



**Table 19.** Analytical results for polyaromatic hydrocarbons (PAHs) in water and bottom-sediment samples.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Shaded cells indicate concentrations greater than study reporting levels for compounds with acceptable quality assurance/quality control, and concentrations were used in analyses related to occurrence of organic wastewater compounds. Units are micrograms per liter unless otherwise noted. Analytical method number: 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). µg/kg, micrograms per kilogram;; ND, not determined; e, estimated; <, less than; --, no data collected]

	Analytical method number	Study reporting level for data summary and analysis	Station identification number and name (site label)						
			433843096450500 Big Sioux River near Renner, SD (site US1, fig. 1)			43360096442400 Sioux Falls pump station intake from Big Sioux River at Sioux Falls, SD (site US2, fig. 1)			
Compound—Continued									
Fluoranthene, bottom sediment	5	9.3 µg/kg	--	--	--	e9.3 µg/kg	--	--	--
Naphthalene, dissolved	4	0.049	<0.5	<0.5	--	--	--	--	--
Naphthalene, whole water	3	ND	<.5	<.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene, bottom sediment	5	8.2 µg/kg	--	--	--	<50 µg/kg	--	--	--
<b>Phenanthrene</b> , dissolved	4	.02	<.5	<.5	--	--	--	--	--
<b>Phenanthrene</b> , whole water	3	.019	<.5	<.5	<.5	<.5	<.5	<.5	<.5
<b>Phenanthrene</b> , bottom sediment	5	7.6 µg/kg	--	--	--	e7.6 µg/kg	--	--	--
<b>Pyrene</b> , dissolved	4	.012	<.5	<.5	--	--	--	--	--
<b>Pyrene</b> , whole water	3	.04	<.5	<.5	<.5	<.5	<.5	<.5	<.5
<b>Pyrene</b> , bottom sediment	5	9.3 µg/kg	--	--	--	e9.3 µg/kg	--	--	--

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**Table 19.** Analytical results for polyaromatic hydrocarbons (PAHs) in water and bottom-sediment samples.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Shaded cells indicate concentrations greater than study reporting levels for compounds with acceptable quality assurance/quality control, and concentrations were used in analyses related to occurrence of organic wastewater compounds. Units are micrograms per liter unless otherwise noted. Analytical method number: 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). µg/kg, micrograms per kilogram; ND, not determined; e, estimated; <, less than; --, no data collected]

	Analytical method number	Study reporting level for data summary and analysis	Station identification number and name (site label)				
			433419096434200 Sioux Falls water treatment plant finished drinking water at Sioux Falls, SD (site FDW, fig. 1)				
Date of sample collection (month–day–year)			08–15–2001	09–09–2002	01–22–2003	03–19–2003	06–27–2003
Time of sample collection (24-hour)			1100	1440	1330	1445	0915
			Compound				
1-Methylnaphthalene, dissolved	4	0.04	--	--	--	--	--
1-Methylnaphthalene, whole water	3	ND	<0.5	<0.5	<0.5	<0.5	<0.5
1-Methylnaphthalene, bottom sediment	5	50 µg/kg	--	--	--	--	--
2,6-Dimethylnaphthalene, dissolved	4	.053	--	--	--	--	--
2,6-Dimethylnaphthalene, whole water	3	ND	<.5	<.5	<.5	<.5	<.5
2,6-Dimethylnaphthalene, bottom sediment	5	20 µg/kg	--	--	--	--	--
2-Methylnaphthalene, dissolved	4	.06	--	--	--	--	--
2-Methylnaphthalene, whole water	3	ND	<.5	<.5	<.5	<.5	<.5
2-Methylnaphthalene, bottom sediment	5	50 µg/kg	--	--	--	--	--
<b>Anthracene</b> , dissolved	4	.082	--	--	--	--	--
<b>Anthracene</b> , whole water	3	.06	<.5	<.5	<.5	<.5	<.5
<b>Anthracene</b> , bottom sediment	5	10 µg/kg	--	--	--	--	--
<b>Benzo[a]pyrene</b> , dissolved	4	.5	--	--	--	--	--
<b>Benzo[a]pyrene</b> , whole water	3	.03	<.5	<.5	<.5	<.5	<.5
<b>Benzo[a]pyrene</b> , bottom sediment	5	25 µg/kg	--	--	--	--	--
Carbazole, dissolved	5	.036	--	--	--	--	--
Carbazole, whole water	3	.22	<.5	<.5	<.5	<.5	<.5
Carbazole, bottom sediment	5	50 µg/kg	--	--	--	--	--
Fluoranthene, dissolved	4	.017	--	--	--	--	--
Fluoranthene, whole water	3	.15	<.5	<.5	<.5	<.5	<.5
Fluoranthene, bottom sediment	5	9.3 µg/kg	--	--	--	--	--
Naphthalene, dissolved	4	.049	--	--	--	--	--
Naphthalene, whole water	3	ND	<.5	<.5	<.5	<.5	<.5
Naphthalene, bottom sediment	5	8.2 µg/kg	--	--	--	--	--
<b>Phenanthrene</b> , dissolved	4	.02	--	--	--	--	--
<b>Phenanthrene</b> , whole water	3	.019	<.5	<.5	<.5	<.5	<.5
<b>Phenanthrene</b> , bottom sediment	5	7.6 µg/kg	--	--	--	--	--
<b>Pyrene</b> , dissolved	4	.012	--	--	--	--	--
<b>Pyrene</b> , whole water	3	.04	<.5	<.5	<.5	<.5	<.5
<b>Pyrene</b> , bottom sediment	5	9.3 µg/kg	--	--	--	--	--

**Table 19.** Analytical results for polyaromatic hydrocarbons (PAHs) in water and bottom-sediment samples.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Shaded cells indicate concentrations greater than study reporting levels for compounds with acceptable quality assurance/quality control, and concentrations were used in analyses related to occurrence of organic wastewater compounds. Units are micrograms per liter, unless otherwise noted. Analytical method number: 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). µg/kg, micrograms per kilogram; ND, not determined; e, estimated; <, less than; --, no data collected]

	Analytical method number	Study reporting level for data summary and analysis	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)	
Date of sample collection (month–day–year)			05–18–2004	05–31–2004	05–17–2004	05–30–2004
Time of sample collection (24-hour)			1130	1145	1000	1530
Compound						
1-Methylnaphthalene, dissolved	4	0.04	<0.5	<0.5	e0.024	e0.13
1-Methylnaphthalene, whole water	3	ND	<.5	<.5	<.5	e.075
1-Methylnaphthalene, bottom sediment	5	50 µg/kg	--	--	--	--
2,6-Dimethylnaphthalene, dissolved	4	.053	<.5	<.5	<.5	e.077
2,6-Dimethylnaphthalene, whole water	3	ND	<.5	<.5	<.5	e.035
2,6-Dimethylnaphthalene, bottom sediment	5	20 µg/kg	--	--	--	--
2-Methylnaphthalene, dissolved	4	.06	<.5	<.5	e.018	e.11
2-Methylnaphthalene, whole water	3	ND	<.5	<.5	<.5	e.045
2-Methylnaphthalene, bottom sediment	5	50 µg/kg	--	--	--	--
<b>Anthracene</b> , dissolved	4	.082	<.5	<.5	<.5	e.082
<b>Anthracene</b> , whole water	3	.06	<.5	<.5	<.5	e.052
<b>Anthracene</b> , bottom sediment	5	10 µg/kg	--	--	--	--
<b>Benzo[a]pyrene</b> , dissolved	4	.5	<.5	<.5	<.5	<.5
<b>Benzo[a]pyrene</b> , whole water	3	.03	<.5	<.5	<.5	e.13
<b>Benzo[a]pyrene</b> , bottom sediment	5	25 µg/kg	--	--	--	--
Carbazole, dissolved	5	.036	<.5	<.5	e.050	<.5
Carbazole, whole water	3	.22	<.5	<.5	<.5	<.5
Carbazole, bottom sediment	5	50 µg/kg	--	--	--	--
Fluoranthene, dissolved	4	.017	<.5	<.5	e.037	e.035
Fluoranthene, whole water	3	.15	<.5	e.030	e.076	e.22
Fluoranthene, bottom sediment	5	9.3 µg/kg	--	--	--	--
Naphthalene, dissolved	4	.049	e.026	<.5	e.049	e.19
Naphthalene, whole water	3	ND	<.5	<.5	<.5	e.092
Naphthalene, bottom sediment	5	8.2 µg/kg	--	--	--	--
<b>Phenanthrene</b> , dissolved	4	.02	e.021	<.5	e.045	e.11
<b>Phenanthrene</b> , whole water	3	.019	e.019	e.024	e.054	e.15
<b>Phenanthrene</b> , bottom sediment	5	7.6 µg/kg	--	--	--	--
<b>Pyrene</b> , dissolved	4	.012	<.5	<.5	e.018	e.039
<b>Pyrene</b> , whole water	3	.04	<.5	e.020	e.047	e.22
<b>Pyrene</b> , bottom sediment	5	9.3 µg/kg	--	--	--	--

**Table 19.** Analytical results for polyaromatic hydrocarbons (PAHs) in water and bottom-sediment samples.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Shaded cells indicate concentrations greater than study reporting levels for compounds with acceptable quality assurance/quality control, and concentrations were used in analyses related to occurrence of organic wastewater compounds. Units are micrograms per liter, unless otherwise noted. Analytical method number: 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). µg/kg, micrograms per kilogram; ND, not determined; e, estimated; <, less than; --, no data collected]

	Analytical method number	Study reporting level for data summary and analysis	Station identification number and name (site label)					
			433531096394200 Sioux Falls wastewater treatment plant effluent (site WWE, fig. 1)					
Date of sample collection (month–day–year)			09–10–2002	01–24–2003	03–21–2003	06–26–2003	05–18–2004	05–30–2004
Time of sample collection (24-hour)			1400	0930	1045	1135	1020	2020
			Compound					
1-Methylnaphthalene, dissolved	4	0.04	--	--	--	--	<.5	<.5
1-Methylnaphthalene, whole water	3	ND	<.5	<.5	<.5	<.5	<.5	<.5
1-Methylnaphthalene, bottom sediment	5	50 µg/kg	--	--	--	--	--	--
2,6-Dimethylnaphthalene, dissolved	4	.053	--	--	--	--	<.5	<.5
2,6-Dimethylnaphthalene, whole water	3	ND	<.5	<.5	<.5	<.5	<.5	<.5
2,6-Dimethylnaphthalene, bottom sediment	5	20 µg/kg	--	--	--	--	--	--
2-Methylnaphthalene, dissolved	4	.06	--	--	--	--	<.5	<.5
2-Methylnaphthalene, whole water	3	ND	<.5	<.5	<.5	<.5	<.5	<.5
2-Methylnaphthalene, bottom sediment	5	50 µg/kg	--	--	--	--	--	--
<b>Anthracene</b> , dissolved	4	.082	--	--	--	--	<.5	<.5
<b>Anthracene</b> , whole water	3	.06	<.5	<.5	<.5	<.5	<.5	<.5
<b>Anthracene</b> , bottom sediment	5	10 µg/kg	--	--	--	--	--	--
<b>Benzo[a]pyrene</b> , dissolved	4	.5	--	--	--	--	<.5	<.5
<b>Benzo[a]pyrene</b> , whole water	3	.03	<.5	<.5	<.5	<.5	<.5	<.5
<b>Benzo[a]pyrene</b> , bottom sediment	5	25 µg/kg	--	--	--	--	--	--
Carbazole, dissolved	5	.036	--	--	--	--	<.5	<.5
Carbazole, whole water	3	.22	<.5	<.5	<.5	<.5	<.5	<.5
Carbazole, bottom sediment	5	50 µg/kg	--	--	--	--	--	--
Fluoranthene, dissolved	4	.017	--	--	--	--	<.5	<.5
Fluoranthene, whole water	3	.15	<.5	<.5	<.5	<.5	<.5	e.14
Fluoranthene, bottom sediment	5	9.3 µg/kg	--	--	--	--	--	--
Naphthalene, dissolved	4	.049	--	--	--	--	<.5	<.5
Naphthalene, whole water	3	ND	<.5	<.5	<.5	<.5	<.5	<.5
Naphthalene, bottom sediment	5	8.2 µg/kg	--	--	--	--	--	--
<b>Phenanthrene</b> , dissolved	4	.02	--	--	--	--	<.5	<.5
<b>Phenanthrene</b> , whole water	3	.019	<.5	<.5	<.5	<.5	<.5	<.5
<b>Phenanthrene</b> , bottom sediment	5	7.6 µg/kg	--	--	--	--	--	--
<b>Pyrene</b> , dissolved	4	.012	--	--	--	--	<.5	<.5
<b>Pyrene</b> , whole water	3	.04	<.5	<.5	<.5	<.5	e.018	<.5
<b>Pyrene</b> , bottom sediment	5	9.3 µg/kg	--	--	--	--	--	--

**Table 19.** Analytical results for polyaromatic hydrocarbons (PAHs) in water and bottom-sediment samples.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Shaded cells indicate concentrations greater than study reporting levels for compounds with acceptable quality assurance/quality control, and concentrations were used in analyses related to occurrence of organic wastewater compounds. Units are micrograms per liter unless otherwise noted. Analytical method number: 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). µg/kg, micrograms per kilogram; ND, not determined; e, estimated; <, less than; --, no data collected]

	Analytical method number	Study reporting level for data summary and analysis	Station identification number and name (site label)		
			433559096390700 Big Sioux River downstream from Sioux Falls wastewater discharge (site DS1, fig. 1)		
Date of sample collection (month–day–year)			09–10–2002	05–17–2004	05–30–2004
Time of sample collection (24-hour)			1030	1100	1630
Compound					
1-Methylnaphthalene, dissolved	4	0.04	--	e0.024	e0.11
1-Methylnaphthalene, whole water	3	ND	<0.5	<.5	e.072
1-Methylnaphthalene, bottom sediment	5	50 µg/kg	<50 µg/kg	--	--
2,6-Dimethylnaphthalene, dissolved	4	.053	--	<.5	e.053
2,6-Dimethylnaphthalene, whole water	3	ND	<.5	<.5	<.5
2,6-Dimethylnaphthalene, bottom sediment	5	20 µg/kg	e36 µg/kg	--	--
2-Methylnaphthalene, dissolved	4	.06	--	e.029	e.077
2-Methylnaphthalene, whole water	3	ND	<.5	<.5	e.041
2-Methylnaphthalene, bottom sediment	5	50 µg/kg	<50 µg/kg	--	--
<b>Anthracene</b> , dissolved	4	.082	--	<.5	<.5
<b>Anthracene</b> , whole water	3	.06	<.5	<.5	<.5
<b>Anthracene</b> , bottom sediment	5	10 µg/kg	e11 µg/kg	--	--
<b>Benzo[a]pyrene</b> , dissolved	4	.5	--	<.5	<.5
<b>Benzo[a]pyrene</b> , whole water	3	.03	<.5	<.5	<.5
<b>Benzo[a]pyrene</b> , bottom sediment	5	25 µg/kg	e26 µg/kg	--	--
Carbazole, dissolved	5	.036	--	e.037	<.5
Carbazole, whole water	3	.22	<.5	<.5	<.5
Carbazole, bottom sediment	5	50 µg/kg	<50 µg/kg	--	--
Fluoranthene, dissolved	4	.017	--	e.026	e.030
Fluoranthene, whole water	3	.15	<.5	e.087	e.10
Fluoranthene, bottom sediment	5	9.3 µg/kg	e31 µg/kg	--	--
Naphthalene, dissolved	4	.049	--	e.060	e.16
Naphthalene, whole water	3	ND	<.5	<.5	e.093
Naphthalene, bottom sediment	5	8.2 µg/kg	e12 µg/kg	--	--
<b>Phenanthrene</b> , dissolved	4	.02	--	e.032	e.076
<b>Phenanthrene</b> , whole water	3	.019	<.5	e.052	e.12
<b>Phenanthrene</b> , bottom sediment	5	7.6 µg/kg	e38 µg/kg	--	--
<b>Pyrene</b> , dissolved	4	.012	--	e.020	e.027
<b>Pyrene</b> , whole water	3	.04	<.5	e.067	e.086
<b>Pyrene</b> , bottom sediment	5	9.3 µg/kg	e22 µg/kg	--	--

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Table 19. Analytical results for polyaromatic hydrocarbons (PAHs) in water and bottom-sediment samples.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Shaded cells indicate concentrations greater than study reporting levels for compounds with acceptable quality assurance/quality control, and concentrations were used in analyses related to occurrence of organic wastewater compounds. Units are micrograms per liter unless otherwise noted. Analytical method number: 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). µg/kg, micrograms per kilogram; ND, not determined; e, estimated; <, less than; --, no data collected]

	Analytical method number	Study reporting level for data summary and analysis	Station identification number and name (site label)						
			433541096355800 Big Sioux River at Brandon, SD (site DS2, fig. 1)						
Date of sample collection (month–day–year)			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)			0930	1030	1125	1315	1630	1730	1230
			Compound						
1-Methylnaphthalene, dissolved	4	0.04	--	--	--	--	--	<0.5	e.067
1-Methylnaphthalene, whole water	3	ND	<0.5	<0.5	<0.5	<0.5	<0.5	<.5	e.040
1-Methylnaphthalene, bottom sediment	5	50 µg/kg	--	<50 µg/kg	--	--	--	--	--
2,6-Dimethylnaphthalene, dissolved	4	.053	--	--	--	--	--	<.5	<.5
2,6-Dimethylnaphthalene, whole water	3	ND	<.5	<.5	<.5	<.5	<.5	<.5	<.5
2,6-Dimethylnaphthalene, bottom sediment	5	20 µg/kg	--	<50 µg/kg	--	--	--	--	--
2-Methylnaphthalene, dissolved	4	.06	--	--	--	--	--	<.5	e.060
2-Methylnaphthalene, whole water	3	ND	<.5	<.5	<.5	<.5	<.5	<.5	e.027
2-Methylnaphthalene, bottom sediment	5	50 µg/kg	--	<50 µg/kg	--	--	--	--	--
<b>Anthracene</b> , dissolved	4	.082	--	--	--	--	--	<.5	<.5
<b>Anthracene</b> , whole water	3	.06	<.5	<.5	<.5	e.068	<.5	<.5	<.5
<b>Anthracene</b> , bottom sediment	5	10 µg/kg	--	e14 µg/kg	--	--	--	--	--
<b>Benzo[a]pyrene</b> , dissolved	4	.5	--	--	--	--	--	<.5	<.5
<b>Benzo[a]pyrene</b> , whole water	3	.03	<.5	<.5	<.5	e.063	e.016	<.5	<.5
<b>Benzo[a]pyrene</b> , bottom sediment	5	25 µg/kg	--	e27 µg/kg	--	--	--	--	--
Carbazole, dissolved	5	.036	--	--	--	--	--	e.036	<.5
Carbazole, whole water	3	.22	<.5	<.5	<.5	<.5	e.013	<.5	<.5
Carbazole, bottom sediment	5	50 µg/kg	--	<50 µg/kg	--	--	--	--	--
Fluoranthene, dissolved	4	.017	--	--	--	--	--	e.017	e.029
Fluoranthene, whole water	3	.15	<.5	<.5	<.5	e.17	e.044	e.059	e.030

**Table 19.** Analytical results for polyaromatic hydrocarbons (PAHs) in water and bottom-sediment samples.—Continued

[Bold text indicates suspected endocrine-disrupting compound (EDC). Shaded cells indicate concentrations greater than study reporting levels for compounds with acceptable quality assurance/quality control, and concentrations were used in analyses related to occurrence of organic wastewater compounds. Units are micrograms per liter unless otherwise noted. Analytical method number: 3, Lee and others (2004); 4, Zaugg and others (2002); 5, Burkhardt and others (2005). µg/kg, micrograms per kilogram; ND, not determined; e, estimated; <, less than; --, no data collected]

	Analytical method number	Study reporting level for data summary and analysis	Station identification number and name (site label)						
			433541096355800 Big Sioux River at Brandon, SD (site DS2, fig. 1)						
Compound—Continued									
Fluoranthene, bottom sediment	5	9.3 µg/kg	--	e40 µg/kg	--	--	--	--	--
Naphthalene, dissolved	4	0.049	--	--	--	--	--	<0.5	e0.084
Naphthalene, whole water	3	ND	<0.5	<0.5	e0.094	<0.5	<0.5	<.5	e.047
Naphthalene, bottom sediment	5	8.2 µg/kg	--	e8.2 µg/kg	--	--	--	--	--
<b>Phenanthrene</b> , dissolved	4	.02	--	--	--	--	--	e.029	e.047
<b>Phenanthrene</b> , whole water	3	.019	<.5	<.5	<.5	e.14	<.5	<.5	e.045
<b>Phenanthrene</b> , bottom sediment	5	7.6 µg/kg	--	e58 µg/kg	--	--	--	--	--
<b>Pyrene</b> , dissolved	4	.012	--	--	--	--	--	e.012	e.025
<b>Pyrene</b> , whole water	3	.04	<.5	<.5	<.5	e.12	e.028	e.040	e.022
<b>Pyrene</b> , bottom sediment	5	9.3 µg/kg	--	e23 µg/kg	--	--	--	--	--