



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

**Table 15.** Analytical results for human pharmaceutical compounds (HPCs) in water 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. Analytical method number: 1, Cahill and others (2004); 3, Lee and others (2004); 4, Zaugg and others (2002). ND, not determined; UD, undetected, laboratory reporting level 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				
1,7-Dimethylxanthine, dissolved	1	0.030	<0.144	<0.144	<0.144	<0.144	<0.144
Acetaminophen, dissolved	1	ND	<.036	<.036	<.036	<.036	<.036
Caffeine, dissolved	1	.022	<.016	<.016	<.016	<.016	<.016
Caffeine, dissolved	4	ND	--	--	--	--	--
Caffeine, whole water	3	.17	<.5	<.5	<.5	<.5	<.5
Carbamazepine, dissolved	1	ND	<.011	<.011	<.011	<.011	<.011
Cimetidine, dissolved	1	ND	<.012	<.012	<.012	<.012	<.012
Codeine, dissolved	1	ND	<.015	<.015	e.0058	<.015	<.015
Cotinine, dissolved	1	.0008	<.014	<.014	<.014	<.014	<.014
Cotinine, dissolved	4	ND	--	--	--	--	--
Cotinine, whole water	3	ND	<1	<1	<1	<1	<1
Dehydronifedipine, dissolved	1	.0042	<.015	<.015	e.0020	<.015	<.015
Diltiazem, dissolved	1	ND	<.016	<.016	e.0017	<.016	<.016
Diphenhydramine, dissolved	1	ND	<.015	<.015	e.0024	<.015	<.015
<b>Fluoxetine</b> , dissolved	1	ND	<.014	<.014	<.014	<.014	<.014
Furosemide, dissolved	1	ND	<.039	<.039	<.039	<.039	<.039
Gemfibrozil, dissolved	1	ND	<.013	<.013	<.013	<.013	<.013
Ibuprofen, dissolved	1	ND	<.042	<.042	<.042	<.042	<.042
Metformin, dissolved	1	ND	UD	UD	UD	UD	UD
Miconazole, dissolved	1	ND	<.018	<.018	<.018	<.018	<.018
Ranitidine, dissolved	1	ND	<.013	<.013	<.013	<.013	<.013
Salbutamol, dissolved	1	.023	<.023	<.023	<.023	<.023	<.023
Thiabendazole, dissolved	1	ND	<.011	<.011	<.011	<.011	<.011
Warfarin, dissolved	1	ND	<.012	<.012	<.012	<.012	<.012

**Table 15.** Analytical results for human pharmaceutical compounds (HPCs) in water samples.—Continued

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	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			
1,7-Dimethylxanthine, dissolved	1	0.030	<0.144	<0.144	<0.144	--
Acetaminophen, dissolved	1	ND	<.036	.67	<.036	--
Caffeine, dissolved	1	.022	e.0037	.028	.31	--
Caffeine, dissolved	4	ND	<.5	<.5	.54	<0.5
Caffeine, whole water	3	.17	<.5	<.5	.51	--
Carbamazepine, dissolved	1	ND	<.011	<.011	<.011	--
Cimetidine, dissolved	1	ND	<.012	<.012	<.012	--
Codeine, dissolved	1	ND	<.015	<.015	<.015	--
Cotinine, dissolved	1	.0008	e.0070	e.0032	.030	--
Cotinine, dissolved	4	ND	<1	<1	e.24	<1
Cotinine, whole water	3	ND	<1	<1	<1	<1
Dehydronifedipine, dissolved	1	.0042	<.015	<.015	<.015	--
Diltiazem, dissolved	1	ND	<.016	<.016	<.016	--
Diphenhydramine, dissolved	1	ND	<.015	<.015	<.015	--
<b>Fluoxetine</b> , dissolved	1	ND	<.014	<.014	<.014	--
Furosemide, dissolved	1	ND	<.039	<.039	<.039	--
Gemfibrozil, dissolved	1	ND	<.013	<.013	<.013	--
Ibuprofen, dissolved	1	ND	<.042	<.042	<.042	--
Metformin, dissolved	1	ND	UD	UD	UD	--
Miconazole, dissolved	1	ND	<.018	<.018	<.018	--
Ranitidine, dissolved	1	ND	<.013	<.013	<.013	--
Salbutamol, dissolved	1	.023	<.023	<.023	<.023	--
Thiabendazole, dissolved	1	ND	<.011	<.011	<.011	--
Warfarin, dissolved	1	ND	<.012	<.012	<.012	--



**Table 15.** Analytical results for human pharmaceutical compounds (HPCs) in water samples.—Continued

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	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					
I,7-Dimethylxanthine, dissolved	1	0.030	<0.144	<0.144	<0.144
Acetaminophen, dissolved	1	ND	<.036	e.0521	e.032
Caffeine, dissolved	1	.022	<b>.034</b>	<b>.17</b>	<.016
Caffeine, dissolved	4	ND	--	e.26	<.5
Caffeine, whole water	3	.17	<.5	e.19	<.5
Carbamazepine, dissolved	1	ND	.038	e.0070	<.011
Cimetidine, dissolved	1	ND	<.012	<.012	<.012
Codeine, dissolved	1	ND	e.0065	<.015	<.015
Cotinine, dissolved	1	.0008	<b>e.011</b>	<b>.017</b>	<.014
Cotinine, dissolved	4	ND	--	<1	<1
Cotinine, whole water	3	ND	<1	<1	<1
Dehydronifedipine, dissolved	1	.0042	e.0029	<.015	<.015
Diltiazem, dissolved	1	ND	e.0042	<.016	<.016
Diphenhydramine, dissolved	1	ND	e.0035	<.015	<.015
<b>Fluoxetine</b> , dissolved	1	ND	<.014	<.014	<.014
Furosemide, dissolved	1	ND	<.039	<.039	<.039
Gemfibrozil, dissolved	1	ND	<.013	<.013	<.013
Ibuprofen, dissolved	1	ND	<.042	<.042	<.042
Metformin, dissolved	1	ND	UD	UD	UD
Miconazole, dissolved	1	ND	<.018	<.018	<.018
Ranitidine, dissolved	1	ND	<.013	<.013	<.013
Salbutamol, dissolved	1	.023	<.023	<.023	<.023
Thiabendazole, dissolved	1	ND	<.011	<.011	<.011
Warfarin, dissolved	1	ND	<.012	<.012	<.012

