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MONITORING AND RESEARCH DEPARTMENT

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WATER AND SEDIMENT QUALITY ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING 2008

July 2009

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DISCLAIMER

Mention of proprietary equipment and chemicals in this report does not constitute endorsement by the Metropolitan Water Reclamation District of Greater Chicago.

SUMMARY

During May, August, and October 2008, the Metropolitan Water Reclamation District of Greater Chicago (District) conducted water quality surveys at 49 monitoring stations along a 133 nautical mile reach of the Illinois Waterway from the Lockport Lock to the Peoria Lock. Sediment quality was assessed at 14 of the monitoring stations in October. Based on results from the 2008 surveys, the following conclusions can be made concerning the water and sediment quality along the study reach:

Water Quality

During 2008, the mean concentration of total suspended solids (TSS) generally increased in the downstream direction along the Illinois Waterway from the Lockport Pool (16 mg/L) to the lower Peoria Pool (77 mg/L).

The mean concentration of five-day biochemical oxygen demand (BOD_5) remained at or below the limit of quantitation (10 mg/L) throughout each of the sampled pools.

The mean dissolved oxygen (DO) concentration increased substantially along the waterway from the Lockport Pool (5.3 mg/L) to the upper Peoria Pool (8.8 mg/L). In the lower Peoria Pool, mean DO fell slightly (7.6 mg/L).

There was an increase in the mean pH from the Lockport Pool (6.8) to the lower Peoria Pool (7.8).

The mean ammonia nitrogen (NH_4-N) concentration decreased between the Lockport Pool (0.30 mg/L) and the Starved Rock Pool (0.12 mg/L), and then increased to 0.15 mg/L in the lower Peoria Pool.

There was an overall increase in the mean concentration of un-ionized ammonia (NH_3-N) between the Lockport Pool (0.001 mg/L) and the lower Peoria Pool (0.006 mg/L). This was due largely to the increase in water pH that occurs along this reach.

There was an overall decrease in mean nitrite plus nitrate nitrogen (NO_2+NO_3-N) and total nitrogen (TN) values from 4.65 and 5.81 mg/L, respectively, in the Lockport Pool to 2.43 and 3.53 mg/L, respectively, in the lower Peoria Pool.

The mean total Kjeldahl nitrogen (TKN) concentration decreased from the Lockport Pool (1.16 mg/L) to the Marseilles Pool (0.85 mg/L), and then increased to a mean of 1.41 mg/L in the upper Peoria Pool.

There was a considerable decrease in the mean total phosphorus (TP) concentration along the Illinois Waterway from the Lockport Pool (0.81 mg/L) to the lower Peoria Pool (0.43 mg/L).

Mean chlorophyll *a* concentration substantially increased along the Illinois Waterway from the Brandon Road Pool (6 µg/L) to the lower Peoria Pool (36 µg/L).

The mean concentrations of cyanide and phenols were both less than 0.01 mg/L throughout the Illinois Waterway sampling reach.

After peaking in the Lockport and Brandon Road Pools, there were dramatic drops in the geometric mean density of fecal coliform (FC) and *E. coli* throughout the Dresden Island Pool. Fecal coliform and *E. coli* densities then remained fairly uniform along the Illinois Waterway. The overall decreases in FC and *E. coli* from Lockport to the lower Peoria Pool were 127 to 28 cfu/100 mL, and 33 to 16 cfu/100 mL, respectively.

Mean total concentrations of arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc remained relatively constant from the Lockport to the lower Peoria Pool. The mean total iron and manganese concentrations increased progressively downstream to the lower Peoria Pool.

The mean dissolved concentrations of arsenic, cadmium, chromium, copper, iron, lead, nickel, silver, and zinc remained relatively constant from the Lockport Pool downstream to the lower Peoria Pool. Mean values of dissolved manganese were greatest in the Lockport through the Dresden Island Pools and then were approximately four times lower in the four downstream pools.

Sediment Quality

The total solids (TS) concentration in sediment fluctuated throughout the Illinois Waterway and was highest in the Marseilles Pool.

The concentration of total volatile solids (TVS) was highest at Station 8 in the Dresden Island Pool (17 percent), decreased and remained relatively constant.

Ammonia nitrogen in sediment substantially decreased from 271 mg/kg in the Lockport Pool to 8 mg/kg in the Starved Rock Pool. Ammonia nitrogen increased again from Starved Rock to the lower Peoria Pool where the concentration was 343 mg/kg at Station 44.

The concentration of TKN in sediment generally decreased from the Lockport Pool (3,242 mg/kg) to the Starved Rock Pool (68 mg/kg) and increased downstream to the lower Peoria Pool at Station 44 (2,508 mg/kg).

TP in the sediment was highest in the Brandon Road Pool (6,069 mg/kg) and fluctuated along the Illinois Waterway until the lower Peoria Pool, where it measured 167 mg/kg at Station 48.

The concentration of total cyanide (TCN) in the sediment was highest in the Brandon Road Pool (0.147 mg/kg) and then generally decreased to the Marseilles Pool where it reached a

minimum of 0.022 mg/kg and then was increased reaching a second peak concentration of 0.143 mg/kg in the lower Peoria Pool (Station 44).

The concentration of phenols in the sediment was highest in the Lockport Pool (5.034 mg/kg) and decreased in the lower Peoria Pool (0.018 mg/kg at Station 48).

Although the concentrations of the 11 trace metals measured in the sediment were variable among the 14 monitoring stations, considerably higher levels of cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc were measured between the Lockport and Dresden Island Pools compared to the remaining pools. Sediment from Station 8 in the Dresden Island Pool exhibited a higher mercury concentration than other sampling stations (1.427 mg/kg). There were also relatively higher levels of most trace metals in the sediment from the lower Peoria Pool.

INTRODUCTION

The Illinois Waterway provides a water resource for agricultural and urban drainage, commercial and recreational navigation, electric power generation, fishing, industrial and public water supply, and other recreational activities. A principal function of this waterway is for stormwater and treated wastewater conveyance. At the upstream end of the Illinois Waterway, the District operates three major water reclamation plants (WRPs) in Cook County, Illinois, whose treated discharges make up approximately 90 percent of all point source treated wastewater flows entering the Illinois Waterway. These three WRPs provided wastewater treatment for an average flow of 1,295 million gallons per day in 2008.

The District first began monitoring the Illinois Waterway in 1977. With the exception of 1998, the District has conducted annual water quality surveys from the Lockport Lock to the Peoria Lock, a distance of 133 river miles, since 1984. Forty-nine monitoring stations in six navigational pools were selected for study. The primary purpose of the monitoring program is to assess water quality changes downstream of the District's major point source wastewater discharges. A secondary objective is to characterize the sediment chemistry at selected monitoring stations.

This report presents the results from the water and sediment quality surveys conducted during 2008. Data from previous years have been compiled in formal annual reports for 1977, 1983–1985, 1989, 1991, and 2002–2007.

DESCRIPTION OF THE STUDY AREA

Illinois Waterway

The Illinois Waterway extends from Grafton, Illinois, located on the Mississippi River upstream of St. Louis, Missouri, to Lake Michigan in Chicago, Illinois. The 327-mile waterway is composed of a series of eight navigational pools (Lockport, Brandon Road, Dresden Island, Marseilles, Starved Rock, Peoria, LaGrange, and Alton) whose lengths and United States Army Corps of Engineers waterway mile-point designations are presented in Table 1.

The pools were created in the 1930s by lock and dam structures to maintain the water depths required for commercial navigation. The present study area is a 133-mile reach of the Illinois Waterway extending from the Lockport Lock to the Peoria Lock (Figures 1 and 2).

TABLE 1: ILLINOIS WATERWAY NAVIGATIONAL POOLS

Navigational Pool	Inclusive Waterway Mile-Points	Length (Miles)
Lockport	327.2 - 291.0	36.2
Brandon Road	291.0 - 286.0	5.0
Dresden Island	286.0 - 271.5	14.5
Marseilles	271.5 – 244.5	27.0
Starved Rock	244.5 - 231.0	13.5
Peoria	231.0 - 157.6	73.4
LaGrange	157.6 - 80.2	77.4
Alton	80.2 - 0.0	80.2

Monitoring Stations

Forty-nine monitoring stations were selected for the study (Figures 1 and 2). Two stations were located on the Chicago Sanitary and Ship Canal (CSSC), eight on the Des Plaines River, and 39 stations on the Illinois River. Table 2 lists the locations of the 49 monitoring stations.

FIGURE 1: MAP OF THE ILLINOIS WATERWAY FROM LOCKPORT TO MARSEILLES SHOWING SAMPLING STATIONS 1 TO 21

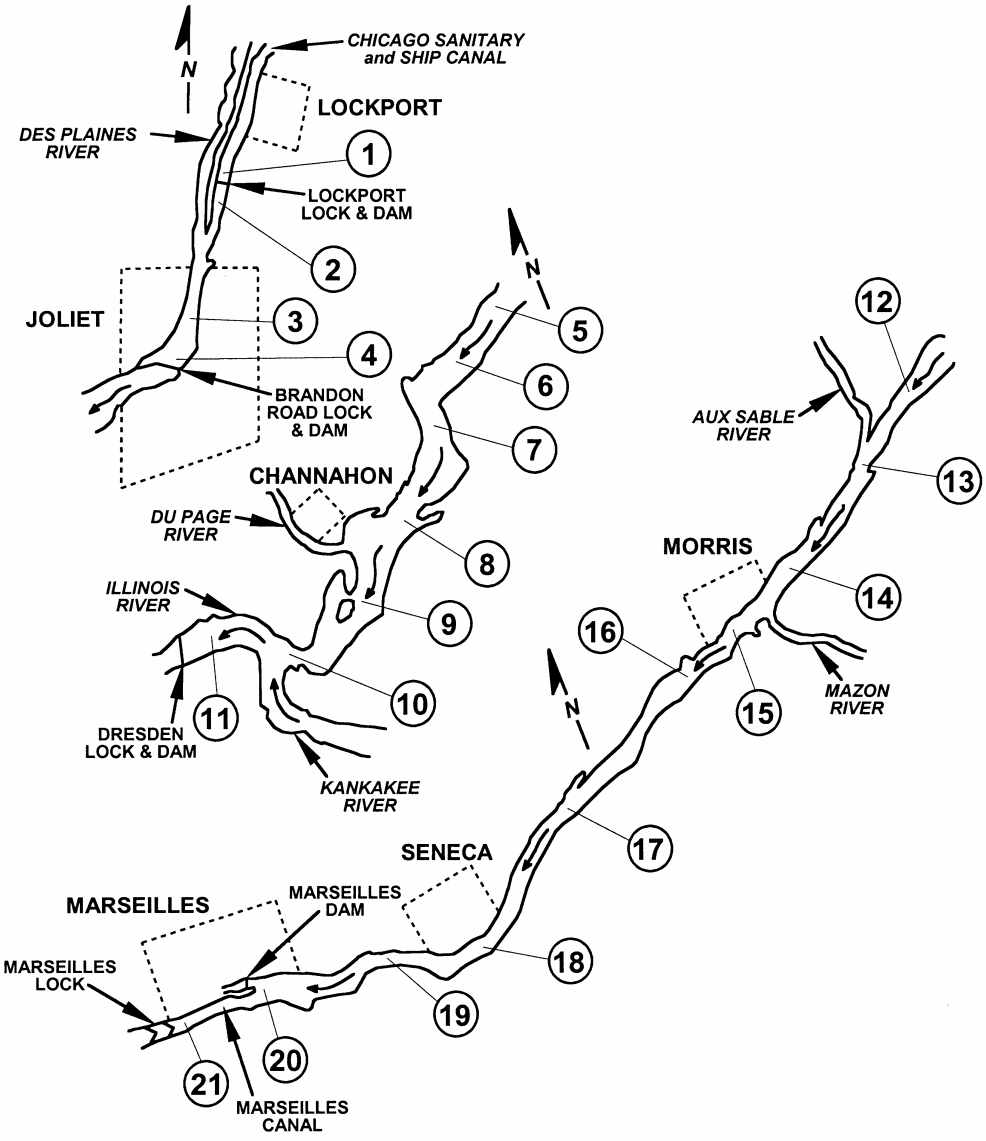


FIGURE 2: MAP OF ILLINOIS WATERWAY FROM OTTAWA TO PEORIA SHOWING SAMPLING STATIONS 22 TO 49

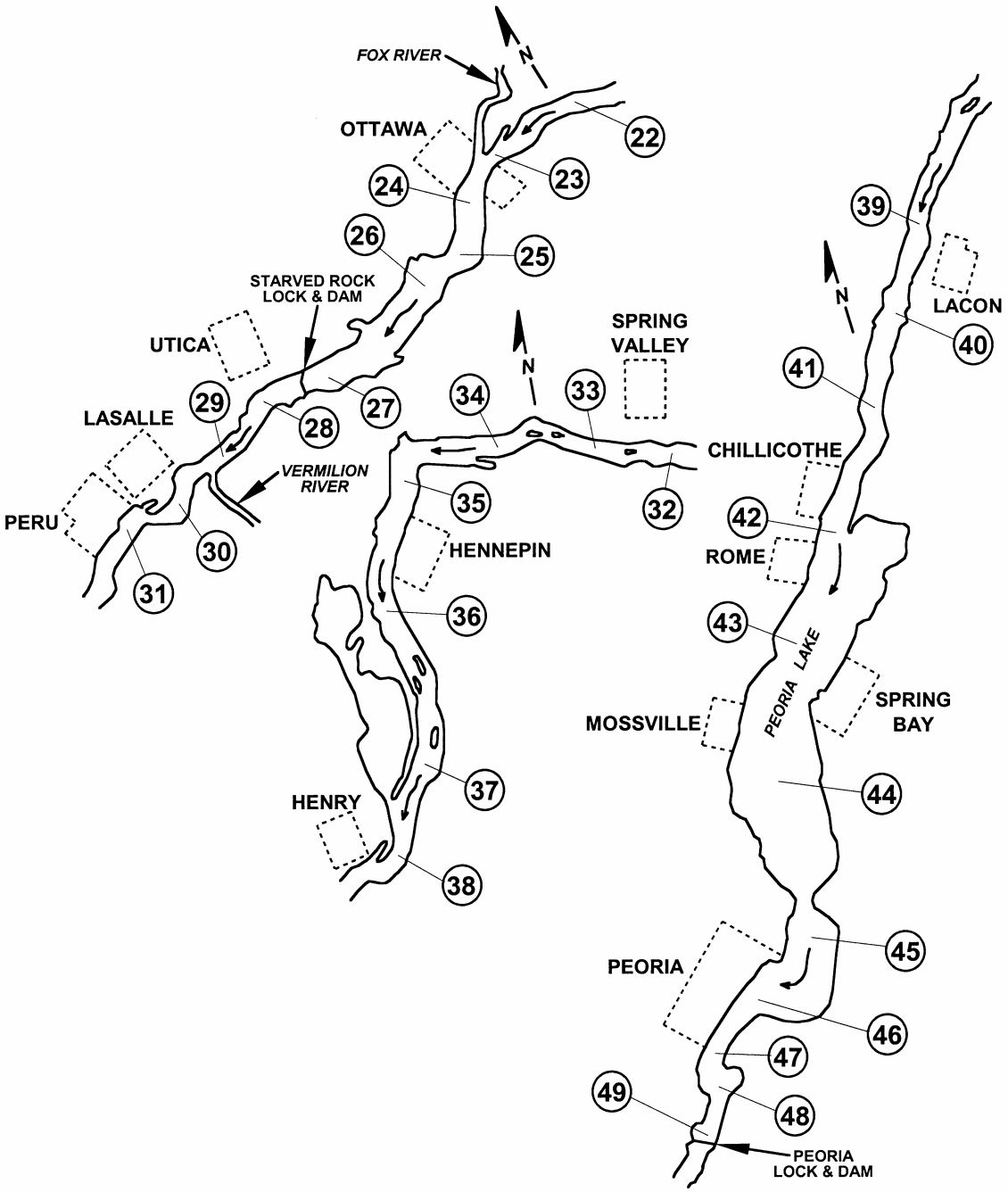


TABLE 2: MONITORING STATIONS ALONG THE ILLINOIS WATERWAY FROM LOCKPORT LOCK TO PEORIA LOCK

Station Number	Waterway	Waterway Mile-Point Location	Navigational Pool
1	Chicago Sanitary and Ship Canal	291.5	Lockport
2	Chicago Sanitary and Ship Canal	290.5	Brandon Road
3	Des Plaines River	287.3	Brandon Road
4	Des Plaines River	286.5	Brandon Road
5	Des Plaines River	285.0	Dresden Island
6	Des Plaines River	282.8	Dresden Island
7	Des Plaines River	280.5	Dresden Island
8	Des Plaines River	278.0	Dresden Island
9	Des Plaines River	276.1	Dresden Island
10	Des Plaines River	274.0	Dresden Island
11	Illinois River	272.4	Dresden Island
12	Illinois River	270.0	Marseilles
13	Illinois River	268.9	Marseilles
14	Illinois River	265.0	Marseilles
15	Illinois River	263.0	Marseilles
16	Illinois River	261.6	Marseilles
17	Illinois River	256.0	Marseilles
18	Illinois River	253.0	Marseilles
19	Illinois River	250.0	Marseilles
20	Illinois River	247.5	Marseilles
21	Illinois River	246.0	Marseilles
22	Illinois River	243.7	Starved Rock
23	Illinois River	240.6	Starved Rock
24	Illinois River	238.5	Starved Rock
25	Illinois River	236.8	Starved Rock
26	Illinois River	234.5	Starved Rock
27	Illinois River	231.7	Starved Rock

TABLE 2 (Continued): MONITORING STATIONS ALONG THE ILLINOIS WATERWAY FROM LOCKPORT LOCK TO PEORIA LOCK

Station Number	Waterway	Waterway Mile-Point Location	Navigational Pool
28	Illinois River	229.6	Peoria
29	Illinois River	226.9	Peoria
30	Illinois River	224.7	Peoria
31	Illinois River	222.6	Peoria
32	Illinois River	219.8	Peoria
33	Illinois River	217.1	Peoria
34	Illinois River	213.4	Peoria
35	Illinois River	209.4	Peoria
36	Illinois River	205.0	Peoria
37	Illinois River	200.4	Peoria
38	Illinois River	196.9	Peoria
39	Illinois River	190.0	Peoria
40	Illinois River	186.4	Peoria
41	Illinois River	183.2	Peoria
42	Illinois River	179.0	Peoria
43	Illinois River	174.9	Peoria
44	Illinois River	170.9	Peoria
45	Illinois River	165.3	Peoria
46	Illinois River	162.8	Peoria
47	Illinois River	160.6	Peoria
48	Illinois River	159.4	Peoria
49	Illinois River	158.2	Peoria

MATERIALS AND METHODS

Field Monitoring and Laboratory Analysis

Water. *Chemical Constituents*. Water samples for chemical analyses were collected from the 49 monitoring stations on May 5–8, May 13–16, August 4–7, August 12–15, October 6–9, and October 14–17, 2008. Samples were collected at a depth of three feet below the water surface in the center of the waterway with a submersible drainage pump. Water samples were collected for dissolved trace metal analysis by the Environmental Monitoring and Research Division (EM&RD) personnel with an air-driven Teflon bellows pump. Samples were filtered in the field through a 0.45 µm high capacity in-line groundwater sampling capsule (Gelman Laboratory) attached to the bellows pump. Prior to sample collection, the Teflon bellows pump was flushed with one gallon of de-ionized water followed by river water for two minutes. Except for FC and *E. coli*, all water samples were transported to the Cecil Lue-Hing R&D Laboratory in iced, insulated chests within 24 hours of collection. PDC Laboratories in Peoria, Illinois, were contracted to retrieve water samples from EM&RD personnel and perform FC and *E. coli* analysis.

The constituents analyzed in water, sample containers used, and preservation methods are presented in Table 3. Water temperature, turbidity, conductivity, DO, and pH were measured in the field using a calibrated YSI Incorporated, Model 6600 water quality monitor. In the laboratory, all constituents were analyzed using procedures established by the United States Environmental Protection Agency (USEPA), except for suspended solids, five-day biochemical oxygen demand, total cyanide, total and dissolved metals, and total mercury, which are described in the 20th edition of Standard Methods for the Examination of Water and Wastewater (Standard Methods,1998). The concentration of un-ionized ammonia (NH_3-N) was calculated using the equation given by the Illinois Environmental Protection Agency in Section 302.407 of Title 35.

When an analytical result was less than the limit of quantitation (LOQ), the LOQ value was used to calculate the mean. The LOQ is the point at which the results can be reported with the highest degree of quantitative certainty and ranges from 5 to 10 times the method detection limit (MDL).

Bacteria. Water samples for FC and *E. coli* analyses were collected from the 49 stations on the same day and at the same time as the chemical constituents. Samples were collected with a submersible drainage pump at a depth of three feet below the water surface in the center of the waterway. The sample was poured into a sterile, 175-mL plastic bottle containing 0.3 mL of a 15 percent solution of sodium thiosulfate and 0.1 mL of a 10 percent solution of EDTA. The bacteria samples were kept cool in iced, insulated chests. The analyses were performed within 24 hours by membrane filter analysis as described in Standard Methods.

Chlorophyll a. Water samples for chlorophyll analysis were collected at 22 selected monitoring stations (2, 3, 5, 7, 10, 11, 15, 18, 20, 22, 25, 27, 28, 31, 34, 36, 38, 41, 42, 44, 45, and 48) in the same manner as described for chemical constituents. The sample was poured into a 1-liter, wide-mouth, amber plastic bottle containing 1 mg of magnesium carbonate. The water samples

TABLE 3: CONSTITUENTS ANALYZED, SAMPLE CONTAINERS, AND PRESERVATION METHODS FOR WATER SAMPLES COLLECTED FROM THE ILLINOIS WATERWAY STUDY AREA

Constituent and Abbreviation	Units of Measure	Sample Container	Preservative
Water Temperature	°C	NA	Measured in Field
Total Suspended Solids (TSS)	mg/L	Plastic	Cool, 4°C
Turbidity	NTU	NA	Measured in Field
Conductivity	µS/cm	NA	Measured in Field
Five-Day Biochemical Oxygen Demand (BOD_5)	mg/L	Plastic	Cool, 4°C
Dissolved Oxygen	mg/L	NA	Measured in Field
pH	units	NA	Measured in Field
Ammonia Nitrogen (NH_4-N)	mg/L	Plastic	Cool, 4°C, H_2SO_4 to pH <2
Un-ionized Ammonia (NH_3-N)*	mg/L	---	---
Total Kjeldahl Nitrogen (TKN)	mg/L	Plastic	Cool, 4°C, H_2SO_4 to pH <2
Nitrite plus Nitrate Nitrogen (NO_2+NO_3-N)	mg/L	Plastic	Cool, 4°C, H_2SO_4 to pH <2
Total Phosphorus (TP)	mg/L	Plastic	Cool, 4°C
Chlorophyll *a*	µg/L	Plastic, Amber	Cool, 4°C, $MgCO_3$
Total Cyanide (TCN)	mg/L	Plastic	NaOH to pH 12
Phenols	mg/L	Glass	H_2SO_4 to pH <2
Total and Soluble Metals (Arsenic, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Silver, and Zinc)	mg/L	Plastic	HNO_3 to pH <2
Fecal Coliform (FC)	cfu/100 mL	Sterile Plastic	Cool, 4°C, EDTA**, and Thiosulfate
E. coli	cfu/100 mL	Sterile Plastic	Cool, 4°C, EDTA, and Thiosulfate

NA = Not Applicable.
*Determined by calculation using water temperature, pH and NH_4-N.
**Ethylenediamine-tetraaceticacid.

were stored in iced, insulated chests. In the laboratory, the water samples were analyzed for chlorophyll *a*, *b*, and *c* using methods described in Standard Methods.

Mercury. The LOQ for total and dissolved mercury was 0.25 µg/L until 7/18/08 when it was changed to 0.20 µg/L. Dissolved mercury was only analyzed if the total mercury value was greater than the LOQ, which was 5 times the method detection limit.

Sediment. *Chemical Constituents.* Sediment samples were collected during the 2008 survey at 14 of the 49 monitoring stations (1, 2, 5, 8, 12, 18, 23, 28, 32, 35, 38, 41, 44, and 48). Over the period of October 6–9 2008, one sediment sample was taken with a 6- x 6-inch Ponar grab sampler from each of the 14 stations. The sediment sample was transferred to a wide-mouth, quart glass jar and analyzed for TS, TVS, ammonia, TKN, NO_2+NO_3-N, TP, TCN, phenols, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, silver, and zinc. The constituents analyzed, sample containers, and preservation methods are summarized in Table 4. All constituents were analyzed according to USEPA procedures except TS, TVS, TCN, and total and soluble metals, which are from Standard Methods.

TABLE 4: CONSTITUENTS ANALYZED, SAMPLE CONTAINERS, AND PRESERVATION METHODS FOR SEDIMENT SAMPLES COLLECTED FROM THE ILLINOIS WATERWAY STUDY AREA

Constituent and Abbreviation	Units of Measure[1]	Sample Container	Preservative
Total Solids (TS)	Percent	Glass	Cool, 4°C
Total Volatile Solids (TVS)	Percent	Glass	Cool, 4°C
Ammonia Nitrogen (NH_4-N)	mg/kg	Glass	Cool, 4°C
Total Kjeldahl Nitrogen (TKN)	mg/kg	Glass	Cool, 4°C
Nitrite plus Nitrate Nitrogen (NO_2+NO_3-N)	mg/kg	Glass	Cool, 4°C
Total Phosphorus (TP)	mg/kg	Glass	Cool, 4°C
Total Cyanide (TCN)	mg/kg	Glass	Cool, 4°C
Phenols	mg/kg	Glass	Cool, 4°C
Total and Soluble Metals (Arsenic, Cadmium, Chromium Copper, Iron, Lead, Manganese, Mercury, Nickel, Silver, and Zinc)	mg/kg	Glass	Cool, 4°C

[1]Expressed on a dry weight basis.

RESULTS AND DISCUSSION

Water Quality

Water quality in lotic ecosystems can be evaluated by assessing a combination of biological, chemical, and physical parameters, including bacterial levels, the concentrations of dissolved gases, dissolved and suspended inorganic and organic compounds, nutrients, water temperature, and rate of flow. Methods for measuring the biological and chemical constituents and the physical properties of water are well defined, and they have considerable precision. While sediment data can reflect long-term conditions, water samples are indicative of the water quality only at the time of monitoring.

In order to describe water quality in the Illinois Waterway, the 133-mile study area was divided by navigational pool:

1. Lockport (Station 1).
2. Brandon Road (Stations 2–4).
3. Dresden Island (Stations 5–11).
4. Marseilles (Stations 12–21).
5. Starved Rock (Stations 22–27).
6. Peoria, upper Peoria (Stations 28–41), and lower Peoria (Stations 42–49).

The Peoria Pool was subdivided based on geo-morphological differences between the upper and lower reaches.

The concentrations of the 38 constituents measured at each of the 49 monitoring stations, including calculated values for NH_3-N and TN, are presented in Appendices AI through AVII. The water quality data for selected parameters are summarized by navigational pool in Table 5.

Dissolved mercury data are not reported in the tables or appendices because the criteria for analysis was not triggered in any 2008 samples. Dissolved mercury is only analyzed if the total mercury value exceeds the LOQ designated by the reporting laboratory.

Spatial Variability Along the Illinois Waterway. *Total Suspended Solids*. As shown in Figure 3, TSS generally increased in concentration from Lockport to the Peoria Pool. The increase in TSS along the Illinois Waterway may be related to an increase in agricultural runoff. There was a sharp increase in mean TSS at Station 43 in the lower Peoria Pool. Increases of similar magnitude have been observed in previous years at Station 43.

TABLE 5: SUMMARY OF WATER QUALITY FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, MAY, AUGUST, AND OCTOBER 2008

Navigational Pool	Constituents[a]	Range	Average
Lockport	Water Temperature (°C)[b]	16.4 – 30.2	23.2
	TSS	<10 – 24	16
	Turbidity (NTU)[b]	13 – 47	35
	Conductivity (µS/cm)[b]	684 – 1,264	887
	BOD_5	<10 – <10	<10
	Dissolved Oxygen (DO)[b]	4.4 – 6.3	5.3
	pH (units)[b]	6.6 – 7.2	6.8
	NH_4-N	0.21 – 0.58	0.30
	NH_3-N	<0.001 – 0.003	0.001
	TKN	0.91 – 1.65	1.16
	NO_2+NO_3-N	3.87 – 6.45	4.65
	TN	4.78 – 7.37	5.81
	TP	0.33 – 1.24	0.81
	Chlorophyll *a* (µg/L)	No Data	
	Total Cyanide	<0.01 – <0.01	<0.01
	Phenols	<0.01 – <0.01	<0.01
	FC (cfu/100 mL)	70 – 290	127
	E. coli (cfu/100 mL)	<10 – 70	33
Brandon Road	Water Temperature (°C)[b]	15.2 – 31.0	22.4
	TSS	11 – 40	20
	Turbidity (NTU)[b]	12 – 51	37
	Conductivity (µS/cm)[b]	679 – 1,285	901
	BOD_5	<10 – <10	<10
	Dissolved Oxygen (DO)[b]	4.6 – 7.4	6.0
	pH (units)[b]	6.6 – 7.2	6.9
	NH_4-N	0.12 – 0.49	0.26
	NH_3-N	<0.001 – 0.003	0.002
	TKN	0.74 – 1.55	1.08
	NO_2+NO_3-N	3.43 – 6.23	4.38
	TN	4.27 – 7.23	5.46
	TP	0.33 – 1.27	0.78
	Chlorophyll *a* (µg/L)	2 – 15	6
	Total Cyanide	<0.01 – <0.01	<0.01
	Phenols	<0.01 – <0.01	<0.01
	FC (cfu/100 mL)	60 – 600	257
	E. coli (cfu/100 mL)	<10 – 470	77

TABLE 5 (Continued): SUMMARY OF WATER QUALITY FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, MAY, AUGUST, AND OCTOBER 2008

Navigational Pool	Constituents[a]	Range	Average
Dresden Island	Water Temperature (°C)[b]	15.1 – 30.9	22.6
	TSS	<10 – 94	20
	Turbidity (NTU)[b]	15 – 70	39
	Conductivity (µS/cm)[b]	711 – 1,325	910
	BOD_5	<10 – <10	<10
	Dissolved Oxygen (DO)[b]	6.1 – 10.2	8.0
	pH (units)[b]	6.9 – 7.8	7.2
	NH_4-N	<0.10 – 0.40	0.19
	NH_3-N	<0.001 – 0.011	0.002
	TKN	0.42 – 1.49	0.98
	NO_2+NO_3-N	2.62 – 5.22	4.04
	TN	3.05 – 6.00	5.01
	TP	0.33 – 1.20	0.70
	Chlorophyll *a* (µg/L)	3 – 31	12
	Total Cyanide	<0.01 – <0.01	<0.01
	Phenols	<0.01 – <0.01	<0.01
	FC (cfu/100 mL)	10 – 560	180
	E. coli (cfu/100 mL)	<10 – 540	54
Marseilles	Water Temperature (°C)[b]	15.4 – 29.6	21.0
	TSS	<10 – 79	25
	Turbidity (NTU)[b]	15 – 93	42
	Conductivity (µS/cm)[b]	630 – 963	770
	BOD_5	<10 – <10	<10
	Dissolved Oxygen (DO)[b]	6.8 – 10.3	8.8
	pH (units)[b]	7.3 – 8.2	7.6
	NH_4-N	<0.10 – 0.33	0.14
	NH_3-N	<0.001 – 0.014	0.003
	TKN	0.30 – 2.29	0.85
	NO_2+NO_3-N	1.92 – 5.84	3.26
	TN	2.24 – 7.79	4.11
	TP	<0.25 – 0.86	0.42
	Chlorophyll *a* (µg/L)	4 – 36	16
	Total Cyanide	<0.01 – <0.01	<0.01
	Phenols	<0.01 – <0.01	<0.01
	FC (cfu/100 mL)	<10 – 300	57
	E. coli (cfu/100 mL)	<10 – 200	26

TABLE 5 (Continued): SUMMARY OF WATER QUALITY FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, MAY, AUGUST, AND OCTOBER 2008

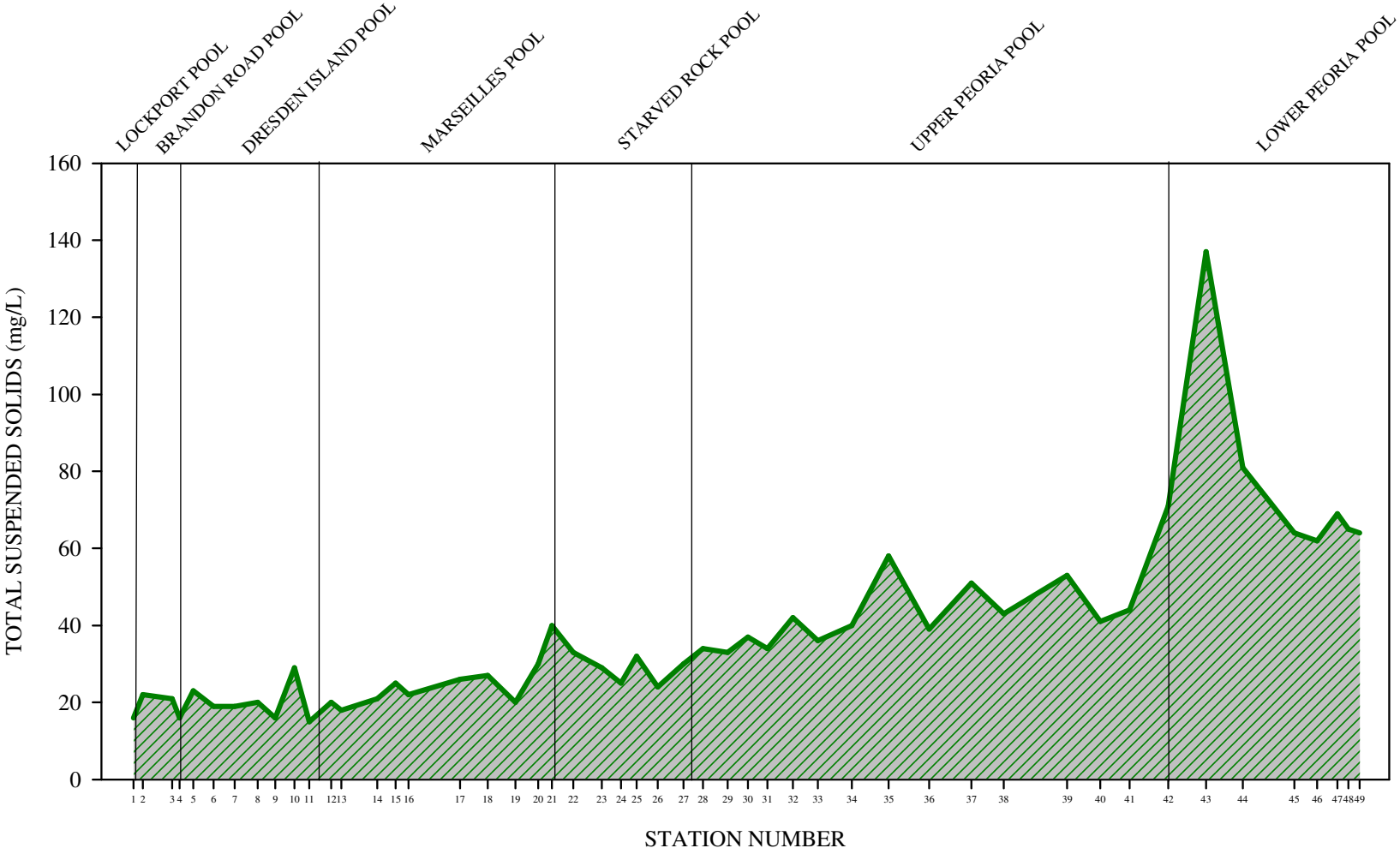
Navigational Pool	Constituents[a]	Range	Average
Starved Rock	Water Temperature (°C)[b]	14.9 – 29.6	20.5
	TSS	10 – 76	29
	Turbidity (NTU)[b]	14 – 65	44
	Conductivity (µS/cm)[b]	669 – 929	772
	BOD_5	<10 – <10	<10
	Dissolved Oxygen (DO)[b]	6.3 – 10.9	8.9
	pH (units)[b]	7.3 – 8.4	7.7
	NH_4-N	<0.10 – 0.21	0.12
	NH_3-N	<0.001 – 0.024	0.004
	TKN	0.56 – 1.95	0.94
	NO_2+NO_3-N	1.65 – 5.93	3.13
	TN	2.69 – 7.82	4.07
	TP	<0.25 – 0.84	0.40
	Chlorophyll *a* (µg/L)	7 – 64	28
	Total Cyanide	<0.01 – <0.01	<0.01
	Phenols	<0.01 – <0.01	<0.01
	FC (cfu/100 mL)	<10 – 800	78
	E. coli (cfu/100 mL)	<10 – 230	40
Upper Peoria	Water Temperature (°C)[b]	14.7 – 28.9	23.8
	TSS	14 – 115	39
	Turbidity (NTU)[b]	17 – 99	39
	Conductivity (µS/cm)[b]	664 – 929	796
	BOD_5	<10 – <10	<10
	Dissolved Oxygen (DO)[b]	5.1 – 11.6	8.8
	pH (units)[b]	7.3 – 8.6	8.5
	NH_4-N	<0.10 – 0.38	0.14
	NH_3-N	<0.001 – 0.033	0.014
	TKN	0.63 – 1.63	1.41
	NO_2+NO_3-N	1.67 – 6.73	2.75
	TN	2.65 – 8.35	4.16
	TP	<0.25 – 0.73	0.43
	Chlorophyll *a* (µg/L)	14 – 68	56
	Total Cyanide	<0.01 – <0.01	<0.01
	Phenols	<0.01 – <0.01	<0.01
	FC (cfu/100 mL)	<10 – 700	49
	E. coli (cfu/100 mL)	<10 – 240	28

TABLE 5 (Continued): SUMMARY OF WATER QUALITY FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, MAY, AUGUST, AND OCTOBER 2008

Navigational Pool	Constituents[a]	Range	Average
Lower Peoria	Water Temperature (°C)[b]	15.2 – 28.8	20.3
	TSS	34 – 341	77
	Turbidity (NTU)[b]	54 – 119	80
	Conductivity (µS/cm)[b]	673 – 914	786
	BOD_5	<10 – 10	<10
	Dissolved Oxygen (DO)[b]	4.5 – 10.8	7.6
	pH (units)[b]	7.3 – 8.1	7.8
	NH_4-N	<0.10 – 0.34	0.15
	NH_3-N	<0.001 – 0.027	0.006
	TKN	0.67 – 1.90	1.10
	NO_2+NO_3-N	1.54 – 5.65	2.43
	TN	2.63 – 7.38	3.53
	TP	<0.25 – 0.83	0.43
	Chlorophyll *a* (µg/L)	12 – 82	36
	Total Cyanide	<0.01 – <0.01	<0.01
	Phenols	<0.01 – <0.01	<0.01
	FC (cfu/100 mL)	<10 – 540	28
	E. coli (cfu/100 mL)	<10 – 70	16

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

FIGURE 3: MEAN TOTAL SUSPENDED SOLIDS CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2008



Dissolved Oxygen. DO concentration trends along the Illinois Waterway are shown in Figure 4. The dramatic increase in DO between Stations 4 and 5 is directly attributable to the natural re-aeration resulting from water passing over the Brandon Road Dam. The mean DO concentration along the Illinois Waterway remained above 7.0 mg/L below the Dresden Island Lock and Dam to the end of the sampling reach.

Ammonia Nitrogen. Ammonia nitrogen generally decreased from the Lockport Pool through the Starved Rock Pool (Figure 5). Mean NH_4-N increased slightly in the upper Peoria Pool and remained relatively uniform throughout the sampling reach.

Total Nitrogen. As shown in Figure 6, there was a general decrease in TN concentration from the Lockport Pool to the Marseilles Pool. The sharp decrease in TN between Stations 10 and 12 may be attributable to the confluence of the Kankakee River with the Des Plaines River. TN concentration remained stable until it decreased again in the lower Peoria Pool.

Total Phosphorus. Mean concentrations of TP decreased along the Illinois Waterway from the Lockport Pool to the Marseilles Pool, and then remained relatively constant through the remaining sampling reach, as shown in Figure 7. The sharp decrease in TP between Stations 10 and 12 may be attributable to the confluence of the Kankakee River with the Des Plaines River.

Fecal Coliform. Geometric mean FC peaked in the Brandon Road Pool, decreased drastically downstream of this peak, and then remained rather uniform along the Illinois Waterway through the lower Peoria Pool (Figure 8).

Trace Metals. Mean total concentrations of cadmium, chromium, copper, lead, and zinc remained relatively constant from the Lockport to the lower Peoria Pool (Table 6). The mean total iron and manganese concentrations increased progressively downstream to the lower Peoria Pool. Mean total concentrations of arsenic, mercury, nickel, and silver were less than the LOQ for all water samples collected.

FIGURE 4: MEAN DISSOLVED OXYGEN CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2008

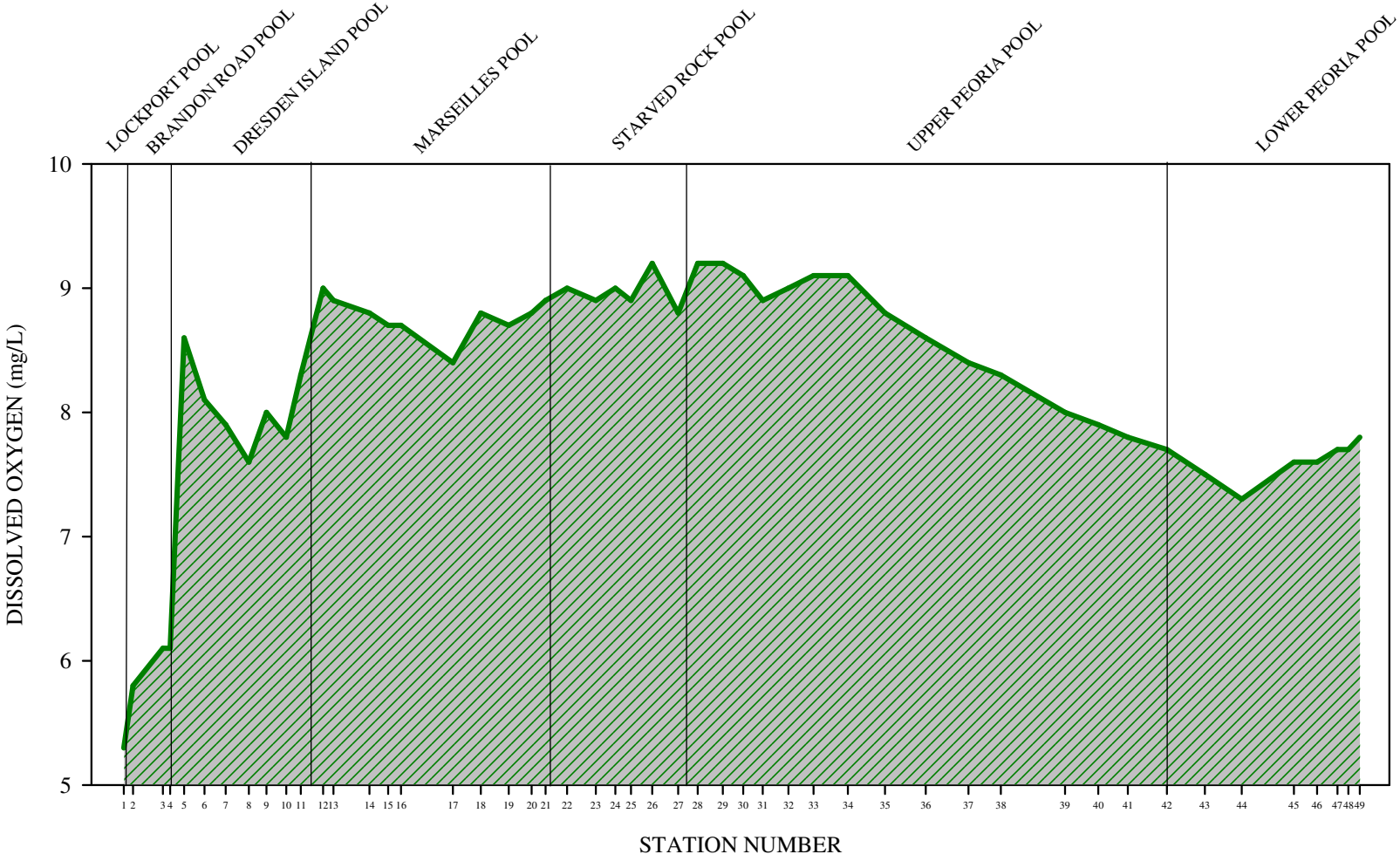


FIGURE 5: MEAN AMMONIA NITROGEN CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2008

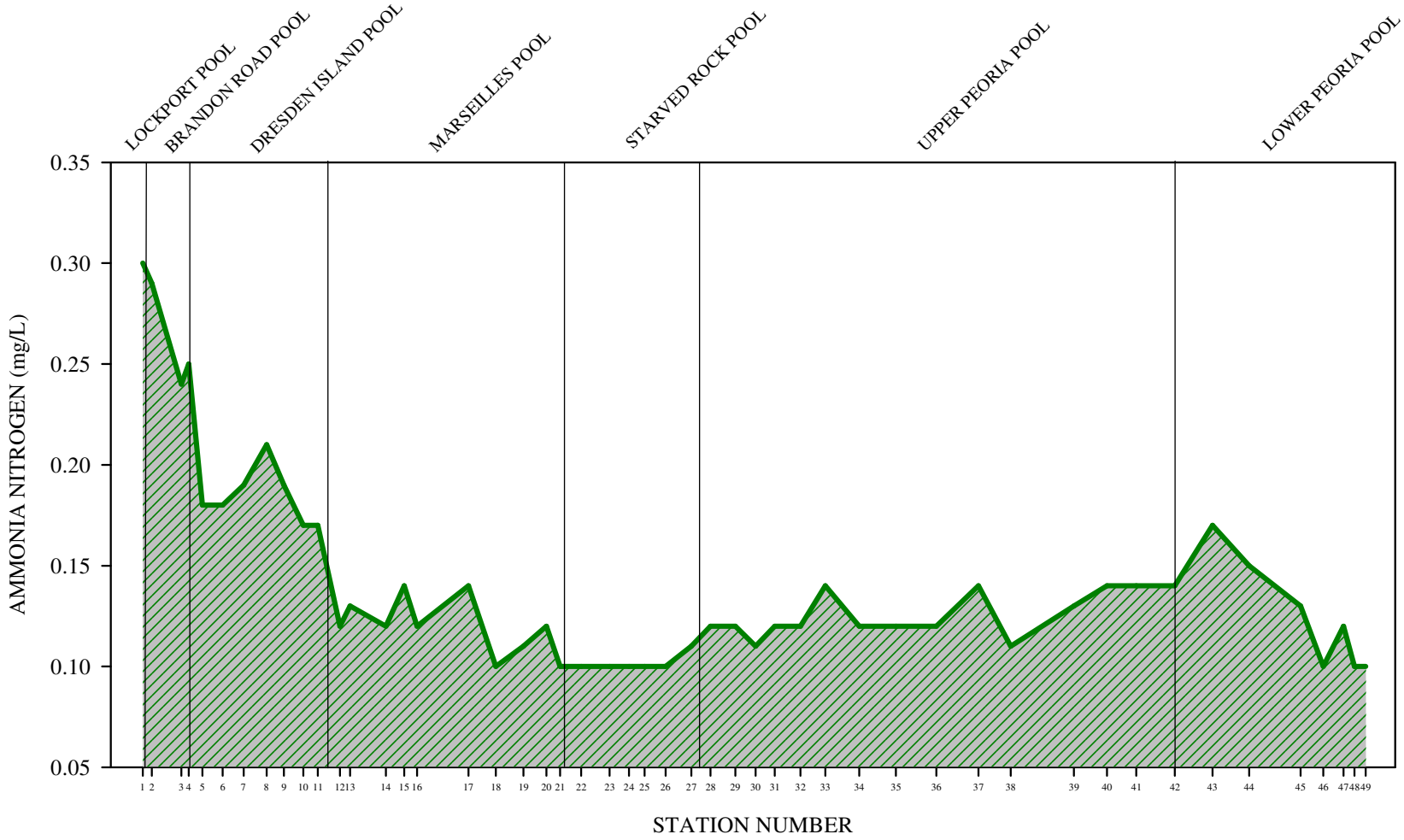


FIGURE 6: MEAN TOTAL NITROGEN CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2008

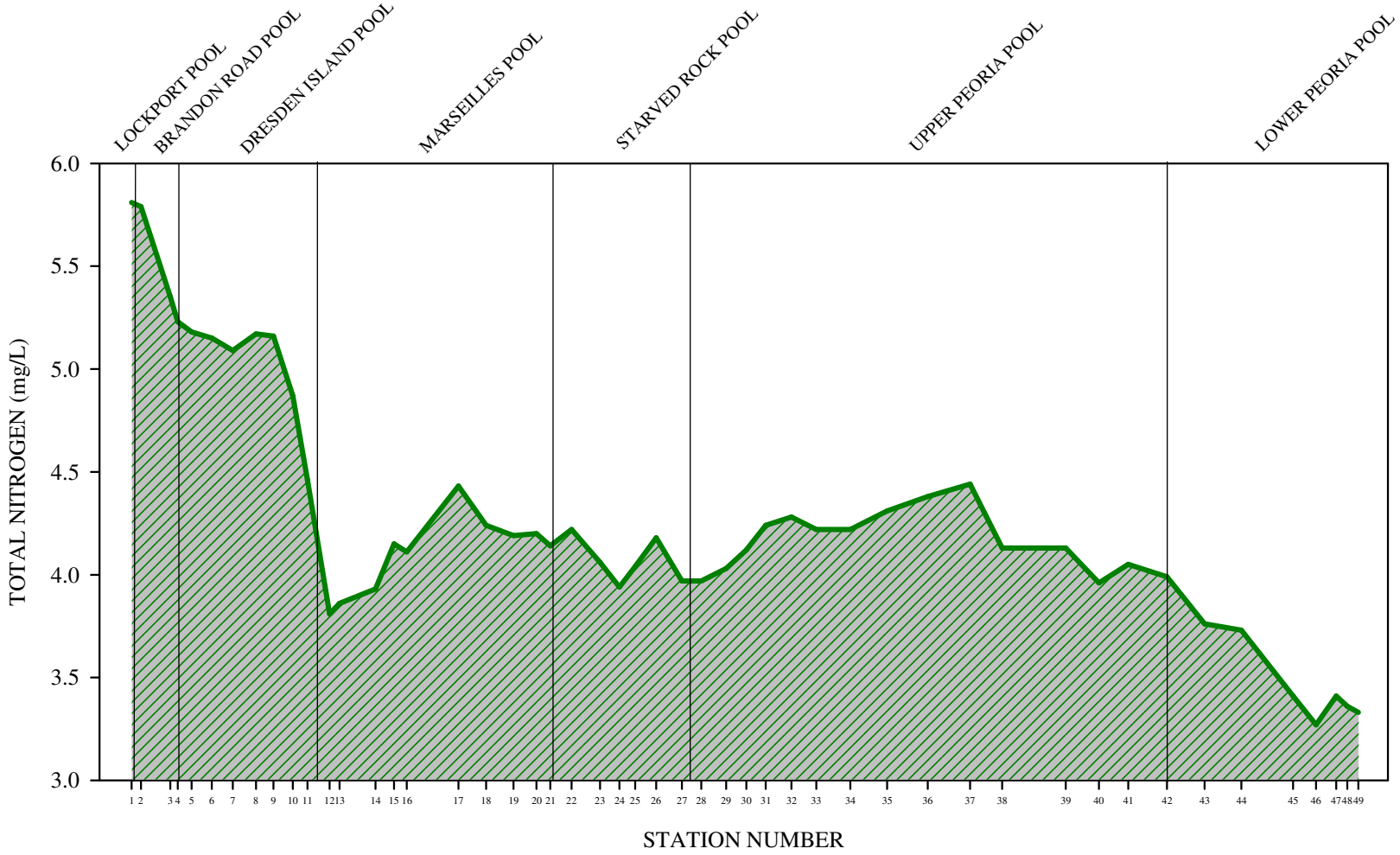


FIGURE 7: MEAN TOTAL PHOSPHORUS CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2008

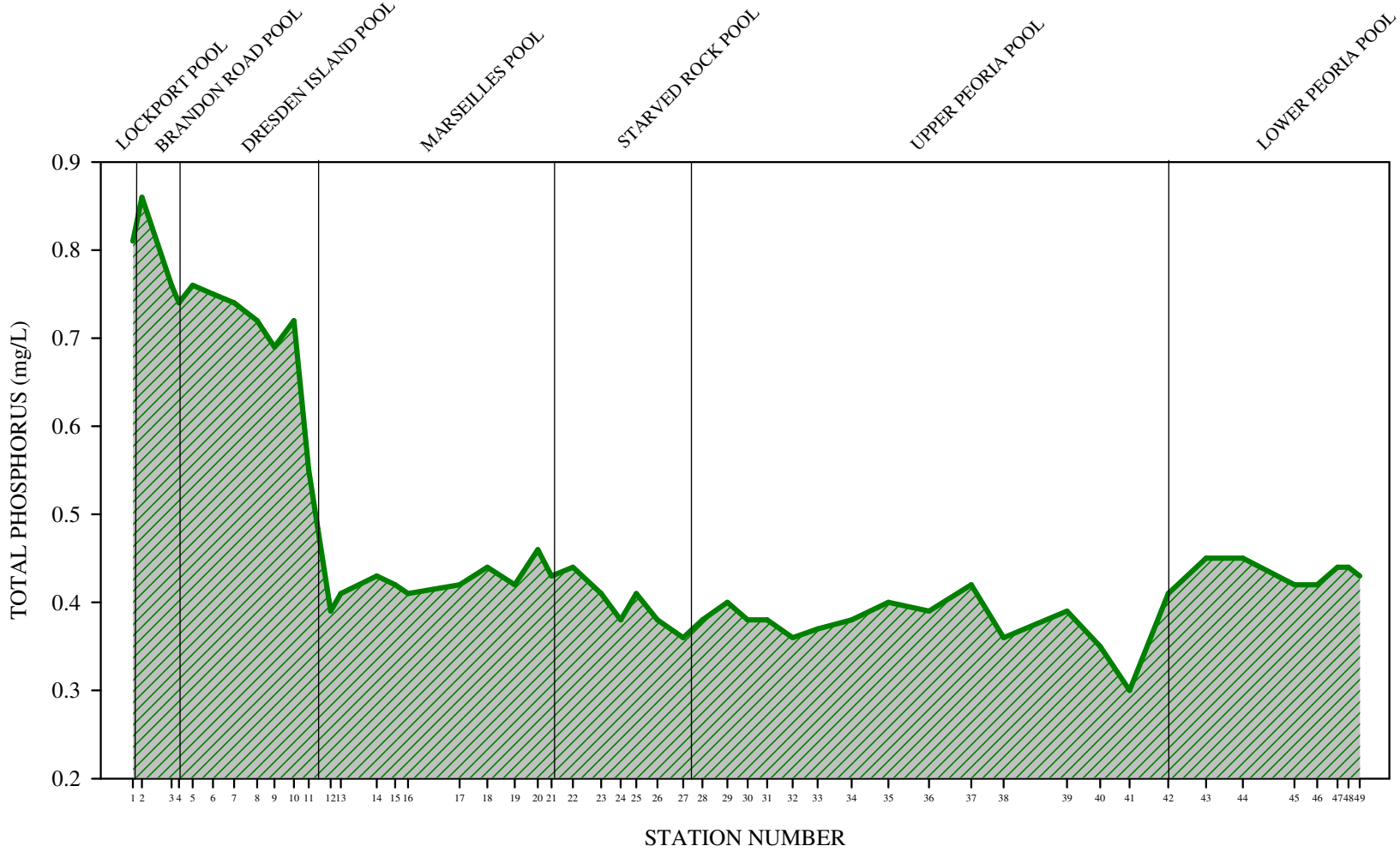


FIGURE 8: GEOMETRIC MEAN FECAL COLIFORM AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2008

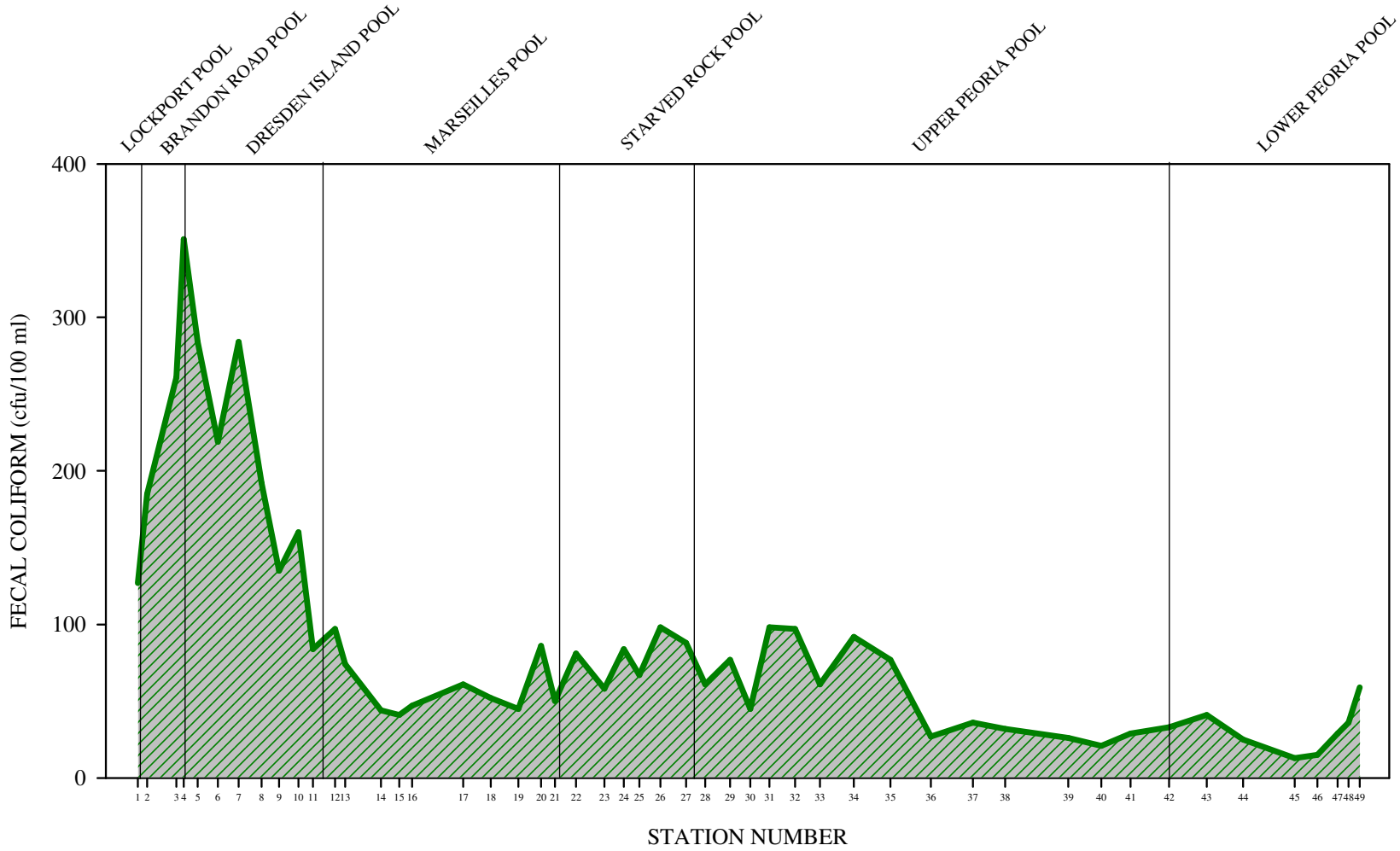


TABLE 6: SUMMARY OF METALS CONCENTRATIONS FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, MAY, AUGUST, AND OCTOBER 2008

Navigational Pool	Constituents[a]	Range	Average
Lockport	Total Arsenic	All values <0.05	<0.05
	Dissolved Arsenic	All values <0.025	<0.025
	Total Cadmium	<0.01 – 0.03	0.01
	Dissolved Cadmium	All values <0.002	<0.002
	Total Chromium	<0.0025 – 0.0048	0.0033
	Dissolved Chromium	All values <0.0025	<0.0025
	Total Copper	All values <0.01	<0.01
	Dissolved Copper	All values <0.01	<0.01
	Total Iron	0.3 – 0.7	0.5
	Dissolved Iron	<0.02 – 0.04	0.02
	Total Lead	<0.015 – 0.027	0.020
	Dissolved Lead	All values <0.02	<0.02
	Total Manganese	0.019 – 0.039	0.030
	Dissolved Manganese	0.011 – 0.031	0.021
	Total Mercury (µg/L)	<0.20 – <0.25	<0.25
	Total Nickel	All values <0.01	<0.01
	Dissolved Nickel	<0.002 – 0.003	0.002
	Total Silver	All values <0.003	<0.003
	Dissolved Silver	All values <0.003	<0.003
	Total Zinc	0.024 – 0.044	0.032
	Dissolved Zinc	<0.01 – 0.03	0.02
Brandon Road	Total Arsenic	All values <0.05	<0.05
	Dissolved Arsenic	All values <0.025	<0.025
	Total Cadmium	<0.01 – 0.02	0.01
	Dissolved Cadmium	All values <0.002	<0.002
	Total Chromium	<0.0025 – 0.0048	0.0034
	Dissolved Chromium	All values <0.0025	<0.0025
	Total Copper	All values <0.01	<0.01
	Dissolved Copper	All values <0.01	<0.01
	Total Iron	0.3 – 0.9	0.6
	Dissolved Iron	<0.02 – 0.22	0.04
	Total Lead	<0.015 – 0.024	0.018
	Dissolved Lead	<0.02 – 0.02	0.02
	Total Manganese	0.021 – 0.051	0.034
	Dissolved Manganese	0.010 – 0.034	0.020

TABLE 6 (Continued): SUMMARY OF METALS CONCENTRATIONS FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, MAY, AUGUST, AND OCTOBER 2008

Navigational Pool	Constituents[a]	Range	Average
Brandon Road (Continued)	Total Mercury (µg/L)	<0.20 – <0.25	<0.25
	Total Nickel	All values <0.01	<0.01
	Dissolved Nickel	<0.002 – 0.031	0.004
	Total Silver	All values <0.003	<0.003
	Dissolved Silver	All values <0.003	<0.003
	Total Zinc	0.019 – 0.044	0.030
	Dissolved Zinc	<0.01 – 0.02	0.01
Dresden Island	Total Arsenic	All values <0.05	<0.05
	Dissolved Arsenic	All values <0.025	<0.025
	Total Cadmium	All values <0.01	<0.01
	Dissolved Cadmium	All values <0.002	<0.002
	Total Chromium	<0.0025 – 0.0095	0.0032
	Dissolved Chromium	All values <0.0025	<0.0025
	Total Copper	<0.01 – 0.01	0.01
	Dissolved Copper	<0.01 – 0.03	0.01
	Total Iron	0.3 – 2.0	0.6
	Dissolved Iron	<0.02 – 0.07	0.02
	Total Lead	<0.015 – 0.026	0.018
	Dissolved Lead	<0.02 – 0.02	0.02
	Total Manganese	0.023 – 0.075	0.037
	Dissolved Manganese	0.002 – 0.061	0.017
	Total Mercury (µg/L)	<0.20 – <0.25	<0.25
	Total Nickel	All values <0.01	<0.01
	Dissolved Nickel	<0.002 – 0.002	0.002
	Total Silver	All values <0.003	<0.003
	Dissolved Silver	All values <0.003	<0.003
	Total Zinc	<0.015 – 0.066	0.024
	Dissolved Zinc	<0.01 – 0.02	0.01
Marseilles	Total Arsenic	All values <0.05	<0.05
	Dissolved Arsenic	All values <0.025	<0.025
	Total Cadmium	All values <0.01	<0.01
	Dissolved Cadmium	All values <0.002	<0.002

TABLE 6 (Continued): SUMMARY OF METALS CONCENTRATIONS FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, MAY, AUGUST, AND OCTOBER 2008

Navigational Pool	Constituents[a]	Range	Average
Marseilles (Continued)	Total Chromium	<0.0025 – 0.0065	0.0030
	Dissolved Chromium	All values <0.0025	<0.0025
	Total Copper	All values <0.01	<0.01
	Dissolved Copper	All values <0.01	<0.01
	Total Iron	0.4 – 2.5	0.7
	Dissolved Iron	<0.02 – 0.11	0.02
	Total Lead	<0.015 – 0.051	0.018
	Dissolved Lead	All values <0.02	<0.02
	Total Manganese	0.030 – 0.115	0.048
	Dissolved Manganese	<0.001 – 0.017	0.006
	Total Mercury (µg/L)	<0.20 – <0.25	<0.25
	Total Nickel	All values <0.01	<0.01
	Dissolved Nickel	<0.002 – 0.002	0.002
	Total Silver	All values <0.003	<0.003
	Dissolved Silver	All values <0.003	<0.003
	Total Zinc	<0.015 – 0.045	0.019
	Dissolved Zinc	<0.01 – 0.02	0.01
Starved Rock	Total Arsenic	All values <0.05	<0.05
	Dissolved Arsenic	All values <0.025	<0.025
	Total Cadmium	<0.01 – 0.05	0.01
	Dissolved Cadmium	All values <0.002	<0.002
	Total Chromium	<0.0025 – 0.0053	0.0029
	Dissolved Chromium	All values <0.0025	<0.0025
	Total Copper	<0.01 – 0.03	0.01
	Dissolved Copper	All values <0.01	<0.01
	Total Iron	0.3 – 1.9	0.8
	Dissolved Iron	<0.02 – 0.20	0.03
	Total Lead	<0.015 – 0.042	0.019
	Dissolved Lead	<0.02 – 0.02	0.02
	Total Manganese	0.027 – 0.100	0.049
	Dissolved Manganese	0.002 – 0.007	0.003
	Total Mercury (µg/L)	<0.20 – <0.25	<0.25
	Total Nickel	All values <0.01	<0.01

TABLE 6 (Continued): SUMMARY OF METALS CONCENTRATIONS FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, MAY, AUGUST, AND OCTOBER 2008

Navigational Pool	Constituents[a]	Range	Average
Starved Rock (Continued)	Dissolved Nickel	<0.002 – 0.002	0.002
	Total Silver	All values <0.003	<0.003
	Dissolved Silver	All values <0.003	<0.003
	Total Zinc	<0.015 – 0.047	0.018
	Dissolved Zinc	<0.01 – 0.02	0.01
Upper Peoria	Total Arsenic	All values <0.05	<0.05
	Dissolved Arsenic	All values <0.025	<0.025
	Total Cadmium	All values <0.01	<0.01
	Dissolved Cadmium	All values <0.002	<0.002
	Total Chromium	<0.0025 – 0.0060	0.0031
	Dissolved Chromium	All values <0.0025	<0.0025
	Total Copper	All values <0.01	<0.01
	Dissolved Copper	All values <0.01	<0.01
	Total Iron	0.3 – 3.5	1.2
	Dissolved Iron	<0.02 – 0.10	0.02
	Total Lead	<0.015 – 0.027	0.019
	Dissolved Lead	<0.02 – 0.03	0.02
	Total Manganese	0.038 – 0.121	0.066
	Dissolved Manganese	<0.001 – 0.017	0.004
	Total Mercury (µg/L)	<0.20 – <0.25	<0.25
	Total Nickel	All values <0.01	<0.01
	Dissolved Nickel	<0.002 – 0.011	0.002
	Total Silver	All values <0.003	<0.003
	Dissolved Silver	All values <0.003	<0.003
	Total Zinc	<0.015 – 0.104	0.022
	Dissolved Zinc	<0.01 – 0.02	0.01
Lower Peoria	Total Arsenic	All values <0.05	<0.05
	Dissolved Arsenic	All values <0.025	<0.025
	Total Cadmium	All values <0.01	<0.01
	Dissolved Cadmium	All values <0.002	<0.002
	Total Chromium	<0.0025 – 0.0079	0.0042
	Dissolved Chromium	All values <0.0025	<0.0025
	Total Copper	All values <0.01	<0.01
	Dissolved Copper	All values <0.01	<0.01

TABLE 6 (Continued): SUMMARY OF METALS CONCENTRATIONS FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, MAY, AUGUST, AND OCTOBER 2008

Navigational Pool	Constituents[a]	Range	Average
Lower Peoria (Continued)	Total Iron	0.9 – 4.7	2.1
	Dissolved Iron	<0.02 – 0.04	0.02
	Total Lead	<0.015 – 0.027	0.019
	Dissolved Lead	<0.02 – 0.02	0.02
	Total Manganese	0.066 – 0.163	0.105
	Dissolved Manganese	0.002 – 0.010	0.005
	Total Mercury (µg/L)	<0.20 – <0.25	<0.25
	Total Nickel	All values <0.01	<0.01
	Dissolved Nickel	All values <0.002	<0.002
	Total Silver	All values <0.003	<0.003
	Dissolved Silver	All values <0.003	<0.003
	Total Zinc	<0.015 – 0.048	0.024
	Dissolved Zinc	<0.01 – 0.02	0.01

[a]Expressed in mg/L except where noted.

The mean dissolved concentrations of copper, iron, lead, and zinc remained fairly uniform from the Lockport Pool downstream to the lower Peoria Pool (Table 6). Mean dissolved concentrations of manganese were approximately 4 times higher in the Lockport, Brandon Road, and Dresden Island Pools as compared to the lower four navigational pools. Mean dissolved concentrations of arsenic, cadmium, chromium, nickel, and silver were less than the LOQ for all samples collected.

Waterway Use Designations

The Illinois Pollution Control Board (IPCB) has designated water uses for particular waters within the State of Illinois. The CSSC and the Des Plaines River from its confluence with the CSSC to the Interstate Highway 55 (I-55) bridge are classified as Secondary Contact and Indigenous Aquatic Life waters (Stations 1–8). All other waters in Illinois are designated as General Use. The Des Plaines River downstream of the I-55 bridge (Station 9) and the Illinois River are General Use waters (Stations 10–49).

Water Quality Standards. *Dissolved Oxygen*. The General Use and Indigenous Aquatic Life Use Standards for DO are 5.0 and 4.0 mg/L, respectively. The Indigenous Aquatic Life Use Standard was consistently achieved during each of the sampling periods. The only DO concentrations measured below the General Use Standard were during the first week of August at stations 2, 43, and 44. The concentrations were within 0.5 mg/L of the standard.

Fecal Coliform. During the second week of May sampling, FC exceeded the General Use Standard of 400 cfu/100 mL at Stations 27, 35, 37, 40, 41, and 43. The FC exceedances ranged from 430 to 700 cfu/100 mL. The Secondary Contact Use has no FC standard.

Total Mercury. The Water Quality Standard for the Protection of Human Health for total mercury in General Use waters is 0.012 µg/L. The total mercury values for all the stations and dates were less than the LOQ (0.20 µg/L), so it is not known whether they actually exceeded the Human Health Standard for mercury.

Sediment Quality

Sediment quality can considerably impact overlying water quality, benthic community structure, food chain dynamics, and other elements of freshwater ecosystems. Since sediment acts as a reservoir for persistent or bioaccumulative contaminants, sediment data reflects a long-term record of quality.

The concentrations of the eight general chemistry constituents measured in sediment at each of the 14 selected monitoring stations are presented in Table 7. Sediment from the Lockport and Brandon Road Pool stations generally contained the highest levels of TKN, TP,

TABLE 7: CHEMICAL CHARACTERISTICS OF SEDIMENT COLLECTED FROM MONITORING STATIONS IN THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, OCTOBER 2008

Station No.	Navigational Pool	Constituents (Expressed on a dry weight basis)							
		Total Solids (%)	Total Volatile Solids (% of Total)	Ammonia Nitrogen (mg/kg)	Total Kjeldahl Nitrogen (mg/kg)	Nitrite + Nitrate Nitrogen (mg/kg)	Total Phos-phorus (mg/kg)	Total Cyanide (mg/kg)	Phenols (mg/kg)
1	Lockport	39	11	271	3,242	9	4,819	0.132	5.034
2	Brandon Road	43	15	296	3,335	6	6,069	0.147	1.779
5	Dresden Island	70	4	7	709	3	1,863	0.089	0.254
8	Dresden Island	61	17	47	2,744	10	3,014	0.080	2.736
12	Marseilles	69	5	2	837	4	2,534	0.081	0.147
18	Marseilles	83	1	3	218	2	519	0.022	2.315
23	Starved Rock	77	1	8	68	3	84	0.108	0.014
28	Peoria	53	9	10	1,793	5	1,078	0.099	0.163
32	Peoria	77	1	5	323	5	1,878	0.076	0.010
35	Peoria	67	4	10	1,130	8	690	0.088	0.046
38	Peoria	63	3	8	1,009	6	733	0.095	0.088
41	Peoria	58	4	12	997	4	1,099	0.081	0.069
44	Peoria	40	7	343	2,508	50	1,478	0.143	0.146
48	Peoria	78	2	2	276	6	167	0.057	0.018

and cyanide. Ammonia nitrogen, TKN, NO3+NO2, and total cyanide concentrations were relatively elevated in the lower Peoria Pool. Higher concentrations of phenols were detected between the Lockport and Marseilles Pools, but the concentration decreased and remained relatively constant throughout the rest of the sampling reach.

The concentrations of 11 measured trace metals for the same 14 selected stations are presented in Table 8. Arsenic and silver concentrations were below the LOQ at all of the sediment sampling stations. Concentrations of chromium, nickel, and zinc were highest in the Lockport Pool. The Brandon Road Pool contained the most elevated concentrations of copper, iron, lead, and manganese. A relatively high concentration of mercury was detected at Station 8 in the Dresden Island Pool (1.427 mg/kg), whereas most stations had mercury concentrations less than the LOQ of 1.250 mg/kg.

TABLE 8: TRACE METALS IN SEDIMENT COLLECTED FROM MONITORING STATIONS IN THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY, OCTOBER 2008

Station No.	Navigational Pool	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Silver	Zinc
		(mg/kg dry weight)										
1	Lockport	<25	8	139	125	25,476	155	433	<1.250	51.1	<1	656
2	Brandon Road	<25	6	95	127	36,446	171	862	<1.250	33.8	<1	649
5	Dresden Island	<25	<2	32	35	20,037	72	493	<1.250	28.5	<1	264
8	Dresden Island	<25	11	108	121	23,980	151	543	1.427	37.5	<1	549
12	Marseilles	<25	<2	19	22	14,293	31	458	<1.250	11.6	<1	141
18	Marseilles	<25	3	29	22	5,943	32	147	<1.250	9.1	<1	121
23	Starved Rock	<25	<2	4	3	3,383	8	108	<1.250	3.1	<1	20
28	Peoria	<25	<2	11	9	7,847	16	242	<1.250	6.6	<1	54
32	Peoria	<25	<2	8	3	9,378	9	210	<1.250	5.9	<1	44
35	Peoria	<25	<2	16	11	18,704	16	512	<1.250	16.7	<1	80
38	Peoria	<25	<2	12	8	15,774	13	360	<1.250	14.2	<1	60
41	Peoria	<25	<2	15	14	14,486	22	521	<1.250	13.5	<1	117
44	Peoria	<25	2	34	34	21,630	35	606	<1.250	22.1	<1	215
48	Peoria	<25	<2	8	3	8,201	12	303	<1.250	5.6	<1	22

APPENDIX AI

WATER QUALITY AT STATION 1 IN THE LOCKPORT POOL DURING MAY, AUGUST, AND OCTOBER 2008

TABLE AI-1: WATER QUALITY AT STATION 1 IN THE CHICAGO SANITARY AND SHIP CANAL DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	16.4[b]	30.2[b]	23.2
Total Suspended Solids	<10	24	17
Turbidity (NTU)	13[b]	47[b]	35
Conductivity (µS/cm)	684[b]	1,264[b]	887
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	4.4[b]	6.3[b]	5.3
pH (units)	6.6[b]	7.2[b]	6.8
Ammonia Nitrogen	0.21	0.58	0.30
Un-ionized Ammonia	<0.001	0.003	0.001
Total Kjeldahl Nitrogen	0.91	1.65	1.16
Nitrite plus Nitrate Nitrogen	3.87	6.45	4.65
Total Nitrogen	4.78	7.37	5.81
Total Phosphorus	0.33	1.24	0.81
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	0.03	0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0048	0.0033
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.3	0.7	0.5
Dissolved Iron	<0.02	0.04	0.02
Total Lead	<0.015	0.027	0.020
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.019	0.039	0.030
Dissolved Manganese	0.011	0.031	0.021
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	0.003	0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.024	0.044	0.032
Dissolved Zinc	<0.01	0.03	0.02
Fecal Coliform (cfu/100 mL)	70	290	127[c]
E.coli (cfu/100 mL)	<10	70	33[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

APPENDIX AII

WATER QUALITY AT STATIONS 2–4 IN THE BRANDON ROAD POOL DURING MAY, AUGUST, AND OCTOBER 2008

TABLE AII-1: WATER QUALITY AT STATION 2 IN THE CHICAGO SANITARY AND SHIP CANAL DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	16.2[b]	30.3[b]	23.1
Total Suspended Solids	14	40	22
Turbidity (NTU)	15[b]	51[b]	39
Conductivity (µS/cm)	689[b]	1,264[b]	883
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	4.6[b]	7.4[b]	5.8
pH (units)	6.6[b]	7.2[b]	6.8
Ammonia Nitrogen	0.21	0.49	0.29
Un-ionized Ammonia	0.001	0.003	0.001
Total Kjeldahl Nitrogen	0.88	1.55	1.15
Nitrite plus Nitrate Nitrogen	3.84	6.23	4.64
Total Nitrogen	4.95	7.23	5.79
Total Phosphorus	0.37	1.27	0.86
Chlorophyll *a* (µg/L)	2	7	4
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	0.02	0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0048	0.0037
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	0.9	0.6
Dissolved Iron	<0.02	0.04	0.03
Total Lead	<0.015	0.024	0.019
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.021	0.038	0.032
Dissolved Manganese	0.012	0.031	0.021
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	0.003	0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.027	0.044	0.034
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	140	270	185[c]
E. coli (cfu/100 mL)	<10	120	42[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AII-2: WATER QUALITY AT STATION 3 IN THE DES PLAINES RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.2[b]	31.0[b]	22.0
Total Suspended Solids	12	28	21
Turbidity (NTU)	12[b]	49[b]	37
Conductivity (µS/cm)	679[b]	1,285[b]	917
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.2[b]	7.2[b]	6.1
pH (units)	6.8[b]	7.2[b]	7.0
Ammonia Nitrogen	0.12	0.40	0.24
Un-ionized Ammonia	0.001	0.003	0.001
Total Kjeldahl Nitrogen	0.79	1.38	1.10
Nitrite plus Nitrate Nitrogen	3.43	5.63	4.26
Total Nitrogen	4.53	6.57	5.35
Total Phosphorus	0.33	1.04	0.76
Chlorophyll *a* (µg/L)	2	15	9
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0040	0.0033
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.3	0.7	0.6
Dissolved Iron	<0.02	0.22	0.06
Total Lead	<0.015	0.022	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.025	0.050	0.035
Dissolved Manganese	0.010	0.031	0.018
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	0.031	0.007
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.021	0.040	0.028
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	60	600	261[c]
E. coli (cfu/100 mL)	<10	320	94[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AII-3 WATER QUALITY AT STATION 4 IN THE DES PLAINES RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.5[b]	30.9[b]	22.0
Total Suspended Solids	11	28	16
Turbidity (NTU)	15[b]	50[b]	36
Conductivity (µS/cm)	681[b]	1,272[b]	901
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.1[b]	6.9[b]	6.1
pH (units)	6.8[b]	7.2[b]	6.9
Ammonia Nitrogen	0.15	0.39	0.25
Un-ionized Ammonia	0.001	0.003	0.002
Total Kjeldahl Nitrogen	0.74	1.25	0.99
Nitrite plus Nitrate Nitrogen	3.53	5.32	4.24
Total Nitrogen	4.27	6.16	5.23
Total Phosphorus	0.35	1.13	0.74
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0045	0.0032
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.3	0.8	0.5
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.023	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.027	0.051	0.034
Dissolved Manganese	0.014	0.034	0.022
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.019	0.041	0.027
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	270	530	351[c]
E. coli (cfu/100 mL)	<10	470	116[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

APPENDIX AIII

WATER QUALITY AT STATIONS 5–11 IN THE DRESDEN ISLAND POOL DURING MAY, AUGUST, AND OCTOBER 2008

TABLE AIII-1: WATER QUALITY AT STATION 5 IN THE DES PLAINES RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.1[b]	30.2[b]	21.9
Total Suspended Solids	14	38	23
Turbidity (NTU)	16[b]	55[b]	41
Conductivity (µS/cm)	711[b]	1,283[b]	918
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.0[b]	10.2[b]	8.6
pH (units)	6.9[b]	7.4[b]	7.1
Ammonia Nitrogen	<0.10	0.26	0.19
Un-ionized Ammonia	0.001	0.005	0.002
Total Kjeldahl Nitrogen	0.72	1.23	0.99
Nitrite plus Nitrate Nitrogen	3.56	5.22	4.19
Total Nitrogen	4.30	6.00	5.18
Total Phosphorus	0.34	1.20	0.76
Chlorophyll *a* (µg/L)	3	14	9
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0045	0.0034
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	0.9	0.6
Dissolved Iron	<0.02	0.04	0.03
Total Lead	<0.015	0.023	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.027	0.075	0.041
Dissolved Manganese	0.010	0.061	0.026
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.016	0.037	0.027
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	130	560	284[c]
E. coli (cfu/100 mL)	<10	250	61[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIII-2: WATER QUALITY AT STATION 6 IN THE DES PLAINES RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	17.0[b]	30.9[b]	23.7
Total Suspended Solids	14	25	19
Turbidity (NTU)	18[b]	51[b]	39
Conductivity (µS/cm)	726[b]	1,249[b]	911
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.9[b]	9.2[b]	8.1
pH (units)	6.9[b]	7.4[b]	7.1
Ammonia Nitrogen	<0.10	0.24	0.18
Un-ionized Ammonia	0.001	0.005	0.002
Total Kjeldahl Nitrogen	0.50	1.40	1.02
Nitrite plus Nitrate Nitrogen	3.54	5.16	4.13
Total Nitrogen	4.04	5.97	5.15
Total Phosphorus	0.41	1.15	0.75
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0043	0.0031
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	0.8	0.6
Dissolved Iron	<0.02	0.07	0.03
Total Lead	<0.015	0.026	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.028	0.052	0.035
Dissolved Manganese	0.007	0.033	0.019
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.016	0.037	0.026
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	120	340	219[c]
E. coli (cfu/100 mL)	<10	100	45[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIII-3: WATER QUALITY AT STATION 7 IN THE DES PLAINES RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	16.9[b]	30.0[b]	23.0
Total Suspended Solids	12	37	19
Turbidity (NTU)	17[b]	70[b]	40
Conductivity (µS/cm)	740[b]	1,271[b]	922
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.8[b]	8.9[b]	7.9
pH (units)	6.9[b]	7.5[b]	7.2
Ammonia Nitrogen	<0.10	0.29	0.20
Un-ionized Ammonia	0.001	0.006	0.002
Total Kjeldahl Nitrogen	0.42	1.33	0.99
Nitrite plus Nitrate Nitrogen	3.52	4.91	4.10
Total Nitrogen	3.94	5.78	5.09
Total Phosphorus	0.42	1.06	0.74
Chlorophyll *a* (µg/L)	3	29	14
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0043	0.0031
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	0.03	0.01
Total Iron	0.4	1.1	0.6
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.025	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.029	0.057	0.037
Dissolved Manganese	0.004	0.031	0.018
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.031	0.025
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	150	500	284[c]
E. coli (cfu/100 mL)	<10	200	71[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIII-4: WATER QUALITY AT STATION 8 IN THE DES PLAINES RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	17.0[b]	30.3[b]	23.2
Total Suspended Solids	13	35	20
Turbidity (NTU)	19[b]	51[b]	39
Conductivity (µS/cm)	787[b]	1,311[b]	937
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.5[b]	8.8[b]	7.6
pH (units)	6.9[b]	7.6[b]	7.2
Ammonia Nitrogen	0.10	0.40	0.21
Un-ionized Ammonia	0.001	0.011	0.003
Total Kjeldahl Nitrogen	0.47	1.32	0.99
Nitrite plus Nitrate Nitrogen	3.31	4.99	4.18
Total Nitrogen	3.78	5.93	5.17
Total Phosphorus	0.36	0.94	0.72
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0039	0.0034
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	0.8	0.6
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.022	0.017
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.029	0.051	0.037
Dissolved Manganese	0.002	0.026	0.016
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.015	0.038	0.026
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	90	410	192[c]
E. coli (cfu/100 mL)	<10	280	55[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIII-5: WATER QUALITY AT STATION 9 IN THE DES PLAINES RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	16.5[b]	30.3[b]	22.7
Total Suspended Solids	10	26	16
Turbidity (NTU)	15[b]	48[b]	36
Conductivity (µS/cm)	799[b]	1,325[b]	952
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.0[b]	9.3[b]	8.0
pH (units)	7.0[b]	7.7[b]	7.3
Ammonia Nitrogen	0.13	0.29	0.19
Un-ionized Ammonia	0.001	0.008	0.003
Total Kjeldahl Nitrogen	0.48	1.21	0.94
Nitrite plus Nitrate Nitrogen	3.26	5.05	4.22
Total Nitrogen	3.74	5.97	5.16
Total Phosphorus	0.36	0.96	0.69
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0030	0.0027
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	0.6	0.4
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.024	0.018
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.026	0.045	0.034
Dissolved Manganese	0.002	0.027	0.015
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.032	0.022
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	70	290	135[c]
E. coli (cfu/100 ml)	<10	100	43[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIII-6: WATER QUALITY AT STATION 10 IN THE DES PLAINES RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	17.2[b]	30.2[b]	22.6
Total Suspended Solids	<10	94	30
Turbidity (NTU)	20[b]	50[b]	40
Conductivity (µS/cm)	717[b]	1,317[b]	924
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.1[b]	8.4[b]	7.8
pH (units)	7.0[b]	7.7[b]	7.3
Ammonia Nitrogen	<0.10	0.24	0.17
Un-ionized Ammonia	0.001	0.004	0.002
Total Kjeldahl Nitrogen	0.56	1.49	1.03
Nitrite plus Nitrate Nitrogen	3.10	4.60	3.84
Total Nitrogen	3.97	5.66	4.87
Total Phosphorus	0.44	1.17	0.72
Chlorophyll *a* (µg/L)	4	29	12
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0095	0.0043
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	2.0	0.8
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.023	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.025	0.069	0.041
Dissolved Manganese	0.003	0.026	0.014
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.015	0.066	0.028
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	40	400	160[c]
E. coli (cfu/100 mL)	<10	540	69[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIII-7: WATER QUALITY AT STATION 11 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	16.2[b]	30.7[b]	21.5
Total Suspended Solids	<10	27	16
Turbidity (NTU)	15[b]	51[b]	37
Conductivity (µS/cm)	737[b]	950[b]	807
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.1[b]	9.8[b]	8.3
pH (units)	7.2[b]	7.8[b]	7.5
Ammonia Nitrogen	<0.10	0.38	0.17
Un-ionized Ammonia	0.001	0.008	0.002
Total Kjeldahl Nitrogen	0.43	1.18	0.88
Nitrite plus Nitrate Nitrogen	2.62	4.09	3.58
Total Nitrogen	3.05	5.17	4.46
Total Phosphorus	0.33	0.82	0.55
Chlorophyll *a* (µg/L)	4	31	13
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0032	0.0028
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.3	0.9	0.5
Dissolved Iron	<0.02	0.04	0.02
Total Lead	<0.015	0.024	0.017
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.023	0.051	0.035
Dissolved Manganese	0.002	0.023	0.011
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.028	0.017
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	10	240	84[c]
E. coli (cfu/100 mL)	<10	160	40[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

APPENDIX AIV

WATER QUALITY AT STATIONS 12–21 IN THE MARSEILLES POOL DURING MAY, AUGUST, AND OCTOBER 2008

TABLE AIV-1: WATER QUALITY AT STATION 12 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.7[b]	29.6[b]	21.1
Total Suspended Solids	11	33	20
Turbidity (NTU)	31[b]	58[b]	42
Conductivity (µS/cm)	643[b]	907[b]	752
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.6[b]	10.1[b]	9.0
pH (units)	7.3[b]	7.9[b]	7.6
Ammonia Nitrogen	<0.10	0.22	0.13
Un-ionized Ammonia	<0.001	0.007	0.003
Total Kjeldahl Nitrogen	0.54	1.04	0.77
Nitrite plus Nitrate Nitrogen	2.03	4.62	3.04
Total Nitrogen	2.57	5.56	3.81
Total Phosphorus	<0.25	0.81	0.39
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0040	0.0029
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.5	1.0	0.7
Dissolved Iron	<0.02	0.02	<0.02
Total Lead	<0.015	0.022	0.017
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.034	0.059	0.046
Dissolved Manganese	0.003	0.013	0.009
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.032	0.018
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	50	240	97[c]
E. coli (cfu/100 mL)	<10	50	29[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIV-2: WATER QUALITY AT STATION 13 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.8[b]	29.4[b]	21.2
Total Suspended Solids	11	31	18
Turbidity (NTU)	23[b]	54[b]	40
Conductivity (µS/cm)	663[b]	942[b]	766
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.5[b]	10.0[b]	8.9
pH (units)	7.3[b]	7.9[b]	7.6
Ammonia Nitrogen	<0.10	0.24	0.15
Un-ionized Ammonia	<0.001	0.008	0.003
Total Kjeldahl Nitrogen	0.53	1.06	0.77
Nitrite plus Nitrate Nitrogen	2.03	4.41	3.08
Total Nitrogen	2.58	5.38	3.86
Total Phosphorus	0.25	0.79	0.41
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0045	0.0029
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.5	0.9	0.7
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.024	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.035	0.053	0.044
Dissolved Manganese	0.002	0.012	0.007
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.038	0.019
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	30	180	74[c]
E. coli (cfu/100 mL)	<10	90	21[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIV-3: WATER QUALITY AT STATION 14 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.8[b]	29.4[b]	21.1
Total Suspended Solids	10	36	21
Turbidity (NTU)	20[b]	53[b]	40
Conductivity (µS/cm)	661[b]	925[b]	768
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.4[b]	9.8[b]	8.8
pH (units)	7.3[b]	7.8[b]	7.5
Ammonia Nitrogen	<0.10	0.22	0.14
Un-ionized Ammonia	<0.001	0.007	0.002
Total Kjeldahl Nitrogen	0.30	1.16	0.73
Nitrite plus Nitrate Nitrogen	1.94	4.55	3.20
Total Nitrogen	2.24	5.40	3.93
Total Phosphorus	<0.25	0.84	0.43
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0045	0.0029
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.5	0.9	0.7
Dissolved Iron	<0.02	0.02	<0.02
Total Lead	<0.015	0.044	0.021
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.035	0.055	0.045
Dissolved Manganese	0.002	0.010	0.006
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.034	0.018
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	10	170	44[c]
E. coli (cfu/100 mL)	<10	80	29[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIV-4: WATER QUALITY AT STATION 15 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.7[b]	29.5[b]	21.0
Total Suspended Solids	12	43	25
Turbidity (NTU)	24[b]	54[b]	41
Conductivity (µS/cm)	655[b]	917[b]	772
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.4[b]	9.7[b]	8.7
pH (units)	7.3[b]	7.9[b]	7.5
Ammonia Nitrogen	<0.10	0.33	0.16
Un-ionized Ammonia	<0.001	0.013	0.003
Total Kjeldahl Nitrogen	0.43	1.19	0.79
Nitrite plus Nitrate Nitrogen	1.98	5.38	3.36
Total Nitrogen	2.41	6.21	4.15
Total Phosphorus	<0.25	0.86	0.42
Chlorophyll *a* (µg/L)	4	25	13
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0052	0.0030
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.5	1.1	0.7
Dissolved Iron	<0.02	<0.02	<0.02
Total Lead	<0.015	0.021	0.017
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.036	0.058	0.047
Dissolved Manganese	0.002	0.010	0.006
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.039	0.020
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	<10	160	41[c]
E. coli (cfu/100 mL)	<10	30	14[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIV-5: WATER QUALITY AT STATION 16 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.7[b]	29.3[b]	21.0
Total Suspended Solids	10	48	22
Turbidity (NTU)	25[b]	55[b]	42
Conductivity (µS/cm)	654[b]	945[b]	778
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.4[b]	9.6[b]	8.7
pH (units)	7.3[b]	7.9[b]	7.5
Ammonia Nitrogen	<0.10	0.20	0.13
Un-ionized Ammonia	0.001	0.008	0.003
Total Kjeldahl Nitrogen	0.66	1.19	0.85
Nitrite plus Nitrate Nitrogen	2.06	4.81	3.26
Total Nitrogen	2.80	5.70	4.11
Total Phosphorus	0.26	0.83	0.41
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0045	0.0029
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	1.1	0.7
Dissolved Iron	<0.02	<0.02	<0.02
Total Lead	<0.015	0.024	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.035	0.064	0.046
Dissolved Manganese	0.002	0.010	0.006
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.042	0.020
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	20	120	47[c]
E. coli (cfu/100 mL)	<10	60	23[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIV-6: WATER QUALITY AT STATION 17 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.5[b]	29.3[b]	21.0
Total Suspended Solids	11	70	26
Turbidity (NTU)	32[b]	55[b]	44
Conductivity (µS/cm)	630[b]	959[b]	774
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.8[b]	9.5[b]	8.4
pH (units)	7.3[b]	7.9[b]	7.6
Ammonia Nitrogen	<0.10	0.27	0.15
Un-ionized Ammonia	0.001	0.009	0.003
Total Kjeldahl Nitrogen	0.59	2.29	1.10
Nitrite plus Nitrate Nitrogen	1.93	5.50	3.33
Total Nitrogen	2.87	7.79	4.43
Total Phosphorus	<0.25	0.80	0.42
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0058	0.0031
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	1.6	0.8
Dissolved Iron	<0.02	0.11	0.03
Total Lead	<0.015	0.021	0.017
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.034	0.096	0.051
Dissolved Manganese	0.002	0.017	0.006
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.040	0.019
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	20	170	61[c]
E. coli (cfu/100 mL)	<10	60	26[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIV-7: WATER QUALITY AT STATION 18 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.5[b]	29.4[b]	21.0
Total Suspended Solids	<10	78	27
Turbidity (NTU)	15[b]	52[b]	41
Conductivity (µS/cm)	669[b]	963[b]	779
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.3[b]	9.8[b]	8.8
pH (units)	7.3[b]	7.9[b]	7.6
Ammonia Nitrogen	<0.10	0.16	0.12
Un-ionized Ammonia	<0.001	0.007	0.002
Total Kjeldahl Nitrogen	0.40	1.21	0.85
Nitrite plus Nitrate Nitrogen	2.28	5.63	3.39
Total Nitrogen	2.73	6.78	4.24
Total Phosphorus	<0.25	0.78	0.44
Chlorophyll *a* (µg/L)	5	32	16
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0065	0.0033
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	2.1	0.8
Dissolved Iron	<0.02	<0.02	<0.02
Total Lead	<0.015	0.025	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.033	0.115	0.054
Dissolved Manganese	0.002	0.007	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.045	0.024
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	170	52[c]
E. coli (cfu/100 mL)	<10	30	18[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIV-8: WATER QUALITY AT STATION 19 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.4[b]	29.3[b]	20.8
Total Suspended Solids	10	38	20
Turbidity (NTU)	23[b]	57[b]	43
Conductivity (µS/cm)	682[b]	939[b]	770
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.3[b]	10.0[b]	8.7
pH (units)	7.3[b]	7.9[b]	7.6
Ammonia Nitrogen	<0.10	0.33	0.15
Un-ionized Ammonia	0.001	0.008	0.003
Total Kjeldahl Nitrogen	0.61	1.20	0.90
Nitrite plus Nitrate Nitrogen	2.28	5.71	3.30
Total Nitrogen	3.07	6.73	4.19
Total Phosphorus	0.26	0.72	0.42
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0030	0.0027
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	1.1	0.6
Dissolved Iron	<0.02	<0.02	<0.02
Total Lead	<0.015	0.051	0.022
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.030	0.058	0.043
Dissolved Manganese	<0.001	0.005	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.021	0.016
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	20	220	45[c]
E. coli (cfu/100 mL)	<10	40	23[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIV-9: WATER QUALITY AT STATION 20 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.5[b]	29.3[b]	20.8
Total Suspended Solids	10	64	30
Turbidity (NTU)	20[b]	60[b]	41
Conductivity (µS/cm)	688[b]	937[b]	771
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.2[b]	10.3[b]	8.8
pH (units)	7.3[b]	8.0[b]	7.6
Ammonia Nitrogen	<0.10	0.28	0.15
Un-ionized Ammonia	0.001	0.014	0.004
Total Kjeldahl Nitrogen	0.60	1.21	0.87
Nitrite plus Nitrate Nitrogen	2.24	5.84	3.33
Total Nitrogen	3.08	6.84	4.20
Total Phosphorus	<0.25	0.84	0.46
Chlorophyll *a* (µg/L)	6	36	18
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0041	0.0028
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	1.3	0.7
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.023	0.017
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.031	0.073	0.047
Dissolved Manganese	<0.001	0.005	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.025	0.017
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	20	300	86[c]
E. coli (cfu/100 mL)	<10	150	36[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AIV-10: WATER QUALITY AT STATION 21 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.8[b]	29.1[b]	20.6
Total Suspended Solids	17	79	40
Turbidity (NTU)	21[b]	93[b]	50
Conductivity (µS/cm)	663[b]	907[b]	770
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	8.0[b]	10.2[b]	8.9
pH (units)	7.3[b]	8.2[b]	7.7
Ammonia Nitrogen	<0.10	0.25	0.13
Un-ionized Ammonia	<0.001	0.010	0.004
Total Kjeldahl Nitrogen	0.74	1.09	0.87
Nitrite plus Nitrate Nitrogen	1.92	5.79	3.28
Total Nitrogen	2.70	6.88	4.14
Total Phosphorus	0.30	0.74	0.43
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0045	0.0033
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.5	2.5	1.1
Dissolved Iron	<0.02	0.02	<0.02
Total Lead	<0.015	0.024	0.019
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.040	0.092	0.058
Dissolved Manganese	0.003	0.011	0.006
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.028	0.018
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	230	50[c]
E. coli (cfu/100 mL)	<10	200	52[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

APPENDIX AV

WATER QUALITY AT STATIONS 22–27 IN THE STARVED ROCK POOL DURING MAY, AUGUST, AND OCTOBER 2008

TABLE AV-1: WATER QUALITY AT STATION 22 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.5[b]	29.6[b]	20.9
Total Suspended Solids	13	76	33
Turbidity (NTU)	20[b]	65[b]	48
Conductivity (µS/cm)	673[b]	929[b]	768
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.7[b]	10.4[b]	9.0
pH (units)	7.4[b]	8.0[b]	7.6
Ammonia Nitrogen	<0.10	0.17	0.12
Un-ionized Ammonia	<0.001	0.009	0.002
Total Kjeldahl Nitrogen	0.64	1.25	0.90
Nitrite plus Nitrate Nitrogen	2.16	5.89	3.32
Total Nitrogen	2.84	7.14	4.22
Total Phosphorus	0.29	0.84	0.44
Chlorophyll *a* (µg/L)	7	44	20
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0053	0.0031
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.5	1.9	0.9
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.021	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.035	0.100	0.055
Dissolved Manganese	0.002	0.005	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.034	0.019
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	30	300	81[c]
E. coli (cfu/100 mL)	<10	100	37[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AV-2: WATER QUALITY AT STATION 23 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.5[b]	29.6[b]	20.7
Total Suspended Solids	15	54	29
Turbidity (NTU)	17[b]	63[b]	46
Conductivity (µS/cm)	669[b]	898[b]	761
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.7[b]	10.6[b]	8.9
pH (units)	7.3[b]	8.1[b]	7.6
Ammonia Nitrogen	<0.10	0.17	0.11
Un-ionized Ammonia	<0.001	0.007	0.002
Total Kjeldahl Nitrogen	0.64	1.07	0.83
Nitrite plus Nitrate Nitrogen	2.07	5.93	3.23
Total Nitrogen	2.72	7.00	4.06
Total Phosphorus	0.25	0.77	0.41
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0043	0.0030
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	1.4	0.8
Dissolved Iron	<0.02	0.02	<0.02
Total Lead	<0.015	0.022	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.036	0.076	0.049
Dissolved Manganese	0.002	0.005	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.025	0.017
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	20	260	58[c]
E. coli (cfu/100 mL)	<10	80	34[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AV-3: WATER QUALITY AT STATION 24 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	14.9[b]	29.1[b]	20.3
Total Suspended Solids	12	43	25
Turbidity (NTU)	18[b]	60[b]	40
Conductivity (µS/cm)	693[b]	891[b]	780
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.7[b]	10.7[b]	9.0
pH (units)	7.5[b]	8.2[b]	7.8
Ammonia Nitrogen	<0.10	0.21	0.13
Un-ionized Ammonia	<0.001	0.024	0.007
Total Kjeldahl Nitrogen	0.66	1.09	0.87
Nitrite plus Nitrate Nitrogen	1.93	5.75	3.07
Total Nitrogen	2.76	6.84	3.94
Total Phosphorus	0.25	0.65	0.38
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0026	0.0025
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	0.03	0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.3	1.4	0.6
Dissolved Iron	<0.02	0.02	<0.02
Total Lead	<0.015	0.022	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.032	0.063	0.043
Dissolved Manganese	0.002	0.005	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.030	0.018
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	20	300	84[c]
E. coli (cfu/100 mL)	<10	220	54[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AV-4: WATER QUALITY AT STATION 25 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.4[b]	29.1[b]	20.4
Total Suspended Solids	11	69	32
Turbidity (NTU)	14[b]	63[b]	43
Conductivity (µS/cm)	685[b]	888[b]	772
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.8[b]	10.7[b]	8.9
pH (units)	7.4[b]	8.2[b]	7.8
Ammonia Nitrogen	<0.10	0.15	0.12
Un-ionized Ammonia	<0.001	0.014	0.005
Total Kjeldahl Nitrogen	0.56	1.63	1.00
Nitrite plus Nitrate Nitrogen	1.90	5.83	3.04
Total Nitrogen	2.73	7.46	4.04
Total Phosphorus	<0.25	0.70	0.41
Chlorophyll *a* (µg/L)	14	47	27
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0049	0.0029
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.3	1.5	0.8
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.022	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.028	0.081	0.049
Dissolved Manganese	0.002	0.003	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.023	0.017
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	20	250	67[c]
E. coli (cfu/100 mL)	<10	130	45[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AV-5: WATER QUALITY AT STATION 26 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.5[b]	29.3[b]	20.4
Total Suspended Solids	10	41	24
Turbidity (NTU)	21[b]	64[b]	41
Conductivity (µS/cm)	689[b]	898[b]	774
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	8.2[b]	10.9[b]	9.2
pH (units)	7.4[b]	8.4[b]	7.8
Ammonia Nitrogen	<0.10	0.14	0.11
Un-ionized Ammonia	<0.001	0.006	0.003
Total Kjeldahl Nitrogen	0.66	1.95	1.08
Nitrite plus Nitrate Nitrogen	1.76	5.87	3.10
Total Nitrogen	2.82	7.82	4.18
Total Phosphorus	<0.25	0.69	0.38
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	0.01	0.05	0.02
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0046	0.0030
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.3	1.4	0.7
Dissolved Iron	<0.02	0.20	0.05
Total Lead	<0.015	0.042	0.022
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.027	0.065	0.044
Dissolved Manganese	0.002	0.005	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.047	0.021
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	10	800	98[c]
E. coli (cfu/100 mL)	<10	230	28[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AV-6: WATER QUALITY AT STATION 27 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.2[b]	28.4[b]	20.6
Total Suspended Solids	12	63	30
Turbidity (NTU)	21[b]	58[b]	44
Conductivity (µS/cm)	671[b]	899[b]	774
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.3[b]	10.0[b]	8.8
pH (units)	7.5[b]	8.4[b]	7.8
Ammonia Nitrogen	<0.10	0.21	0.12
Un-ionized Ammonia	0.001	0.012	0.005
Total Kjeldahl Nitrogen	0.68	1.40	0.96
Nitrite plus Nitrate Nitrogen	1.65	5.87	3.02
Total Nitrogen	2.69	6.91	3.97
Total Phosphorus	<0.25	0.70	0.36
Chlorophyll *a* (µg/L)	12	64	38
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0041	0.0030
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.3	1.7	0.8
Dissolved Iron	<0.02	0.12	0.04
Total Lead	<0.015	0.025	0.019
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.033	0.091	0.054
Dissolved Manganese	0.002	0.007	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.033	0.018
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	470	88[c]
E. coli (cfu/100 mL)	<10	100	45[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

APPENDIX AVI

WATER QUALITY AT STATIONS 28–41 IN THE UPPER PEORIA POOL DURING MAY, AUGUST, AND OCTOBER 2008

TABLE AVI-1: WATER QUALITY AT STATION 28 IN THE ILLINOIS RIVER DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.3[b]	28.4[b]	20.6
Total Suspended Solids	19	55	34
Turbidity (NTU)	38[b]	72[b]	51
Conductivity (µS/cm)	664[b]	900[b]	771
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.0[b]	11.6[b]	9.2
pH (units)	7.5[b]	8.6[b]	7.8
Ammonia Nitrogen	<0.10	0.22	0.13
Un-ionized Ammonia	0.001	0.015	0.006
Total Kjeldahl Nitrogen	0.67	1.33	0.92
Nitrite plus Nitrate Nitrogen	1.67	5.80	3.05
Total Nitrogen	2.65	6.85	3.97
Total Phosphorus	<0.25	0.70	0.38
Chlorophyll *a* (µg/L)	14	57	35
Total Cyanides	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0036	0.0029
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.5	1.9	1.0
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.023	0.019
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.041	0.078	0.056
Dissolved Manganese	0.002	0.007	0.005
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.024	0.018
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	390	61[c]
E. coli (cfu/100 mL)	<10	120	49[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-2: WATER QUALITY AT STATION 29 IN THE ILLINOIS RIVER DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.3[b]	28.5[b]	20.5
Total Suspended Solids	14	57	33
Turbidity (NTU)	20[b]	72[b]	46
Conductivity (µS/cm)	674[b]	893[b]	771
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.9[b]	11.5[b]	9.2
pH (units)	7.4[b]	8.5[b]	7.8
Ammonia Nitrogen	<0.10	0.22	0.13
Un-ionized Ammonia	0.001	0.016	0.005
Total Kjeldahl Nitrogen	0.69	1.39	0.98
Nitrite plus Nitrate Nitrogen	1.73	5.87	3.05
Total Nitrogen	2.76	7.26	4.03
Total Phosphorus	<0.25	0.68	0.40
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0040	0.0032
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	1.9	1.0
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.024	0.019
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.040	0.075	0.055
Dissolved Manganese	<0.001	0.005	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.027	0.018
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	10	400	77[c]
E. coli (cfu/100 mL)	<10	80	38[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-3: WATER QUALITY AT STATION 30 IN THE ILLINOIS RIVER
DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.0[b]	28.6[b]	20.4
Total Suspended Solids	16	80	37
Turbidity (NTU)	17[b]	90[b]	49
Conductivity (µS/cm)	679[b]	887[b]	765
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.9[b]	11.1[b]	9.1
pH (units)	7.4[b]	8.5[b]	7.8
Ammonia Nitrogen	<0.10	0.21	0.13
Un-ionized Ammonia	0.001	0.015	0.005
Total Kjeldahl Nitrogen	0.65	1.27	0.92
Nitrite plus Nitrate Nitrogen	1.78	6.52	3.20
Total Nitrogen	2.86	7.65	4.12
Total Phosphorus	<0.25	0.67	0.38
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0046	0.0031
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.3	2.5	1.0
Dissolved Iron	<0.02	0.10	0.03
Total Lead	<0.015	0.025	0.019
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.038	0.089	0.057
Dissolved Manganese	0.002	0.006	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	0.002	0.011	0.003
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.025	0.020
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	330	45[c]
E. coli (cfu/100 mL)	<10	110	32[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-4: WATER QUALITY AT STATION 31 IN THE ILLINOIS RIVER
DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.1[b]	28.6[b]	20.4
Total Suspended Solids	16	69	34
Turbidity (NTU)	27[b]	96[b]	50
Conductivity (µS/cm)	687[b]	890[b]	769
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.9[b]	10.2[b]	8.9
pH (units)	7.4[b]	8.4[b]	7.8
Ammonia Nitrogen	<0.10	0.23	0.14
Un-ionized Ammonia	<0.001	0.017	0.005
Total Kjeldahl Nitrogen	0.63	1.63	1.00
Nitrite plus Nitrate Nitrogen	1.82	6.72	3.25
Total Nitrogen	2.97	8.35	4.24
Total Phosphorus	<0.25	0.65	0.38
Chlorophyll *a* (µg/L)	14	55	33
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0042	0.0029
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.5	2.3	1.0
Dissolved Iron	<0.02	0.02	<0.02
Total Lead	<0.015	0.026	0.019
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.039	0.078	0.055
Dissolved Manganese	0.002	0.006	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.023	0.019
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	20	360	98[c]
E. coli (cfu/100 mL)	<10	120	29[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-5: WATER QUALITY AT STATION 32 IN THE ILLINOIS RIVER
DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.1[b]	28.8[b]	20.5
Total Suspended Solids	20	86	42
Turbidity (NTU)	27[b]	95[b]	50
Conductivity (µS/cm)	684[b]	888[b]	768
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.0[b]	10.2[b]	9.0
pH (units)	7.4[b]	8.4[b]	7.8
Ammonia Nitrogen	<0.10	0.24	0.15
Un-ionized Ammonia	<0.001	0.017	0.005
Total Kjeldahl Nitrogen	0.79	1.37	1.02
Nitrite plus Nitrate Nitrogen	1.84	6.70	3.26
Total Nitrogen	2.95	7.88	4.28
Total Phosphorus	<0.25	0.71	0.36
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0039	0.0032
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.6	2.1	1.1
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.023	0.018
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.043	0.087	0.061
Dissolved Manganese	0.002	0.009	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.034	0.023
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	20	450	97[c]
E. coli (cfu/100 mL)	<10	90	42[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-6: WATER QUALITY AT STATION 33 IN THE ILLINOIS RIVER
DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.2[b]	28.8[b]	20.5
Total Suspended Solids	15	74	36
Turbidity (NTU)	18[b]	99[b]	57
Conductivity (µS/cm)	681[b]	896[b]	770
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.1[b]	10.5[b]	9.1
pH (units)	7.4[b]	8.5[b]	7.8
Ammonia Nitrogen	<0.10	0.20	0.15
Un-ionized Ammonia	0.001	0.018	0.006
Total Kjeldahl Nitrogen	0.69	1.24	0.97
Nitrite plus Nitrate Nitrogen	1.82	6.65	3.25
Total Nitrogen	3.01	7.81	4.22
Total Phosphorus	<0.25	0.66	0.37
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0038	0.0028
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.5	2.2	1.0
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.025	0.019
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.039	0.077	0.057
Dissolved Manganese	0.002	0.009	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.024	0.021
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	10	180	61[c]
E. coli (cfu/100 mL)	<10	120	36[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-7: WATER QUALITY AT STATION 34 IN THE ILLINOIS RIVER DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.2[b]	28.8[b]	20.5
Total Suspended Solids	14	93	40
Turbidity (NTU)	21[b]	77[b]	49
Conductivity (µS/cm)	677[b]	903[b]	770
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	7.0[b]	10.6[b]	9.1
pH (units)	7.4[b]	8.4[b]	7.8
Ammonia Nitrogen	<0.10	0.18	0.13
Un-ionized Ammonia	0.001	0.016	0.005
Total Kjeldahl Nitrogen	0.67	1.30	0.96
Nitrite plus Nitrate Nitrogen	1.82	6.63	3.26
Total Nitrogen	2.96	7.69	4.22
Total Phosphorus	<0.25	0.69	0.38
Chlorophyll *a* (µg/L)	18	64	36
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0050	0.0034
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.5	2.8	1.3
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.027	0.020
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.045	0.096	0.068
Dissolved Manganese	0.002	0.006	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.016	0.027	0.023
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	<10	580	92[c]
E. coli (cfu/100 mL)	<10	240	58[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-8: WATER QUALITY AT STATION 35 IN THE ILLINOIS RIVER
DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.2[b]	28.9[b]	20.5
Total Suspended Solids	17	114	58
Turbidity (NTU)	30[b]	83[b]	53
Conductivity (µS/cm)	675[b]	915[b]	773
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.9[b]	10.3[b]	8.8
pH (units)	7.4[b]	8.3[b]	7.8
Ammonia Nitrogen	<0.10	0.19	0.13
Un-ionized Ammonia	0.001	0.021	0.006
Total Kjeldahl Nitrogen	0.68	1.43	1.01
Nitrite plus Nitrate Nitrogen	1.82	6.72	3.30
Total Nitrogen	3.02	7.84	4.31
Total Phosphorus	<0.25	0.73	0.40
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0042	0.0031
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.6	2.5	1.3
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.026	0.019
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.049	0.099	0.070
Dissolved Manganese	0.002	0.017	0.005
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.031	0.022
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	10	530	77[c]
E. coli (cfu/100 mL)	<10	70	33[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-9: WATER QUALITY AT STATION 36 IN THE ILLINOIS RIVER DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.2[b]	28.7[b]	20.5
Total Suspended Solids	18	78	39
Turbidity (NTU)	37[b]	80[b]	52
Conductivity (µS/cm)	676[b]	925[b]	776
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.9[b]	10.2[b]	8.6
pH (units)	7.4[b]	8.2[b]	7.8
Ammonia Nitrogen	<0.10	0.18	0.13
Un-ionized Ammonia	0.001	0.020	0.006
Total Kjeldahl Nitrogen	0.73	1.43	1.07
Nitrite plus Nitrate Nitrogen	1.86	6.72	3.30
Total Nitrogen	3.09	8.04	4.38
Total Phosphorus	<0.25	0.67	0.39
Chlorophyll *a* (µg/L)	15	68	32
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0058	0.0035
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.4	2.4	1.2
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.022	0.018
Dissolved Lead	<0.02	0.03	0.02
Total Manganese	0.045	0.091	0.067
Dissolved Manganese	0.002	0.010	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.028	0.022
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	200	27[c]
E. coli (cfu/100 mL)	<10	70	24[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-10: WATER QUALITY AT STATION 37 IN THE ILLINOIS RIVER DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.1[b]	28.5[b]	20.5
Total Suspended Solids	26	109	51
Turbidity (NTU)	37[b]	91[b]	55
Conductivity (µS/cm)	674[b]	929[b]	777
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	6.0[b]	10.5[b]	8.4
pH (units)	7.4[b]	8.1[b]	7.7
Ammonia Nitrogen	<0.10	0.38	0.16
Un-ionized Ammonia	0.001	0.033	0.007
Total Kjeldahl Nitrogen	0.72	1.63	1.15
Nitrite plus Nitrate Nitrogen	1.96	6.73	3.29
Total Nitrogen	3.11	8.07	4.44
Total Phosphorus	0.26	0.68	0.42
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0041	0.0029
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.7	2.4	1.2
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.025	0.019
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.057	0.087	0.069
Dissolved Manganese	<0.001	0.013	0.005
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.026	0.020
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	10	700	36[c]
E. coli (cfu/100 mL)	<10	30	14[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-11: WATER QUALITY AT STATION 38 IN THE ILLINOIS RIVER DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	14.9[b]	28.5[b]	20.4
Total Suspended Solids	26	90	43
Turbidity (NTU)	42[b]	90[b]	60
Conductivity (µS/cm)	672[b]	869[b]	766
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.8[b]	10.7[b]	8.3
pH (units)	7.4[b]	8.1[b]	7.7
Ammonia Nitrogen	<0.10	0.22	0.13
Un-ionized Ammonia	0.001	0.019	0.005
Total Kjeldahl Nitrogen	0.73	1.37	0.95
Nitrite plus Nitrate Nitrogen	1.97	6.50	3.17
Total Nitrogen	3.10	7.36	4.13
Total Phosphorus	<0.25	0.55	0.36
Chlorophyll *a* (µg/L)	15	64	37
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0050	0.0031
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.6	3.2	1.3
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.023	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.053	0.109	0.075
Dissolved Manganese	0.002	0.012	0.006
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.032	0.021
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	400	32[c]
E. coli (cfu/100 mL)	<10	40	20[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-12: WATER QUALITY AT STATION 39 IN THE ILLINOIS RIVER DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	14.7[b]	28.7[b]	20.4
Total Suspended Solids	29	115	53
Turbidity (NTU)	48[b]	84[b]	61
Conductivity (µS/cm)	677[b]	911[b]	774
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.5[b]	10.6[b]	8.0
pH (units)	7.3[b]	8.2[b]	7.7
Ammonia Nitrogen	<0.10	0.25	0.14
Un-ionized Ammonia	0.001	0.027	0.007
Total Kjeldahl Nitrogen	0.68	1.45	1.03
Nitrite plus Nitrate Nitrogen	2.00	6.23	3.09
Total Nitrogen	3.15	7.38	4.13
Total Phosphorus	<0.25	0.59	0.39
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0060	0.0034
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.9	3.5	1.6
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.024	0.019
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.065	0.121	0.084
Dissolved Manganese	0.003	0.009	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.104	0.036
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	<10	700	26[c]
E. coli (cfu/100 mL)	<10	40	20[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-13: WATER QUALITY AT STATION 40 IN THE ILLINOIS RIVER DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	14.9[b]	28.6[b]	20.5
Total Suspended Solids	27	55	41
Turbidity (NTU)	38[b]	82[b]	58
Conductivity (µS/cm)	675[b]	905[b]	773
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.1[b]	10.6[b]	7.9
pH (units)	7.3[b]	8.1[b]	7.7
Ammonia Nitrogen	<0.10	0.30	0.16
Un-ionized Ammonia	0.001	0.027	0.007
Total Kjeldahl Nitrogen	0.71	1.32	0.97
Nitrite plus Nitrate Nitrogen	1.96	5.81	2.99
Total Nitrogen	3.00	6.70	3.96
Total Phosphorus	<0.25	0.46	0.35
Chlorophyll *a* (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0039	0.0030
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.9	1.7	1.2
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.027	0.019
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.059	0.089	0.072
Dissolved Manganese	0.002	0.008	0.005
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.029	0.020
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	300	21[c]
E. coli (cfu/100 mL)	<10	20	16[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVI-14: WATER QUALITY AT STATION 41 IN THE ILLINOIS RIVER DURING DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.1[b]	28.7[b]	20.5
Total Suspended Solids	24	71	44
Turbidity (NTU)	46[b]	85[b]	62
Conductivity (µS/cm)	675[b]	898[b]	770
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.2[b]	10.8[b]	7.8
pH (units)	7.3[b]	8.1[b]	7.7
Ammonia Nitrogen	<0.10	0.28	0.16
Un-ionized Ammonia	0.001	0.025	0.007
Total Kjeldahl Nitrogen	0.75	1.35	1.08
Nitrite plus Nitrate Nitrogen	1.88	5.99	2.97
Total Nitrogen	3.15	7.34	4.05
Total Phosphorus	<0.25	0.48	0.30
Chlorophyll *a* (µg/L)	16	53	30
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0052	0.0036
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.7	2.9	1.6
Dissolved Iron	<0.02	<0.02	<0.02
Total Lead	<0.015	0.025	0.019
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.058	0.102	0.084
Dissolved Manganese	0.002	0.009	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.030	0.022
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	430	29[c]
E. coli (cfu/100 mL)	<10	50	17[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

APPENDIX AVII

WATER QUALITY AT STATIONS 42–49 IN THE LOWER PEORIA POOL DURING MAY, AUGUST, AND OCTOBER 2008

TABLE AVII-1: WATER QUALITY AT STATION 42 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.5[b]	28.8[b]	20.5
Total Suspended Solids	34	174	71
Turbidity (NTU)	54[b]	115[b]	72
Conductivity (µS/cm)	675[b]	898[b]	772
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.1[b]	10.8[b]	7.7
pH (units)	7.4[b]	8.1[b]	7.7
Ammonia Nitrogen	<0.10	0.30	0.16
Un-ionized Ammonia	0.001	0.027	0.007
Total Kjeldahl Nitrogen	0.69	1.73	1.11
Nitrite plus Nitrate Nitrogen	1.77	5.65	2.89
Total Nitrogen	2.98	7.38	3.99
Total Phosphorus	<0.25	0.58	0.41
Chlorophyll a (µg/L)	14	64	32
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	<0.0025	0.0079	0.0042
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	0.9	4.7	2.0
Dissolved Iron	<0.02	0.02	<0.02
Total Lead	<0.015	0.023	0.018
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.066	0.163	0.097
Dissolved Manganese	0.002	0.004	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.048	0.025
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	10	300	33[c]
E. coli (cfu/100 mL)	<10	50	22[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVII-2: WATER QUALITY AT STATION 43 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.2[b]	28.3[b]	20.4
Total Suspended Solids	34	341	137
Turbidity (NTU)	62[b]	119[b]	76
Conductivity (µS/cm)	683[b]	886[b]	780
Five-Day Biochemical Oxygen Demand	<10	10	<10
Dissolved Oxygen	4.5[b]	9.7[b]	7.5
pH (units)	7.3[b]	8.0[b]	7.7
Ammonia Nitrogen	<0.10	0.34	0.19
Un-ionized Ammonia	<0.001	0.019	0.007
Total Kjeldahl Nitrogen	0.79	1.82	1.13
Nitrite plus Nitrate Nitrogen	1.94	4.18	2.64
Total Nitrogen	2.92	5.08	3.76
Total Phosphorus	<0.25	0.83	0.45
Chlorophyll a (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	0.0028	0.0063	0.0045
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	1.1	4.0	2.2
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.027	0.019
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.068	0.137	0.103
Dissolved Manganese	0.004	0.010	0.005
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.035	0.027
Dissolved Zinc	<0.01	0.02	0.01
Fecal Coliform (cfu/100 mL)	<10	540	41[c]
E. coli (cfu/100 mL)	<10	20	13[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVII-3: WATER QUALITY AT STATION 44 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.5[b]	27.1[b]	19.8
Total Suspended Solids	35	192	81
Turbidity (NTU)	61[b]	113[b]	82
Conductivity (µS/cm)	697[b]	904[b]	790
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	4.9[b]	9.0[b]	7.3
pH (units)	7.3[b]	8.0[b]	7.7
Ammonia Nitrogen	<0.10	0.30	0.17
Un-ionized Ammonia	<0.001	0.020	0.006
Total Kjeldahl Nitrogen	0.82	1.63	1.24
Nitrite plus Nitrate Nitrogen	1.79	3.47	2.49
Total Nitrogen	2.90	5.10	3.73
Total Phosphorus	0.33	0.55	0.45
Chlorophyll a (µg/L)	14	51	34
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	0.0030	0.0060	0.0043
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	1.3	3.2	2.1
Dissolved Iron	<0.02	0.02	<0.02
Total Lead	<0.015	0.025	0.019
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.069	0.126	0.102
Dissolved Manganese	0.003	0.010	0.007
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.017	0.036	0.024
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	200	25[c]
E. coli (cfu/100 mL)	<10	30	14[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVII-4: WATER QUALITY AT STATION 45 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	15.7[b]	27.6[b]	20.2
Total Suspended Solids	40	86	64
Turbidity (NTU)	66[b]	93[b]	81
Conductivity (µS/cm)	690[b]	913[b]	792
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.4[b]	9.5[b]	7.6
pH (units)	7.3[b]	8.1[b]	7.8
Ammonia Nitrogen	<0.10	0.29	0.15
Un-ionized Ammonia	0.001	0.018	0.006
Total Kjeldahl Nitrogen	0.83	1.38	1.04
Nitrite plus Nitrate Nitrogen	1.69	2.97	2.37
Total Nitrogen	2.83	3.94	3.41
Total Phosphorus	0.26	0.64	0.42
Chlorophyll a (µg/L)	12	58	37
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	0.0029	0.0050	0.0041
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	1.3	2.8	2.0
Dissolved Iron	<0.02	0.04	0.02
Total Lead	<0.015	0.024	0.019
Dissolved Lead	<0.02	<0.02	<0.02
Total Manganese	0.069	0.125	0.105
Dissolved Manganese	0.003	0.006	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.034	0.023
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	20	13[c]
E. coli (cfu/100 mL)	<10	30	14[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVII-5: WATER QUALITY AT STATION 46 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	16.0[b]	27.8[b]	20.2
Total Suspended Solids	37	91	62
Turbidity (NTU)	66[b]	93[b]	80
Conductivity (µS/cm)	673[b]	914[b]	785
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.6[b]	9.7[b]	7.6
pH (units)	7.3[b]	8.1[b]	7.8
Ammonia Nitrogen	<0.10	0.26	0.14
Un-ionized Ammonia	<0.001	0.015	0.006
Total Kjeldahl Nitrogen	0.72	1.50	1.04
Nitrite plus Nitrate Nitrogen	1.60	2.79	2.23
Total Nitrogen	2.63	3.96	3.27
Total Phosphorus	0.27	0.67	0.42
Chlorophyll a (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	0.0026	0.0054	0.0039
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	1.3	3.0	1.9
Dissolved Iron	<0.02	<0.02	<0.02
Total Lead	<0.015	0.022	0.018
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.070	0.144	0.106
Dissolved Manganese	0.004	0.009	0.007
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.035	0.022
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	50	15[c]
E. coli (cfu/100 mL)	<10	30	14[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVII-6: WATER QUALITY AT STATION 47 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	16.3[b]	27.7[b]	20.3
Total Suspended Solids	47	112	69
Turbidity (NTU)	68[b]	102[b]	84
Conductivity (µS/cm)	690[b]	912[b]	792
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.7[b]	9.8[b]	7.7
pH (units)	7.3[b]	8.1[b]	7.8
Ammonia Nitrogen	<0.10	0.19	0.14
Un-ionized Ammonia	<0.001	0.016	0.006
Total Kjeldahl Nitrogen	0.74	1.46	1.10
Nitrite plus Nitrate Nitrogen	1.56	2.91	2.31
Total Nitrogen	2.70	4.37	3.41
Total Phosphorus	0.26	0.67	0.44
Chlorophyll a (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	0.0033	0.0054	0.0042
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	1.4	3.1	2.1
Dissolved Iron	<0.02	0.03	0.02
Total Lead	<0.015	0.024	0.019
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.071	0.148	0.109
Dissolved Manganese	0.003	0.009	0.004
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.016	0.032	0.023
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	<10	50	29[c]
E. coli (cfu/100 mL)	<10	70	24[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVII-7: WATER QUALITY AT STATION 48 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	16.6[b]	27.7[b]	20.4
Total Suspended Solids	40	93	65
Turbidity (NTU)	68[b]	100[b]	85
Conductivity (µS/cm)	675[b]	908[b]	788
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.8[b]	9.7[b]	7.7
pH (units)	7.3[b]	8.1[b]	7.8
Ammonia Nitrogen	<0.10	0.22	0.14
Un-ionized Ammonia	<0.001	0.016	0.005
Total Kjeldahl Nitrogen	0.71	1.42	1.09
Nitrite plus Nitrate Nitrogen	1.57	2.87	2.27
Total Nitrogen	2.69	4.21	3.36
Total Phosphorus	<0.25	0.67	0.44
Chlorophyll a (µg/L)	14	82	42
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	0.0032	0.0047	0.0042
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	1.4	2.5	2.1
Dissolved Iron	<0.02	<0.02	<0.02
Total Lead	<0.015	0.024	0.019
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.072	0.151	0.109
Dissolved Manganese	0.002	0.004	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	0.015	0.031	0.023
Dissolved Zinc	<0.01	0.01	<0.01
Fecal Coliform (cfu/100 mL)	10	80	36[c]
E. coli (cfu/100 mL)	<10	50	17[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.

TABLE AVII-8: WATER QUALITY AT STATION 49 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2008

Constituents[a]	Minimum	Maximum	Mean
Water Temperature (°C)	16.4[b]	27.9[b]	20.5
Total Suspended Solids	45	95	64
Turbidity (NTU)	65[b]	91[b]	78
Conductivity (µS/cm)	<10	<10	<10
Five-Day Biochemical Oxygen Demand	<10	<10	<10
Dissolved Oxygen	5.9[b]	9.7[b]	7.8
pH (units)	7.3[b]	8.1[b]	7.8
Ammonia Nitrogen	<0.10	0.17	0.12
Un-ionized Ammonia	<0.001	0.014	0.005
Total Kjeldahl Nitrogen	0.67	1.90	1.06
Nitrite plus Nitrate Nitrogen	1.54	2.78	2.27
Total Nitrogen	2.73	3.78	3.33
Total Phosphorus	0.26	0.65	0.43
Chlorophyll a (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.01	<0.01	<0.01
Phenols	<0.01	<0.01	<0.01
Total Arsenic	<0.05	<0.05	<0.05
Dissolved Arsenic	<0.025	<0.025	<0.025
Total Cadmium	<0.01	<0.01	<0.01
Dissolved Cadmium	<0.002	<0.002	<0.002
Total Chromium	0.0032	0.0050	0.0042
Dissolved Chromium	<0.0025	<0.0025	<0.0025
Total Copper	<0.01	<0.01	<0.01
Dissolved Copper	<0.01	<0.01	<0.01
Total Iron	1.4	2.9	2.1
Dissolved Iron	<0.02	<0.02	<0.02
Total Lead	<0.015	0.024	0.019
Dissolved Lead	<0.02	0.02	<0.02
Total Manganese	0.074	0.148	0.110
Dissolved Manganese	0.002	0.004	0.003
Total Mercury (µg/L)	<0.20	<0.25	<0.25
Total Nickel	<0.01	<0.01	<0.01
Dissolved Nickel	<0.002	<0.002	<0.002
Total Silver	<0.003	<0.003	<0.003
Dissolved Silver	<0.003	<0.003	<0.003
Total Zinc	<0.015	0.031	0.024
Dissolved Zinc	<0.01	<0.01	<0.01
Fecal Coliform (cfu/100 mL)	20	100	59[c]
E. coli (cfu/100 mL)	<10	20	13[c]

[a]Expressed in mg/L except where noted.
[b]Field measurement.
[c]Geometric mean.