

44 Organic Wastewater Compounds in Drinking Water, Wastewater Effluent, and the Big Sioux River, 2001–2004

Table 7. Field-measured properties and constituents and analytical constituents.

[Bold text indicates suspected endocrine-disrupting compound (EDC). Units are micrograms per liter unless otherwise noted. Analytical method number: 1, Cahill and others (2004); 2, U.S. Geological Survey Organic Geochemistry Research Laboratory; 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). CAS RN, Chemical Abstracts Service Registry Number; ft, feet; ft³/s, cubic feet per second; mm Hg, millimeter of mercury; mg/L, milligrams per liter; μS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degree Celsius; μg/kg, micrograms per kilogram; NTU, nephelometric turbidity unit; NA, not applicable; ND, not determined; --, no data]

Constituent or property	Analytical method number	Footnote	Laboratory or method reporting level	Study reporting level for data summary and analysis	CAS RN	Typical use
Field-measured properties and constituents						
Gage height	--	NA	0.01 ft	--	--	--
Discharge, instantaneous	--	NA	.1 ft ³ /s	--	--	--
Turbidity	--	NA	1 NTU	--	--	--
Barometric pressure	--	NA	1 mm Hg	--	--	--
Dissolved oxygen	--	NA	.1 mg/L	--	--	--
pH	--	NA	.1 standard unit	--	--	--
Specific conductance	--	NA	5 μS/cm	--	--	--
Air temperature	--	NA	.1°C	--	--	--
Water temperature	--	NA	.1°C	--	--	--
Human pharmaceutical compounds (HPCs)						
1,7-Dimethylxanthine, dissolved	1	1, 4, 5	0.144	0.030	611–59–6	caffeine metabolite
Acetaminophen, dissolved	1	3	.036	ND	103–90–2	antipyretic (nonprescription)
Caffeine, dissolved	1	1, 4, 5	.016	.022	58–08–2	stimulant (nonprescription)
Caffeine, dissolved	4	3	.5	ND	58–08–2	stimulant (nonprescription)
Caffeine, whole water	3	1	.5	.17	58–08–2	stimulant (nonprescription)
Carbamazepine, dissolved	1	3	.011	ND	298–46–4	anticonvulsant, antineuralgic (prescription)
Cimetidine, dissolved	1	3	.012	ND	51481–61–9	antacid (nonprescription)
Codeine, dissolved	1	3	.015	ND	76–57–3	analgesic (prescription)
Cotinine, dissolved	1	1, 4, 5	.014	.0008	486–56–6	nicotine metabolite
Cotinine, dissolved	4	3	1	ND	486–56–6	nicotine metabolite
Cotinine, whole water	3	3	1	ND	486–56–6	nicotine metabolite
Dehydronifedipine, dissolved	1	1, 4, 5	.015	.0042	67035–22–7	nifedipine metabolite, antianginal (prescription)
Diltiazem, dissolved	1	3	.016	ND	42399–41–7	antihypertensive (prescription)
Diphenhydramine, dissolved	1	3	.015	ND	58–73–1	antihistamine (prescription)
Fluoxetine , dissolved	1	3	.014	ND	54910–89–3	antidepressant (prescription)
Furosemide, dissolved	1	3	.039	ND	54–31–9	diuretic (prescription)
Gemfibrozil, dissolved	1	3	.013	ND	25812–30–0	antihyperlipidemic (prescription)
Ibuprofen, dissolved	1	3	.042	ND	15687–27–1	antiinflammatory (nonprescription)
Metformin, dissolved	1	3	--	ND	1115–70–4	antidiabetic (prescription)
Miconazole, dissolved	1	3	.018	ND	22916–47–8	antifungal (nonprescription)
Ranitidine, dissolved	1	3	.013	ND	66357–35–5	antacid (nonprescription)

Table 7. Field-measured properties and constituents and analytical constituents.—Continued

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Human pharmaceutical compounds (HPCs)—Continued						
Salbutamol, dissolved	1	1, 4, 5	0.023	0.023	18559–94–9	antiasthmatic (prescription)
Thiabendazole, dissolved	1	3	.011	ND	148–79–8	fungicide
Warfarin, dissolved	1	3	.012	ND	81–81–2	anticoagulant (prescription)
Human and veterinary antibiotic compounds (HVACs)						
Amoxicillin, dissolved	2	2	0.01	0.01	26787–78–0	antibiotic (human and veterinary; beta lactam class)
Ampicillin, dissolved	2	2	.01	.01	69–53–4	antibiotic (human and veterinary; beta lactam class)
Anhd-Cl-tetracycline, dissolved	2	2	.01	.3	4497–08–9	chlorotetracycline metabolite
Anhydrotetracycline, dissolved	2	2	.01	.15	13803–65–1	tetracycline metabolite
Azithromycin, dissolved	1	3	.004	ND	83905–01–5	antibiotic (human and veterinary; macrolide class)
Carbadox, dissolved	2	2	.05, .005	.05	6804–07–5	antibiotic (veterinary; quinolone class)
Cefotaxime, dissolved	2	2	.01	.01	63527–52–6	antibiotic (human and veterinary; beta lactam class)
Chlorotetracycline, dissolved	2	1, 4, 5	.02, .01	.056	57–62–5	antibiotic (veterinary; tetracycline class)
Ciprofloxacin, dissolved	2	1, 4, 5	.01, .005	.033	85721–33–1	antibiotic (human and veterinary; quinolone class)
Clinafloxacin, dissolved	2	2	.005	.005	105956–97–6	antibiotic (human and veterinary; quinolone class)
Cloxacillin, dissolved	2	2	.01	.01	61–72–3	antibiotic (human and veterinary; beta lactam class)
Demeclocycline, dissolved	2	2	.02, .01	.02	127–33–3	antibiotic (human and veterinary; tetracycline class)
Doxycycline, dissolved	2	2	.05, .01	.05	564–25–0	antibiotic (human and veterinary; tetracycline class)
Enrofloxacin, dissolved	2	2	.01	.01	--	antibiotic (veterinary; quinolone class)

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Constituent or property	Analytical method number	Footnote	Laboratory or method reporting level	Study reporting level for data summary and analysis	CAS RN	Typical use
Human and veterinary antibiotic compounds (HVACs)—Continued						
Erythromycin, dissolved	1	3	0.009	ND	114–07–8	antibiotic (human and veterinary; macrolide class)
Erythromycin, dissolved	2	1, 4, 5	.02, .01, .005	0.025	114–07–8	antibiotic (human and veterinary; macrolide class)
Erythromycin-H ₂ O, dissolved	2	1, 4, 5	.02, .01, .005	.046	114–07–8	erythromycin metabolite
Flumequine, dissolved	2	2	.05, .005	.05	42835–25–6	antibiotic (veterinary; quinolone class)
Lincomycin, dissolved	2	1, 4, 5	.01, .005	.01	154–21–2	antibiotic (veterinary; macrolide class)
Lomefloxacin, dissolved	2	2	.005	.005	98079–51–7	antibiotic (veterinary; quinolone class)
Methotrexate, dissolved	2	2	.02	.02	--	antibiotic complimentary (human)
Minocycline, dissolved	2	2	.02, .01	.02	10118–90–8	antibiotic (human and veterinary; tetracycline class)
Norfloxacin, dissolved	2	2	.01, .005	.01	70458–96–7	antibiotic (human and veterinary; quinolone class)
Ofloxacin, dissolved	2	1, 4, 5	.005	.15	83380–47–6	antibiotic (human and veterinary; quinolone class)
Ormetoprim, dissolved	2	2	.01, .005	.01	6981–18–6	antibiotic (veterinary; sulfonamide class)
Oxacillin, dissolved	2	2	.01	.01	66–79–5	antibiotic (human and veterinary; beta lactam class)
Oxolinic acid, dissolved	2	2	.005	.005	14698–29–4	antibiotic (veterinary; quinolone class)
Oxytetracycline, dissolved	2	2	.05, .01	.05	79–57–2	antibiotic (veterinary; tetracycline class)
Penicillin G, dissolved	2	2	.01	.01	69–57–8	antibiotic (human and veterinary; beta lactam class)
Penicillin V, dissolved	2	2	.01	.01	87–08–1	antibiotic (human and veterinary; beta lactam class)
Roxarsone, dissolved	2	2	.5	.5	--	antibiotic (veterinary; arsenical class)
Roxithromycin, dissolved	2	2	.01, .005	.01	80214–83–1	antibiotic (human and veterinary; macrolide class)

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Human and veterinary antibiotic compounds (HVACs)—Continued						
Sarafloxacin, dissolved	2	2	0.01, 0.005	0.01	98105–99–8	antibiotic (veterinary; quinolone class)
Sulfachlorpyridazine, dissolved	2	2	.05, .005	.05	80–32–0	antibiotic (veterinary; sulfonamide class)
Sulfadiazine, dissolved	2	2	.005	.005	68–35–9	antibiotic (veterinary; sulfonamide class)
Sulfadimethoxine, dissolved	2	2	.01, .005	.01	122–11–2	antibiotic (veterinary; sulfonamide class)
Sulfamerazine, dissolved	2	2	.02, .005	.02	127–79–7	antibiotic (veterinary; sulfonamide class)
Sulfamethazine, dissolved	2	2	.01, .005	.01	57–68–1	antibiotic (veterinary; sulfonamide class)
Sulfamethizole, dissolved	2	2	.05	.05	--	antibiotic (human and veterinary; sulfonamide class)
Sulfamethoxazole, dissolved	1	3	.064	ND	723–46–6	antibiotic (human and veterinary; sulfonamide class)
Sulfamethoxazole, dissolved	2	1, 4, 5	.05, .005	.014	723–46–6	antibiotic (human and veterinary; sulfonamide class)
Sulfathiazole, dissolved	2	2	.05, .005	.05	72–14–0	antibiotic (veterinary; sulfonamide class)
Tetracycline, dissolved	2	1, 4, 5	.02, .01	1.6	60–54–8	antibiotic (human and veterinary; tetracycline class)
Trimethoprim, dissolved	1	3	.013	ND	738–70–5	antibiotic (human and veterinary; sulfonamide class)
Trimethoprim, dissolved	2	1, 4, 5	.01, .005	.02	738–70–5	antibiotic (human and veterinary; sulfonamide class)
Tylosin, dissolved	2	1, 4, 5	.02, .01, .005	.07	1401–69–0	antibiotic (veterinary; macrolide class)
Virginiamycin, dissolved	2	2	.1, .01, .005	.1	21411–53–0	antibiotic (veterinary; macrolide class)
Major agricultural herbicides (MAHs)						
Atrazine , whole water	3	1, 4, 5	0.5	0.0002	1912–24–9	herbicide
Atrazine , bottom sediment	5	2	100 μ g/kg	100 μ g/kg	1912–24–9	herbicide
Metolachlor, dissolved	4	1, 5	.5	.071	98–82–8	herbicide
Metolachlor, whole water	3	1, 4	.5	.004	98–82–8	herbicide
Metolachlor, bottom sediment	5	2	50 μ g/kg	50 μ g/kg	98–82–8	herbicide
Prometon, dissolved	4	1, 5	.5	.13	1610–18–0	herbicide

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Constituent or property	Analytical method number	Footnote	Laboratory or method reporting level	Study reporting level for data summary and analysis	CAS RN	Typical use
Major agricultural herbicides (MAHs)—Continued						
Prometon, whole water	3	1, 4	0.5	0.02	1610–18–0	herbicide
Prometon, bottom sediment	5	2	50 μg/kg	50 μg/kg	1610–18–0	herbicide
Household, industrial, and minor agricultural use compounds (HIACs)						
1,4-Dichlorobenzene, dissolved	4	1, 5	0.5	0.08	106–46–7	deodorizer, moth repellent
1,4-Dichlorobenzene, whole water	3	3	.5	ND	106–46–7	deodorizer, moth repellent
1,4-Dichlorobenzene, bottom sediment	5	2	50 μg/kg	50 μg/kg	106–46–7	deodorizer, moth repellent
2,2',4,4'-Tetrabromodiphenyl ether , whole water	3	2	10, .5	.5	5436–43–1	fire retardant
2,2',4,4'-Tetrabromodiphenyl ether , bottom sediment	5	2	50 μg/kg	50 μg/kg	5436–43–1	fire retardant
3,4-Dichlorophenyl isocyanate, whole water	3	3	.5	ND	102–36–3	plastic additive
3,4-Dichlorophenyl isocyanate, bottom sediment	5	2	100 μg/kg	100 μg/kg	102–36–3	plastic additive
3-Methyl-1H-indole (skatol), dissolved	4	1, 5	1	.02	83–34–1	bacterial metabolite, fecal fragrance, dye/perfume manufacturing
3-Methyl-1H-indole (skatol), whole water	3	1, 4	1	.019	83–34–1	bacterial metabolite, fecal fragrance, dye/perfume manufacturing
3-Methyl-1H-indole (skatol), bottom sediment	5	1, 4	50 μg/kg	30 μg/kg	83–34–1	bacterial metabolite, fecal fragrance, dye/perfume manufacturing
3-tert-Butyl-4-hydroxy anisole (BHA) , dissolved	4	2	5	5	121–00–6	antioxidant
3-tert-Butyl-4-hydroxy anisole (BHA) , whole water	3	3	5	ND	121–00–6	antioxidant
4-Cumylphenol , dissolved	4	2	1	1	599–64–4	detergent metabolite
4-Cumylphenol , whole water	3	2	1	1	599–64–4	detergent metabolite
4-Cumylphenol , bottom sediment	5	2	50 μg/kg	50 μg/kg	599–64–4	detergent metabolite
4-normal-Octylphenol , dissolved	4	2	1	1	1806–26–4	detergent metabolite
4-normal-Octylphenol , whole water	3	2	1	1	1806–26–4	detergent metabolite
4-normal-Octylphenol , bottom sediment	5	2	50 μg/kg	50 μg/kg	1806–26–4	detergent metabolite
4-tert-Octylphenol , dissolved	4	2	1	1	140–66–9	detergent metabolite
4-tert-Octylphenol , whole water	3	2	1	.26	140–66–9	detergent metabolite

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Household, industrial, and minor agricultural use compounds (HIACs)—Continued						
4-tert-Octylphenol , bottom sediment	5	2	50 μ g/kg	50 μ g/kg	140–66–9	detergent metabolite
5-Methyl-1H-benzotriazole, dissolved	4	3	2	ND	136–85–6	anticorrosive
5-Methyl-1H-benzotriazole, whole water	3	1, 4, 5	2	.33	136–85–6	anticorrosive
7-Acetyl-1,1,3,4,4,6-hexamethyl tetrahydronaphthalene (AHTN) , dissolved	4	1, 5	.5	.23	21145–77–7	fragrance
7-Acetyl-1,1,3,4,4,6-hexamethyl tetrahydronaphthalene (AHTN) , whole water	3	1, 4	.5	.048	21145–77–7	fragrance
7-Acetyl-1,1,3,4,4,6-hexamethyl tetrahydronaphthalene (AHTN) , bottom sediment	5	2	50 μ g/kg	50 μ g/kg	21145–77–7	fragrance
Acetophenone, dissolved	4	2	.5	.5	98–86–2	fragrance
Acetophenone, whole water	3	1, 4	.5	.08	98–86–2	fragrance
Acetophenone, bottom sediment	5	2	50 μ g/kg	50 μ g/kg	98–86–2	fragrance
Anthraquinone, dissolved	4	1, 5	.5	.12	84–65–1	dye manufacturing, pesticide
Anthraquinone, whole water	3	1, 4	.5	.098	84–65–1	dye manufacturing, pesticide
Anthraquinone, bottom sediment	5	1, 4	50 μ g/kg	4 μ g/kg	84–65–1	dye manufacturing, pesticide
Benzophenone , dissolved	4	1, 5	.5	.066	119–61–9	photoinitiator, fixative
Benzophenone , whole water	3	3	.5	ND	119–61–9	photoinitiator, fixative
Benzophenone , bottom sediment	5	2	50 μ g/kg	50 μ g/kg	119–61–9	photoinitiator, fixative
Bis(2-ethylhexyl) phthalate, whole water	3	3	2	ND	117–81–7	plasticizer
Bis(2-ethylhexyl) phthalate, bottom sediment	5	1, 4	100 μ g/kg	100 μ g/kg	117–81–7	plasticizer
Bisphenol-A , dissolved	4	3	1	ND	80–05–7	plasticizer
Bisphenol-A , whole water	3	3	1	ND	80–05–7	plasticizer
Bisphenol-A , bottom sediment	5	1, 4	100 μ g/kg	100 μ g/kg	80–05–7	plasticizer
Bromacil, dissolved	4	3	.5	ND	314–40–9	herbicide
Bromacil, whole water	3	1, 4, 5	.5	.068	314–40–9	herbicide
Bromacil, bottom sediment	5	2	100 μ g/kg	100 μ g/kg	314–40–9	herbicide
Camphor, dissolved	4	1, 5	.5	.029	76–22–2	fumigant and flavorant
Camphor, whole water	3	2	.5	.5	76–22–2	fumigant and flavorant
Camphor, bottom sediment	5	2	50 μ g/kg	50 μ g/kg	76–22–2	fumigant and flavorant

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Household, industrial, and minor agricultural use compounds (HIACs)—Continued						
Carbaryl , dissolved	4	1, 5	1	0.14	63–25–2	insecticide
Carbaryl , whole water	3	3	1	ND	63–25–2	insecticide
Chlorpyrifos , dissolved	4	2	.5	.5	2921–88–2	insecticide
Chlorpyrifos , whole water	3	1, 4, 5	.5	.014	2921–88–2	insecticide
Chlorpyrifos , bottom sediment	5	2	50 μg/kg	50 μg/kg	2921–88–2	insecticide
N,N-Diethyl- <i>meta</i> -toluamide (DEET), dissolved	4	1, 5	.5	.034	134–62–3	insect repellent
N,N-Diethyl- <i>meta</i> -toluamide (DEET), whole water	3	1, 4	.5	.042	134–62–3	insect repellent
N,N-Diethyl- <i>meta</i> -toluamide (DEET), bottom sediment	5	2	100 μg/kg	100 μg/kg	134–62–3	insect repellent
Diazinon , dissolved	4	2	.5	.5	333–41–5	insecticide
Diazinon , whole water	3	1, 4, 5	.5	.027	333–41–5	insecticide
Diazinon , bottom sediment	5	2	50 μg/kg	50 μg/kg	333–41–5	insecticide
Dichlorvos, dissolved	4	3	1	ND	62–73–7	insecticide
Dichlorvos, whole water	3	3	1	ND	62–73–7	insecticide
Diethyl phthalate , whole water	3	3	.5	ND	84–66–2	plasticizer
Diethyl phthalate , bottom sediment	5	2	50 μg/kg	50 μg/kg	84–66–2	plasticizer
D-Limonene, dissolved	4	3	.5	ND	5989–27–5	solvent, fragrance
D-Limonene, whole water	3	3	.5	ND	5989–27–5	solvent, fragrance
D-Limonene, bottom sediment	5	2	50 μg/kg	50 μg/kg	5989–27–5	solvent, fragrance
1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl cyclopenta-g-2-benzopyran (HHCb) , dissolved	4	1, 5	.5	.061	1222–05–5	fragrance
1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl cyclopenta-g-2-benzopyran (HHCb) , whole water	3	1, 4	.5	.045	1222–05–5	fragrance
1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl cyclopenta-g-2-benzopyran (HHCb) , bottom sediment	5	2	50 μg/kg	50 μg/kg	1222–05–5	fragrance
Indole, dissolved	4	1, 5	.5	.042	120–72–9	amino-acid metabolite, fragrance, pesticide inert ingredient
Indole, whole water	3	1, 4	.5	.015	120–72–9	amino-acid metabolite, fragrance, pesticide inert ingredient
Indole, bottom sediment	5	1, 4	50 μg/kg	1.9 μg/kg	120–72–9	amino-acid metabolite, fragrance, pesticide inert ingredient
Isoborneol, dissolved	4	2	.5	.5	124–76–5	fragrance, flavorant
Isoborneol, whole water	3	2	.5	.5	124–76–5	fragrance, flavorant
Isoborneol, bottom sediment	5	2	50 μg/kg	50 μg/kg	124–76–5	fragrance, flavorant

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Household, industrial, and minor agricultural use compounds (HIACs)—Continued						
Isophorone, dissolved	4	1, 5	0.5	0.047	78–59–1	solvent
Isophorone, whole water	3	3	.5	ND	78–59–1	solvent
Isophorone, bottom sediment	5	2	50 μ g/kg	50 μ g/kg	78–59–1	solvent
Isopropylbenzene (cumene), dissolved	4	3	.5	ND	98–82–8	solvent
Isopropylbenzene (cumene), whole water	3	3	.5	ND	98–82–8	solvent
Isopropylbenzene (cumene), bottom sediment	5	2	50 μ g/kg	50 μ g/kg	98–82–8	solvent
Isoquinoline, dissolved	4	2	.5	.5	119–65–3	chemical and pharmaceutical manufacturing
Isoquinoline, whole water	3	3	.5	ND	119–65–3	chemical and pharmaceutical manufacturing
Isoquinoline, bottom sediment	5	2	50 μ g/kg	50 μ g/kg	119–65–3	chemical and pharmaceutical manufacturing
Menthol, dissolved	4	2	.5	.5	89–78–1	pharmaceutical additive, fragrance, flavorant
Menthol, whole water	3	3	.5	ND	89–78–1	pharmaceutical additive, fragrance, flavorant
Menthol, bottom sediment	5	2	50 μ g/kg	50 μ g/kg	89–78–1	pharmaceutical additive, fragrance, flavorant
Metalaxyl, dissolved	4	2	.5	.5	57837–19–1	agricultural fungicide
Metalaxyl, whole water	3	2	.5	.5	57837–19–1	agricultural fungicide
Metalaxyl, bottom sediment	5	2	100 μ g/kg	100 μ g/kg	57837–19–1	agricultural fungicide
Methyl salicylate, dissolved	4	2	.5	.5	119–36–8	flavoring agent, liniment
Methyl salicylate, whole water	3	2	.5	.017	119–36–8	flavoring agent, liniment
Methyl salicylate, bottom sediment	5	2	100 μ g/kg	100 μ g/kg	119–36–8	flavoring agent, liniment
Nonylphenol diethoxylate (NP2EO), dissolved	4	1	5	3.5	26027–38–2	detergent metabolite
Nonylphenol diethoxylate (NP2EO), whole water	3	1, 4, 5	5	.66	26027–38–2	detergent metabolite
Nonylphenol diethoxylate (NP2EO), bottom sediment	5	1, 4	500 μ g/kg	65 μ g/kg	26027–38–2	detergent metabolite
Nonylphenol monoethoxylate (NP1EO), whole water	3	1, 4	2	.55	27986–36–3	detergent metabolite
Nonylphenol monoethoxylate (NP1EO), bottom sediment	5	2	500 μ g/kg	500 μ g/kg	27986–36–3	detergent metabolite
Octylphenol diethoxylate (OP2EO), dissolved	4	1, 5	1	.19	26636–32–8	detergent metabolite
Octylphenol diethoxylate (OP2EO), whole water	3	2	1	.14	26636–32–8	detergent metabolite
Octylphenol diethoxylate (OP2EO), bottom sediment	5	2	100 μ g/kg	100 μ g/kg	26636–32–8	detergent metabolite

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Table 7. Field-measured properties and constituents and analytical constituents.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Units are micrograms per liter unless otherwise noted. Analytical method number: 1, Cahill and others (2004); 2, U.S. Geological Survey Organic Geochemistry Research Laboratory; 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). CAS RN, Chemical Abstracts Service Registry Number; ft, feet; ft³/s, cubic feet per second; mm Hg, millimeter of mercury; mg/L, milligrams per liter; μS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degree Celsius; μg/kg, micrograms per kilogram; NTU, nephelometric turbidity unit; NA, not applicable; ND, not determined; --, no data]

Constituent or property	Analytical method number	Footnote	Laboratory or method reporting level	Study reporting level for data summary and analysis	CAS RN	Typical use
Household, industrial, and minor agricultural use compounds (HIACs)—Continued						
Octylphenol monoethoxylate (OPIEO), dissolved	3	1, 5	1	0.39	26636–32–8	detergent metabolite
Octylphenol monoethoxylate (OPIEO), whole water	3	2	1	5.2	26636–32–8	detergent metabolite
Octylphenol monoethoxylate (OPIEO), bottom sediment	5	2	100 μg/kg	100 μg/kg	26636–32–8	detergent metabolite
<i>para</i> -Cresol, dissolved	4	1, 5	1	.079	106–44–5	antioxidant, manufacturing, fuel combustion byproduct
<i>para</i> -Cresol, whole water	3	2	1	1	106–44–5	antioxidant, manufacturing, fuel combustion byproduct
<i>para</i> -Cresol, bottom sediment	5	1, 4	100 μg/kg	21 μg/kg	106–44–5	antioxidant, manufacturing, fuel combustion byproduct
<i>para</i> -Nonylphenol (NP), dissolved	4	1, 5	5	.83	84852–15–3	detergent metabolite
<i>para</i> -Nonylphenol (NP), whole water	3	1	5	.64	84852–15–3	detergent metabolite
<i>para</i> -Nonylphenol (NP), bottom sediment	5	2	500 μg/kg	500 μg/kg	84852–15–3	detergent metabolite
Pentachlorophenol , dissolved	4	1, 5	2	.42	87–86–5	pesticide, wood preservative
Pentachlorophenol , whole water	3	3	2	ND	87–86–5	pesticide, wood preservative
Pentachlorophenol , bottom sediment	5	2	200 μg/kg	200 μg/kg	87–86–5	pesticide, wood preservative
Phenol, dissolved	4	1, 5	.5	.34	108–95–2	resin and pharmaceutical manufacturing, disinfectant
Phenol, whole water	3	1, 4	.5	.94	108–95–2	resin and pharmaceutical manufacturing, disinfectant
Phenol, bottom sediment	5	1, 4	50 μg/kg	19 μg/kg	108–95–2	resin and pharmaceutical manufacturing, disinfectant
Tetrachloroethylene, dissolved	4	3	.5	ND	127–18–4	solvent, degreaser
Tetrachloroethylene, whole water	3	3	.5	ND	127–18–4	solvent, degreaser
Tetrachloroethylene, bottom sediment	5	2	50 μg/kg	50 μg/kg	127–18–4	solvent, degreaser
Tributyl phosphate, dissolved	4	1, 5	.5	.18	126–73–8	plasticizer
Tributyl phosphate, whole water	3	1, 4	.5	.059	126–73–8	plasticizer
Tributyl phosphate, bottom sediment	5	2	50 μg/kg	50 μg/kg	126–73–8	plasticizer
Triclosan , dissolved	4	1, 5	1	.16	3380–34–5	antimicrobial disinfectant
Triclosan , whole water	3	1, 4	1	.15	3380–34–5	antimicrobial disinfectant
Triclosan , bottom sediment	5	1, 4	50 μg/kg	2.9 μg/kg	3380–34–5	antimicrobial disinfectant

Table 7. Field-measured properties and constituents and analytical constituents.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Units are micrograms per liter unless otherwise noted. Analytical method number: 1, Cahill and others (2004); 2, U.S. Geological Survey Organic Geochemistry Research Laboratory; 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). CAS RN, Chemical Abstracts Service Registry Number; ft, feet; ft³/s, cubic feet per second; mm Hg, millimeter of mercury; mg/L, milligrams per liter; μ S/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degree Celsius; μ g/kg, micrograms per kilogram; NTU, nephelometric turbidity unit; NA, not applicable; ND, not determined; --, no data]

Constituent or property	Analytical method number	Footnote	Laboratory or method reporting level	Study reporting level for data summary and analysis	CAS RN	Typical use
Household, industrial, and minor agricultural use compounds (HIACs)—Continued						
Triethyl citrate (ethyl citrate), dissolved	4	1, 5	0.5	0.21	77-93-0	plasticizer
Triethyl citrate (ethyl citrate), whole water	3	1, 4	.5	.051	77-93-0	plasticizer
Triphenyl phosphate, dissolved	4	1, 5	.5	.066	115-86-6	plasticizer
Triphenyl phosphate, whole water	3	1, 4	.5	.033	115-86-6	plasticizer
Triphenyl phosphate, bottom sediment	5	2	100 μ g/kg	100 μ g/kg	115-86-6	plasticizer
Tri(2-butoxyethyl)phosphate, dissolved	4	1, 5	.5	.4	78-51-3	fire retardant
Tri(2-butoxyethyl)phosphate, whole water	3	1, 4	.5	.13	78-51-3	fire retardant
Tri(2-butoxyethyl)phosphate, bottom sediment	5	2	100 μ g/kg	100 μ g/kg	78-51-3	fire retardant
Tri(2-chloroethyl)phosphate, dissolved	4	1, 5	.5	.074	115-96-8	fire retardant
Tri(2-chloroethyl)phosphate, whole water	3	1, 4	.5	.1	115-96-8	fire retardant
Tri(2-chloroethyl)phosphate, bottom sediment	5	2	100 μ g/kg	100 μ g/kg	115-96-8	fire retardant
Tri(dichloroisopropyl) phosphate, dissolved	4	1, 5	.5	.13	13674-87-8	fire retardant
Tri(dichloroisopropyl) phosphate, whole water	3	1, 4	.5	.071	13674-87-8	fire retardant
Tri(dichloroisopropyl) phosphate, bottom sediment	5	2	100 μ g/kg	100 μ g/kg	13674-87-8	fire retardant
Polyaromatic hydrocarbons (PAHs)						
1-Methylnaphthalene, dissolved	4	1, 5	0.5	0.04	90-12-0	PAH
1-Methylnaphthalene, whole water	3	3	.5	ND	90-12-0	PAH
1-Methylnaphthalene, bottom sediment	5	2	50 μ g/kg	50 μ g/kg	90-12-0	PAH
2,6-Dimethylnaphthalene, dissolved	4	1, 5	.5	.053	581-42-0	PAH
2,6-Dimethylnaphthalene, whole water	3	3	.5	ND	581-42-0	PAH
2,6-Dimethylnaphthalene, bottom sediment	5	1, 4	50 μ g/kg	20 μ g/kg	581-42-0	PAH
2-Methylnaphthalene, dissolved	4	1, 5	.5	.06	91-57-6	PAH

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Table 7. Field-measured properties and constituents and analytical constituents.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Units are micrograms per liter unless otherwise noted. Analytical method number: 1, Cahill and others (2004); 2, U.S. Geological Survey Organic Geochemistry Research Laboratory; 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). CAS RN, Chemical Abstracts Service Registry Number; ft, feet; ft³/s, cubic feet per second; mm Hg, millimeter of mercury; mg/L, milligrams per liter; μS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degree Celsius; μg/kg, micrograms per kilogram; NTU, nephelometric turbidity unit; NA, not applicable; ND, not determined; --, no data]

Constituent or property	Analytical method number	Footnote	Laboratory or method reporting level	Study reporting level for data summary and analysis	CAS RN	Typical use
Polyaromatic hydrocarbons (PAHs)—Continued						
2-Methylnaphthalene, whole water	3	3	0.5	ND	91–57–6	PAH
2-Methylnaphthalene, bottom sediment	5	2	50 μg/kg	50 μg/kg	91–57–6	PAH
Anthracene , dissolved	4	1	.5	.082	120–12–7	PAH
Anthracene , whole water	3	1, 4, 5	.5	.06	120–12–7	PAH
Anthracene , bottom sediment	5	1, 4	50 μg/kg	10 μg/kg	120–12–7	PAH
Benzo[a]pyrene , dissolved	4	2	.5	.5	50–32–8	PAH
Benzo[a]pyrene , whole water	3	1, 4, 5	.5	.03	50–32–8	PAH
Benzo[a]pyrene , bottom sediment	5	1, 4	50 μg/kg	25 μg/kg	50–32–8	PAH
Carbazole, dissolved	4	1, 5	.5	.036	86–74–8	chemical manufacturing, PAH
Carbazole, whole water	3	2	.5	.22	86–74–8	chemical manufacturing, PAH
Carbazole, bottom sediment	5	2	50 μg/kg	50 μg/kg	86–74–8	chemical manufacturing, PAH
Fluoranthene, dissolved	4	1	.5	.017	206–44–0	PAH
Fluoranthene, whole water	3	1, 4, 5	.5	.15	206–44–0	PAH
Fluoranthene, bottom sediment	5	1, 4	50 μg/kg	9.3 μg/kg	206–44–0	PAH
Naphthalene, dissolved	4	1, 5	.5	.049	91–20–3	PAH
Naphthalene, whole water	3	3	.5	ND	91–20–3	PAH
Naphthalene, bottom sediment	5	1, 4	50 μg/kg	8.2 μg/kg	91–20–3	PAH
Phenanthrene , dissolved	4	1	.5	.02	85–01–8	PAH
Phenanthrene , whole water	3	1, 4, 5	.5	.019	85–01–8	PAH
Phenanthrene , bottom sediment	5	1, 4	50 μg/kg	7.6 μg/kg	85–01–8	PAH
Pyrene , dissolved	4	1	.5	.012	129–00–0	PAH
Pyrene , whole water	3	1, 4, 5	.5	.04	129–00–0	PAH
Pyrene , bottom sediment	5	1, 4	50 μg/kg	9.3 μg/kg	129–00–0	PAH
Sterol compounds (SCs)						
3- <i>beta</i> -Coprostanol, dissolved	4	1	2	0.77	360–68–9	fecal sterol
3- <i>beta</i> -Coprostanol, whole water	3	1, 4, 5	2	.26	360–68–9	fecal sterol
3- <i>beta</i> -Coprostanol, bottom sediment	5	1, 4	250 μg/kg	190 μg/kg	360–68–9	fecal sterol
<i>beta</i> -Sitosterol, dissolved	4	1	2	1.2	83–46–5	plant sterol
<i>beta</i> -Sitosterol, whole water	3	1, 4, 5	2	.57	83–46–5	plant sterol
<i>beta</i> -Sitosterol, bottom sediment	5	1, 4	250 μg/kg	250 μg/kg	83–46–5	plant sterol
<i>beta</i> -Stigmastanol, dissolved	4	2	2	1.8	19466–47–8	plant sterol
<i>beta</i> -Stigmastanol, whole water	3	3	2	ND	19466–47–8	plant sterol
<i>beta</i> -Stigmastanol, bottom sediment	5	1, 4	500 μg/kg	500 μg/kg	19466–47–8	plant sterol

Table 7. Field-measured properties and constituents and analytical constituents.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Units are micrograms per liter unless otherwise noted. Analytical method number: 1, Cahill and others (2004); 2, U.S. Geological Survey Organic Geochemistry Research Laboratory; 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). CAS RN, Chemical Abstracts Service Registry Number; ft, feet; ft³/s, cubic feet per second; mm Hg, millimeter of mercury; mg/L, milligrams per liter; μ S/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degree Celsius; μ g/kg, micrograms per kilogram; NTU, nephelometric turbidity unit; NA, not applicable; ND, not determined; --, no data]

Constituent or property	Analytical method number	Footnote	Laboratory or method reporting level	Study reporting level for data summary and analysis	CAS RN	Typical use
Sterol compounds (SCs)—Continued						
Cholesterol, dissolved	4	1	2	0.94	57–88–5	plant/animal sterol
Cholesterol, whole water	3	1, 4, 5	2	.64	57–88–5	plant/animal sterol
Cholesterol, bottom sediment	5	1, 4	500 μ g/kg	500 μ g/kg	57–88–5	plant/animal sterol
Laboratory quality-assurance/quality-control surrogate compounds						
Bisphenol-A-d3 (surrogate), dissolved	4	NA	0.1 percent recovery	0.1 percent recovery	--	laboratory analytical surrogate
Bisphenol-A-d3 (surrogate), whole water	3	NA	.1 percent recovery	.1 percent recovery	--	laboratory analytical surrogate
Bisphenol-A-d3 (surrogate), whole water (b)	3	NA	.1 percent recovery	.1 percent recovery	--	laboratory analytical surrogate
Bisphenol-A-d8 (surrogate), whole water	3	NA	.1 percent recovery	.1 percent recovery	--	laboratory analytical surrogate
Bisphenol-A-d8 (surrogate), bottom sediment	5	NA	.1 percent recovery	.1 percent recovery	--	laboratory analytical surrogate
Caffeine-c13 (surrogate), dissolved	4	NA	.1 percent recovery	.1 percent recovery	--	laboratory analytical surrogate
Caffeine-c13 (surrogate), whole water	3	NA	.1 percent recovery	.1 percent recovery	--	laboratory analytical surrogate
Caffeine-d8 (surrogate), whole water	3	NA	.1 percent recovery	.1 percent recovery	--	laboratory analytical surrogate
Decafluorobiphenyl (surrogate), dissolved	4	NA	.1 percent recovery	.1 percent recovery	434–90–2	laboratory analytical surrogate
Decafluorobiphenyl (surrogate), whole water	3	NA	.1 percent recovery	.1 percent recovery	434–90–2	laboratory analytical surrogate
Decafluorobiphenyl (surrogate), bottom sediment	5	NA	.1 percent recovery	.1 percent recovery	434–90–2	laboratory analytical surrogate
Ethyl-nicotinate-d4 (surrogate), dissolved	1	NA	.1 percent recovery	.1 percent recovery	--	laboratory analytical surrogate
Fluoranthene-d10 (surrogate), dissolved	4	NA	.1 percent recovery	.1 percent recovery	93951–69–0	laboratory analytical surrogate
Fluoranthene-d10 (surrogate), whole water	3	NA	.1 percent recovery	.1 percent recovery	93951–69–0	laboratory analytical surrogate
Fluoranthene-d10 (surrogate), bottom sediment	5	NA	.1 percent recovery	.1 percent recovery	93951–69–0	laboratory analytical surrogate

¹Constituent detected in one or more environmental samples at concentration(s) greater than study reporting level.

²Constituent not detected in any environmental sample at concentration(s) greater than study reporting level.

³Results for laboratory reagent-spike samples, laboratory surrogate samples, and/or matrix-spike samples unacceptable; constituent excluded from analyses and discussion related to occurrence of organic wastewater compounds in drinking water, wastewater effluent, and the Big Sioux River.

⁴Constituent included in summary analyses and discussion related to occurrence of organic wastewater compounds in drinking water, wastewater effluent, and the Big Sioux River for samples collected on or before June 27, 2003.

⁵Constituent included in summary analyses and discussion related to occurrence of organic wastewater compounds in drinking water, wastewater effluent, and the Big Sioux River for samples collected on or after May 17, 2004.