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

	Analytical method number	Study Station identification number and							abel)	
		d for data er summary and analysis	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)					
Date of sample			05-18-2004	05-31-2004	08-15-2001	09-09-2002	01–22–2003 03–19–2003		06-26-2003	
collection (month-day-year)										
Time of sample collection (24-hour)			1500	1800	1405	1200	1105	1130	0930	
				Compoun	d					
1,7-Dimethylxanthine, dissolved	1	0.030	<0.144	<0.144	<0.144	<0.144	<0.144	<0.144	<0.144	
Acetaminophen, dissolved	1	ND	<.036	<.036	<.036	<.036	e.0003	e.032	<.036	
Caffeine, dissolved	1	.022	<.016	<.016	<.016	<.016	e.015	<.016	<.016	
Caffeine, dissolved	4	ND	<.5	<.5						
Caffeine, whole water	3	.17	<.5	e.12	<.5	<.5	<.5	e.049	<.5	
Carbamazepine, dissolved	1	ND	e.0047	<.011	<.011	.0082	e.030	<.011	e.0071	
Cimetidine, dissolved	1	ND	<.012	<.012	<.012	<.012	<.012	<.012	<.012	
Codeine, dissolved	1	ND	<.015	<.015	<.015	<.015	<.015	<.015	<.015	
Cotinine, dissolved	1	.0008	<.014	<.014	<.014	e.0060	e.0081	e.0092	e.0084	
Cotinine, dissolved	4	ND	<1	<1						
Cotinine, whole water	3	ND	<1	<1	<1	<1	<1	<1	<1	
Dehydronifedipine, dissolved	1	.0042	<.015	<.015	<.015	<.015	<.015	<.015	<.015	
Diltiazem, dissolved	1	ND	<.016	<.016	<.016	<.016	<.016	<.016	<.016	
Diphenhydramine, dissolved	1	ND	<.015	<.015	<.015	<.015	e.0022	<.015	<.015	
Fluoxetine, dissolved	1	ND	<.014	<.014	<.014	<.014	<.014	<.014	<.014	
Furosemide, dissolved	1	ND	<.039	<.039	<.039	<.039	<.039	<.039	<.039	
Gemfibrozil, dissolved	1	ND	<.013	<.013	<.013	<.013	<.013	<.013	<.013	
Ibuprofen, dissolved	1	ND	<.042	<.042	<.042	<.042	<.042	<.042	<.042	
Metformin, dissolved	1	ND	UD	UD	UD	UD	e.0058	UD	UD	
Miconazole, dissolved	1	ND	<.018	<.018	<.018	<.018	<.018	<.018	<.018	
Ranitidine, dissolved	1	ND	<.013	<.013	<.013	<.013	<.013	<.013	<.013	
Salbutamol, dissolved	1	.023	<.023	<.023	<.023	<.023	<.023	<.023	<.023	
Thiabendazole, dissolved	1	ND	<.011	<.011	<.011	<.011	<.011	<.011	<.011	
Warfarin, dissolved	1	ND	<.012	<.012	<.012	<.012	<.012	<.012	<.012	

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

		Study	Station identification number and name (site label)  433419096434200  Sioux Falls water treatment plant finished drinking water at Sioux Falls, SD (site FDW, fig. 1)						
	Analytical method number	reporting - level for data summary and analysis							
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		
Fluoxetine, 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

		Study	identification number	per and name (site label)			
	Analytical method number	reporting — level for data summary and analysis	Big Sioux River at North Drive,	096432000 diversion channel at Sioux Falls, SD S3, 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		
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		
Fluoxetine, 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

		Study		Station ide	dentification number and name (site label)						
	Analytica I method number	reporting level for data summary and analysis	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			
			Compo	ound							
1,7-Dimethylxanthine, dissolved	1	0.030	< 0.144	< 0.144	e0.048	< 0.144	< 0.144	< 0.144			
Acetaminophen, dissolved	1	ND	e.020	<.036	<.036	e.0018	<.036	<.036			
Caffeine, dissolved	1	.022	<.016	.081	.047	.035	<.016	.059			
Caffeine, dissolved	4	ND					e.14	e.13			
Caffeine, whole water	3	.17	e.051	e.13	e.082	<.5	<.5	<.5			
Carbamazepine, dissolved	1	ND	.080	.91	.11	e.061	.21	.12			
Cimetidine, dissolved	1	ND	<.012	.90	.23	<.012	<.012	<.012			
Codeine, dissolved	1	ND	.029	.26	.12	e.0038	.059	<.015			
Cotinine, dissolved	1	.0008	e.021	.027	e.022	e.0143	<.014	.056			
Cotinine, dissolved	4	ND					<1	e.25			
Cotinine, whole water	3	ND	<1	<1	<1	<1	<1	<1			
Dehydronifedipine, dissolved	1	.0042	e.011	<.015	<.015	e.0010	<.015	e.0025			
Diltiazem, dissolved	1	ND	e.010	.079	.054	<.016	.063	<.016			
Diphenhydramine, dissolved	1	ND	.043	.10	.079	e.0057	.10	.018			
Fluoxetine, dissolved	1	ND	<.014	<.014	<.014	<.014	<.014	<.014			
Furosemide, dissolved	1	ND	<.039	<.039	<.039	<.039	<.039	<.039			
Gemfibrozil, dissolved	1	ND	<.013	<.013	<.013	<.013	<.013	<.013			
Ibuprofen, dissolved	1	ND	<.042	<.042	<.042	<.042	<.042	<.042			
Metformin, dissolved	1	ND	UD	.21	UD	UD	UD	UD			
Miconazole, dissolved	1	ND	<.018	<.018	<.018	<.018	<.018	<.018			
Ranitidine, dissolved	1	ND	<.013	.16	.090	<.013	<.013	<.013			
Salbutamol, dissolved	1	.023	<.023	.054	.039	<.023	<.023	<.023			
Thiabendazole, dissolved	1	ND	<.011	<.011	<.011	<.011	<.011	<.011			
Warfarin, dissolved	1	ND	<.012	<.012	<.012	<.012	<.012	<.012			

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

		Study	cation number and n	on number and name (site label)			
	Analytical method number	reporting — level for data summary and analysis	433559096390700 Big Sioux River downstream from Sioux Falls wastewater discharge (site DS1, fig. 1)				
Date of sample collection			09-10-2002	05–17–2004	05-30-2004		
(month–day–year) Time of sample collection			1030	1100	1630		
(24-hour)			1030	1100	1030		
		Compo	und				
1,7-Dimethylxanthine, dissolved	1	0.030	< 0.144	< 0.144	< 0.144		
Acetaminophen, dissolved	1	ND	<.036	e.0521	e.032		
Caffeine, dissolved	1	.022	.034	.17	<.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	e.011	.017	<.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		
Fluoxetine, 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

	Analytical method number	Study		Station	n identificatio	n number and	l name (site la	nbel)		
		for data 433541096355800								
Date of sample collection (month-day-year)			08–16–2001	09–11–2002 (	)1–23–2003 (	03-20-2003 (	06-25-2003 05-17-2004		4 05–31–2004	
Time of sample collection (24-hour)			0930	1030	1125	1315	1630	1730	1230	
				Compound						
1,7-Dimethylxanthine, dissolved	1	0.030	<0.144	e0.034	<0.144	<0.144	<0.144	<0.144	<0.144	
Acetaminophen, dissolved	1	ND	<.036	<.036	<.036	e.031	e.0037	<.036	e.0045	
Caffeine, dissolved	1	.022	<.016	.10	.040	e.015	.075	.15	<.016	
Caffeine, dissolved	4	ND						e.32	<.5	
Caffeine, whole water	3	.17	<.5	e.28	e.084	e.064	e.084	e.29	<.5	
Carbamazepine, dissolved	1	ND	<.011	.030	.083	<.011	e.067	e.0071	<.011	
Cimetidine, dissolved	1	ND	<.012	<.012	.19	<.012	<.012	<.012	<.012	
Codeine, dissolved	1	ND	<.015	e.0092	.11	e.0099	e.0069	e.0033	<.015	
Cotinine, dissolved	1	.0008	e.0008	.025	e.021	e.025	e.018	.022	e.0049	
Cotinine, dissolved	4	ND						<1	<1	
Cotinine, whole water	3	ND	<1	<1	<1	<1	<1	<1	<1	
Dehydronifedipine, dissolved	1	.0042	<.015	e.0026	<.015	<.015	e.0025	<.015	<.015	
Diltiazem, dissolved	1	ND	<.016	<.016	.038	<.016	<.016	<.016	<.016	
Diphenhydramine, dissolved	1	ND	<.015	<.015	.028	<.015	e.0079	<.015	<.015	
Fluoxetine, dissolved	1	ND	<.014	<.014	e.0046	<.014	<.014	<.014	<.014	
Furosemide, dissolved	1	ND	<.039	<.039	<.039	<.039	<.039	<.039	<.039	
Gemfibrozil, dissolved	1	ND	<.013	<.013	<.013	<.013	<.013	<.013	<.013	
Ibuprofen, dissolved	1	ND	<.042	<.042	<.042	<.042	<.042	<.042	<.042	
Metformin, dissolved	1	ND	UD	UD	.047	UD	UD	UD	UD	
Miconazole, dissolved	1	ND	<.018	<.018	<.018	<.018	<.018	<.018	<.018	
Ranitidine, dissolved	1	ND	<.013	<.013	.080	<.013	<.013	<.013	<.013	
Salbutamol, dissolved	1	.023	<.023	<.023	.024	<.023	<.023	<.023	<.023	
Thiabendazole, dissolved		ND	<.011	<.011	<.011	<.011	<.011	<.011	<.011	
Warfarin, dissolved	1	ND	<.012	<.012	<.012	<.012	<.012	<.012	<.012	