< 0.005
015757724	20060911	1550	—	—	< .025	< .020	—	—
015757724	20060911	1551	< .020	< .010	—	—	< .005	< .005
01578349	20060314	1145	—	—	< .025	< .020	—	—
01578349	20060314	1146	< .020	< .010	—	—	< .005	< .005
01578349	20060511	1110	—	—	< .025	< .020	—	—
01578349	20060511	1111	< .020	< .010	—	—	< .005	< .005
01578349	20060718	1250	—	—	< .025	< .020	—	—
01578349	20060718	1251	< .020	< .010	—	—	< .005	< .005
01578349	20060912	1215	—	—	< .025	< .020	—	—
01578349	20060912	1216	< .020	< .010	—	—	< .005	< .005
015783492	20060314	1400	—	—	< .025	< .020	—	—
015783492	20060314	1401	< .020	< .010	—	—	< .005	< .005
015783492	20060511	1010	—	—	< .025	< .020	—	—
015783492	20060511	1011	< .020	< .010	—	—	< .005	< .005
015783492	20060718	1115	—	—	< .025	< .020	—	—
015783492	20060718	1116	< .020	< .010	—	—	< .005	< .005
015783492	20060912	1115	—	—	< .025	< .020	—	—
015783492	20060912	1116	< .020	< .010	—	—	< .005	< .005
394643077043101	20060309	1230	—	—	< .025	< .020	—	—
394643077043101	20060309	1231	< .020	< .010	—	—	< .005	< .005
394643077043101	**20060504**	**1110**	**—**	**—**	**< .025**	**< .020**	**—**	**—**
394643077043101	**20060504**	**1111**	**< .020**	**< .010**	**—**	**—**	**< .005**	**< .005**
394643077043101	20060504	1112	—	—	< .025	< .020	—	—
394643077043101	20060504	1113	< .020	< .010	—	—	< .005	< .005
394643077043101	20060710	1125	—	—	< .025	< .020	—	—
394643077043101	20060710	1130	< .020	< .010	—	—	< .005	< .005
394643077043101	20060925	1055	—	—	< .025	< .020	—	—
394643077043101	20060925	1056	< .020	< .010	—	—	< .005	< .005
400610076282501	20060406	1030	—	—	< .025	< .020	—	—
400610076282501	20060406	1031	< .020	< .010	—	—	< .005	.012
400610076282501	**20060515**	**1315**	**—**	**—**	**< .025**	**< .020**	**—**	**—**
400610076282501	**20060515**	**1316**	**< .020**	**< .010**	**—**	**—**	**< .005**	**< .005**
400610076282501	20060515	1317	—	—	< .025	< .020	—	—
400610076282501	20060515	1318	< .020	< .010	—	—	< .005	< .005
400610076282501	20060713	1100	—	—	< .025	< .020	—	—
400610076282501	20060713	1101	< .020	< .010	—	—	< .005	< .005
400610076282501	**20060907**	**1100**	**—**	**—**	**< .025**	**< .020**	**—**	**—**
400610076282501	**20060907**	**1101**	**< .020**	**< .010**	**—**	**—**	**< .005**	**< .005**
400610076282501	20060907	1105	—	—	< .025	< .020	—	—
400610076282501	20060907	1106	< .020	< .010	—	—	< .005	< .005
401712076235101	20060403	1415	—	—	< .025	< .020	—	—
401712076235101	20060403	1416	< .020	< .010	—	—	< .005	.017
401712076235101	20060517	1410	—	—	< .025	< .020	—	—
401712076235101	20060517	1411	< .020	< .010	—	—	< .005	< .005

Station number	Date	Time	Sulfathiazole, water, fltrd (µg/L) (62778)	Tetracycline, water, fltrd (µg/L) (62781)	Thiaben-dazole, water, fltrd (µg/L) (62801)	Trimethoprim, water, fltrd (µg/L) NWQL (62023)	Trimethoprim, water, fltrd (µg/L) OGRL (62023)	Tylosin, water, fltrd (µg/L) (62896)
401712076235101	20060712	1355	—	—	< 0.025	< 0.020	—	—
401712076235101	20060712	1400	< 0.020	< 0.010	—	—	< 0.005	< 0.005
401712076235101	20060920	1400	—	—	< .025	< .020	—	—
401712076235101	20060920	1401	< .020	< .010	—	—	< .005	< .005
401920078130101	20060329	1300	—	—	< .025	< .020	—	—
401920078130101	20060329	1301	< .020	< .010	—	—	< .005	< .005
401920078130101	20060509	1400	—	—	< .025	< .020	—	—
401920078130101	20060509	1401	< .020	< .010	—	—	< .005	< .005
401920078130101	20060725	1250	—	—	< .025	< .020	—	—
401920078130101	20060725	1251	< .020	< .010	—	—	< .005	< .005
401920078130101	20060914	1230	—	—	< .025	< .020	—	—
401920078130101	20060914	1231	< .020	< .010	—	—	< .005	< .005
402052076160101	20060403	1130	—	—	< .025	< .020	—	—
402052076160101	20060403	1131	< .020	< .010	—	—	< .005	< .005
402052076160101	20060517	1135	—	—	< .025	< .020	—	—
402052076160101	20060517	1136	< .020	< .010	—	—	< .005	< .005
402052076160101	20060712	1140	—	—	< .025	< .020	—	—
402052076160101	20060712	1145	< .020	< .010	—	—	< .005	< .005
402052076160101	20060920	1050	—	—	< .025	< .020	—	—
402052076160101	20060920	1051	< .020	< .010	—	—	< .005	< .005
405931076555601	20060323	1140	—	—	< .025	< .020	—	—
405931076555601	20060323	1141	< .020	< .010	—	—	< .005	< .005
405931076555601	20060502	1140	—	—	< .025	< .020	—	—
405931076555601	20060502	1141	< .020	< .010	—	—	< .005	< .005
405931076555601	**20060711**	**1150**	**—**	**—**	**< .025**	**< .020**	**—**	**—**
405931076555601	**20060711**	**1155**	**< .020**	**< .010**	**—**	**—**	**< .005**	**< .005**
405931076555601	20060711	1200	—	—	< .025	< .020	—	—
405931076555601	20060711	1205	< .020	< .010	—	—	< .005	< .005
405931076555601	20060921	1215	—	—	< .025	< .020	—	—
405931076555601	20060921	1216	< .020	< .010	—	—	< .005	< .005

Station number	Date	Time	Virginia-mycin, water, fltrd (µg/L) (62897)	Warfarin, water, fltrd (µg/L) (62024)	Type of quality-assurance data associated with sample, code (99111)	Type of replicate, code (99105)
01470857	20060306	1130	—	< 0.019	—	—
01470857	20060306	1131	< 0.005	—	—	—
01470857	20060508	1215	—	< .019	blank	—
01470857	20060508	1216	< .005	—	blank	—
01470857	20060720	1130	—	< .019	—	—
01470857	20060720	1131	< .005	—	—	—
01470857	20060918	1235	—	< .019	—	—
01470857	20060918	1236	< .005	—	—	—
01470858	20060306	1300	—	< .019	—	—
01470858	20060306	1301	< .005	—	—	—
01470858	20060508	1100	—	< .019	—	—
01470858	20060508	1101	< .005	—	—	—
01470858	20060720	1030	—	< .019	—	—
01470858	20060720	1031	< .005	—	—	—
01470858	**20060918**	**1120**	**—**	**< .019**	**replicate**	**sequential**
01470858	**20060918**	**1121**	**< .005**	**—**	**replicate**	**sequential**
01470858	20060918	1125	—	< .019	—	sequential
01470858	20060918	1126	< .005	—	—	sequential
015693155	20060313	1100	—	< .019	—	—
015693155	20060313	1101	< .005	—	—	—
015693155	20060510	1145	—	< .019	—	—
015693155	20060510	1146	< .005	—	—	—
015693155	20060706	1130	—	< .019	—	—
015693155	20060706	1135	< .005	—	—	—
015693155	20060919	1020	—	< .019	—	—
015693155	20060919	1021	< .005	—	—	—
015693158	20060313	1300	—	< .019	—	—
015693158	20060313	1301	< .005	—	—	—
015693158	20060510	1030	—	< .019	spike	—
015693158	**20060510**	**1031**	**< .005**	**—**	**replicate**	**split**
015693158	20060510	1036	< .005	—	—	split
015693158	**20060706**	**1020**	**—**	**< .019**	**replicate**	**sequential**
015693158	**20060706**	**1025**	**< .005**	**—**	**replicate**	**sequential**
015693158	20060706	1030	—	< .019	—	sequential
015693158	20060706	1035	< .005	—	—	sequential
015693158	20060919	1200	—	< .019	blank	—
015693158	20060919	1201	< .005	—	blank	—
01571193	20060405	1600	—	< .019	—	—
01571193	20060405	1601	< .005	—	—	—
01571193	20060516	1210	—	< .019	—	—
01571193	20060516	1211	< .005	—	—	—
01571193	20060726	1500	—	< .019	—	—
01571193	20060726	1501	< .005	—	—	—

Station number	Date	Time	Virginiamycin, water, fltrd (µg/L) (62897)	Warfarin, water, fltrd (µg/L) (62024)	Type of quality-assurance data associated with sample, code (99111)	Type of replicate, code (99105)
01571193	20060905	1105	—	< 0.019	—	—
01571193	20060905	1106	< 0.005	—	—	—
01571195	20060405	1800	—	< .019	—	—
01571195	20060405	1801	< .005	—	—	—
01571195	20060516	1050	—	< .019	—	—
01571195	20060516	1051	< .005	—	—	—
01571195	20060726	1600	—	< .019	—	—
01571195	20060726	1601	< .005	—	—	—
01571195	20060905	0950	—	< .019	—	—
01571195	20060905	0951	< .005	—	—	—
01573151	20060307	1415	—	< .019	—	—
01573151	20060307	1416	< .005	—	—	—
01573151	20060503	1040	—	< .019	—	—
01573151	20060503	1041	< .005	—	—	—
01573151	20060719	1110	—	< .019	—	—
01573151	20060719	1111	< .005	—	—	—
01573151	20060913	1100	—	< .019	—	—
01573151	20060913	1101	< .005	—	—	—
01573153	**20060307**	**1230**	**—**	**< .019**	**replicate**	**sequential**
01573153	**20060307**	**1231**	**< .005**	**—**	**replicate**	**sequential**
01573153	20060307	1235	—	< .019	—	sequential
01573153	20060307	1236	< .005	—	—	sequential
01573153	20060503	0940	—	< .019	—	—
01573153	20060503	0941	< .005	—	—	—
01573153	20060719	1010	—	< .019	—	—
01573153	20060719	1011	< .005	—	—	—
01573153	20060913	0950	—	< .019	—	—
01573153	20060913	0951	< .005	—	—	—
01574310	20060301	1600	—	< .019	—	—
01574310	20060301	1601	< .005	—	—	—
01574310	20060501	0940	—	< .019	—	—
01574310	20060501	0941	< .005	—	—	—
01574310	20060705	1420	—	< .019	—	—
01574310	20060705	1425	< .005	—	—	—
01574310	20060906	1200	—	< .019	—	—
01574310	20060906	1201	< .005	—	—	—
01574314	20060301	1500	—	< .019	—	—
01574314	20060301	1501	< .005	—	—	—
01574314	**20060501**	**1035**	**—**	**< .019**	**replicate**	**sequential**
01574314	**20060501**	**1036**	**< .005**	**—**	**replicate**	**sequential**
01574314	20060501	1037	—	< .019	—	sequential
01574314	20060501	1038	< .005	—	—	sequential
01574314	20060705	1310	—	< .019	—	—
01574314	20060705	1315	< .005	—	—	—
01574314	20060906	1300	—	< .019	—	—
01574314	20060906	1301	< .005	—	—	—

Station number	Date	Time	Virginia-mycin, water, fltrd (µg/L) (62897)	Warfarin, water, fltrd (µg/L) (62024)	Type of quality-assurance data associated with sample, code (99111)	Type of replicate, code (99105)
01576420	20060306	1600	—	< 0.019	—	—
01576420	20060306	1601	< 0.005	—	—	—
01576420	20060522	1150	—	< .019	—	—
01576420	20060522	1151	< .005	—	—	—
01576420	20060717	1150	—	< .019	—	—
01576420	20060717	1151	< .005	—	—	—
01576420	20060911	1100	—	< .019	—	—
01576420	20060911	1101	< .005	—	—	—
01576422	20060306	1730	—	< .019	—	—
01576422	20060306	1731	< .005	—	—	—
01576422	20060522	1025	—	< .019	—	—
01576422	20060522	1026	< .005	—	—	—
01576422	20060717	1030	—	< .019	—	—
01576422	20060717	1031	< .005	—	—	—
01576422	20060911	1205	—	E(3) .030	—	—
01576422	20060911	1206	< .005	—	—	—
01569346	20060405	1300	—	< .019	—	—
01569346	20060405	1301	< .005	—	—	—
01569346	20060523	1115	—	< .019	—	—
01569346	20060523	1116	< .005	—	—	—
01569346	20060726	1045	—	< .019	—	—
01569346	20060726	1046	< .005	—	—	—
01569346	20060927	0955	—	< .019	—	—
01569346	20060927	0956	< .005	—	—	—
01569349	20060405	1130	—	< .019	—	—
01569349	20060405	1131	< .005	—	—	—
01569349	20060523	1000	—	< .019	—	—
01569349	20060523	1001	< .005	—	—	—
01569349	20060726	1245	—	< .019	—	—
01569349	20060726	1246	< .005	—	—	—
01569349	20060927	1100	—	< .019	—	—
01569349	20060927	1101	< .005	—	—	—
01572146	20060320	1200	—	< .019	—	—
01572146	20060320	1201	< .005	—	—	—
01572146	20060518	1145	—	< .019	—	—
01572146	20060518	1146	< .005	—	—	—
01572146	20060731	1015	—	< .019	blank	—
01572146	20060731	1016	< .005	—	blank	—
01572146	20060926	0945	—	< .019	—	—
01572146	20060926	0946	< .005	—	—	—
01572148	20060320	1445	—	< .019	—	—
01572148	20060320	1446	< .005	—	—	—
01572148	20060518	1030	—	< .019	—	—
01572148	20060518	1031	< .005	—	—	—
01572148	20060731	1110	—	< .019	—	—
01572148	20060731	1111	< .005	—	—	—

Station number	Date	Time	Virginia-mycin, water, fltrd (µg/L) (62897)	Warfarin, water, fltrd (µg/L) (62024)	Type of quality-assurance data associated with sample, code (99111)	Type of replicate, code (99105)
01572148	20060926	1055	—	< 0.019	—	—
01572148	20060926	1056	< 0.005	—	—	—
401704076293101	20060315	1145	—	< .019	—	—
401704076293101	20060315	1146	< .005	—	—	—
401704076293101	20060503	1345	—	< .019	—	—
401704076293101	20060503	1346	< .005	—	—	—
401704076293101	20060719	1430	—	< .019	—	—
401704076293101	20060719	1431	< .005	—	—	—
401704076293101	20060913	1400	—	< .019	—	—
401704076293101	20060913	1401	< .005	—	—	—
01573095	20060315	1030	—	< .019	—	—
01573095	20060315	1031	< .005	—	—	—
01573095	20060503	1245	—	< .019	—	—
01573095	20060503	1246	< .005	—	—	—
01573095	20060719	1330	—	< .019	—	—
01573095	20060719	1331	< .005	—	—	—
01573095	20060913	1305	—	< .019	—	—
01573095	20060913	1306	< .005	—	—	—
01574050	20060316	1030	—	< .019	—	—
01574050	20060316	1031	< .005	—	spike	—
01574050	20060501	1350	—	< .019	—	—
01574050	20060501	1351	< .005	—	—	—
01574050	20060705	1045	—	< .019	—	—
01574050	20060705	1050	< .005	—	—	—
01574050	20060906	1030	—	< .019	—	—
01574050	20060906	1031	< .005	—	—	—
01574055	20060316	1130	—	< .019	—	—
01574055	20060316	1131	< .005	—	—	—
01574055	20060501	1245	—	< .019	—	—
01574055	20060501	1246	< .005	—	spike	—
01574055	20060705	1145	—	< .019	—	—
01574055	20060705	1150	< .005	—	—	—
01574055	20060906	0925	—	< .019	—	—
01574055	20060906	0926	< .005	—	—	—
01575771	20060322	1000	—	< .019	—	—
01575771	20060322	1001	< .005	—	—	—
01575771	20060515	1055	—	< .019	—	—
01575771	20060515	1056	< .005	—	—	—
01575771	20060717	1410	—	< .019	—	—
01575771	20060717	1411	< .005	—	—	—
01575771	20060911	1450	—	< .019	—	—
01575771	20060911	1451	< .005	—	—	—
015757724	20060322	1100	—	< .019	—	—
015757724	20060322	1101	< .005	—	—	—
015757724	20060515	0915	—	< .019	—	—
015757724	20060515	0916	< .005	—	—	—

Station number	Date	Time	Virginia-mycin, water, fltrd (µg/L) (62897)	Warfarin, water, fltrd (µg/L) (62024)	Type of quality-assurance data associated with sample, code (99111)	Type of replicate, code (99105)
015757724	20060717	1310	—	< 0.019	—	—
015757724	20060717	1311	< 0.005	—	—	—
015757724	20060911	1550	—	< .019	—	—
015757724	20060911	1551	< .005	—	—	—
01578349	20060314	1145	—	< .019	—	—
01578349	20060314	1146	< .005	—	—	—
01578349	20060511	1110	—	< .019	—	—
01578349	20060511	1111	< .005	—	—	—
01578349	20060718	1250	—	< .019	—	—
01578349	20060718	1251	< .005	—	—	—
01578349	20060912	1215	—	< .019	—	—
01578349	20060912	1216	< .005	—	—	—
015783492	20060314	1400	—	< .019	—	—
015783492	20060314	1401	< .005	—	—	—
015783492	20060511	1010	—	< .019	—	—
015783492	20060511	1011	< .005	—	—	—
015783492	20060718	1115	—	< .019	—	—
015783492	20060718	1116	< .005	—	—	—
015783492	20060912	1115	—	< .019	—	—
015783492	20060912	1116	< .005	—	—	—
394643077043101	20060309	1230	—	< .019	blank	—
394643077043101	20060309	1231	< .005	—	blank	—
394643077043101	**20060504**	**1110**	**—**	**< .019**	**replicate**	**sequential**
394643077043101	**20060504**	**1111**	**< .005**	**—**	**replicate**	**sequential**
394643077043101	20060504	1112	—	< .019	—	sequential
394643077043101	20060504	1113	< .005	—	—	sequential
394643077043101	20060710	1125	—	< .019	—	—
394643077043101	20060710	1130	< .005	—	—	—
394643077043101	20060925	1055	—	< .019	—	—
394643077043101	20060925	1056	< .005	—	—	—
400610076282501	20060406	1030	—	< .019	—	—
400610076282501	20060406	1031	< .005	—	—	—
400610076282501	**20060515**	**1315**	**—**	**< .019**	**replicate**	**sequential**
400610076282501	**20060515**	**1316**	**< .005**	**—**	**replicate**	**sequential**
400610076282501	20060515	1317	—	< .019	—	sequential
400610076282501	20060515	1318	< .005	—	—	sequential
400610076282501	20060713	1100	—	< .019	blank	—
400610076282501	20060713	1101	< .005	—	blank	—
400610076282501	**20060907**	**1100**	**—**	**< .019**	**replicate**	**sequential**
400610076282501	**20060907**	**1101**	**< .005**	**—**	**replicate**	**sequential**
400610076282501	20060907	1105	—	< .019		sequential
400610076282501	20060907	1106	< .005	—	—	sequential
401712076235101	20060403	1415	—	< .019	—	—
401712076235101	20060403	1416	< .005	—	—	—
401712076235101	20060517	1410	—	< .019	—	—
401712076235101	20060517	1411	< .005	—	—	—

Station number	Date	Time	Virginiamycin, water, fltrd (µg/L) (62897)	Warfarin, water, fltrd (µg/L) (62024)	Type of quality-assurance data associated with sample, code (99111)	Type of replicate, code (99105)
401712076235101	20060712	1355	—	< 0.019	—	—
401712076235101	20060712	1400	< 0.005	—	—	—
401712076235101	20060920	1400	—	< .019	blank	—
401712076235101	20060920	1401	< .005	—	blank	—
401920078130101	20060329	1300	—	< .019	—	—
401920078130101	20060329	1301	< .005	—	—	—
401920078130101	20060509	1400	—	< .019	—	—
401920078130101	20060509	1401	< .005	—	—	—
401920078130101	20060725	1250	—	< .019	—	—
401920078130101	20060725	1251	< .005	—	—	—
401920078130101	20060914	1230	—	< .019	—	—
401920078130101	20060914	1231	< .005	—	—	—
402052076160101	20060403	1130	—	< .019	—	—
402052076160101	20060403	1131	< .005	—	—	—
402052076160101	20060517	1135	—	< .019	—	—
402052076160101	20060517	1136	< .005	—	—	—
402052076160101	20060712	1140	—	< .019	—	—
402052076160101	20060712	1145	< .005	—	—	—
402052076160101	20060920	1050	—	< .019	—	—
402052076160101	20060920	1051	< .005	—	—	—
405931076555601	20060323	1140	—	< .019	—	—
405931076555601	20060323	1141	< .005	—	—	—
405931076555601	20060502	1140	—	< .019	—	—
405931076555601	20060502	1141	< .005	—		
405931076555601	**20060711**	**1150**	**—**	**< .019**	**replicate**	**sequential**
405931076555601	**20060711**	**1155**	**< .005**	**—**	**replicate**	**sequential**
405931076555601	20060711	1200	—	< .019	—	sequential
405931076555601	20060711	1205	< .005	—	—	sequential
405931076555601	20060921	1215	—	< .019	—	—
405931076555601	20060921	1216	< .005	—	—	—

Appendix 1. Records of wells sampled in Adams, Lancaster, Lebanon, Huntingdon, and Union Counties in 2006.

[gal/min, gallons per minute; Y, yes; N, no; aquifer code, abbreviation of carbonate-rock geologic unit where well is completed: 377LDGR, Ledger Formation (Lower Cambrian); 347KRTL, Keyser, Tonoloway Formations, Undifferentiated (Lower Devonian); 374BSPG, Buffalo Springs Formation (Middle Cambrian); 367EPLR, Epler Formation (Lower Ordovician); 367SNNG, Stonehenge Formation (Lower Ordovician); --, not available]

Local well number	Latitude	Longitude	Aquifer code	Depth of well (feet)	Casing length (feet)	Casing material	Grouted (Y/N)	Date well construction	Well yield at construction (gal/min)	Water level date	Static water level (unless indicated otherwise) (feet)
AD 653	39° 46’ 45"	077° 04’ 31"	377LDGR	150	42.5	Steel	Y	06/82	45	03/09/06	--
										05/04/06	--
										07/10/06	--
										09/25/06	--
HU 426	40° 19’ 19"	078° 13’ 00"	347KRTL	247	21	Steel	N	10/22/99	30	03/29/06	13.31
										05/09/06	13.48
										07/25/06	13.62
										09/14/06	14.60
LB 1248	40° 17’ 12"	076° 23’ 51"	374BSPG	300	102	Steel	N	11/11/03	40	04/03/06	45.31
										05/17/06	43.11
										07/12/06	30.36
										09/20/06	42.75
LB 1249	40° 20’ 52"	076° 16’ 01"	367EPLR	240	121	Steel	N	05/25/04	60+		Not static
										04/03/06	59.60
										05/17/06	62.85
										07/12/06	44.50
										09/20/06	59.58
LN 2114	40° 06’ 09"	076° 28’ 25"	367SNNG	175	61	Steel	N	07/16/87	100+		Not static
										04/06/06	48.37
										05/15/06	49.96
										07/13/06	44.57
										09/07/06	50.49
UN 205	40° 59’ 31"	076° 55’ 55"	347KRTL	147	42	Steel	N	01/91	20	03/23/06	38.05
										05/02/06	38.37
										07/11/06	36.06
										09/21/06	37.18