

Table 4-14. Summary of Mean Standard Error of Land Use Stations

Land Use Type	Constituent	No. of Detections	Normal Distribution			Lognormal Distribution			Shapiro-Wilk Normality Test		Distribution*	Error Rate	Is Error Rate Less Than 25%?
			Mean	Standard Deviation	Standard Error	Mean	Standard Deviation	Standard Error	p-value for Normal Distribution	p-value for Lognormal Distribution			
Transportation	Ammonia	40	0.40	0.51	0.08	0.39	0.42	0.06	0.0001	0.3012	Lognormal	16.4%	Y
Transportation	Bis(2-ethylhexyl)phthalate	29	13.41	17.30	3.21	14.57	25.95	4.47	0.0001	0.8236	Lognormal	30.7%	N
Transportation	Dissolved Copper	52	31.70	21.14	2.93	33.77	31.58	4.28	0.0002	0.0123		9.2%	Y
Transportation	Dissolved Nickel	22	5.69	5.15	1.10	5.55	4.05	0.86	0.0001	0.0028		19.3%	Y
Transportation	Dissolved Phosphorus	47	0.32	0.20	0.03	0.35	0.31	0.04	0.0116	0.0083		9.2%	Y
Transportation	Dissolved Zinc	52	201.02	140.87	19.53	219.04	229.64	30.90	0.0001	0.0005		9.7%	Y
Transportation	NH3-N	39	0.34	0.43	0.07	0.33	0.35	0.05	0.0001	0.1621	Lognormal	16.3%	Y
Transportation	Nitrate	50	3.65	4.06	0.57	3.55	3.38	0.47	0.0001	0.6601	Lognormal	13.2%	Y
Transportation	Nitrate-N	49	0.96	1.29	0.18	0.92	1.04	0.14	0.0001	0.541	Lognormal	15.6%	Y
Transportation	Nitrite-N	50	0.10	0.07	0.01	0.10	0.08	0.01	0.0001	0.4081	Lognormal	10.5%	Y
Transportation	TKN	50	2.02	1.81	0.26	1.97	1.47	0.21	0.0001	0.2096	Lognormal	10.4%	Y
Transportation	Total Cadmium	26	1.40	1.22	0.24	1.39	1.14	0.22	0.0001	0.0032		17.1%	Y
Transportation	Total Chromium	31	6.70	5.46	0.98	6.64	5.55	0.98	0.0001	0.0021		14.6%	Y
Transportation	Total Copper	52	59.18	58.93	8.17	56.89	40.86	5.61	0.0001	0.1899	Lognormal	9.9%	Y
Transportation	Total Lead	37	15.03	19.40	3.19	14.60	20.91	3.25	0.0001	0.004		21.2%	Y
Transportation	Total Nickel	38	7.64	7.26	1.18	7.57	6.40	1.02	0.0001	0.0156		15.4%	Y
Transportation	Total Phosphorus	47	0.44	0.32	0.05	0.46	0.39	0.06	0.0001	0.2144	Lognormal	12.2%	Y
Transportation	Total Suspended Solids	50	90.76	108.00	15.27	86.19	81.14	11.22	0.0001	0.1717	Lognormal	13.0%	Y
Transportation	Total Zinc	52	306.96	296.30	41.09	297.66	220.71	30.26	0.0001	0.2052	Lognormal	10.2%	Y
Light Industrial	Ammonia	45	0.60	0.81	0.12	0.62	1.05	0.14	0.0001	0.0132		20.1%	Y
Light Industrial	Bis(2-ethylhexyl)phthalate	21	9.71	9.68	2.11	10.78	17.06	3.56	0.0007	0.6052	Lognormal	33.1%	N
Light Industrial	Dissolved Copper	39	14.12	10.02	1.60	14.86	14.34	2.25	0.0011	0.065	Lognormal	15.1%	Y
Light Industrial	Dissolved Nickel	23	5.40	4.18	0.87	5.52	4.76	0.98	0.0001	0.0784	Lognormal	17.8%	Y
Light Industrial	Dissolved Phosphorus	44	0.21	0.16	0.02	0.22	0.23	0.03	0.0001	0.1935	Lognormal	14.9%	Y
Light Industrial	Dissolved Zinc	47	360.66	373.51	54.48	428.35	682.33	92.09	0.0001	0.0002		15.1%	Y
Light Industrial	NH3-N	46	0.49	0.66	0.10	0.49	0.77	0.11	0.0001	0.0077		19.9%	Y
Light Industrial	Nitrate	46	4.44	4.56	0.67	4.38	4.72	0.67	0.0001	0.3263	Lognormal	15.4%	Y
Light Industrial	Nitrate-N	45	1.03	1.22	0.18	1.00	1.15	0.17	0.0001	0.4249	Lognormal	16.6%	Y
Light Industrial	Nitrite-N	46	0.09	0.07	0.01	0.09	0.06	0.01	0.0001	0.0687	Lognormal	9.9%	Y
Light Industrial	TKN	45	2.68	1.97	0.29	2.72	2.24	0.33	0.0001	0.7043	Lognormal	12.1%	Y
Light Industrial	Total Chromium	29	6.51	5.08	0.94	6.49	5.44	1.00	0.0001	0.0015		14.5%	Y
Light Industrial	Total Copper	47	47.66	141.91	20.70	35.11	41.24	5.78	0	0.0122		43.4%	N
Light Industrial	Total Lead	33	15.41	15.58	2.71	15.78	19.77	3.31	0.0001	0.1001	Lognormal	21.0%	Y
Light Industrial	Total Nickel	33	10.01	13.60	2.37	9.33	8.43	1.44	0.0001	0.0231		23.6%	Y
Light Industrial	Total Phosphorus	43	0.36	0.30	0.05	0.38	0.42	0.06	0.0001	0.3174	Lognormal	16.4%	Y
Light Industrial	Total Suspended Solids	42	174.33	192.35	29.68	179.77	203.07	30.28	0.0001	0.3733	Lognormal	16.8%	Y
Light Industrial	Total Zinc	47	491.64	543.39	79.26	488.33	428.35	61.37	0.0001	0.0384		16.1%	Y
Mixed Residential	Ammonia	28	0.83	0.88	0.17	0.98	1.90	0.33	0.0001	0.0834	Lognormal	33.5%	N
Mixed Residential	Dissolved Copper	27	16.70	21.06	4.05	17.16	24.94	4.58	0.0001	0.0205		24.3%	Y
Mixed Residential	Dissolved Phosphorus	25	0.23	0.21	0.04	0.24	0.26	0.05	0.0001	0.5799	Lognormal	20.7%	Y
Mixed Residential	Dissolved Zinc	27	178.63	216.58	41.68	174.09	193.27	36.25	0.0001	0.3782	Lognormal	20.8%	Y
Mixed Residential	NH3-N	28	0.69	0.73	0.14	0.80	1.51	0.26	0.0001	0.0479		20.0%	Y

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			Mean	Standard Deviation	Standard Error	Mean	Standard Deviation	Standard Error	p-value for Normal Distribution	p-value for Lognormal Distribution			
Mixed Residential	Nitrate	24	9.91	31.61	6.45	7.29	15.48	2.90	0.0001	0.0001		65.1%	N
Mixed Residential	Nitrate-N	24	0.77	0.46	0.09	0.83	0.76	0.15	0.1754	0.0196	Normal	12.4%	Y
Mixed Residential	Nitrite-N	24	0.15	0.21	0.04	0.14	0.17	0.03	0.0001	0.187	Lognormal	23.0%	Y
Mixed Residential	TKN	29	3.04	2.67	0.49	3.51	4.85	0.86	0.0001	0.0048		16.3%	Y
Mixed Residential	Total Copper	27	23.82	29.68	5.71	22.81	21.64	4.10	0.0001	0.3478	Lognormal	17.9%	Y
Mixed Residential	Total Phosphorus	25	0.31	0.31	0.06	0.31	0.34	0.07	0.0001	0.6015	Lognormal	21.2%	Y
Mixed Residential	Total Suspended Solids	23	82.13	89.10	18.58	79.81	80.22	16.44	0.0001	0.3618	Lognormal	20.6%	Y
Mixed Residential	Total Zinc	27	255.96	342.39	65.89	236.79	245.20	46.19	0.0001	0.0226		25.7%	N
Multi-Family Residential	Ammonia	26	0.55	0.81	0.16	0.60	1.39	0.24	0.0001	0.008		28.7%	N
Multi-Family Residential	Bis(2-ethylhexyl)phthalate	17	30.04	54.21	13.15	29.61	78.55	17.98	0.0001	0.7204	Lognormal	60.7%	N
Multi-Family Residential	Dissolved Copper	26	9.26	7.29	1.43	9.47	8.52	1.65	0.0004	0.0487		15.4%	Y
Multi-Family Residential	Dissolved Zinc	26	118.50	158.83	31.15	112.38	119.44	22.91	0.0001	0.0778	Lognormal	20.4%	Y
Multi-Family Residential	NH3-N	26	0.47	0.67	0.13	0.48	1.00	0.18	0.0001	0.0086		28.2%	N
Multi-Family Residential	Nitrate	24	7.25	4.59	0.94	7.68	7.06	1.42	0.0741	0.0786	Normal	12.9%	Y
Multi-Family Residential	Nitrate-N	24	1.64	1.04	0.21	1.73	1.59	0.32	0.076	0.0787	Normal	12.9%	Y
Multi-Family Residential	Nitrite-N	24	0.13	0.20	0.04	0.11	0.10	0.02	0.0001	0.0332		31.7%	N
Multi-Family Residential	TKN	28	2.40	2.52	0.48	2.29	1.70	0.32	0.0001	0.1133	Lognormal	13.9%	Y
Multi-Family Residential	Total Copper	31	13.44	6.63	1.19	13.65	7.51	1.34	0.007	0.2523	Lognormal	9.8%	Y
Multi-Family Residential	Total Suspended Solids	23	60.87	77.51	16.16	58.52	79.87	16.07	0.0001	0.1461	Lognormal	27.5%	N
Multi-Family Residential	Total Zinc	31	173.90	235.31	42.26	164.12	185.23	32.31	0.0001	0.0611	Lognormal	19.7%	Y
Educational	Ammonia	28	0.23	0.21	0.04	0.25	0.33	0.06	0.0001	0.0001		17.4%	Y
Educational	Bis(2-ethylhexyl)phthalate	10	14.50	15.30	4.84	16.99	30.88	10.17	0.031	0.5983	Lognormal	59.9%	N
Educational	Dissolved Copper	29	15.00	13.28	2.47	15.19	14.54	2.65	0.0001	0.5367	Lognormal	17.4%	Y
Educational	Dissolved Phosphorus	25	0.29	0.26	0.05	0.29	0.25	0.05	0.0001	0.1323	Lognormal	17.4%	Y
Educational	Dissolved Zinc	24	78.58	64.44	13.15	79.32	67.24	13.57	0.0001	0.0103		16.7%	Y
Educational	NH3-N	28	0.20	0.17	0.03	0.21	0.24	0.04	0.0001	0.0002		16.6%	Y
Educational	Nitrate	26	3.05	1.86	0.36	3.15	2.35	0.46	0.0176	0.2314	Lognormal	14.5%	Y
Educational	Nitrate-N	25	0.65	0.35	0.07	0.65	0.37	0.07	0.0111	0.3601	Lognormal	11.3%	Y
Educational	TKN	27	1.81	1.31	0.25	1.78	1.00	0.19	0.0001	0.0522	Lognormal	10.8%	Y
Educational	Total Copper	29	28.89	42.45	7.88	25.73	21.75	3.99	0.0001	0.001		27.3%	N
Educational	Total Phosphorus	25	0.33	0.21	0.04	0.33	0.19	0.04	0.0001	0.287	Lognormal	11.6%	Y
Educational	Total Suspended Solids	27	120.44	110.41	21.25	140.69	217.18	39.59	0.0003	0.2178	Lognormal	28.1%	N
Educational	Total Zinc	29	155.90	286.82	53.26	137.70	148.76	26.94	0.0001	0.007		34.2%	N
HDSFR	Ammonia	22	0.48	0.52	0.11	0.56	1.04	0.21	0.0002	0.0179		22.8%	Y
HDSFR	Bis(2-ethylhexyl)phthalate	15	14.22	21.84	5.64	13.51	23.86	6.03	0.0001	0.1512	Lognormal	44.6%	N
HDSFR	Dissolved Copper	20	11.56	8.77	1.96	12.26	12.94	2.85	0.0295	0.0624	Lognormal	23.2%	Y
HDSFR	Dissolved Phosphorus	21	0.34	0.17	0.04	0.34	0.20	0.04	0.1261	0.5482	Normal	11.2%	Y
HDSFR	NH3-N	22	0.43	0.42	0.09	0.50	0.84	0.17	0.0009	0.0137		20.8%	Y
HDSFR	Nitrate	21	5.29	6.32	1.38	5.07	5.51	1.18	0.0001	0.3442	Lognormal	23.3%	Y
HDSFR	Nitrate-N	21	1.19	1.43	0.31	1.15	1.26	0.27	0.0001	0.3775	Lognormal	23.5%	Y
HDSFR	TKN	25	3.20	3.30	0.66	3.13	2.93	0.58	0.0001	0.3953	Lognormal	18.4%	Y
HDSFR	Total Copper	26	23.06	16.35	3.21	23.81	20.22	3.92	0.0027	0.3238	Lognormal	16.5%	Y

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HDSFR	Total Lead	19	20.70	23.68	5.43	23.08	44.50	9.69	0.0005	0.0348		26.3%	N
HDSFR	Total Phosphorus	21	0.48	0.33	0.07	0.50	0.39	0.09	0.0081	0.7729	Lognormal	17.1%	Y
HDSFR	Total Suspended Solids	19	131.58	124.69	28.61	135.80	141.49	31.99	0.0001	0.8471	Lognormal	23.6%	Y
HDSFR	Total Zinc	26	87.31	64.89	12.73	90.24	86.31	16.64	0.0027	0.0028		14.6%	Y
Commercial	Ammonia	30	6.54	6.46	1.18	8.32	18.85	3.06	0	0.143	Lognormal	36.8%	N
Commercial	Dissolved Chromium +6	26	12.28	9.03	1.77	12.57	10.57	2.05	0.002	0.857	Lognormal	16.3%	Y
Commercial	Dissolved Copper	26	247.83	590.58	115.82	414.86	3219.04	452.17	0	0.029		46.7%	N
Commercial	Dissolved Phosphorus	31	78.17	75.95	13.64	787.73	26264.38	2415.90	0	0		17.5%	Y
Commercial	Dissolved Zinc	22	68.15	69.89	14.90	92.22	259.13	49.32	0.003	0.021		21.9%	Y
Commercial	NH3-N	27	0.23	0.31	0.06	0.22	0.24	0.05	0	0.17	Lognormal	20.5%	Y
Commercial	Nitrate	30	49.40	47.53	8.68	53.60	77.85	13.50	0	0.108	Lognormal	25.2%	N
Commercial	Nitrate-N	30	3.55	3.23	0.59	3.55	3.50	0.63	0	0.169	Lognormal	17.6%	Y
Commercial	Nitrite-N	27	386.03	371.19	71.44	1943.80	24569.04	3072.04	0.001	0		18.5%	Y
Commercial	TKN	32	196.34	216.73	38.31	1009.66	19221.47	1781.57	0	0		19.5%	Y
Commercial	Total Cadmium	12	5.59	3.62	1.05	5.73	4.24	1.22	0.038	0.171	Lognormal	21.4%	Y
Commercial	Total Chromium +6	26	29.77	19.61	3.85	30.33	23.07	4.49	0.009	0.788	Lognormal	14.8%	Y
Commercial	Total Copper	37	714.73	1044.99	171.80	950.54	3720.60	466.62	0	0.063	Lognormal	49.1%	N
Commercial	Total Lead	13	42.46	42.08	11.67	42.70	45.55	12.59	0.002	0.225	Lognormal	29.5%	N
Commercial	Total Mercury	14	5.20	3.39	0.91	5.46	4.67	1.24	0.071	0.17	Normal	17.4%	Y
Commercial	Total Phosphorus	32	5.84	2.80	0.49	12.11	41.12	5.89	0	0		8.5%	Y
Commercial	Total Suspended Solids	29	11.30	25.91	4.81	10.07	311.76	33.05	0	0		42.6%	N
Commercial	Total Zinc	11	251.73	115.79	34.91	255.29	129.70	39.11	0.303	0.681	Normal	13.9%	Y
Vacant	Bis(2-ethylhexyl)phthalate	20	20.96	37.70	8.43	21.93	58.24	11.90	0.0001	0.2674	Lognormal	54.3%	N
Vacant	Nitrate	35	5.95	3.31	0.56	6.03	3.89	0.65	0.0025	0.0541	Lognormal	10.8%	Y
Vacant	Nitrate-N	35	1.34	0.75	0.13	1.36	0.88	0.15	0.0025	0.0543	Lognormal	10.9%	Y
Vacant	Nitrite-N	20	0.04	0.02	0.00	0.04	0.02	0.00	0.0001	0.2195	Lognormal	8.7%	Y
Vacant	TKN	35	1.16	2.23	0.38	1.01	0.97	0.16	0.0001	0.0261		32.3%	N
Vacant	Total Copper	25	13.98	15.98	3.20	13.67	17.48	3.38	0.0001	0.0364		22.9%	Y
Vacant	Total Phosphorus	24	0.13	0.15	0.03	0.12	0.12	0.02	0.0001	0.0143		23.6%	Y
Vacant	Total Suspended Solids	33	149.36	227.54	39.61	186.07	817.22	107.23	0.0001	0.0266		26.5%	N
Vacant	Total Zinc	20	48.40	50.95	11.39	46.40	40.40	8.95	0.0001	0.0114		23.5%	Y
* If a constituent is neither normal nor lognormal, we assume that it is normal.													
HDSFR = High Density Single Family Residential													