

APPENDIX D

**ESTIMATES OF MEAN, STANDARD DEVIATION, AND SELECTED PERCENTILES AS
CALCULATED UNDER BOTH STATISTICAL APPROACHES**

Table D-1. Nationally Representative Estimates of the Mean, Standard Deviation, and Selected Upper Percentiles of the Distribution of Concentrations for the Metals, Organics, and Classicals Selected for In-Depth Statistical Analysis in the TNSSS, As Calculated under the Lognormal Distribution Model

Analyte	n	Est. N	Lognormal-Based Estimates		Observed Minimum	Observed Maximum	Lognormal-Based Estimates of Percentiles				
			Mean	S.D.			99 th	98 th	95 th	90 th	50 th
Metals (mg/kg)											
Barium	74	3,337	572	443	77	2,117	2,230	1,848	1,396	1,088	452
Beryllium	74	3,337	0.38	0.37	0.04	2.34	1.81	1.45	1.04	0.77	0.27
Manganese	74	3,337	1,165	2,231	35	14,900	9,700	6,904	4,156	2,648	540
Molybdenum	74	3,337	15	14	2.5	86.4	69	56	41	31	11
Silver (outlier included)*	74	3,337	23	31	2	856	146	111	74	51	14
Silver (outlier removed)*	73	3,337	20	22	2	195	105	82	57	42	13
Organics (ug/kg)											
4-Chloroaniline	74	3,337	1,284	2,946	51	5,900	12,013	8,288	4,762	2,912	513
Fluoranthene	74	3,337	1,421	3,211	45	12,000	13,173	9,112	5,256	3,226	575
Pyrene	74	3,337	1,654	3,981	44	14,000	15,918	10,894	6,184	3,742	634
Classicals (mg/kg)											
Nitrate/Nitrite	74	3,337	133	843	2	6,120	1,849	1,091	496	247	21

* Outlier corresponds to Plant #27 (856 mg/kg).

Table D-2. Nationally Representative Estimates of the Mean, Standard Deviation, and Selected Upper Percentiles of the Distribution of Concentrations for the Metals, Organics, and Classicals Selected for In-Depth Statistical Analysis in the TNSSS, As Calculated under the Nonparametric (Distribution Free) Approach

Analyte	n	Est. N	Nonparametric Estimates		Observed Minimum	Observed Maximum	Nonparametric Estimates of Percentiles				
			Mean	S.D.			99 th	98 th	95 th	90 th	50 th
Metals (mg/kg)											
Barium	74	3,337	575	454	77	2,117	2,117	2,060	1,700	1,240	426
Beryllium	74	3,337	0.39	0.37	0.04	2.34	2.34	1.23	1.17	0.89	0.27
Manganese	74	3,337	1,247	2,228	35	14,900	14,900	7,690	3,430	3,020	449
Molybdenum	74	3,337	16	14	2.51	86.4	86	56	45	33	11
Silver	74	3,337	32	101	2	856	856	195	72	42	14
Organics (ug/kg)											
4-Chloroaniline	74	3,337	1,099	1,051	51	5,900	5,900	3,700	3,200	2,500	865
Fluoranthene	74	3,337	1,420	2,247	45	12,000	12,000	9,700	6,700	3,500	550
Pyrene	74	3,337	1,647	2,593	44	14,000	14,000	10,000	8,700	3,900	620
Classicals (mg/kg)											
Nitrate/Nitrite	74	3,337	219	828	2	6,120	6,120	2,750	960	463	14

Note: In the above two tables, “n” denotes total sample size in the statistical analysis. (A total of 84 sample measurements were collected in the survey. However, for the ten POTWs having multiple samples collected, each is represented by their average measurement. This results in n=74 total measurements for the statistical analysis.) “Est N” is the total of the survey weights, or the total number of POTWs in the target population which these results represent. Both analyses exclude data for sample #68357 collected at Plant #19. In calculating the nonparametric estimates (Table D-2), non-detected results were represented by their sample-specific detection limits.

Table D-3. Nationally Representative Estimates of the Mean, Standard Deviation, and Selected Upper Percentiles of the Distribution of Concentrations for PBDEs Selected for In-Depth Statistical Analysis in the TNSSS (ng/kg), As Calculated under the Lognormal Distribution Model

Analyte	n	Est. N	Lognormal-Based Estimates		Observed Minimum	Observed Maximum	Lognormal-Based Estimates of Percentiles				
			Mean	S.D.			99 th	98 th	95 th	90 th	50 th
BDE 47	78	3,337	709,174	523,791	73,000	5,000,000	2,650,430	2,212,077	1,688,881	1,329,167	570,448
BDE 99	78	3,337	716,362	533,447	64,000	4,000,000	2,696,928	2,248,181	1,713,370	1,346,295	574,559
BDE 153	78	3,337	68,334	52,685	9,100	410,000	265,395	220,098	166,454	129,902	54,117
BDE 209	78	3,337	2,181,237	3,462,942	150,000	17,000,000	15,836,435	11,645,502	7,360,103	4,898,034	1,162,523

Table D-4. Nationally Representative Estimates of the Mean, Standard Deviation, and Selected Upper Percentiles of the Distribution of Concentrations for PBDEs Selected for In-Depth Statistical Analysis in the TNSSS (ng/kg), As Calculated under the Nonparametric (Distribution Free) Approach

Analyte	n	Est. N	Nonparametric Estimates		Observed Minimum	Observed Maximum	Nonparametric Estimates of Percentiles				
			Mean	S.D.			99 th	98 th	95 th	90 th	50 th
BDE 47	78	3,337	713,480	585,979	73,000	5,000,000	2,600,000	2,600,000	1,500,000	1,100,000	600,000
BDE 99	78	3,337	710,712	514,669	64,000	4,000,000	2,500,000	2,500,000	1,500,000	1,100,000	630,000
BDE 153	78	3,337	68,184	53,261	9,100	410,000	250,000	250,000	150,000	130,000	57,000
BDE 209	78	3,337	2,230,488	3,082,810	150,000	17,000,000	17,000,000	15,000,000	10,000,000	5,400,000	1,200,000

Note: In the above two tables, “n” denotes total sample size in the statistical analysis. (A total of 84 sample measurements were collected in the survey. However, for the six POTWs having field duplicate samples collected, each is represented by the average of the two sample measurements. This results in n=78 total measurements for the statistical analysis.) “Est N” is the total of the survey weights, or the total number of POTWs in the target population which these results represent. In calculating the nonparametric estimates (Table D-4), non-detected results were represented by their sample-specific detection limits.

Table D-5. Nationally Representative Estimates of the Mean, Standard Deviation, and Selected Upper Percentiles of the Distribution of Concentrations for Pharmaceuticals, Steroids, and Hormones Selected for In-Depth Statistical Analysis in the TNSSS, As Calculated under the Lognormal Distribution Model

Analyte	N	Est N	Lognormal-Based Estimates		Observed Minimum	Observed Maximum	Lognormal-Based Estimates of Percentiles				
			Mean	S.D.			99th	98th	95th	90th	50th
Pharmaceuticals (ug/kg)											
4-ETC	78	3,337	1,135	1,741	41	4,380	8,026	5,937	3,787	2,540	620
Azithromycin	78	3,337	831	2,342	8	5,205	8,717	5,811	3,172	1,853	278
Carbamazepine	78	3,337	135	298	9	6,030	1,234	856	497	306	55
Cimetidine	77	3,337	1,332	10,314	4	8,330	19,128	10,975	4,789	2,294	171
Ciprofloxacin	78	3,337	10,501	17,658	75	40,800	79,636	57,975	36,095	23,703	5,367
Diphenhydramine	78	3,337	871	1,101	37	5,730	5,255	4,021	2,696	1,891	541
Doxycycline	78	3,337	877	1,588	34	5,090	7,021	5,046	3,082	1,989	424
Erythromycin-Total	78	3,337	36	58	2	180	264	194	123	82	19
Fluoxetine	76	3,337	245	329	10	3,130	1,555	1,178	778	539	147
Miconazole	78	3,337	1,239	7,311	7	9,210	16,931	10,083	4,652	2,341	207
Ofloxacin	78	3,337	8,573	21,998	25	58,100	85,562	57,929	32,363	19,304	3,113
Tetracycline (TC)	78	3,337	1,278	2,255	38	5,270	10,042	7,250	4,458	2,895	630
Triclocarban	78	3,337	39,433	59,924	187	441,000	276,708	205,043	131,079	88,120	21,677
Triclosan	78	3,337	16,097	65,135	334	133,000	197,288	124,176	62,217	33,693	3,862
Steroids and Hormones (ug/kg)											
Beta Stigmastanol	78	3,337	168,079	419,232	3,440	1,330,000	1,651,188	1,123,256	632,009	379,365	62,547
Campesterol	78	3,337	100,879	193,964	2,840	524,000	842,112	598,919	360,119	229,283	46,547
Cholestanol	78	3,337	680,046	2,374,369	3,860	4,590,000	7,874,368	5,071,045	2,629,149	1,467,636	187,244
Cholesterol	78	3,337	1,129,268	4,171,366	2,340	5,390,000	13,376,891	8,538,884	4,369,111	2,410,541	295,092
Coprostanol	78	3,337	4,366,714	22,636,715	7,720	43,700,000	57,794,254	35,060,035	16,626,022	8,574,467	827,108
Epicoprostanol	78	3,337	1,702,708	26,783,520	868	6,030,000	25,579,800	13,441,281	5,143,938	2,193,143	108,028
Stigmasterol	78	3,337	321,199	2,464,383	455	568,500	4,606,900	2,646,615	1,157,099	555,217	41,513

Note: “n” denotes total sample size in the statistical analysis. (A total of 84 sample measurements were collected in the survey. However, for the six POTWs having field duplicate samples collected, each is represented by the average of the two sample measurements. This results in n=78 total measurements for the statistical analysis.) “Est N” is the total of the survey weights, or the total number of POTWs in the target population which these results represent.

Table D-6. Nationally Representative Estimates of the Mean, Standard Deviation, and Selected Upper Percentiles of the Distribution of Concentrations for Pharmaceuticals, Steroids, and Hormones Selected for In-Depth Statistical Analysis in the TNSSS, As Calculated under the Nonparametric (Distribution Free) Approach

Analyte	n	Est. N	Nonparametric Estimates		Observed Minimum	Observed Maximum	Nonparametric Estimates of Percentiles				
			Mean	S.D.			99 th	98 th	95 th	90 th	50 th
Pharmaceuticals (ug/kg)											
4-Epitetracycline (ETC)	78	3,337	1,024	965	41	4,380	4,380	4,010	3,000	2,420	655
Azithromycin	78	3,337	720	1,130	8	5,205	5,205	4,810	4,140	2,140	272
Carbamazepine	78	3,337	163	547	9	6,030	1,190	1,190	480	321	45
Cimetidine	77	3,337	869	1,716	4	8,330	8,330	6,190	5,600	3,460	234
Ciprofloxacin	78	3,337	8,676	8,484	75	40,800	40,800	37,900	27,300	19,700	6,300
Diphenhydramine	78	3,337	824	858	37	5,730	5,730	2,830	2,430	1,810	587
Doxycycline	78	3,337	760	837	34	5,090	5,090	3,470	2,310	1,200	572
Erythromycin-Total	78	3,337	32	33	2	180	180	124	90	82	22
Fluoxetine	76	3,337	245	394	10	3,130	3,130	1,410	528	411	157
Miconazole	78	3,337	980	1,635	7	9,210	9,210	6,580	5,200	1,500	508
Ofloxacin	78	3,337	6,688	8,668	25	58,100	58,100	24,300	23,200	16,200	4,410
Tetracycline (TC)	78	3,337	1,123	1,134	38	5,270	5,270	4,590	3,480	2,690	733
Triclocarban	78	3,337	38,745	59,651	187	441,000	441,000	189,000	101,000	87,300	21,900
Triclosan	78	3,337	12,113	18,103	334	133,000	133,000	37,500	32,100	26,600	6,510
Steroids and Hormones (ug/kg)											
Beta Stigmastanol	78	3,337	149,602	224,589	3,440	1,330,000	1,330,000	998,000	582,000	332,000	96,750
Campesterol	78	3,337	88,913	101,433	2,840	524,000	524,000	494,000	323,000	208,000	53,600
Cholestanol	78	3,337	474,845	672,157	3,860	4,590,000	4,590,000	2,090,000	1,540,000	1,060,000	240,000
Cholesterol	78	3,337	712,792	809,334	2,340	5,390,000	5,390,000	2,400,000	1,980,000	1,530,000	441,000
Coprostanol	78	3,337	2,831,295	5,667,269	7,720	43700000	43700000	11300000	8,350,000	5,600,000	1,220,000
Epicoprostanol	78	3,337	757,140	1,190,691	868	6,030,000	6,030,000	5,070,000	3,320,000	2,510,000	165,000
Stigmasterol	78	3,337	115,684	105,410	455	568,500	568,500	402,000	352,000	214,000	99,600

Note: “n” denotes total sample size in the statistical analysis. (A total of 84 sample measurements were collected in the survey. However, for the six POTWs having field duplicate samples collected, each is represented by the average of the two sample measurements. This results in n=78 total measurements for the statistical analysis.) “Est N” is the total of the survey weights, or the total number of POTWs in the target population which these results represent. Non-detected results were represented by their sample-specific detection limits.