

Table 22. Organic wastewater compounds detected at concentrations greater than study reporting levels in water samples.

[Bold text indicates suspected endocrine-disrupting compound (EDC). DEET, N,N-diethyl-*meta*-toluamide; NP, *para*-nonylphenol; NP1EO, nonylphenol monoethoxylate; NP2EO, nonylphenol diethoxylate; OP1EO, octylphenol monoethoxylate; OP2EO, octylphenol diethoxylate; --, none detected]

	Station identification number and name (site label)											
	433843096450500 Big Sioux River near Renner, SD (site US1, fig. 1)		433600096442400 Sioux Falls pump station intake from Big Sioux River at Sioux Falls, SD (site US2, fig. 1)					433419096434200 Sioux Falls water treatment plant finished drinking water at Sioux Falls, SD (site FDW, fig. 1)				
Date of sample collection (month–day–year)	05–18–2004	05–31–2004	08–15–2001	09–09–2002	01–22–2003	03–19–2003	06–26–2003	08–15–2001	09–09–2002	01–22–2003	03–19–2003	06–27–2003
Time of sample collection (24-hour)	1500	1800	1405	1200	1105	1130	0930	1100	1440	1330	1445	0915
Number of compounds detected	7	3	4	4	1	4	5	1	0	0	0	0
Human pharmaceutical compounds (HPCs)	--	--	--	Cotinine	Cotinine	Cotinine	Cotinine	--	--	--	--	--
Human and veterinary antibiotic compounds (HVACs)	Erythromycin-H ₂ O Sulfamethoxazole	--	--	--	--	--	--	--	--	--	--	--
Major agricultural herbicides (MAHs)	Metolachlor	Atrazine Metolachlor	Metolachlor	Atrazine	--	Atrazine Metolachlor	Atrazine Metolachlor	Metolachlor	--	--	--	--
Household, industrial, and minor agricultural-use compounds (HIACs)	DEET Isophorone Tri(2-chloroethyl) phosphate	--	Tri(2-butoxyethyl) phosphate	--	--	Tri(2-butoxyethyl) phosphate	DEET	--	--	--	--	--
Polyaromatic hydrocarbons (PAHs)	--	--	--	--	--	--	--	--	--	--	--	--
Sterol compounds (SCs)	Cholesterol	Cholesterol	<i>beta</i> -Sitosterol Cholesterol	<i>beta</i> -Sitosterol Cholesterol	--	--	Cholesterol	--	--	--	--	--

Table 22. Organic wastewater compounds detected at concentrations greater than study reporting levels in water samples.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). DEET, N,N-diethyl-*meta*-toluamide; NP, *para*-nonylphenol; NP1EO, nonylphenol monoethoxylate; NP2EO, nonylphenol diethoxylate; OP1EO, octylphenol monoethoxylate; OP2EO, octylphenol diethoxylate; --, none detected]

	Station identification number and name (site label)									
	433408096432000 Big Sioux River diversion channel at North Drive, at Sioux Falls, SD (site US3, fig. 1)		06482020 Big Sioux River at North Cliff Avenue, at Sioux Falls, SD (site US4, fig. 1)		433531096394200 Sioux Falls wastewater treatment plant effluent (site WWE, fig. 1)					
Date of sample collection (month–day–year)	05–18–2004	05–31–2004	05–17–2004	05–30–2004	09–10–2002	01–24–2003	03–21–2003	06–26–2003	05–18–2004	05–30–2004
Time of sample collection (24-hour)	1130	1145	1000	1530	1400	0930	1045	1135	1020	2020
Number of compounds detected	11	7	21	13	18	23	22	21	24	28
Human pharmaceutical compounds (HPCs)	Cotinine	Caffeine Cotinine	Caffeine Cotinine	--	Dehydronif- edipine Cotinine	Caffeine Cotinine Salbutamol	1,7-Dimethyl- xanthine Caffeine Cotinine Salbutamol	Caffeine Cotinine	--	Caffeine Cotinine
Human and veterinary antibiotic compounds (HVACs)	Sulfameth- oxazole	--	--	--	Erythromycin- H ₂ O	Chloro- tetracycline Ciprofloxacin Erythromycin- H ₂ O Sulfameth- oxazole Tetracycline Trimethoprim	Trimethoprim	Erythromycin- H ₂ O Sulfameth- oxazole Trimethoprim	Erythromycin- H ₂ O Ofloxacin Sulfameth- oxazole Trimethoprim Tylosin	Ciprofloxacin Erythromycin Erythromycin- H ₂ O Trimethoprim
Major agricultural herbicides (MAHs)	Metolachlor	Atrazine Metolachlor	Atrazine Metolachlor	Atrazine Metolachlor	Prometon	--	Atrazine	Atrazine Metolachlor Prometon	--	Atrazine

Table 22. Organic wastewater compounds detected at concentrations greater than study reporting levels in water samples.—Continued

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433408096432000 Big Sioux River diversion channel at North Drive, at Sioux Falls, SD (site US3, fig. 1)			06482020 Big Sioux River at North Cliff Avenue, at Sioux Falls, SD (site US4, fig. 1)		433531096394200 Sioux Falls wastewater treatment plant effluent (site WWE, fig. 1)					
Household, industrial, and minor agricultural-use compounds (HIACs)	DEET	Isophorone	Anthraquinone	Benzophenone	5-Methyl-1H-benzotriazole	5-Methyl-1H-benzotriazole	3-Methyl-1H-indole (skatol)	AHTN Acetophenone	1,4-Dichlorobenzene	1,4-dichlorobenzene
	OP2EO		Camphor		AHTN	AHTN	5-Methyl-1H-benzotriazole	NP2EO	5-Methyl-1H-benzotriazole	Anthraquinone
	OP1EO		DEET		Chlorpyrifos	DEET		NP1EO		
	NP		Indole		Diazinon	HHCB		Tributyl phosphate		Benzophenone
	Tri(2-chloroethyl) phosphate		Isophorone		HHCB	NP2EO	AHTN	Triethyl citrate (ethyl citrate)	AHTN	Carbaryl
			OP2EO		NP2EO	NP1EO	DEET	Triphenyl phosphate	Benzophenone	DEET
			OP1EO		Phenol	Tributyl phosphate	HHCB	Triphenyl phosphate	DEET	HHCB
			NP		Tributyl phosphate	Triethyl citrate (ethyl citrate)	NP2EO	Tri(2-chloroethyl) phosphate	HHCB	NP2EO
			Tributyl phosphate		Triethyl citrate (ethyl citrate)	Tri(2-chloroethyl) phosphate	NP1EO	Tri(2-chloroethyl) phosphate	Indole	<i>para</i> -Cresol
			Triphenyl phosphate		Tri(2-chloroethyl) phosphate	Tri(2-chloroethyl) phosphate	Tributyl phosphate	Tri(2-chloroethyl) phosphate	<i>para</i> -Cresol	NP
			Tri(2-butoxyethyl) phosphate		Tri(2-chloroethyl) phosphate	Tri(2-chloroethyl) phosphate	Triclosan	Tri(dichloroisopropyl) phosphate	NP	Pentachlorophenol
			Tri(2-chloroethyl) phosphate		Tri(dichloroisopropyl) phosphate	Tri(2-chloroethyl) phosphate	Triethyl citrate (ethyl citrate)	Triethyl citrate (ethyl citrate)	Tributyl phosphate	Phenol
					Tri(dichloroisopropyl) phosphate	Tri(2-chloroethyl) phosphate	Triethyl citrate (ethyl citrate)	Triethyl citrate (ethyl citrate)	Triclosan	Tetrachloroethylene
						Tri(dichloroisopropyl) phosphate	Tri(2-chloroethyl) phosphate	Triethyl citrate (ethyl citrate)	Triethyl citrate (ethyl citrate)	Tributyl phosphate
							Tri(2-chloroethyl) phosphate	Triethyl citrate (ethyl citrate)	Triphenyl phosphate	Triclosan
							Tri(dichloroisopropyl) phosphate	Triethyl citrate (ethyl citrate)	Tri(2-chloroethyl) phosphate	Triethyl citrate (ethyl citrate)
							Tri(dichloroisopropyl) phosphate	Tri(2-chloroethyl) phosphate	Triphenyl phosphate	
								Tri(dichloroisopropyl) phosphate	Tri(2-chloroethyl) phosphate	
									Tri(dichloroisopropyl) phosphate	

Table 22. Organic wastewater compounds detected at concentrations greater than study reporting levels in water samples.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). DEET, N,N-diethyl-*meta*-toluamide; NP, *para*-nonylphenol; NP1EO, nonylphenol monoethoxylate; NP2EO, nonylphenol diethoxylate; OP1EO, octylphenol monoethoxylate; OP2EO, octylphenol diethoxylate; --, none detected]

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433408096432000 Big Sioux River diversion channel at North Drive, at Sioux Falls, SD (site US3, fig. 1)		06482020 Big Sioux River at North Cliff Avenue, at Sioux Falls, SD (site US4, fig. 1)		433531096394200 Sioux Falls wastewater treatment plant effluent (site WWE, fig. 1)						
Polyaromatic hydrocarbons (PAHs)	Phenanthrene	Phenanthrene	Carbazole	1-Methyl-naphthalene	--	--	--	--	--	--
			Naphthalene	2,6-Dimethylnaphthalene						
			Phenanthrene	2-Methylnaphthalene						
			Pyrene	Anthracene						
				Benzo[a]pyrene						
				Fluoranthene						
				Naphthalene						
				Phenanthrene						
				Pyrene						
Sterol compounds (SCs)	Cholesterol	Cholesterol	Cholesterol	Cholesterol	3- <i>beta</i> -Coprostanol	3- <i>beta</i> -Coprostanol	3- <i>beta</i> -Coprostanol	3- <i>beta</i> -Coprostanol	3- <i>beta</i> -Coprostanol	3- <i>beta</i> -Coprostanol
					<i>beta</i> -Sitosterol	Cholesterol	Cholesterol	<i>beta</i> -Sitosterol	<i>beta</i> -Sitosterol	Cholesterol
					Cholesterol			Cholesterol	Cholesterol	

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	Station identification number and name (site label)									
	433559096390700 Big Sioux River downstream from Sioux Falls wastewater discharge (site DS1, fig. 1)			433541096355800 Big Sioux River at Brandon, SD (site DS2, fig. 1)						
Date of sample collection (month–day–year)	09–10–2002	05–17–2004	05–30–2004	08–16–2001	09–11–2002	01–23–2003	03–20–2003	06–25–2003	05–17–2004	05–31–2004
Time of sample collection (24-hour)	1030	1100	1630	0930	1030	1125	1315	1630	1730	1230
Number of compounds detected	14	31	11	5	12	21	15	13	27	8
Human pharmaceutical compounds (HPCs)	Cotinine Caffeine	Caffeine Cotinine		Cotinine	1,7-Dimethyl- xanthine Caffeine Cotinine	Cotinine Caffeine Salbutamol	Cotinine	Caffeine Cotinine	Caffeine Cotinine	Cotinine
Human and veterinary antibiotic compounds (HVACs)	--	Erythromycin Sulfamethoxazole Trimethoprim	--	--	--	Chlorotetracycline Erythromycin-H ₂ O Lincomycin Sulfamethoxazole Tetracycline Trimethoprim	--	--	Erythromycin Sulfamethoxazole	--
Major agricultural herbicides (MAHs)	Atrazine Prometon	Atrazine Metolachlor Prometon	Atrazine Metolachlor	--	--	--	Atrazine Metolachlor	Atrazine Metolachlor Prometon	Atrazine Metolachlor Prometon	Atrazine Metolachlor

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433559096390700 Big Sioux River downstream from Sioux Falls wastewater discharge (site DS1, fig. 1)				433541096355800 Big Sioux River at Brandon, SD (site DS2, fig. 1)						
Household, industrial, and minor agricultural- use compounds (HIACs)	AHTN	3-Methyl-1H-	Benzophe-	AHTN	AHTN	AHTN	AHTN	Anthraqui-	AHTN	Tri(2-
	DEET	indole	none	Tri(2-	Bromacil	DEET	Anthraqui-	none	Anthraqui-	chloroethyl)
	Tributyl	(skatol)	Tri(2-	butoxyethyl)	DEET	HHCB	none	DEET	none	phosphate
	phosphate	AHTN	chloroethyl)	phosphate	Tributyl	NP2EO	Indole	Diazinon	Camphor	
	Triethyl citrate	Anthraqui-	phosphate		phosphate	NP1EO	NP2EO	Tributyl	DEET	
	(ethyl	none			Triethyl citrate	Tributyl	Triethyl citrate	phosphate	HHCB	
	citrate)	Benzophe-			(ethyl	phosphate	(ethyl	Tri(2-	Indole	
	Tri(2-	none			citrate)	Triethyl citrate	citrate)	butoxyethyl)	Isophorone	
	butoxyethyl)	Camphor			Tri(2-	(ethyl	Tri(2-	phosphate	Isophorone	
	phosphate	DEET			chloroethyl)	citrate)	butoxyethyl)	Tri(2-	Tributyl	
	Tri(2-	HHCB			phosphate	Tri(2-	phosphate	chloroethyl)	phosphate	Triethyl citrate
	chloroethyl)	Indole			Tri(dichloro-	butoxyethyl)		phosphate	(ethyl	(ethyl
	phosphate	OP2EO			isopropyl)	phosphate		Tri(dichloro-	citrate)	citrate)
Tri(dichloro-	OP1EO			phosphate	Tri(2-		isopropyl)	phosphate	Triphenyl	
isopropyl)	NP				chloroethyl)		phosphate	phosphate	phosphate	
phosphate	Tributyl				phosphate		Tri(dichloro-	Tri(2-	Tri(2-	
	phosphate				Tri(dichloro-		isopropyl)	butoxyethyl)	chloroethyl)	
	Triethyl citrate				isopropyl)		phosphate	phosphate	phosphate	
	(ethyl				phosphate			phosphate	phosphate	
	citrate)							phosphate	phosphate	
	Triphenyl							phosphate	phosphate	
	phosphate							phosphate	phosphate	
	Tri(2-							phosphate	phosphate	
	butoxyethyl)							phosphate	phosphate	
	phosphate							phosphate	phosphate	
	Tri(2-							phosphate	phosphate	
	chloroethyl)							phosphate	phosphate	
	phosphate							phosphate	phosphate	
	Tri(dichloro-							phosphate	phosphate	
	isopropyl)							phosphate	phosphate	
	phosphate							phosphate	phosphate	

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Polyaromatic hydrocarbons (PAHs)	--	Carbazole Naphthalene Phenanthrene Pyrene	1-Methyl-naphthalene 2,6-Dimethyl-naphthalene 2-Methyl-naphthalene Naphthalene Phenanthrene Pyrene	--	--	--	Anthracene Benzo[a]pyrene Fluoranthene Phenanthrene Pyrene	--	Carbazole Pyrene	1-Methyl-naphthalene 2-Methyl-naphthalene Naphthalene Pyrene
Sterol compounds (SCs)	<i>3-beta-Coprostanol</i> <i>beta-Sitosterol</i> Cholesterol	<i>beta-Sitosterol</i> Cholesterol	Cholesterol	<i>beta-Sitosterol</i> Cholesterol	<i>beta-Sitosterol</i> Cholesterol	<i>3-beta-Coprostanol</i> Cholesterol	Cholesterol	Cholesterol	<i>beta-Sitosterol</i> Cholesterol	--

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